Intermec

CN3

Mobile Computer
For Windows Mobile 5.0

CN3, CN3e

User's Manual

Intermec Technologies Corporation

Worldwide Headquarters
6001 36th Ave.W.
Everett, WA 98203
U.S.A.

www.intermec.com

Document Change Record

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

Version Number	Date	Description of Change
008	10/2011	Revised to correct the clean boot procedure.
007	4/2009	• Added default configuration information. • Added keypad and keystroke information.
006	1/2008	• Added information on CN3e alphanumeric keypad. • Updated information on CDMA carriers and activation. • Updated Power Profiler information. • Revised the section on keypads to reduce repetition.
005	10/2007	Added information on the larger key CN3e Mobile Computer.
004	7/2007	• Added information on GPSID and the iGPS Settings application. • Added information on the Power Profiler application. • Added undocumented keys to the keypad tables.
003	4/2007	• Added information about GPS. • Added information about using the FTP server. • Created an appendix for specifications and accessories.
002	01/2007	Added information about the InstallSelect application, the clean boot method, the color camera, and the CDMA radios.

CN3 Series Mobile Computer User's Manual for Windows Mobile 5.0

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A Specifications 97

Before You Begin

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

Safety Information

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

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this document.

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.

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.

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

Global Services and Support

Warranty Information

To understand the warranty for your Intermec product, visit the Intermec website at **www.intermec.com** and click **Support** > **Returns and Repairs** > **Warranty**.

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

Web Support

Visit the Intermec website at **www.intermec.com** to download our current manuals (in PDF). To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at **www.intermec.com** and click **Support** > **Knowledge Central** to review technical information or to request technical support for your Intermec product.

Send Feedback

Your feedback is crucial to the continual improvement of our documentation. To provide feedback about this manual, please contact the Intermec Technical Communications department directly at **TechnicalCommunications@intermec.com**.

Telephone Support

In the U.S.A. and Canada, call **1-800-755-5505**.

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec website, click **About Us** > **Contact Us**.

Service Location Support

For the most current listing of service locations, go to **www.intermec.com** and click **Support** >**Returns and Repairs** > **Repair Locations.**

For technical support in South Korea, use the after service locations listed below:

AWOO Systems
102-1304 SK Ventium
522 Dangjung-dong
Gunpo-si, Gyeonggi-do Korea, South 435-776
Contact: Mr. Sinbum Kang
Telephone: +82-31-436-1191
Email: **mjyun@awoo.co.kr**

IN Information System PTD LTD
6th Floor
Daegu Venture Center Bldg 95
Shinchun 3 Dong
Donggu, Daegu City, Korea
Email: **jmyou@idif.co.kr** or **korlim@gw.idif.co.kr**

Who Should Read This Manual

This manual is written for the person who is responsible for installing, configuring, and maintaining the CN3 and CN3e Mobile Computer.

This manual provides you with information about the features of the CN3 and CN3e, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the CN3 or CN3e, you should be familiar with your network and general networking terms, such as IP address.

Related Documents

This list contains a list of related Intermec documents.

- *Intermec Settings Command Reference Manual*

- *TE 2000 Terminal Emulation Programmer's Guide*

- *Intermec Developer Library (IDL) Resource Kit Developer's Guide*

The Intermec website at **www.intermec.com** contains our documents (as PDF files) that you can download for free.

To download documents

1 Visit the Intermec website at **www.intermec.com**.

2 Click **Support** > **Manuals**.

3 Use the **Product Category** field, the **Product Family** field, and the **Product** field to help you locate the product whose documentation you want to download.

Patent Information

Product is covered by one or more of the following patents:

4882476; 4894523; 4953113; 4961043; 4970379; 4988852; 5019699; 5021642; 5038024; 5081343; 5095197; 5144119; 5144121; 5182441; 5187355; 5187356; 5195183; 5216233; 5216550; 5195183; 5195183; 5218191; 5227614; 5233172; 5241488; 5243602; 5258606; 5278487; 5288985; 5308966; 5322991; 5331136; 5331580; 5342210; 5349678; 5359185; 5371858; 5373478; 5389770; 5397885; 5410141; 5414251; 5416463; 5442167; 5464972; 5468947; 5468950; 5477044; 5486689; 5488575; 5500516; 5502297; 5504367; 5508599; 5514858; 5530619; 5534684; 5536924; 5539191; 5541419; 5548108; 5550362; 5550364; 5565669; 5567925; 5568645; 5572007; 5576529; 5592512; 5594230; 5598007; 5608578; 5616909; 5619027; 5627360; 5640001; 5657317; 5659431; 5671436; 5672860; 5684290; 5719678; 5729003; 5742041; 5761219; 5764798; 5777308; 5777309; 5777310; 5786583; 5793604; 5798509; 5798513; 5804805; 5805807; 5811776; 5811777; 5818027; 5821523; 5828052; 5831819; 5834753; 5834749; 5837987; 5841121; 5842070; 5844222; 5854478; 5862267; 5869840; 5873070; 5877486; 5878395; 5883492; 5883493; 5886338; 5889386; 5892971; 5895906; 5898162; 5902987; 5902988; 5912452; 5923022; 5936224; 5949056; 5969321; 5969326; 5969328; 5979768; 5986435; 5987192; 5987499; 5992750; 6003775; 6012640; 6016960; 6018597; 6024289; 6034379; 6036093; 6039252; 6064763; 6075340; 6095422; 6097839; 6102289; 6102295; 6109528; 6119941; 6128414; 6138915; 6149061; 6149063; 6152370; 6155490; 6158661; 6164542; 6164545; 6173893; 6195053; 6234393; 6234395; 6244512; 6249008; 6328214; 6330975; 6345765; 6356949; 6367699; 6375075; 6375076; 6375344; 6431451; 6435411; 6484944; 6488209; 6497368; 6532152; 6538413; 6539422; 6621942; 6641046; 6681994; 6687403; 6688523; 6732930

There may be other U.S. and foreign patents pending.

1
Using the CN3

This chapter introduces the CN3 and CN3e Mobile Computers with Windows® Mobile® 5.0. It also contains hardware and software configuration information to assist you in getting the most out of your computer. This chapter contains these topics:

- **Introducing the CN3 Mobile Computer**
- **Using the Battery**
- **Using the Keypad**
- **Understanding the Audio Features**
- **Using the Screen**
- **Understanding the Status LEDs**
- **Scanning Bar Codes**
- **Using the Color Camera**
- **Using the Storage Card**
- **Setting Up GPS on Your CN3**

Introducing the CN3 Mobile Computer

The Intermec CN3 and CN3e Mobile Computers are ergonomically designed mobile computers built on the Microsoft Windows Mobile® 5.0 operating system. They are lightweight, easy-to-use, and run most software developed for the Windows Mobile platform, including standalone, client-server, and browser-based applications.

The CN3 and CN3e support similar feature sets. The CN3e offers extended environmental specifications and larger keys for data intensive applications. The CN3 Series of mobile computers includes both the CN3 and CN3e computers. Throughout this manual, both versions of the computer are referred to as CN3 or CN3 Series.

CN3e and the CN3 Mobile Computer

The CN3 Series Mobile Computer with an IEEE 802.11b/g radio installed is Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

The CN3 and CN3e are available with the following features:

- 802.11b/g radio standard

Note: The radio also supports the 802.11d standard. The 802.11d standard adds the requirements and definitions for 802.11 WLAN equipment to operate in markets not served by the current standard. For 802.11d support, you need to order the 802.11d version of the CN3. For help, contact your local Intermec representative.

- Bluetooth® radio standard
- 128 MB RAM
- QWERTY or numeric keypads
- Imaging Options:
    - EA11 Standard Area Imager
    - Color Camera
- Wireless Wide Area Network Options:
    - GSM/GPRS/EDGE
    - CDMA/1xRTT/EV-DO

Use this manual to understand how to use the features and options available on the CN3 and CN3e.

Note: Refer to the online help for information about the Windows Mobile 5.0 applications installed on the CN3 and Intermec Knowledge Central at **www.intermec.com** for additional information about using Windows Mobile 5.0 on the CN3.

Finding the Software Build Versions

You can easily check to see what version of the operating system and the SmartSystems Platform Bundle (SSPB) are loaded on your CN3.

To find your operating system version

1 Tap **Start** > **Internet Explorer**.
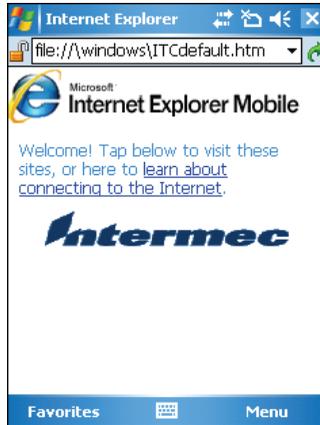
2 Tap the **Intermec** logo. The Intermec page appears and displays the software build information.

Using the Battery

The CN3 uses an AB8, AB9, AB15, or AB16 Lithium-ion (Li-ion) battery as its main power source. The CN3e uses an AB9 or AB16 extended battery for the main power source. Standard batteries have 8.1 Watt hours capacity and extended batteries have 14.8 Watt hours capacity. You must fully charge the battery before you can use the CN3.

If you suspend the CN3 before changing the battery, an internal super capacitor maintains your status, memory, and real-time clock for approximately 5 minutes.

Warning

The battery used in this device may present a fire or chemical burn hazard if it is mistreated. Do not disassemble it, heat it above 100 °C (212 °F) or incinerate it.

Caution

If you fail to replace the low battery immediately, you may lose important data or applications.

Note: If the CN3 is not on external power and you remove the battery pack, it goes into Suspend mode.

Dispose of used batteries promptly. Keep away from children. Contact your Intermec representative for replacement batteries.

Several factors determine the life of your battery such as extreme temperatures, input devices, and your usage.

Charging the Battery

The battery pack should be fully charged before you use the CN3 for the first time. If battery temperatures are within the battery charging range of 0 °C to 40 °C (32 °F to 104 °F), the standard battery pack takes up to four hours to charge; the extended battery pack takes up to five hours.

The battery is fully charged when the battery status LED shows a steady green.

To charge the battery

• Insert the battery into a quad battery charger, a single dock, or attach external power to the CN3 with the battery installed. For information on these accessories, see **"Accessories" on page 101**.

Use the next table to understand how long it will take to charge your batteries in some of the CN3 charging accessories.

Charging Times for CN3 Batteries

Charging Accessory	Model	Charging Time
CN3 Quad Battery Charger	AC14	5 hours or less
CN3 Single Dock	AD10	5 hours or less

Removing and Installing the Battery

To maximize the time allowed to replace the main battery pack, put the CN3 in a suspend mode before removing the battery pack.

To remove and install the battery

1 Press and release the **Power** button to suspend the CN3.

2 Press the battery release tab to the left until the battery releases, and then lift it away from the CN3.

Battery release tab

Removing the Battery in a CN3

Battery release tab
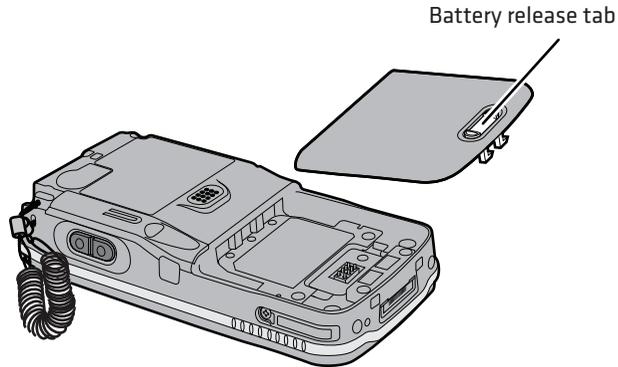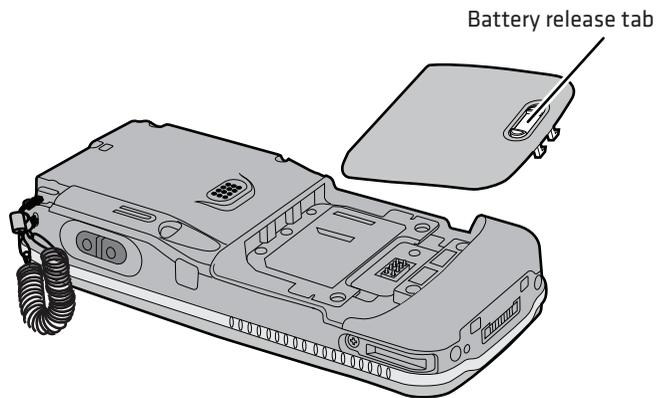
Removing the Battery in a CN3e

3 Align the battery contacts and insert the battery.
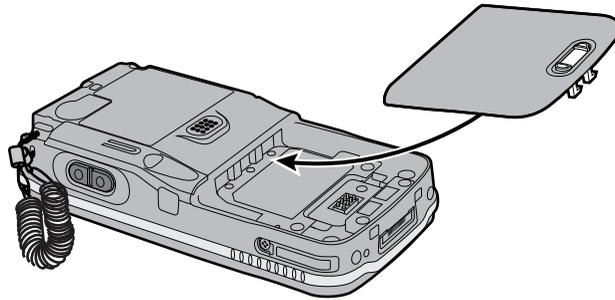
4 Press down on the battery until it clicks into place.

Maximizing Battery Life

Batteries are chemical devices. If the batteries are left sitting on a shelf for long periods of time outside the CN3, the batteries slowly discharge, eventually to zero if left uncharged. The battery chemistry resists normal degradation if you store the battery in a charger as opposed to leaving the battery in a discharged state. See the following table for tips you can do to maximize the life of your battery.

Battery Conservation Tips

When You Want To:	Do This to Save Battery Power:
Operate the CN3 and the Low Battery status icon appears or the Battery light comes on.	Press the power button to turn off the CN3. Remove the battery and insert another fully charged battery within five minutes or you may lose data. Or, you can connect the CN3 to an external power source.
Stop using the CN3 for five minutes or longer.	Make sure the low battery icon is not on the screen and that the Battery light is not turned on. Press the power button to turn off the CN3.
Store the CN3 for more than a day.	If you are storing the CN3 for a few days, like over the weekend, install the charged battery or attach the CN3 to a power source.
	If you are storing the CN3 for longer, remove and charge the battery, then store both the battery and the CN3 in a cool location.
	If the battery in storage is not used in several months, you should recharge the battery to keep it at its performance peak.

Battery Conservation Tips (continued)

When You Want To:	Do This to Save Battery Power:
Store the battery outside the CN3.	Store the batteries in a charger.

Checking the Battery Status

The Battery Status LED above your CN3 display, as shown in the following illustration, indicates the status of your battery. See the following table to understand the meanings of the lights emitted from the LED.

Good Read LED and Intermec Ready-to-Work indicator

Notification LED
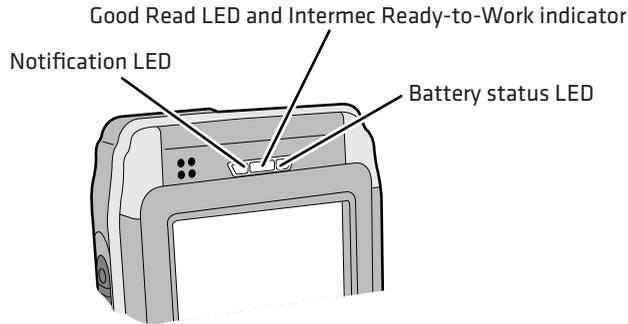
Battery status LED

Understanding the Battery Status LED

Battery Status	Description
Steady green	The battery is more than 95% charged and CN3 is on a charger.
Blinking red	The battery is low. CN3 goes into Suspend mode. Charge or replace the battery.
Steady red and the CN3 is attached to external power.	The battery is charging.
Steady red and the CN3 is **not** attached to external power.	The software is not working properly.
Steady amber	The battery is missing or is unable to charge because the temperature is outside of the charging range.
Off	The CN3 is not on external power and the battery is operating normally.

You can also check the battery status by using the Power application.

To check the battery status

- Tap **Start** > **Settings** > the **Systems** tab > **Power** > the **Battery** tab.
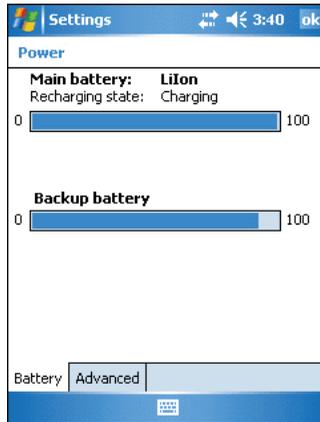
Managing Power on the CN3

By default, the CN3 goes into a lower power mode or turns off after two minutes of inactivity. You can press the **Power** button to resume activity at any time. If you would like to manage power based on the usage of your CN3, Intermec provides an application called Power Profiler with three power management profiles:

- Windows Mobile Classic
- Windows Mobile Standard
- Windows Mobile Phone

Understanding the Power Profiler Settings

Power Profiler Setting	Screen Off Enabled	Device Off Enabled
Windows Mobile Classic		X
Windows Mobile Standard (default)	X	X
Windows Mobile Phone	X	

Use the Windows Mobile Classic profile for systems that batch data and upload it several times a day. This profile does not support constant data connections over WAN, LAN, or Bluetooth. It can only maintain data connections when the CN3 is on and all peripherals are enabled. If the screen is off, you do not have any WAN, LAN, or Bluetooth connections, but the CN3 will still receive incoming phone calls. To wake up the CN3 and restore network connections, you need to press **Power** or **Scan** button.

Use the Windows Mobile Standard profile for applications such as inventory management or terminal emulation applications that power off infrequently. The Windows Mobile Standard profile adds the ability for the system to maintain data connections in a low power state. If the CN3 does not have any activity, the screen will turn off. If there continues to be no activity, the CN3 will eventually turn off the WAN, LAN, or Bluetooth radio connections and enter the Windows Mobile Classic power management profile.

Use the Windows Mobile Phone profile when you have a system that requires network wake-up or you need the CN3 to always be connected to the network. Although the connections are maintained at a low power mode, this setting typically consumes the most power. If the screen turns off, the radios continue to maintain the network connections.

To select a power management profile

1 Tap **Start** > **Settings** > the **System** tab > **Power Profiler**.
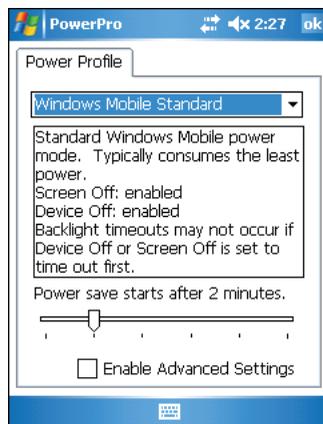
2 From the drop-down list, select **Windows Mobile Classic**, **Windows Mobile Standard**, or **Windows Mobile Phone**.

3 Tap **ok** in the upper right corner to save your changes and close Power Profiler.

Power Profiler also provides advanced settings that allow you to fine-tune the power usage of the CN3. You can choose to have the Power button turn off the screen or turn off the device.

Note: You can also configure all of the settings in Power Profiler using Intermec Settings.

Using the Keypad

The CN3 can have a QWERTY keypad or numeric keypad. The CN3e supports larger numeric keypads with either a 10-key (7-8-9 on top) or phone style (1-2-3 on top) layout.
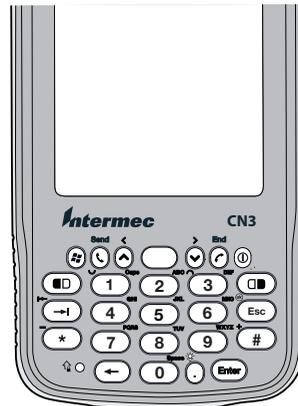
CN3 QWERTY Keypad   *CN3 Numeric Keypad*
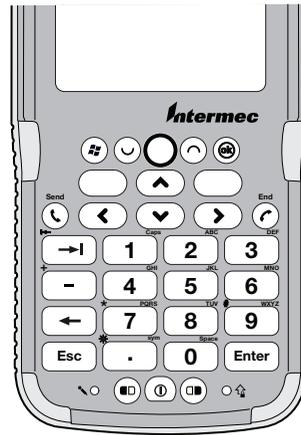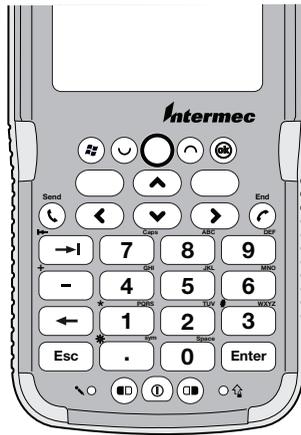
CN3e Numeric 10-Key Keypad   **CN3e Numeric Phone Style Keypad**
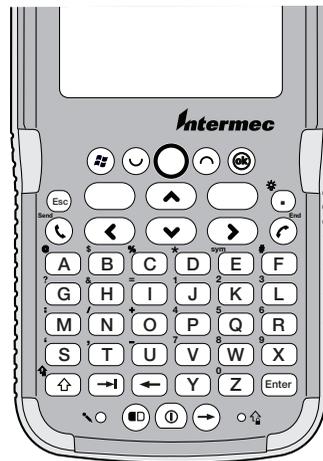
CN3e Alphanumeric Keypad

The full alphabetic QWERTY keypad and the alphanumeric keypad are for applications that require primary input of alphabetic data. This keypad also provides special characters, numbers, symbols, and functions by pressing color-coded key sequences.

The large numeric keypads are for applications that require mainly numeric data. These keypads also lets you enter special characters, including the alphabet, by pressing color-coded key sequences. The CN3e provides larger input keys better suited for blind entry or glove usage.

Using the Color-Coded Keys

Each keypad available for the CN3 provides color-coded keys to let you access additional characters, symbols, and functions printed on the keypad overlay. Once you understand how to use the color-coded keys and key sequences, you can access all of the additional features printed on the keypad overlay. There are two color-coded modifier keys on the numeric keypad: the orange B key and the green C key. The QWERTY and alphanumeric keypads have only the orange B color-coded modifier key.

Using the Color-Coded Keys

You Want To:	Press:	Example
Use an orange character or function printed above a key.	B key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN3 Qwerty keypad, press B and then **Q** to type the @ character.
Use a green character or function printed above a key.	C key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN3 numeric keypad, press C and then **2** to type a lowercase a.
Lock the orange or green key to stay on.	B or C twice.	On the CN3e numeric keypad, press C twice and the green LED illuminates and stays on.
Unlock a green or orange key.	B or C once.	Press the B or C once to unlock the key and turn off the LED.

Capitalizing Characters

To capitalize a single character on QWERTY keypads, press the shift key, and then the character. To type all alphanumeric characters as uppercase letters, you can enable the Caps Lock feature on the CN3 keypad.

To enable Caps Lock

- On the QWERTY keypad, press B, then the **Shift** key. Press the same key sequence to disable the Caps Lock.

- On the CN3 numeric keypad, press C **1**.

- On the CN3e keypads, press C C **1**.

The Caps Lock LED lights up green to show that the CN3 is in the Caps Lock mode.

To exit Caps Lock

- On the CN3 keypads, press the color modifier key again.

- On the CN3e keypads, press **1**.

Entering Characters on the QWERTY Keypad

There are a few hidden characters on the QWERTY keypad that require using the color-coded keys and the **Shift** key to access. Use the following table to understand how to access these hidden characters on the keypad.

QWERTY Keypad Hidden Characters

To Enter	Press
"	**Shift** B **Z**
>	**Shift** B **.**
<	**Shift** B **X**

Entering Characters on the Numeric Keypads

Above most of the number keys, there is a grouping of three or four characters of the alphabet. For example, above the **2** key there are the letters "ABC." To access each letter above the key, you press the key one to four times depending on the placement of the letter.

For example, to type the letter "c" you need to:

- Press C **2 2 2**.

To type a letter on the same key as the last letter entered, wait two seconds, then enter the correct series of keystrokes to create the next letter.

Using the Power Button

When you press the Power (①) button, you put the CN3 into a lower power mode. In this lower power mode, the CN3 continues to supply power to all memory, but turns off power to most hardware such as the display. This power-saving feature is designed to prolong battery life.

Note: If you do not have a SIM card installed, it may take up to 30 seconds for the CN3 to suspend.

Configuring the Backlight Settings

By default, the CN3 goes into Screen Off mode when there is no activity on the computer. Screen Off mode turns off the backlight and display. Press a key or tap the screen to resume activity.

It is possible to override the backlight settings by changing the power management settings. For more information on configuring power management, see the next section, "Managing Power on the CN3."

To configure the backlight

1 Tap **Start** > **Settings** > the **System** tab > the **Backlight** icon > the **Battery Power** tab.

2 With **Turn off backlight if device is not used for** checked, select the timeout value (10 seconds, 30 seconds, or 1 to 5 minutes).
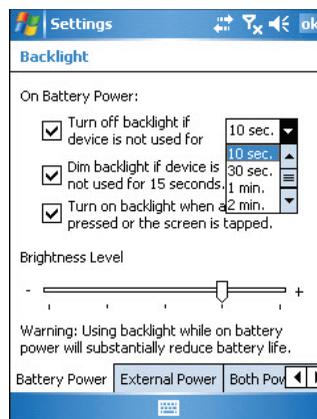
You can also use Intermec Settings to configure the backlight settings. For help, see **"Configuring the CN3 With Intermec Settings" on page 35**.

Understanding the Audio Features

There are several audio features available on the CN3. There are two speakers, a microphone, an external volume control, and multiple software tools for configuring the volume of sounds.

Using the CN3 as a Cell Phone

If your version of the CN3 has a phone, you can use the microphone and a front speaker for talking on the phone. For help configuring your CN3 as a cell phone, see **"Configuring the Phone" on page 48**.

Front speaker

(located on end)

Microphone
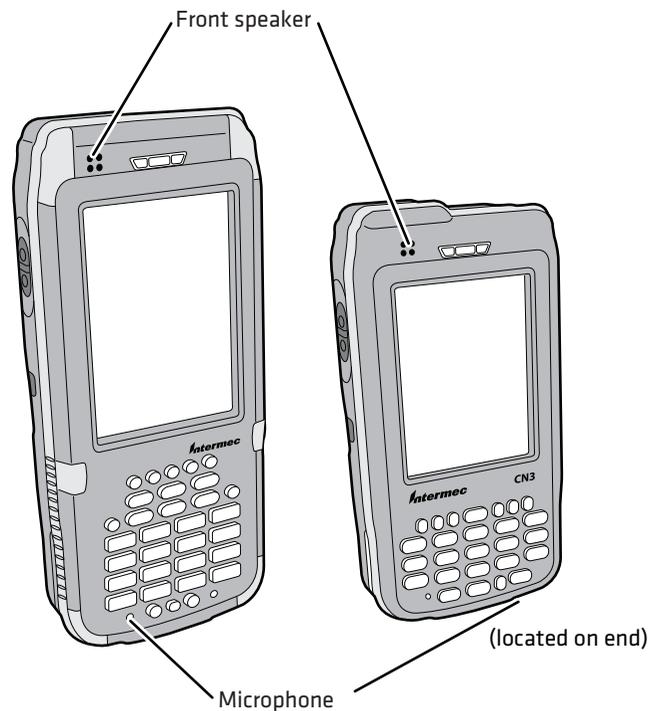
To adjust the volume of the front speaker

1 Tap the Volume (🔊) icon at the top of the screen.

2 In the Volume adjust box, tap **On**.

3 Use your stylus to move the volume slider for the phone to the desired volume level.
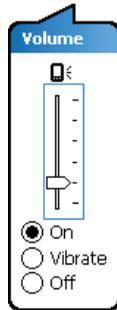
Adjusting the Volume of the Rear Speaker

You can adjust the computer volume for your needs and your environment. The volume includes sounds you hear when you tap the screen or scan bar codes with a scanner. You can set the volume to off, very low medium (default), high, and very high. Use the following table to understand the different ways to adjust the volume.
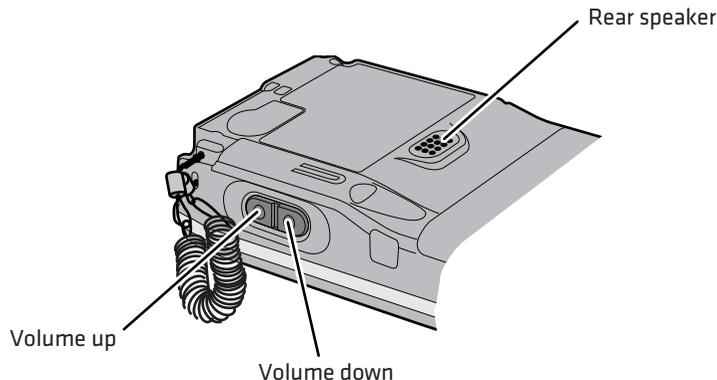
Location of the Rear Speaker and Volume Control

Changing the Volume of the Rear Speaker

Way to Adjust Volume	Procedure
Tap the Volume (🔊) icon in the navigation bar.	Use the stylus to move the volume slider up or down for the computer. You can also turn the volume on or off and choose to use Vibrate mode.
Use Intermec Settings.	From the **Start** menu, choose **Settings** > the **System** tab > **Intermec Settings**. Go to **Device Settings** > **Beeper** > **Volume**. Select the setting you prefer and save your changes before exiting. For help, see **"Configuring the CN3 With Intermec Settings" on page 35**.
Press the side volume control.	Press the top of the side volume control to turn the volume up. Press the bottom of the side volume control to turn the volume down.

Note: For detailed information on the commands available in Intermec Settings, see the *Intermec Computer Command Reference Manual* (P/N 073529-xxx) available from the Intermec website.

The CN3 has a built-in vibrate feature that enables you to receive scanner feedback despite the noise level. When enabled, the CN3 vibrates when the scanner performs a good read or when the phone receives a call.

To enable the vibrate feature

1 Tap the Volume (🔊) icon at the top of the screen.

2 In the Volume adjust box, tap **Vibrate**.
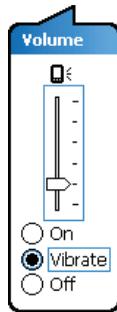
Note: The Volume icon in the Navigation bar changes to look like a vibrating CN3 (   ) when the computer is in Vibrate mode.

Using the Screen

The CN3 has a 3.5″ diagonal, 240x320 pixel (QVGA) transflective TFT-LCD 64K color display.

- The Navigation bar displays the Start flag, the Connectivity icon, the Volume icon, and the time and next appointment.

- The Today screen displays shortcuts to some of the applications installed on the CN3 and important information for the day.

- The Command bar displays the onscreen keyboard icon, Windows Mobile 5.0 links, and icons to any applications that are running, but are hidden from view.
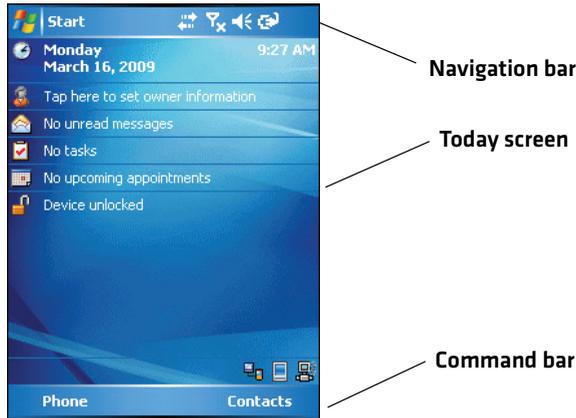
The Windows Mobile Today Screen

Using the Stylus

Your computer has a stylus for selecting items and entering information on the touch screen.

Functions You Can Perform With the Stylus

Action	Description
Tap	Touch the screen once with the stylus to select options, open or close applications, or launch menus from the Command bar.
Drag	Hold the stylus on the screen and drag across the screen to select text and images.
Tap and hold	Tap and hold the stylus on an item to see a menu of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.

Understanding the Screen Icons

Use the screen icons on the Navigation bar and the Command bar to see the battery status, network connections, and so on. Some standard Microsoft icons are included in this table.

Computer Screen Icons

Icon	Description
	The battery is full.
	The battery is low. You need to replace or charge the battery very soon.
	The battery is charging.
	The volume is turned off. To turn the volume back on, tap this icon and choose your setting.
	The computer is connected to the network.
	The computer is not connected to the network.
	The 802.11b/g radio is connected to the wireless network.
	The computer is connected through the USB port to your desktop PC.
	The iConnect application icon. Tap it to set up Ethernet or Wireless settings.

Aligning the Touch Screen

If the touch screen does not respond when you tap it with the stylus, you may need to calibrate the screen.

To calibrate the touch screen

1 Tap **Start** > **Settings** > the **Systems** tab > **Screen**.

2 Tap **Align Screen** and follow the instructions to align the screen.

3 Tap **ok**.

If the touch screen is so out of alignment that you cannot open the Start menu, you may need to align the screen menu using only the keypad or as a last resort you can perform a clean boot. For more information about performing a clean boot, see **"Clean Booting the CN3" on page 94**.

To align the touch screen using the keypad

1 Press the **Windows** button on the upper left of the keypad.

2 Press the **Down** button to select **Settings**.

3 Press **Enter**.

4 Press the **Tab** button until the **Settings** tabs are highlighted.

5 Press the **Right Arrow** button to select the **System** tab (on some keypads this will be the orange button and down button).

6 Press tab until the **Screen** icon is highlighted.

7 Tab to **Align Screen** and press **Enter** follow the instructions to align the screen.

8 Tap **ok**.

Understanding the Status LEDs

The status LEDs above the display show the following information:

Good Read LED and Intermec Ready-to-Work indicator

Notification LED
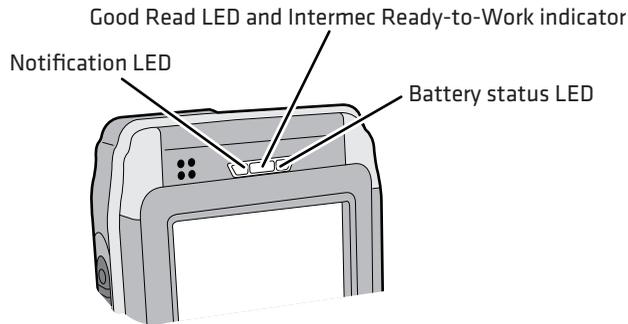
Battery status LED

Understanding the LEDs

LED	Color	Description
Notification	Orange	The CN3 is notifying you of a pending alarm or message. For more information on the Battery Status LED, see **"Understanding the Battery Status LED" on page 8**.
Good Read	Green	The CN3 has successfully decoded a bar code.
Ready-to-Work indicator™	Blue	The CN3 is suspending or resuming with the display turned off.
	Blinking blue	You have successfully loaded and activated TE 2000.
		The TE 2000 application is loaded, but is inactive.
	Off	The TE 2000 application is missing or disabled.

Note: The blue light may stay on for up to 30 seconds, but will usually turn off after less than 10 seconds. During this time, do not toggle the CN3 on or off and do not remove the battery, or you may corrupt the CN3.

The Ready-to-Work indicator (blue light) is for the SmartSystems Foundation application that is part of a wireless network using all Intermec devices. For more information, see **"Configuring the CN3 Remotely With SmartSystems Foundation" on page 36** or contact your Intermec representative. Selected application software programs may also use the blue light, either steady or flashing, for other purposes.

Scanning Bar Codes

Use the area imager to scan and enter bar code data. If your CN3 has an area imager, you cannot have the color camera option too. The CN3 supports reading 1D and 2D images, composite and postal codes. These bar code symbologies are enabled by default on the CN3: Code 39, Code 128/GS1-128, UPC-A, UPC-E, EAN-8, EAN-13, PDF417, and DataMatrix.

If you are using bar code labels that are encoded in a different symbology, you need to enable the symbology on the computer. Use Intermec Settings to enable and disable symbologies. For help, see **"Configuring the CN3 With Intermec Settings" on page 35**.

Scanning with the Area Imager

The CN3 has an area imager that can scan 1D and 2D bar code symbologies, composite, and postal codes. It also supports omni-directional (360°) scanning where you can position the CN3 in any orientation to scan a bar code label. Using the 2D imager is like taking a picture with a digital camera.
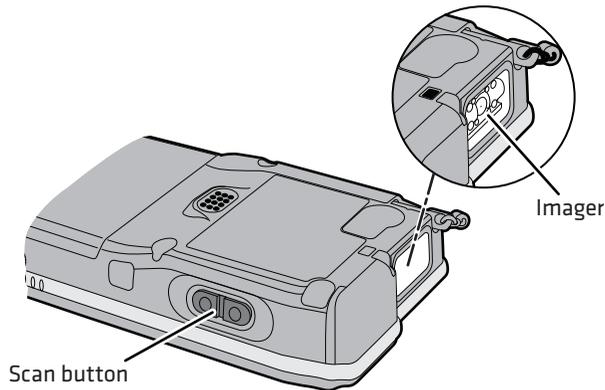
Locating the Imager and the Scan Button

Note: There is also one scan button on the front of the CN3 and two scan buttons on the front of the CN3e.

To use the area imager

1 Press the power button to turn on the CN3, point the scanner window a few inches from the bar code label, and hold steady.

2 Press the **Scan** button and center the red aiming beam over the bar code label. The aiming beam is smaller when the imager is closer to the bar code and larger when it is further away.

3 When a bar code label is successfully read, a high beep is emitted and the Good Read LED lights briefly. Release the **Scan** button.

Improving the Performance of the Area Imager

If you experience problems scanning a bar code with the 2D imager, try following some of these tips to improve the performance of your imager.

• Keep your hand as steady as possible while scanning a label.

• Position the imager as close to the bar code as possible while still being able to capture the entire bar code.

• Enable only the bar codes that you need to use every day.

- Choose a Predefined mode in Intermec Settings:

  a Tap **Start** > **Settings** > the **System** tab > **Intermec Settings**.

  b Tap **Data Collection** > **Internal Scanner** > **Imager Settings** > **Predefined Modes** and then select one of these options:

Predefined Mode	Select if You Are Scanning:
1D	Only 1D labels.
1D and 2D Standard	All types of bar code labels.
1D and 2D Bright Environment	In high ambient light, such as outdoors in the sunshine.
1D and 2D Reflective Surface	Glossy labels.
Custom	In conditions that require customized settings. For more information about these settings, commands, and parameters, see the *Intermec Computer Command Reference Manual* available from the Intermec website at **www.intermec.com**.

Using the Color Camera

The color camera with flash is an optional feature that is factory-installed into the upper back of the CN3, as shown in the following illustration.
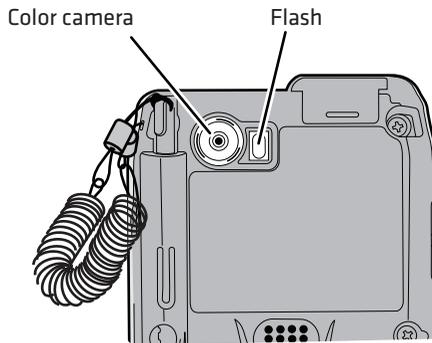
Color Camera and Flash

If you have the color camera option, you cannot have the area imager option because they occupy the same space. You can take photos in either high-resolution or compressed format, with resolutions up to 1280 x 1024 pixels on the 1.3 megapixel camera or 1600 x 1200 pixels on the 2.0 megapixel camera. When you take a picture, the images are saved as .jpg files and stored in the /My Documents/My pictures folder.

You can use the Pictures & Videos application on the CN3 to take, view, and edit pictures or record and launch video clips stored on the CN3 or a storage card. You can also send pictures and video clips to others or save an image as the background on the Today screen.

After the color camera is enabled, you can configure camera options by going to **Menu** > **Options** or **Menu** > **Tools** > **Options** from the Pictures & Video screen. While you are in the Pictures & Videos application, you can select **Start** > **Help** for more information on using the camera.

To take a picture with the camera

1 Tap **Start** > **Programs > Pictures & Videos**.

2 Tap the **Camera** option in the grid or tap **Camera** in the taskbar.

3 Using the screen display as a viewfinder, move the camera until you have the image you want to capture.

4 Press **Enter** to save the image. If you select to save your pictures to main memory, they are saved to permanent storage on the CN3.

To save picture files

1 Tap **Menu** (lower right) then **Options** to access the **Camera** tab.

2 Select where you want to save files to, type a filename prefix, and select a compression level.

3 Tap **ok**.

Using the Storage Card

The CN3 uses a miniSD card to increase file storage and install software. The miniSD card slot is located under a door that is beneath the battery pack. Remove the two screws holding the door to reach the miniSD card.

You can corrupt your miniSD card if you do not follow these installation and removal procedures exactly. Before installing a miniSD card, inspect the gasket on the door for any damage or wear, and contact your Intermec representative if you find any damage or wear.

Note: The CN3 will reset if you open the miniSD/SIM door. The screws to this door must be in place and torqued to 0.11 Nm (1.0 in-lbs) to ensure normal operation.

To insert the miniSD card

1 Press the **Power** button to suspend the CN3, and then remove the battery pack from the back of the CN3.

2 Remove the two screws on the miniSD/SIM card slot door.

3 Gently lift the door to the card slot, then with the metal contacts facing down, insert the storage card into the miniSD card slot.
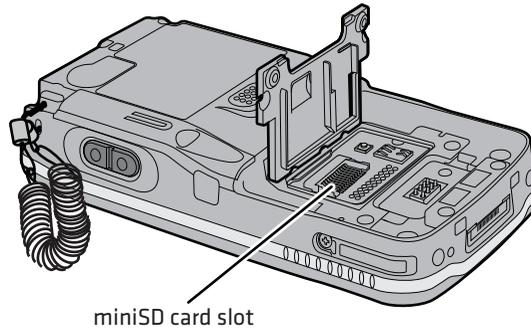
miniSD card slot

4 Close the miniSD/SIM card slot door and insert the two screws.

⚠️ **Caution**

Do not over-torque the two screws that secure the card slot door. You can damage the door.

5 Replace the battery pack and then press the **Power** button.

Once the door to the miniSD is opened and closed (for changing, installing, or removing the SIM or miniSD card), the CN3 performs a cold boot.

Setting Up GPS on Your CN3

If your CN3 comes equipped with an integrated Global Positioning System (GPS) receiver, it can deliver standards-based National Marine Electronics Association (NMEA) data strings to GPS applications. However, Intermec recommends that you use the GPS Intermediate Driver (GPSID) instead of directly accessing the GPS hardware. The GPSID is a Microsoft software component that interacts between applications and the GPS hardware.

Using the GPSID allows Intermec support for Extended Ephemeris, which enhances GPS performance by:

- reducing the amount of time it takes your GPS receiver to acquire a fix.

- eliminating the need to obtain precise satellite data information from the GPS satellites.

As a Microsoft software component, the GPSID also provides these benefits:

- It allows multiple applications to simultaneously access the GPS data stream.

- It provides access to GPS data without requiring applications to recognize and parse NMEA syntax.

Using the GPSID Installed on the CN3

To use the GPSID installed on your CN3, you need to configure the GPSID settings.

To configure your GPSID settings

1 Tap **Start** > **Settings** > the **System** tab.

2 Tap **GPS**. The GPS Settings screen appears.
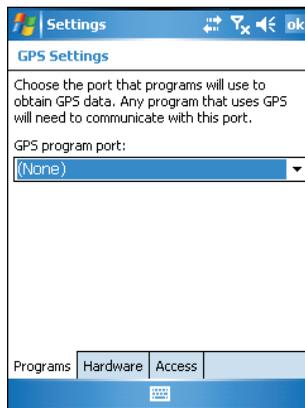
3 On the **Programs** tab, select the COM port that you want your programs to use to get GPS data from your CN3.

Note: COM1 and COM3 are reserved.

4 Tap the **Hardware** tab, and select these settings.

- GPS hardware port: COM3

- Baud rate: 57600
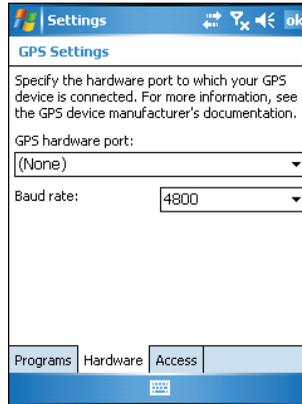
Note: If the GPS is connected through Bluetooth, select these settings.

- GPS hardware port: COM6

- Baud rate: 19200

5 Tap the **Access** tab and select the **Manage GPS automatically** check box.
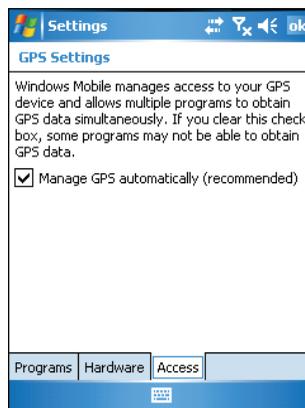
6 Tap **ok**.

To enable extended ephemeris

1 Tap **Start** > **Settings** > the **System** tab.

2 Tap **iGPS settings**. The iGPS Settings screen appears.

3 Tap the **Advanced** tab.

4 Select the **Enable extended ephemeris** check box.

5 Tap **ok**.

Learning About Additional GPS Options for the CN3

Intermec provides enhanced feature support for the Extended Ephemeris data capability. For the latest Extended Ephemeris data files and other CN3 downloads, visit the CN3 downloads page on the Intermec website at **www.intermec.com**. For more information about programming for Extended Ephemeris GPS, visit the Intermec Developer Library at **www.intermec.com/idl**.

2

Connecting and Configuring the CN3

Use this chapter to understand how to configure the CN3 to communicate in your network. This chapter contains these topics:

- **Connecting to a PC**
- **Configuring the CN3 Parameters**
- **Configuring Local Area Networks**
- **Configuring the Phone**
- **Connecting to an ISP**
- **Connecting to a Network With a RAS Account**
- **Connecting to a Network with a VPN Server**
- **Configuring Wireless Security**

Connecting to a PC

You can use Microsoft ActiveSync to establish a connection between your CN3 and PC. ActiveSync lets you transfer files, synchronize files, remotely debug, and perform other device management activities. ActiveSync is a free application available from the Microsoft website.

To establish an ActiveSync partnership between your CN3 and PC, you need to physically connect your CN3 to your PC using one of these methods:

- AD10 single dock and USB to mini-USB cable
- AA18 USB adapter and USB cable

To establish an ActiveSync partnership

1 Download ActiveSync from the Microsoft website and install ActiveSync on your PC. When installation is complete, the Get Connected dialog box appears.

2 Follow the onscreen instructions to establish a partnership.

When the partnership is established, the Microsoft ActiveSync screen appears on your PC.
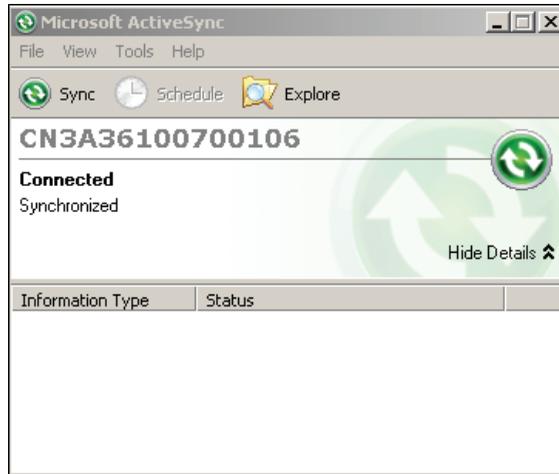
Configuring the CN3 Parameters

You can configure many parameters on the CN3 such as the bar code symbologies it decodes or the network settings. These characteristics are controlled by configuration parameters. The values you set for these configuration parameters determine how the CN3 operates.

Configuring the CN3 With Intermec Settings

Use Intermec Settings to configure the CN3 and view system information.

To open Intermec Settings

- Tap **Start** > **Settings** > the **System** tab > **Intermec Settings**.
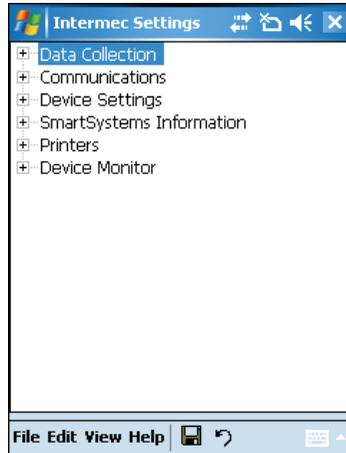
For detailed information about each command available in Intermec Settings, see the *Intermec Computer Command Reference Manual* (P/N 073529-xxx).

Navigating in Intermec Settings

To Perform This Action	Do This
Select a command.	Tap the command or press ⬆ or ⬇.
Expand a command.	Tap the command or press ❯ or ❮.
Select text in a text box.	Tap in the text box and drag the stylus over the text.
Save your settings.	Tap **File** > **Save Settings** or tap 💾.

Configuring the CN3 Remotely With SmartSystems Foundation

Intermec's SmartSystems™ Foundation is a software platform that lets you manage all of your SmartSystems-enabled devices simultaneously from a central server. The SmartSystems console displays all of the computers in your network.

Your CN3 is SmartSystems-enabled, which lets you open Intermec Settings from the SmartSystems console to remotely configure all of your CN3 computers.

To open Intermec Settings from the SmartSystems console

 1 In the SmartSystems console, right-click a CN3.

 2 Select **Intermec Settings**.

For more information about SmartSystems Foundation, go to the Intermec website at **www.intermec.com/SmartSystems**.

Configuring Local Area Networks

The CN3 is a versatile mobile computer that you can easily add to your wireless or wired data collection network. You can connect your CN3 using:

- 802.11b/g radio communications.

- Bluetooth communications.

- Ethernet communications

- USB and serial communications.

Configuring 802.11b/g Radio Communications

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

Your CN3 has an 802.11b/g radio to transfer data using wireless communications and supports the TCP/IP network protocols. This section of the manual assumes that your wireless network is set up, including your access points.

The CN3 communicates directly with a host computer using TCP/IP. The access point acts as a bridge allowing communications between the wired and wireless networks.

To use wireless communications in a TCP/IP network

1 Configure these parameters on each CN3 in the network:

- Network name (SSID)
- IP settings (if not using DHCP)

2 Make sure your CN3 is talking to the network and that the network can see your CN3.

3 Configure security. For help, see **"Configuring Wireless Security" on page 57**.

Configuring Bluetooth Communications

Your CN3 is Bluetooth™ enabled, which lets you connect to other Bluetooth devices, such as scanners or printers.

You need to turn on the Bluetooth radio before you can discover and connect to other Bluetooth devices. By default, the radio is turned off.

To turn on the Bluetooth radio

1 Tap **Start** > **Settings** > the **Connections** tab > **Bluetooth** > the **Mode** tab.

2 Tap **Turn on Bluetooth**.
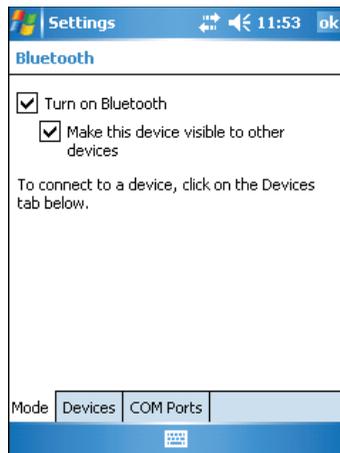
3 (Optional) If you want your CN3 to be visible to other Bluetooth devices, tap **Make this device visible to other devices**.

4 Tap **ok**.

The Bluetooth radio maintains its state through a warm or cold boot and maintains virtual COM ports. But, if you clean boot your CN3 you need to re-connect to devices.

You can also use Intermec Settings to turn on the radio and enable Bluetooth settings. Use this table to understand the settings you see in the Bluetooth menu in Intermec Settings.

Bluetooth Settings

Setting	Description
Power	Set and view whether the Bluetooth radio is on or off.
Discoverable	Allows other Bluetooth devices to be able to discover the computer during a device discovery.
Connectable	Allows other Bluetooth devices to connect to your computer.
Class of Device	Determines how the device appears to other devices during discovery.
IBT	Displays the Intermec Bluetooth Library version.
Radio	Displays the Bluetooth Radio Hardware version.
Device Address	Displays the Bluetooth address of your computer.

Connecting to a Bluetooth Scanner

You can connect to an Intermec Bluetooth scanner, such as the SF51 or SR61, using one of these methods:

- Scan the association bar code label that ships with the CN3
- Run the Wireless Scanning Wizard

To connect to a Bluetooth scanner with the association label

1 Make sure that the Bluetooth radio on your CN3 is enabled and that your CN3 is discoverable and connectable.

2 Make sure that your Bluetooth scanner is on.

3 When prompted, enter the passcode for your scanner. The default passcode for Intermec Bluetooth scanners is 0000.

4 Tap **Finish**.

To connect to a Bluetooth scanner with the Bluetooth Scanner Wizard

1 Select **Start** > **Settings** > the **System** tab > **Wireless Scanning**.

2 Follow the onscreen instructions to connect to a wireless scanner.

Configuring Bluetooth Communications for Wireless Printing

To configure your CN3 for Bluetooth wireless printing, you need to:

• make sure Bluetooth power is on. For help, see the procedure in **"Configuring Bluetooth Communications" on page 38**.

• create an application that opens the wireless printing COM port on your CN3. For help, see the Bluetooth Resource Kit, part of the Intermec Developer Library (IDL), available from the Intermec website at **www.intermec.com/idl**.

• select the current wireless printer on the CN3. For help, see the next procedure.

To select the current wireless printer

1 Select **Start** > **Settings** > the **System** tab > **Wireless Printing**.
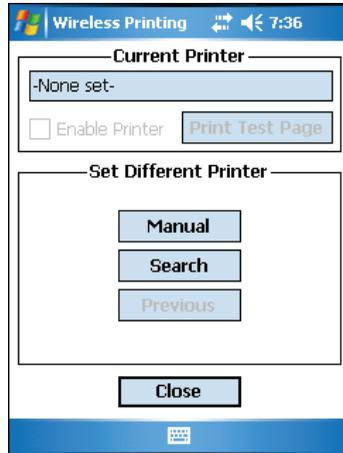
2 Tap **Search** to find a printer, or tap **Manual** to enter a device address. Follow the onscreen instructions to select the current wireless printer.

3 (Optional) Tap **Print Test Page**. The printer prints out the test page.

Note: You can also print wirelessly using Microsoft APIs with Bluetooth extensions for Winsock and Bluetooth virtual COM ports. For help, see the *IDL Resource Kit Developer's Guide* (P/N 934-006-xxx).

Configuring Ethernet Communications

You connect your CN3 to your Ethernet network with an Ethernet cable and one of these accessories:

• AD10 single dock with an Ethernet/modem (AA12/AA13) adapter

• AD11 Ethernet multidock

To use your CN3 in an Ethernet network

1 Tap the iConnect icon (🖳) in the lower right corner of the Today screen. The iConnect pop-up menu appears:

Enable   ▶
Tools   ▶
Status   ▶
Dismiss
Exit iConnect

2 Configure these network parameters:

- If you have a DHCP server, enable DHCP.

- If you do not have a DHCP server, set these parameters:

    a IP address

    b Subnet mask

    c Default router

3 If necessary, set these parameters:

- Primary and secondary DNS servers

- Primary and secondary WINS servers

4 Make sure that your CN3 is communicating with the network and that the network can see your CN3.

Using Serial and USB Communications

You can use these CN3 accessories to transmit data to and receive data from another device through serial or USB communications:

- AD10 single dock

- AV10 vehicle dock

- AD11 multidock

- AA24 USB adapter

- AA17 RS-232 adapter

For more information about these accessories and how to order them, see **"Accessories" on page 101**.

Checking the Status of Your Wireless Connection

After you configure your wireless settings, you can use iConnect to check the status of your connection. You can also use iConnect to configure the network settings and test the connection of your CN3 against the network.

To check the status of your wireless connection

1 Tap the iConnect icon (🖳) in the lower right corner of the Today screen.

2 From the iConnect menu, select **Status** > **Wireless**. The Wireless Status screen appears and checks the connection.

To configure the network settings

• From the iConnect menu, tap **Tools** > **Wireless Settings**.

To test the connection of your CN3 against your network

• From the iConnect menu, select **Tools** > **Ping Test**.

Viewing Detailed 802.11 Radio Connection Information

Use the ISpyWiFi utility to view detailed information for your 802.11 radio connection. You can also use ISpyWiFi to scan for access points in your network and ping for detailed information.

You start the ISpyWiFi utility using the iConnect application.

To start the ISpyWiFi utility

1 Tap the **iConnect** icon > **Status** > **Wireless**. The Wireless Status Screen appears.
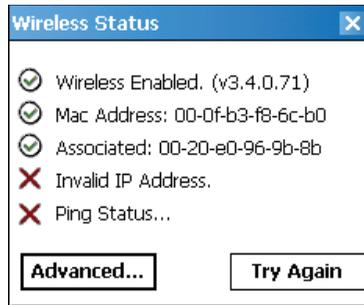
2 Tap the **Advanced** button. The ISpyWiFi utility starts.
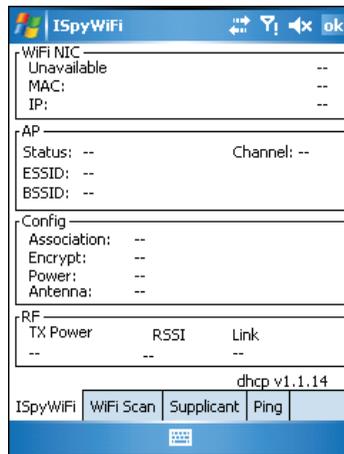
To view the ISpyWiFi tab

• Tap the **ISpyWiFi** tab.

The ISpyWiFi tab contains network interface, configuration, access point, and radio frequency information.

Use the following table to understand the ISpyWiFi information.

Understanding the ISpyWiFi Tab

Setting	Description
BCMCFI	A WLAN adapter and its associated driver version.
MAC	The client radio MAC address.
IP (DHCP)	The IP address of the client radio, if using DHCP.
IP (static)	The IP address of the client radio, if using a static IP address.
Status	Shows whether the radio is associated with the access point.
Channel	The channel on which the radio is communicating with the access point.
ESSID	The text SSID for your network.
BSSID	The MAC address of the access point that the client radio is communicating with.
Association	Shows the type of association: Open, WPA, WPA-PSK, WPA2, or Network EAP
Encrypt	Shows potential encryption for the association.
Power	CAM (Constantly Awake Mode) or FAST PSP (Power Save Poll)
Antenna	Diversity (multiple antennas, Primary (one antenna)
TX Power	Transmit power level in milliwatts (mW).
RSSI	The Received Signal Strength Indicator. The closer to zero, the better for this indicator.
Link	The data rate at which the radios are communicating.

Use the WiFi Scan tab to scan your network and bring back information about any access points with which you can communicate.

To use the WiFi Scan tab

1 Tap the **WiFi Scan** tab.

2 Tap the **Scan** button.

3 Tap any of the columns to sort in ascending or descending order.

Use the Supplicant tab to view information on security and authentication settings that you have configured on the CN3.

The Supplicant Tab

To use the Supplicant tab

- Tap **Configure Profile** to launch the Profile Wizard and configure 802.11 options.

- Tap **Reconnect** to disassociate the radio, momentarily dropping its connection. The radio then reassociates and reauthenticates, but does not do anything with the driver.

- Tap **Clear Events** to remove the information shown in the Supplicant Event box.

Use the Ping tab to contact with any host in your network for information.
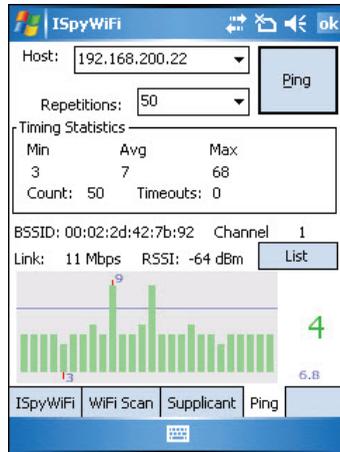
The Ping Tab

To ping a host

1 From the Host drop-down list, select an IP address for the host you want to ping. Enter a new IP address using the input panel or the keypad. Select Clear List to remove all the IP addresses from the drop-down list.

2 From the **Repetitions** drop-down list, select the number of times to ping the selected host. These repetitions are done once per second.

3 Tap **Ping** to initiate contact with the selected host.

4 Depending on how the screen is set up, you can toggle between a graph and a list of ping results:

- Tap **Graph** to toggle to the graphical view of 25 of the most recent pings and their response results, like in the following sample graph:
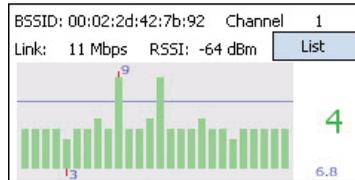
- Tap **List** to toggle to detailed information showing what ping touched what host and the RTT (Round Trip Time).

Configuring the Phone

The CN3 supports two types of cellular phone technology:

- CDMA EV-DO Rev 0
- GSM/EDGE

With a radio module installed in the CN3, you can send and receive telephone calls as well as transmit data through wide-area (WAN) cellular networks.

The CN3 provides a phone speaker, microphone, and speakerphone. It also supports the use of a Bluetooth headset or hands-free kit. The factory default setting for the phone is disabled.

After you have turned on the phone and activated it, you can customize the features of the phone and network settings. For help, refer to the online help on your CN3.

Turning On the Phone Using the Wireless Manager

You can use the Wireless Manager application to turn on the phone if Microsoft Zero Configuration is enabled. If you have Intermec Security enabled, you cannot access the Wireless Manager. For information on enabling and configuring Microsoft security, see **"Selecting Microsoft as Your Security Choice" on page 63**.

You can use the Wireless Manager to enable and disable Bluetooth, Wi-Fi, and the phone if it is built into your CN3.

To turn on the phone using the wireless manager

1 Tap **Start** > **Settings** > the **Connections** tab > **Wireless Manager**.

2 In the Wireless Manager, tap **Phone**. The phone turns on.

3 Tap **Menu** > **Phone Settings** to configure the phone. For help, see the next procedure, **"Activating the CDMA Phone."**

4 Tap **Done** to close the Wireless Manager.

Activating the CDMA Phone

The CDMA WAN radio module is installed at the factory. To activate your CDMA CN3 device, you need to contact the carrier you have chosen and set up accounts for each device. Use the following table to view the carriers that Intermec currently supports. If your carrier is not listed in the table, please contact Intermec product support to see if it is now supported.

Currently Supported Carriers

Country	Carrier
United States	Alltel, Sprint, Verizon
Canada	Bell Mobility, Telus
New Zealand	Telecom New Zealand

The carrier will require the Electronic Serial Number (ESN) to start the activation process. You can find the ESN:

- on a label located in the upper right corner of the battery compartment.

- on the outside of the CN3 shipping box.

The activation process is slightly different for each CDMA carrier. Your carrier sales contact and an Intermec representative can guide you through the process.

After you supply the ESN to your carrier, they will respond with values that you must enter using the Windows Mobile Activation Wizard (if required). Some of the supported carriers do not require you to enter any values. The following table shows the carriers, the correct activation method to use, and the values that you need to activate your phone.

Values Required for CDMA Phone

Carrier	Activation Method	Activation Values You Need
Alltel	Dial *22899	None - all parameters are automatically transferred wirelessl.y The Activation Wizard is disabled for Alltel.

Values Required for CDMA Phone (continued)

Carrier	Activation Method	Activation Values You Need
Bell Mobility	Activation Wizard	Service Programming Code (SPC), also called the activation code Mobile Directory Number (MDN) Mobile Station Identification Number (MSIN) System ID (SID) Network ID (NID) Mobile Country Code (MCC) Mobile Network Code (MNC) Username Password
Sprint	Activation Wizard	Master Subsidy Lock (MSL), also called the activation code MDN Mobile Station Identifier (MSID)
Telecom New Zealand	Activation Wizard	SPC SID NID
Telus	Dial *22803	None - all parameters are automatically transferred wirelessly.
Verizon	Dial *22899	None - all parameters are automatically transferred wirelessly. You can also use the Activation Wizard with Verizon.

After you complete the activation process, the settings you enter are permanently stored in the CDMA module. Changing the OS or SSPB loads will not affect any of the settings or activation parameters stored in the WAN modem.

To start the Activation Wizard

1 Tap **Start** > **Phone** from the Today screen.

2 In the Phone application, tap **Menu** > **Activation Wizard** from the bottom of the screen.

Activating the GSM/EDGE Phone

You use a SIM card to activate the GSM/EDGE phone on the CN3. You can purchase the SIM card from your network provider. You insert the SIM card in the miniSD/SIM door in the back of the CN3. For more information, please contact your local Intermec representative.

To insert the SIM card

1 Press the **Power** button to suspend the CN3, and then remove the battery pack from the back of the CN3.

2 Remove the two screws from the miniSD/SIM door.

3 Lift the door and insert the SIM card into the card slot with the metal contacts facing outward.

4 Close the miniSD/SIM door and insert the two screws. Tighten the screws to 1.5 in-lbs torque.

5 Replace the battery pack.

The CN3 cold boots and you can start using your phone.

Making a Phone Call

After you activate your phone, you are ready to start making phone calls.

To make a phone call

1 Tap **Start** > **Phone**.

2 Tap the keys to enter the telephone number you want to call.

3 Tap the **Talk** button.

Connecting to an ISP

You can connect to your Internet Service Provider (ISP), and use the connection to send and receive email messages and view web pages. Get an ISP dial-up access telephone number, a user name, and a password from your ISP.

Tap the **Help** icon at any time to view additional information for the wizard or the settings.

Once the CN3 is connected, you can:

- send and receive messages using Messaging (Outlook Email).

- visit web pages using Internet Explorer Mobile.

To connect to an Internet service provider

 1 Tap **Start** > **Settings** > **Connections**.

 2 Under My ISP, tap **Add a new modem connection**.
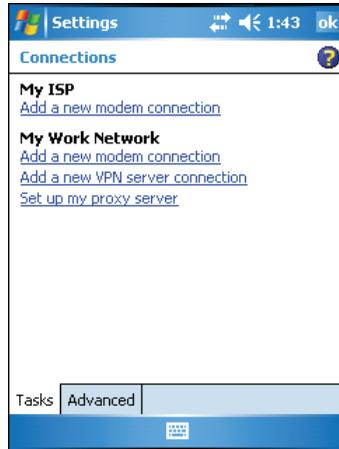
 3 Enter a name for the connection, such as "ISP Connection."

 4 If using an external modem connected to your CN3 with a cable, select **Hayes Compatible on COM1** from the Select a modem drop-down list.

 5 Tap **Next**.

 6 Enter the access phone number and then tap **Next**.

 7 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

 8 Tap **Finish**.

9 Tap the **Advanced** tab from the Connections screen and then tap **Dialing Rules**.
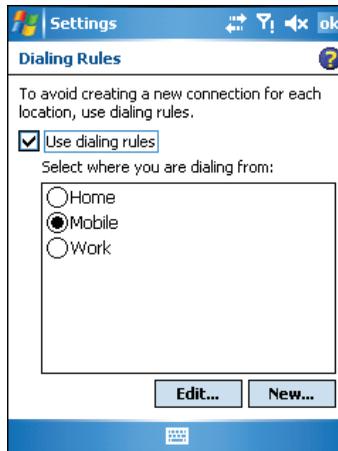
10 Select **Use dialing rules**, tap **OK** at the dialog box, and then tap **Edit**.

11 Specify your current phone type and then tap **ok** until you exit and return to the Settings page.

Connecting to a Network With a RAS Account

If you have access to a network at work, you can send email messages, view intranet pages, synchronize your CN3, and possibly access the Internet. Create a modem connection through a RAS (Remote Access Server) account. Before you can create this modem connection, your network administrator needs to set up a RAS account for you. Your network administrator may also give you Virtual Private Network (VPN) settings.

Tap the **Help** icon at any time to view additional information for the wizard or the settings.

To connect to a private network

1 Tap **Start** > **Settings** > **Connections**.

2 Under My Work Network, tap **Add a new modem connection**.
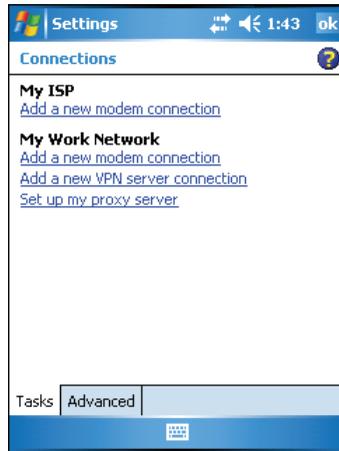
3 Enter a name for the connection, such as "Company Connection."

4 Select your modem type.

- If using an external modem connected to your CN3 with a cable, select **Hayes Compatible on COM1** from the Select a modem drop-down list.

- If using any type of external modem, select the modem by name. If a listing does not exist for your modem, select **Hayes Compatible on COM1.**

5 Tap **Next**.

6 Enter the access phone number and then tap **Next**. Use these guidelines when entering a phone number:

- Enter the phone number exactly as you want it dialed. For example, if you call from a business complex or hotel that requires a nine before dialing out, enter 9 in front of the phone number.

- Enter the access point name (APN) provided by your mobile phone service provider.

- If you want to use dialing rules, see the online help for information.

7 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

8 Tap **Finish**.

Connecting to a Network with a VPN Server

A VPN connection helps you to securely connect to servers, such as a corporate network, through the Internet. Before you can make a VPN connection, you will need the following items from your network administrator:

- User name
- Password
- Domain name
- TCP/IP settings
- Host name or IP address of the VPN server

To create a VPN server connection to work

1 Tap **Start** > **Settings** > **Connections**.

2 Under My Work Network, tap **Add a new VPN connection**.
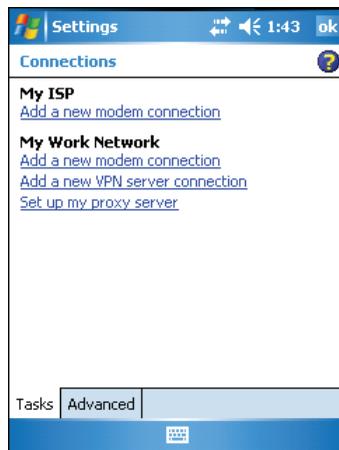
3 In the **Name** field, enter a name for the connection, such as your company name.

4 In the **Host name / IP** field, enter the VPN server name or IP address.

5 Select the **VPN type** of authentication to use with your CN3. If you are not sure which option to choose, check with your network administrator.

6 Tap **Next**.

7 Select a way for the CN3 to authenticate the connection. If you select **A pre-shared key**, enter the key provided by your network administrator.

8 Tap **Next**.

9 Enter the **User name**, **Password**, and **Domain** (if provided by an ISP or your network administrator).

10 Tap **Finish**.

11 Insert the necessary equipment, such as a network card, into the CN3 and begin connecting.

Configuring Wireless Security

The CN3 provides four types of security for your wireless network:

- Wi-Fi Protected Access 2 (WPA2™)
- Wi-Fi Protected Access (WPA)
- 802.1x
- WEP

This section explains how to configure wireless security on your CN3. If you choose not to use security, see **"Disabling Security" on page 68**. Intermec always recommends that you implement security.

You must use either Funk or Microsoft security to implement your security solution. For details, see the next section, **"Choosing Between Microsoft and Funk Security."**

If you are using WPA-802.1x, WPA2-802.1x, or 802.1x security, this section also assumes that your authentication server and authenticators are properly configured.

Note: Your security choice does not depend on your authentication server. For example, you can choose Funk security if you use Microsoft Active Directory® to issue certificates.

Choosing Between Microsoft and Funk Security

The CN3 supports both Funk (default) and Microsoft security. The options you choose depends on your network needs.

Understanding Microsoft and Funk Security

Security Choice	Description
Microsoft	Microsoft security dynamically selects wireless networks based on your preferences. If you are primarily using the C CN3 to connect to WiFi hotspots, you may want to use Microsoft security.
	To use Microsoft security, you need to select it as your security choice. For help, see **"Selecting Microsoft as Your Security Choice" on page 63**.
Funk (default)	Funk security offers features that are similar to Microsoft security, but Funk also offers these features:
	• CCX v2.0 compliance
	• Support for LEAP and TTLS
	• Configuration of up to four profiles
	If you are using the CK3 in a static environment that requires a high level of security, you should use Funk security.
	To use Funk security, you need to select a profile. For help, see the next section, **"Selecting a Funk Security Profile."**

Selecting a Funk Security Profile

You can define up to four profiles for Funk security. Different profiles let your CN3 communicate in different networks without having to change all of your security settings. For example, you may want to set up one profile for the manufacturing floor and one for the warehouse. By default, the active profile is Profile 1.

Note: You can also use the Profile Wizard to configure most wireless security settings. To start the Profile Wizard, tap the iConnect icon (🖳) in the lower right corner of the Today screen and select **Tools** > **Wireless Settings**.

To select a Funk security profile

1 Start Intermec Settings.

2 Choose **Communications** > **802.11 Radio** > **Funk Security**.

3 Tap a profile to expand it.

4 (Optional) In the **Profile Label** text box, enter a meaningful name for your profile.

5 Configure your security settings. For help, see the next sections.

6 Repeat Steps 3 through 5 for each profile you want to define.

7 Select one profile as the active profile by tapping **Active Profile** and choosing a profile from the list.

8 Save your settings.

Configuring WPA Security With Funk Security

Use these procedures to set WPA-802.1x, WPA2-802.1x, WPA-PSK, or WPA2-PSK security on your CN3 with Funk security.

To configure WPA-802.1x or WPA2-802.1x with Funk security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security**.

5 Select the profile you want to configure.

6 For **Association**, choose **WPA** or **WPA2**. Encryption automatically defaults to **TKIP** or **AES**, respectively.

7 For **8021x**, choose **TTLS**, **PEAP**, **EAP-FAST**, or **TLS** and press **Enter**.

8 If you choose **TTLS** or **PEAP**:

    a For **Prompt for Credentials**, choose **Enter credentials now**.

       Note: You can use **Prompt for Credentials** to troubleshoot your network connection.

    b Tap **User Name**, enter your user name, and press **Enter**.

    c Tap **User Password**, enter your password, and press **Enter**.

    d For **Validate Server Certificate**, choose **Yes** and press **Enter**.

       Note: The correct date must be set on your CN3 when you enable **Validate Server Certificate**.

    If you choose TLS:

    a Load a user and root certificate on your CN3 For help, see **"Loading a Certificate" on page 67**.

    b Enter a **User Name** and **Subject Name**.

    c For **Validate Server Certificate**, choose **Yes** and press **Enter**.

    d (Optional) To increase your level of security, enter a **Server 1 Common name** and a **Server 2 Common name**.

9 Save your settings and exit Intermec Settings.

To configure WPA or WPA2 with Funk security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security**.

5 Select the profile you want to configure.

6 For **Association**, choose **WPA** or **WPA2** and press **Enter**.

7 For **8021x**, choose **None** and press **Enter**.

8 For **Pre-Shared Key**, enter the pre-shared key or passphrase.

The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the access point. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN3 internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

9 Save your settings and exit Intermec Settings.

To configure 802.1x Security With Funk Security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security**.

5 Select the profile you want to configure.

6 For **Association**, choose **Open** and press **Enter**.

7 For Encryption, choose **WEP** and press **Enter**.

8 For **Authentication**, choose **TTLS**, **PEAP**, or **TLS** and press **Enter**.

9 If you choose **EAP-FAST**, **TTLS**, or **PEAP**:

    a Tap **User Name**, enter your user name, and press **Enter**.

    b Tap **Password prompt**, choose **Enter password now**, and press **Enter**.

       Note: You can use **Password prompt** to troubleshoot your network connection.

    c Tap **User Password**, enter your password, and press **Enter**.

    d For **Validate Server Certificate**, choose **Yes** and press **Enter**.

If you choose TLS:

a Load a user and root certificate on your CN3 For help, see **"Loading a Certificate" on page 67**.

b For **Validate Server Certificate**, choose **Yes** and press **Enter**.

c Enter a **User Name** and **Subject Name**.

d (Optional) To increase your level of security, enter a **Server 1 Common name** and a **Server 2 Common name**.

10 Save your settings and exit Intermec Settings.

To configure LEAP Security on Your CN3

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security**.

5 Select the profile you want to configure.

6 For **8021x**, choose **LEAP** and press **Enter**.

7 For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP** and press **Enter**. Encryption automatically defaults to **TKIP** if you choose WPA, **AES** if you choose WPA2, and **WEP** if you choose Open or Network EAP.

8 For **Prompt for Credentials**, choose **Enter credentials now**.

9 Tap **User Name**, enter your user name, and press **Enter**.

10 Tap **User Password**, enter your password, and press **Enter**.

11 Save your settings and exit Intermec Settings.

To configure Static WEP Security With Funk Security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Make sure Funk is selected as your security choice.

3 Start Intermec Settings.

4 Choose **Communications** > **802.11 Radio** > **Funk Security**.

5 Select the profile you want to configure.

6 For **Association**, choose **Open** and press **Enter**.

7 For **Encryption**, choose **WEP** and press **Enter**.

8 For **8021x**, choose **None**.

9 Define a value for the keys you want to use. You can define up to four keys (**Key 1** through **Key 4**).

Enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio. Set a 5- byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.

10 For **Transmit key**, choose the key you want to use for transmitting data.

11 Save your settings and exit Intermec Settings.

Selecting Microsoft as Your Security Choice

The default security setting is Funk. If you want to use Microsoft security, you need to select it as your security choice. After you select Microsoft as your security choice, you will be prompted to save your settings and reset your CN3 for your change to take effect.

With Microsoft as your security choice, you can configure:

- WPA

- 802.1x

- Static WEP

To select Microsoft security as your security choice

1 Select **Start** > **Settings** > the **System** tab > **Intermec Settings**. The Intermec Settings application appears.

2 Select **Communications** > **802.11 Radio** > **Security Choice**.

3 From the **Security Choice** list, select **Microsoft Security** and save your settings. An alert box appears telling you that you must save your settings and warm boot the CN3 for the new security choice to take effect.

4 Tap **Yes**. The CN3 resets and starts with Microsoft Security as the Security Choice.

Configuring WPA Security With Microsoft Security

Use these procedures to set WPA-802.1x and WPA-PSK security on your CN3 with Microsoft security.

To enable WPA-802.1x with Microsoft security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Start Intermec Settings.

3 Choose **Communications** > **802.11 Radio** > **Microsoft Security**.

4 For **Infrastructure Mode**, choose **Infrastructure**.

5 For **Network Authentication**, choose **WPA**. **Data Encryption** automatically defaults to **TKIP**.

6 For **802.1x Authentication**, choose either **MD5**, **TLS,** or **PEAP**.

7 If you choose TLS:

    a Select **Properties** and tap the **Run App** button. The Auth. Settings dialog box appears.

    b Tap the **Select** button.

    c Select your certificate from the list and press **Enter**. The User Logon dialog box appears.

    d Enter a **User Name** and **Domain** and press **Enter**.

    If you choose PEAP:

    a Select **Properties** and tap the **Run App** button. The Auth. Settings box appears.

    b Select **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.

    c Enter a **User Name** and **Password** and select **Save Password**.

    d (Optional) In the **Domain** field, enter the Active Directory domain associated with the user account.

    e Press **Enter**.

8 Save your settings and exit Intermec Settings.

To enable WPA-PSK with Microsoft security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Start Intermec Settings.

3 Choose **Communications** > **802.11 Radio** > **Microsoft Security**.

4 For **Infrastructure Mode**, choose **Infrastructure**.

5 For **Network Authentication**, choose **WPA-PSK**. **Data Encryption** automatically defaults to **TKIP**.

6 For **Pre-Shared Key**, enter the pre-shared key or the passphrase.

The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the authenticator. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN3 internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

7 Save your settings and exit Intermec Settings.

To configure 802.1x security with Microsoft security

1 Make sure the communications and radio parameters on your CN3 are configured.

2 Start Intermec Settings.

3 Choose **Communications** > **802.11 Radio** > **Microsoft Security**.

4 For **Infrastructure Mode**, choose **Infrastructure**.

5 For **Network Authentication**, choose **Open**.

6 For **Data Encryption**, choose **WEP**.

7 For **802.1X Authentication**, choose **TLS** or **PEAP**.

8 If you choose TLS:

   a Select **Properties** and tap the **Run App** button. The Auth. Settings box appears.

   b Tap the **Select** button.

   c Select your certificate from the list and press **Enter**. The User Logon dialog box appears.

   d Enter a **User Name** and a **Domain**. and press **Enter**.

If you choose PEAP:

a Select **Properties** and tap the **Run App** button. The Auth. Settings box appears.

b Select **Validate Server** and press **Enter**. When the radio starts to authenticate, the Network Password dialog box appears.

c Enter a **User Name** and **Password** and select **Save Password**.

d (Optional) In the **Domain** field, enter the domain.

e Press **Enter**.

 9 For **Network Key Setting**, choose **Automatic**.

10 Save your settings and exit Intermec Settings.

To configure static WEP security with Microsoft security

 1 Make sure the communications and radio parameters on your CN3 are configured.

 2 Start Intermec Settings.

 3 Choose **Communications** > **802.11 Radio** > **Microsoft Security**.

 4 For **Network Authentication**, choose **Open**.

 5 For **Data Encryption**, choose **WEP**.

 6 For **Network Key Setting**, choose **Enter Key and Index**.

 7 For **Network Key Value**, enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the capability of the radio.

Set a 5-byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Hex keys must be preceded by 0x and contain 5 or 13 hex pairs.

 8 For **Network Key Index**, select the key you want to use for data transmission.

 9 Save your settings and exit Intermec Settings.

Loading a Certificate

If you choose to use transport layer security (TLS) with WPA or 802.1x security, you need a unique client certificate on the CN3 and a trusted root certificate authority (CA) certificate. Certificates are pieces of cryptographic data that guarantee a public key is associated with a private key. They contain a public key and the entity name that owns the key. Each certificate is issued by a certificate authority.

To import a root certificate

1 Tap the iConnect icon (🖳) in the lower right corner of the Today screen. The iConnect pop-up menu appears.

2 Select **Tools** > **Wireless Settings**. The Profile Wizard appears.

3 Tap **Edit Selected Profile** > the **Security** tab > **Get Certificates**.
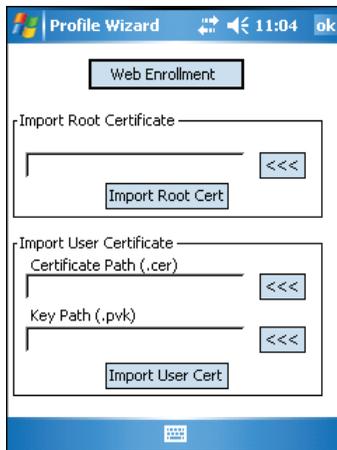
4 To import a root certificate:

    a Tap the **<<<** button next to the **Import Root Certificate** field to select the root certificate (DER-encoded .cer file) to import.

    b Tap **Import Root Cert** to install the selected certificate.

5 To import a user certificate:

    a Tap the **<<<** button next to the **Certificate Path** field to select the user certificate (DER-encoded .cer file without the private key) to import.

    b   Tap the **<<<** button next to the **Key Path** field to select the private key (.pvk file) which corresponds to the user certificate you selected.

To import a certificate from an IAS server:

    a   Tap **Web Enrollment**.

    b   Enter the **User**, **Password**, and **Server** (IP address) to log into the server.

    c   Tap **OK**. A dialog box appears asking if you want to load the root certificate.

    d   Tap **OK**. The Enrollment Tool message box appears telling you that the certificate has been added.

    e   Tap **OK** to close the message box.

Disabling Security

If you choose not to use security with your wireless network, you can disable it on the CN3. Intermec recommends that you always set security in your network.

To disable security

1 Open Intermec Settings.

2 Choose **Communications** > **802.11 Radio** > **Microsoft Security**.

3 For **Network Authentication**, choose **Open**.

4 For **Data Encryption**, choose **Disabled**.

5 Close Intermec Settings.

3

Developing and Installing Applications

Use this chapter to understand the guidelines for developing applications for use on the CN3. This chapter contains these sections:

- **Developing Applications for the CN3**
- **Installing Applications on the CN3**
- **Freeing Up Virtual Memory for Applications**
- **Launching An Application Automatically**
- **Upgrading the System Software**

Developing Applications for the CN3

The CN3 runs applications programmed in Microsoft Visual Studio 2005. You can also use Microsoft eMbedded Visual C++ 4.0 to program applications, but some features may not be available. Use this section to understand the hardware and software you need to develop a new application for the computer.

Use the Intermec resource kits to develop new applications to run on the CN3. The Intermec resource kits are a library of C++ and .NET components grouped by functionality that you can use to create applications for the computer. The resource kits are part of the Intermec Developer Library (IDL), and can be downloaded from the Intermec website at **www.intermec.com/idl**.

You need the following hardware and software components to use the resource kits:

*   Pentium desktop, 400 MHz or higher
*   Windows 2000 (Service Pack 2 or later) or Windows XP (Home, Professional, or Server)
*   For native and managed development, Microsoft Visual Studio 2005
*   128 MB RAM (196 MB recommended)
*   360 MB hard drive space for minimum installation (720 MB for complete)
*   CD-ROM drive compatible with multimedia desktop specification
*   VGA or higher-resolution monitor (Super VGA recommended)
*   Microsoft Mouse or compatible pointing device

Installing Applications on the CN3

There are several ways you can install applications on your mobile computer:

*   You can package your application as a cabinet (.cab) file.
*   If you have a simple application, you may only need to deliver the .exe file.

- You can copy a directory structure that contains the application, supporting files, DLLs, images, and data files.

Intermec recommends using .cab files to install your applications. The mobile computer uses standard Windows Mobile .cab files and will install third-party .cab files. You can have your .cab files place your application in any of these memory locations on the mobile computer:

- The Object Store or the Flash File Store. The Object Store is a DiskOnChip® flash that looks like a disk. The Flash File Store is an area of storage which is embedded in a section of the system flash memory. This storage is *not* erased during a reset, although it might be erased during the reflashing process. In addition to storing applications and data files, you have the option to store persistent registry information to the Flash File Store region.

- The optional miniSD card. If you are using a miniSD card, this should be the primary location to place application installation files. The miniSD card creates the Storage Card folder on the CN3.

- The non-volatile Flash File Store region of the storage. Use the small non-volatile Flash File Store region to hold .cab files that rebuild the system at clean boot or install applications from a .cab file into the Flash File Store so that they are "ready-to-run" when you perform clean boot. Since the flash in the system has a limited number of write cycles, do not use the Flash File Store for excessive writing.

Files copied to any of these locations are safe when you cold boot the computer as long as the AutoRun system is installed in the appropriate location. You can find information about this system in the *Intermec Developer's Library (IDL) Resource Kit Developer's Guide* which is available from **www.intermec.com/idl**. When you copy a .cab file to the \CabFiles folder, the folder automatically extracts that .cab file on every cold boot.

There are several ways you can install files and applications on the computer:

- SmartSystems Foundation
- ActiveSync
- miniSD card

- FTP server
- Wavelink Avalanche

The following sections explain how to use each one of these processes to install your application on the computer.

Installing Applications Using SmartSystems Foundation

You can use the SmartSystems console to drag-and-drop Intermec applications onto your mobile computers. The computer ships with the SmartSystems client, which means it is SmartSystems-enabled. The console is part of SmartSystems Foundation. For more information about SmartSystems Foundation, go to the Intermec website at **www.intermec.com/SmartSystems**. For help using the console, see the online help.

To use SmartSystems console to install an application

1 Download your application file from the Intermec website and unzip it on your desktop PC.

2 Double-click the application file to install it. The application file should appear in the Software Vault.

3 From the SmartSystems console in the Software Vault, drag-and-drop the application onto each mobile computer in your network or drop the application on a group of mobile computers contained in a folder.

# Installing Applications Using Microsoft ActiveSync

You can use Microsoft ActiveSync to establish a connection between your PC and the computer. ActiveSync transfers files, synchronizes files, performs remote debugging, and other device management activities. For more information on installing and using ActiveSync, see **"Connecting to a PC" on page 34**.

You can have a serial or USB ActiveSync connection to the mobile computer. When you only have a few computers to update, you can copy files using Windows Explorer on a PC.

This procedure assumes that Microsoft ActiveSync is installed on your PC and is up and running.

To install an application on the computer using ActiveSync

1 Connect the CN3 to a PC using a USB cable. You may have to disconnect and then connect the cable to "wake" the connection.

2 Wait for a "Connected" message to appear in the Microsoft ActiveSync application to signal a connection to the mobile computer. If necessary, select **File** > **Connection Settings** > **Connect** to initiate a connection.
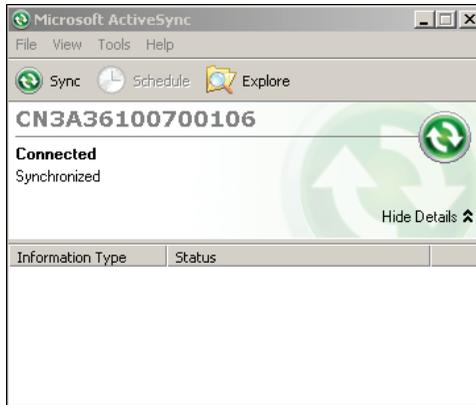
3 Click **Explore** to open the Mobile Device window that shows the files and folders on the CN3.

4 On your desktop PC, locate the .cab file you want to download to the mobile computer and copy it.

5 From the Mobile Device window, open the **My Windows Mobile-Based Device** folder and navigate to the folder where you want to paste the .cab file.

6 Paste the .cab file into the desired folder.

7 When you are done copying files, warm boot or cold boot the mobile computer.

8 After the mobile computer is done booting, tap **Start** > **Programs** > **File Explorer** to locate the newly copied files.

9 Tap the .cab files to install them.

Installing Applications Using a Storage Card

If you have a miniSD card for your CN3, it is the best place for you to install applications.

To install applications using the storage card

1 Suspend the CN3 and remove the miniSD card.

2 Insert the miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.

3 Copy your application file to the miniSD card.

4 Remove the miniSD card from the adapter card and insert it into the CN3.

5 On your CN3, navigate to the storage card folder and run your application.

Installing Applications Using the FTP Server

The CN3 has a built-in FTP server that connects to a network through Ethernet, 802.11 b/g, or WAN (Wireless Access Network). You can use the server to transfer your application file to the computer. Another benefit of using the FTP server is that you can create FTP scripts to automate the process of copying your files to the computer. This option is useful when you need to send files to a large number of computers.

The easiest way to manage the FTP server is to enable the FTP menu within iConnect.

To enable the FTP menu

• Create this DWORD registry key and set it to a value of 1:

```
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\ShowFTPMenu
```

The iFTP menu is available the next time your start iConnect.

To manage the state of the FTP server

• Modify these existing registry keys:

```
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\FtpAutoStart
HKEY_CURRENT_USER\Software\iConnect2\IConnect\Settings\FtpHeartbeat
```

Where 1 = enable and 0 = disable.

Installing Applications Using Wavelink Avalanche

You can use the Wavelink Avalanche device management system to install applications on all of your wireless CN3s. Use InstallSelect to load Avalanche Enabler on your CN3. Tap **File Explorer** > **Windows** > **InstallSelect** to launch the InstallSelect applet.

Each time the Avalanche Enabler is activated (typically on a reset), the CN3 attempts to connect to the Avalanche Agent. When the CN3 connects to the agent, the agent determines whether an update is available and immediately starts the software upgrade, file transfer, or configuration update.

Note: If you manually activate the Avalanche Enabler on the CN3, you may be prompted for a password when you exit the Avalanche Enabler. The default password is `leave`.

To use Avalanche to remotely manage the CN3

1 Install software packages and updates for the CN3 using the Avalanche Administrative console.

2 Schedule the CN3 updates or manually initiate an update using the Avalanche Administrative console.

For more information on using Wavelink Avalanche, contact your local Intermec representative or visit the Wavelink website at **www.wavelink.com**.

Freeing Up Virtual Memory for Applications

You can use the InstallSelect application to reduce the amount of virtual memory used by portions of the SmartSystems Platform Bundle (SSPB). Freeing up virtual memory provides you with more space to load and run custom applications. In technical terms, virtual memory allows software to run in a memory address space whose size and addressing are not necessarily tied to the physical memory of the computer.

Note: InstallSelect is designed for use only by administrators, developers, integrators, or Intermec service representatives.

Note: Do not run InstallSelect while using any other applications.

InstallSelect manages the installation of value-added software features of the computer. Removing software features may result in loss of computer functionality or the ability to manage device settings.

To free up virtual memory, select items from the InstallSelect list that you do not want to install. When you perform a clean boot, the items you selected are not installed. However, you can reinstall any of these SSPB components at any time with InstallSelect. Be sure to back up any related files that you want before you use the InstallSelect application. The InstallSelect application is part of the SSPB and is installed at the factory.

For more information on SSPB, see **"Upgrading the System Software" on page 78**.

To free up virtual memory

 1 Go to **Start** > **Programs** > **File Explorer**.

 2 Tap the **Windows** folder.

 3 Scroll down to the InstallSelect application and tap the icon (🗔). The InstallSelect application appears on the display with a Caution dialog box.

 4 Tap **ok** to close the Caution dialog box.

5 Clear the check box of any components you do not want installed after a clean boot.

By default, components already installed on the computer are automatically checked to be installed again after you perform a clean boot.

6 Tap **Apply** to initiate the clean boot and install only the files that are selected.

7 Tap **Yes** to continue with the clean boot. The computer performs a clean boot and restarts with all of the checked components installed.

Understanding the InstallSelect Software Components

Component Name	Description
Data Collection & Intermec Settings	Data collection and Intermec Settings. Also includes on-unit SDK libraries.
	If you disable this .cab file, you cannot scan or collect data on the device and you cannot use Intermec Settings.
Funk Wireless Security	Intermec security supplicant that provides a wireless security solution with several features that are not supported by Microsoft.
Printer Support	Provides Intermec printer driver support.
Intermec DHCP Client	Provides the Intermec DHCP client application.
Bluetooth	Provides the Intermec Bluetooth application support.
Avalanche Enabler	Enables the client to the Wavelink Device Management solution.

You will see other components available from the InstallSelect application based on the options you selected for your CN3.

Launching An Application Automatically

There are two ways to automatically launch your application when you perform a reset on the computer:

• Make sure your .cab file places a shortcut to your application in the \Windows\StartUp folder.

• Configure the AutoRun program to launch your application.

The computer contains a program called AutoRun.exe which automates operations such as launching other processes. You can configure AutoRun.exe through the AutoRun data file, AutoRun.dat. For compatibility with other Intermec computers, you can place a copy of AutoRun.exe in the same folder as your AutoRun.dat file but it is not required.

To create and install the AutoRun.dat file on your computer

1 Create a folder called System on your CN3.

2 Open the Notepad application on your PC.

3 Write commands for AutoRun.dat using the supported AutoRun script commands.

4 Save the Notepad file as AutoRun.dat.

5 Copy the AutoRun.dat file to the System folder on the CN3. During every boot, the system scans for AutoRun.dat in the System folder.

AutoRun supports the following script commands in AutoRun.dat:

AutoRun Script Commands

Command	Description
EXEC	Launches a specified program and waits for it to finish (up to 10 minutes).
CALL	Processes a specified file of commands and returns.
CHAIN	Processes a specified file of commands and does not return.
RUN	Loads a specified program and executes it.
LOAD	Loads a specified program and executes it.

AutoRun handles quoted file names for the first parameter, which allows you to specify path names or file names that contain white spaces. AutoRun only supports one set of quotes per command.

Upgrading the System Software

When you upgrade your computer, you are updating the operating system (OS) and the SmartSystems Platform Bundle (SSPB) files.

The SSPB files are stored on the DiskOnChip and deliver Intermec Value Add (IVA) functionality such as data collection, configuration, the Intermec wireless security suite, and the SmartSystems™ Foundation. As new features are added to these components, you can upgrade your SSPB files without needing to upgrade the operating system. Alternately, you can choose to upgrade only the operating system if you need new functionality. If you upgrade the operating system, you will need to reinstall SSPB files.

There are two ways to upgrade your computer:

- You can upgrade your computer using an storage card. For help, see the next section, **"Upgrading the CN3 Using a miniSD Card."**

- You can upgrade your computer using the SmartSystems Console. For help, see **"Upgrading the CN3 Using SmartSystems Foundation" on page 81**.

You need to download the latest upgrade files from the Intermec website to your desktop PC.

To download the upgrade files

1 Start your web browser and go to the Intermec website at **www.intermec.com**.

2 Go to **Support** > **Downloads**.

   a In the **Product Category** list, choose **Computers**.

   b In the **Product Family** list, choose **Handheld Computers**.

   c In the **Product** list, choose **CN3 Mobile Computer**.

3 Click **Submit**. A list of downloadable software appears.

4 Look for the appropriate upgrade files in the OS/Firmware/ Drivers list, and click a filename to download it.

Upgrading the CN3 Using a miniSD Card

To use a miniSD card to upgrade the computer, you need an SD card reader and a miniSD adapter card formatted as FAT16.

To upgrade the operating system using a miniSD card

1 Insert a miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.

2 Copy all required OS upgrade files to the miniSD card.

3 Remove the miniSD card from the adapter card and insert it into the CN3.

4 Place the CN3 in a dock connected to external power and press the **Reset** button (using a stylus) located in the battery cavity on the back of the CN3. For help, see **"Cold Booting the CN3" on page 93**.

5 Remove the miniSD card when the Installation Complete menu appears.

6 Remove the CN3 from the dock and replace the battery.

To upgrade the SSPB using a miniSD card

1 Insert a miniSD card into a miniSD adapter card and then place it in the storage card reader connected to your PC.

2 Copy all required SSPB upgrade files to the miniSD card.

3 Remove the miniSD card from the adapter card and insert it into the CN3.

4 Using the stylus, press the **Reset** button in the battery cavity on the back of the CN3.

5 Press and hold the **Power** button as you insert the battery back into the CN3.

6 Continue to hold the **Power** button until a Warning message appears on the display.

7 Release the **Power** button, read the message, and press either button on the right side to continue. Wait for the CN3 to load files from the miniSD card.

8 When the progress is complete, the CN3 warm boots to reset the configuration.

9 If you wish, you can now remove the miniSD card or delete the files on the miniSD card. The information for the SSPB now resides in the Flash File Store.

10 Set the date, time, and network communication parameters to reestablish communications with the other devices in the wireless network.

Upgrading the CN3 Using SmartSystems Foundation

You can use the SmartSystems™ Foundation application from Intermec to perform operating system upgrades on your CN3. SmartSystems client is installed on your CN3, which means it is SmartSystems-enabled. The console is part of SmartSystems Foundation, which you can download from **www.intermec.com/SmartSystems**.

When you upgrade the operating system, you erase the current configuration and replace it with the new default configuration. You will need to reset the network parameters on the CN3 to reestablish communications with other devices in the network. In other words, if you upgrade the operating system and the default registry from the operating system has changed, the registry is rolled back to the new default.

When you upgrade your CN3, you are updating the operating system (OS) and the SmartSystems Platform Bundle (SSPB) files.

The SSPB files are stored on the Flash File Store, and deliver Intermec Value Add (IVA) functionality such as data collection, configuration, and wireless security. As new features are added to these components, you can upgrade your SSPB files without needing to upgrade the operating system. Similarly, features added to the operating system do not affect the functionality of the SSPB, and you can choose to upgrade only the operating system. If you choose to update only the operating system, the SSPB will need to be re-installed.

If you are upgrading the OS and SSPB files, you first install the OS upgrade and then you install the SSPB upgrade. The installation process is very similar for both type of upgrade but the way the files install is different.

Downloading the Upgrade Files

You need to download the latest upgrade files from the Intermec website to your desktop computer.

To download the upgrade files

1 Start your web browser and go to the Intermec website at **www.intermec.com**.

2 Go to **Support** > **Downloads**.

3 Select **Computers: CN3 Mobile Computer** from the list.

4 Select the download you need. Make sure the download you select is for the CN3 computer and that it contains the upgrade you want: operating system only, SSPB only, or operating system and SSPB.

5 Download the .zip file to your desktop computer.

6 Use the SmartSystems server to upgrade the CN3. \

Note: You cannot install the files for the OS and the SSPB bundle at the same time. You need to install one and then install the other or install only the bundle that you need to upgrade.

To upgrade the operating system

1 Connect your the CN3 to your network that has the SmartSystems Server installed.

2 Install SmartSystems Foundation on your desktop or laptop computer, then double-click the icon on your toolbar to start the SmartSystems Console.

3 Double-click the SmartSystems icon on your taskbar to start the SmartSystems Console.

The SmartSystems Console screen has three sections:

- Keypad Computers (devices you are using)
- SmartSystems Applications (used to upgrade)
- Software Vault (where your upgrades are stored)

4 Click the Discover icon on the SmartSystems Console.

5 Click and drag the OS bundle from the Software Vault and drag to the CN3 icon. Release the OS bundle on the device icon and the a confirmation message appears.

6 Click the **Yes** button and SmartSystems Server will start transferring files to the CN3. A white screen with text on it will appear on the CN3 icon as the files are being downloaded.

Make sure that the CN3 does not suspend during the download or errors could occur.

Caution

When the file download is complete, the CN3 performs a warm boot and starts to install the upgrade files. After the OS file installation is completed, the CN3 warm boots again and the Windows Mobile welcome screen appears. You will need to recalibrate the screen at this time.

To upgrade the SSPB

1 Make sure the CN3 is discovered and available in the SmartSystems console.

2 Click and drag the SSPB bundle from the Software Vault and drag to the CN3 icon. Release the SSPB bundle on the device icon.

3 Click the **Yes** button when the SmartSystems message appears. The SmartSystems Server will start transferring files to the CN3. A white screen with text on it will appear on the CN3 icon as the files are being downloaded.

Caution

Make sure that the CN3 does not suspend during the download or errors could occur.

When the file download is complete, the CN3 performs a warm boot and starts to install the upgrade files. When the Today screen appears, SSPB file installation begins. After all files are installed, you will need to reconnect the CN3 to your network.

4

Troubleshooting and Maintaining the CN3

If you encounter any problems while using the mobile computer, look in this chapter to find a possible solution. You will also find information on routine maintenance. This chapter contains these sections:

- **Calling Product Support**
- **Troubleshooting the CN3**
- **Resetting the CN3**
- **Cleaning the CN3**

Calling Product Support

If you cannot find the answer to your problem in the **Troubleshooting the CN3** section, you can visit the Intermec technical knowledge base (Knowledge Central) at **intermec.custhelp.com** to review technical information or to request technical support. If you still need help after visiting Knowledge Central, you may need to call Product Support.

To talk to an Intermec Product Support representative, call:

1-800-755-5505

Before you call Intermec Product Support, make sure you have the following information ready:

*   Configuration number
*   Operating system version
*   SmartSystems Platform Bundle (SSPB) version
*   If you are using security, know the type (Funk or Microsoft) and the full set of parameters
*   Power management settings
*   If you are using terminal emulation (TE), know the version and protocol
*   If you are not using TE, know the language your custom application was written in and the tools you used to create it

You can find most of the information listed above in Intermec Settings. Consult your application developer for information on your custom application.

To find your configuration number

*   Look at the label on the back of the computer.

To find your operating system or SSPB version

1 Tap **Start** > **Internet Explorer**.

2 Tap the **Intermec** logo. The Intermec page appears and displays the software build information.

Troubleshooting the CN3

If you send the CN3 in for service, it is your responsibility to save the computer data and configuration. Intermec is responsible only for ensuring that the hardware matches the original configuration when repairing or replacing the computer.

Problems While Configuring the CN3

Problem	Solution
You scan a configuration command, such as Beeper Volume, and you hear three low beeps.	If you are working in Intermec Settings, you cannot scan configuration commands. Exit the application to scan configuration commands.
You scan or enter an option for the Scanner Model configuration command and you hear three low beeps.	You may have scanned or entered a Scanner Model command that does not apply to the type of scanner that you have installed. Try scanning or entering the Scanner Model command again and select an option for the type of device you are using.

Problems While Configuring the CN3 (continued)

Problem	Solution
You cannot type a character on the keypad or you can only type uppercase or lowercase letters.	You may have locked a modifier key on the keypad.Press the necessary key sequence to unlock the key. For help, see **"Using the Keypad" on page 11**.

Problems While Operating the CN3

Problem	Solution
You press the **Power** button and nothing happens.	• Make sure the backlight is on. • Make sure you have a charged battery that is installed correctly. For help, see **"Charging the Battery" on page 5**. • The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery. • Perform a warm boot or a cold boot.
The Battery status LED is on.	The battery status LED indicates the following states: • If the battery status LED is a steady green, the battery is more than 95% charged and computer is on a charger. • If the battery status LED is blinking red, then the battery is low. Replace or charge the battery. • If the battery status LED is a steady red, the main battery is on charge. • If the battery status LED is amber, the CN3 is on charge and either the battery temperature is outside of the charging range, or the battery is defective.
The computer appears to be locked up and you cannot enter data.	• Press the power key to turn off the computer, then press the power key again to turn it on. • Press and hold the power key ten seconds to warm boot the computer. • Try reloading the firmware. See **"Upgrading the System Software" on page 78** . • If the computer does not boot or reset, contact your Intermec representative for help.
You tap the screen and nothing happens.	Align your screen. For help, see **"Aligning the Touch Screen" on page 21**.

Problems With Wireless Connectivity

Problem	Solution
When you turn on the computer after it was suspended for a while (10 to 15 minutes or longer), it can no longer send or receive messages over the network.	Host may have deactivated or lost current terminal emulation session. In a TCP/IP direct connect network, turn off the "Keep Alive" message from host to maintain the TCP session while the computer is suspended.
The CN3 is connected to the network and you move to a new site to collect data. Your CN3 now shows you are not connected to the network.	Move closer to an access point or to a different location to reestablish communications until you reconnect with the network. Any data collected while out of range is transmitted over the network.
The CN3 appears to be connected to the network, but you cannot establish a terminal emulation session with the host computer.	There may be a problem with the host computer, with the connection between the Intermec Application Server and the host computer, or with the connection between the access point and the host computer. Check with network administrator to make sure the host is running and allowing users to login to the system.
The CN3 appears to be connected to the network, but the host computer is not receiving any information from the CN3.	In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with network administrator or use your access point user's manual.

Problems While Configuring 802.1x Security

Problem	Solution
The CN3 indicates that it is authenticated, but it does not communicate with the host.	Make sure the CN3 IP address, host IP address, subnet mask, default router are configured for network.
The CN3 does not appear to be authenticating and a network connection icon does not appear on the toolbar.	The CN3 may not be communicating with the access point. Make sure the CN3 network name matches the access point network name (SSID).
	802.1x security network may not be active. Make sure the server software is properly loaded and configured on the server PC. See server software documentation for help.

Problems While Configuring 802.1x Security (continued)

Problem	Solution
A network connection icon appears in the toolbar, but then disappears.	The CN3 may not be communicating with the intended access point. Make sure the CN3 network name matches the access point network name. Default network name is "INTERMEC."
	Access point may not be communicating with server. Ensure the access point is turned on, properly configured, and has 802.1x security enabled
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	CN3 does not save WEP key values when changing the SSID. Reenter the WEP key values and apply the network settings. You should now be able to connect.
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	The CN3 does not save WEP key values when changing the SSID. Reenter the WEP key value after changing the SSID and save your changes. You should now be able to connect to the different access points.
The CN3 indicates it is not authenticated.	Make sure that: • the User Name and Password parameters on the CN3 must match the user name and password on authentication server. You may need to reenter the password on both the CN3, authentication server. • on your authentication server, the user and group are allowed and the group policy is allowed to log into the server. For help, see the documentation that shipped with your authentication server software. • the IP address and secret key for access point must match the IP address and secret key on the authentication server. You may need to reenter the IP address and secret key on both your access point and authentication server. • the authentication server software is running on the server PC.
You receive a message saying "The server certificate has expired or your system date is incorrect" after you perform a clean boot on the CN3.	Date and time are not saved when you perform a clean boot. Reenter the date and time, and then save your changes.

Problems Scanning Bar Codes

Problem	Solution
You cannot see a red beam of light from the scanner when you press the **Scan** button and aim the scanner at a bar code label.	• You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again. • You may be scanning the bar code label "straight on." Change the scanning angle and try again. • The scanner hardware trigger might be disabled in Intermec Settings. To check the setting go to **Start** > **Settings** > **System Tab** > **Data Collection** > **Scanner Settings**. Hardware trigger should be checked.
The input device attached to the computer does not work well or read bar code labels very quickly.	Set the Scanner Model command to the specific attached input device. Check enabled bar code symbologies and enable only the symbologies being used.
When you release a **Scan** button or handle trigger, the **Good Read** light does not turn off.	The **Good Read** light will remain on if you configure the computer to use continuous/edge triggering. If you configure the computer for level triggering and the **Good Read** light remains on, there may be a problem. Press one of the **Scan** buttons or pull the trigger again without scanning a bar code label. If the light is still on, contact your local Intermec representative.
The scanner will not read the bar code label.	• Aim the scanner beam to cross entire bar code label in one pass. Vary the scanning angle. • Check the quality of the bar code label, Scan a bar code label that you know will scan. 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 is enabled and configured correctly. Use Intermec Settings to check the symbologies. Expand **Data Collection** > **Symbologies** beneath devices listed (scanner, virtual wedge) to check and enable symbologies, then scan the bar code label again. • Make sure the computer application is expecting input from a bar code. You may need to type this information instead.
The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.	The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.

Problems Scanning Bar Codes (continued)

Problem	Solution
You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label.	The computer 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.

Resetting the CN3

You rarely need to reset the computer. If the computer does not resume after pressing the **Power** button, or if the computer or an application lock up, you may need to reset the CN3. The CN3 uses the configuration currently saved in flash memory during the boot process. There are three ways to reset the CN3:

• Warm booting the CN3

• Cold booting the CN3

• Clean booting the CN3

Warm Booting the CN3

You may need to perform a warm boot to correct conditions where an application stops responding to the system.

To warm boot the computer

• Press and hold the **Power** button for 10 seconds or right-click on the CN3 via the SmartSystems Console and select **Intermec Power Tools** > **Warm Boot Device**.

The computer systematically shuts down, restarts, and goes through the initialization process.

Cold Booting the CN3

In some cases where the computer completely stops responding, it may be necessary to perform a cold boot. Because cold booting may result in data loss, only use this method if all other recovery methods have failed.

Note: Cold booting the CN3 does not guarantee that cached disk data will be saved, so transactional data may be lost during the reset. All other data is preserved.

To cold boot your CN3

1 Press the **Power** button to suspend the CN3.

2 Remove the battery pack from the CN3.

3 Press the **Reset** button on the back of the CN3.

Reset button
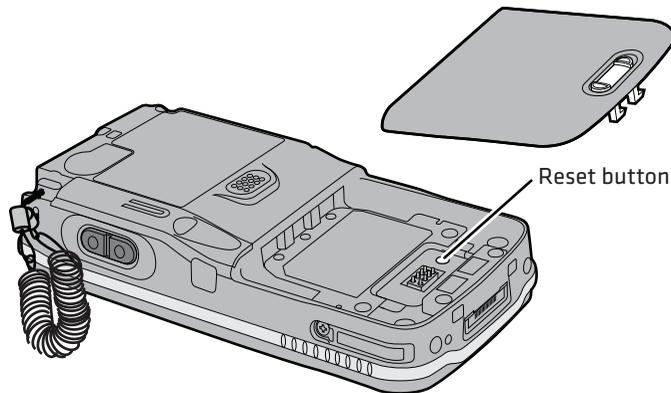
Locating the Reset Button on the CN3
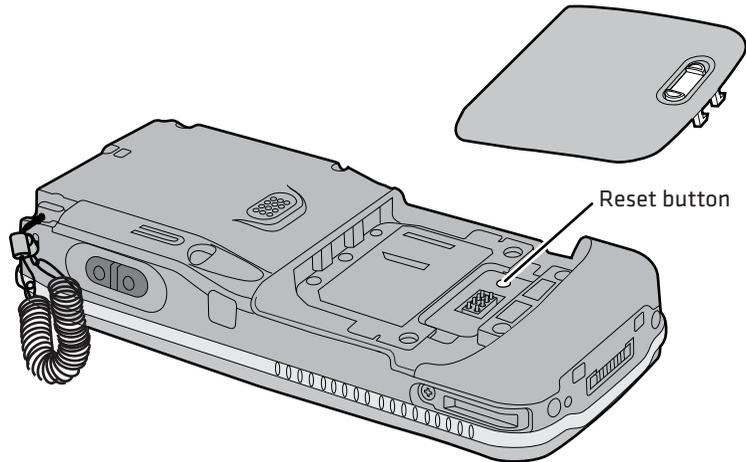
Reset button

Locating the Reset Button on the CN3e

Clean Booting the CN3

When you clean boot the CN3, it loads only those files and programs that are absolutely required by the operating system. Use the clean boot to troubleshoot the CN3 by getting it up and running so that you can perform diagnostic tests to determine which elements of the normal boot process are causing problems.

⚠ **Caution**

The clean boot process will erase the memory in the mobile computer, including all applications and data files found in the object store.

⚠ **Caution**

A clean boot will load files from the Flash File Store if an SSPB files are not on a miniSD card. If SSPB files are on a miniSD card, they will overwrite the files in the Flash File Store.

To clean boot the computer

1 Press the **Power** button to suspend the CN3.

2 Remove the battery pack from the back of the CN3.

3 With a stylus, press the **Reset** button on the battery cavity.

4 Insert the battery pack into the CN3 and immediately press and hold the **Power** button and both buttons on the left side.

5 Continue to hold the **Power** button and both buttons on the left side until a Warning message appears on the display.

6 Release the **Power** button and both buttons on the left side, read the message, and press either button on the right side to continue.

7 Wait for the CN3 to load files from the miniSD card.

Note: You can also clean boot the CN3 using the SmartSystems console. To clean boot the CN3 using the SmartSystems Console, right-click on the CN3 and select **Intermec Power Tools** > **Clean Boot Device**.

Cleaning the CN3

To keep the CN3 in good working order, you may need to clean the imager window, color camera window, and the touch screen. Clean the windows and the touch screen as often as needed for the environment in which you are using the CN3. To clean the CN3, use a solution of ammonia and water.

There are no user-serviceable parts inside the CN3. Opening the CN3 will void the warranty and may cause damage to the internal components.

Caution

To clean the imager window, camera window, and touch screen

1 Press the **Power** button to suspend the CN3.

2 Dip a clean cloth towel in the ammonia solution and wring out the excess.

3 Wipe off the imager window, camera lens, and flash area. Do not allow any abrasive material to touch these surfaces.

4 Wipe dry.

A
Specifications

Physical and Environmental Specifications

CN3 Physical Dimensions (excluding overmold)

Length:	16.0 cm (6.3 in)
Width:	8.1 cm (3.2 in)
Height:	3.3 cm (1.3 in) with standard battery
Weight:	Non-WAN units: 0.40 kg (14 oz)
	WAN units w/standard battery: 0.43 to 0.45 kg (15 to 16 oz)
	WAN units w/extended battery: 0.45 to 0.48 kg (16 to 17 oz)

CN3e Physical Dimensions (excluding overmold)

Length:	19.5 cm (7.7 in)
Width:	8.1 cm (3.2 in)
Height:	3.3 cm (1.3 in) with extended battery
Weight:	Non-WAN units: 0.48 to 0.51 kg (17 to 18 oz)
	WAN units w/extended battery: 0.51 to 0.54 kg (18 to 19 oz)

Hardware

Microprocessor:	Intel XScale PXA270
Application processor:	520 MHz RAM
Memory:	128 MB RAM
Persistent storage:	128 MB NAND flash, provides onboard non-volatile storage
Removable storage:	miniSD card slot, user-accessible
Keypad:	numeric, QWERTY, CN3e 10-key, CN3e numeric
Scanner options:	EA11, EA11HD scan engine, color camera

Bluetooth QD ID: B013037

Operating System
Microsoft Windows Mobile 5.0

Standard Communications
Ethernet, Serial, IRDA, USB host, USB client, Bluetooth, 802.11 b/g, 802.11 d, GPRS, CDMA (CN3 only), GPS

Touch Screen Specifications
Transflective TFT; QVGA color with touch panel; 240 x 320 pixels; 8.9 cm (3.5 in) diagonal active area; 5-level LED backlight control with settings

Electrical Specifications
External charge power: 5 V +/- 5% @3.5 A max (18 W max)

Environmental
Operating temperature:	-10 °C to 50 °C (14 °F to 122 °F) (CN3)
	-20 °C to 60 °C (-4 °F to 140 °F) (CN3e)
Storage temperature:	-20 °C to 70 °C (-4 °F to 158 °F)
Humidity:	5% to 95% non-condensing
Rain and dust resistance:	IP54 compliant
Drop specifications:	Multiple 1.5 m (5 ft) drops to steel or concrete

Power Specifications
Battery type:	Rechargeable Lithium-Ion (Li-ion) batteries:
	AB8: 3.7 VDC, 2.2 Ah
	AB9: 3.7 VDC, 4.0 Ah
Recharge time:	5 hours or less
Recharge temperature:	0 °C to 40 °C (32 °F to 104 °F)
Battery capacity:	AB8, AB15: 8.1 Watt-hours
	AB9, AB16, AB28: 14.8 Watt-hours
Backup battery:	Super capacitor supplies 5 minutes bridge time

Wireless LAN
Standards compliant:	IEEE 802.11g (2.4 GHz, OFDM)
	IEEE 802.11 b (2.4 GHz, DSSS)
Data rates:	Up to 54 Mbps for 802.11g
	Up to 11 Mbps for 802.11b
Radio power output:	100 mW
Security:	WEP, WPA, 802.11i, 802.1x (EAP-TLS, TTLS, LEAP, PEAP, EAP-FAST)
Certifications:	Wi-Fi, WPA, WPA2, Cisco Compatible Extensions

Regulatory Approvals

UL and cUL Listed, UL60950 and UL 1604 and CSA 22.2 No. 157, FCC Part 15, TUV, CE mark

Scanner Reading Distances

Typical reading distances are done in an office environment using office lights (4 lux). Minimum distances are measured in the dark (0 lux). Both reading distances are provided in respective scan engine integration guides. Contact your local Intermec representative for more information.

Below are minimum standard reading distances for the CN3 and CN3e built with integrated scan engines. When correctly mounted, and exit window reduces reading distances by about 4% for all scan engines.

EA11 Standard Minimum Reading Distances

Symbology	Density	Minimum Distance	Maximum Distance
Code 39	0.125 mm (5 mil) 0.20 mm (8 mil) 0.25 mm (10 mil) 0.50 mm (20 mil)	7.26 cm (2.86 in) 3.96 cm (1.56 in) 3.45 cm (1.36 in) 4.98 cm (1.96 in)	12.09 cm (4.76 in) 20.98 cm (8.26 in) 25.04 cm (9.86 in) 40.28 cm (15.86 in)
UPC/EAN	0.33 mm (13 mils)	4.98 cm (1.96 in)	29.62 cm (11.66 in)
Data Matrix	0.191 mm (7.5 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	3.71 cm (2.46 in) 5.98 cm (2.35 in) *	16.41 cm (6.46 in) 20.73 cm (8.16 in) 27.58 cm (10.86 in)
PDF417	0.168 mm (6.6 mils) 0.254 mm (10 mils) 0.381 mm (15 mils)	6.25 cm (2.46 in) 4.47 cm (1.76 in) 4.98 cm (1.96 in)	13.87 cm (5.46 in) 21.74 cm (8.56 in) 33.43 cm (13.16 in)

* Minimum distance depends on symbology length and scan angle
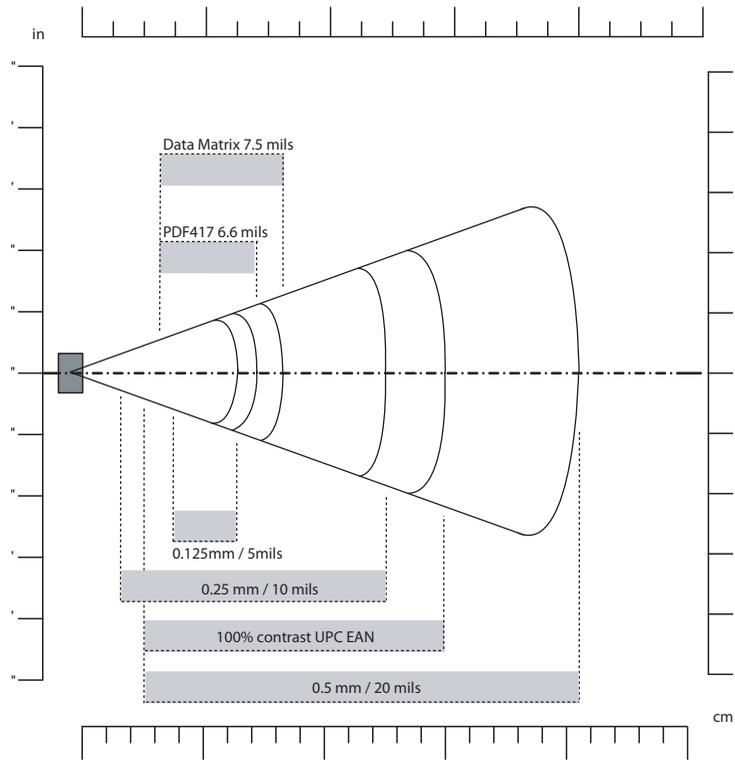
EA11 Standard Minimum Reading Distances With 0.04 Inch Setbacks

Accessories

All of the accessories listed below work for both the CN3 and CN3e models unless otherwise noted.

AA12 Ethernet Adapter (P/N 871-025-101)
Use the Ethernet adapter with the AD10 single dock to convert USB host to Ethernet connection.

AA13 Modem Adapter (P/N 871-026-001)
Use the modem adapter with the AD10 single dock to convert USB host to a landline modem connection.

AA15 Audio Adapter (P/N 850-561-001)
Use the audio adapter to connect your audio headset to the CN3.

AA16 Ethernet Adapter (P/N 850-560-001)
Connect this accessory to the CN3 for an Ethernet connection.

AA17 RS-232/DEX Adapter (P/N 850-558-001)
Connect this accessory to the CN3 so that you can you can receive serial communications.

AA18 USB Adapter (P/N 850-559-001).
Connect this accessory to the CN3 for USB communications.

AC14 Quad Battery Charger (P/N 852-065-001)
Use the quad battery charger to charge up to four CN3 battery packs.

AD10 Single Dock (P/N 871-025-001)
Use the single dock to hold a CN3 with its battery installed, charge a spare battery pack, charge the main battery pack, and provide power to the CN3. The dock has USB host and client connectors. Optional modules are available to convert the USB host to Ethernet or to a landline modem.

AD11 Multidock (P/N 871-026-001)
Use the multidock to hold up to four CN3s with batteries installed. The multidock charges the batteries and provides power and Ethernet connections to each CN3.

AD12 Charge-Only Multidock (P/N 875-026-002)
Use the charge-only multidock to hold up to four CN3s with batteries installed, charge batteries, and provide power to CN3s.

AV6 Vehicle Dock (P/N 871-027-001)
Use the vehicle dock to hold and charge the CN3 while using it on a vehicle.

AV9 Vehicle Dock (P/N 871-027-101)
Use the vehicle dock to hold and charge the CN3e while using it on a vehicle.

AR1 Magnetic Card Reader (P/N 850-557-001)
The magnetic card reader provides magnetic stripe reading capability to the CN3.

CN3 Scan Handle (P/N 203-839-001)

Use the scan handle to provide better ergonomics for higher-volume scanning applications.

CN3 Vehicle Battery Adapter (P/N 852-066-001)

Use this accessory o charge your CN3 in your vehicle.

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Default Settings

Default Configuration

The following tables list the default values of the configuration commands supported on the CN3. If you restore the CN3 to factory default settings, the CN3 uses these values.

The commands are grouped by function and reflect the organization of Intermec Settings. For detailed information on most of the commands, see the *Intermec Computer Command Reference Manual* (P/N 073529), available from the Intermec website at **www.intermec.com**.

Data Collection

Data Collection Settings

Data Collection Setting	Default Value
Enable scanner port	Enable
Enable scanner auto-detect	Enable

Symbology Settings

Symbology	Default Value
AustraliaPost	Disable
Aztec	Disable
BPO	Disable
CanadaPost	Disable
ChinaPost	Disable
Codabar	Disable
Codablock A	Disable
Codablock F	Disable
Code 11	Disable
Code 39	Enable
Code 93	Disable
Code 128/GS1-128	Enable
DataMatrix	Enable

Symbology Settings (continued)

Symbology (continued)	Default Value
DutchPost	Disable
EAN/UPC	Enable UPC A, UPC E, EAN 8, EAN 13
EAN.UCC Composite	Disable
GS1 DataBar Expanded	Disable
GS1 DataBar Limited	Disable
GS1 DataBar Omni-Directional	Disable
Interleaved 2 of 5	Disable
JapanPost	Disable
Matrix 2 of 5	Disable
Maxicode	Disable
Micro PDF417	Disable
MSI	Disable
PDF417	Enable
Planet	Disable
Plessey	Disable
Postnet	Disable
QR Code	Disable
Standard 2 of 5	Disable
Telepen	Disable
TLC 39	Disable

Symbology Option Settings

Symbology Option	Default Value
Preamble	None (disabled)
Postamble	None (disabled)
Global Symbology ID	Disable

Scanner Settings

Scanner Setting	Default Value
Hardware Trigger	Enable
Turn Off After Good Read	Enable/One-shot
Trigger mode (area imagers only)	Level

Imager Settings

Imager Setting	Default Value
Predefined Modes	1D and 2D Standard
Sticky aimer LED duration	0 (disabled)
Signature Image Capture	Disable

Decode Security Settings

Decode Security Setting	Default Value
Consecutive Data Validation	0
Identical Consecutive Timeout	300 ms
Different Consecutive Timeout	0
Center Decoding	Disable
Center Decoding Tolerance	Disable

Virtual Wedge Settings

Virtual Wedge Setting	Default Value
Virtual Wedge	Enable
Grid	Null

Magstripe Reader Settings

Magstripe reader	Default Value
Magstripe Readere	Disable

RFID

RFID Settings

RFID Setting	Default Value
RFID Service	Enable

Application Connection Settings

Application Connection Setting	Default Value
Allow External BRI Connections	Enable
BRI TCP Port	2189
BRI Heartbeat	Disable
Trigger Management	Disable
Enable Logging	Disable

Reader 1 Settings

Reader 1 Setting	Default Value
Enable Reader	Disable
Connected	Disable
Reader Model	IP30
Trigger Management	Disable
Enable Logging	Disable

RFID Module Settings

RFID Module Setting	Default Value
Tag Type	EPC Class 1 Gen2
Dense Reader Mode	Disable
LBT Channel	5
LBT Scan Enable	Enable
Field Separator	Space ()
ID Report	Enable
No Tag Report	Disable
Report Timeout	0 ms
Timeout Mode	Disable
ID Timeout	100 ms
Antenna Timeout	50 ms
ID Tries	3
Antenna Tries	3
Read Tries	3
Write Tries	3
Initialization Tries	1
Lock Tries	3
Select Tries	1
Unselect Tries	1
Initial Q	4
Field Strength dB	30

RFID Module Settings (continued)

RFID Module Setting	Default Value
Session	2
Enable Antenna Port 1	Enable
Enable Antenna Port 2	Disable
Enable Antenna Port 3	Disable
Enable Antenna Port 4	Disable

Communications

Communications Settings

Communications Setting	Default Value
Device Name	CN3

Bluetooth Settings

Bluetooth Setting	Default Value
Bluetooth Power	Off
Bluetooth Discoverable	Disable
Bluetooth Connectable	Disable

802.11 Radio Settings

802.11 Radio Setting	Default Value
Security Choice	Funk Security
Allow Security Changes	Enable
Radio Measurement	0
Radio Enabled	Enable

Funk Security Settings

Funk Security Setting	Default Value
Active Profile	1
Profile Label	Profile_1

Funk Security Settings (continued)

Funk Security Setting	Default Value
Network Type	Infrastructure
Channel	3
SSID	INTERMEC
Power Mode	Enabled (Fast PSP)
8021x	None
Association	Open
Encryption	None
Pre-Shared Key	Null
Transmit Key	Key1
Prompt for Credentials	Enable
User Name	anonymous
User Password	anonymous
Inner Authentication-TTLS	MS-Chapv2
Anonymous name	anonymous
Inner EAP	EAP/MDS
Inner Authentication-PEAP	EAP/MS-Chapv2
Subject Name	Null
Validate Server Certificate	No
Server 1 Common Name	Null
Server 2 Common Name	Null
Mixed Cell	Off
CCKM	Off
Automatic PAC Provisioning	Off
Provisioning PAC Prompt	Off
Reprovisioning PAC Prompt	Off
PACManager	Null
Logging	Off
Radio Measurement	0
Radio Enabled	Enable

Ethernet Adapter Settings

IP Settings	Default Value
DHCP	Enable
DHCP Client Identifier	Null
Primary DNS	0.0.0.0
Secondary DNS	0.0.0.0
Primary WINS	0.0.0.0
Secondary WINS	0.0.0.0

Certificates Settings

Certificates Setting	Default Value
Import Root Certificates	False
Import User Certificates	False
Import Pac Files	False

Ethernet Adapter IP Settings

Ethernet Adapter IP Setting	Default Value
DHCP	Enable
DHCP Client Identifier	Null
Primary DNS	Null
Secondary DNS	Null
Primary WINS	Null
Secondary WINS	Null

PSK Settings

PSK Setting	Default Value
Remote Connection	
Host IP	0.0.0.0
Host Port	5555

PSK Settings (continued)

PSK Setting	Default Value
Serial Port	
Baud	115200
Parity	Even
Data Bits	7 Data Bits
Stop Bits	1 Stop Bit
Flow Control	No Flow Control
Protocol	Configurable
EOM1	\x03
EOM2	\xFFFFFFFF
SOM	\x02
Reader Command	Enable w/o TMF
LRC	Disable
Handshake	Disable

Device Settings

Device Settings

Device Setting	Default Value
Date	Null
Time	Null
Adjust for Daylight Time	Disable
Good Read Beep	One Beep
Good Read LED	On
Beeper Volume	Medium

Display Settings

Display Setting	Default Value
Backlight on Battery Power	
Backlight Turns Off After	30 s
Backlight On Tap	Enable
Backlight on External Power	
Backlight Turns Off After	1 min
Backlight On Tap	Enable
Backlight Level	High

Power Management Settings

Power Management Setting	Default Value
Battery Power	
Device Turns Off After	2 min
Screen Turns Off After	1 min
External Power	
Device Turns Off After	Disable
Screen Turns Off After	Disable

Device Monitor

Device Monitor Settings

Device Monitor Setting	Default Value
Poll Period	1 min
Threshold Values	
Backup Battery Charge Remaining	10
Main Battery Charge Remaining	10
Storage Load	90
Memory Load	90

Core Messaging Service

Core Messaging Service Settings

Core Messaging Service Setting	Default Value
Associated Server IP	Null
Server Name	INTERMEC
Keep Alive Ping Interval	30 s

C

Keypads and Keystrokes

Standard Characters

Use the following tables to learn how to enter standard and other available characters and functions with the keypad. If there is no sequence of keystrokes for a particular character or function, it is only available through the soft input panel (SIP), which can be accessed by tapping the keyboard icon on the touch screen.

CN3 Alphanumeric Characters

To Enter	Numeric Keypad	Alphanumeric Keypad
a	**C** [2]	[A]
b	**C** [2] [2]	[B]
c	**C** [2] [2] [2]	[C]
d	**C** [3]	[D]
e	**C** [3] [3]	[E]
f	**C** [3] [3] [3]	[F]
g	**C** [4]	[G]
h	**C** [4] [4]	[H]
i	**C** [4] [4] [4]	[I]
j	**C** [5]	[J]
k	**C** [5] [5]	[K]
l	**C** [5] [5] [5]	[L]
m	**C** [6]	[M]
n	**C** [6] [6]	[N]
o	**C** [6] [6] [6]	[O]
p	**C** [7]	[P]
q	**C** [7] [7]	[Q]
r	**C** [7] [7] [7]	[R]
s	**C** [7] [7] [7] [7]	[S]
t	**C** [8]	[T]
u	**C** [8] [8]	[U]
v	**C** [8] [8] [8]	[V]
w	**C** [9]	[W]
x	**C** [9] [9]	[X]

CN3 Alphanumeric Characters (continued)

To Enter	Numeric Keypad	Alphanumeric Keypad
y	**C** [9] [9] [9]	[Y]
z	**C** [9] [9] [9] [9]	[Z]
A	**C** [1] [2]	[Shift] [A]
B	**C** [1] [2] [2]	[Shift] [B]
C	**C** [1] [2] [2] [2]	[Shift] [C]
D	**C** [1] [3]	[Shift] [D]
E	**C** [1] [3] [3]	[Shift] [E]
F	**C** [1] [3] [3] [3]	[Shift] [F]
G	**C** [1] [4]	[Shift] [G]
H	**C** [1] [4] [4]	[Shift] [H]
I	**C** [1] [4] [4] [4]	[Shift] [I]
J	**C** [1] [5]	[Shift] [J]
K	**C** [1] [5] [5]	[Shift] [K]
L	**C** [1] [5] [5] [5]	[Shift] [L]
M	**C** [1] [6]	[Shift] [M]
N	**C** [1] [6] [6]	[Shift] [N]
O	**C** [1] [6] [6] [6]	[Shift] [O]
P	**C** [1] [7]	[Shift] [P]
Q	**C** [1] [7] [7]	[Shift] [Q]
R	**C** [1] [7] [7] [7]	[Shift] [R]
S	**C** [1] [7] [7] [7] [7]	[Shift] [S]
T	**C** [1] [8]	[Shift] [T]
U	**C** [1] [8] [8]	[Shift] [U]
V	**C** [1] [8] [8] [8]	[Shift] [V]
W	**C** [1] [9]	[Shift] [W]
X	**C** [1] [9] [9]	[Shift] [X]
Y	**C** [1] [9] [9] [9]	[Shift] [Y]
Z	**C** [1] [9] [9] [9] [9]	[Shift] [Z]
0	[0]	**B** [backlight]
1	[1]	**B** [Y]
2	[2]	**B** [U]
3	[3[	**B** [I]

CN3 Alphanumeric Characters (continued)

To Enter	Numeric Keypad	Alphanumeric Keypad
4	[4]	**B** [H]
5	[5]	**B** [J]
6	[6]	**B** [K]
7	[7]	**B** [B]
8	[8]	**B** [N]
9	[9]	**B** [M]
Symbols	Symbol key or [Shift} plus corresponding key.	

CN3 Auxiliary Keys and Special Characters

To Enter	Numeric Keypad	Alphanumeric Keypad
^	N/A	N/A
@	N/A	**B** [Q]
&	N/A	**B** [S]
*	N/A	**B** [C]
:	N/A	**B** [D]
,	N/A	**B** [X]
$	N/A	**B** [E]
"	N/A	N/A
!	N/A	N/A
`	N/A	**B** [Z]
>	N/A	N/A
-	**B** [*]	**B** [G]
[	N/A	N/A
{	N/A	N/A
(	N/A	N/A
<	N/A	N/A
%	N/A	**B** [R]
.	[.]	[.]
+	**B** [#]	**B** [T]

CN3 Auxiliary Keys and Special Characters (continued)

To Enter	Numeric Keypad	Alphanumeric Keypad
#	N/A	**B** [V]
?	N/A	**B** [A]
]	N/A	N/A
}	N/A	N/A
)	N/A	N/A
;	N/A	N/A
`	N/A	**B** [Z]
~	N/A	N/A
_	N/A	N/A
BackTab	**B** [→|]	**B** [→|]
CapsLock	**C** [1]	**B** [Shift]
Enter	[Enter]	[Enter]
Frown	**B** [3]	**B** [O]
OK	**B** [Esc]	**B** [P]
Shift	**C**	[Shift]
Smiley	**B** [1]	**B** [W]
Space	**C** [0]	[Space]

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