CN4

Mobile Computer
CN4, CN4e

User's Manual

Intermec®

Intermec Technologies Corporation

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

www.intermec.com

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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 web site 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 web site 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.

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 web site, click **About Us** > **Contact Us**.

Service Location Support

For the most current listing of service locations, 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
E-mail: **jmyou@idif.co.kr** or korlim@gw.idif.co.kr

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

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.

Who Should Read This Manual

This manual is written for the person who is responsible for installing, configuring, and maintaining the CN4 and CN4e Mobile Computer.

This manual provides you with information about the features of the CN4 and CN4e, and how to install, configure, operate, maintain, and troubleshoot it.

Before you work with the CN4 or CN4e, you should be familiar with your network and general networking terms, such as IP address.

Related Documents

This table contains a list of related Intermec documents and their part numbers.

Document Title	Part Number
CN4 Mobile Computer Quick Start Guide	930-220-xxx
CN4e Mobile Computer Quick Start Guide	930-224-xxx
Models CN4 and CN4e Compliance Insert	933-185-xxx
Intermec Settings Command Reference Manual	937-016-xxx
Intermec Developer Library (IDL) Resource Kit Developer's Guide	934-006-xxx

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

To download documents

1 Visit the Intermec web site 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.

1 Using the CN4

This chapter introduces the CN4 and CN4e Mobile Computers with Windows® Mobile® 6.1. It also contains hardware and software configuration information to assist you in getting the most out of your computer. This chapter contains these topics:

- **Using the Battery**
- **Using the Keypad**
- **Understanding the Audio Features**
- **Using the Screen**
- **Understanding the Status LEDs**
- **Using the Imager**
- **Using the Color Camera**
- **Installing a miniSD or SIM Card**
- **Setting Up GPS on Your CN4**

Introducing the CN4 Mobile Computer

The Intermec CN4 and CN4e Mobile Computers are ergonomically designed mobile computers built on the Microsoft Windows Mobile® 6.1 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 CN4 and CN4e support similar feature sets. The CN4e offers extended environmental specifications and larger keys for data intensive applications. The CN4 Series of mobile computers includes both the CN4 and CN4e computers. Throughout this manual, both versions of the computer are referred to as CN4 or CN4 Series.

CN4e and CN4 Mobile Computers

The CN4 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 CN4 and CN4e 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 CN4. For help, contact your local Intermec representative.

- Bluetooth® radio standard
- 128 MB RAM
- QWERTY or numeric keypads
- Imaging options:
    - EA21 Standard Area Imager
    - Color Camera
- Wireless Wide Area Network (WWAN) options:
    - UMTS/HSDPA
    - GSM/GPRS/EDGE
    - CDMA/1xRTT/EV-DO Rev A

Use this manual to understand how to use the features and options available on the CN4 and CN4e.

Note: For information about the Windows Mobile 6.1 applications installed on the CN4, see the online Help. For additional information about using Windows Mobile 6.1 on the CN4, visit Intermec Knowledge Central at **www.intermec.com**.

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 CN4.

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 CN4 Series computers use the following Intermec batteries as a main power source. All have been certified to meet the IEEE 1725 standard for rechargeable batteries.

Standard and Extended Batteries for CN4 and CN4e

Computer	Uses This Standard Battery	Uses This Extended Battery
CN4	AB8 or AB15	AB9 or AB16
CN4e	N/A	AB9 or AB16

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 CN4.

⚠ 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.

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

Caution

Note: If the CN4 is not on external power and you remove the battery pack, it goes into Suspend mode. You need to install a charged battery within 5 minutes, or the CN4 resets and you could lose data.

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 CN4 for the first time. If battery temperatures are within the battery charging range of 0° to 40°C (32° 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 a multidock, or attach external power to the CN4 with the battery installed. For information on these accessories, see **"Accessories" on page 92.**

Use the next table to understand how long it will take to charge your batteries in some of the CN4 charging accessories.

Charging Times for CN4 Batteries

Charging Accessory	Model	Charging Time
Quad Battery Charger	AC14	5 hours or less
Single Dock	AD10	5 hours or less
Multidock	AD11/AD12	5 hours or less

Changing the Battery

When you remove the battery from the CN4, an internal super capacitor maintains your status, memory, and real-time clock for up to 5 minutes. To maximize this time, suspend the CN4 before changing the battery.

To change the battery

1 Press and release the **Power** button to suspend the CN4.

2 Unsnap the top end of the handstrap.
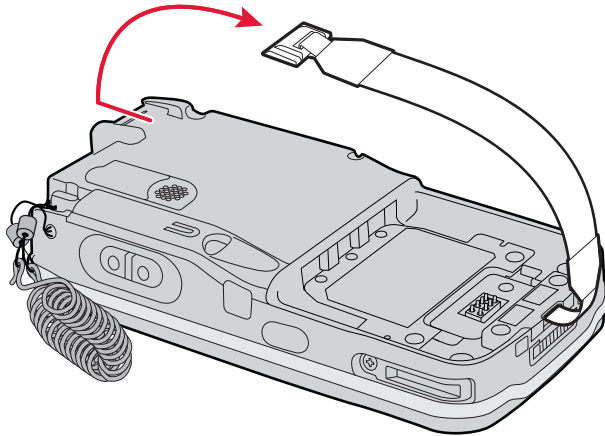
3 Press the battery release tab to the left until the battery releases, and then lift it away from the CN4.

4 Place the tabbed end of the battery into the battery compartment, and then press down on the battery until it clicks into place.
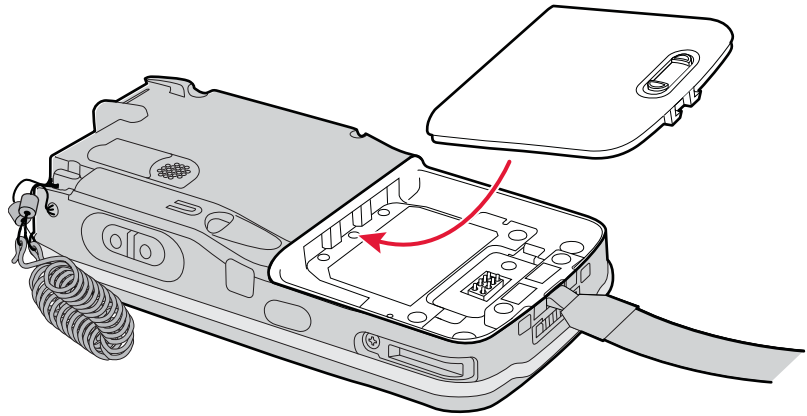
Inserting the Battery

5 Snap the top of the handstrap into place.

Checking the Battery Status

The easiest way to check the status of your battery is to look at the battery icon on the CN4 status bar.

Battery Icon Status

Icon	Status
📶	Battery is fully charged.
📶	Battery has a medium charge. You should be able to work for several more hours before changing batteries.
🔋	Battery is low. You need to replace or charge the battery soon.
🔋	Battery is critically low. You need to replace or charge the battery now.
🔄	Battery is charging.

The Battery Status LED indicates the charging status.
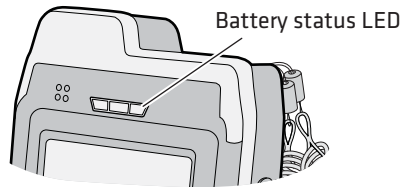
Battery status LED

Understanding the Battery Status LED

Battery Status	Description
Steady green	The battery is more than 95% charged and CN4 is on a charger.
Blinking red	The battery is low. CN4 goes into Suspend mode. Charge or replace the battery.
Steady red and the CN4 is attached to external power.	The battery is charging.
Steady red and the CN4 is **not** attached to external power.	The CN4 firmware is not working properly. Cold boot the CN4 as described in **"Cold Booting the CN4" on page 84.**
Steady amber	The battery is missing or is unable to charge.
	If the battery will not charge, it may be because the temperature is outside of the charging range, or you may be using a battery not approved by Intermec. You need to use one of the battery models specified in **"Standard and Extended Batteries for CN4 and CN4e" on page 4.**
Off	The CN4 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 **System** tab > **Power** > the **Battery** tab.
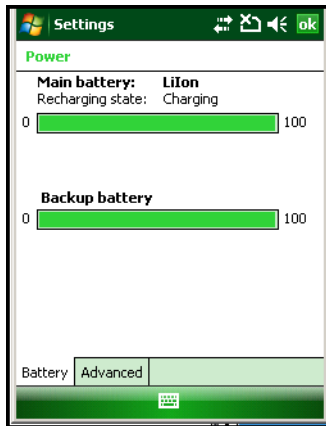
Maximizing Battery Life

Batteries are chemical devices. If the batteries are left sitting on a shelf for long periods of time outside the CN4, 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 CN4 and the Low Battery status icon appears or the Battery light comes on.	Press the power button to turn off the CN4. Remove the battery and insert another fully charged battery within five minutes or you may lose data. Or, you can connect the CN4 to an external power source.
Stop using the CN4 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 CN4.

Battery Conservation Tips (continued)

When You Want To:	Do This to Save Battery Power:
Store the CN4 for more than a day.	If you are storing the CN4 for a few days, like over the weekend, install the charged battery or attach the CN4 to a power source.
	If you are storing the CN4 for longer, remove and charge the battery, then store both the battery and the CN4 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.
Store the battery outside the CN4.	Store the batteries in a charger.

Managing Power on the CN4

By default, the CN4 goes into a lower power mode or turns off after two minutes of inactivity. Press the **Power** button to resume activity at any time.

There are several ways you can manage power:

- You can change the amount of time the screen backlight stays on. For help, see **"Configuring the Backlight Settings" on page 23.**

- You can choose a Power Management Profile to manage power based on the way you use your CN4. Each profile turns off the screen and the CN4 at preset times, and maintains data connections differently. For help, see the next section.

- You can set the amount of time that the screen stays on, or the amount of time the CN4 stays on after the screen turns off. For help, see **"Customizing Power Timeouts" on page 12.**

Choosing a Power Management Profile

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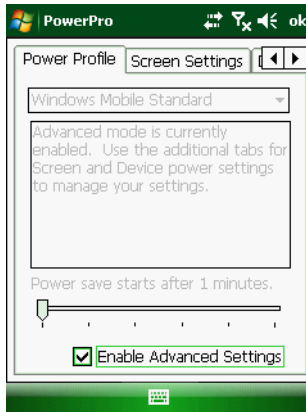
2 From the drop-down list, select **Windows Mobile Classic**, **Windows Mobile Standard**, or **Windows Mobile Phone**.

For more information, see the next section, "About Power Management Profiles."

3 Tap **ok** in the upper right corner to save your changes.

Power Profiler also provides advanced settings that allow you to fine-tune the power usage. 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. For help with Intermec Settings, see **"Configuring the CN4 Parameters" on page 34.**

About Power Management Profiles

Use the Windows Mobile Standard profile (default) for applications that power off infrequently, such as inventory management or terminal emulation. If the CN4 does not have any activity, the screen turns off, but WAN, LAN, or Bluetooth radio connections are maintained in a low power state. If there continues to be no activity, the CN4 eventually turns off data connections and goes into Suspend mode. To wake up the CN4 and restore network connections, you need to press the **Power** or **Scan** button.

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 CN4 is on and all peripherals are enabled. If the screen is off, you do not have any WAN, LAN, or Bluetooth connections, but the CN4 will still receive incoming phone calls. To wake up the CN4 and restore network connections, you need to press the **Power** or **Scan** button.

Use the Windows Mobile Phone profile when you have a system that requires network wake-up or you need the CN4 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.

Customizing Power Timeouts

Follow the next procedure to adjust the screen and power timeout values. You can set different values for battery and external power.

Note: When you set timeout values this way, you override values used by the Power Management Profiles.

To customize power timeout values

1 Tap **Start** > **Settings** > **System** tab > **Power Profiler**.

2 In the Power Profile tab, tap **Enable Advanced Settings**.

3 Tap the Screen Settings tab to change screen timeout values:

- Check the **Enable Screen Off** check box to be able to turn off the screen independently of the CN4.

- To change the amount of inactivity time before the screen turns off, move the Battery Power or External Power sliders.

  For battery power, choose from 1 to 6 minutes.

  For external power, choose from 1, 2, 5, 10, or 15 minutes, or disable this feature.

4 Tap the Device Settings tab to change overall CN4 power timeout values:

- Check the **Enable Device Off** check box to be able to turn off the CN4 by pressing the **Power** button. This feature is enabled by default unless you are using the Windows Mobile Phone power profile.

- To change the amount of inactivity time before the CN4 turns off and goes into Suspend mode, move the Battery Power or External Power sliders.

  For battery power, choose from 1 to 6 minutes.

  For external power, choose from 1, 2, 5, 10, or 15 minutes, or disable this feature.

5 Tap the Power Button tab to change what happens when you press the **Power** button:

- Choose **Turn off the Device** if you want to put the CN4 in Suspend mode when you press the **Power** button. In Suspend mode, data connections are turned off. To restore data connections, you need to press the **Power** button to wake up the CN4.

- Choose **Turn off the Screen** if you want to leave the CN4 on but with the screen turned off when you press the **Power** button. This mode uses more power than Suspend mode, but maintains all data connections. Press the **Power** button to turn the screen on.

Using the Keypad

The CN4 can have a QWERTY keypad or numeric keypad. The CN4e supports larger numeric keypads with a phone style (1-2-3 on top) layout.

CN4 QWERTY Keypad   *CN4 Numeric Keypad*
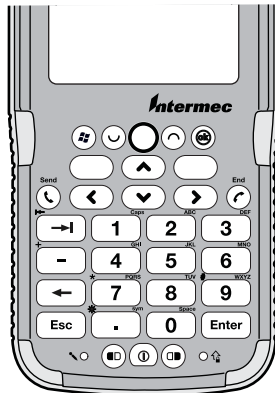
CN4e Numeric Phone-Style Keypad   *CN4e Alphanumeric Keypad*

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 CN4e provides larger input keys better suited for blind entry or glove usage.

Using the Color-Coded Keys

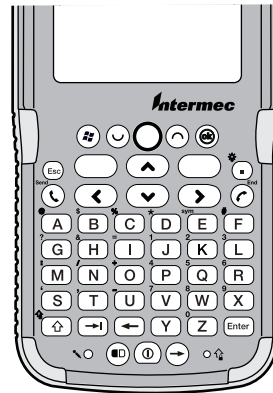Each keypad available for the CN4 provides color-coded keys to let you access additional characters, symbols, and functions printed on the keypad overlay. Once you understand how to use the color-coded keys and key sequences, you can access all of the additional features printed on the keypad overlay. There are two color-coded modifier keys on the numeric keypad: the orange ◼◻ key and the green ◻◼ key. The alphanumeric keypads have only the orange ◼◻ color-coded modifier key.

Using the Color-Coded Keys

You Want To:	Press:	Example
Use an orange character or function printed above a key.	◼◻ key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN4 Qwerty keypad, press ◼◻ and then **Q** to type the @ character.
Use a green character or function printed above a key.	◻◼ key (LED illuminates) and then the key with the character or function printed above it (LED turns off).	On the CN4 numeric keypad, press ◻◼ and then **2** to type a lowercase a.
Lock the orange or green key to stay on.	◼◻ or ◻◼ twice.	On the CN4e numeric keypad, press ◻◼ twice and the green LED illuminates and stays on.
Unlock a green or orange key.	◼◻ or ◻◼ once.	Press the ◼◻ or ◻◼ once to unlock the key and turn off the LED.

Capitalizing Characters

To capitalize a single character on alphanumeric 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 CN4 keypad.

To enable Caps Lock

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

- On the CN4 numeric keypad, press ▫▬ **1**.

- On the CN4e numeric keypads, press ▫▬ **1**.

The Caps Lock LED lights up green to show that the CN4 is in the Caps Lock mode.

To exit Caps Lock

- On the CN4 numeric keypad, press ▫▬ **1** again.

- On the CN4e numeric keypad, press ▫▬ **1**.

Entering Characters on the Alphanumeric Keypad

There are a few hidden characters on the alphanumeric 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** ▬▫ **Z**
>	**Shift** ▬▫ **.**
<	**Shift** ▬▫ **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":

- Press ▫▬ **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 CN4 into Suspend mode. In this lower power mode, the CN4 continues to supply power to all memory, but turns off power to most hardware such as the display. This 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 CN4 to suspend.

Understanding the Audio Features

There are several audio features available on the CN4. There are two speakers, a microphone, an external volume control, and multiple software tools for configuring the volume of sounds.

Using the CN4 as a Cell Phone

Note: For more information on using the phone, see **"Configuring the Phone" on page 38.**

When you use the CN4 as a cell phone, use the microphone and a front speaker for talking on the phone.

Front speaker

Microphone
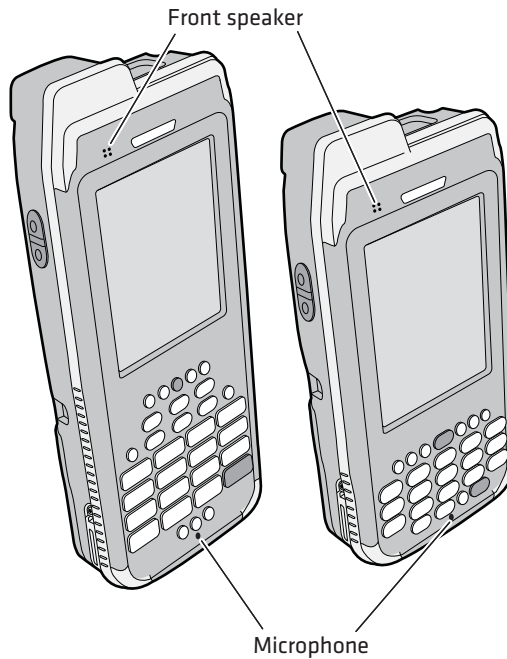
To adjust the volume of the front speaker

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.

Phone volume slider
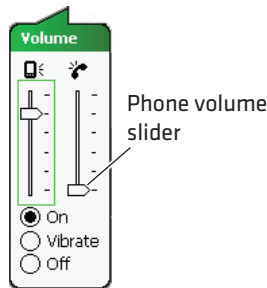
Adjusting the Volume of the Rear Speaker

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, low, medium (default), high, and very high. Use the following table to understand the different ways to adjust the volume.

Rear speaker

Volume up/down
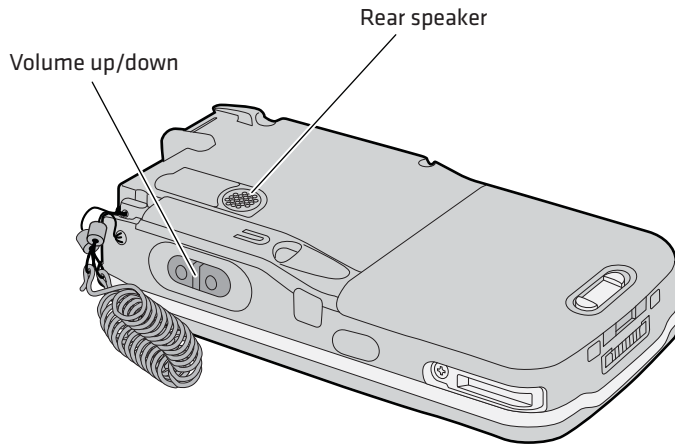
Location of the Rear Speaker and Volume Control

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 **"Using Intermec Settings Directly On the CN4" on page 36.**
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 web site.

Enabling the Vibrate Feature

You can enable the vibrate feature when audio is difficult to hear, such as in a high noise environment. When enabled, the CN4 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**.
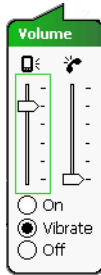
> **Note**: The Volume icon in the Navigation bar changes to look like a vibrating CN4 (📳) when the Vibrate feature is enabled.

Using the Screen

The CN4 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 CN4 and important information for the day.

- The Command bar displays the onscreen keyboard icon, Windows Mobile 6.1 links, and icons to any applications that are running, but are hidden from view.

Navigation bar

Today screen

Command bar
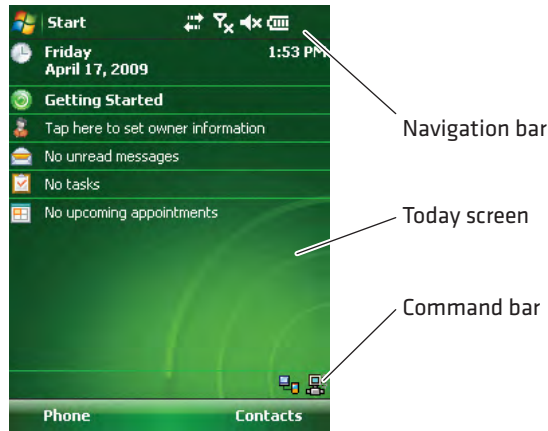
The Windows Mobile Today Screen

Note: To help conserve battery power, you can change the amount of time that the screen backlight stays on. For help, see **"Configuring the Backlight Settings" on page 23.**

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 CN4 is on external power and 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 phone is connected to your WAN 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.
	No SIM card is installed.

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 Click **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 CN4" on page 85.**

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 Click **ok**.

Configuring the Backlight Settings

By default, the CN4 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 CN4."

To configure the backlight

1 Tap **Start** > **Settings** > the **System** tab > **Backlight** > 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).
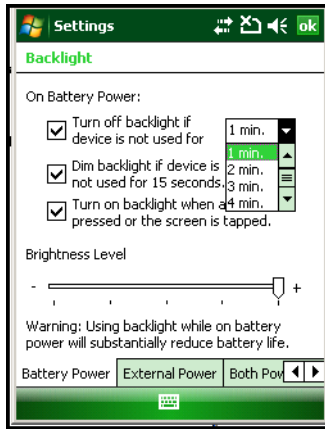
You can also use Intermec Settings to configure the backlight settings. For more information, see **"Configuring the CN4 Parameters" on page 34.**

Understanding the Status LEDs

The status LEDs above the display show the following information:
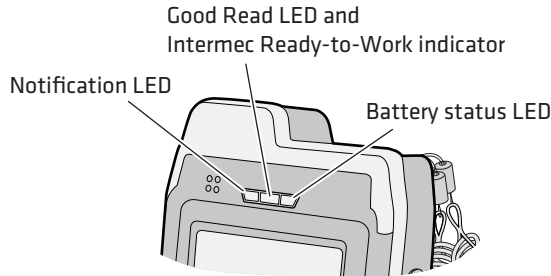
Understanding the LEDs

LED	Color	Description
Notification	Orange	The CN4 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 CN4 has successfully decoded a bar code.
Ready-to-Work indicator™	Blue	The CN4 is suspending or resuming with the display turned off.

Understanding the LEDs (continued)

LED	Color	Description
	Blinking blue	You have successfully loaded and activated Intermec Terminal Emulator (ITE).
		ITE is loaded, but is inactive.
	Off	ITE 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 CN4 on or off and do not remove the battery, or you may corrupt the CN4. If the computer seems to behave erratically, first try warm booting and then cold booting the CN4 as described in **"Resetting the CN4" on page 83.**

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 **"Using Intermec Settings Remotely With SmartSystems Foundation" on page 35.** Selected application software programs may also use the indicator for other purposes.

For more information on SmartSystems Foundation, visit **www.intermec.com** and choose **Products** > **Applications and Software** > **Management** > **SmartSystems Foundation**.

Using the Imager

The area imager in the CN4 can perform multiple tasks:

* Reading bar codes, including 1D, 2D, and composite symbologies and postal codes. For more information, see the next section, "Reading Bar Codes."

* Capturing images. Use the imager like a digital camera to take high-quality, greyscale pictures. For more information, see **"Capturing Images" on page 29.**

* Document imaging of full business forms such as bills of lading or invoices. For more information, see **"Capturing Documents" on page 31.**

   - Capturing signatures. Use the imager to "photograph" signatures on business forms, or to capture onscreen signatures or line drawings. For more information, see **"Capturing Signatures" on page 34.**

Reading Bar Codes

The CN4 imager can scan 1D and 2D bar code symbologies, composite symbologies, and postal codes. You can position the CN4 in almost any orientation to scan a bar code label.

Imager window

Side scan button

Front scan button

CN4 Imager and Scan Button Locations

Imager window

Side scan
button
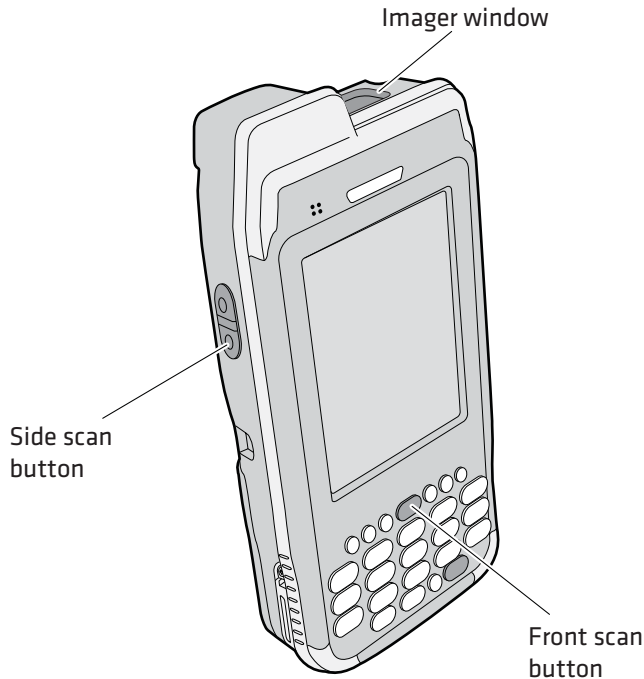
Front scan
buttons
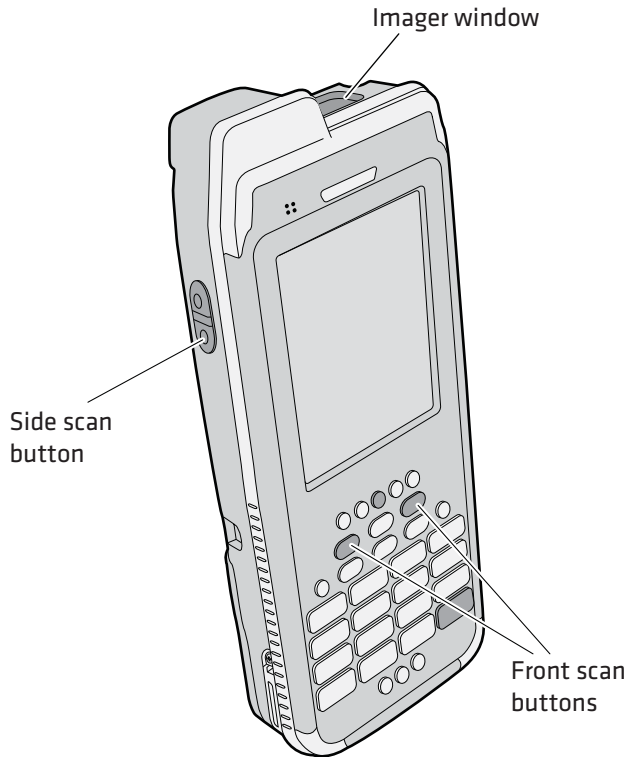
CN4e Imager and Scan Button Locations

To read bar codes

1 Press the power button to turn on the CN4, point the scanner
window a few inches from the bar code label, and hold steady.

2 Press and hold the **Scan** button. A laser pointer, illumination
beam, and aiming frame turn on.

Laser pointer
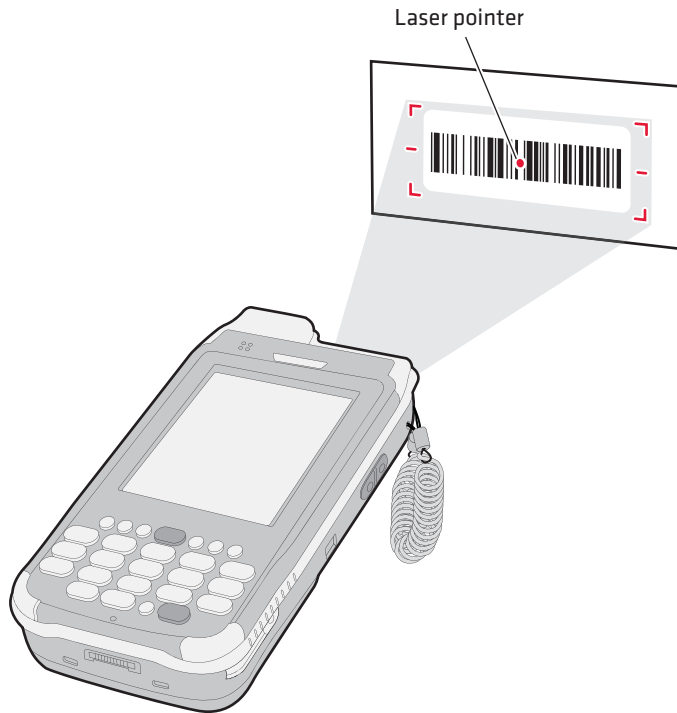
3 Center the pointer over the bar code label and move the CN4 so the bar code fills the aiming frame.

4 When a bar code label is successfully read, the CN4 makes a high beep and the Good Read LED lights briefly.

5 Release the **Scan** button.

These bar code symbologies are enabled by default on the CN4: 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 **"Using Intermec Settings Directly On the CN4" on page 36.**

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 Settings Command Reference Manual (P/N 937-016-xxx)*.

Capturing Images

The Data Collection Resource Kit includes .NET classes you use in your image capture applications. For more information, see **"Developing Applications for the CN4" on page 62.**

The CN4 includes Image Capture, a utility application that demonstrates how you can capture images.

Using the Image Capture Application

1 Tap **Start** > **Programs** > **Image Capture**.

The Image Capture main screen shows streaming video from the imager.

2 Point the CN4 at the subject for the image and press **Enter**. The image appears.
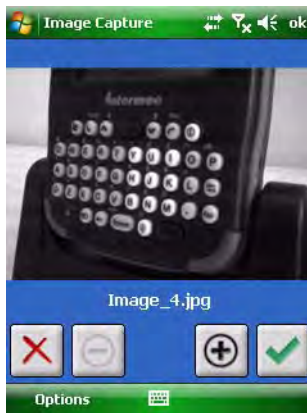
3 Tap-and-drag to scroll the image.

Tap ⊕ to zoom in, or tap ⊖ to zoom out.

To save the image, tap ✔.

To discard the image, tap ✖.

By default, images are saved to the My Documents/ImageCapture directory on the CN4. After you save or discard an image, the main screen appears and the CN4 is ready to capture another image.

4 To view saved images, tap **Options** and choose **Gallery**.

Tap ◀ and ▶ to view the images one at a time.

Tap ⊕ to zoom in, or tap ⊖ to zoom out.

To discard the image, tap ✕. To discard all saved images, tap **Options** and choose **Delete All Files**.

To exit the Gallery, tap **Options** and choose **Exit Gallery**.

5 To close the application, tap **ok**.

Configuring the Image Capture Application

The default Image Capture settings apply to most situations where the ambient lighting is adequate for office work. However, you may need to change those settings depending on the conditions in which images will be captured, such as outdoors in bright sunlight or inside a darkened warehouse.

To configure Image Capture settings

1 Tap **Options** and choose **Settings**.

2 Change settings as needed.

3 Tap **Options** and choose **Save Changes and Exit**, or choose **Discard Changes and Exit** to abandon your changes.

Capturing Documents

Use the Enhanced Mobile Document Imaging (eMDI) application to capture documents and create electronic files of printed documents.

Note: A watermark appears in eMDI image files unless you have purchased a valid license. For more information, contact your Intermec sales representative.

To start the eMDI application

• Tap **Start** > **Programs** > **Document Imaging**.
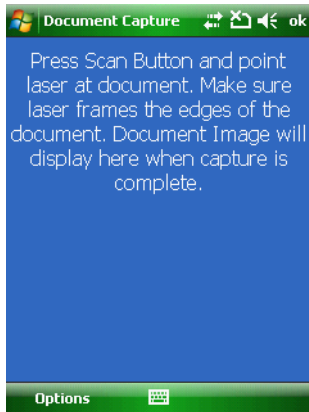
eMDI Main Screen

To capture a document

1 Point the CN4 at the document to be captured.

2 Press and hold the **Scan** button. A laser pointer, illumination beam, and aiming frame turn on.
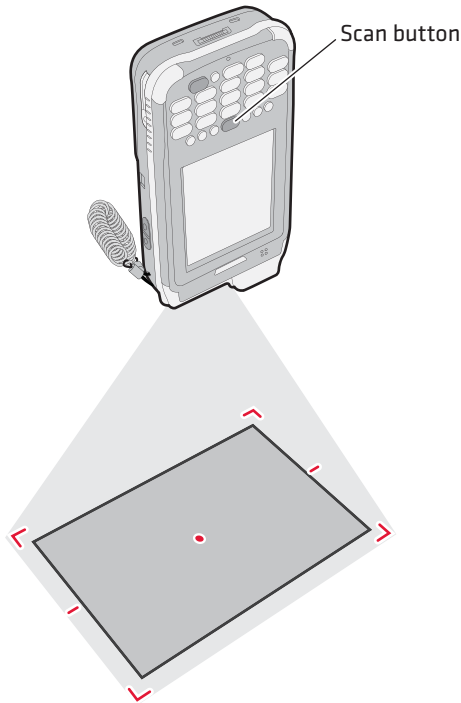
Scan button

3 Keep the pointer centered on the document and move the CN4 so the aiming frame approaches the edges of the document.

When the frame stops flashing, the CN4 captures the document.

4 Release the **Scan** button. The captured image appears.
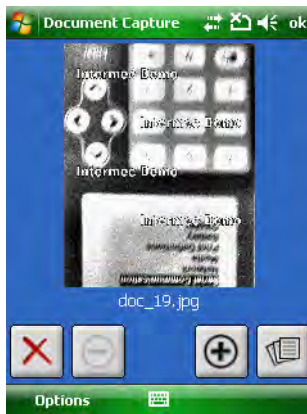
5 Tap-and-drag to scroll the image.

Tap ⊕ to zoom in, or tap ⊖ to zoom out.

To save the image to the Gallery, tap 🖫.

To discard the image and try again, tap ❎.

6 To close the application, tap **ok**.

You can use eMDI as a standalone document imaging application, or you can call eMDI from your own application.

You can also access the document capture APIs by using components in the Data Collection Resource Kit. For more information on Resource Kits, see **"Developing Applications for the CN4" on page 62.**

For more information on using eMDI, see the *Enhanced Mobile Document Imaging User's Guide* (P/N 934-xxx-xxx).

Capturing Signatures

A signature capture is a greyscale image of a signature on paper or other business form. To use signature capture in your applications, use the SignatureCapture components in the Data Collection Resource Kit.

Ink capture is the process of saving an onscreen image, such as a signature or simple line drawing, to a file. To use ink capture in your applications, use the InkCapture components in the Mobile Gadgets Resource Kit.

For more information, see **"Developing Applications for the CN4" on page 62.**

Using the Color Camera

Note: The CN4 can be ordered with either a color camera or the area imager, but not both.

The optional, 2-megapixel color camera with flash is factory-installed in the upper back of the CN4, as shown in the following illustration.
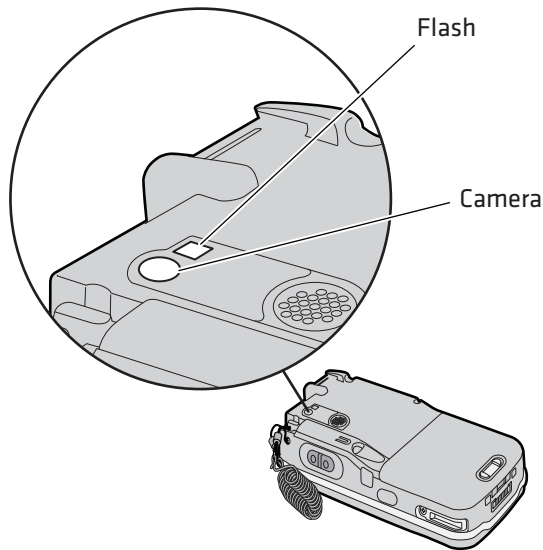
Color Camera and Flash Location

You can take photos in either high-resolution or compressed format, with resolutions up to 1600 x 1200 pixels. 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 CN4 to take, view, and edit pictures or record and launch video clips stored on the CN4 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.
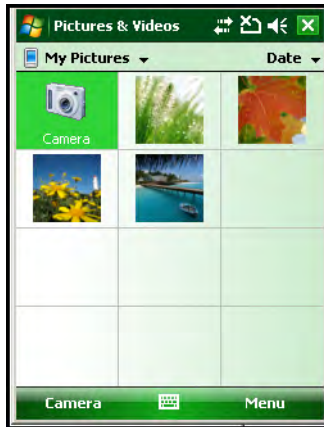
3 Using the screen display as a viewfinder, move the camera until you have the image you want to capture.

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 CN4.

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**.

Installing a miniSD or SIM 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 in the compartment for any damage or wear, and contact your Intermec representative if you find any damage or wear.

The miniSD card and SIM card slots are located below a door inside the CN4 battery compartment.

Once the door to the miniSD is opened and closed (for changing, installing, or removing the SIM or miniSD card), the CN4 performs a cold boot. For more information, see **"Cold Booting the CN4" on page 84.**

To insert a miniSD or SIM card

1 Press the **Power** button to suspend the CN4, and then remove the battery. For help with removing the battery, see **"Changing the Battery" on page 6.**

2 Remove the two screws on the miniSD/SIM card slot door.
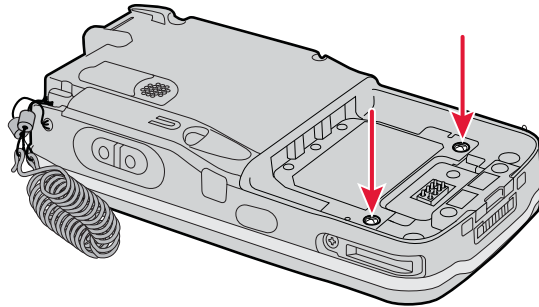
Card Slot Door Screw Locations

3 Gently lift the door to the card slot.

4 Insert the SIM card or miniSD card as shown in the next illustrations.

SIM card
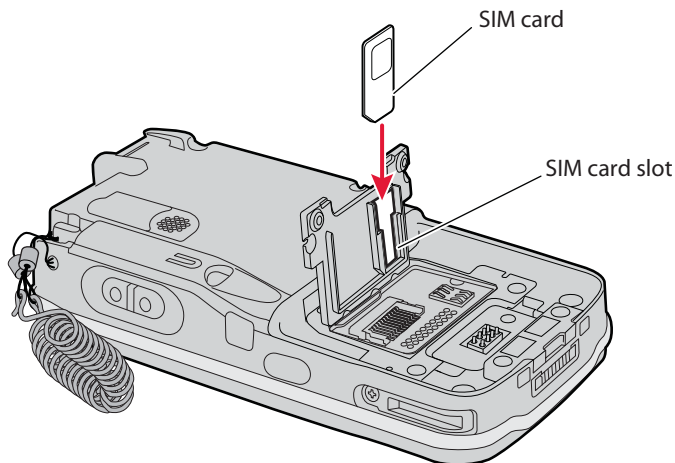
SIM card slot

Inserting a SIM Card
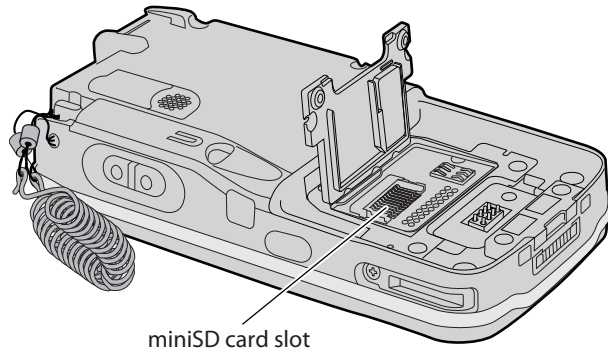
miniSD card slot

Inserting a miniSD Card

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

Caution

To prevent damage to the door, do not overtighten the screws that secure the card slot door.

6 Replace the battery pack and then press the **Power** button. The CN4 cold boots.

Setting Up GPS on Your CN4

The integrated Global Positioning System (GPS) receiver in your CN4 delivers 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.

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

- Allows multiple applications to simultaneously access the GPS data stream.

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

Using the GPSID Installed on the CN4

To use the GPSID installed on your CN4, you need to configure the GPSID settings.

To configure your GPSID settings

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

2 Tap **External GPS**. The GPS Settings screen appears.
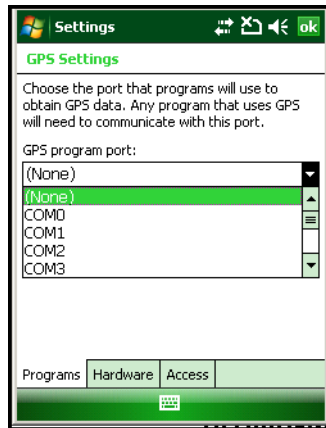
3 On the **Programs** tab, select the COM port that you want your programs to use to get GPS data from your CN4.

Note: COM1 and COM3 are reserved.

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

GPS hardware port: COM3

Baud rate: 57600
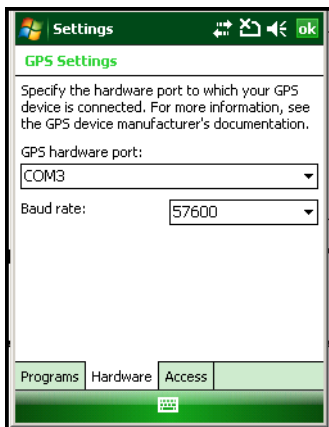
5 Tap the **Access** tab and select the **Manage GPS automatically** check box.

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.
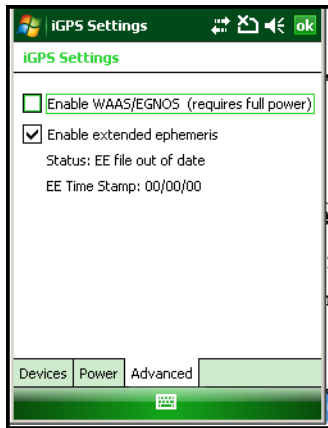
4 Select the **Enable extended ephemeris** check box. NEW SCREEN
   SHOT ABOVE?

5 Tap **ok**.

Learning About Additional GPS Options for the CN4

Intermec provides enhanced feature support for the Extended
Ephemeris data capability. For the latest Extended Ephemeris data
files and other CN4 downloads, visit the CN4 downloads page on the
Intermec web site 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 CN4

Use this chapter to understand how to configure the CN4 to communicate in your network. This chapter contains these topics:

- **Connecting to a PC**
- **Configuring the CN4 Parameters**
- **Configuring the Phone**
- **Configuring the CN4 for Your Network**
- **Configuring Wireless Security**

Connecting to a PC

You can connect the CN4 to your desktop PC to transfer and synchronize files, remotely debug applications, and perform other device management activities. Visit **www.windowsmobile.com/ getstarted** to learn more about synchronizing your CN4 with a desktop PC.

Use Microsoft ActiveSync to establish a connection between your CN4 and PC. ActiveSync can be downloaded for free from Microsoft. To establish an ActiveSync partnership between your CN4 and PC, you need to physically connect your CN4 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 web site 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.
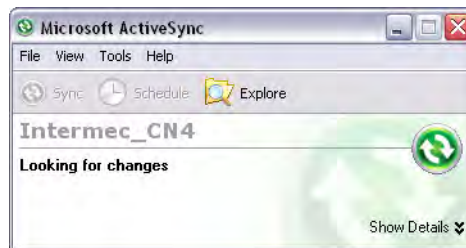
Configuring the CN4 Parameters

You can configure many parameters on the CN4 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 configuratin parameters determine how the CN4 operates.

Settings and other information can be viewed and changed on the CN4 by using the Intermec Settings application on the computer. There are two ways to access Intermec Settings:

- Remotely via Intermec SmartSystems Foundation. When you use SmartSystems, you can remotely configure all your CN4 computers as well as other SmartSystems-enabled Intermec computers and peripherals. For more information, see the next section.

- Directly on the CN4. Using Intermec Settings on the CN4 changes only the settings on that computer. For more information, see **"Using Intermec Settings Directly On the CN4" on page 36.**

Using Intermec Settings 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 SmartSystems-enabled computers in your network.

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

Your CN4 is SmartSystems-enabled, which lets you open Intermec Settings from the SmartSystems console to remotely configure all of your CN4 computers.

To open Intermec Settings from the SmartSystems console

 1 In the SmartSystems console, right-click a CN4.

 2 Select **Intermec Settings**.
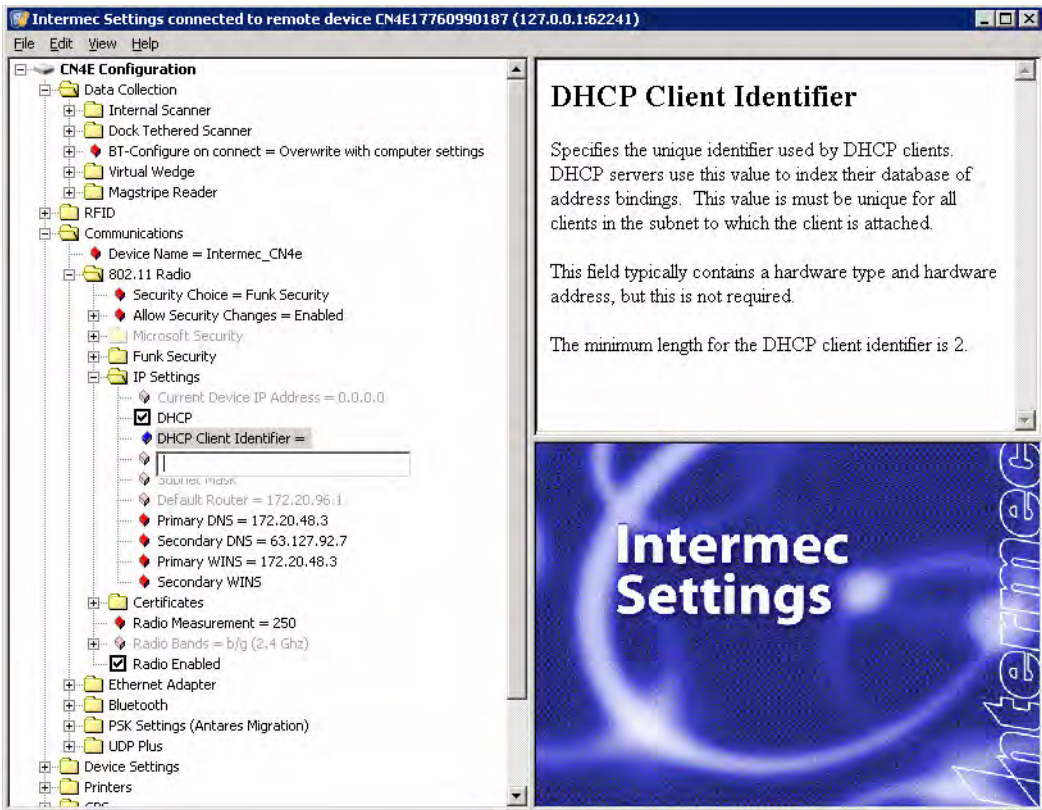
Intermec Settings Opened From the SmartSystems Console

3 Change settings as needed. As you choose parameters, information on each parameter appears in the upper right-hand pane of the Intermec Settings browser.

4 When you are done making changes, choose **File** > **Save Settings**.

For help with using Intermec Settings, in the browser click **Help** > **Contents** to see the Intermec Settings Help.

For information on all parameters in Intermec Settings, see the *Intermec Settings Command Reference Manual* (P/N 937-016-xxx).

Using Intermec Settings Directly On the CN4

You can use Intermec Settings on the CN4 to configure the computer and view system information.

To use Intermec Settings

1 On the CN4, tap **Start** > **Settings** > the **System** tab > **Intermec Settings**.
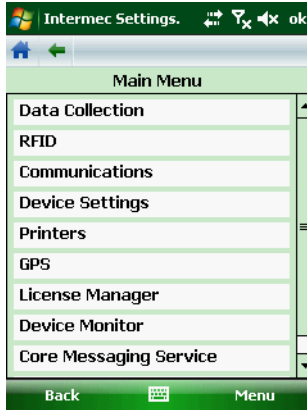
2 Tap a menu bar. A new menu or a list of configurable items appears.

3 In a list of configurable items, choose options and tap **OK**. Your changes are saved and a "Changes saved" message appears briefly onscreen.

Tap **Back** or ← to go back to the previous screen.

Tap ⌂ to return to the main menu.

For more information on all parameters in Intermec Settings, see the *Intermec Settings Command Reference Manual* (P/N 937-016-xxx).

Configuring the Phone

The CN4 supports two types of cellular phone technology:

• CDMA EV-DO Rev A

• UMTS and GSM/EDGE

With the radio module installed in the CN4, you can send and receive telephone calls as well as transmit data through wide-area (WAN) cellular networks.

The CN4 provides a phone speaker, microphone, and speakerphone. It also supports Bluetooth headsets or hands-free kits.

The factory default setting for the phone is enabled. After you activate the phone, you can customize the features of the phone and network settings. For help, refer to the Windows Mobile online help on your CN4.

Activating the CDMA Phone

The CDMA WAN radio module is installed at the factory. To activate your CDMA CN4 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

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 CN4 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 wirelessly. The Activation Wizard is disabled for Alltel.
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.

Values Required for CDMA Phone (continued)

Carrier	Activation Method	Activation Values You Need
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 CN4. You can purchase the SIM card from your network provider.

To activate the GSM/EDGE phone

• Install the SIM card in the CN4. For help, see **"Installing a miniSD or SIM Card" on page 36.** The CN4 warm boots after you install the battery.

You may need to configure network settings for your provider. For information, tap **Start** > **Help** and see the procedures in the Windows Mobile online Help. Or, contact your network provider.

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.

Turning the Phone On and Off

If you have Intermec Security enabled on the CN4, use the iConnect utility to turn the phone on or off.

If Microsoft Security is enabled on the CN4, use the Wireless Manager application to turn the phone on or off. For information on enabling and configuring Microsoft security, see **"Selecting Microsoft as Your Security Choice" on page 53.**

You can use the Wireless Manager to enable and disable Bluetooth, Wi-Fi, and the phone.

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.

Configuring the CN4 for Your Network

The CN4 is a versatile mobile computer that you can easily add to your wireless or wired data collection network. You can connect your CN4 using:

- 802.11b/g radio communications.

- Bluetooth communications.

- Ethernet communications

- USB and serial communications.

Configuring 802.11b/g Radio Communications

⚠ Caution

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 CN4 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.

To use wireless communications in a TCP/IP network

1 Configure these parameters on each CN4 in the network:

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

2 Make sure your CN4 is talking to the network and that the network can see your CN4.

3 Configure security. For help, see **"Configuring Wireless Security" on page 48.**

Configuring Bluetooth Communications

Your CN4 is Bluetooth™ enabled, which lets you connect to other Bluetooth devices, such as scanners, printers, or audio devices.

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**.
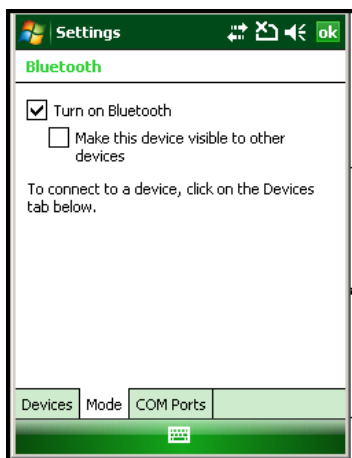
3 (Optional) If you want your CN4 to be visible to other Bluetooth devices, tap **Make this device visible to other devices**.

4 Click **ok**.

The Bluetooth radio maintains its state through a warm or cold boot and maintains virtual COM ports. But, if you clean boot your CN4 you need to recreate pairings to devices.

You can also access Bluetooth settings using Intermec Settings.

To access Bluetooth settings using Intermec Settings

• In Intermec Settings, tap **Communications** > **Bluetooth**.

For more information about Bluetooth settings, see the *Intermec Computer Command Reference Manual* (P/N 073529).

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 CN4.

• Run the Wireless Scanning Wizard.

To connect to a Bluetooth scanner with the association label

1 Make sure that the Bluetooth radio on your CN4 is enabled and that your CN4 is discoverable and connectable. For help, see the previous section, **"Configuring Bluetooth Communications."**

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 for Wireless Printing

1 Make sure Bluetooth power is on. For help, see the procedure in **"Configuring Bluetooth Communications" on page 42.**

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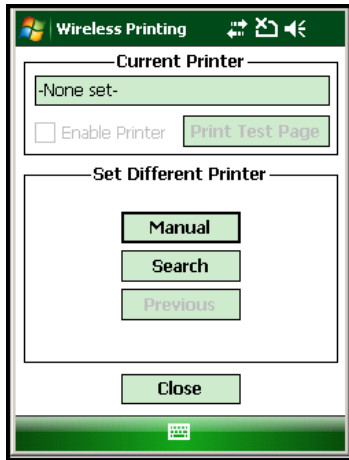
3 Tap **Search** to find a printer, or tap **Manual** to enter a device address. Follow the onscreen instructions to select the current wireless printer.

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

After you configure Bluetooth wireless printing, you can use an application that opens the wireless printing COM port on your CN4. For help with developing applications, see the Bluetooth Resource Kit, part of the Intermec Developer Library (IDL), available from the Intermec web site at **www.intermec.com/idl**.

Note: You can also print wirelessly using Microsoft APIs with Bluetooth extensions for Winsock and Bluetooth virtual COM ports. For help, see the Bluetooth Resource Kit documentation.

Connecting to a Bluetooth Audio Device

Use the Bluetooth Audio applet to discover, activate, and connect to Bluetooth audio devices such as a headset. This enables system sounds to be monitored through the headset.

To connect to a Bluetooth audio device

1 Select **Start** > **Settings** > the **System** tab > **Bluetooth Audio**. The Bluetooth Audio screen appears.
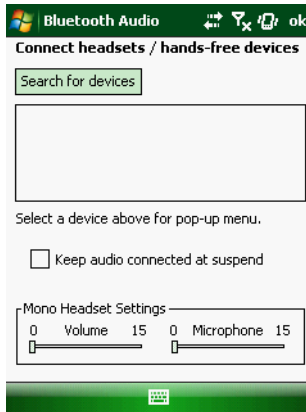
2 Follow the onscreen instructions to connect to a Bluetooth audio device.

Configuring Ethernet Communications

You connect your CN4 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
- AA16 Ethernet snap-on adapter

To use your CN4 in an Ethernet network

1 Connect the CN4 to an Ethernet network with an AD10, AD11, or AA18. Ethernet communication is enabled by default on the CN4.

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 CN4 is communicating with the network and that the network can see your CN4.

Using Serial and USB Communications

You can use these CN4 accessories to transmit data to and receive data from another device through serial or USB communications:

- AD10 single dock
- AV6 vehicle dock (AV9 for CN4e)
- AD11 multidock
- AA18 USB adapter
- AA17 RS-232/DEX adapter

For more information about these accessories and how to order them, see **"Accessories" on page 92.**.

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 CN4 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 CN4 against your network

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

Configuring Wireless Security

The CN4 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 CN4. If you choose not to use security, see **"Disabling Security" on page 58.** Intermec recommends that you always 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 CN4 supports both Funk and Microsoft security. The option you choose depends on your network security 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 CN4 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 53.**

Understanding Microsoft and Funk Security

Security Choice	Description
Funk (default)	Funk security offers features that are similar to Microsoft security, but Funk also offers these features: • CCX v4.0 compliance • Support for LEAP and TTLS • Configuration of up to four profiles If you are using the CN4 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 CN4 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. A list of configurable settings appears.

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 Tap **OK**. Your settings are saved.

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 CN4 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 CN4 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**.

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 Enter a **User Name** and **User Password**.

   c For **Validate Server Certificate**, choose **Yes**.

   Note: The correct date must be set on your CN4 when you enable **Validate Server Certificate**.

   If you choose TLS:

   a Load a user and root certificate on your CN4. For help, see **"Loading a Certificate" on page 57.**.

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

   c For **Validate Server Certificate**, choose **Yes**.

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

9 Tap **OK**. Your settings are saved.

To configure WPA or WPA2 with Funk security

1 Make sure the communications and radio parameters on your CN4 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**.

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

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 CN4 internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

9 Tap **OK**. Your settings are saved.

Configuring 802.1x Security With Funk Security

1 Make sure the communications and radio parameters on your CN4 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**.

7 For Encryption, choose **WEP**.

8 For **8021x**, choose **TTLS**, **PEAP**, or **TLS**.

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

    a   Enter a **User Name**.

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

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

    c   Enter a **User Password**.

    d   For **Validate Server Certificate**, choose **Yes** .

If you choose **TLS**:

    a   Load a user and root certificate on your CN4. For help, see **"Loading a Certificate" on page 57.**.

    b   For **Validate Server Certificate**, choose **Yes**.

    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 Tap **OK**. Your settings are saved.

Configuring LEAP Security on Your CN4

1 Make sure the communications and radio parameters on your CN4 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**.

7 For **Association**, choose **Open**, **WPA**, **WPA2**, or **Network EAP**. 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 Enter a **User Name** and **User Password**.

10 Tap **OK**. Your settings are saved.

Configuring Static WEP Security With Funk Security

1 Make sure the communications and radio parameters on your CN4 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**.

7 For **Encryption**, choose **WEP**.

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 Tap **OK**. Your settings are saved.

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 CN4 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**. An alert box appears telling you that you must save your settings and warm boot the CN4 for the new security choice to take effect.

4 Tap **Yes**. The CN4 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 CN4 with Microsoft security.

To enable WPA-802.1x with Microsoft security

1 Make sure the communications and radio parameters on your CN4 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 Tap **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 CN4 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 CN4 internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

7 Tap **OK**. Your settings are saved.

Configuring 802.1x Security with Microsoft Security

1 Make sure the communications and radio parameters on your CN4 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.

Configuring Static WEP Security With Microsoft Security

1 Make sure the communications and radio parameters on your CN4 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 Tap **OK**. Your settings are saved.

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 CN4 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**.
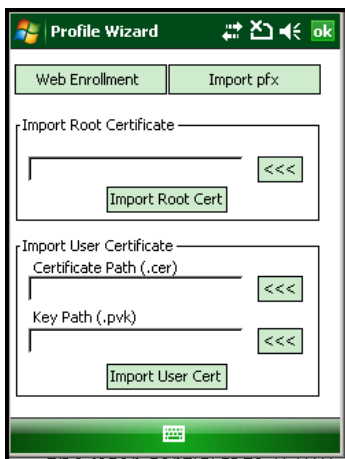
Note: PFX encoded certificates are also supported. Tap the **Import pfx** button to import a PFX encoded certificate.

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 Click **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 CN4. Intermec recommends that you always set security in your network.

To disable security

1 Open Intermec Settings.

2 Choose **Communications** > **802.11 Radio** > **Security Choice** and select **Microsoft Security**. An alert box appears telling you that you must save your settings and warm boot the CN4 for the new security choice to take effect.

3 Tap **Yes**. The CN4 resets and starts with Microsoft Security as the Security Choice.

4 Open Intermec Settings.

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

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

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

8 Tap **OK**. Your settings are saved.

3 Developing and Installing Applications

Use this chapter to understand the guidelines for developing applications and installing them on the CN4. This chapter contains these sections:

- **Developing Applications for the CN4**
- **Installing Applications on the CN4**
- **Freeing Up Virtual Memory for Applications**
- **Launching An Application Automatically**
- **Upgrading the System Software**

Developing Applications for the CN4

Use the Intermec Resource Kits to develop applications to run on the CN4. The 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 web site at **www.intermec.com/idl**.

For more information, see the *Intermec Developer Library Resource Kit Developer's Guide* (P/N 934-006-xxx).

Installing Applications on the CN4

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 OneNand® 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 CN4.

- 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. When you copy a .cab file to the \CabFiles folder, the folder automatically extracts that .cab file on every cold boot. For more information about AutoRun, see the *Intermec Developer's Library (IDL) Resource Kit Developer's Guide* which is available from **www.intermec.com/idl**.

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 web site 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 web site 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.

You can also use SmartSystems Scan-to-Connect to connect the CN4 to your network and install software. For more information, see the SmartSystems Foundation Console online Help.

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 to the CN4 via ActiveSync. For help, see **"Connecting to a PC" on page 34.**

2 Click **Explore**. The Mobile Device window appears, showing the files and folders on the CN4.

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

4 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.

5 Paste the .cab file into the desired folder.

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

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

8 Tap the .cab files to install them.

Installing Applications Using a Storage Card

If you have a miniSD card for your CN4, it is the best place for you to install applications. For more information, see **"Installing a miniSD or SIM Card" on page 36.**

To install applications using the storage card

1 Copy your application file to the miniSD card.

2 Remove the miniSD card from the adapter card and insert it into the CN4.

3 On your CN4, navigate to the storage card folder and run your application.

Installing Applications Using the FTP Server

The CN4 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 you 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.

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 69.**

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 with a Caution dialog box.

4 Tap **ok** to close the Caution dialog box.
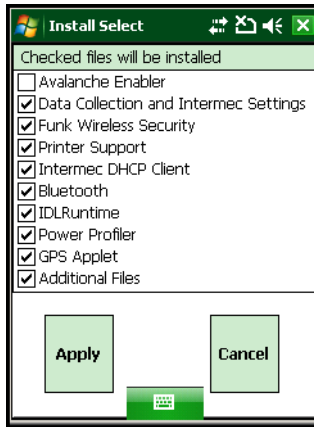
5 Clear the check box of any components you do not want installed after a clean boot.

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 CN4.

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 CN4.

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 CN4. 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.

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 in flash 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 update your SSPB files without updating the OS. 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 a storage card. For help, see the next section, **"Upgrading the CN4 Using a miniSD Card."**

- You can upgrade your computer using the SmartSystems Console. For help, see **"Upgrading the CN4 Using SmartSystems Foundation" on page 70.**

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

To download the upgrade files

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

2 Choose **Support** > **Downloads** and choose these items:

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

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

   c In the **Product** list, choose **CN4 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 the filename to download it.

Upgrading the CN4 Using SmartSystems Foundation

You can use the SmartSystems™ Foundation application from Intermec to perform operating system upgrades on your CN4. SmartSystems client is installed on your CN4, 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 CN4 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 CN4, 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 web site to your desktop computer.

To download the upgrade files

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

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

3 Select **Computers: CN4 Mobile Computer** from the list.

4 Select the download you need. Make sure the download you select is for the CN4 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 CN4.

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 CN4 to your network that has the SmartSystem 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 SmartSystem Console screen has three sections:

- Keypad Computers (devices you are using)
- SmartSystem 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 CN4 icon. Release the OS bundle on the device icon and the following message will appear.
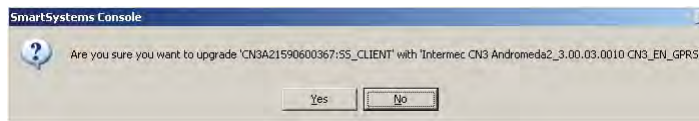
6 Click the **Yes** button and SmartSystems Server will start transferring files to the CN4. A white screen with text on it will appear on the CN4 icon as the files are being downloaded.

Make sure that the CN4 does not suspend during the download or errors could occur.

Caution

When the file download is complete, the CN4 performs a warm boot and starts to install the upgrade files. After the OS file installation is completed, the CN4 warm boots again and the Windows Mobile welcome screen appears.

To upgrade the SSPB

1 Connect the CN4 to your network that has the SmartSystem 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.

4 Click the Discover icon on the SmartSystems Console. Your CN4 should appear in the Keypad Computers area of the screen.

5 Click and drag the SSPB bundle from the Software Vault and drag to the CN4 icon. Release the SSPB bundle on the device icon.

6 Click the **Yes** button when the SmartSystem message appears. The SmartSystems Server will start transferring files to the CN4. A white screen with text on it will appear on the CN4 icon as the files are being downloaded.

Make sure that the CN4 does not suspend during the download or errors could occur.

Caution

When the file download is complete, the CN4 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 need to reconnect the CN4 to your network.

Upgrading the CN4 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 Copy all required OS upgrade files to the miniSD card.

2 Insert the miniSD card into the CN4. For help, see **"Installing a miniSD or SIM Card" on page 36.**

3 Place the CN4 in a dock connected to external power and use a stylus to press the **Reset** button located in the battery cavity on the back of the CN4. For help, see **"Cold Booting the CN4" on page 84.**

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

5 Remove the CN4 from the dock and replace the battery.

To upgrade the SSPB using a miniSD card

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

2 Insert the miniSD card into the CN4.

3 Using the stylus, press the **Reset** button in the battery cavity on the back of the CN4.

4 Press and hold the **Power** button as you insert the battery back into the CN4.

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

6 Release the **Power** button, read the message, and press either button on the right side to continue. Wait for the CN4 to load files from the miniSD card.

7 When the progress is complete, the CN4 warm boots to reset the configuration.

8 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.

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

4 Troubleshooting and Maintaining the CN4

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 CN4**
- **Resetting the CN4**
- **Cleaning the CN4**

Calling Product Support

If you cannot find the answer to your problem in the "Troubleshooting the Computer" 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 version

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

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

Troubleshooting the CN4

If you send the CN4 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 CN4

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.
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 14**.

Problems While Operating the CN4

Problem	Solution
You press the **Power** button and nothing happens.CN4	• 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 CN4 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 69**. • 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 22**.

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.

Problems With Wireless Connectivity (continued)

Problem	Solution
The CN4 is connected to the network and you move to a new site to collect data. Your CN4 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 CN4 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 CN4 appears to be connected to the network, but the host computer is not receiving any information from the CN4.	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 CN4 indicates that it is authenticated, but it does not communicate with the host.	Make sure the CN4 IP address, host IP address, subnet mask, default router are configured for network.
The CN4 does not appear to be authenticating and a network connection icon does not appear on the toolbar.	The CN4 may not be communicating with the access point. Make sure the CN4 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.
A network connection icon appears in the toolbar, but then disappears.	The CN4 may not be communicating with the intended access point. Make sure the CN4 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.	The CN4 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.

Problems While Configuring 802.1x Security (continued)

Problem	Solution
The CN4 indicates it is not authenticated.	Make sure that: • the User Name and Password parameters on the CN4 must match the user name and password on authentication server. You may need to reenter the password on both the CN4, 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 CN4.	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.

Problems Scanning Bar Codes (continued)

Problem	Solution
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.
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 CN4

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 locks up, you may need to reset the CN4. The CN4 uses the configuration currently saved in flash memory during the boot process. There are three ways to reset the CN4:

- Warm booting the CN4
- Cold booting the CN4
- Clean booting the CN4

Warm Booting the CN4

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 CN4 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 CN4

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, use this method only if all other recovery methods have failed.

Note: Cold booting the CN4 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 CN4

1 Press the **Power** button to suspend the CN4.

2 Remove the battery pack from the CN4.

3 Press the **Reset** button on the back of the CN4.
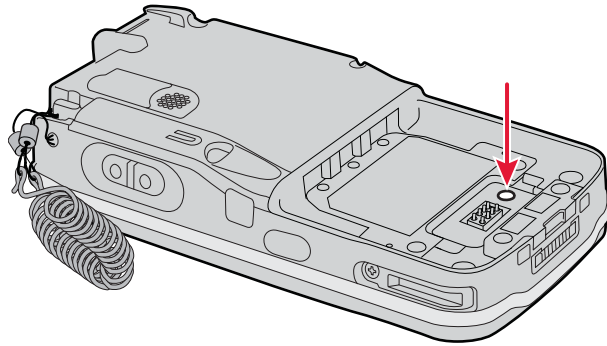
Locating the Reset Button on the CN4

Clean Booting the CN4

When you clean boot the CN4, it loads only those files and programs that are absolutely required by the operating system. Use the clean boot to troubleshoot the CN4 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 CN4.

2 Remove the battery pack from the back of the CN4.

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

4 Insert the battery back into the CN4, 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 CN4 to load files from its ROM.

Note: You can also clean boot the CN4 using the SmartSystems console. To clean boot the CN4 using the SmartSystems Console, right-click on the CN4 and select **Intermec Power Tools** > **Clean Boot Device**.

Cleaning the CN4

To keep the CN4 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 CN4. To clean the CN4, use a solution of ammonia and water.

Caution

There are no user-serviceable parts inside the CN4. Opening the CN4 will void the warranty and may cause damage to the internal components.

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

1 Press the **Power** button to suspend the CN4.

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

CN4 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:	With standard battery: 0.43 to 0.45 kg (15 to 16 oz)
	With extended battery: 0.45 to 0.48 kg (16 to 17 oz)

CN4e 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 standard battery
Weight:	With standard battery: 0.48 to 0.51 kg (17 to 18 oz)
	With 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:	256 MB NAND flash, provides onboard non-volatile storage
Removable storage:	miniSD card slot, user-accessible
Keypad:	numeric, QWERTY, CN4e 10-key, CN4e alphanumeric
Scanner options:	EA21, color camera

Bluetooth QD ID: B013037

Operating System
Microsoft Windows Mobile 6.1

Standard Communications
Ethernet, Serial, IRDA, USB host, USB client, Bluetooth, 802.11 b/g, 802.11 d, HSDPA, UMTS, CDMA, 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° to 50°C (14° to 122°F)
Storage temperature: -20° to 70°C (-13° 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, AB15: 3.7 VDC, 2.2 Ah
                         AB9, AB16: 3.7 VDC, 4.0 Ah
Recharge time: 5 hours or less
Recharge temperature: 0° to 40°C (32° to 104°F)
Battery capacity: AB8, AB15: 8 Wh
                         AB9, AB16: 14 Wh
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, UL 60950-1 and CSA 22.2 No. 60950-1-03, FCC
Part 15, 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 CN4 and CN4e built with integrated scan engines. When correctly mounted, and exit window reduces reading distances by about 4% for all scan engines.

EA21 Standard Minimum Reading Distances

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

* Minimum distance depends on symbology length and scan angle

Accessories

All of the accessories listed below work for both the CN4 and CN4e models unless otherwise noted.

AC14 Quad Battery Charger (P/N 852-065-001)

Use the quad battery charger to charge up to four CN4 battery packs.

AD10 Single Dock (P/N 871-025-001)

Use the single dock to hold a CN4 with its battery installed, charge a spare battery pack, charge the main battery pack, and provide power to the CN4. 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 CN4s with batteries installed. The multidock charges the batteries and provides power and Ethernet connections to each CN4.

AD12 Charge-Only Multidock (P/N 875-026-002)

Use the charge-only multidock to hold up to four CN4s with batteries installed, charge batteries, and provide power to CN4s.

AV6 Vehicle Dock (P/N 871-027-001)

Use the vehicle dock to hold and charge the CN4 while using it on a vehicle.

AV9 Vehicle Dock (P/N 871-027-101)

Use the vehicle dock to hold and charge the CN4e 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 CN4.

B Default Settings

Default Configuration

The following tables list the default values of the configuration commands supported on the CN4. If you restore the CN4 to factory default settings, the CN4 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 web site at **www.intermec.com**.

Data Collection

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

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
DutchPost	Disable
EAN/UPC	Enable UPC A, UPC E, EAN 8, EAN 13
EAN.UCC Composite	Disable

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

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

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

Imager Setting (continued)	Default Value
Signature Image Capture	Disable

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 Setting	Default Value
Virtual Wedge	Enable
Grid	Null

Communications

Communication Setting	Default Value
Security Choice	Funk
Allow Security Changes	Enabled
Active Profile	Profile 1
DHCP	Enabled
Import Root Certificates	False
Import User Certificates	False
Import Pac Files	False
Radio Measurement	250
Radio	Enabled
Ethernet Adapter IP Settings	DHCP
Bluetooth Power	Off
Bluetooth Discoverable	Disabled
Bluetooth Connectable	Enabled

Device Settings

Device Settings	Default Value
Adjust for Daylight Time	Off
Scanner Beep	One beep
Scanner Good Read Light	On
Tethered Scanner Beep	One beep
Tethered Scanner Good Read Light	On
Bluetooth Scanner Beep	One beep
Bluetooth Scanner Good Read Light	On
Beeper Volume	Medium
Backlight Off (battery power)	30 seconds
Backlight Off (external power)	1 minute
Backlight Level	High
Scan Button Remapping (handle trigger)	BRI
Scan Button Remapping (right scan button)	Scanner
Scan Button Remapping (left scan button)	Scanner

Device Settings (continued)	Default Value
Scan Button Remapping (middle scan button)	Scanner
Power Profiles	Standard
Power Button	Off when pressed
Device Off (battery power)	2 minutes
Display Off (battery power)	1 minute
Device Off (external power)	Disabled
Display Off (external power)	Disabled

GPS

Setting	Default Value
Extended Ephemeris Data	Disable
Download Interval	Disable
Download Interval Start Time	1:00 AM
Download Interval Stop Time	3:00 AM
Push Interval	Disable
Push Interval Start Time	1:00 AM
Push Interval Stop Time	3:00 AM
Poll Period	Disable
Position Change	50 meters
Fix Interval	0
WAAS	Disable
Baud Rate	33600

Device Monitor

Setting	Default Value
Poll Period	1 minute
Backup Battery Charge Remaining	10
Storage Load	90
Memory Load	90

Core Messaging Service

Setting	Default Value
Keep Alive Ping Interval	30 seconds

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.

Alphanumeric Characters

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

Alphanumeric Characters (continued)

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

Alphanumeric Characters (continued)

Character	Numeric Keypad	Alphanumeric Keypad
4	[4]	◼▢ [H]
5	[5]	◼▢ [J]
6	[6]	◼▢ [K]
7	[7]	◼▢ [B]
8	[8]	◼▢ [N]
9	[9]	◼▢ [M]
Symbols	Symbol key, or Shift plus corresponding key.	

Other Available Characters and Functions

To Enter	Numeric Keypad	QWERTY Keypad
^ (accent)	N/A	N/A
@ (ampersand)	N/A	◼▢ [Q]
& (and)	N/A	◼▢ [S]
* (asterisk)	N/A	◼▢ [C]
: (colon)	N/A	◼▢ [D]
, (comma)	N/A	◼▢ [X]
$ (dollar)	N/A	◼▢ [E]
" (double quote)	N/A	N/A
! (exclamation)	N/A	N/A
` (grave accent)	N/A	◼▢ [Z]
> (greater than)	N/A	N/A
- (hyphen)	◼▢ [*]	◼▢ [G]
[(left bracket)	N/A	N/A
{ (left curly bracket)	N/A	N/A
((left parentheses)	N/A	N/A
< (less than)	N/A	N/A
% (percent)	N/A	◼▢ [R]
. (period)	[.]	[.]
+ (plus)	◼▢ [#]	◼▢ [T]

Other Available Characters and Functions (continued)

To Enter	Numeric Keypad	QWERTY Keypad
# (pound)	N/A	⬛⬜ [V]
? (question mark)	N/A	⬛⬜ [A]
] (right bracket)	N/A	N/A
} (right curly bracket)	N/A	N/A
) (right parentheses)	N/A	N/A
; (semicolon)	N/A	N/A
` (single quote)	N/A	⬛⬜ [Z]
˜ (tilde)	N/A	N/A
_ (underscore)	N/A	N/A
BackTab	⬛⬜ [→│]	⬛⬜ [→│]
CapsLock	⬜⬛ [1]	⬛⬜ [Shift]
Enter	[Enter]	[Enter]
frown	⬛⬜ [3]	⬛⬜ [O]
ok	⬛⬜ [Esc]	⬛⬜ [P]
Shift	⬜⬛	[Shift]
smiley	⬛⬜ [1]	⬛⬜ [W]
Space	⬜⬛ [0]	[Space]

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P/N 935-029-001