Intermec

User's Manual

CN2A Mobile Computer

Intermec Technologies Corporation

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

www.intermec.com

Document Change Record

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

Version	Date	Description of Changes
002	07/2005	Attached the *Intermec Computer Command Reference Manual* CD (P/N 073529) to the inside front cover. Also added a color photograph of the CN2A to the front cover.
003	08/2005	Added information on managing multiple tasks with the Task Manager and Active Applications List. Added instructions for customizing keypad behavior. Made Funk Security the default security choice. Added instructions for viewing information about the wireless network regardless of your security choice. Added instructions for allowing FTP transfers to and from the CN2A. Added instructions for making applications persist through a cold boot. Added the new LED and keypad tests to the list of available diagnostics. Added German translations of all cautions and warnings.
004	02/2006	Revised the manual to support Release 3 software, which includes: • CCX v2.0 certification • SmartSystems Client • Intermec Ready-to-Work icons • Asian fonts • New version of Intermec Settings • New InstallShield application for upgrading • Remote Desktop Connection Added a new Appendix C, which explains how to remap the keypads. Also added a note that the CN2A supports one reader command (Change Configuration), although an older version of the *Intermec Computer Command Reference Manual* CD states that CN2 supports all reader commands.

Contents

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 warnings, cautions, and notes that are in this document. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts.

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 **Service & Support**. The Intermec Global Sales & Service page appears. From the Service & Support menu, move your pointer over **Support**, and then click **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 format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

Visit the Intermec technical knowledge base (Knowledge Central) at intermec.custhelp.com to review technical information or to request technical support for your Intermec product.

Telephone Support

These services are available from Intermec Technologies Corporation.

Services	Description	In the USA and Canada call 1-800-755-5505 and choose this option
Factory Repair and On-site Repair	Request a return authorization number for authorized service center repair, or request an on-site repair technician.	1
Technical Support	Get technical support on your Intermec product.	2
Service Contract Status	Inquire about an existing contract, renew a contract, or ask invoicing questions.	3
Schedule Site Surveys or Installations	Schedule a site survey, or request a product or system installation.	4
Ordering Products	Talk to sales administration, place an order, or check the status of your order.	5

Outside the U.S.A. and Canada, contact your local Intermec representative. To search for your local representative, from the Intermec web site, click **Contact**.

Who Should Read This Manual

The *CN2A Mobile Computer User's Manual* provides you with information about the features of the CN2A and how to install, operate, maintain, and troubleshoot the CN2A.

Before you install and configure the CN2A, you should be familiar with your network and general networking terms, such as IP address.

Do not read this manual if you have a CN2B mobile computer. Instead, you need the *CN2B Mobile Computer User's Manual* (P/N 935-001-*xxx*).

Related Documents

This section covers how to access documents, the difference between CN2 and CN2A, and the CD attached to this manual.

Downloading or Ordering Intermec Documents

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 **Service & Support** > **Manuals**.
3. In the **Select a Product** field, choose the product whose documentation you want to download.

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

Understanding the Difference Between CN2 and CN2A

The CN2 family of mobile computers includes the CN2A, CN2B, and CN2G computers. The designation "CN2" appears on documents and accessories shared by CN2A, CN2B, and CN2G computers. For example, consider the CN2 Modem Dock (Model AD8).

Documents and accessories available for only one model of CN2 contain the specific model name. For example, consider this *CN2A Mobile Computer User's Manual*.

About the CD Attached to the Front Cover

For your convenience, a copy of the *Intermec Computer Command Reference Manual* (P/N 073529) is on the CD attached inside the front cover of this user's manual.

The *Intermec Computer Command Reference Manual* contains detailed information about the commands available in Intermec Settings, which you may use to configure the CN2A. Please refer to this manual for help configuring your CN2A.

Note: Older versions of the *Intermec Computer Command Reference Manual* incorrectly state that the CN2 supports reader commands. The CN2A and CN2B support only the Change Configuration reader command.

Patent Information

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

4,455,523; 4,553,081; 4,709,202; 4,845,419; 4,961,043; 5,195,183; 5.216,233; 5,218,187; 5,218,188; 5,227,614; 5,241,488; 5,278,487; 5,322,991; 5,331,136; 5,331,580; 5,349,678; 5,397,885; 5,371,858; 5,373,478; 5,410,141; 5,488,575; 5,500,516; 5,504,367; 5,508,599; 5,530,619; 5,567,925; 5,568,645; 5,592,512; 5,598,007; 5,617,343; 5,627,360; 5,657,317; 5,671,436; 5,684,290; 5,777,309; 5,793,604; 5,805,807; 5,818,027; 5,821,523; 5,828,052; 5,831,819; 5,834,753; 5,841,121; 5,844,222; 5,883,492; 5,883,493; 5,886,338; 5,889,386; 5,898,162; 5,969,328; 5,986,435; 6,075,340; 6,109,528; 6,158,661; 6,234,395; 6,244,512; 6,330,975; 6,431,451; 6,497,368; 6,538,413; Des. 417,445.

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

Other Copyright Information

Microsoft, Windows, and the Windows logo are registered trademarks of Microsoft Corporation in the United States and/or other countries.

Wi-Fi is a registered certification mark of the Wi-Fi Alliance.

This product includes software developed by the OpenSSL Project for use in the OpenSSL Toolkit. (www.openssl.org/)

This product includes cryptographic software written by Eric Young. (eay@cryptsoft.com)

This product uses Regex++, Index software during its operational phases. The owner of Regex++ has granted use of the software to anyone provided such use is accompanied by the following copyright and permission notice:

Regex++, Index. (Version 3.31, 16th Dec 2001)

Copyright© 1998-2001 Dr. John Maddock

Permission to use, copy, modify, distribute and sell this software and its documentation for any purpose is hereby granted without fee, provided that the above copyright notice appear in all copies and that both that copyright notice and this permission notice appear in supporting documentation. Dr. John Maddock makes no representations about the suitability of this software for any purpose. It is provided “as is” without express or implied warranty.

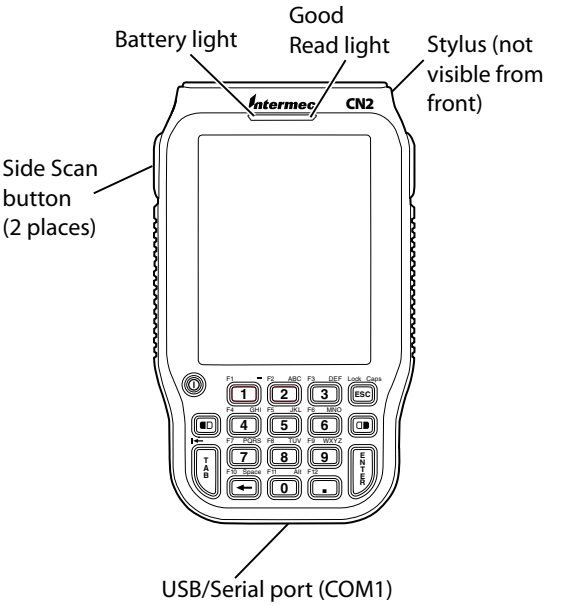
1 Using the CN2A Mobile Computer

Use this chapter to familiarize yourself with the CN2A mobile computer. In this chapter you will find these sections:

- Introducing the CN2A Mobile Computer
- Using the Battery
- Using the Keypad
- Using the Touch Screen
- Understanding the Screen Icons
- Understanding the Status Lights
- Understanding the Beeps
- Running Multiple Applications on the CN2A
- Scanning Bar Codes
- Increasing File Storage With the Optional SD Card
- Attaching a Keyboard to the CN2A

Introducing the CN2A Mobile Computer

The Intermec CN2A mobile computer is an ergonomically-designed mobile computer built on the Microsoft® Windows® CE .NET operating system. It is a semi-rugged, lightweight computer that runs client/server applications and browser-based applications.



CN2A Mobile Computer With Numeric Keypad

The CN2A mobile computer with an IEEE 802.11b/g radio installed is Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

What's New?

This release of CN2A includes these new features:

- The Remote Desktop Connection application lets you connect your CN2A over the network to a PC running Windows NT®, Windows 2000, or Windows XP Professional, or to a server running Windows NT Server 4.0 Terminal Server Edition. For help, see "Using Remote Desktop Connection" on page 69.

- The CN2A has received CCX v2.0 certification.
- The CN2A operating system now supports Simplified Chinese, Traditional Chinese, Japanese, Korean, or Thai fonts. For help upgrading your CN2A to use one of these fonts, see "Installing an Asian Font" on page 39.
- The CN2A is SmartSystems-enabled™. The SmartSystems™ Client software on the CN2A lets you use the SmartSystems Console™ to manage CN2As as part of your Intermec data collection network. For help using the SmartSystems Console with your CN2As, see these sections:
  - "Configuring the CN2A With SmartSystems Console" on page 38
  - "Installing Applications Using the SmartSystems Console" on page 93
  - "Using the SmartSystems Console to Upgrade the CN2A" on page 115
- The blue Ready-to-Work indicator appears as an icon in the CN2A taskbar. For details, see "Understanding the Screen Icons" on page 15.

CN2A Features, Applications, and Accessories

The CN2A includes these features:

- 802.11b/g radio (optional)
- 1D linear imager (optional)
- CCX v2.0 certification
- IPv6 support
- .NET Compact Framework
- 64MB flash/128MB RAM memory
- 400 MHz Intel® XScale™ processor
- 18-key numeric keypad or 10-key scroll keypad
- Quarter VGA color display with touch screen
- Simplified Chinese, Traditional Chinese, Japanese, Korean, and Thai fonts

The CN2A includes these applications:

- CE Internet Explorer 6
- CE Media Player
- Inbox
- ScanDemo (optional)
- Transcriber
- Wavelink Avalanche Enabler
- WordPad
- Remote Desktop Connection

For a complete list of accessories, see "Accessories for the CN2A" on page 130.

Identifying the Optional Features Installed in Your CN2A

Before you continue learning to use your CN2A, you need to determine which optional features are installed in your CN2A:

- 802.11b/g radio
- Numeric or scroll keypad
- 1D linear imager

Does Your CN2A Contain an 802.11b/g Radio?

How to Determine	Description	In This Manual
Look at the configuration number (CN) on the label inside the battery compartment. For help removing the battery door and the battery, see "Removing the Battery" on page 7. If the CN ends in 8*xx*, your CN2A contains a radio. For example, CN2A21E10N2804.	You have a wireless CN2A, which can communicate in a wireless network.	For details about wireless communications, see "Configuring 802.11b/g Radio Communications" on page 45.
If the CN ends in 000, your CN2A does not contain a radio. For example, CN2A11E10N2000.	You have a batch CN2A, which requires a modem dock or USB client dock to communicate with a network.	For details about batch communications, see "Configuring USB Communications" on page 44.

Does Your CN2A Contain a Numeric or Scroll Keypad?

How to Determine	Description	In This Manual
The numeric keypad has 18 keys.	You can type numbers and letters, and you can access function keys (such as **F1**).	For details, see "Using the Keypad" on page 9.
The scroll keypad has 10 keys.	You can use the arrow keys to move through applications, and you can access function keys (such as **F1**).	For details, see "Using the Scroll Keypad" on page 11.

Does Your CN2A Scan Bar Codes?

How to Determine	Description	In This Manual
The top of the CN2A contains a clear scanner window.	You can scan bar codes with your CN2A.	For details, see "Scanning Bar Codes" on page 22.
The top of the CN2A does not contain a clear scanner window.	You cannot scan bar codes with your CN2A.	Ignore all references to scanning bar codes in this manual.

Using the Battery

The CN2A uses a lithium-ion battery as its main power source. You must fully charge the main battery before you can use the CN2A.

While you change the battery, the backup battery maintains the computer's status, memory, and real-time clock for at least 5 minutes.

The lithium-ion battery pack that is 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.

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

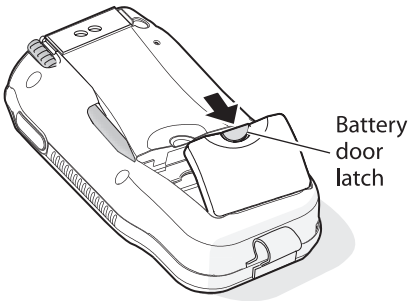
Several factors determine the life of your battery, such as extreme temperatures and your usage.

Installing and Charging the Battery

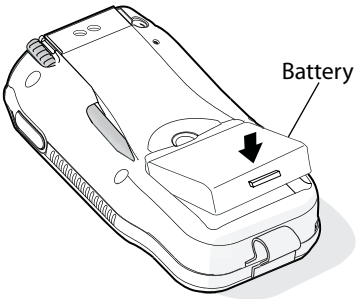
Make sure you fully charge the battery before you use your CN2A. To charge the battery, you need to install it in the CN2A and place the CN2A in a dock connected to external power.

To install and charge the battery

1. Push down on the battery door latch, and pull up on the battery door.



2. Remove the battery door and set it aside.
3. Align the battery contacts, and insert the battery in the battery compartment. Press down on the battery until it clicks into place.



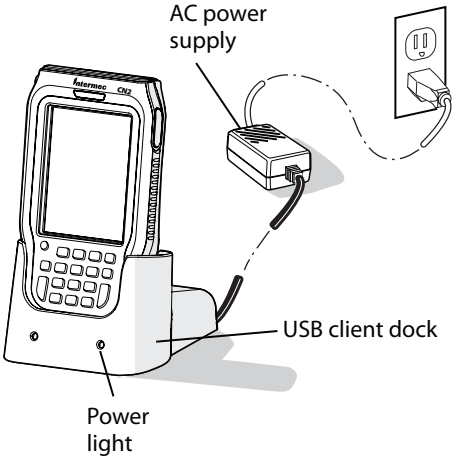
4. Replace the battery door.

5 Connect the CN2A power supply (Model 074246) to the power connector on the back of the CN2 USB client dock (Model AD7) or the CN2 modem dock (Model AD8). For help, see the instructions that shipped with the dock.

Caution

You must use only the Intermec power supply approved for use with the CN2A. Using any other power supply will damage the CN2A.

6 Connect the power cord to the CN2 power supply.



7 Connect the power cord to an AC power outlet. The green Power light on the dock turns on.

8 Place the CN2A in the dock. The battery is fully charged in approximately 4 hours.

Removing the Battery

Follow these instructions to remove the battery from the CN2A.

Caution

Use only the stylus to remove the battery. If you use any other tool or method to remove the battery, you may damage the battery or the CN2A.

Caution

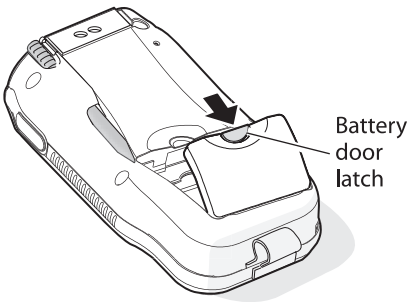
Removing the main battery when the backup battery low or critically low icon appears on the task bar may cause your CN2A to cold boot and you may lose data.

Caution

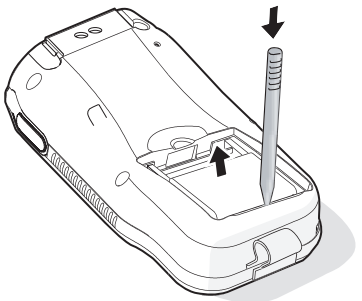
When you remove the main battery, the backup battery maintains your data for several minutes. If you remove the main battery when the backup battery is low, or if you fail to install a charged main battery within a few minutes, you may lose important data or applications.

To remove the battery

1. Push down on the battery door latch, and pull up on the battery door.



2. Remove the battery door and set it aside.
3. Insert the stylus between the battery and the CN2A case, and press straight down until the battery is released.



4 Lift the battery out of the battery compartment.

Maximizing Battery Life

There are several things that you can do to maximize the life of your fully charged battery.

- Set the Backlight Timeout to 10 seconds.
- Verify that Radio Power Management is enabled (Fast PSP). Enabling radio power management allows your radio to switch between awake and sleep modes based on network traffic.
- Verify that each setting under Power Management has a value of 1 minute for a combined automatic shutoff time of 3 minutes.

You can use Intermec Settings to easily make all of these configuration changes. For help, see "Configuring the CN2A Locally With Intermec Settings" on page 34.

Checking the Battery Status

The easiest way to tell the status of your battery is to look at the battery icon on the taskbar of your CN2A. For help locating the taskbar, see the illustration on page 13.

Battery Icon Status

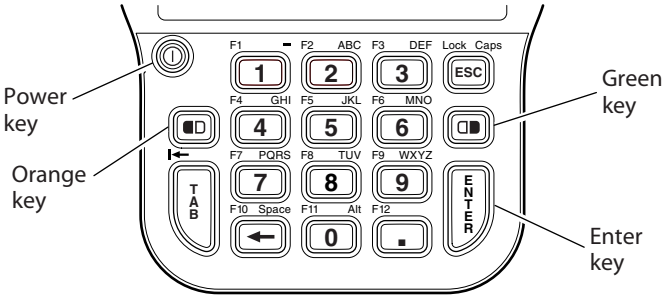
Icon	Status
	The battery is charging.
	The battery is low. You need to charge the battery soon.
	The battery is critically low. You need to charge the battery now.

Using the Keypad

The CN2A has either an 18-key numeric keypad or a 10-key scroll keypad.

Using the Numeric Keypad

You enter all of the characters and functions printed on the keys just like you would on a standard keyboard.



CN2A 18-Key Numeric Keypad

The **Orange** (■□) and **Green** (□■) keys let you access the additional functions printed on the keypad overlay.

To access functions printed in orange on the keypad overlay

1. Press and release the **Orange** (■□) key. The ■□ icon appears in the taskbar and Orange mode is enabled.

   The ■□ icon remains on until you press another key or press the ■□ key again.

2. Press and release the key below the function printed in orange. For example, press the **5** key to access the F5 function, which refreshes the selected folder or desktop. The ■□ icon turns off.

To access characters printed in green on the keypad overlay

1. Press and release the **Green** (□■) key. The □■ icon appears in the taskbar and Green mode is locked.

   The □■ icon remains on until you press the □■ key again.

2. Press and release the key below the character printed in green. For example, press the **2** key twice to type a lowercase **b** character.

3. Press and release □■ to disable Green mode. The □■ icon turns off.

To type uppercase characters

1. Press and release the **Green** (□■) key. The □■ icon appears in the taskbar and Green mode is locked.

2 Press and release the **ESC** key. The **Caps Lock** ( ) icon appears in the taskbar.

3 Type a few uppercase characters. For example, to type BYE, follow these steps:

   a Press the **2** key twice to type B.

   b Press the **9** key three times to type Y.

   c Press the **3** key twice to type E.

4 Press and release the **ESC** key. The icon turns off.

5 Press and release to disable Green mode. The icon turns off.

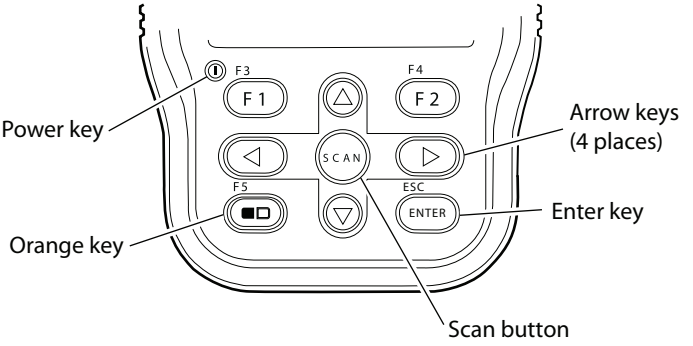
To delete characters

1 Make sure neither nor appear in the taskbar.

2 Press the **Backspace** (←) key.

Using the Scroll Keypad

You enter all of the characters and functions printed on the keys just like you would on a standard keyboard.



CN2A 10-Key Scroll Keypad

The **Orange** ( ) key lets you access the additional functions printed on the keypad overlay.

To access functions printed on the keypad overlay

1 Press and release the **Orange** ( ) key. The icon appears in the taskbar and Orange mode is enabled.

2 Press and release the key below the function printed on the keypad overlay. For example, press the ■□ key again to access the F5 function, which refreshes the selected folder or desktop. The ■□ icon turns off.

If you do not press another key within 3 seconds of pressing the ■□ key, the ■□ icon turns off and Orange mode is disabled.

Using the Power Key

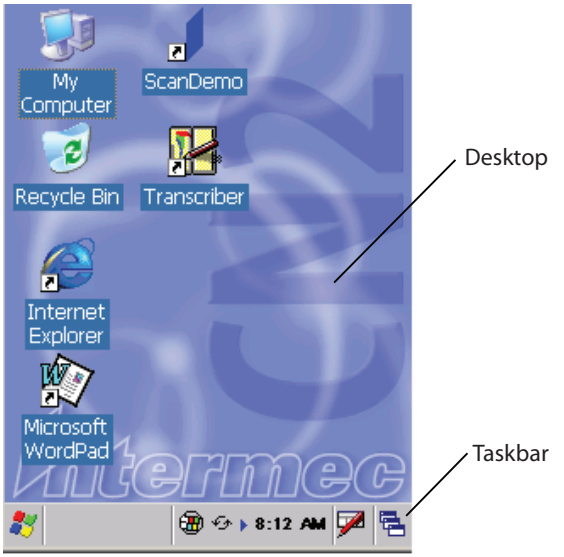
The **Power** key is the round yellow key in the upper left corner of both keypads.

Actions You Can Perform With the Power Key

Action	Do This	Description
To turn on the CN2A	Press and release the **Power** key.	Your CN2A resumes where it was when you turned it off. If you are using WPA or 802.1x security, the computer may need to reauthenticate before it starts your application. If your CN2A does not resume after you press the **Power** key, your battery may be too low to supply power. Replace or charge the battery. If replacing or charging the battery does not solve the problem, see "Booting the CN2A" on page 111.
To turn off the CN2A	Press the **Power** key for 2 to 3 seconds and then release it.	Your CN2A enters Suspend mode. In Suspend mode, the CN2A continues to supply power to all memory, but turns off power to most hardware. This power-saving feature is designed to prolong battery life.
To toggle the backlight	Press the **Power** key for 5 to 6 seconds and then release it.	The CN2A backlight toggles (turns on or off) but the CN2A continues running.
To warm boot the CN2A	Press the **Power** key for 10 seconds (until the backlight flashes) and then release it.	For details, see "Warm Booting the CN2A" on page 111.

Using the Touch Screen

The CN2A has a color touch-screen display. The screen is 240 x 320 pixels. The desktop is 240 x 300 pixels and the taskbar is 240 x 20 pixels. In addition, the screen supports Unicode characters, user-programmable fonts, and bitmap graphics.



CN2A Start Screen

Using the Touch Screen and Stylus

Your CN2A has a stylus for selecting items and entering information. Use the stylus in place of a mouse.

Functions You Can Perform With the Stylus

Action	Description
Tap	Touch the screen once with the stylus to select items.
Double-tap	Touch the screen twice with the stylus to open items.
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 list of actions available for that item. On the pop-up menu that appears, tap the action you want to perform.

Understanding the Desktop

As illustrated on the previous page, the Start screen has two distinct areas:

- The desktop displays shortcuts to some of the applications installed on the CN2A.
- The taskbar displays the Start menu icon, the time, the keyboard icon, and the desktop icon the first time you turn on the CN2A.

Most of the default shortcuts on the desktop are standard Windows CE applications. However, Intermec provides shortcuts to two additional applications:

- ScanDemo is a simple application you can use to verify that your imager is working correctly. (This application is installed only if your CN2A has a scanner.) For help, see "Using the ScanDemo Application" on page 23.
- Transcriber enables you to write on the screen with your stylus, and then it converts your writing to text. For help, see the next section, "Using Transcriber to Write on the Touch Screen."

Using Transcriber to Write on the Touch Screen

In a program that accepts writing, such as Microsoft WordPad, you can use your stylus to write directly on the screen. Write the way you do on paper (print or cursive) and the Transcriber program converts your writing to text.

To turn on Transcriber

- Double-tap the **Transcriber** shortcut on the desktop or go to **Start** > **Programs** > **Transcriber**.

  The Transcriber Intro box appears and an icon ( ) appears in the taskbar with a dark gray background.

To turn off Transcriber

- Tap the icon in the taskbar.

  The background of the icon turns light gray to match the taskbar and using the stylus does not produce a line on your desktop.

To close Transcriber

1. Tap and hold the icon in the taskbar until the menu appears.
2. Tap **Close Transcriber**.

To select text

1. Tap and hold the stylus next to the text you want to select until the insertion point appears.
2. Without lifting, drag the stylus across the text you want to select.

To get help for Transcriber

1. Tap and hold the icon in the taskbar until the menu appears.
2. Tap **Help**. The help system for Transcriber appears on the screen.

Calibrating the Screen

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

To calibrate the screen on a CN2A with the numeric keypad

1. Press and hold the **Orange** (■□) key and then press **Enter**. Release both keys. The calibration screen appears.
2. Follow the instructions to calibrate the screen.

To calibrate the screen on a CN2A with the scroll keypad

1. Press and hold the **Orange** (■□) key and then press ▲. Release both keys. The calibration screen appears.
2. Follow the instructions to calibrate the screen.

Understanding the Screen Icons

This table describes the screen icons that appear in the taskbar. Standard Microsoft icons are not included in this table.

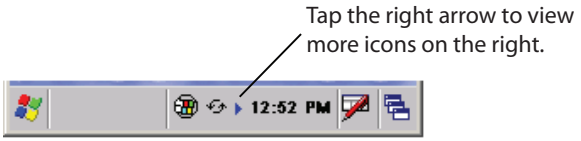
CN2A Screen Icons

Icon	Description
	Battery is charging.
	Battery is low. Charge the battery soon.
	Battery is critically low. Charge the battery now.
	Backup battery is low. Charge the battery now.
	The CN2A is authenticated with a strong connection to the access point.
	The CN2A is authenticated with a good connection to the access point.
	The CN2A is authenticated with a weak connection to the access point. Try moving closer to an access point.
	No connection to the access point. For help, see “Problems With Wireless Connectivity” on page 102.
	Green mode is enabled and locked. To disable Green mode, you must press ◻■ again.
	Orange mode is enabled.
	Caps Lock is enabled.
	The CN2A is connected using ActiveSync.
	The CN2A is communicating with an application that controls the Ready-to-Work icon.
	The CN2A is busy. This icon appears only while you are using theSmartSystems Console to upgrade the CN2A.
	The CN2A is attempting to connect to an application that controls the Ready-to-Work icon.
	The CN2A is not communicating with an application that controls the Ready-to-Work icon.

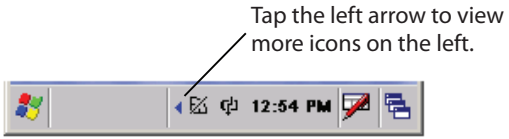
Note: The , , , and icons are all versions of the Network Connection icon. Each version indicates a different network connection state.

Note: The , , , and icons are all versions of the Ready-to-Work icon. Each indicates a different operational state. However, at this time, no application running on the CN2A controls these icons.

Only two screen icons are visible at one time. You can tap the right arrow or left arrow to view additional icons, which are on but not visible.



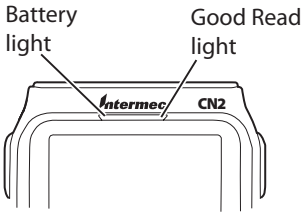
Tap the Right Arrow: *The CE Remote Display icon and the ActiveSync icon are visible on the taskbar. Tap the right arrow to view additional icons.*



Tap the Left Arrow: *The Network Connection icon and the Battery Charging icon are visible on the taskbar. Tap the left arrow to view additional icons.*

Understanding the Status Lights

The status lights on the CN2A turn on to indicate the status of the battery or a successful decode of a bar code.



CN2A Status Lights: *This illustration shows the location of the Battery and Good Read lights.*

The next table describes the status lights.

Understanding the CN2A Status Lights

Light	Color	Description
Good Read	Green	This light turns on when the CN2A successfully decodes a bar code.
	Red	This light turns on when you press one of the **Side Scan** buttons or the **Scan** button on the scroll keypad.
Battery	Green	When the CN2A is connected to a power source, this light turns on to indicate that the battery is fully charged.
	Orange	When the CN2A is connected to a power source, this light turns on if you cannot charge the battery. The temperature may not be within the charging range, or the battery may be damaged.
	Red	When the CN2A is connected to a power source, this light turns on to indicate that the battery is charging.

Understanding the Beeps

The CN2A uses beeps to provide you with audio feedback when it performs some functions. For example, you hear a beep each time you scan a valid bar code.

Understanding the CN2A Beeps

Beep Sequence	What It Means
High beep, low beep	You entered valid data or a valid command, or the CN2A decoded a bar code label.
Error beep (3 rapid beeps)	You entered or scanned an invalid command. Try entering or scanning the command again.
Click	You pressed a key.

You can change the beeper volume for your needs and environment. You can set the beeper volume to **Off**, **Low** (quiet), **Medium** (medium), **High** (loud), and **Very high** (very loud). The default setting is **Very high**.

To change the beeper volume

1. Tap the **Start** icon and tap **Intermec Settings**. The Intermec Settings application appears.
2. Tap **Device Settings** > **Beeper** > **Volume**.
3. Select a volume level.
4. Tap  to save your settings and tap **X** to exit Intermec Settings.

Running Multiple Applications on the CN2A

You can simultaneously run several applications on your CN2A. For example, you can check e-mail in your Inbox, view a web site in Internet Explorer, and open a couple of documents in WordPad. The last application that you open is the current task, the one that is currently active on the screen.

The CN2A gives you two ways to manage multiple tasks:

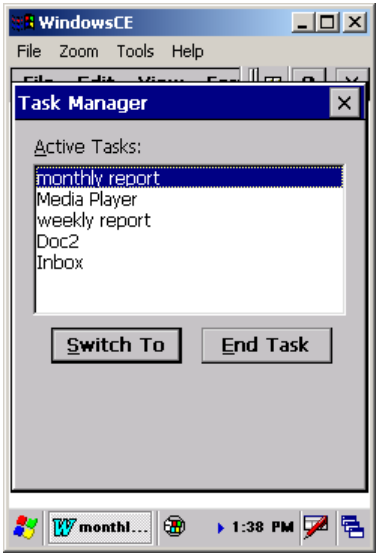
- You can use the Task Manager to view, switch between, and end tasks. For help, see the next section.
- You can use the Active Applications List to view and switch between active tasks. For help, see "Using the Active Applications List To Manage Multiple Active Tasks" on page 21.

Using Task Manager to Manage Multiple Active Tasks

You can use Task Manager on the CN2A to view all the active tasks, to switch to another active task, and to end a task. Task Manager is especially helpful on the CN2A for switching between several running tasks.

To start Task Manager on a CN2A with the numeric keypad

1. Press the  key. The  icon appears in the taskbar and Green mode is locked.
2. Press and hold **0**.
3. Press and hold **TAB**.
4. Release both keys. You have just pressed **Alt**-**TAB**. The Task Manager screen appears.



5 (Optional) Press and release ◻■ to disable Green mode. The icon turns off.

To start Task Manager on a CN2A with the scroll keypad

- Hold ■◻ while you press and release ▼. The Task Manager screen appears.

To start Task Manager using the Control Panel

- Tap **Start** > **Settings** > **Control Panel** > **System** > **Memory** > **Active Programs**. The Task Manager screen appears.

To use Task Manager

1 Press one of the keypad shortcuts described in the previous procedures to make the Task Manager screen appear.

2 (Optional) View the list of active tasks. The tasks listed in the **Active Tasks** box are currently running on the CN2A.

3 (Optional) Identify the current task. For example, in the screen shown in Step 1, you can tell that editing the WordPad file called monthly report is the current task because:

- monthly report is highlighted in the **Active Tasks** box.
- the WordPad logo and partial filename monthl... appear in the taskbar.

4 (Optional) Switch to another active task using one of these methods:

- Double-tap the task in the **Active Tasks** box. The Task Manager screen closes, and the selected task becomes the current task.
- Tap the task in the **Active Tasks** box and tap the **Switch To** button. The Task Manager screen closes, and the selected task becomes the current task.

5 (Optional) End a task by tapping the task in the **Active Tasks** box and tapping the **End Task** button. The selected task ends, the Task Manager screen closes, and you return to the current task.

6 You need to tap **X** to exit Task Manager only if you do not switch to or end a task.

Using the Active Applications List To Manage Multiple Active Tasks

You access the active applications list by tapping the Active Applications icon at the right end of the taskbar.

Active Applications List: *Tap the Active Applications icon to view the list of active tasks. In this example, the current task is Media Player. The current task is not included on the list.*

A list of active tasks appears. The current task is not included on the list.

You can perform these functions:

- To switch to another active task, tap the task in the list.
- To switch to the desktop, tap **Desktop** in the list.
- To return to the current task, tap the logo in the taskbar; in this example, tap the Media player logo 

.

Scanning Bar Codes

If you have a scanner, you can use it to scan and enter bar code data. The CN2A supports the scanning of 1D linear bar codes.

When you unpack the CN2A, all the supported bar code symbologies are enabled:

- Codabar
- Code 39
- Code 128
- Interleaved 2 of 5
- UPC/EAN
- MSI

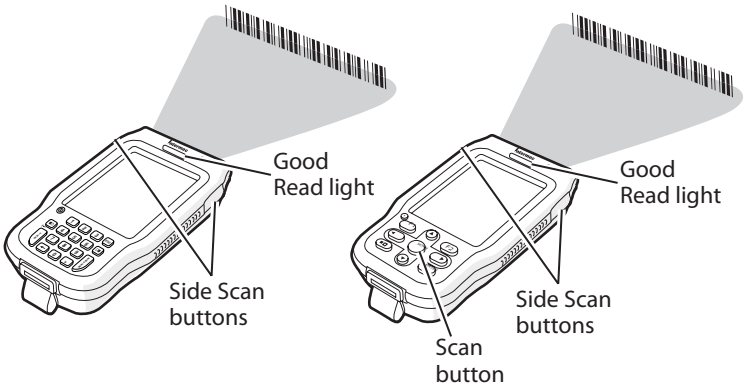
Use Intermec Settings to enable and disable symbologies. For help using Intermec Settings, see "Configuring the CN2A Locally With Intermec Settings" on page 34.

How to Scan a Bar Code

This section explains how to scan a bar code with your CN2A.

To scan a bar code label with the CN2A

1. Press the **Power** key to turn on the CN2A.
2. Point the scanner window at the bar code label and hold the computer at a slight angle 15 to 25 cm (6 to 10 in) from the label.



3 Press one of the **Side Scan** buttons or the **Scan** button on the scroll keypad and center the red beam so that it falls across all bars in the bar code label.

Use this test bar code:

Code 39 Test Bar Code

123456

4 Release the **Side Scan** button or **Scan** button.

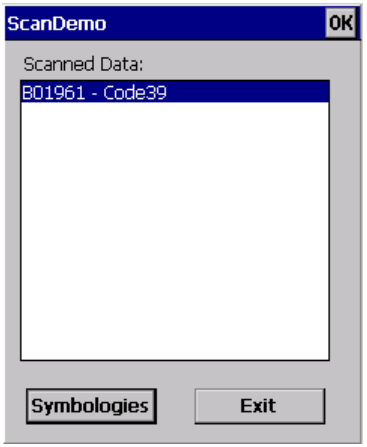
Using the ScanDemo Application

ScanDemo is an application that enables the CN2A to read bar code labels and display the information encoded on the label along with the symbology used to encode it.

To open ScanDemo

1 Double-tap the **ScanDemo** shortcut on the desktop. The ScanDemo application opens.

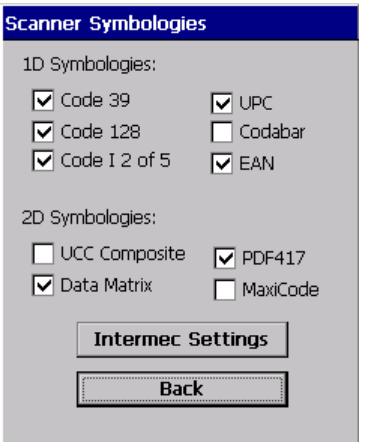
2 Scan a bar code label. The data and symbology appears on the screen.



For help scanning a bar code label, see "Scanning Bar Codes" on page 22. The information you scanned along with the symbology used to encode it appears on the screen.

To enable or disable symbologies

1 From the ScanDemo window, tap the **Symbologies** button to see the symbologies that are enabled.



2 Select or clear the symbologies you want to use and tap **Back.**

3 If you want to configure symbology parameters, tap **Intermec Settings**. Intermec Settings appears on your screen.

4 From the Intermec Settings application, go to **Scanners Symbologies** > **Internal Scanner** > **Symbologies**.

5 Select a symbology and modify its parameters.

6 Tap  to save your settings and tap **X** to exit Intermec Settings. The Scanner Symbologies window appears.

7 Tap **Back**.

8 Scan bar code labels.

Increasing File Storage With the Optional SD Card

You can use a SanDisk secure digital (SD) card to increase file storage and install applications and files. The SD card slot is located under the CN2A battery.

Note: The CN2A currently supports SanDisk SD cards only. Intermec cannot guarantee that other SD cards will work with the CN2A.

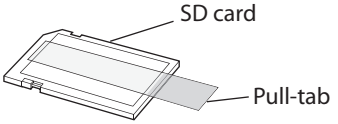
The following procedures explain how to:

- insert an SD card.
- access the files on an SD card.
- remove an SD card.

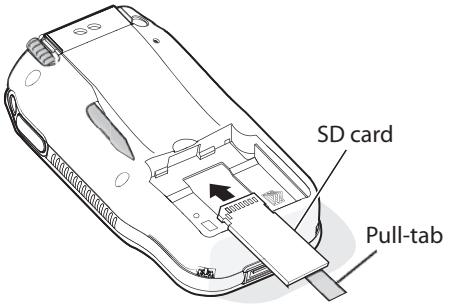
For help using an SD card to install applications and files, see "Installing Applications Using the Optional SD Card" on page 92.

To insert the SD card

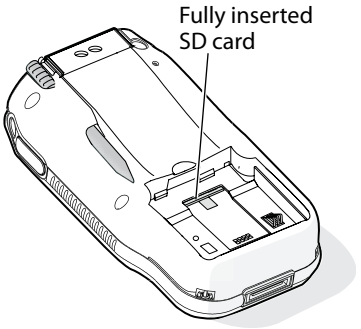
1 Before inserting the SD card, you must attach one of the pull-tabs that ships with the CN2A. An SD card without a pull-tab can be very difficult to remove.



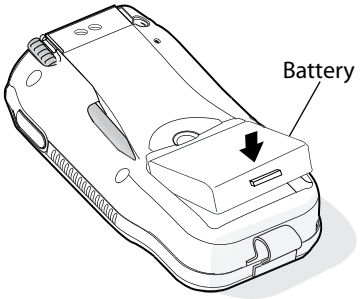
2 Align the SD card as shown in the next illustration, and insert the SD card into the slot.



3 Push the card into the slot until it is fully inserted.



4 Align the battery contacts as shown in the next illustration, and insert the battery in the battery compartment. Press down on the battery until it clicks into place.



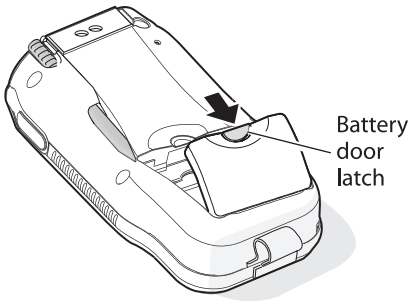
5 Install the battery door.

To access files stored on the SD card

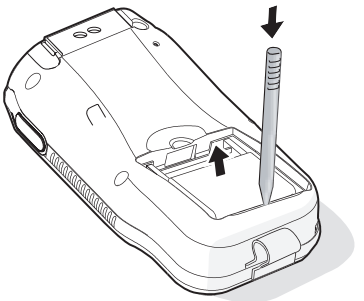
- If you have an SD card inserted in your CN2A, it appears as the SDMMC Disk folder. To access this folder, double-tap the **My Computer** icon on the desktop and then double-tap the SDMMC Disk folder. You can copy files to and from this folder just as you would any other folder on the CN2A.

To remove the SD card

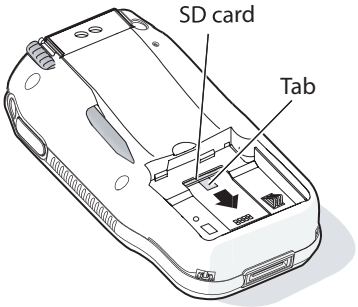
1. Press and hold the **Power** key for 2 to 3 seconds, and then release the **Power** key to turn off the CN2A.
2. Place the CN2A face-down on a clean, flat, stable surface.
3. Push down on the battery door latch, and pull up on the battery door.



4. Remove the battery door and set it aside.
5. Insert the stylus between the battery and the CN2A case, and press straight down until the battery is released.



6. Remove the battery and set it aside.



7 Pull the tab toward the bottom on the CN2A to remove the SD card.

Attaching a Keyboard to the CN2A

If you prefer the convenience of using a keyboard with the CN2A, you can attach a USB keyboard to the optional modem dock.

You need these items:

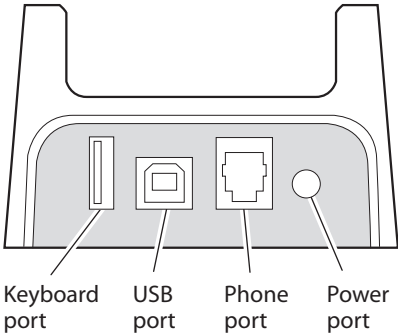
- CN2 modem dock (Model AD8)
- CN2 power supply (Model 074246)
- Dell Model SK-8115 USB keyboard
  or Logitech Model Y-BF37 USB keyboard

Note: The CN2A supports only the Dell Model SK-8115 and Logitech Model Y-BF37 USB keyboards. Intermec cannot guarantee that other USB keyboards will work with the CN2A.

To attach the USB keyboard

1 Read the *CN2 Modem Dock Quick Start Guide* (P/N 075481).

2 Connect the USB keyboard to the keyboard port on the modem dock.



3 Connect the CN2 power supply (Model 074246) to the power port on the modem dock. Then connect the CN2 power supply to an AC power source.

Caution

You must use only the Intermec power supply approved for use with the CN2. Using any other power supply will damage the CN2.

Note: If you cannot connect the modem dock to an AC power source, you can configure the CN2A to use its battery to power the USB keyboard. In Step 4c, set USB Host Power to Always On. However, you will have to charge the CN2A battery more often.

4 Configure the CN2A to provide power to the keyboard:

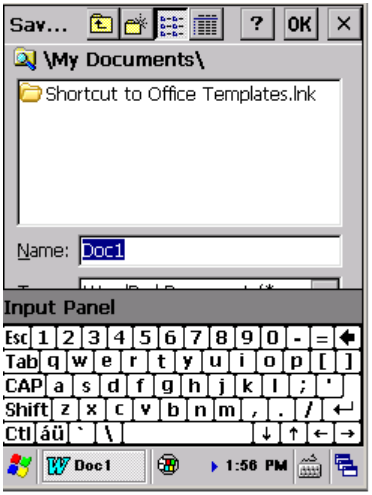
- **a** Tap **Start** > **Settings** > **Control Panel**.
- **b** Double-tap the **Utilities** icon.
- **c** Set **USB Host Power** to **On When Powered**.
- **d** Tap **OK** to close the Utilities window.
- **e** Tap **X** to close the Control Panel window.

5 Place the CN2A into the modem dock.

6 Open an application like WordPad and begin typing. If the characters you type do not appear on screen, see page 99 for troubleshooting ideas.

To use the USB keyboard

- Type just as you would on a standard keyboard. You may use standard Windows keyboard shortcuts, such as **Ctrl-S** to save a file.
- When you tap some input fields, the soft keyboard appears on your CN2A screen. You can ignore this soft keyboard and continue typing on the USB keyboard.



Soft Keyboard: *The soft keyboard is also called the Software Input Panel (SIP).*

2 Configuring the CN2A

Use this chapter to understand how to configure the CN2A. In this chapter, you will find these sections:

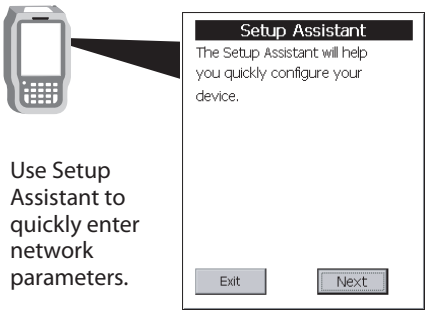
- How to Configure the CN2A Parameters
- Configuring the CN2A With the Setup Assistant
- Configuring the CN2A Locally With Intermec Settings
- Configuring the CN2A With SmartSystems Console
- Installing an Asian Font
- Customizing the CN2A Keypad

How to Configure the CN2A Parameters

You can configure many parameters on the CN2A, such as the bar code symbologies it decodes or the network settings. These characteristics are controlled by configuration parameters. The values you set for these configuration parameters determine how the computer operates.

There are several ways to configure the CN2A:

Use Setup Assistant

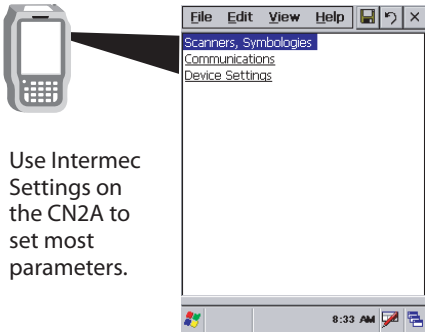


Use Setup Assistant to quickly enter network parameters.

Use the SmartSystems Console

Use Intermec Settings from within the SmartSystems Console to remotely configure network parameters.

Use Intermec Settings Locally



Use Intermec Settings on the CN2A to set most parameters.

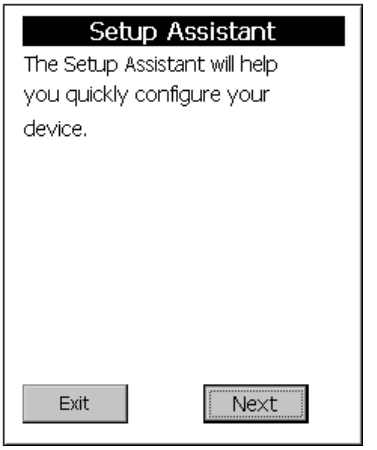
Configuring the CN2A: *The CN2A provides several ways for you to configure the communications, device, and imaging parameters.*

Configuring the CN2A With the Setup Assistant

The Setup Assistant runs on the CN2A the first time you turn on the computer. Use the Setup Assistant to set or enable basic network parameters and connect your CN2A to the network. The Setup Assistant guides you through setting the following basic network parameters:

- Date and time
- 802.11b/g radio and SSID (Network name)
- 802.1x security
- DHCP server or IP address, subnet mask, and default router
- Primary and secondary DNS addresses
- Primary and secondary WINS addresses
- Device name

To set other parameters, use Intermec Settings or another configuration method.



The Setup Assistant Start Screen

After you complete the Setup Assistant, the CN2A should be communicating with your network. A Network Connection icon (, , , or) appears on your taskbar. For more information on the network icons, see "Understanding the Screen Icons" on page 15.

Configuring the CN2A Locally With Intermec Settings

Use Intermec Settings to configure the CN2A and view system information. You can access Intermec Settings while running any application.

Learning About the Configuration Commands in Intermec Settings

For detailed information on most of the commands available in Intermec Settings, see the *Intermec Computer Command Reference Manual* (P/N 073529).

A copy of this online manual is on the CD attached inside the front cover of this user's manual. You should check the Intermec web site at www.intermec.com to determine if a more recent version is available for download.

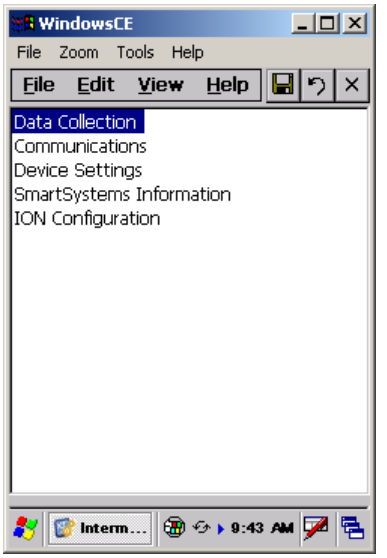
Note: Some versions of the *Intermec Computer Command Reference Manual* incorrectly state that the CN2 supports reader commands. The CN2A and CN2B support only the Change Configuration reader command.

Opening Intermec Settings

To open Intermec Settings

1 Tap the **Start** icon. The **Start** menu appears.

2 Tap **Intermec Settings**. The Intermec Settings application appears.



3 Make changes to the settings as necessary. For help, see the next section, "Navigating Through Intermec Settings."

4 Save your changes. For help, see "Saving Your Settings" on page 37.

5 Exit Intermec Settings. For help, see "Exiting Intermec Settings" on page 37.

Navigating Through Intermec Settings

Use this table to understand how to navigate and enter information in Intermec Settings.

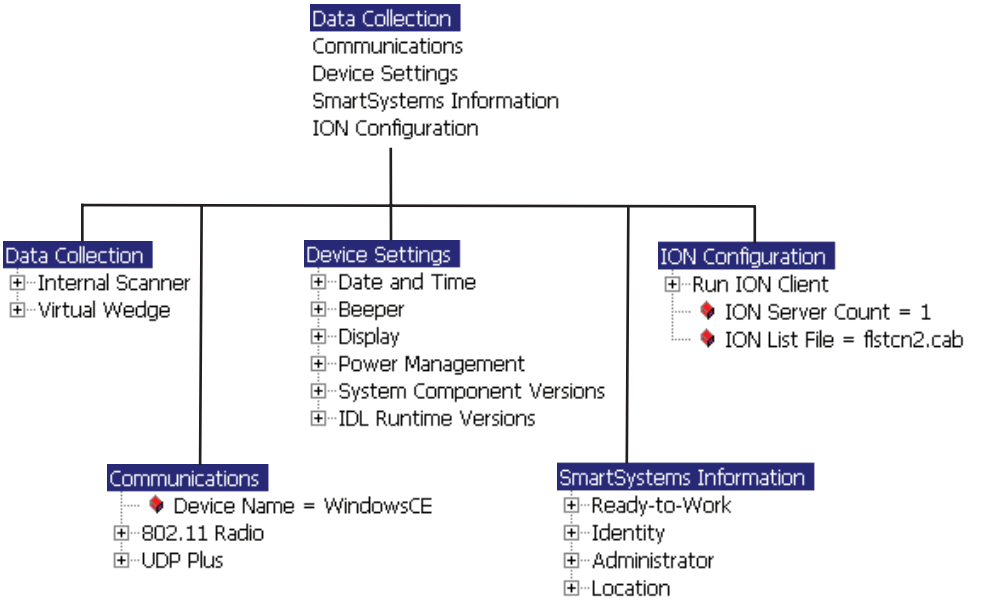
Navigating in Intermec Settings

Function	Choose a Method
Select or expand an option	Tap the option. On the scroll keypad, press ▲ or ▼ to select an option.
Expand an option	Tap the option. On the scroll keypad, press ▲ or ▼ to select the option, and then press ▶.

Navigating in Intermec Settings

Function	Choose a Method
Enter information	**1** Tap in the text box. The soft keyboard appears. **2** Tap the keyboard keys to enter information. **3** Tap outside the box or tap **Enter** when you are finished.
Select text in a text box	Tap in the text box and drag the stylus over the text.
Save settings	Tap **File** > **Save Settings**. Or tap the **Save** icon in the upper right corner.

Use the following diagram to help find the commands you need to use to configure your CN2A. These screens do not represent the exact information you will see on your CN2A. They have been modified to show you how the information is structured.



Intermec Settings Menus: *Use this diagram to help navigate through the Intermec Settings application. This diagram should only be used as a guide; it does not accurately represent all of the information you will see on your screen.*

Saving Your Settings

You can save the changes you make in Intermec Settings at any time. After you save your changes, you can continue making changes or you can exit Intermec Settings.

To save your settings

- Tap the **Save** icon at the top of the screen.

  Or,

- From the Main Menu, tap **File** > **Save Settings**.

Exiting Intermec Settings

When you are done modifying your device configuration and have saved your settings, you should exit Intermec Settings.

To exit Intermec Settings

- Tap the **X** in the upper right corner of the window.

  Or,

- From the Main Menu, tap **File** > **Exit**.

If you try to exit Intermec Settings without saving your changes, a message box appears asking if you want to save your configuration changes. Tap **Yes**.

Restoring the CN2A Default Settings

You can restore the CN2A to factory default settings. For a complete list of the default settings, see "Default Configuration" on page 134.

Note: Restoring the CN2A to factory default settings resets all network parameters. As a result, you may lose network communications. This option should only be used by network administrators or by Intermec support personnel.

To restore default settings

1. Tap **Start** > **Intermec Settings**. The Intermec Settings application appears.
2. Tap one of the menus:
   - Data Collection

- Communications
- Device Settings
- SmartSystems Information
- ION Configuration

3 Tap **Edit** > **Restore Item Defaults**.

4 Tap **Yes** to restore all default settings.

5 Repeats Steps 2, 3, and 4 for the other two menus.

6 Tap **Scanners Symbologies** > **Internal Scanner** > **Symbologies** and make sure every bar code symbology that you need is enabled.

7 Tap  to save your settings.

8 Tap **X** to exit Intermec Settings.

Note: You can also return the CN2A to its default software configuration by resetting the registry and clearing the object store. For instructions, see page 100.

Configuring the CN2A With SmartSystems Console

The SmartSystems Console lets you manage all your SmartSystems-enabled devices at the same time from a central host PC. The CN2A ships with a SmartSystems Client, which means that it is SmartSystems-enabled.

The SmartSystems Console displays all of the CN2As in your network that are communicating via wireless connection or via an Ethernet connection. (You cannot establish a USB connection between a CN2A and the Console.)

In the Console, you can right-click a CN2A icon and a menu appears. To configure the CN2A, choose **Intermec Settings** from the menu.

The Console is part of SmartSystems Foundation and is available from the Intermec web site. To download SmartSystems Foundation, go to www.intermec.com/SmartSystems. For help using the SmartSystems Console, see the online manual available from the Help menu in the Console.

Installing an Asian Font

The CN2A operating system supports Simplified Chinese, Traditional Chinese, Japanese, Korean, or Thai fonts.

To install one of these fonts, you need to upgrade the CN2A operating system as described in "Upgrading the CN2A" on page 113. Follow these guidelines:

- Make sure that you choose the download that contains the correct font. On the Intermec web site, the list of available downloads includes a description which identifies the font included in the download. For help, see Step 4 on page 114.
- Make sure that you upgrade the CN2A operating system by selecting **OS Upgrade Files** at the Select Features screen:
  - If you are using the SmartSystems Console to upgrade the CN2A, see Step 9 on page 116.
  - If you are using an SD card to upgrade the CN2A, see Step 6 on page page 119.

Customizing the CN2A Keypad

Note: If you want to remap the keypad, see Appendix C, "Remapping the Keypad."

You can customize how the numeric and scroll keypads operate:

- You can configure the CN2A to click when you press any key.
- You can configure the CN2A to click only when a character is "emitted." For example, to emit the lowercase b character, you press ▭▬ **2 2**.
- You can disable the Task Manager keypad shortcut, so users cannot use the keypad to start the Task Manager. This may be useful if you are running a locked-down application.

Note: You can also use the Control Panel to start the Task Manager, as described on page 20. This method cannot be disabled.

- You can disable the **Power** button so users cannot turn off the CN2A. This may be useful if you have installed the CN2A in a kiosk environment.

There are three ways to customize the CN2A keypad:

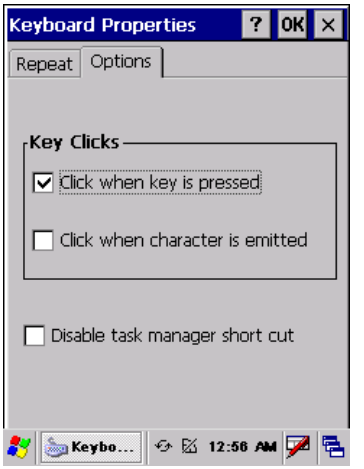
- You can use the Control Panel on your CN2A to configure keyboard options. For help, see the next section, "Using the Control Panel to Customize the Keypad."
- You can use a registry editing program to change the keypad registry entries. For help, see "Using a Registry Editing Program to Customize the Keypad" on page 41.
- You can write an application to change the keypad registry entries. For help, see "Writing an Application to Customize the Keypad" on page 42. If you have many CN2As to customize, this may be the most convenient method.

Using the Control Panel to Customize the Keypad

You can customize the keypad on a CN2A by making selections at the Keyboard Properties screen, which you access through the Control Panel.

To customize the keypad using the Control Panel

1. Go to **Start** > **Settings** > **Control Panel**.
2. Double-tap the **Keyboard** icon. The Keyboard Properties screen appears.
3. Tap the **Options** tab.
4. Check the box for each option you want to enable. For help, see the "Summary of Options" table on page 41.
5. Click **OK** to save your changes and exit the Keyboard Properties screen.
6. Tap **X** to exit the Control Panel. The changes take effect immediately. You do not need to warm boot the CN2A.



Summary of Options

Option	If You Check This Option
Click when key is pressed	You hear a keyclick every time you press a key.
Click when character is emitted	You hear a keyclick when a character is emitted. For example: • You hear a keyclick when you press **2** and a 2 character appears on the screen. • You hear a keyclick when you press ▭■ **2 2** and a lowercase b character appears on the screen.
Disable task manager short cut	You cannot start Task Manager. You have disabled the keypad shortcut for starting Task Manager, as described in "Using Task Manager to Manage Multiple Active Tasks" on page 19.

Using a Registry Editing Program to Customize the Keypad

You can use a registry editing program to display and change the keypad registry entries, which control how the CN2A keypad operates. The registry entries are described in the next table, "CN2A Keypad Registry Entries."

You can run the Microsoft eMbedded Visual C++© Remote Registry Editor on your PC, using ActiveSync to connect to the CN2A. Or you can download and run a third-party registry editing program on your CN2A.

After you make your changes, you need to warm boot the CN2A for the changes to take effect. For help, see "Warm Booting the CN2A" on page 111.

The CN2A keypad registry settings are located in HKEY_LOCAL_MACHINE\Drivers\Keypad.

CN2A Keypad Registry Entries

Registry Entry	Default	Description
ClickOnPress	1	When this registry entry is set to 1, a keyclick is generated when the user presses a key.
ClickOnChar	0	When this registry entry is set to 1, a keyclick is generated when the CN2A emits a character. For numeric keys, the behavior is the same as ClickOnPress. For alpha-mode, a keyclick is generated when the character is emitted. For example, you press ▭■ **2 2** to emit the b character and generate the keyclick.

CN2A Keypad Registry Entries (continued)

Registry Entry	Default	Description
DisableTaskMan	0	When this registry entry is set to 0, the user can start the Task Manager, as described in "Using Task Manager to Manage Multiple Active Tasks" on page 19. When this registry entry is set to 1, the user cannot start the Task Manager.
IgnorePowerButton	0	When this registry entry is set to 1, the **Power** button is ignored. The user cannot turn off the CN2A.

Writing an Application to Customize the Keypad

You can write an application to change the keypad registry entries, which are described in the previous table, "CN2A Keypad Registry Entries." An application gives you a convenient way to customize multiple CN2As.

For help downloading and using the Intermec resource kits and the CN2A platform SDK, see "Developing a New Application" on page 86.

Make sure your application sets the named event *KeybdSettingsChangeEvent* after you change the registry entries, for the changes to take effect.

3 Adding the CN2A to the Network

Use this chapter to understand how to configure the CN2A to communicate in your network. In this chapter, you will find these sections:

- Configuring the CN2A For Your Network
- Configuring Network Security
- Viewing Wireless Network Information
- Using Remote Desktop Connection
- Transferring Files With FTP
- Using the Modem Dock for Internet Access and E-mail

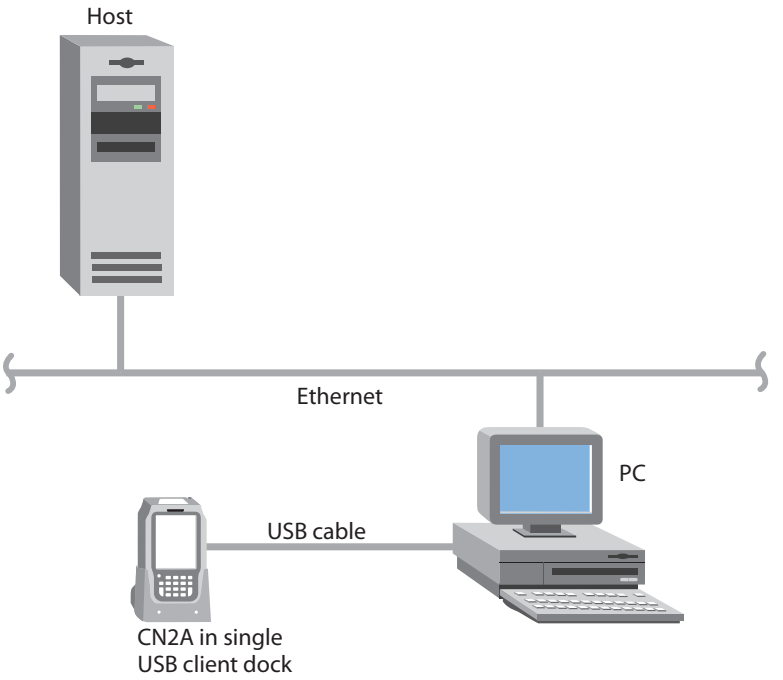
Configuring the CN2A For Your Network

The CN2A is a versatile mobile computer that you can easily add to your wired or wireless data collection network. You can connect your CN2A to your network using:

- USB communications.
- 802.11b/g radio communications.

Configuring USB Communications

You can place the CN2A in the modem dock or the USB client dock to transfer data to, and receive data from, another device using USB communications. The USB cable, USB client dock, and modem dock are sold separately. For more information on accessories and how to order them, see "Accessories for the CN2A" on page 130.



CN2A Using USB Communications

To use USB communications with your CN2A

1. Connect the USB client dock to the USB port of the other device using an appropriate USB cable.
2. Make sure that your USB device is configured for USB communications.
3. Insert the CN2A into the USB client dock.
4. Turn on the CN2A.

For more information about the USB client dock, see the instructions that shipped with the dock.

Configuring 802.11b/g Radio Communications

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

The wireless CN2A has an internal 802.11b/g radio to transfer data using wireless communications. This section of the manual assumes that you have already set up your wireless communications network including your access points. If you are using a UDP Plus network, you also need to have your Intermec Application Server communicating with a host computer.

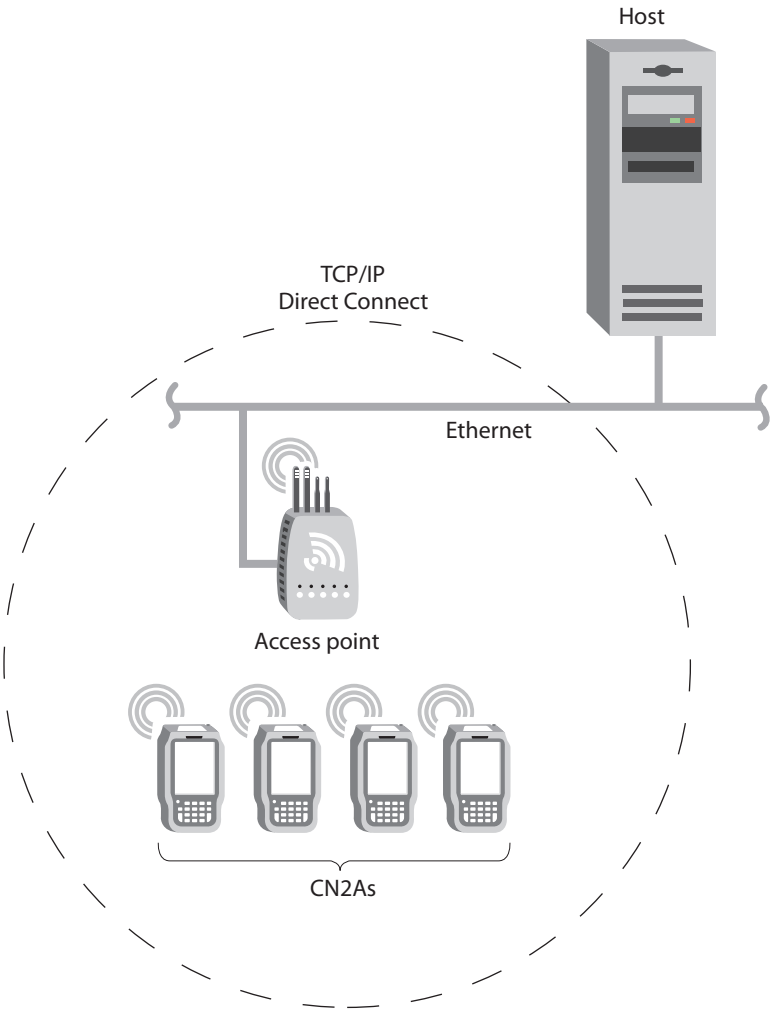
Your CN2A supports these network protocols:

- TCP/IP
- UDP Plus

The next sections explain the parameters you need to configure for the CN2A to work in your wireless network.

Configuring the Network Parameters for a TCP/IP Network

In a TCP/IP network, the CN2A communicates with a host computer directly using TCP/IP. The access point acts as a bridge to allow communications between the wired network and the wireless network.



CN2As in a TCP/IP Direct Connect Network

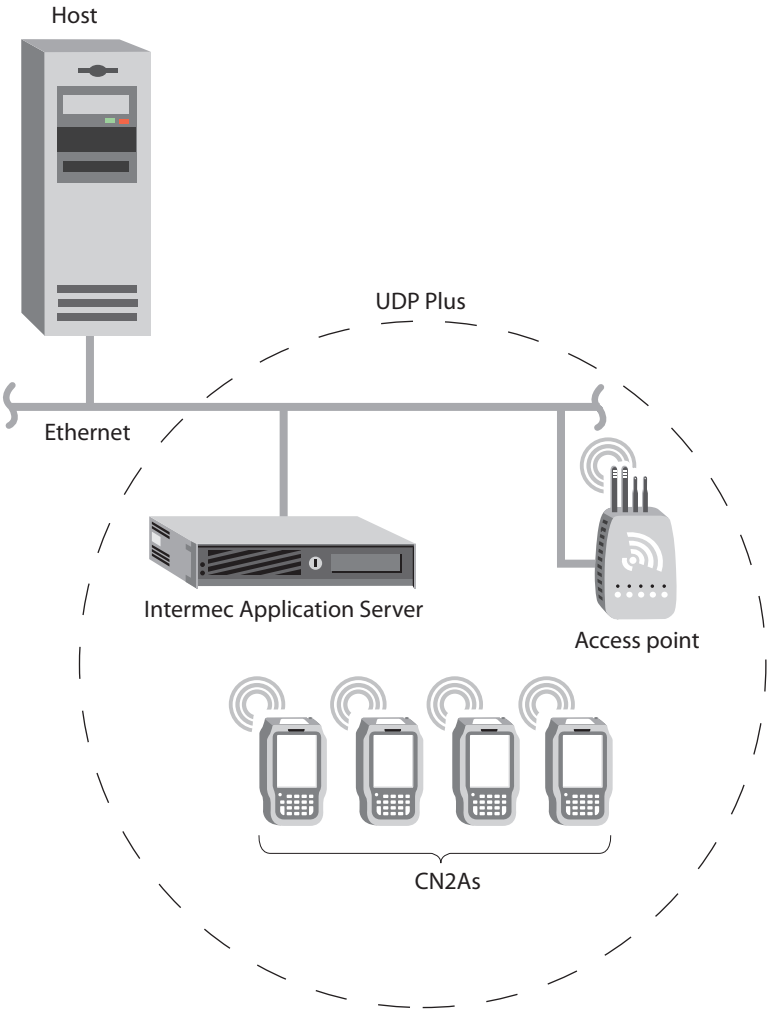
To use wireless communications in a TCP/IP network

1. Configure these network parameters on each CN2A in the network:
   - Infrastructure mode (set to Infrastructure by default)
   - Network name (SSID)
   - Host IP address
   - IP settings (if not using DHCP)
2. Configure security. For help, see "Configuring Network Security" on page 49.

The easiest way to configure the network parameters on the CN2A is to use Intermec Settings. For help, see "Configuring the CN2A Locally With Intermec Settings" on page 34.

Configuring the Network Parameters for a UDP Plus Network

In a UDP Plus network, the CN2A communicates with a host computer through the Intermec Application Server.



CN2As in a UDP Plus Network

The Intermec Application Server translates UDP Plus packets on the wireless network into TCP/IP packets on the wired network and vice versa. The access point acts as a bridge to allow communications between the wired network and the wireless network.

To use wireless communications in a UDP Plus network

1. Configure these network parameters on each CN2A in the network:
   - Network name (SSID)
   - Controller IP address
   - IP settings (if not using DHCP)
   - Controller port (set to 5555)
2. Configure the security. For help, see the next section, "Configuring Network Security."

The easiest way to configure the network parameters on the CN2A is to use Intermec Settings. For help, see "Configuring the CN2A Locally With Intermec Settings" on page 34.

Configuring Network Security

The CN2A provides three types of security for your wireless network:

- Wi-Fi Protected Access (WPA)
- 802.1x
- WEP

This section explains how to configure security on your wireless CN2A. If you choose not to use security, see "Disabling Security" on page 67. Intermec always recommends that you implement security.

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

Note: If you are using 802.1x security, this section assumes that your authentication server and authenticators are properly configured. For more information on the different types of security, see the *MobileLAN™ secure 802.1x Security Solution Installation Guide* (P/N 073134) available at www.intermec.com.

Choosing Between Funk Security and Microsoft Security Software

Before you can implement a security solution on the CN2A, you need to choose between Funk Security and Microsoft Security software.

Both offer the same features, except Funk Security (the default) also offers these features:

- CCX v2.0 compliance
- Ability to use LEAP and TTLS authentication on your CN2A
- Up to four profiles, which are sets of configuration settings

If you choose Funk Security (the default), you are assigned Profile 1, which specifies a Network Name of INTERMEC and contains no security settings. You should consider configuring security in Profile 1 or selecting another profile. For help, see the next section, "Selecting and Defining Profiles for Funk Security."

If you choose Microsoft Security, you need to select Microsoft Security. For help, see "Choosing Microsoft Security Software" on page 51.

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

Selecting and Defining Profiles for Funk Security

You can define up to four profiles for your Funk security. Different profiles let your CN2A 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.

Only one profile can be active at a time. By default, the active profile is Profile 1.

To select a profile for Funk security

1. Tap the **Start** icon. The Start menu appears.
2. Tap **Intermec Settings**. The Intermec Settings application appears.
3. Tap **Communications** > **802.11 Radio** > **Funk Security**.
4. (Optional) Select the active profile by tapping **Active Profile** and choosing the profile name from the drop-down menu. By default, Profile 1 is the active profile.
5. (Optional) Give your active profile a meaningful name:
   a. Select the active profile. All other profiles are grayed out because you can only edit the active profile.
   b. Select **Profile Label** and a text box appears.
   c. Select the text in the box and use the input panel to type in your meaningful name.
   d. Tap the **Save** icon at the top of the screen.
6. (Optional) Configure the security settings for the active profile. For help, see the appropriate sections in this chapter.
7. (Optional) Repeat Steps 4 to 6 to rename and configure additional profiles. Remember, you can only configure the profile currently selected as the active profile.
8. Tap to save your settings.
9. Tap the X at the top of the screen to exit Intermec Settings.

Choosing Microsoft Security Software

The default security choice is Funk Security. If you want to use Microsoft Security, you need to choose it as your security choice.

To choose Microsoft Security

1. Tap **Start** > **Intermec Settings** > **Communications** > **802.11 Radio**.
2. For **Security Choice**, choose **Microsoft Security**.
3. Tap anywhere outside the **Security Choice** box, and an alert box appears telling you that you must save your settings and warm boot the CN2A for your new security choice to take effect. Tap **Yes** to warm boot the CN2A now.

Note: You must warm boot the CN2A after you change your security choice.

If you tap **No**, Intermec Settings resets the **Security Choice** field to Funk Security.

4 When the CN2A finishes booting, the desktop appears. Tap Tap **Start** > **Intermec Settings** to continue configuring the CN2A.

Using WPA Security

Wi-Fi Protected Access (WPA) is a strongly enhanced, interoperable Wi-Fi security that addresses many of the vulnerabilities of Wired Equivalent Privacy (WEP). Instead of WEP, WPA uses Temporal Key Integrity Protocol (TKIP) for its data encryption method.

Currently, WPA satisfies some of the requirements in the IEEE 802.11i draft standard. When the standard is finalized, WPA will maintain forward compatibility.

WPA runs in 802.1x (Enterprise) mode or PSK (Pre-Shared Key) mode:

- In Enterprise mode, WPA provides user authentication using 802.1x and the Extensible Authentication Protocol (EAP). That is, an authentication server (such as a RADIUS server) must authenticate each device before the device can communicate with the wireless network.
- In PSK mode, WPA provides user authentication using a shared key between the authenticator and the CN2A. WPA-PSK is a good solution for small offices or home offices that do not want to use an authentication server.

To use WPA security, you need:

- an authentication server (Enterprise mode only). You can use a MobileLAN access WA2X product as an authentication server.
- user and root certificates (if you plan to use TLS for authentication).
- an access point with an 802.11b/g radio that supports WPA.

- a CN2A with the 802.11b/g radio and the 802.1x/WPA security option.

Configuring WPA Security With Funk Security

Use these procedures to set WPA-802.1x and WPA-PSK security on your CN2A with Funk security.

To enable WPA-802.1x security on your CN2A with Funk Security

1. Make sure you have configured the communications and radio parameters on your CN2A.
2. Make sure you have selected Funk as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.
3. Make sure the date on the CN2A is correct. For help setting the date and time, see Step 4 on page 113.
4. If you plan to use TLS for authentication, load a user and root certificate on your CN2A. For help, see "Loading Certificates" on page 65.
5. Open Intermec Settings.
6. Tap **Communications** > **802.11 Radio** > **Funk Security** > ***active_profile***, where *active_profile* is the name of the active profile.

Note: All other profiles are grayed out and cannot be configured. To edit another profile, you must make it the active profile by selecting it in the **Active Profile** field.

7. For **Association**, choose **WPA** and tap  or press **Enter**. **Encryption** is set to **TKIP** by default.
8. For **Pre-Shared Key**, enter the pre-shared key or passphrase and press **Enter**.

   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 CN2A internally converts it to a pre-shared key.

   This value must match the passphrase on the authenticator.

9 For **802.1x**, choose **TTLS**, **PEAP**, or **TLS** and tap or press **Enter**.

If you choose TTLS or PEAP:

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

Note: You can use **Prompt for password** to troubleshoot your connection to the network if you have problems.

b Select **User name**, use the soft keyboard to type your user name, and tap or press **Enter**.

c Select **User Password**, use the soft keyboard to type your user password, and tap or press **Enter**.

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

Note: You must have the date on the CN2A set correctly when you enable **Validate Server Certificate**.

If you choose TLS:

a For **Validate Server Certificate**, choose **Yes** and tap or press **Enter**.

b You must enter a **User Name** and **Subject Name**. You can also enter a **Server Common Name** to increase your level of security.

10 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

To enable WPA-PSK security on your CN2A with Funk Security

1 Make sure you have configured the communications and radio parameters on your CN2A.

2 Make sure you have selected Funk as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

3 Open Intermec Settings.

4 Tap **Communications** > **802.11 Radio** > **Funk Security** > ***active_profile***, where *active_profile* is the name of the active profile.

Note: All other profiles are grayed out and cannot be configured. To edit another profile, you must make it the active profile by selecting it in the **Active Profile** field.

5 For **Association**, choose **WPA** and tap or press **Enter**. Data Encryption automatically defaults to TKIP.

6 For **802.1x**, choose **None** and tap or press **Enter**.

7 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 access point. The passphrase must be from 8 to 63 characters. After you enter a passphrase, the CN2A internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

8 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Configuring WPA Security With Microsoft Security

Use these procedures to set WPA-802.1x and WPA-PSK security on your CN2A with Microsoft security. These procedures assume that you have selected Microsoft Security software as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

To enable WPA-802.1x security on your CN2A with Microsoft Security

1 Make sure you have configured the communications and radio parameters on your CN2A.

2 Make sure you have selected Microsoft as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

3 If you plan to use TLS for authentication, load a user and root certificate on your CN2A. For help, see "Loading Certificates" on page 65.

4 Open Intermec Settings.

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

6 For **Infrastructure Mode**, choose **Infrastructure**.

7 For **Network Authentication**, choose **WPA** and tap or press **Enter**. **Data Encryption** is set to **TKIP** by default.

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

If you choose TLS:

a Tap **Properties** and tap **Run App**. The Authentication Settings box appears.

b From the Authentication Settings box, tap **Select**.

c Tap your certificate from the list and press **Enter** or tap **OK**. The User Logon dialog box appears.

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

e Tap **OK** complete the process.

If you choose PEAP:

a Tap **Properties** and tap **Run App**. The Authentication Settings box appears.

b Select the **Validate Server** check box.

c Tap **OK**. After the radio starts to authenticate, the Network Password dialog box appears.

d Enter a **User Name** and **Password** and tap the **Save Password** check box.

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

f Press **Enter**.

9 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

To enable WPA-PSK security on your CN2A With Microsoft Security

1 Make sure you have configured the communications and radio parameters on your CN2A.

2 Make sure you have selected Microsoft as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

3 If you plan to use TLS for authentication, load a user and root certificate on your CN2A. For help, see "Loading Certificates" on page 65.

4 Open Intermec Settings.

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

6 For **Infrastructure Mode**, choose **Infrastructure**.

7 For **Network Authentication**, choose **WPA-PSK** and tap  or press **Enter**. Data Encryption is set to TKIP by default.

8 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 CN2A internally converts it to a pre-shared key.

This value must match the passphrase on the authenticator.

9 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Using 802.1x Security

802.1x security provides centralized user authentication using an authentication server, authenticators (access points), and supplicants. These components communicate using an EAP authentication type, such as TLS (Transport Layer Security) or PEAP (Protected Extensible Authentication Protocol). 802.1x security provides data encryption using dynamic WEP key management.

To use 802.1x security, you need:

- an authentication server. You can use a MobileLAN access WA2X product as an authentication server.
- an access point with an 802.11b/g radio.
- a CN2A with an 802.11b/g radio and the 802.1x/WPA security option.
- user and root certificates (if you plan to use TLS for authentication).

These procedures assume that you have already selected either Microsoft Security or Funk Security software as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

Configuring 802.1x Security With Funk Security

Follow these steps to configure 802.1x Security with Funk Security.

To configure 802.1x Security with Funk Security

1. Make sure you have configured the communications and radio parameters on your CN2A.
2. Make sure you have selected Funk as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.
3. If you plan to use TLS for authentication, load a user and root certificate on your CN2A. For help, see "Loading Certificates" on page 65.
4. Open Intermec Settings.

5 Tap **Communications** > **802.11 Radio** > **Funk Security** > ***active_profile***, where *active_profile* is the name of the active profile.

Note: All other profiles are grayed out and cannot be configured. To edit another profile, you must make it the active profile by selecting it in the **Active Profile** field.

6 For **Association**, select **Open** and tap or press **Enter**.

7 For **Encryption**, select **WEP** and tap or press **Enter**.

8 For **802.1x**, select **TTLS**, **PEAP**, or **TLS** and tap or press **Enter**.

If you choose TTLS or PEAP:

a Select **Prompt for Credentials**, choose **Enter credentials now**, and then tap or press **Enter**.

Note: You can use **Prompt for password** to troubleshoot your connection to the network if you have problems.

b Select **User name**, type your user name, and tap or press **Enter**.

c Select **User Password**, type a user password, and tap or press **Enter**.

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

If you choose TLS:

a For **Validate Server Certificate**, choose **Yes** and tap or press **Enter**.

b You must enter a **User Name** and **Subject Name.**

c (Optional) You can also enter a **Server Common Name** to increase your level of security.

9 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Configuring 802.1x Security With Microsoft Security

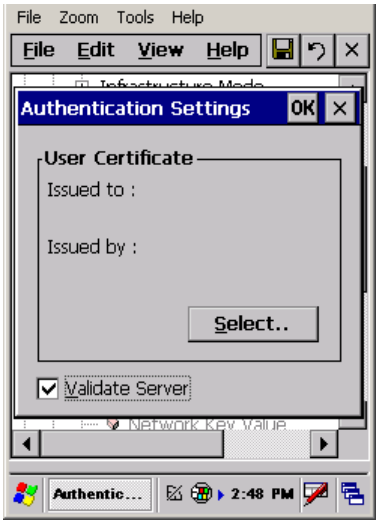
Follow these steps to configure 802.1x Security with Microsoft Security.

To configure 802.1x Security with Microsoft Security

1. Make sure you have configured the communications and radio parameters on your CN2A.
2. Make sure you have selected Microsoft as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.
3. If you plan to use TLS for authentication, load a user and root certificate on your CN2A. For help, see "Loading Certificates" on page 65.
4. Open Intermec Settings.
5. Choose **Communications** > **802.11 Radio** > **Microsoft Security**.
6. For **Infrastructure Mode**, choose **Infrastructure**.
7. For **Network Authentication**, choose **Open**.
8. For **Data Encryption**, choose **WEP**.
9. For **802.1X Authentication**, choose **TLS** or **PEAP**, and tap  or press **Enter**.

   If you choose TLS:

   a. Select **Properties** and tap **Run App**. The Authentication Settings box appears.



b From the Authentication Settings box, tap **Select**.

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

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

e Press **Enter** or tap **OK**.

If you choose PEAP:

a Select **Properties** and tap **Run App**. The Authentication Settings box appears.

b Select the **Validate Server** check box.

c Press **Enter** or tap **OK**. Once the radio starts to authenticate, the Network Password dialog box appears.

d Enter a **User Name** and **Password** and select the **Save Password** check box.

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

f Press **Enter** or tap **OK**.

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

11 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Using LEAP Security

Lightweight Extensible Authentication Protocol (LEAP), also known as Cisco-Wireless EAP, provides username/password-based authentication between a wireless client and a RADIUS server. In the 802.1x framework, traffic cannot pass through an Ethernet hub or wireless network access point until it successfully authenticates itself.

The station must identify itself and prove that it is an authorized user before it is actually allowed to use the LAN. LEAP also delivers a session key to the authenticated station, so that future frames can be encrypted with a key that is different than keys used by others' sessions.

To use LEAP security, you need:

- a RADIUS server.
- a Cisco access point with an 802.11b/g radio

Note: LEAP security is not supported if you are using Microsoft Security software, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

To enable LEAP security on your CN2A

1. Make sure you have configured the communications and radio parameters on your CN2A.
2. Make sure you have selected Funk as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.
3. Open Intermec Settings.
4. Tap **Communications** > **802.11 Radio** > **Funk Security** > ***active_profile***, where *active_profile* is the name of the active profile.

Note: All other profiles are grayed out and cannot be configured. To edit another profile, you must make it the active profile by selecting it in the **Active Profile** field.

5. For **802.1x**, select **LEAP** and tap  or press **Enter**.

6 For **Association**, select **Open**, **WPA**, or **Network EAP** and tap or press **Enter**. Encryption automatically defaults to TKIP if you choose WPA, and to WEP if you choose OPen or Network EAP.

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

Note: You can use **Prompt for password** to troubleshoot your connection to the network if you have problems.

8 Select **User Name**, type your user name, and tap or press **Enter**.

9 Select **User Password**, type your password, and tap or press **Enter**.

10 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Using Static WEP Security

The CN2A uses the Wired Equivalent Privacy (WEP) protocol to add security to your wireless network based on the 802.11b standard.

To use WEP security, you need:

- an access point with an 802.11b/g radio.
- a CN2A mobile computer with an 802.11b/g radio.

Configuring Static WEP Security With Funk Security

Follow these steps to configure static WEP security with Funk Security.

To configure static WEP security with Funk Security

1 Make sure you have configured the communications and radio parameters on your CN2A.

2 Make sure you have selected Funk as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

3 Open Intermec Settings.

4 Tap **Communications** > **802.11 Radio** > **Funk Security** > ***active_profile***, where *active_profile* is the name of the active profile.

Note: All other profiles are grayed out and cannot be configured. To edit another profile, you must make it the active profile by selecting it in the **Active Profile** field.

5 For **Association**, choose **Open** and tap or press **Enter**.

6 For **Encryption**, choose **WEP** and tap or press **Enter**.

7 For **Authentication**, choose **None** and tap or press **Enter**.

8 Select **WEP Key** and then define a value for each WEP key. You can define up to four WEP keys.

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

9 Select **Network Key Index**, choose the WEP key you want to use for transmitting data.

10 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Configuring Static WEP Security With Microsoft Security

Follow these steps to configure static WEP security with Microsoft Security.

To configure static WEP security with Microsoft Security

1 Make sure you have configured the communications and radio parameters on your CN2A.

2 Make sure you have selected Microsoft as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

3 Open Intermec Settings.

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

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

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

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

8 For **Network Key Value**, enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the type of WEP encryption you are using.

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

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

10 Exit Intermec Settings. If prompted to save your settings, tap **Yes**.

Loading Certificates

If you choose to use transport layer security (TLS) with WPA or 802.1x security, you need to have a unique client certificate on the CN2A and a trusted root certificate authority (CA) certificate. You can use a third-party CA to issue unique client certificates and a root certificate.

If you are using Active Directory® to issue certificates, you can use the Enroll Certificates application to load the certificates. If you are using a third-party CA, you can use the Import Root or User Certificates programs to load the certificates.

Note: Do not cold boot the CN2A. Cold booting the computer resets the date and time. If you cold boot the CN2A, you must immediately update the date and time, or the installed certificates may be deemed invalid. For help setting the date and time, see Step 4 on page 113.

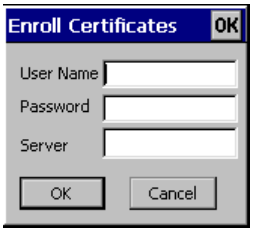
To load certificates on the CN2A if you are using Active Directory

1 Configure the network and radio settings for the CN2A to communicate with your certificate authority or establish an ActiveSync connection with the CA.

2 Tap **Start** > **Intermec Settings** > **Communications** > **802.11 Radio** > **Security Settings** > **Certificates**.

3 Select **Enroll Certificates** and tap **Run App**.

4 From the Run Application box, tap **Yes**. The Enroll Certificates dialog box appears.



5 Enter the **User Name, Password**, and **Server** (IP address) to log in to the CA server.

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

7 Tap **Yes** or press **Enter** to load the certificate. The Enrollment Tool message box appears telling you that the user certificate has been added.

8 Press **Enter** to close the Enrollment Tool message box.

9 Configure your CN2A for WPA or 802.1x security.

To load certificates on the CN2A if you are using a third-party CA

1 Create the \temp\root and \temp\user folders on your CN2A.

2 Copy your .cer file to the \temp\root folder on the CN2A.

3 Copy your .der and .pvk files to the \temp\user folder on the CN2A.

4 Tap **Start** > **Intermec Settings** > **Communications** > **802.11 Radio** > **Security Settings** > **Certificates**.

5 Select **Import Root Certificates** and tap **Run App** to load the .cer file. A dialog box appears asking if you want to add the certificate to the root store.

6 Tap **Yes** or press **Enter** to add the certificate. A message box appears telling you that the root certificate has been imported.

7 Tap **OK** to close the Success message box.

8 Select **Import User Certificate** to load the .der and .pvk files. A message box appears telling you that the certificate has been imported.

9 Tap **OK** to close the Success message box.

10 Configure your CN2A for WPA or 802.1x security.

Disabling Security

If you choose not to use security with your wireless network, you can disable it on the CN2A. Intermec strongly recommends that you always set security in your network.

The procedure you follow to disable security depends on whether you are using Funk Security or Microsoft Security.

To disable Funk Security

1 Open Intermec Settings.

2 Tap **Communications** > **802.11 Radio**.

3 If **Security Choice** is not **Funk Security**, you need to use the next procedure, "To disable Microsoft Security."

4 Tap **Funk Security**.

5 Tap the active profile.

6 For **8021x** (or **Authentication**), choose **None**.

7 For **Association**, choose **Open**.

8 For **Encryption**, choose **None**.

9 Tap the **Save** icon in the upper right corner of the screen.

10 Exit Intermec Settings.

To disable Microsoft Security

1 Open Intermec Settings.

2 Tap **Communications** > **802.11 Radio**.

3 If **Security Choice** is not **Microsoft Security**, you need to use the previous procedure, "To disable Funk Security."

4 Tap **Microsoft Security**.

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

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

7 Tap the **Save** icon in the upper right corner of the screen.

8 Exit Intermec Settings.

Viewing Wireless Network Information

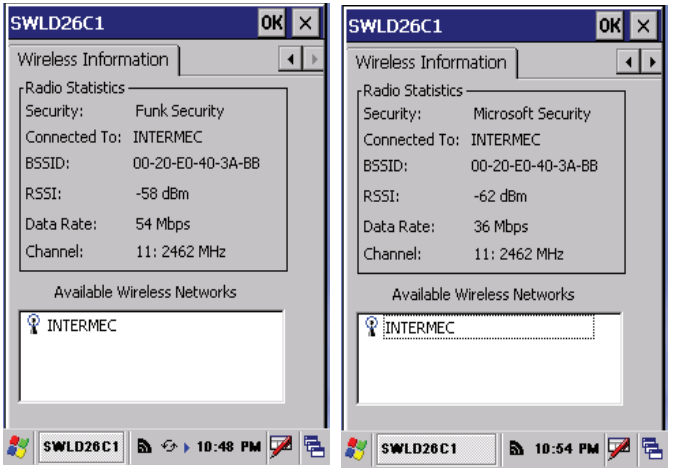
You can view wireless network information, such as current network parameters and network parameters and a list of available wireless networks.

This feature is available if you have Funk or Microsoft configured as your security choice, as described in "Choosing Between Funk Security and Microsoft Security Software" on page 50.

To view wireless network information

1. Configure and add your wireless CN2A to your network.
2. Double-tap the Network Connection icon (, , , or) in the taskbar. The SWLD26C1 configuration screen appears.

3. Tap the right arrow button (▶) twice and then tap the **Wireless Information** tab to bring the tab forward.



Wireless Network Information: *This tab shows wireless network information for the CN2A, including your security choice, wireless network parameters, and a list of available wireless networks. You cannot set parameters or select a network on this tab.*

4 Tap **OK** to close the SWLD26C1 configuration screen.

Using Remote Desktop Connection

The Remote Desktop Connection application lets you connect your CN2A over the network to either:

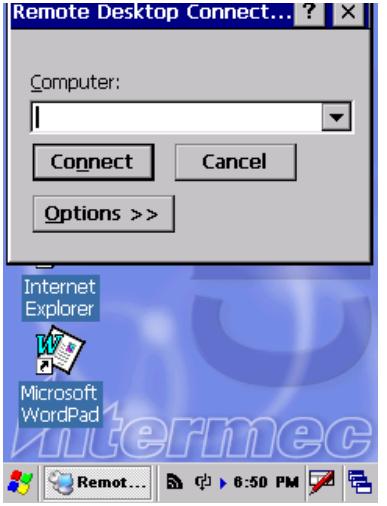
- a PC running Windows NT, Windows 2000, or Windows XP Professional.
- a server running Windows NT Server 4.0 Terminal Server Edition.

This version of Remote Desktop Connection lets you specify the size of the remote desktop. If you choose a desktop larger than the CN2A default (240 by 320 pixels), you can use scroll bars to move around the screen.

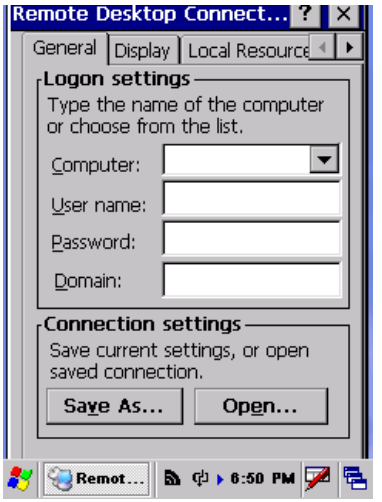
To use Remote Desktop Connection

1 Make sure your CN2A is connected to the network. For help, see “Configuring the CN2A For Your Network” on page 44.

2 Tap **Start** > **Programs** > **Remote Desktop Connection**. The Remote Desktop Connection screen appears.



3 Tap **Options**. This screen appears:

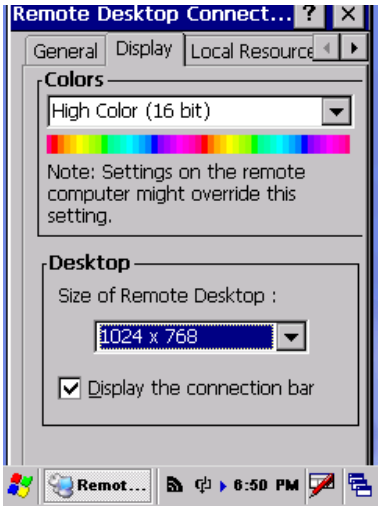


4 On the **General** tab, specify the computer, user name, password, and domain to use when connecting to the remote desktop.

5 (Optional) Tap **Save As** to save your settings in an .rdp file, or tap **Open** to load an existing .rdp file.

6 (Optional) Tap the **Display** tab to specify the size of the remote desktop.

You may find a larger desktop easier to use than the default 240 by 320 pixels. If you choose a larger desktop, you will use scroll bars to move around the screen.



7 (Optional) If you are using the optional USB keyboard, tap the **Local Resources** tab and choose **On the local computer** in the **Keyboard** field. For help using the USB keyboard, see "Attaching a Keyboard to the CN2A" on page 28.

8 (Optional) Tap the **Programs** tab to specify a program to start when you connect.

9 (Optional) Tap the **Experience** tab to specify other settings such as desktop background and animation. Be aware that enabling animation will slow performance.

10 When you have finished configuring the connection, press the **Enter** key on the CN2A keypad to open the connection to the remote desktop.

Transferring Files With FTP

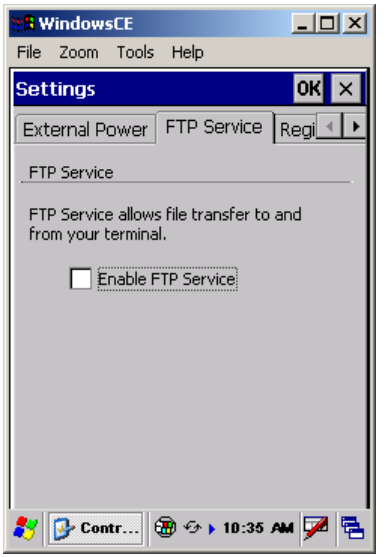
You can use FTP (File Transfer Protocol) to transfer files to or from your CN2A. FTP support is provided through the FTP Server application FTPDCE.EXE installed on your CN2A.

Enabling the FTP Server on the CN2A

You must enable the FTP Server through the Control Panel.

To enable FTP

1. Go to **Start** > **Settings** > **Control Panel**.
2. Double-tap the **Utilities** icon. The Settings screen appears.
3. Tap the **FTP Service** tab to bring the tab forward.



4. Check the **Enable FTP Service** check box.
5. Tap **OK** to save your changes and exit the Settings screen.
6. Tap **X** to exit the Control Panel. The FTP Server begins running immediately. You do not need to warm boot the CN2A.

You are ready to use FTP to transfer files. For help, see "Using FTP to Transfer Files" on page 74.

Changing the Default FTP User Name and Password

The default FTP user name is `Intermec` and the default password is `cr52401`. You can disable the default user name and password and create an access control list that specifies which users can use the FTP Server.

To change the default FTP user name and password

1 Edit the registry to set this parameter:

```
;disable default intermec account
[HKEY_LOCAL_MACHINE\Software\Intermec\IFTP]
"UseDefaultPW"=dword:00000000
```

Note: You can run the Microsoft eMbedded Visual C++© Remote Registry Editor on your PC, using ActiveSync to connect to the CN2A. Or you can download and run a third-party registry editing program on your CN2A.

2 Create an access control list called FTPDCE.TXT using this format:

`FTPDCE:`*`user1`*`!`*`password1`*`<cr><lf>`*`user2`*`!`*`password2`*`<cr><lf>`*`user3`*`!`*`password3`*`<cr><lf>...`

Where *user#* and *password#* are the case-sensitive user names and passwords, separated by an exclamation point (!).

3 Copy FTPDCE.TXT to the \Windows directory on the CN2A, which is where the FTPDCE.EXE server is located.

4 Stop and start the FTP Server. This forces the FTP Server to encrypt the access control list, create a hidden, encrypted file called FTPDCE.DAT, and then delete FTPDCE.TXT.

Follow these steps to stop and start the FTP Server:

a Go to **Start** > **Settings** > **Control Panel**.

b Double-tap the **Utilities** icon to open the Settings screen.

c Uncheck the **Enable FTP Service** check box.

d Tap **OK** to save the change and exit the Setting screen.

e Double-tap the **Utilities** icon to open the Settings screen.

f Tap the **FTP Service** tab to bring the tab forward.

g Check the **Enable FTP Service** check box.

h Tap **OK** to save the change and exit the Settings screen.

i Tap **X** to exit the Control Panel.

You are ready to use FTP to transfer files. For help, see "Using FTP to Transfer Files" later on this page.

Updating Your Access Control List

If you need to install a new access control list onto the CN2A, you must first delete the current FTPDCE.DAT file.

Note: You cannot copy the encrypted access control lists (FTPDCE.DAT files) from one CN2A to another.

To update an access control list

1 Delete the FTPDCE.DAT file from the \Windows directory. This is a hidden file.

2 Follow Steps 2 to 4 in the previous procedure to create a new FTPDCE.TXT file, copy the file to your CN2A, and then stop and start the FTP Server.

Using FTP to Transfer Files

You can follow these steps to start and use FTP to transfer files.

To use FTP

1 Start an FTP client and connect to the FTP Server on the CN2A.

2 Log in. Enter the default FTP user name `Intermec` and password `cr52401`, or enter a user name and password from your access control list.

3 From the FTP client, send an FTP command.

4 Wait for a response.

Using the Modem Dock for Internet Access and E-mail

If you have purchased the optional CN2 modem dock, you can configure the CN2A to use the modem dock to connect to the Internet and to access e-mail.

If your Internet Service Provider (ISP) is providing your e-mail service, follow the steps in the next section, "Connecting to the Internet Through the Modem Dock," before you follow the steps in "Setting Up an E-mail Account Through the Modem Dock" on page 82.

For details about installing and using the modem dock, see the *CN2 Modem Dock Quick Start Guide*, which ships with the modem dock.

Connecting to the Internet Through the Modem Dock

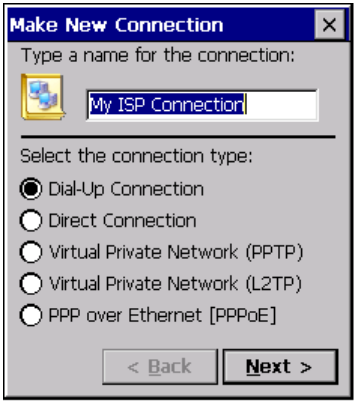
You can connect to the Internet through the modem dock.

To configure a connection to your Internet service provider

1. Install the modem dock, as described in the *CN2 Modem Dock Quick Start Guide*.
2. Contact your ISP and obtain the following information:
   - ISP dial-up access phone number
   - User name
   - Password
3. Tap **Start** > **Settings** > **Network and Dial-up Connections**.

4 Double-tap **Make New Connection**.

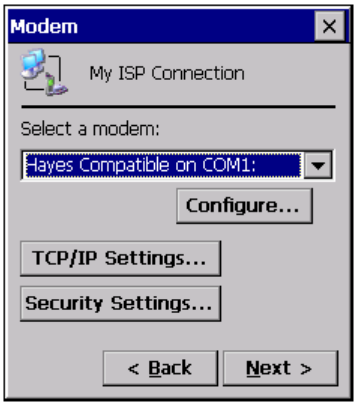
5 In the **Type a name for the connection** field, enter a name for the connection, such as My ISP Connection.



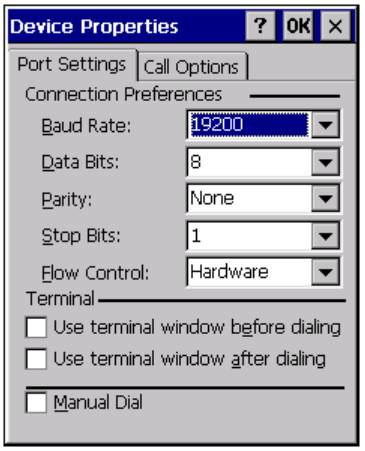
6 From the **Select the connection type** list, select **Dial-Up Connection** from the list of connection types.

7 Tap **Next**. The Modem screen appears.

8 From the **Select a modem** drop-down menu, choose **Hayes Compatible on COM1**.



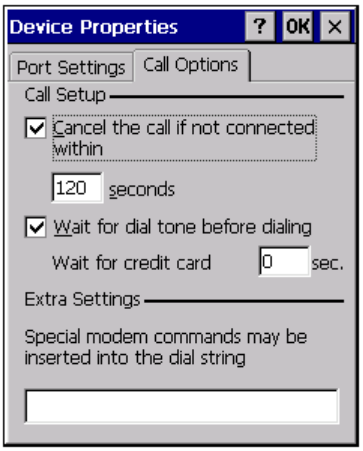
9 Tap **Configure**. The Device Properties screen appears.



Connection Preferences: *The connection preferences (such as Baud Rate) specify how the CN2A communicates with the modem dock.*

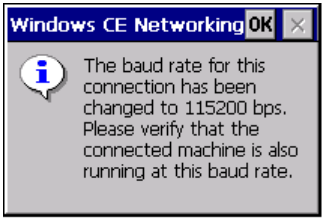
10 Set the **Baud Rate** to 115200 bps.

11 (Optional) Tap the **Call Options** tab and make changes if necessary.



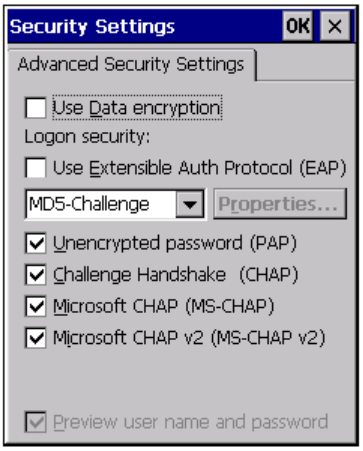
12 Tap **OK** at the top of the screen to return to the Modem screen.

13 If you changed the baud rate in Step 10, a message box appears. Tap **OK** to close the message box.



14 Tap **TCP/IP Settings** only if your ISP does not use a dynamically assigned IP address. When you are done making selections, tap **OK** at the top of the screen to return to the Modem screen.

15 Tap **Security Settings** to configure advanced security settings, if necessary. The Security Settings screen appears.



When you are done making selections, tap **OK** at the top of the screen to return to the Modem screen.

16 Tap **Next** on the Modem screen.

17 Fill in the **Country/region code** field, the **Area code** field, and the **Phone Number** field with the information provided by your ISP.

Note: When you connect to the Internet for the first time, you can specify the exact numbers that the modem dials. For help, see the next procedure, "To connect to the Internet for the first time."

18 Check **Force long distance** if the modem needs to dial the country/region code, the area code, and the phone number. Or check **Force local** if the modem needs to dial only the phone number.

19 Tap **Finish**.

20 Perform the steps in the next procedure, "To connect to the Internet for the first time."

To connect to the Internet for the first time

1 Tap **Start** > **Settings** > **Network and Dial-up Connections**.

2 Double-tap the icon for the connection you just configured. The Dial-Up Connection screen appears.

3 In the **User Name** field, enter the user name provided by your ISP.

4 In the **Password** field, enter the password provided by your ISP.

5 (Optional) Check the **Save password** check box if you do not want to enter the password every time you connect.

6 Tap **Dial Properties**. The Dialing Properties screen appears.

7 By default, the CN2A assumes that you are dialing from work, on a phone system that requires you to enter a 9 before dialing. If you do not need to enter 9 before dialing, follow these steps:

   a Choose **Home** from the **Location** drop-down list. The location setting has a dialing pattern that does not include a 9 before dialing.

   b Make sure the **Area Code** and **Country/Region** are correct.

   c (Optional) Tap **Edit**. The Edit Dialing Patterns screen appears. Make sure the dialing pattern is appropriate and tap **OK** to return to the Dialing Properties screen.

   d Tap **OK** to return to the Dial-Up Connection screen.

8 Tap **Connect**. The modem dock connects to your ISP.

To connect to the Internet

1 Tap **Start** > **Settings** > **Network and Dial-up Connections**.

2 Double-tap the appropriate connection icon. The Dial-Up Connection screen appears.

3 Your user name automatically appears in the **User Name** field. Your password automatically appears in the **Password** field if you checked the **Save password** check box.

4 Tap **Connect**. The modem dock connects to your ISP.

5 Tap **Hide** to minimize the Connected to *Name* screen, where *Name* is the name you configured for the connection.

To disconnect from the Internet

- Double-tap the **Connectivity** icon in the taskbar and then tap **Disconnect**.

Setting Up an E-mail Account Through the Modem Dock

You can send and receive e-mail messages using the modem dock and the Inbox application on your CN2A. You need to set up a connection to an e-mail server.

The ISP or network must use a POP3 or IMAP4 e-mail server and an SMTP gateway.

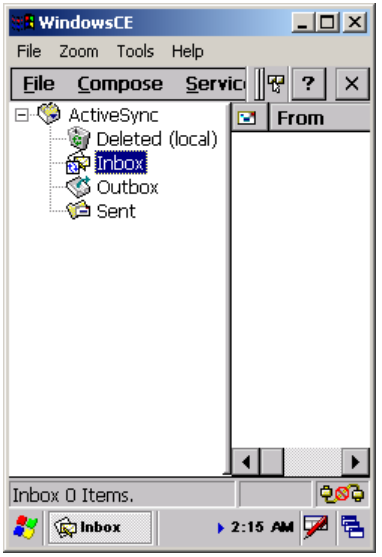
You can use multiple e-mail services to receive your messages. For each e-mail service you intend to use, first set up and name the e-mail service. If you use the same service to connect to different mailboxes, set up and name each mailbox connection.

To configure your e-mail account

1 Contact your ISP and obtain the following information:

- POP3 or IMAP4 host name
- SMTP host name
- User name
- Password

2 Tap **Start** > **Programs** > **Inbox** to open the Inbox application.



3 Tap **Service** > **Options**. The Options screen appears.

4 Drag the screen to the left to view the right side of the screen.

5 Tap **Add**. The Service name screen appears.

6 Select the appropriate service type from the **Service Type** drop-down menu, either **POP3** or **IMAP4**.

7 (Optional) Enter a meaningful name in the **Service Name** field. If you are setting up multiple e-mail services, each needs a unique name.

8 Tap **OK**.

9 In the **Connection** drop-down list, choose the appropriate connection. If you configured a connection to your ISP as described in the previous section, that connection appears in the list. You may want to choose that connection.

10 In the **POP3 Host** or **IMAP4 Host** field, enter the host name provided by your ISP.

11 In the **User ID** field, enter the user name provided by your ISP.

12 In the **Password** field, enter the password provided by your ISP.

13 If you do not want to type the password each time you connect, check the **Save Password** check box.

14 Drag the screen to the left to view the right side of the screen.

15 If you want to be able to send e-mail from the CN2A, in the **SMTP host for sending email** field, you must enter the SMTP host name provided by your ISP.

Note: The SMTP host name may be the same as your POP3 host name or IMAP4 host name.

16 (Optional) For help determining if you need to set the optional parameters like **Domain**, tap ? to view the Inbox online help.

17 Tap **Next**. The POP3 Mail General Preferences screen appears.

18 Check or uncheck the check boxes to set your connection preferences. For help, tap ? to view the Inbox online help.

19 Tap **Next**. The POP3 Mail Inbox Preferences screen appears.

20 By default, Inbox downloads only the message headers. If you want to download the entire e-mail message, select **Get full copy of message**.

21 Drag the screen to the left to view the right side of the screen.

22 (Optional) If you want to download attachments and meeting requests, check the appropriate check boxes.

23 Tap **Finish**.

24 (Optional) Tap the **Compose**, **Read**, **Delete**, and **Storage** tabs to further customize Inbox.

25 Tap **OK** to exit the **Options** screen.

To send and receive e-mail

- Tap **Start** > **Programs** > **Inbox**. For help, tap ? to view the Inbox online help.

4 Developing and Installing Applications

Use this chapter to understand how to develop and install applications for the CN2A. In this chapter, you will find these sections:

- Developing Applications for the CN2A
- Installing Applications on the CN2A
- Setting Up Applications to Persist Through a Cold Boot
- Launching Your Application Automatically

Developing Applications for the CN2A

The CN2A runs applications programmed in Microsoft Embedded Visual C++. The CN2A can also run applications developed for the .NET Compact Framework using Microsoft C# and Visual Basic .NET.

Use this section to understand the hardware and software you need to perform these tasks:

- Developing a new application for the CN2A
- Developing a web-based application for the CN2A

Developing a New Application

To develop new applications to run on the CN2A, use the resource kits available as a download from the Intermec Developer Library (IDL).

Understanding the Resource Kits and Platform SDKs

Each resource kit includes C++ and .NET components grouped by functionality:

- Antares Migration
- Bluetooth
- Communications
- Data Collection
- Device
- Mobile Gadgets
- Printing
- RFID

Note: Not all resource kits (such as Antares Migration) can be used with the CN2A.

The IDL also includes a platform SDK for each operating system. For the CN2A, you need to download the CN2A SDK.

Downloading the Resource Kits and CN2A Platform SDK

Follow these steps to download the resource kits and the CN2A platform SDK to your PC.

To download the resource kits and CN2A platform SDK

1. From the Intermec web site at www.intermec.com, select **Service & Support** > **Developer Library**.
2. Under **Resource Kits**, click **Download Now**.
3. Follow the prompts to install the IDL. When the InstallShield Wizard prompts you to select the features to be installed, you must scroll down and check the **CN2A SDK** check box and then click **Next**.
4. Continue following the prompts to install the IDL. When the InstallShield Wizard Complete screen appears, click **Finish**.
5. The Intermec CN2A SDK Setup Wizard starts. Follow the prompts to install the CN2A SDK.

Understanding the Hardware and Software Requirements

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

- Pentium PC, 400 MHz or higher
- Windows 2000 (Service Pack 2 or later) or Windows XP (Home, Professional, or Server)
- For native C++ development, Microsoft eMbedded Visual C++ version 4.0 with eVC++ Service Pack 2
- For .NET Development and Compact Framework (C# and VB.NET), Microsoft Visual Studio .NET 2003
- 128MB RAM (196MB recommended)
- 360MB hard drive space for minimum installation (1GB for complete installation)
- CD-ROM drive compatible with multimedia PC specification
- VGA or higher-resolution monitor (Super VGA recommended)
- Microsoft Mouse or compatible pointing device

Developing a Web-Based Application

You can develop web-based data collection applications for use on the CN2A. For help, see any HTML source book.

The CN2A contains Internet Explorer (IE) 6.0 for Windows CE for you to use. The Microsoft standard IE 6.0 is available from the desktop and provides all of the common elements you expect to find.

Installing Applications on the CN2A

There are three approaches to installing applications on the CN2A:

- You can package your application as a cabinet (.cab) file. Intermec recommends this approach.
- 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 that you:

- use .cab files to install your applications. The CN2A uses standard Windows CE .cab files and will install third-party .cab files. After the CN2A executes a .cab file, it deletes the .cab file.
- store your applications in a folder specific to your application under the \Program Files folder. These applications are deleted during a cold boot.
- make sure that .cab files are saved after being executed and that applications are reinstalled during a cold boot by following the instructions in “Setting Up Applications to Persist Through a Cold Boot” on page 94.
- store your application data in one of the folders described in the next table.

Where to Store Your Application Data Files

Folder	When to Store Application Data Files Here	Description
SDMMC Disk	If your CN2A contains an optional SD card	The SDMMC Disk folder shows the contents of the SD card. These files are not deleted during by a cold boot.
DiskOnChip	If your CN2A does not contain an optional SD card	The DiskOnChip folder is an area of storage that is part of the CN2A flash memory. These files are not deleted during a cold boot.

The following sections describe the four methods of installing files and applications on the CN2A:

- To use ActiveSync, see the next section, "Installing Applications Using ActiveSync."
- To use the SD card, see "Installing Applications Using the Optional SD Card" on page 92.
- To use Wavelink Avalanche, see "Installing Applications Using Wavelink Avalanche" on page 93.
- To use the SmartSystems Console, see "Installing Applications Using the SmartSystems Console" on page 93.

Installing Applications Using ActiveSync

You can use ActiveSync to establish a connection between your PC and the CN2A. ActiveSync allows you to transfer files, synchronize files, perform remote debugging, and other device management activities.

Note: ActiveSync is a free application available from the Microsoft web site.

To establish a partnership between your PC and the CN2A, you need these items:

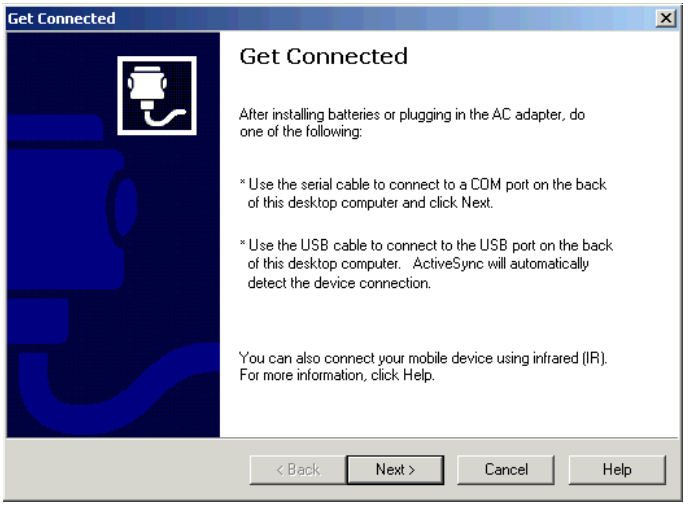
- USB Type B interface cable (P/N 321-576-002)
- CN2 USB client dock (Model AD7)
- ActiveSync version 3.7.1 or later

Installing ActiveSync and Establishing a Partnership

You can use a USB cable to establish your initial partnership between the CN2A and your PC.

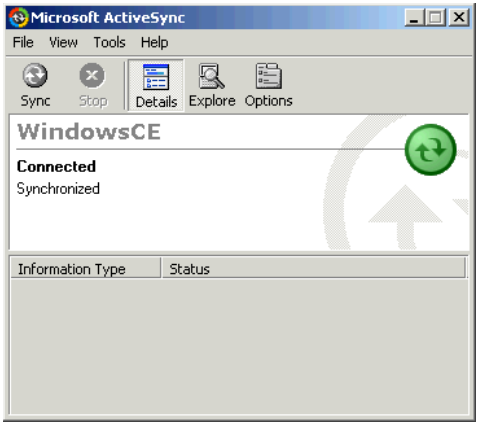
To install ActiveSync and establish a partnership

1. Download ActiveSync from the Microsoft web site and follow the onscreen instructions for installing it on your PC. When the installation process is complete, the Get Connected dialog box appears.



2. Connect the CN2A to your PC with the CN2 USB client dock and a USB cable.
3. Click **Next** in the Get Connected dialog box. ActiveSync detects a device on the USB port and prompts you to set up a new partnership.
4. In the Set Up a Partnership dialog box, click **Next**.
5. Follow the ActiveSync prompts to name your device and identify the items you want to synchronize.
6. In the Setup Complete dialog box, click **Finish**.

When the partnership has been established, the following screen appears on your PC showing the device name of your CN2A and the Connected status.



The Microsoft ActiveSync Screen

An ActiveSync icon ( ) also appears on the CN2A task bar indicating that it has established an ActiveSync partnership with your PC.

Note: If ActiveSync does not establish a partnership on the first try, the Get Connected dialog box appears on your PC with the message "Your device was not detected." Make sure all of your cables are securely connected and click **Next** on the Get Connected dialog box until your device is detected. You may need to remove the CN2A from the USB client dock, and then insert it back into the USB client dock to establish a partnership.

After the partnership is established, ActiveSync initiates all future connections. To connect to your PC using ActiveSync in the future, simply place a CN2A in the USB client dock and turn on the CN2A.

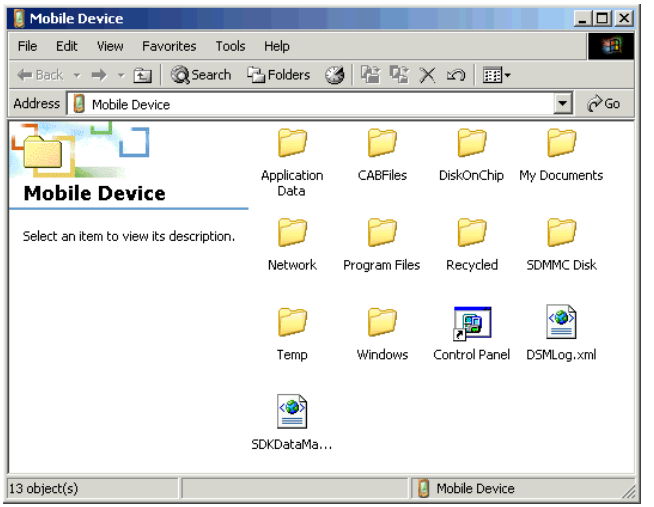
Using ActiveSync to Copy Files and Install Applications

You can use ActiveSync to copy files to the CN2A and to install applications. Use the following procedures to learn how to copy files and install applications on the CN2A using ActiveSync.

To install an application on the CN2A using ActiveSync

1 Connect the CN2A to your PC using ActiveSync. For help, see the previous section, "Installing ActiveSync and Establishing a Partnership."

2 On the Microsoft ActiveSync screen, click **Explore**. Windows Explorer opens the Mobile Device window of your CN2A.



3 In Windows Explorer on your PC, browse to the file that you want to copy to your CN2A.

4 Right-click the file and click **Copy**.

5 Place the cursor in the SDMMC Disk or DiskOnChip folder of your CN2A, right-click, and click **Paste**.

6 The file is copied to the CN2A and you can see it using **My Computer** on the CN2A.

7 Navigate to your application file and run it.

After your application is installed, you can run it from the Program Files folder from My Computer.

Installing Applications Using the Optional SD Card

Using your SD card is the best method for you to install applications. For help inserting and removing the SD card, see "Increasing File Storage With the Optional SD Card" on page 25.

To install applications using the SD card

1 If you are using an SD card reader, remove the SD card from the CN2A and place it in the reader.

2 Copy your application file to the SD card.

   If you are using ActiveSync or Wavelink Avalanche to copy the files to the SD card, place the application in the SDMMC Disk folder located in My Computer.

3 If you are using an SD card reader, insert the SD card back into the CN2A.

4 Navigate to the SDMMC Disk folder and run your application.

After your application is installed, you can run it from the Program Files folder from My Computer.

Installing Applications Using the SmartSystems Console

You can use the SmartSystems Console to drag-and-drop Intermec applications onto your CN2As. The CN2A ships with the SmartSystems client loaded on it.

The Console is part of SmartSystems Foundation and is available from the Intermec web site. To download SmartSystems Foundation, go to www.intermec.com/idl and open the Device Management page.

To use SmartSystems Console to install an application

1 Download your application file from the Intermec web site and unzip it on your desktop.

2 From the SmartSystems Console, drag-and-drop the application onto each CN2A discovered in your network.

For more information on using the SmartSystems Console, see the online help.

Installing Applications Using Wavelink Avalanche

You can use the Wavelink Avalanche device management system to install applications on all of your wireless CN2As.

The wireless CN2A ships with the Avalanche Enabler already loaded on it. The Avalanche Enabler is configured to activate automatically (typically on a warm boot).

Note: If you manually activate the Avalanche Enabler on the CN2A, you may be prompted for a password when you exit the Avalanche Enabler. The default password is `leave`.

Each time the Avalanche Enabler is activated, the CN2A attempts to connect to the Avalanche Agent. When the CN2A connects to the Agent, the Agent determines whether an update is available and immediately starts the software upgrade, file transfer, or configuration update.

To use Avalanche to remotely manage the CN2A

1. Install software packages and updates for the CN2A using the Avalanche Management Console. For help using the console, see the online help.
2. Schedule the CN2A updates or manually initiate an update using the Avalanche Management Console.

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

Setting Up Applications to Persist Through a Cold Boot

If you install your applications as recommended in a folder in the \Program Files folder, you have installed your applications into the object store. These applications are deleted during a cold boot.

To make sure your applications are reinstalled during the cold boot, you need to use .cab files to install applications and make sure the .cab files are copied to the \DiskOnChip\Persistent Copy\CABFiles folder. On a cold boot, the .cab files are copied to the \CABFiles folder in the object store where they are executed and deleted. The original copy remains in the \DiskOnChip\Persistent Copy\CABFiles folder to be installed on the next cold boot.

You can manually copy each .cab file to the \DiskOnChip\Persistent Copy\CABFiles folder. Or you can customize the CN2A so that all .cab files are automatically copied after they are executed. You accomplish this by setting the PersistAfterInstall registry entry to 1.

There are 2 ways to edit registry entries:

- You can use a registry editing program. Run the Microsoft eMbedded Visual C++ Remote Registry Editor on your PC, using ActiveSync to connect to the CN2A. Or download and run a third-party registry editing program on your CN2A.

- You can write an application. An application gives you a convenient way to customize multiple CN2As. For help downloading and using Intermec resource kits and the CN2A platform SDK, see "Developing a New Application" on page 86.

The CN2A .cab file registry settings are located in HKEY_LOCAL_MACHINE\Software\Intermec\ITCWCELoad.

CN2A .cab File Registry Entries

Registry Entry	Default	Description
CopyToLocation	\DiskOnChip\Persistent Copy\CABFiles	If PersistAfterInstall is set to 1, this registry entry specifies the location where .cab files are automatically saved after they are executed. When this registry entry is set to the default, the .cab files are re-installed during a cold boot, as described on the previous page. When you set this registry entry to another location, the .cab files are not re-installed during a cold boot.
PersistAfterInstall	0	When this registry entry is set to the default, the .cab file is deleted after execution. When you set this registry entry to 1, the .cab file is saved to the location specified in the CopyToLocation registry entry.

Launching Your Application Automatically

To launch your application automatically on the CN2A every time you perform a warm or cold boot, make sure your CAB file places a shortcut to your application in the \Windows\StartUp folder.

5 Troubleshooting and Maintaining the CN2A

Use this chapter to solve problems you may encounter while using the CN2A. You will also find information on booting the computer, upgrading the CN2A, and performing routine maintenance. In this chapter you will find these sections:

- Problems and Solutions
- Running Diagnostics
- Contacting Intermec Product Support
- Booting the CN2A
- Upgrading the CN2A
- Cleaning the Scanner Window and the Touch Screen

Problems and Solutions

These tables offer solutions to the problems you may encounter.

Problems While Operating the CN2A

Problem	Solution
You press the **Power** key to turn on the CN2A and nothing happens.	Try these possible solutions in order: • Make sure the battery door is installed correctly and completely closed. • Make sure you have a charged battery installed correctly. For help, see "Installing and Charging the Battery" on page 6. • The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery and try again. • Warm boot the CN2A. For help, see "Warm Booting the CN2A" on page 111.
You press the **Power** key to turn off the CN2A and nothing happens.	To turn off (or suspend) the CN2A, you need to hold the **Power** key for 2 to 3 seconds and then release it. If the CN2A is processing data, it may not turn off when you press the **Power** key. Wait until the CN2A finishes processing. If the CN2A appears to be locked up, warm boot the CN2A. For help, see "Warm Booting the CN2A" on page 111. If the CN2A does not respond to a warm boot, see "Cold Booting the CN2A" on page 112.
The CN2A screen is not responding to the stylus.	Try these possible solutions in order: • Recalibrate the screen. For help, see "Calibrating the Screen" on page 15. • Press and hold the **Power** key for 2 to 3 seconds, and then release it to turn off the CN2A. Press the **Power** key again to turn on the CN2A.
You place the CN2A in the USB client dock, and the Battery light turns on and is orange.	Try these possible solutions in order: • The temperature may not be within the charging range. Make sure that the temperature is from 0°C to 45°C (32°F to 113°F). • The battery may be damaged. Replace the battery.

Problems While Operating the CN2A (continued)

Problem	Solution
The CN2A appears to be locked up and you cannot enter data.	Try these possible solutions in order: • Wait at least 10 seconds and try again. If the CN2A is still connecting to the Intermec Application Server or the host, it ignores any input from the keypad or scanner. • Press and hold the **Power** key for 2 to 3 seconds, and then release it to turn off the CN2A. Press the **Power** key again to turn on the CN2A. • Warm boot the CN2A. For help, see "Warm Booting the CN2A" on page 111. • Cold boot the CN2A. For help, see "Cold Booting the CN2A" on page 112. • Try reloading the firmware. For help, see "Upgrading the CN2A" on page 113. • If the CN2A will not boot or reset, contact your local Intermec service representative. Before you contact Intermec, see "Before Calling Product Support" on page 110.
Nothing happens when you type on the USB keyboard attached to the CN2 modem dock.	Try these possible solutions in order: • Make sure the USB keyboard is either a Dell Model SK-8115 or a Logitech Model Y-BF37. • Make sure all cables are securely connected, the CN2A is firmly seated in the dock, and you are running an application that accepts keyboard input. • If the modem dock is attached to an AC power source, make sure the **USB Host Power** parameter is set to **On When Powered**. If the modem dock is not attached to an AC power source, make sure the **USB Host Power** parameter is set to **Always On**. For help, see "Attaching a Keyboard to the CN2A" on page 28. • Warm boot the CN2A and place it in the dock. For help, see "Warm Booting the CN2A" on page 111.

Problems While Operating the CN2A (continued)

Problem	Solution
The CN2A exhibits unexpected behavior after you install or remove an application.	You may need to reset the registry and clear the object store. Follow these steps: **1** Tap **Start** > **Control Panel**. **2** Double-tap the **Utilities** icon. The Settings window appears. **3** Tap the right arrow button (▶) once and tap the **Registry Reset** tab.  **4** Tap the **Reset Registry** button. The Confirm Reset message appears. **5** Tap **Yes**. The registry is reset and the CN2A cold boots.

Note: You can also use this procedure to return the CN2A to its default software configuration.

Problems While Configuring Security

Problem	Solution
The CN2A does not appear to be authenticating, and the task bar does not contain a Network Connection icon (, , , or).	The CN2A may not be communicating with your access point. Make sure the network name on the CN2A is the same as the network name (SSID) of the access point that you are trying to communicate with. The default network name is INTERMEC. The 802.1x security network may not be active. Make sure that the server software is properly loaded and configured on the server PC. For help, see the documentation that shipped with your server software.
A Network Connection icon appears in the task bar, but it disappears.	The CN2A may not be communicating with the access point that you want it to communicate with. Make sure that the network name on the CN2A is the same as the network name of the access point that you are trying to communicate with. The default network name is INTERMEC. The access point that you are trying to communicate with may not be communicating with the server. Make sure your access point is turned on, properly configured, and has 802.1x security enabled.
The CN2A indicates that it is not authenticated.	Make sure that: • The User Name and Password parameters on your CN2A match the user name and password on your authentication server. You may need to re-enter the password on both your CN2A and the authentication server. • On your authentication server, the user and group are allowed and the group policy is allowed to log in to the server. For help, see the documentation for your authentication server software. • The IP address and secret key for your access point must match the IP address and secret key on your authentication server. You may need to re-enter the IP address and secret key on both your access point and authentication server. • The authentication server software is running on the server PC.
The CN2A indicates that it is authenticated, but it does not communicate with the host.	Make sure that the CN2A IP address, host IP address, subnet mask, and default router are properly configured for your network.

Problems While Configuring Security (continued)

Problem	Solution
You receive a message saying, "The server certificate has expired or your system date is incorrect" after you cold boot the CN2A.	The date and time on the CN2A are not saved through a cold boot. You need to re-enter the date and time and then save your changes. For help, see Step 4 on page 113.
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	The CN2A does not save WEP key values when you change the SSID. Re-enter the WEP key value after you change the SSID and save your changes. You should now be able to connect to the different access points.

Problems With Wireless Connectivity

Problem	Solution
A Network Connection icon (, , , or) appears on the task bar, but the host computer is not receiving any data from the CN2A.	In a UDP Plus network, there may be a problem with the connection between the Intermec Application Server and the host computer. Check with your network administrator or see the user's manual for the Intermec Application Server. In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with your network administrator or use your access point user's manual.
When you turn on the CN2A after it was suspended for a while (10-15 minutes or longer), it can no longer send or receive messages over the network.	Try these possible solutions in order: • The CN2A may not be recognizing the network card. Turn off the CN2A, and then turn it on again. • The host may have deactivated or lost your current terminal emulation session. In a TCP/IP direct connect network, you need to turn off the "Keep Alive" message (if possible) from the host so that the TCP session is maintained while a CN2A is suspended.

Problems With Wireless Connectivity (continued)

Problem	Solution
The CN2A is connected to the Intermec Application Server or host computer and you move to a new site to collect data. A Network Connection icon was visible but now the No Network Connection icon is visible.	You may have gone out of range of an access point. Try moving closer to an access point or to a different location to re-establish communications. Once you are in range again, a Network Connection icon appears again. Any data you collected while out of range is transmitted over the network.

The No Network Connection icon is appears on the task bar.	Try these possible solutions in order:
	• The CN2A may not have an IP address. You must configure an IP address for the CN2A or make sure that DHCP assigned an address. Use Intermec Settings and select the radio tab to make sure an IP address has been assigned. For help, see "Configuring the CN2A Locally With Intermec Settings" on page 34.
	• The CN2A may not be connected to the access point. Try these possible solutions in order:
	  • Make sure the access point is turned on and operating.
	  • Make sure you are not using the CN2A out of range of an access point. Try moving closer to an access point to re-establish communications.
	  • Make sure the CN2A is configured correctly for your network. The radio parameters on the CN2A must match the values set for all access points the CN2A may communicate with. For help, see "Configuring 802.11b/g Radio Communications" on page 45.
	  • If you have an 802.11b/g radio, the radio initialization process may have failed. Try resetting the CN2A. For help, see "Booting the CN2A" on page 111.
	• If you have tried these possible solutions and the No Network Connection icon still appears, you may have a defective radio card. For help, contact your local Intermec service representative. Before you contact Intermec, see "Before Calling Product Support" on page 110.

Problems While Scanning Bar Codes

Problem	Solution
You cannot see a red beam of light from the scanner when you press the **Scan** button or one of the **Side Scan** buttons and aim the scanner at a bar code label.	Try these possible solution in order: • 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 DOC files may not be correctly installed. You should upgrade the DOC files. For help, see "Upgrading the CN2A" on page 113. • You can test the effective range of the scanner. Move within 61 cm (2 ft) of a wall and test the scanner. You need to be within the scanning range to scan bar code labels. For help scanning bar codes, see "Scanning Bar Codes" on page 22.
When you release the **Scan** button or **Side Scan** button, the Good Read light does not turn off.	The Good Read light will remain on if you configure the CN2A to use continuous/edge triggering. If you configure the CN2A for level triggering and the Good Read light remains on, there may be a problem. Press the **Scan** button or one of the **Side Scan** buttons again without scanning a bar code label. If the light is still on, contact your local Intermec service representative.
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 CN2A 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. To operate the computer quickly and efficiently, you should only enable the bar code symbologies that you are going to scan.

Problems While Scanning Bar Codes (continued)

Problem	Solution
You configure Code 39 for French CIP or Italian CPI, but the CN2A reverts back to Modulo 43.	The CN2A only supports Code 39 Modulo 43. Although French CIP and Italian CPI may appear in Intermec Settings, these options are not available on the CN2A.
The scanner will not read the bar code label.	There are several possible problems: • Make sure you aim the scanner beam so it crosses the entire bar code label in one pass. • The angle you are scanning the bar code label may not be working well, or you may be scanning the label "straight on." Try scanning the bar code label again, but vary the scanning angle. • The bar code label print quality may be poor or unreadable. To check the quality of the bar code label, try scanning a bar code label that you know 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 you are scanning is enabled. Use Intermec Settings to check the symbologies. If your bar code symbology is disabled, enable it and then try scanning the bar code label again. • Make sure that the application you are running on the computer is expecting input from a bar code. You may need to use the input panel to enter this information instead of scanning it.

Problems While Upgrading the CN2A

Problem	Solution
You are planning to use the SmartSystems Console to upgrade an older CN2A, but you cannot find an icon representing your CN2A in the Console.	Try these solutions in order: • Click the **Discover** button to refresh the Console display. • Make sure the CN2A is turned on. • Make sure that you have a good RF connection. For help, see "Problems With Wireless Connectivity" on page 102. • An older CN2A may not have the SmartSystems client installed on it. Use the SD card to upgrade the CN2A OS and DOC files, and then check to see if the CN2A appears in the Console.
While using the SmartSystems Console to upgrade the OS, the dots stopped moving in the "Upgrading..." message on the CN2A screen and the screen appears frozen.	The upgrade has failed. Go to the Event Viewer in the Console and review the messages: • If you see the message, "File not found," you changed the default directory when you used the InstallShield application to extract the upgrade files to your PC. You need to extract the upgrade files again and accept the default directory. For help, see "Using the SmartSystems Console to Upgrade the CN2A" on page 115 or "Using an SD Card to Upgrade the CN2A" on page 118. • If you see the message, "Failed to copy to device" or if you see no error message, your RF connection to the network may not be strong enough. For help, see "Problems With Wireless Connectivity" on page 102.
While using the SmartSystems Console to upgrade only the DOC files, the dots disappeared from the "Upgrading..." message on the CN2A screen and the screen appears frozen.	There is no problem. This screen will appear frozen, with no dots visible, for at least one minute while the DOC files are copied to the CN2A. Eventually, the CN2A desktop will appear.
After upgrading only the DOC files, nothing seems to have changed on your CN2A. The old DOC files are still active.	When the DOC files only upgrade is complete, and the CN2A desktop appears, you must cold boot the CN2A to activate the new DOC files. For help, see "Cold Booting the CN2A" on page 112.

Running Diagnostics

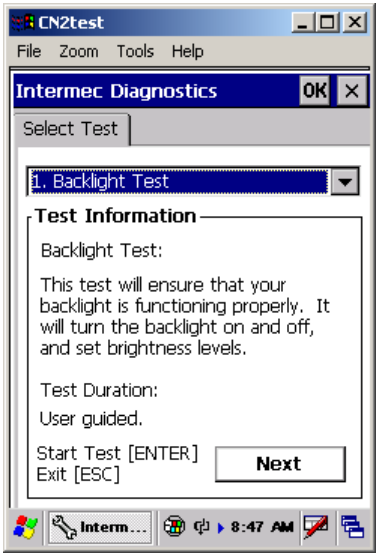
You can run Intermec Diagnostics to determine if there are any problems with your CN2A. You can run Intermec Diagnostics at any time, even while running an application.

To run Intermec Diagnostics

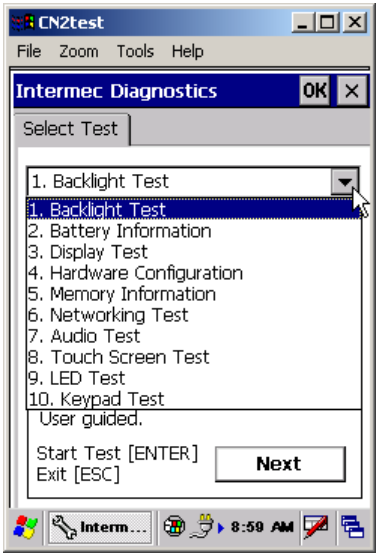
1 Tap **Start** > **Settings** > **Control Panel**.

2 Double-tap the **Intermec Diagnostics** icon.

The Intermec Diagnostics screen appears.



3 Click ▼ to display the list of diagnostic tests.



4 From the drop-down list, choose which diagnostic test to run. There are two ways to choose a test:

- You can tap the test.
- You can type the number of the test on the numeric keypad or the USB keyboard.

For help deciding which tests to run, see the following table, "Summary of Intermec Diagnostics Tests."

5 When you have finished running tests, press **ESC** to exit.

Note: You can exit Intermec Diagnostics at any time by pressing **ESC**. You may need to press **ESC** to exit the current test and then press **ESC** again to exit Intermec Diagnostics.

Summary of Intermec Diagnostic Tests

Test Name	Description	Tips
1. Backlight Test	Verifies that the backlight is working properly by turning it off, on, and testing each dim level.	When you start the Backlight Power Control test, the backlight turns off. Tap near the top of the screen to turn the backlight on again so you can indicate if the test passed or failed.
2. Battery Information	Displays the charge levels for the main battery and the backup battery. Also indicates if AC power is detected.	Tap **X** to exit the test.
3. Display Test	Verifies that every pixel on the CN2A screen is working properly.	When each test action begins, a message explains what you should see on this test display. Press **Enter** or tap **X** to dismiss each message. Press **Enter** or tap the screen you finish examining each test display.
4. Hardware Configuration	Reads, verifies, and displays information about the hardware configuration. Also displays the version of the operating system (OS) running on your CN2A.	You may be asked to provide this information if you contact Intermec Product Support. Tap **X** to exit the test.
5. Memory Information	Displays information about the RAM, which is divided into program memory and storage memory.	Tap **X** to exit the test.
6. Networking Test	Displays your IP address and MAC address, and validates your network connection.	Tap **X** to exit the test.
7. Audio Test	Verifies that the audio sounds are working correctly.	Tap **X** to exit the test.
8. Touch Screen Test	Verifies that the touch screen is working correctly.	A message directs you to draw on the screen with the stylus. Tap **X** to dismiss the message, and a white screen appears for you to draw on. When you finish drawing, press any key to exit. If the message appears again, tap **X** at the top of the screen to exit the test.
9. LED Test	Verifies that the LED is working correctly.	Tap **X** to exit the test.
10. Keypad Test	Verifies that each key is working correctly.	Tap **X** to exit the test.

Contacting Intermec Product Support

If the troubleshooting and diagnostic information in this chapter does not help you solve your problem, contact Intermec for technical support, as described in "Global Services and Support" on page xi.

Before Calling Product Support

When you contact Intermec, you will be asked for information about your CN2A. The next table explains where to find the information.

Information to Collect Before Contacting Intermec

Information	Where to Find
Configuration Number	The Configuration Number (CN) is on the label in the battery compartment. You need to remove both the battery door and battery to see the label. For help, see "Removing the Battery" on page 7.
Operating system version	See the Hardware Configuration test in the previous section, "Running Diagnostics." Or, you can start Internet Explorer. The operating system version appears on the default home page.

Sending the CN2A to Intermec for Service

If you send the CN2A in for service, it is your responsibility to save the computer data and configuration. Intermec is responsible only for ensuring that the keypad and other hardware features match the original configuration when repairing or replacing your computer.

For help understanding your warranty and finding help, see "Global Services and Support" on page xi.

Booting the CN2A

You seldom need to warm or cold boot the CN2A. The CN2A uses the configuration currently saved in flash memory during the boot process.

You need to boot the CN2A when an application is locked up and will not respond, when you upgrade the firmware, or when you reflash the computer. The next instructions explain how you warm and cold boot the CN2A.

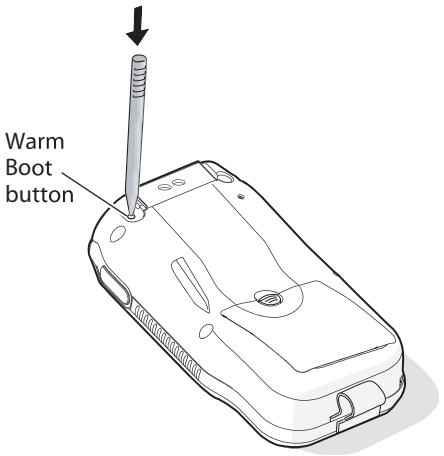
Warm Booting the CN2A

If your charged CN2A does not resume after pressing the **Power** key, or if the computer or an application is locked up, you may need to warm boot it.

You can warm boot the CN2A using the Warm Boot button or the Power key.

To warm boot the CN2A using the Warm Boot button

- Using the end of the stylus, press the **Warm Boot** button inside of the stylus holder.



The screen goes blank immediately. The screen remains blank for a few seconds, the Refreshing the File System dialog box appears, and the CN2A warm boots.

To warm boot the CN2A using the Power key

1 Press and hold the **Power** key for approximately 10 seconds.

Note: After about 5 seconds, the backlight toggles (turns on or off). Keep holding the **Power** key for another 5 seconds until the backlight flashes.

2 Release the **Power** key. The screen remains blank for a few seconds, the Refreshing the File System dialog box appears, and the CN2A warm boots.

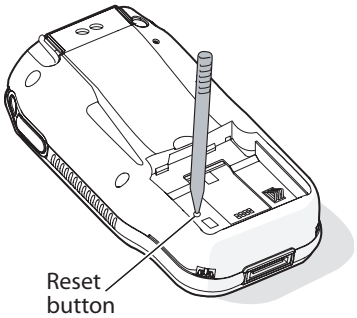
Cold Booting the CN2A

If the CN2A or application is locked up and does not respond to a warm boot, follow this procedure to perform a cold boot. When you perform a cold boot, all data in your RAM storage is deleted and applications installed in the object store are deleted.

To cold boot the CN2A

1 Open the battery door and remove the battery. For help, see "Removing the Battery" on page 7.

2 Using the end of the stylus, press the **Reset** button on the inside of the battery compartment.



Caution

Do not use force or a sharp object when pressing the Reset button. You may damage the Reset button.

3. Install the battery and battery door. After approximately 4 seconds, the CN2A starts the power on sequence.
4. The date and time settings are not saved through a cold boot. You need to reset the time and date:
   a. Double-tap the time in the task bar to display the Date/Time Properties screen. Or, tap **Start** > **Settings** > **Control Panel** and double-tap the **Date/Time** icon.
   b. Set the date, time, and time zone if necessary.
   c. Tap **Apply** to apply the changes.
   d. Tap **OK** to save the changes and exit the Date/Time Properties screen.
   e. Tap **X** to exit Control Panel.

Upgrading the CN2A

When you upgrade your CN2A, you update the operating system (OS) image and the DiskOnChip (DOC) files.

The DOC files are stored on the DiskOnChip and deliver Intermec value-added functionality such as data collection, configuration, diagnostics, IVA, Funk Supplicant, Wavelink Enabler, and SmartSystems. As new features are added to these components, you can upgrade your DOC files without upgrading the OS. Similarly, features added to the OS do not affect the functionality of the DOC, and you can choose to upgrade only the OS.

To upgrade the CN2A

1. Download the upgrade .exe file from the Intermec web site. For help, see the next section, "Downloading the Upgrade .exe File to Your PC."
2. Perform the upgrade:
   - If you plan to use the SmartSystems Console to upgrade the CN2A, see "Using the SmartSystems Console to Upgrade the CN2A" on page 115.

Note: If you are upgrading an older CN2A that does not already have SmartSystems installed on it, you must use the SD card to upgrade both the OS and DOC files. Once that upgrade is complete, and SmartSystems has been installed, you will be able to use the SmartSystems Console for future upgrades.

- If you plan to use an SD card to upgrade the CN2A, see "Using an SD Card to Upgrade the CN2A" on page 118.

Downloading the Upgrade .exe File to Your PC

You need to download the latest upgrade files from the Intermec web site to your desktop PC. Intermec recommends that you choose to save the upgrade .exe file to your PC.

To save the upgrade .exe file to your PC

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: CN2A/CN2B Mobile Computers** from the drop-down list. A list of available downloads appears.
4. Choose which download you need:
   - Make sure the download you select is for the CN2A.
   - Make sure you choose the correct language. The CN2A operating system supports Simplified Chinese, Traditional Chinese, English, Japanese, Korean, and Thai fonts. For example, if you want to use the Japanese font, make sure that the download description specifies "Japanese."
5. Click the description to start the download. When you are prompted to save or open the file, Intermec recommends that you choose **Save**. The upgrade .exe file is copied to your PC.
6. Follow the steps in one of the next sections:
   - If you plan to use the SmartSystems Console to upgrade the CN2A, see the next section, "Using the SmartSystems Console to Upgrade the CN2A."
   - If you plan to use an SD card to upgrade the CN2A, see "Using an SD Card to Upgrade the CN2A" on page 118.

Using the SmartSystems Console to Upgrade the CN2A

You can use the SmartSystems Console to upgrade your CN2A. The Console is part of SmartSystems Foundation and is available from the Intermec Developer Library on the Intermec web site.

To upgrade a CN2A using the SmartSystems Console

1. Install SmartSystems Foundation on your PC. To download SmartSystems Foundation, go to www.intermec.com/idl and open the Device Management page.
2. Open the Console.
3. Make sure the Console and the CN2As are on the same subnet.
4. Make sure your CN2A is in either a USB client dock or modem dock connected to external power.
5. Make sure you have downloaded the upgrade .exe file to your desktop PC, as described in "Downloading the Upgrade .exe File to Your PC" on page 114.
6. Double-click the upgrade .exe file on your desktop PC. An InstallShield application starts. This application guides you through the process of extracting the upgrade files to the default location on your PC.

Note: Steps 7 through 10 of this procedure do not describe every InstallShield screen. Instead, these steps describe only the important decision points.

7. If you have already downloaded this upgrade.exe file to this PC, the InstallShield Welcome screen prompts you to modify, repair, or remove the InstallShield application. Choose either **Modify** or **Remove**.

   If you choose **Remove**, the InstallShield application is deleted from your PC, and you must double-click the upgrade .exe file to start the InstallShield application again.
8. If you see the message, "Do you want to copy the files directly to your SD Card?" this indicates that SmartSystems is not installed on your PC.

You have two options:

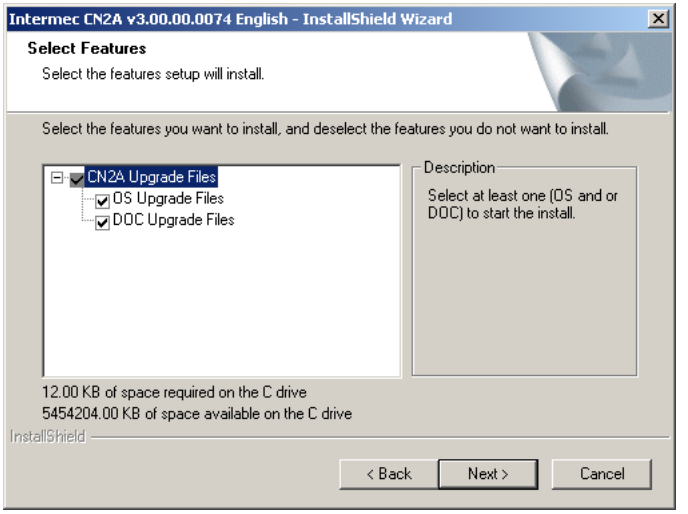
- Exit the InstallShield application, return to Step 1 of this procedure, and install SmartSystems Foundation on your PC.

  Or,

- Proceed with an SD card installation. For help, see "Using an SD Card to Upgrade the CN2A" on page 118.

9 When the Select Features screen appears, you select the files to be upgraded. You can upgrade the OS, the DOC files, or both.

Note: If you are installing an Asian font, you must select the **OS Upgrade Files** at this screen. If you do not upgrade the operating system, the Asian font will not be installed.



10 Follow the InstallShield prompts to finish installing the files to your PC. The installation is complete when you see the message, "The install has finished. Do you want to view the README file?" Intermec recommends that you read this file.

Note: The upgrade files are installed in the C:\Program Files\Intermec\SmartSystem\Ss_Lib\Software*folder* directory, where *folder* is similar to CN2A_en v3.00.00.0074. The SmartSystems Console requires that the upgrade files be located in this directory.

11 From within the SmartSystems Console, locate the device upgrade you want to install.

12 Drag-and-drop the device upgrade onto the CN2A you want to upgrade. On the Console, you eventually see the message "Upgrade in progress," under the CN2A icon.

13 On the CN2A screen, you see a message box that contains, "Please wait while your unit upgrades. Upgrading..."

Note: If the dots freeze on the CN2A screen, the upgrade may have failed; see "Problems While Upgrading the CN2A" on page 106 for help. However, if you are upgrading the DOC files only, the dots disappear near the end of the process; this does not indicate that the upgrade has failed.

14 After the upgrade files have been copied to the CN2A, the tasks you must perform depend on the type of upgrade you chose in Step 10 at the Select Features screen:

- If you chose to upgrade only the OS, or both the OS and the DOC files, your CN2A replaces the operating system and automatically cold boots. Progress messages appear on the CN2A screen as the new software completes the installation process. When the CN2A desktop appears, you need to configure the radio, SSID, and network security to reconnect the CN2A to the system. For help, see Chapter 3, "Adding the CN2A to the Network."
- If you chose to upgrade only the DOC files, the message "Upgrading" remains on the CN2A screen with no activity for at least one minute while files are copied. When the CN2A desktop appears, you need to cold boot the CN2A to activate the new DOC files. For help, see "Cold Booting the CN2A" on page 112.

15 The upgrade is complete. You could click **Discover** on the Console to rediscover the CN2A.

Using an SD Card to Upgrade the CN2A

To use an SD card to upgrade the CN2A, you need:

- an SD card reader.
- an SD card formatted as FAT16.

Note: The CN2A currently supports SanDisk SD cards only. Intermec cannot guarantee that other SD cards will work with the CN2A.

To upgrade the CN2A using an SD card

1. Make sure you have downloaded the upgrade .exe file to your desktop PC, as described in "Downloading the Upgrade .exe File to Your PC" on page 114.
2. Double-click the upgrade .exe file on your desktop PC. An InstallShield application starts. This application guides you through the process of extracting the upgrade files to your PC or to your SD card.

Note: The following steps do not describe every InstallShield screen; instead, these steps describe only the important decision points.

3. If you have already downloaded this upgrade .exe file to this PC, the InstallShield Welcome screen prompts you to modify, repair, or remove the InstallShield application. You can choose **Modify** or **Remove**.

   If you choose **Remove**, the InstallShield application is deleted from your PC, and you must double-click the upgrade .exe file to start the InstallShield application again.
4. If SmartSystems is not installed on your PC, you see the message, "Do you want to copy the files directly to your SD Card?"

   - Choose **Yes** if you want the InstallShield application to copy the files to one or more SD cards after copying the files to your PC. An SD card reader must be connected to your PC, and an SD card formatted as FAT16 must be installed in the reader. The prompt, "Copy to another SD card? Note: Put the card in before answering YES," lets

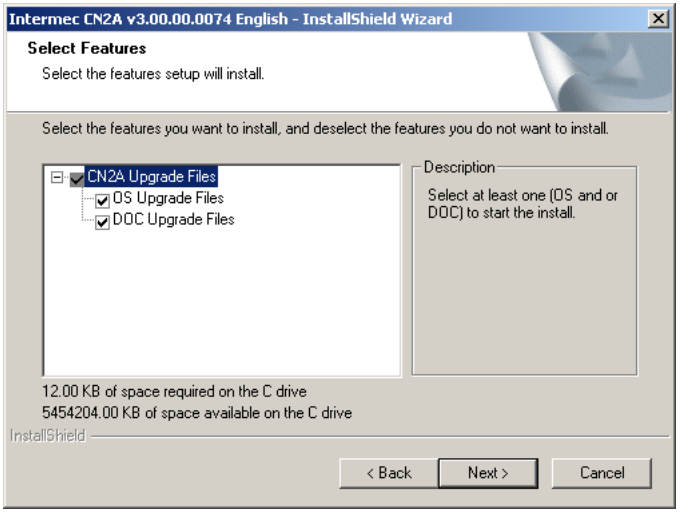
you continue copying the files to additional SD cards until you choose **No**.

- Choose **No** if you prefer to copy the files to the SD card yourself.

5 When the Choose Destination Location screen appears, you can accept the default directory or click **Browse** to select another directory. The default directory is C:\Program Files\Intermec*folder*, where *folder* is similar to CN2A_en v3.00.00.0074.

6 When the Select Features screen appears, you select the files to be upgraded. You can upgrade the OS, the DOC files, or both.

Note: If you are installing an Asian font, you must select the **OS Upgrade Files** at this screen. If you do not upgrade the operating system, the Asian font will not be installed.

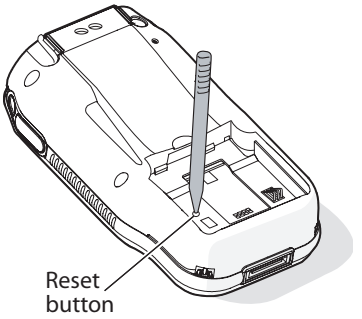


7 Follow the InstallShield prompts to finish installing the files to your PC. The installation is complete when you see the message, “The install has finished. Do you want to view the README file?” Intermec recommends that you read this file.

8. If you chose **No** when prompted to allow the InstallShield application to copy the files to the SD card in Step 4, you must now copy the upgrade files to your SD card.
9. Make sure the SD card contains the correct files and folders:
   - The nk.boot and eboot.bin files (if you are updating the OS)
   - The 2577 and DOCImage folders (if you are updating the DOC files)
   - The readme.txt and version.txt files
10. Insert the SD card into the CN2A, but do not reinstall the battery. For help, see "Increasing File Storage With the Optional SD Card" on page 25.
11. Finish upgrading the CN2 by following the steps in one of these procedures:
    - If you are updating both the OS and the DOC files, see the next procedure, "To finish upgrading both the OS and the DOC files."
    - If you are upgrading only the OS, see the "To finish upgrading only the OS" procedure on page 122.
    - If you are upgrading only the DOC files, see the "To finish upgrading only the DOC files " procedure on page 124.

To finish upgrading both the OS and the DOC files

1. Press and continue holding one of these keys until you reach Step 4 and the Bootloader Menu appears:
   - On the numeric keypad, hold down the **8** key.
   - On the scroll keypad, hold down the ▼ key.
2. Using the stylus, press the **Reset** button on the inside of the battery compartment.



Caution

Do not use force or a sharp object when pressing the Reset button. You may damage the Reset button.

3 Insert the battery. For help, see "Installing and Charging the Battery" on page 6.

4 When the Bootloader Menu appears, release the **8** or ▼ key.

5 Install the battery door.

6 Place the CN2A in a dock connected to external power.

Note: The upgrade will fail if the CN2A is not connected to external power. For help, see the accessories list in "Accessories for the CN2A" on page 130.

7 Select **Update Bootloader + OS** and press **Enter**.

Messages about the upgrade status appear at the bottom of the screen. The "Need Reboot" message appears and **Cold Boot** is selected.

8 Press **Enter**. The CN2A cold boots.

9 If you are prompted to recalibrate the touch panel, tap the screen as prompted.

10 The Refreshing File System status box appears. The message "Copying files from SD to DoC" appears. When the CN2A has finished copying files, it clears the registry and cold boots automatically.

11 When you are prompted to recalibrate the touch panel, tap the screen as prompted. The Refreshing File System status box may appear briefly. The CN2A desktop appears.

12 Remove the SD card.

13 Because the upgrade restored the CN2A default configuration, you need to:

- set the date and time. For help, see Step 4 on page 113.
- set the network communications parameters on the CN2A to reestablish communications with the other devices in the wireless network. For help, see Chapter 3, "Adding the CN2A to the Network."

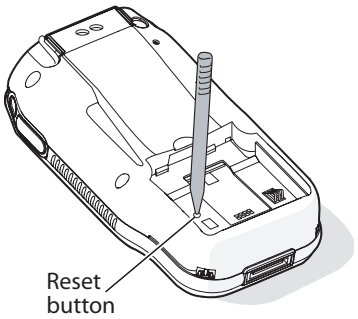
The upgrade is complete. You may use the CN2A.

To finish upgrading only the OS

1 Press and continue holding one of these keys until you reach Step 4 and the Bootloader Menu appears:

- On the numeric keypad, hold down the **8** key.
- On the scroll keypad, hold down the ▼ key.

2 Using the stylus, press the **Reset** button on the inside of the battery compartment.



Do not use force or a sharp object when pressing the Reset button. You may damage the Reset button.

3 Insert the battery. For help, see "Installing and Charging the Battery" on page 6.

4 When the Bootloader Menu appears, release the **8** or ▼ key.

5 Install the battery door.

6 Place the CN2A in a dock connected to external power.

Note: The upgrade will fail if the CN2A is not connected to external power. For help, see the accessories list in "Accessories for the CN2A" on page 130.

7 Select **Update OS + Bootloader** from the Bootloader Menu:

- On the numeric keypad, use the **8** key as a down arrow and the **2** key as an up arrow to select **Update OS + Bootloader** and then press **Enter**.

Note: The **8** and **2** keys on the numeric keypad will function as arrow keys only until the OS loads.

- On the scroll keypad, use the ▼ and ▲ keys to select **Update OS + Bootloader** and then press **Enter**.

Messages about the upgrade status appear at the bottom of the screen. The "Need Reboot" message appears and **Cold Boot** is selected.

8 Press **Enter**. The CN2A cold boots.

9 If you are prompted to recalibrate the touch panel, tap the screen as prompted.

10 The Refreshing File System status box appears. If the Confirm File Replace dialog box appears, tap **Yes To All**. The CN2A finishes rebooting, and your operating system is updated. The CN2A desktop appears.

11 Remove the SD card.

12 Because the upgrade restored the CN2A default configuration, you need to:

- set the date and time. For help, see Step 4 on page 113.

- set the network communications parameters on the CN2A to reestablish communications with the other devices in the wireless network. For help, see Chapter 3, "Adding the CN2A to the Network."

The upgrade is complete. You may use the CN2A.

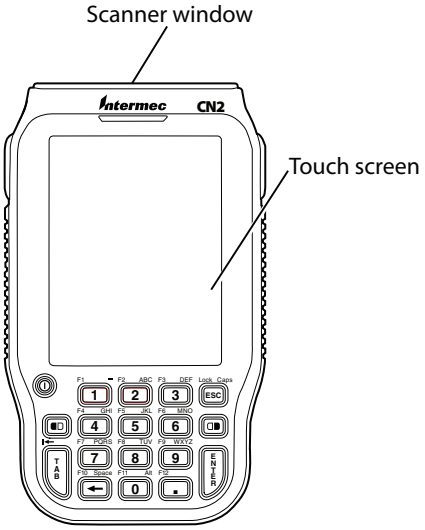
To finish upgrading only the DOC files

1. Cold boot your CN2A. For help, see "Cold Booting the CN2A" on page 112.
2. The Refreshing the File System dialog box appears. The message, "Copying files from SD to DoC" appears. When the CN2A has finished copying files, it will clear the registry and cold boot automatically.
3. When you are prompted to recalibrate the touch panel, tap the screen as prompted. The CN2A desktop appears.
4. Remove the SD card.

The upgrade is complete. Your CN2A is loaded with the new DOC files. You may use the CN2A.

Cleaning the Scanner Window and the Touch Screen

To keep the computer in good working order, you may need to clean the scanner window and touch screen.



Cleaning the CN2A: *You can clean the scanner window and the touch screen as often as needed for the environment in which you are using the computer. You can help keep the touch screen clean by using the stylus, instead of your fingertip, to tap the screen.*

Caution

There are no user-serviceable parts inside the CN2A. Opening the unit will void the warranty and may cause damage to the internal components.

To clean the scanner window and touch screen

1. Press and hold the **Power** key for 2 to 3 seconds, and then release it to turn off the CN2A.
2. Gently wipe the scanner window and screen following these guidelines:
   - Try using a soft cloth moistened with plain water to wipe the scanner window and screen. Wring out any excess water before you begin.

- To remove more stubborn dirt, you may use a soft cloth moistened with a non-abrasive glass cleaner.
- Do not allow any abrasive material to touch the scanner window or screen.

3 Wipe dry.

To clean the scanner window

- You can use the CN2 Screen Cleaner Kit (P/N 346-065-101) to clean the scanner window.

A Specifications and Accessories

Use this appendix to learn about the CN2A specifications and accessories.

Physical and Environmental Specifications

Use this section to find technical information about the CN2A and its available features and options.

Physical Dimensions

Length:	14.7 cm (5.8 in)
Width:	8.6 cm (3.4 in)
Thickness:	3.5 cm (1.4 in)
Weight:	370 g (11.9 oz)

Power and Electrical Specifications

Operating:	Rechargeable 2150 mAh lithium-ion battery (Model 074201)
Backup:	Rechargeable NiMH 20 mAh battery
Electrical rating:	⎓ 3.7 V; 1.5 A peak

Temperature and Humidity Specifications

Operating:	0°C to 50°C (32°F to 122°F)
Storage:	-10°C to 50°C (14°F to 122°F)
Charging:	0°C to 45°C (32°F to 113°F)
Humidity:	5% to 95% relative humidity, non-condensing
Environmental rating:	IP64

Screen Specifications

- RGB 240 x 320 pixels
- 8.9 cm (3.52 in) diagonal square active area, ¼ VGA

Keypads

- 18-key numeric keypad
- 10-key scroll keypad

Bar Code Symbologies

- Codabar
- Code 39
- Code 128

- Interleaved 2 of 5
- UPC/EAN
- MSI

Asian Fonts Supported

- Simplified Chinese
- Traditional Chinese
- Japanese
- Korean
- Thai

ID Linear Imager Reading Distances

This table contains reading distances on the 1D line.

CN2A 1D Linear Imager Reading Distances

Symbology	Density (mm)	Density (mil)	MIn (mm)	Max (mm)	Min (inch)	Max (inch)
Code 39	0.1	4	95	136	3.7	5.4
	0.3	12	45	240	1.8	9.4
	0.5	20	44	300	1.7	11.8
	1	39	120	400	4.7	15.7
EAN	0.33 mm/100% contrast	13 mils/100% contrast	45	240	1.8	9.4
	0.33 mm/25% contrast	13 mils/25% contrast	61	157	2.4	6.2

Accessories for the CN2A

You can use these accessories (sold and ordered separately) with the CN2A. To order accessories, contact your local Intermec sales representative.

CN2 Battery (Model 074201)

Use this lithium-ion battery to provide main power to the computer.

CN2 Universal Power Supply (Model 074246)

Use this power supply to provide power to the CN2A and charge its battery when it is in the CN2 USB client dock or CN2 modem dock.

CN2 AC Wall Adapter (P/N 074246-003)

Use this power supply to provide power to the CN2A and charge its battery. You connect this power supply directly to the CN2A.

You must use only the Intermec power supply approved for use with the CN2A. Using any other power supply will damage the CN2A.

CN2 Single USB Client Dock (Model AD7)

Use the USB client dock to charge your battery, to provide power to your CN2A, and to communicate through a USB connection.

CN2 Modem Dock (Model AD8)

Use the modem dock to communicate through a modem connection, to communicate through a USB connection, to charge your battery, to provide power to the CN2A, and to attach a USB keyboard to the CN2A.

USB Type B Interface Cable (P/N 321-576-002)

Use the USB Type B interface cable with the USB client dock and modem dock to transfer data and applications through a USB connection.

CN2 Two-Wire Phone Cord (P/N 074326)

Use the 2-wire phone cord with the modem dock.

CN2 Serial Adapter (P/N 074247)

Use the serial adapter to turn the 16-pin serial port (COM1) on the CN2A into a DB9 (9-pin) male serial connector that you can connect to a serial printer. For help connecting the serial adapter to another device, see the "Serial Port Settings" table on page 136.

CN2 Handstrap (P/N 075400)

Use the handstrap for a comfortable way to hold the CN2A for extended periods of time.

CN2 Holster (P/N 074490)

Use the holster for a convenient way to carry the CN2A when you are not using it.

CN2 Dust Cover (P/N 074103)

Use the dust cover to protect the CN2A keypad in dusty environments.

CN2 Screen Protector Kit (P/N 346-065-005)

Use the screen protector kit to attach a protective film directly to the CN2A touch screen. The kit contains 25 protective films.

CN2 Screen Cleaner Kit (P/N 346-065-101)

Use the screen cleaner kit to clean the CN2A touch screen.

CN2 Replacement Stylus Kit (P/N 075405)

Use this kit to replace your lost stylus. The kit contains five replacement styli.

B Default Configuration

Use this appendix to learn about the default configuration settings of the CN2A.

Default Configuration

Use the following tables to see the default configuration settings of the CN2A. If you restore the CN2A to factory default settings, it will use these values. The tables are organized according to the options in Intermec Settings.

Default Scanner Configuration

Symbology	Default Value
Codabar	Enabled
Code 39	Enabled
Code 128	Enabled
Interleaved 2 of 5	Enabled
MSI	Enabled
UPC/EAN	Enabled

Symbology Options	Default Value
Preamble	No characters (disabled)
Postamble	No characters (disabled)
Global Symbology ID	Disable

Virtual Wedge Settings	Default Value
Virtual Wedge	Enabled
Grid	No characters (disabled)

Default Communications Configuration

Communications Settings	Default Value
DHCP	Enable
Current Device IP Address	127.0.0.1
Primary DNS	0.0.0.0
Secondary DNS	No characters (disabled)
Primary WINS	0.0.0.0
Secondary WINS	No characters (disabled)

802.11b/g Radio Settings	Default Value
Security Settings	
Security Choice	Funk Security
Active Profile	Profile 1
Profile 1	
Network Type	Infrastructure
Channel	3
Network name (SSID)	INTERMEC
Power Management	Enabled (PSP)
Authentication	None
Association	Open
Encryption	None
Network Key Index	Key 1
User Name	anonymous
Password prompt	Disabled
User Password	No characters (disabled)
Inner Authentication - TTLS	MS-Chapv2
Inner Authentication - PEAP	EAP/MS-Chapv2
Inner EAP	EAP/MD5
Validate Server Certificate	No
Mixed Cell	On
Logging	Off
Detect Rogue APs	Off
Radio Power Management	Disabled (CAM)
Device Name	WindowsCE

UDP Plus Settings	Default Value
UDP Plus Activate	Disabled
Controller IP	0.0.0.0
Controller Port	5555
Ack Delay Upper Limit	5000 ms
Ack Delay Lower Limit	300 ms
Retries	7

UDP Plus Settings	Default Value
Send Timer	20 sec
Receive Timer	45 sec

Note: The default Serial Port Settings are listed in the following table. An application can change these settings.

Serial Port Settings	Default Value
Baud Rate	115200
Data Bits	8
Parity	N
Stop Bit	1
Flow Control	None

Default Device Settings Configuration

Device Settings	Default Value
Beeper Volume	Very high
Backlight Timeout	1 minute
Power Management	
User Idle	1 minute
System Idle	1 minute
Suspend	1 minute

C Remapping the CN2A Keypad

Use this appendix to learn to remap the CN2A numeric keypad or scroll keypad.

Remapping the CN2A Keypad

This appendix explains how to remap keys on the CN2A keypad by changing the keypad registry settings.

Intermec recommends that only experienced application developers perform this function.

Choosing How to Change Keypad Registry Settings

There are several ways to change the keypad registry settings:

- You can use a registry editing program to change the keypad registry entries. You can run the Microsoft® eMbedded Visual C++ Remote Registry Editor on your PC, using ActiveSync to connect to the CN2A. Or you can download and run a third-party registry editing program on your CN2A. After you make your changes, you need to warm boot the CN2A for the changes to take effect. For help, see "Warm Booting the CN2A" on page 111.
- You can write an application to change the keypad registry entries. An application gives you a convenient way to customize multiple CN2As. For help downloading and using the Intermec resource kits and the CN2A platform SDK, see "Developing a New Application" on page 86. Make sure you application sets the named event *KeybdSettingsChangeEvent* after you change the registry entries, for the changes to take effect.
- You can use a .cab file to edit the registry. You can install the __ResetMePlease__.txt file in your .cab to force a warm boot to activate the changes.

Locating the Registry Settings for Your Keypad

Your CN2A has either an 18-key numeric keypad or a 10-key scroll keypad.

- The numeric keypad registry settings (shown on page page 143) are located in this registry subkey:

```
HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\FKEYS\27\0
```

- The scroll keypad registry settings (shown on page 144) are located in this registry subkey:

```
HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\FKEYS\9\0
```

Identifying the Registry Entry for Each Physical Key

Each physical key on the keypad has a corresponding registry entry, as shown in the next two tables.

Numeric Keypad Keys

Key	Registry Entry
▬▭ (Orange)	Fkeycode3
Tab	Fkeycode5
ESC	Fkeycode20
▭▬ (Green)	Fkeycode24
ENTER	Fkeycode6
1	Fkeycode23
2	Fkeycode7
3	Fkeycode21
4	Fkeycode17
5	Fkeycode16
6	Fkeycode18
7	Fkeycode27
8	Fkeycode8
9	Fkeycode25
0	Fkeycode26
← (Backspace)	Fkeycode2
. (Period)	Fkeycode22
Left Side Scan	Fkeycode9
Right Side Scan	Fkeycode10

Scroll Keypad Keys

Key	Registry Key
F1	Fkeycode1
◀	Fkeycode2
▬▭ (Orange)	Fkeycode3
▲	Fkeycode7
Scan	Fkeycode11
▼	Fkeycode8

Scroll Keypad Keys (continued)

Key	Registry Key
F2	Fkeycode4
▶	Fkeycode5
ENTER	Fkeycode6
Left Side Scan	Fkeycode9
Right Side Scan	Fkeycode10

The CN2A remappable keypads support two meta keys (the Orange ▪▫ key and the Green ▫▪ key) as well as three scan buttons.

To accomplish this, Intermec extended the Microsoft virtual key (VK) code convention. Standard VK codes are less than 0x100, and the new VK codes are greater than 0xff.

Meta Keys and Scan Buttons

Registry Entry	VK Code	Description
#define VK_SCAN1	0x100	Left Side Scan
#define VK_SCAN2	0x101	Right Side Scan
#define VK_SCAN3	0x102	Middle Scan (on the scroll keypad only)
#define VK_ORANGE	0x104	Orange ▪▫ key
#define VK_ALPHA	0x105	Green ▫▪ key

These codes can be used when mapping the keypad to assign these functions to a key or combination of keys.

Key mapping entries are 16-bit (WORD) sized (or multiples thereof), and other keypad attributes are 32-bit (DWORD) sized.

Understanding Keypad Attributes

The keypad attributes are as follows.

- "OrangeObeyClear" = dword:0
- "OrangeOneShot" = dword:1
- "GreenObeyClear" = dword:0

- "GreenOneShot" = dword:0
- "MultimapTimeout" = dword:258

Note: For a description of MultimapTimeout, see the next section, “Creating Multiple Key Definitions.”

When you press the Orange ■□ key or Green □■ key, a timer starts and will turn Orange or Green mode off after three seconds. To force Orange or Green mode to stay active after the timer has expired (which is also called “locking” the mode) you must set *ObeyClear to 0.

When you press a key in Orange or Green mode, the orange or green function for that key is produced and Orange or Green mode is turned off. To force Orange or Green mode to stay active after a key has been pressed (which is also called “locking” the mode) you must set *OneShot to 0.

Creating Multiple Key Definitions

In the case of multiple key definitions, the first byte is the number of possible keys (in words) that the physical key can cycle between. The second byte must be 0x80 (this is what makes it a multi-key definition). The values following should be two bytes for each possible key.

Multiple key definitions can also be used for FkeyCode and FkeyMeta mappings. In multi-key mode, only one VK code can be emitted by the key.

MultimapTimeout is the number of milliseconds you have to press the key again before the current selection is emitted. The default is 258, which equals 600ms (0.6 seconds).

To understand MultimapTimeout, consider the numeric keypad. When you press the Green □■ key and the **2** key, you have selected the “a” character. You have 0.6 seconds to press the **2** key again for “b.” If you do not press a key within 0.6 seconds, the “a” is emitted. If you press another key within 0.6 seconds, the timeout is cancelled, the “a” is emitted, and you have 0.6 seconds to press the second key again to select a different letter.

Specifying a Key Sequence to Launch an Application

Windows CE .NET offers built-in application launching capabilities, which can be invoked with the sequence 5B 00 C*x* 00, where *x* is 1-F for application 1-15.

As shown in the sample numeric keypad registry settings on page 143, pressing the **Green** ▭■ key and **1** launches APP 1:

```
"FkeyMeta23" = hex:5B,00,C1,00
```

You need to add a registry setting that tells the operating system which application to launch when you press this key sequence. For example:

```
[HKEY_LOCAL_MACHINE\Software\microsoft\shell\keys\40C1]
"Application"=REG_SZ: "MyApplication.exe"
"Path"=REG_SZ:"\Programs\MyGames"
"Flags"=REG_SZ:"map=Jupiter,lives=3,difficulty=5"
```

where:

Application	contains the name of the application to launch.
Path	contains the path to the application.
Flags	contains application-specific parameters to pass to ShellExecuteEx through the lpParameters member of the SHELLEXECUTEINFO structure.

Do not read or write directly to these registry subkeys. Instead, use SHGetAppKeyAssoc and SHSetAppKeyWndAssoc to set the navigational control keys. The following table shows the values for the virtual key codes that correspond to the navigational control keys.

Virtual Key Codes for Navigational Keys

VK Code	Value
VK_APP1	0xC1
VK_APP2	0xC2
VK_APP3	0xC3
VK_APP4	0xC4
VK_APP5	0xC5
VK_APP6	0xC6

For a complete list of VK codes, see the Microsoft documentation. The VK codes for 0-9 and A-Z are their ASCII values.

Sample Registry Settings

This section lists sample keypad registry settings for the numeric keypad and the scroll keypad.

Numeric Keypad Registry Settings

```
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\FKEYS\27]
"FkeyCode2" = hex:08,00
"FkeyCode3" = hex:04,01; to enter Orange mode
"FkeyCode5" = hex:09,00
"FkeyCode6" = hex:0D,00
"FkeyCode7" = hex:32,00
"FkeyCode8" = hex:38,00
"FkeyCode10" = hex:01,01
"FkeyCode11" = hex:02,01

"FkeyCode16" = hex:35,00; to emit the number 5
"FkeyCode17" = hex:34,00
"FkeyCode18" = hex:36,00
"FkeyCode20" = hex:1B,00
"FkeyCode21" = hex:33,00
"FkeyCode22" = hex:6E,00
"FkeyCode23" = hex:31,00
"FkeyCode24" = hex:05,01
"FkeyCode25" = hex:39,00
"FkeyCode26" = hex:30,00
"FkeyCode27" = hex:37,00

"FkeyMeta5" = hex:10,00,09,00; to emit Shift-Tab (back tab)
"FkeyMeta23" = hex:5B,00,C1,00; to launch APP 1
"FkeyMeta24" = hex:BD,00

"FkeyAlpha2" = hex:20,00
"FkeyAlpha7" = hex:03,80,41,00,42,00,43,00
"FkeyAlpha8" = hex:03,80,54,00,55,00,56,00
"FkeyAlpha16" = hex:03,80,4A,00,4B,00,4C,00
"FkeyAlpha17" = hex:03,80,47,00,48,00,49,00
"FkeyAlpha18" = hex:03,80,4D,00,4E,00,4F,00
"FkeyAlpha20" = hex:14,00
"FkeyAlpha21" = hex:03,80,44,00,45,00,46,00
"FkeyAlpha23" = hex:BD,00
"FkeyAlpha25" = hex:04,80,57,00,58,00,59,00,5A,00
"FkeyAlpha26" = hex:12,00
"FkeyAlpha27" = hex:04,80,50,00,51,00,52,00,53,00
```

Scroll Keypad Registry Settings

```
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\FKEYS\9\0]
;"FkeyCode1" = hex:5B,00,C1,00
"FkeyCode1" = hex:70,00
"FkeyCode2" = hex:25,00
"FkeyCode3" = hex:04,01
;"FkeyCode4" = hex:5B,00,C2,00
"FkeyCode4" = hex:71,00
"FkeyCode5" = hex:27,00
"FkeyCode6" = hex:0D,00
"FkeyCode7" = hex:26,00
"FkeyCode8" = hex:28,00
"FkeyCode9" = hex:00,01
"FkeyCode10" = hex:01,01
"FkeyCode11" = hex:02,01

;"FKeyMeta1" = hex:5B,00,C3,00
"FKeyMeta1" = hex:72,00
"FKeyMeta2" = hex:25,00
;"FKeyMeta3" = hex:5B,00,C5,00
"FKeyMeta3" = hex:74,00
;"FKeyMeta4" = hex:5B,00,C4,00
"FKeyMeta4" = hex:73,00
"FKeyMeta5" = hex:27,00
"FKeyMeta6" = hex:1B,00
"FKeyMeta7" = hex:03,01
"FKeyMeta8" = hex:06,01

"OrangeObeyClear" = dword:1
"OrangeOneShot" = dword:1
```

Restoring the Default Registry Settings

To discard the changes you have made to the registry, you can restore the registry to its default settings. Follow the instructions for resetting the registry on page 100.

Index

C

D

S

T

Corporate Headquarters
6001 36th Avenue West
Everett, Washington 98203
U.S.A.

tel 425.348.2600

fax 425.355.9551

www.intermec.com

CN2A Mobile Computer User's Manual

P/N 075464-004