Intermec

User's Manual

CN30
Mobile
Computer

Intermec Technologies Corporation

Worldwide Headquarters	Cedar Rapids Technical Communications
6001 36th Ave.W.	550 Second Street SE
Everett, WA 98203	Cedar Rapids, IA 52401
U.S.A.	U.S.A.

www.intermec.com

Contents

2 Windows Mobile. 29

3 Configuring the CN30 Computer 95

4 Maintaining the CN30 Computer

5 Network Support

| Index

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 dangers, 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 danger warns you of possible eye damage caused by use of a Class IIIa laser product. Use of this symbol is mandated by CFR21 1040.

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). 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.

Service	Description	In the U.S.A. and Canada call 1-800-755-5505 and choose this option
Order Intermec products	• Place an order. • Ask about an existing order.	1 and then choose 2
Order Intermec media	Order printer labels and ribbons.	1 and then choose 1
Order spare parts	Order spare parts.	1 or 2 and then choose 4
Technical Support	Talk to technical support about your Intermec product.	2 and then choose 2
Service	• Get a return authorization number for authorized service center repair. • Request an on-site repair technician.	2 and then choose 1
Service contracts	• Ask about an existing contract. • Renew a contract. • Inquire about repair billing or other service invoicing questions.	1 or 2 and then choose 3

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

This manual provides you with information about the features of the CN30 Mobile Computer, and how to install, configure, operate, maintain and troubleshoot it. Before you install and configure the CN30, you should be familiar with Pocket PC or Windows CE, your network and general networking terms, such as IP address and network naming conventions.

Related Documents

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

Document Title	Part Number
CN30 Mobile Computer Quick Start Guide	962-054-125
CN30 Model AD9 Charge Dock Quick Start Guide	962-000-060
CN30 Model AC9 Quad Charger Quick Start Guide	962-000-061
CN30 Model AK1 14-Key Module Quick Start Guide	943-035-001

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.

Patent Information

This product is protected by one or more of the following patents:

4,882,476; 4,894,523; 4,953,113; 4,961,043; 4,970,379; 4,988,852; 5,019,699; 5,021,642; 5,038,024; 5,081,343; 5,095,197; 5,144,119; 5,144,121; 5,182,441; 5,187,355; 5,187,356; 5,195,183; 5,195,183; 5,195,183; 5,216,233; 5,216,550; 5,218,191; 5,227,614; 5,233,172; 5,241,488; 5,243,602; 5,258,606; 5,278,487; 5,288,985; 5,308,966; 5,322,991; 5,331,136; 5,331,580; 5,342,210; 5,349,678; 5,359,185;

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

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

1 Using the CN30 Mobile Computer

Use this chapter to familiarize yourself with the CN30 Mobile Computer. In this chapter you will find these sections:

- Introducing the CN30 Mobile Computer
- Audio
- Battery
- Beeper
- Using the Keypad
- Resetting your CN30 Mobile Computer
- Using the SD Card

Introducing the CN30 Mobile Computer

The Intermec CN30 is an ergonomically designed Mobile computer built on the Microsoft® Windows® Mobile Version 5.0 operating system. It is a lightweight, easy-to-use, reliable computer that runs client/server applications, terminal emulation applications, as well as browser-based applications.
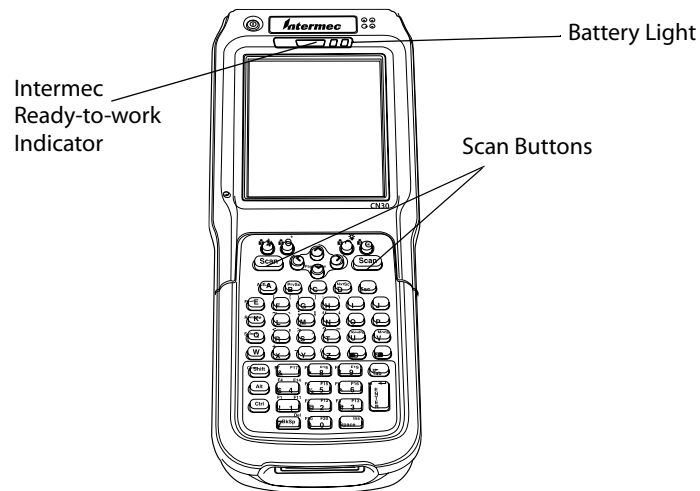
™ CN30 Computers with an IEEE 802.11b/g radio installed are Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

Audio

The audio system consists of two speakers, internal microphone and an external headset jack.

Speaker

The main speaker (on back) is capable of variable volume levels and is located on the back of the computer. The external headset jack connects a mobile phone style headset to your mobile computer for use in noisy environments. The jack is a 2.5 mm, three-conductor jack, with autosensing of the headset jack insertion which disables the internal speaker and microphone. The external headset jack is located on the top of the mobile computer in front of the scan window.
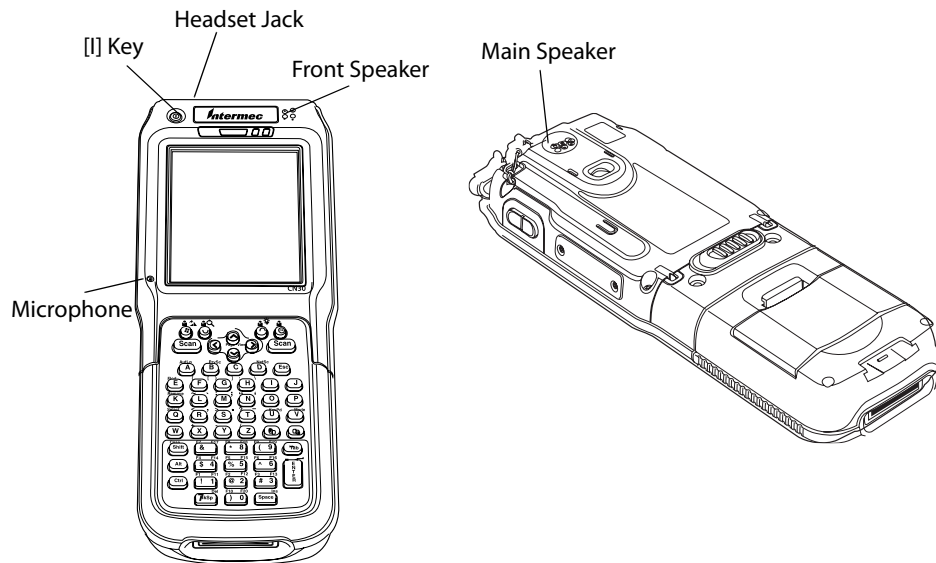
The internal microphone provides support for voice communication and speech recognition applications. The microphone is positioned on the computer for operation as a mobile phone when held close to the head.

Using the Battery

The CN30 uses a lithium-ion battery as its main power source. You must fully charge the main battery before you can use the CN30. When you change the battery, a backup battery (super capacitor) maintains your memory, data and real-time clock for at least 10 minutes.

The 14-key keypad module has a 3.7V 2400 MAh battery that is internal to the module and is not user replaceable.

The 56-keypad module has a removable 3.7V 4800 MAh replaceable Lithium-Ion (LiIon) battery.

Caution

Removing the main battery when the backup battery low or critically low icon displays in the status bar may cause your CN30 to cold boot and you may lose data.

Attention: L'enlèvement de la batterie principale quand le bas de secours de batterie ou les affichages en critique bas d'icône dans la barre de statut peut causer votre CN30 à la botte froide et de vous peut perdre des données.

Warning

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.

Avertissement: Le paquet de piles d'ions de lithium qui est utilisé dans cet appareil peut presenter un risque feu ou un risque chimique de brûlure s'il est maltraité. Il ne faut pas le désassembler, le réchauffer à une température plus élevée que 100°C (212°F) ou l'incinérer.

Caution

Attention: Si la batterie n'est pas remplacée immédiatement, des données ou applications importantes risquent d'être perdues

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, input devices, and your usage.

Charging and Installing the Battery

To charge the battery

Either insert the battery into the CN30 AC9 Quad charger or place the CN30 with battery installed in the AD9 charge dock. *For more information on these accessories, see page 27 'Accessories for the CN30'.*

The batteries fully charge in approximately 4 hours.

Note: If you do not plan to use the computer for several months, remove the keypad module from the console and store it in the shipping box.

To install the battery

Insert the tabs on the bottom of the charged battery into the CN30 56-Keyboard module and snap the battery into place.
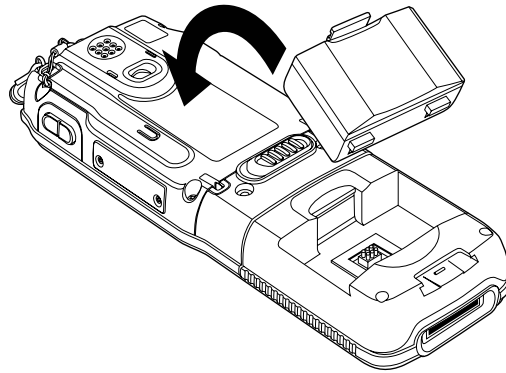
Maximizing Battery Life

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

1 Verify that the backlight timeout is set to 15 seconds.

2 Verify that Power Management has an automatic shutoff time of 3 minutes.

Checking the Battery Status

The easiest way to tell the status of your battery is to look at the battery icon in the status bar of your CN30.

You can also check the battery status by looking at the Battery light on the front of the CN30 or by using the battery diagnostics screen.

Battery Light
Flashes red on low
battery condition
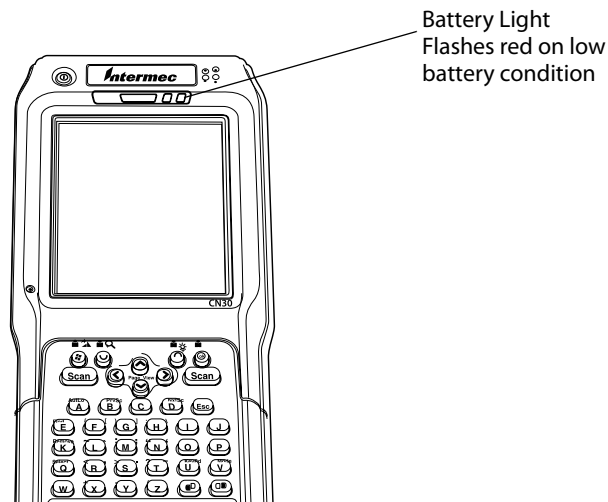
To view the status of this battery, tap **Start** > **Settings** > the **System** tab > the **Power** icon > the **Power** tab to view the current status of both the main battery and the backup battery. Tap **ok** to exit this information.

Your computer contains an internal super capacitor, a temporary power storage device, that protects data for up to ten minutes. This is to give you time to replace the main battery pack before that data is lost. *Be sure to put* the computer in suspend mode before doing so.

The configuration and time are lost if:

- The battery discharges beyond this level.
- The battery is removed when the computer is *not in suspend mode.*
- A cold reset is performed on the computer.

Adjusting the Beeper

For information about setting volume levels for screen taps, ActiveSync alert noises, etc., tap **Start** > **Help**.

Enabling the Beeper

1 Tap **Start** > **Settings** > the **Personal** tab > the **Sounds & Notifications** icon, then tap the **Sounds** tab.

2 Check for which features the CN30 Computer should enable sounds, then tap **ok** to close.
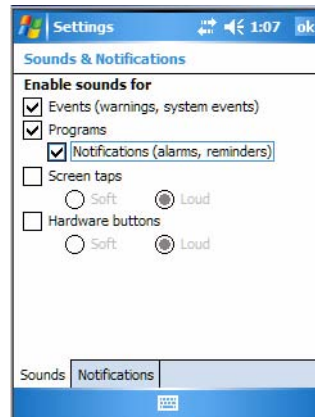
3 Tap the **Volume** icon at the top of the screen, tap **On**, then move the slider bar to your desired level.
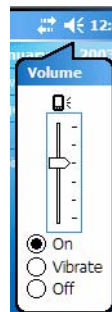
Select a Beeper Volume

To select a beeper volume for the CN30 Mobile Computer, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. Tap the **Device Settings** option, tap (+) to expand **Beeper**, then tap (+) to expand **Volume**.

Select an item, then close this option.
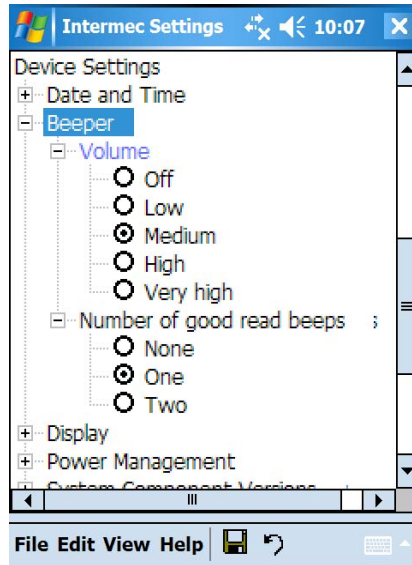
Note: Information about the settings you can configure with the Intermec Settings control panel applet is described in the *Intermec Computer Command Reference Manual* (P/N: 073529). The online manual is available from the Intermec web site at www.intermec.com.

Disabling the Beeper

To disable the beeper, tap the **Volume** icon at the top of the screen, either drag the slider to the bottom, or tap **Off**.
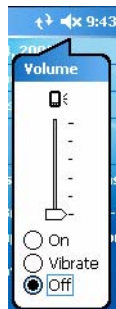
Using the Keypad

Your CN30 has one of the following keypads:

- 56-key full alphanumeric
- 14-key function
- 10-key numeric

You can order all versions of the CN30 56-keypad with an international overlay. The international overlay supports English and many Western European languages, such as French, German, Italian, Portuguese, and Spanish. You enter all of the characters and functions printed above the keys just like you would on a standard keypad.

TE 2000 Overlay

The CN30 supports TE 2000 VT100/220/320/340 and ANSI, TE 2000 5250, and TE 2000 3270. When you order the CN30 with a TE 2000 application, you must order the corresponding keypad overlay. Use the TE 2000 keypad overlays to enter the same keys that you can enter on a VT/ANSI keyboard, an IBM 5250 keyboard, or an IBM 3270 keyboard.

Like the standard CN30 keypad overlays, the TE 2000 keypad overlays let you enter all the characters printed on or above the keys. The terminal emulation keypads also come with the same color-coded keys that are on the standard overlay.

For more help using TE 2000 terminal emulation, see the appropriate TE 2000 programmer's guide.

The 56-Key Keypad

Backlight Key

Scan Buttons

Orange Key

Green Key
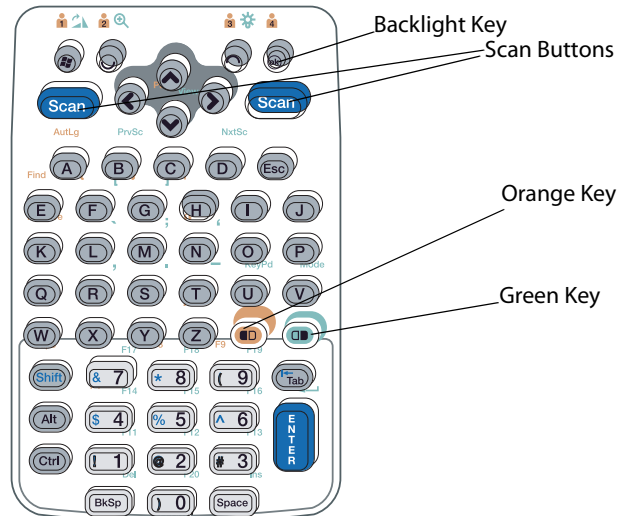
Using the Color-Coded Keys

Each keypad available for the CN30 provides color-coded keys to let you access additional characters, symbols, and functions printed on the keypad overlay. Once you understand how to use the color-coded keys and key sequences, you will know how to access all of the additional features printed on the keypad overlay. There are two color-coded modifier keys on the CN30: the orange key and the green key. You press and release the first key, then press and release the second key to access the color-coded character or function printed above a key.

Capitalizing All Characters

To type all alphabetic characters as uppercase letters, you can enable the Caps Lock feature on the CN30 keypad. To enable Caps Lock on the 56-key keypad, press the orange key. Press the same key sequence to disable the Caps Lock.

Using the 14-Key Keypad Module
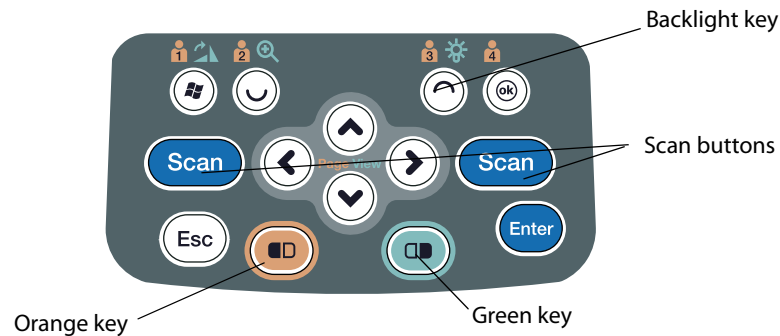
Backlight key

Scan buttons

Orange key

Green key

The 14-key keypad module provides basic navigation through the Windows Mobile Version 5.0 screens.

To rotate the display

On the 14-key or 56-key keypad, press the Green key. Press the Windows Logo key. Press the key again to return to portrait (default) mode.

To enable the Backlight

On the 14-key or 56-key keypad, press the Green key. Press the backlight key.

Assigning Functions to Keys

Go to **Settings** >the **Personal** tab > **Buttons** to assign a program to a "soft key".

Using the 10-Key Keypad Module
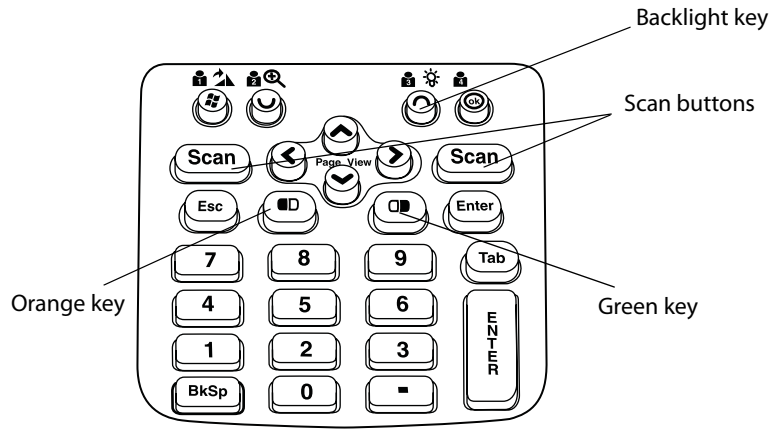
Backlight key

Scan buttons

Orange key

Green key

The 10-key keypad module provides basic navigation through the Windows Mobile Version 5.0 screens.

To rotate the display

On the 10-key keypad, press the Green key. Press the Windows Logo key. Press the key again to return to portrait (default) mode.

To enable the Backlight

On the 10-key keypad, press the Green key. Press the backlight key.

Assigning Functions to Keys

Go to **Settings** >the **Personal** tab > **Buttons** to assign a program to a "soft key".

Magnifier Application

The Magnifier application allows you to view an enlarged portion of the CN30 Computer screen by tapping and holding the stylus. The enlarged window can be moved to any location on the screen.

To Start Magnifier with the Keypad

- On the 14-key or 56-key keypad, press the Orange key. Press the Magnifier key.

- Tap and hold the stylus to move the displayed area of the screen. For more help, see the Magnifier help under Windows help.window can be moved to any location on the screen.

To Start Magnifier with the Stylus

- From the **Start** menu, go to **Programs** and tap **Magnifier**.

Note: The Magnifier window is not an active window.

Using the Power (I) Key

When you press the (I) key to turn off the CN30, you actually put the CN30 in Suspend mode. In Suspend mode, the CN30 continues to supply power to all memory, but turns off power to most hardware. This power-saving feature is designed to prolong battery life.

When you press the (I) key to turn the CN30 back on, your computer 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 the Battery light flashes and your CN30 does not resume after pressing (I), your battery may be too low to supply power. Replace the battery. If replacing the battery does not solve the problem, see "*Resetting your CN30 Mobile Computer*" on page 16.

Using the Screen

The CN30 Computer has a 3.7" diagonal 640x480 pixel (VGA) transflective TFT-LCD 64K color display. The screen supports Unicode characters, user programmable fonts and bitmap graphics. The Start screen has two distinct areas; the desktop and the taskbar. The desktop displays shortcuts to some of the applications installed on the CN30 Computer. The taskbar displays the Start menu, the time, the onscreen keyboard icon and the desktop icon.
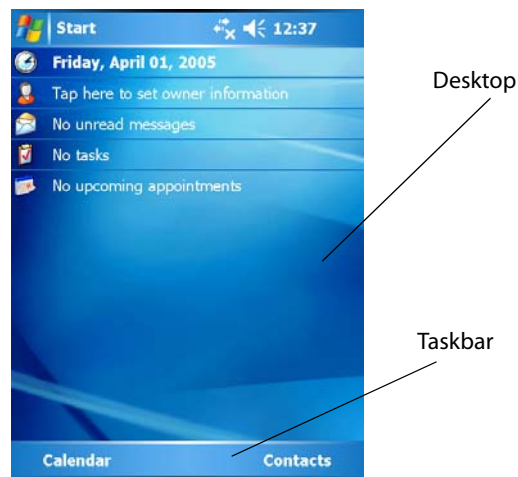
Your CN30 Computer has a stylus for selecting items and entering information. Use the stylus in place of a mouse.

Tap	Touch the screen once with the stylus to select options, close applications, or launch menus from the taskbar
Double Tap	Touch the screen twice with the stylus to launch applications.
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 icon to see a list of actions available for the item. On the pop-up menu that appears, tap the action you want to perform.

Resetting Your CN30 Mobile Computer

In some cases where the CN30 Mobile Computer completely stops responding, it may be necessary to perform a cold reset. Because cold resetting may result in data loss, it is not recommended unless all other recovery methods have failed.

Performing a Warm-Boot on the CN30 Computer

If your charged CN30 Computer does not resume after pressing (I), or if the computer or an application is locked up, you may need to do a warm-boot.

• Press and hold (I) for five to ten seconds, until the screen goes dark.

The CN30 Computer tells you it is performing a warm-boot, then comes back up to the start screen.

Performing a Cold-Boot on the CN30 Computer

If the CN30 Computer or an application is locked up and does not respond to a warm-boot, do the following.

1 Release the lower clip of the hand strap and slide the latch to the left.

2 Remove the keypad module.

3 Press the Reset button located inside the console module.

4 Reinstall the keypad module.

Reset Button
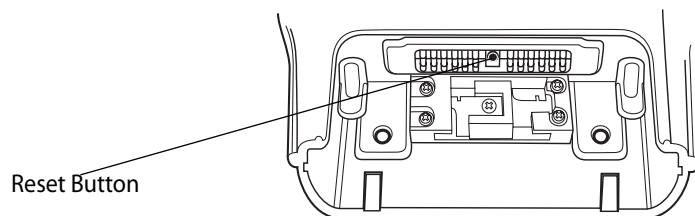
CN30 Console

Software Build Version

To check to see if your CN30 Mobile Computer has the latest software build, select **Start** > **Internet Explorer** > the **Intermec** logo. The latest software build version is displayed beneath the **Version Information** title. This information is useful should you need product support assistance.

Using the Speakers

The high-volume speaker on the back of the CN30 Computer, is capable of variable volume levels. This speaker is capable of reproducing voice and WAV files, and is used primarily to convey status tones. There is a separate volume control in the toolbar at the top of the display. You can also control the volume using the Intermec Settings applet. Information on this control and applet are on the next page.

High-volume speaker on center, back of CN30 Computer
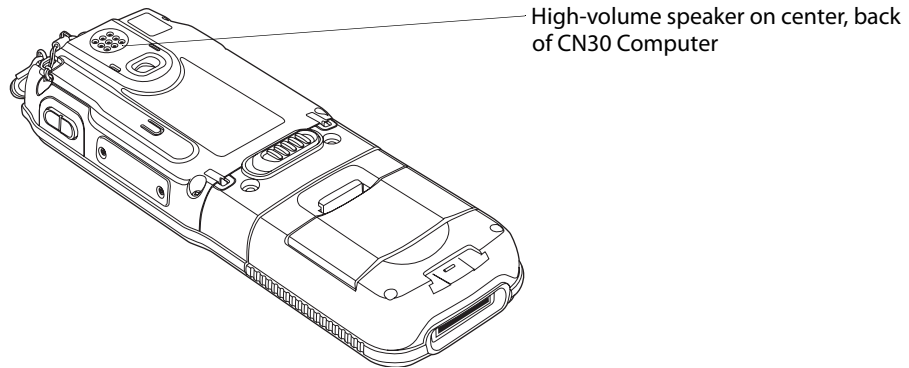
The front speaker is a full-voice range speaker of cell-phone quality with a separate volume control. See the next page for information about this volume control.

Front Speaker
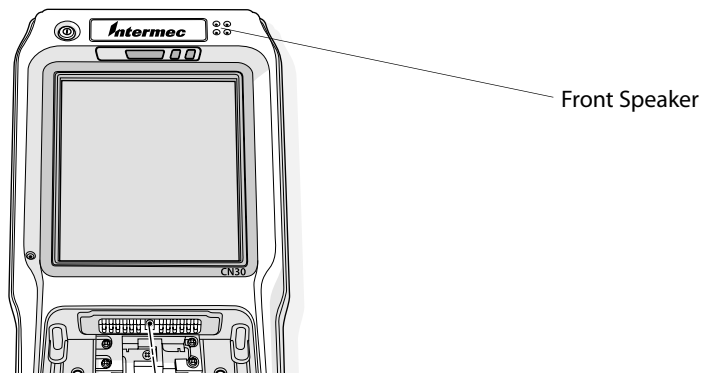
Warning: Do not place the speaker next to your ear when the speaker volume is set to "Loud" (maximum), or you may damage your hearing.

Warning

Enabling the Speaker and Adjusting the Volume

To enable the speaker and adjust the volume:

1 Tap the **Volume** icon at the top of the screen.

2 Tap **On**, then move the system volume slider to the desired volume level. Up is louder, down is quieter.

3 To mute system sounds, tap **Off** or move the slider to the bottom.
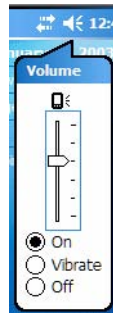
You can also enable the speaker and adjust the volume with the Intermec Settings applet. Tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon, then tap (+) to expand **Device Settings** > **Beeper** > **Volume**. Tap any of the options other than "Off" to enable and adjust. To disable the speaker, tap the **Off** option.
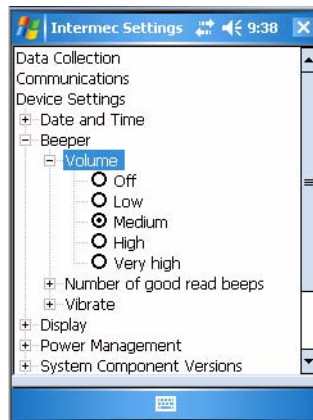
Using the Status Lights

The status lights on the CN30 Computer turn on to indicate the status of the battery or a successful decode of a bar code.

The battery lights and the battery screen icon work with each other to alert you to the status of your battery. If the battery light (to the right of the **Scan** button) comes on, check the status bar to see which battery icon appears on it. The battery may be critically low and need replacing.

The **Good Read** light (green) above the display indicates when the CN30 Computer successfully decodes a bar code.

Good Scan Light   Battery Light
Flashes red on low
battery condition
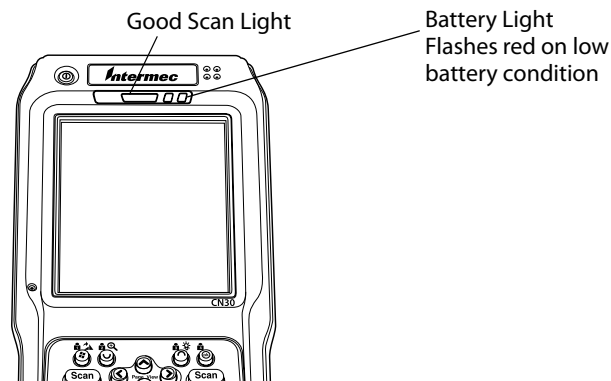
Scanning Bar Codes

Use the scanner to scan and enter bar code data. The type of scanner you are using and the type of bar code you are decoding determines the way you scan the bar code. The CN30 Computer supports the scanning of 2D images. Plus, if you are using an integrated handle or a tethered scanner, the way you scan bar codes is different. When you unpack the CN30, these bar code symbologies are enabled:

- Code 39

- UPC/EAN

- PDF417 (if supported)

If you are using bar code labels that are encoded in a different symbology, you need to enable the symbology on the computer.

Use the Intermec Settings to enable and disable symbologies for your scanner.

Scanning with the 2D Area Imager

The CN30 Computer has the 2D area imager, which provides the ability to scan 2D bar code symbologies and supports omni-directional (360°) scanning where you can position the CN30 Computer in any orientation to scan a bar code label. Using the 2D area imager is very similar to taking a picture with a digital camera.

1 Press (I) to turn on the CN30 Computer.

2 Point the scanner window at the bar code label and hold the CN30 Computer steady a few inches from the label.

3 Press the Scan button on the keypad or pull the trigger on a handle and center the red aiming beam over the bar code label. The aiming beam is smaller when the imager is closer to the bar code and larger when it is further away.

When the CN30 Computer successfully reads a bar code label, you hear a high beep and the green Good Read light turns on briefly.

4 Release the Scan button.

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

• Set Lighting mode to Illum LED Priority.

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

• Make sure that Aimer LED Duration is set to zero.

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

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

Use Intermec Settings to configure these imager commands. For help using Intermec Settings, see " Configuring the CN30 Computer With Intermec Settings" on page 102. For more information on the commands and their parameters, see the *Intermec Computer Command Reference Manua*l (P/N 073529) via the Intermec web site. See "Before You Begin" for information how to download this .CHM file.

StorageMedia

Note: MultiMediaCards (MMCs) are not supported in CN30 Mobile Computers.

The CN30 Mobile Computer supports Secure Digital storage cards. To access the card slot, locate the access door at the side of the CN30 Mobile Computer, remove its two screws, then remove the door. See the *CN30 Mobile Computer Quick Start Guide* (P/N: 962-054-125) for more information.

CompactFlash Cards

On CN30 Mobile Computers, the CompactFlash card slot accepts only the 802.11b or 802.11b/g radio, which is factory-installed and cannot be removed.

Secure Digital Cards

The SD (Secure Digital) card slot accepts storage cards only.

SD Card Slot

Access Door
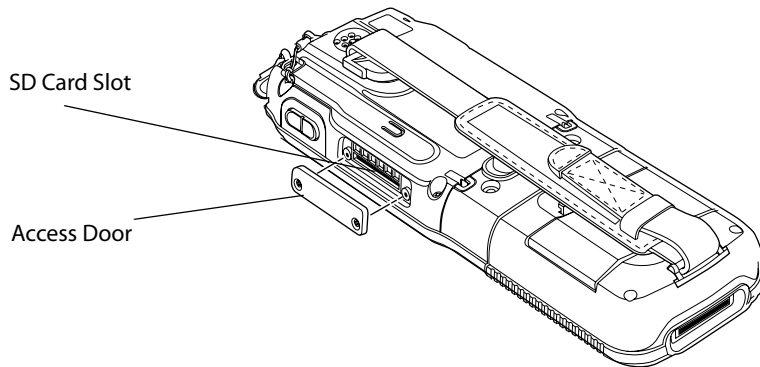
Using the SD Card

You can use a Secure Digital (SD) card to increase file storage and install software. The CN30 currently supports SanDisk SD cards only. The SD card slot is located on the side of the CN30.

To insert an SD card

1 Press (I) to turn off the CN30.

2 Remove the two screws on the SD card slot door and remove the door.

3 Gently insert the SD card into the CN30 with the printed side facing the keypad and screen side of the CN30.

4 Push the card into the slot until it latches in place and the steel card retainer covers the end of the SD card.

5 Replace the door, making sure to insert the door catch into the slot above the steel card retainer.

6 Replace the two screws.

7 Press (I) to turn on the CN30.

To remove the SD card

1 Press (I) to turn off the CN30.

2 Remove the two screws on the SD card slot door and remove the door.

3 Push in on the SD card until you hear it unlatch. The card should eject far enough that you can easily remove it from the CN30. If the card does not eject easily, you can use the door catch to remove it by turning the door upside down and using the catch to pull out the SD card.

4 Remove the SD card from the CN30.

Physical and Environmental Specifications

Use this section to locate technical information about the CN30 and its available features and options.

Hardware

Microprocessor: Intel X Scale PXA272

Application Processor: 520 MHz RAM

Memory: 64 or 128 MB

Flash ROM: 64 MB

Persistent Storage: 128 MB, provides onboard non-volatile storage of applications and data

Removable Storage: SDIO Card Slot, user-accessible

Keypad: 14-key with large numeric keys or 56-key with full alphanumeric keys; both with LED backlighting

Operating System

Microsoft Windows Mobile Version 5.0

Software

Development Environments:

Visual Studio 2003

Embedded Visual C++ 4.0,

.NET Compact Framework (VB. NET, C#)

Intermec Developer's Library:Integrates with leading development environments; supports device-specific features and bar code scanning

Browser support: Internet Explorer 6-compatible

Bar Code Scanning

Options of Integrated 2D Area Imager or 1D & PDF417 Linear Imager Supports all popular 1D and 2D symbologies including Australian Post, British Post, Codabar, Codablock A, Codablock F, Code 11, Code 2 of 5, Code 39, Code 93, Code 93i, Code 128, Datamatrix, Dutch Post, ISBT 128, Interleaved 2 of 5, Macro 2 of 5, Matrix 2 of 5, Maxicode, Micro PDF417, MSI, PDF417, Planet, Plessey, Postnet, QR Code, RSS 14, RSS Expanded, RSS Limited, Telepen, TLC39, UCC-EAN Composite Code, UPC/EAN

Standard Communications

USB Host and Client, Bluetooth Class 1, V2.0 + EDR, RS232 Serial,

Wireless LAN

Standards Compliant: IEEE 802.11g (2.4 GHz - OFDM) IEEE 802.11b (2.4 GHz - DSSS)

Data Rates: Up to 54 Mbps for 802.11g

Up to 11 Mbps for 802.11b

Radio Power Output: 50 m W

Security: WEP, WPA, 802.11i, 802.1x (EAP-TLS, TTLS, LEAP, PEAP)

Certifications: Wi-Fi, WPA2, Cisco Compatible Extensions V1

Device Management

SmartSystems™ Support: Centralized remote support capability;

configures, updates, and maintains single devices or entire populations; real-time or batch, wired or wireless.

Based on Wavelink Avalanche™ with Intermec value add utilities.

Physical Dimensions

Length: 24.1 cm (9.5 in) with 56-Key Module

Length:16.5 cm (6.5 in) with 14-Key Module

Width: 8.9 cm (3.5 in)

Depth: 3.3 cm (1.3 in)

Weight: 538-595g (19-21oz) with 56-Key Module

Weight: 340.1-396.9g (12-14oz) with 14-Key Module

Power Specifications

> **Note:** Specifications will vary based on system configuration

Operating: Rechargeable 2400 or 4800 mAh lithium-ion battery

Backup: System supplies 10 minutes bridge time while replacing the battery or keyboard module

Electrical Specifications
Model: CN30

Electrical rating: 3.7-5VDC, 2A

Temperature and Humidity Specifications
Operating temperature:-10°C to 50°C (-14°F to 122°F)
Operating humidity:10 to 95% non–condensing
Storage temperature:–20°C to 70°C (–4°F to 158°F)
Storage humidity:0 to 95% humidity, non–condensing

Screen Specifications
Transflective TFT; VGA Color with touch panel; 640x480 pixels; 9.7 cm (3.7 in) diagonal active area; 5-level LED backlight control with high and low settings

Regulatory Approvals
UL and cUL Listed, UL 60950 and UL 1604 and CSA 22.2 No. 157, FCC Part 15, TUV, CE mark

Accessories for the CN30 Computer

You can use these accessories (sold and ordered separately) with the CN30 Computer. To order accessories, contact your local Intermec representative.

CN30 Quad Charger
Use the Quad Battery Charger to charge up to four batteries or modules at the same time, in any combination.

CN30 Charge Dock
Use the CN30 Charge Dock to hold a CN30 Computer with its battery installed. The charge dock charges a battery, or keypad module, provides power to the CN30 Computer, provides a USB and serial port for the docked CN30 Computer.

CN30 Belt Clip
Use belt clip to carry your CN30 Computer while not using it.

CN30 Handstrap
The removable and adjustable handstrap make it easy for you to grip and use the CN30 Computer without hand fatigue.

CN30 Scan Handle
Use the scan handle to comfortably balance the CN30 while scanning bar codes.

2 Windows Mobile

This chapter introduces Microsoft Windows Mobile 5.0 for Pocket PC. While using your CN30 Computer, keep these key points in mind:

- Tap **Start** on the navigation bar, located at the top of the screen, to quickly move to programs, files, and settings. Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menus, icons, and the onscreen keyboard.

- Tap and hold an item to see a pop-up menu containing a list of actions you can perform. Pop-up menus give you quick and easy access to the most common actions.

Below is a list of Windows Mobile components described in this chapter. Tap **Start** > **Help**, then select a topic on your CN30 Computer to find additional information on Windows Mobile components.

Windows Mobile 5.0 Components

Microsoft ActiveSync (page 47)
Microsoft Pocket Outlook (page 48)
Word Mobile (page 71)
Excel Mobile (page 75)
PowerPoint Mobile (page 78)
Windows Media Player for Windows Mobile (page 80)
Using Internet Explorer Mobile (page 83)

Software Builds

Do the following to determine which Intermec build of Windows Mobile 5.0 is on your unit.

1 Select **Start** > **Internet Explorer** > the following Intermec logo.

Intermec

2 Note the information beneath the **CN30 Version Information** title.
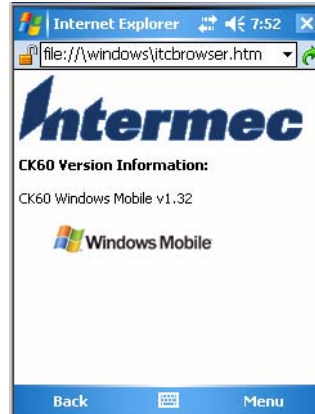
3 Tap the **Close** icon in the top right corner to exit the Internet Explorer.

Where to Find Information

This chapter describes your CN30 Computer hardware, provides an overview of the programs on your CN30 Computer, and explains how to connect your CN30 Computer to a desktop, a network, or the Internet. For instructions on setting up your CN30 Computer and installing ActiveSync, see the Quick Start Guide. The following is a guide to more information to assist you use your CN30 Computer.

For information on:	See this source:
Programs on your mobile computer.	This chapter and mobile computer Help. To view Help, tap **Start** > **Help**, then select a topic.
Additional programs that can be installed on the mobile computer.	The *Windows Mobile Companion CD*.
Connecting to and synchronizing with a desktop.	The Quick Start Guide or *ActiveSync Help* on your desktop. To view Help, click **Help** > **Microsoft ActiveSync Help**.
Last-minute updates and detailed technical information.	The Read Me files, located in the Microsoft ActiveSync folder on the desktop and on the *Windows Mobile Companion CD*.
Up-to-date information on your Windows Mobile.	www.microsoft.com/windowsmobile/resources/communities/default.mspx

Windows Mobile and many of the technologies supported by the CN30 Computer are not from Intermec Technologies. Many of the utilities and features on a Windows Mobile device come directly from Microsoft without any modification from Intermec Technologies. There may be certain Microsoft-specific issues that Intermec Technologies would not be able to support, so contact our front-line support personnel to determine the best source of assistance.

Use these URLs for additional information about Microsoft Windows Mobile (Pocket PC):

- msdn.microsoft.com/support/
- support.microsoft.com/
- news.microsoft.com *(a free support option)*

Basic Skills

Learning to use your CN30 Computer is easy. This section describes the basic concepts of using and customizing your CN30 Computer.

Today Screen

When you turn on your CN30 Computer for the first time each day *(or after four hours of inactivity)*, you see the **Today** screen. You can also display it by tapping the **Start** flag at the top left of your display and then **Today**. On the Today screen, you can see important information for the day.

Tap to start a program   Tap and hold to change time format

Tap to change date and time
Tap to change owner information
Tap to review your email

Your day at a glance. Tap to open an associated program
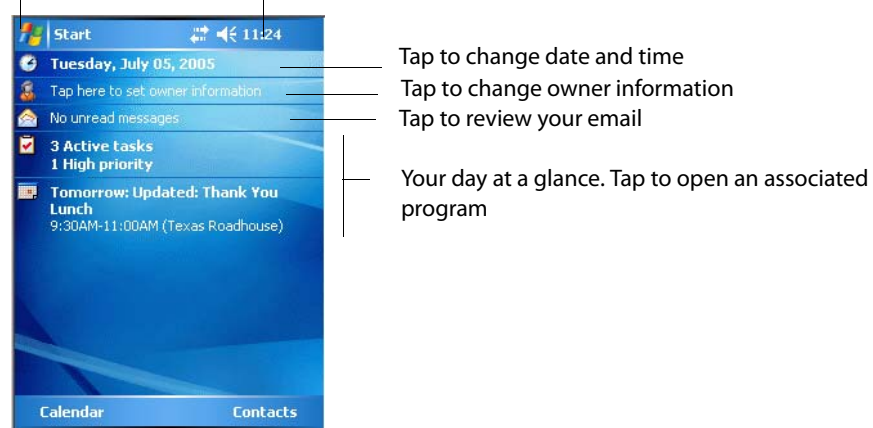
To customize what is displayed on the Today screen, including the background image, tap **Start** > **Settings** > the **Personal** tab > the **Today** icon.

Status icons display information such as low batteries or when the CN30 Computer is connected to a desktop or to the Internet. You can tap an icon to open the associated setting or program.

Programs

You can switch from one program to another by selecting it from the **Start** menu. (You can customize which programs you see on this menu. For information, see "Adjusting Settings" on page 43.) To access some programs, tap **Start** > **Programs**, and then the program name.

You can also switch to some programs by pressing a program icon. Your CN30 Computer has one or more program icons located on the front or side of the computer. The icons on the icons identify the programs to which they switch.

Note: Some programs have abbreviated labels for check boxes and drop-down menus. To see the full spelling of an abbreviated label, tap and hold the stylus on the label. Drag the stylus off the label so that the command is not carried out.

The following is a partial list of programs that are on your CN30 Computer, in the order they appear in the Start menu. Look on the *Windows Mobile Companion CD* for additional programs that you can install onto your CN30 Computer.

Keep track of your appointments and create meeting requests.
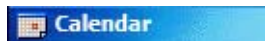
Keep track of your friends and colleagues.

Browse Web and WAP (Wireless Application Protocol) sites, and download new programs and files from the Internet.

Send and receive e-mail messages.

Play digital audio and video files that are stored on your CN30 Computer or on a network.

Navigation Bar and Command Bar

The navigation bar is located at the top of the screen. It displays the active program and current time, and allows you to switch to programs and close screens.
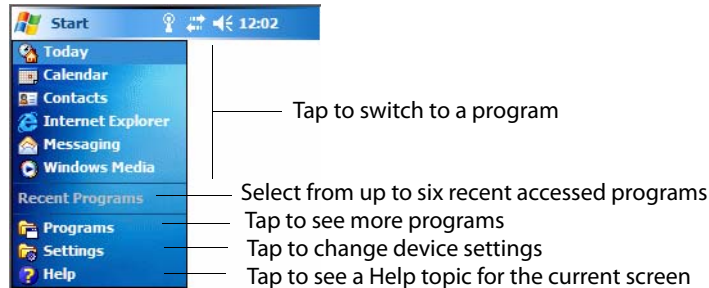
Tap to switch to a program

Select from up to six recent accessed programs
Tap to see more programs
Tap to change device settings
Tap to see a Help topic for the current screen

Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menu names, functions, and the **Input Panel** icon, when needed. To create a new item in the current program, tap **New**. To see the name of a icon, tap and hold the stylus on the icon. Drag the stylus off the icon so that the command is not carried out.

Pop-up Menus

Use pop-up menus to quickly perform an action on an item. For example, you can use a pop-up menu to delete or make a copy of an item. To access a pop-up menu, tap and hold the item on which you want to perform the action. When the menu appears, tap the action you want to perform, or tap anywhere outside the menu to close the menu without performing the action.

Tap and hold to display the pop-up menu

Lift the stylus and tap the action you want

Tap outside to close without performing an action
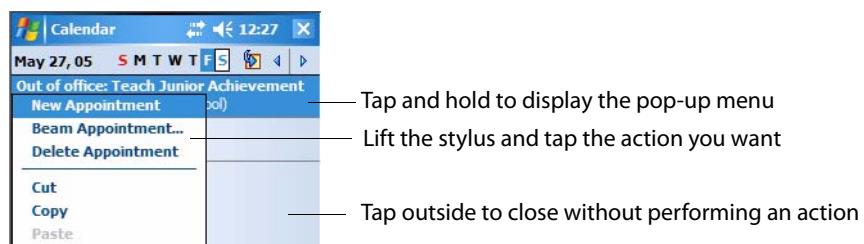
Notifications

When you have something to do, your CN30 Computer notifies you in a variety of ways. For example, if you have set up an appointment in Calendar, an e-mail message arrives, or a friend sends you an instant message, you are notified in any of the following ways: a message box appears on the screen, a sound (which you can specify) is played, a light flashes on your CN30 Computer, or the CN30 Computer vibrates. You can choose the notification types.

Entering Information

You can enter information on your CN30 Computer in several ways, depending on the type you have and the program you are using:

Synchronizing	Using Microsoft ActiveSync, synchronize or copy information between your desktop and CN30 Computer. For more information on ActiveSync, see *ActiveSync Help* on your desktop.
Typing	Using the input panel, enter typed text into the CN30 Computer. Do this by tapping keys on the onscreen keyboard or by using hand-writing recognition software.
Writing	Using the stylus, write directly on the screen.
Drawing	Using the stylus, draw directly on the screen.
Recording	Create a stand-alone recording or embed a recording into a document or note.

Use the input panel to enter information in any program on your CN30 Computer. You can either type using the onscreen keyboard or write using **Block Recognizer**, **Letter Recognizer**, or **Transcriber**. In either case, the characters appear as typed text on the screen.

To show or hide the input panel, tap the **Input Panel** icon. Tap the arrow next to the **Input Panel** icon to see your choices.

Select an input method

Tap to see your choices
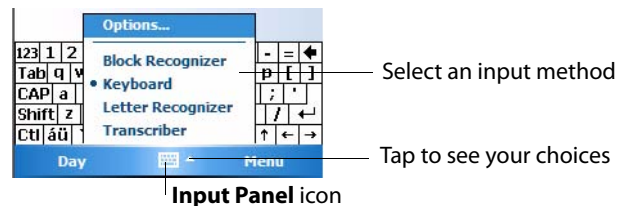
Input Panel icon

When you use the input panel, your CN30 Computer anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point. The more you use your CN30 Computer, the more it learns to anticipate.

Tap a text box to display the input panel

Tap to insert anticipated word

Tap characters on the onscreen keyboard to enter them
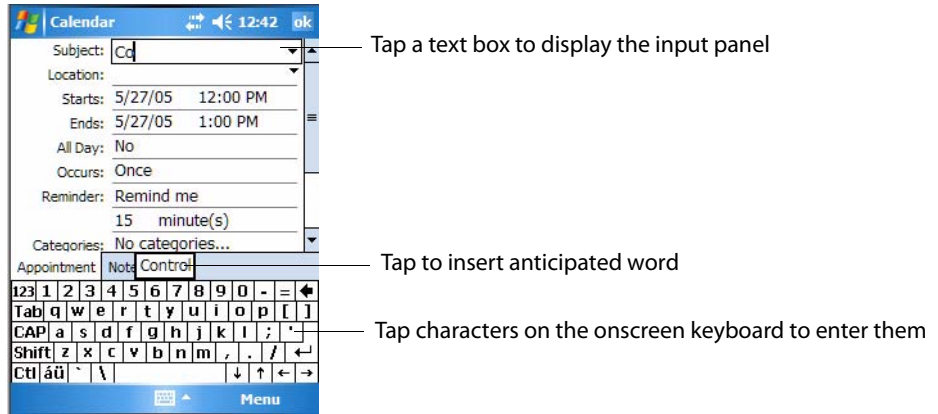
Input

To change word suggestion options, such as the number of words suggested at one time, tap **Start** > **Settings** > the **Personal** tab > **Input** > the **Word Completion** tab.
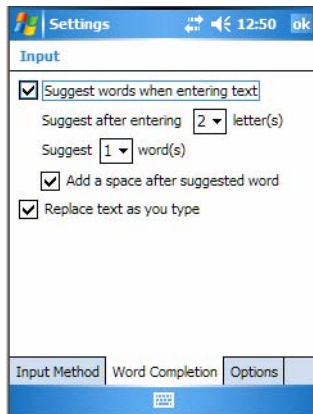
Typing With the Onscreen Keyboard

Tap the input panel arrow, then tap **Keyboard**. On the soft keyboard that is displayed, tap the keys with your stylus.

- To type lowercase letters, tap the keys with the stylus.

- To type a single uppercase letter or symbol, tap the **Shift** key. To tap multiple uppercase letters or symbols, tap the **CAP** key.

- To convert a letter to uppercase, tap and hold the stylus on the letter and drag up.

- To add a space, drag the stylus to the right across at least two keys.

- To backspace one character, drag the stylus to the left across at least two keys.

- To insert a carriage return, tap and hold the stylus anywhere on the keyboard and drag down.

If you want to use larger keys, tap the input panel arrow, tap **Options**, select "Keyboard" from the **Input method** drop-down list, then select **Large keys**.
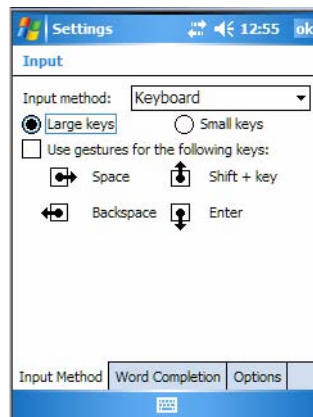
Using Block Recognizer

Character recognition software gives you a fast and easy method for entering information in any program on your CN30 Computer. Letters, numbers, and punctuation you write are translated into typed text.

Tap the input panel arrow, then tap **Block Recognizer**. Write a letter in the box. When you write a letter, it is converted to typed text that appears on the screen.

For specific instructions on using Block Recognizer, with Block Recognizer open, tap the question mark next to the writing area.

Tap for assistance
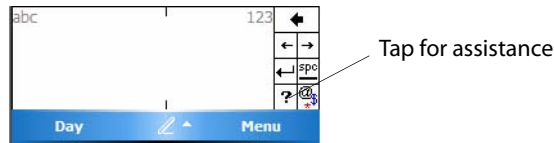
Using Letter Recognizer

With Letter Recognizer, you can write letters using the stylus just as you would on paper.

Tap the input panel arrow, then tap **Letter Recognizer**. Write a letter in the box. When you write a letter, it is converted to typed text that appears on the screen. For specific instructions on using Letter Recognizer, with Letter Recognizer open, tap the question mark next to the writing area.

Tap for assistance
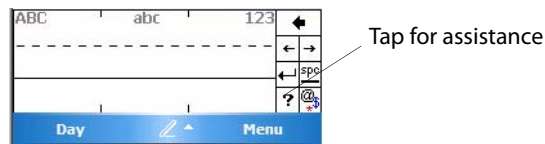
Using Transcriber

With Transcriber, you can write anywhere on the screen using the stylus just as you would on paper. Unlike Letter Recognizer and Block Recognizer, you can write a sentence or more of information. Then, pause and let Transcriber change the written characters to typed characters.

Tap the input panel arrow, then tap **Transcriber**. Tap **ok**, then write anywhere on the screen.

For specific instructions on using Transcriber, with Transcriber open, tap the question mark in the lower, right-hand corner of the screen.

Tap for assistance

Selecting Typed Text

If you want to edit or format typed text, you must select it first. Drag the stylus across the text you want to select.

You can cut, copy, and paste text by tapping and holding the selected words and then tapping an editing command on the pop-up menu, or by tapping the command under **Menu**.

Writing on the Screen

In any program that accepts writing, such as the Notes program, and in the **Notes** tab in Calendar, Contacts, and Tasks, you can use your stylus to write directly on the screen. Write the way you do on paper. You can edit and format what you have written and convert the information to text at a later time. Tap the **Pen** icon to switch to writing mode. This action displays lines on the screen to help you write
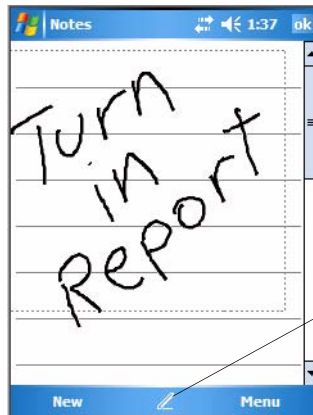
Tap to use your stylus like a pen

Note: Some programs that accept writing may not have the **Pen** icon. See the documentation for that program to find out how to switch to writing mode.

Selecting the Writing

If you want to edit or format writing, you must select it first.

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.

If you accidentally write on the screen, tap **Menu** > **Undo** and try again. You can also select text by tapping the **Pen** icon to deselect it and then dragging the stylus across the screen.

You can cut, copy, and paste written text in the same way you work with typed text: tap and hold the selected words and then tap an editing command on the pop-up menu, or tap the command under **Menu**.

Converting Writing to Text

You can convert words you write in print or cursive to text by tapping **Menu** > **Tools** > **Recognize**. If a word is not recognized, it stays in its original form.

If you want to convert only certain words, tap **Pen** to disable the writing function, tap twice over the word or phrase to highlight, then tap **Menu** > **Tools** > **Recognize**.

Before Recognition   After Recognition
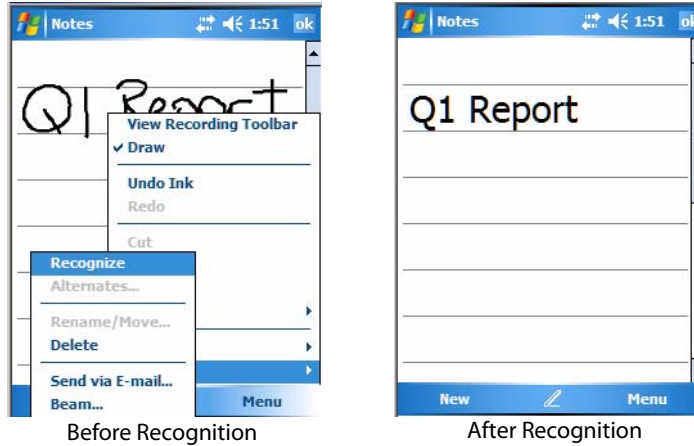
If the conversion is incorrect, you can choose different words from a list of alternates or return to the original writing. To do so, tap and hold the incorrect word (tap one word at a time). On the pop-up menu, tap **Alternates**. Tap the word use from the menu with a list of alternate words, or tap the writing at the top of the menu to return to the original writing.

Tap to return to the original writing

Or tap the word you want to use
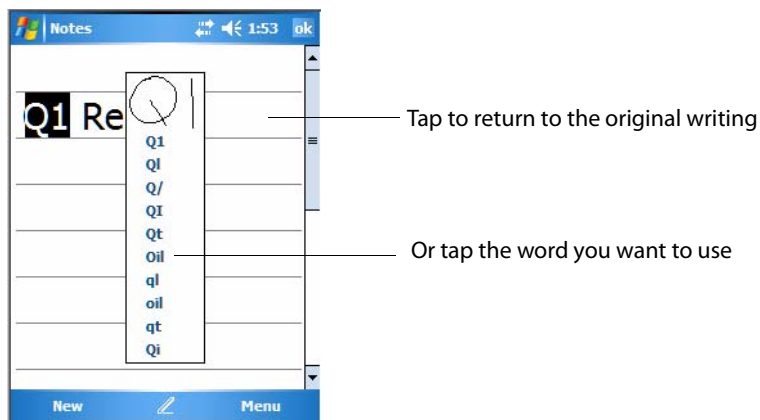
Tips for getting good recognition:

• Write neatly.

• Write on the lines and draw descenders below the line. Write the cross of the "t" and apostrophes below the top line so they are not confused with the word above. Write periods and commas above the baseline.

• For better recognition, try increasing the zoom level to 300% by selecting **Menu** > **Zoom**. Recognition is not good under a 150% zoom.

• Write the letters of a word closely and leave big gaps between words so that the CN30 Computer can easily tell where words begin and end.

• Hyphenated words, foreign words that use special characters such as accents, and some punctuation cannot be converted.

• If you add writing to a word to change it (such as changing a "3" to an "8") after you attempt to recognize the word, the writing you add is not included if you attempt to recognize the writing again.

Drawing on the Screen

You can draw on the screen in the same way that you write on the screen. The difference between writing and drawing on the screen is how you select items and how they are edited. For example, you can resize selected drawings, while you cannot resize writing.

Creating a Drawing

Select **Menu** > **Draw**, then draw a line to initiate a drawing box. Subsequent strokes in or touching the drawing box become part of the drawing.
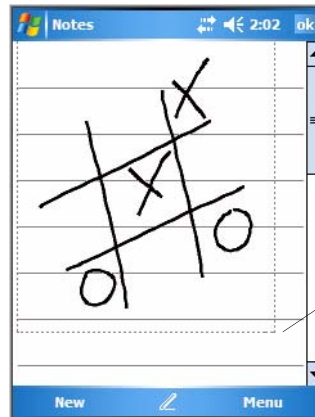
The drawing box indicates the boundaries of the drawing

Note: You may want to change the zoom level so that you can more easily work on or view your drawing. Tap **Menu** > **Zoom**, then select a zoom level.

Selecting a Drawing

If you want to edit or format a drawing, you must select it first. Tap and hold the stylus on the drawing until the selection handle appears. To select multiple drawings, deselect the **Pen** icon and then drag to select the drawings you want.

You can cut, copy, and paste selected drawings by tapping and holding the selected drawing and then tapping an editing command on the pop-up menu, or by tapping the command under **Menu**. To resize a drawing, make sure the **Pen** icon is not selected, and drag a selection handle.

Recording a Message

In any program where you can write or draw on the screen, you can also quickly capture thoughts, reminders, and phone numbers by recording a message.

In the Messaging program, you can add a recording to an e-mail message. In Calendar, Tasks, and Contacts, you can include a recording in the **Notes** tab. In the Notes program, you can create a stand-alone recording or add a recording to an open note.

Tap **Menu** > **View Recording Toolbar** to add the recording toolbar to the bottom of the screen.

1 Hold the CN30 Computer's microphone near your mouth or source of sound.

2 Tap the red circle to start your recording.

3 Tap the black box when finished. If you are recording in an open note, an icon appears in the note, like in the following sample. If you are creating a stand-alone recording, it appears in the note list.

4 To play a recording, tap the recording icon in the open note or tap the recording in the note list.

Note: To quickly create a recording, hold down the Record hardware button. When you hear the beep, begin your recording. Release the button when you are finished. The new recording is stored in the open note or as a stand-alone recording if no note is open.

To play a recording, tap it in the list or tap its icon in the note.
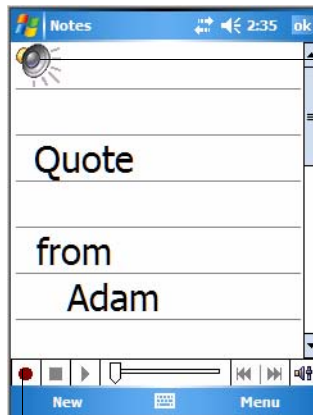
Indicates an embedded recording

Tap to begin recording

Using My Text

When using Messaging, use **My Text** to quickly insert preset or frequently used messages into the text entry area. To insert a message, tap **Menu > My Text**, then select a message.

• To quickly add common messages, tap **Menu > My Text** and tap a desired message.

• To edit a My Text message, tap **Menu > My Text > Edit My Text Messages**. Tap the message you want to edit and enter new text at the bottom of the screen.
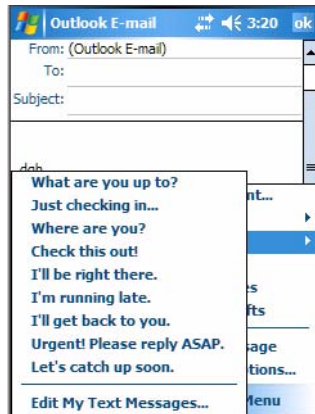
Finding and Organizing Information

You can use the File Explorer to find files on your CN30Computer and to organize these files into folders. Tap **Start > Programs >** the **File Explorer** icon.
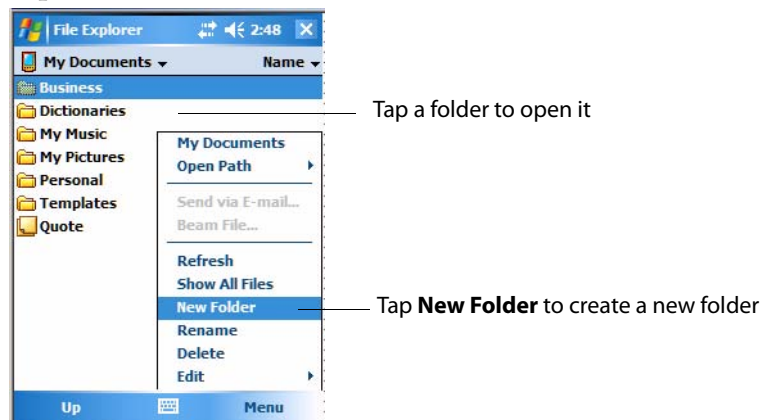
For future use, this is added to your Start menu in the Recent Programs area, via **Start > File Explorer**.

Note: You can move files in File Explorer by tapping and holding the item you want moved, then tapping **Cut** or **Copy** and **Paste** on the pop-up menu.

Customizing Your CN30 Computer

You can customize your CN30 Computer by adjusting settings and installing additional software.

Adjusting Settings

You can adjust settings to suit the way you work. To see available options, tap **Start** > **Settings** > either the **Personal** tab or the **System** tab located at the bottom of the screen. You might want to adjust the following:
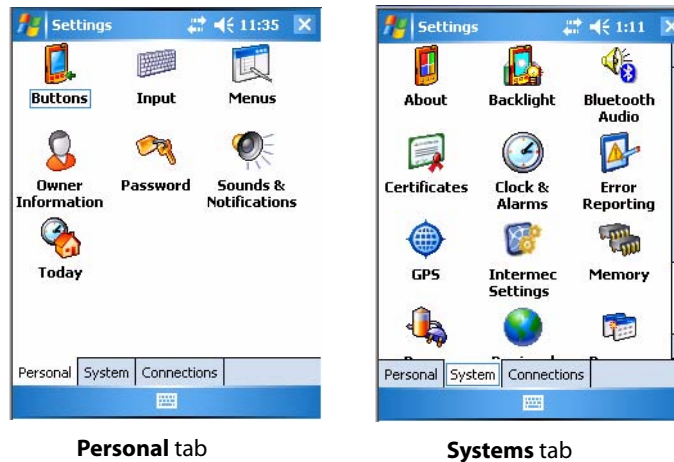
Personal tab   **Systems** tab

Menus	To customize what appears on the **Start** menu.
Owner Information	To enter your contact information.
Password	To limit access to your CN30 Computer.
Today	To customize the look and information displayed on the Today screen.
Clock & Alarms	To change the time or to set alarms.
Power	To maximize battery life.

Adding or Removing Programs

Programs added to your CN30 Computer at the factory are stored in ROM (Read Only Memory). You cannot remove this software, and you cannot accidentally lose ROM contents. ROM programs can be updated using special installation programs with a *.XIP extension. All other programs and data files added to your CN30 Computer after factory installation are stored in RAM (Random Access Memory).

You can install any program created for your CN30 Computer, as long as your CN30 Computer has enough memory. The most popular place to find software for your CN30 Computer is on the Windows Mobile Web site (www.microsoft.com/windowsmobile/resources/communities/default.mspx).

Adding Programs Using ActiveSync

Install the appropriate software for your CN30 Computer on your desktop before installing it on your CN30 Computer.

1 Determine your CN30 Computer and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > the **System** tab > the **About** icon > the **Version** tab, then make a note of the information in **Processor**.
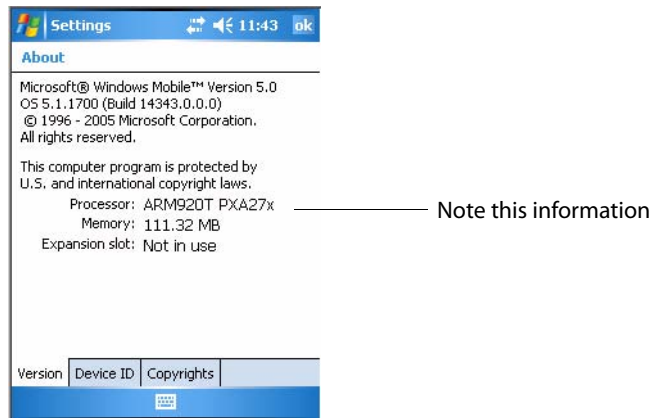
2 Download the program to your desktop (or insert the CD or disk that contains the program into your desktop). You may see a single *.XIP, *.EXE, or *.ZIP file, a SETUP.EXE file, or several versions of files for different CN30 Computer types and processors. Be sure to select the program designed for the Windows Mobile and your CN30 Computer processor type.

3 Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.

4 Connect your CN30 Computer and desktop.

5 Double-click the *.EXE file.

- If the file is an installer, the installation wizard begins. Follow the directions on the screen. Once the software is installed, the installer automatically transfers the software to your CN30 Computer.

- If the file is not an installer, an error message stating that the program is valid but it is designed for a different type of computer is displayed. Move this file to your CN30 Computer. If you cannot find any installation instructions for the program in the Read Me file or documentation, use ActiveSync Explore to copy the program file to the Program Files folder on your CN30 Computer. For more information on copying files using ActiveSync, see *ActiveSync Help*.

Once installation is complete, tap **Start** > **Programs**, and then the program icon to switch to it. For future use, this is added to your Start menu in the Recent Programs area, via **Start** > **File Explorer**.

Adding a Program Directly from the Internet

About

1 Determine your CN30 Computer and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > the **System** tab > the **About** icon > the **Version** tab, then make a note of the information in **Processor**.

Note this information
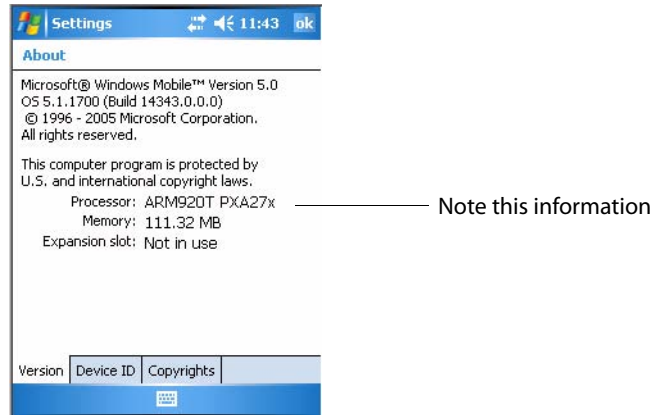
2 Download the program to your CN30 Computer straight from the Internet using Pocket Internet Explorer. You may see a single *.XIP, *.EXE, or *.ZIP file, a SETUP.EXE file, or several versions of files for different CN30 Computer types and processors. Be sure to select the program designed for the Windows Mobile and your CN30 Computer processor type.

3 Read program installation instructions, Read Me files, or other documentation. Many programs provide installation instructions.

4 Tap the file, such as a *.XIP or *.EXE file to start the installation wizard. Follow the directions on the screen.

Adding a Program to the Start Menu

Tap **Start** > **Settings** > the **Personal** tab > the **Menus** icon, then the check box for the program. If you do not see the program listed, you can either use File Explorer on the CN30 Computer to move the program to the **Start Menu** folder, or use ActiveSync on the desktop to create a shortcut to the program and place the shortcut in the **Start Menu** folder.
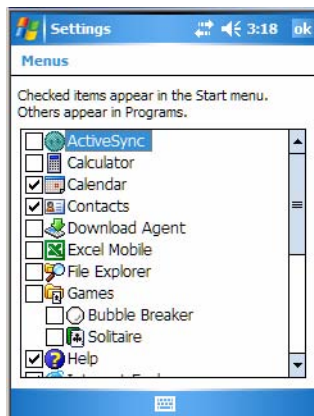
Using File Explorer on the CN30 Computer

Tap **Start** > **Programs** > the **File Explorer** icon, locate the program (tap the folder list, labeled **My Documents** by default, then **My Device** to see a list of all folders on the CN30 Computer). Tap and hold the program and tap **Cut** on the pop-up menu. Open the **Start Menu** folder located in the **Windows** folder, tap and hold a blank area of the window, and tap **Paste** on the pop-up menu. The program now appears on the **Start** menu. For more information on using File Explorer, see "Finding and Organizing Information" on page 42.

For future use, this is added to your Start menu in the Recent Programs area, via **Start** > **File Explorer**.

Using ActiveSync on the desktop

Use the Explorer in ActiveSync to explore your CN30 Computer files and locate the program. Right-click the program, and then click **Create Short-cut**. Move the shortcut to the **Start Menu** folder in the Windows folder. The shortcut now appears on the **Start** menu. For more information, see *ActiveSync Help*.

Removing Programs
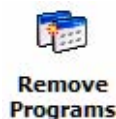
Tap **Start** > **Settings** > the **System** tab > the **Remove Programs** icon.

If the program does not appear in the list of installed programs, use File Explorer on your CN30 Computer to locate the program, tap and hold the program, and then tap **Delete** on the pop-up menu.

Microsoft ActiveSync

Visit the following Microsoft Web site for the latest in updates, technical information, and samples:

www.microsoft.com/windowsmobile/resources/communities/default.mspx

Using Microsoft ActiveSync, you can synchronize the information on your desktop with the information on your CN30 Computer. Synchronization compares the data on your CN30 Computer with your desktop and updates both computers with the most recent information. For example:

- Keep Pocket Outlook data up-to-date by synchronizing your CN30 Computer with Microsoft Outlook data on your desktop.

- Synchronize Microsoft Word and Microsoft Excel files between your CN30 Computer and desktop. Your files are automatically converted to the correct format.

Note: By default, ActiveSync does not automatically synchronize all types of information. Use ActiveSync options to turn synchronization on or off for specific information types.

With ActiveSync, you can also:

- Back up and restore your CN30 Computer data.

- Copy (rather than synchronize) files between your CN30 Computer and desktop.

- Control when synchronization occurs by selecting a synchronization mode. For example, you can synchronize continually while connected to your desktop or only when you choose the synchronize command.

- Select which information types are synchronized and control how much data is synchronized. For example, you can choose how many weeks of past appointments you want synchronized.

Before you begin synchronization, install ActiveSync on your desktop from the *Windows Mobile Companion CD*. For more information on installing ActiveSync, see your Quick Start card. ActiveSync is already installed on your CN30 Computer.

After installation is complete, the ActiveSync Setup Wizard helps you connect your CN30 Computer to your desktop, set up a partnership so you can synchronize information between your CN30 Computer and your desktop, and customize your synchronization settings. Your first synchronization process automatically begins when finished using the wizard.

After your first synchronization, look at Calendar, Contacts, and Tasks on your CN30 Computer. Notice that information you have stored in Microsoft Outlook on your desktop was copied to your CN30 Computer, and you did not have to type a word. Disconnect the CN30 Computer from your computer and you are ready to go!

Once you have set up ActiveSync and completed the first synchroniza-tion process, you can initiate synchronization from your CN30 Com-puter. To switch to ActiveSync on your CN30 Computer, tap **Start** > **Programs** > the **ActiveSync** icon. Note that if you have a wireless LAN card, you can synchronize remotely from your CN30 Com-puter.

For future use, this is added to your Start menu in the Recent Pro-grams area, via **Start** > **ActiveSync**.

For information about using ActiveSync on your desktop, start ActiveSync on your desktop, and then see *ActiveSync Help*.
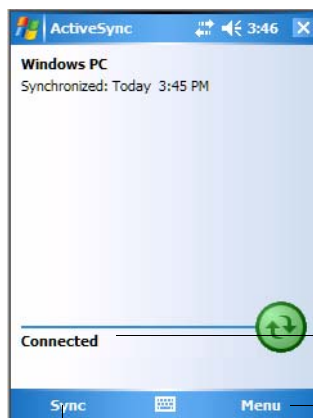
View the connection status

Tap to synchronize via IR or to change synchronization

Tap to connect and synchronize

For more information about ActiveSync on your CN30 Computer, switch to ActiveSync, tap **Start** > **Help**, then select a topic.

Microsoft Pocket Outlook

Microsoft Pocket Outlook includes Calendar, Contacts, Tasks, Messaging, and Notes. You can use these programs individually or together. For exam-ple, you can use e-mail addresses stored in Contacts to address e-mail mes-sages in Messaging.

Using ActiveSync, you can synchronize information in Microsoft Outlook or Microsoft Exchange on your desktop with your CN30 Computer. You can also synchronize this information directly with a Microsoft Exchange server. Each time you synchronize, ActiveSync compares the changes you made on your CN30 Computer and desktop or server and updates both computers with the latest information. For information on using Active-Sync, see *ActiveSync Help* on the desktop.

You can switch to any program by tapping it on the **Start** menu.

Calendar: Scheduling Appointments and Meetings

To switch to Calendar on the CN30 Computer, tap **Start** > **Calendar**.

Calendar

Use Calendar to schedule appointments, including meetings and other events. You can check your appointments in one of several views (Day, Week, Month, Year, and Agenda) and set Calendar to remind you of appointments with a sound or other method.

Appointments for the day can display on the Today screen.

If you use Outlook on your desktop, you can synchronize appointments between your CN30 Computer and desktop.

Tap to go to Today

Tap to display and edit appointment details
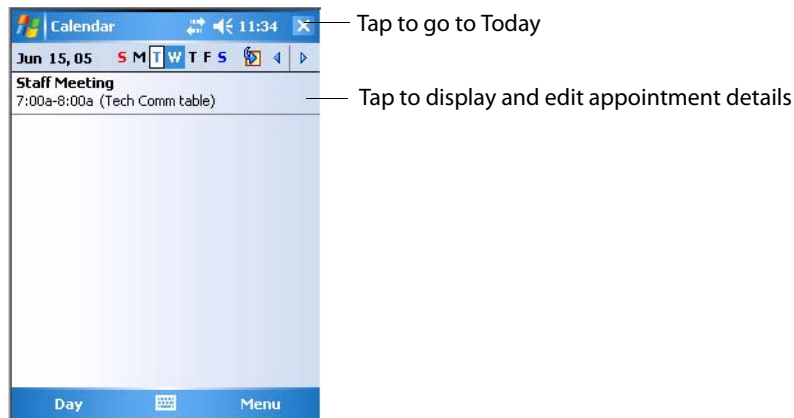
Synchronizing Calendar

Calendar items stored on your CN30 Computer can be synchronized with calendar items on your desktop or Microsoft Exchange Server. (Note that you can only synchronize information directly with an Exchange Server if your company is running Microsoft Mobile Information Server 2002 or later.) Calendar synchronization is automatically selected in ActiveSync.

Calendar items entered on one computer are copied to the other during synchronization. Handwritten notes and drawings are saved as metafiles (pictures).

For information on synchronization, see *ActiveSync Help* on the desktop.

Why Use Categories in the Calendar?

Use categories to group related tasks, contacts, and appointments. Then, use these groupings to quickly display only the information you want. For example, you can easily share your CN30 Computer with another by assigning your appointments to a category with a special project's name. You can then use this category to filter Calendar and only display appointments for that project.

Note: In Month View, the day of an appointment assigned to the Holiday category appears in red.
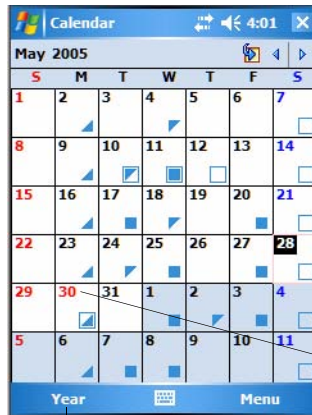
This day was assigned the Holiday category.

Tap to access the Year view

What's an All Day Event?

An appointment can either be a normal appointment or an all day event, which lasts the full day or spans many days. Examples include a trade show, a vacation, or a seminar. You can also use all day events to schedule an annual event, such as a birthday or anniversary. In this case, change the Status box to Free (you may need to scroll to see it) so that it does not show time as busy in your calendar. All day events do not occupy blocks of time in Calendar; they appear in banners at the top of the calendar.

Note: You cannot modify or create all-day events with attendees on the CN30 Computer. If you create all day events with attendees on your desktop, use ActiveSync to copy such events to the CN30 Computer, then view them in Calendar. For more information on copying files, see *ActiveSync Help*. To use the CN30 Computer to schedule an appointment with attendees lasting all day, set type to "Normal," then adjust the date and time appropriately.
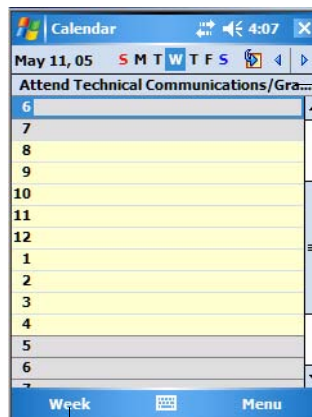
This describes the all-day event

Tap to access the Week view

What's a Recurrence Pattern?

If you have an appointment or task that you do on a regular basis, such as a weekly team meeting or a monthly status report, enter the item once and set a recurrence pattern for it. If the default patterns in the list are not what you need, you can create your own pattern using the wizard.

Select your recurrence pattern from this list

Select <edit pattern> to access the wizard with which to customize your recurrence.
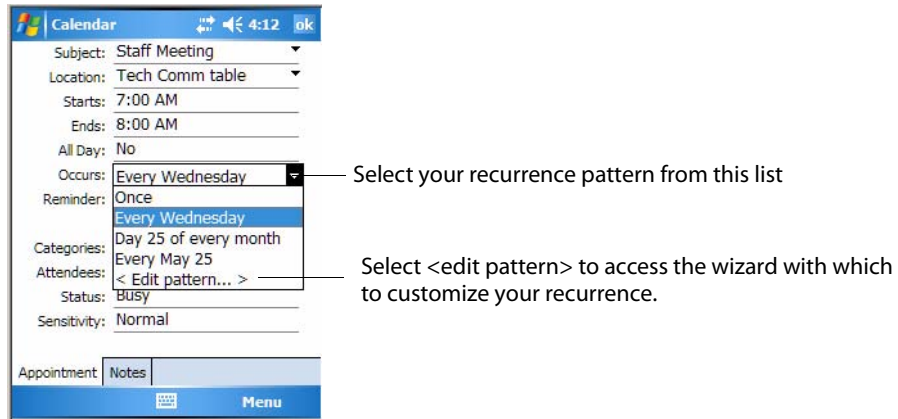
Viewing Appointments

You can view appointments in one of several views (Agenda, Day, Week, Month, and Year). In Agenda view, upcoming appointments are displayed in bold. To see detailed appointment information in any view, tap the appointment. To see a list of available actions for an appointment, tap and hold the appointment. Tap **Start** > **Today** to see appointments for the day.

Month view displays symbols to indicate the types of appointments you have on a given day. An upward triangle indicates a morning appointment; a downward triangle indicates an afternoon appointment. If you have appointments in the morning and afternoon, a solid square is displayed. If you have an all day event not marked Free, a hollow square is displayed.

This displays a morning appointment

This displays appointments in morning and afternoon

This displays an all-day event not marked "Free"

This displays an afternoon appointment

Tap this to access the Year view
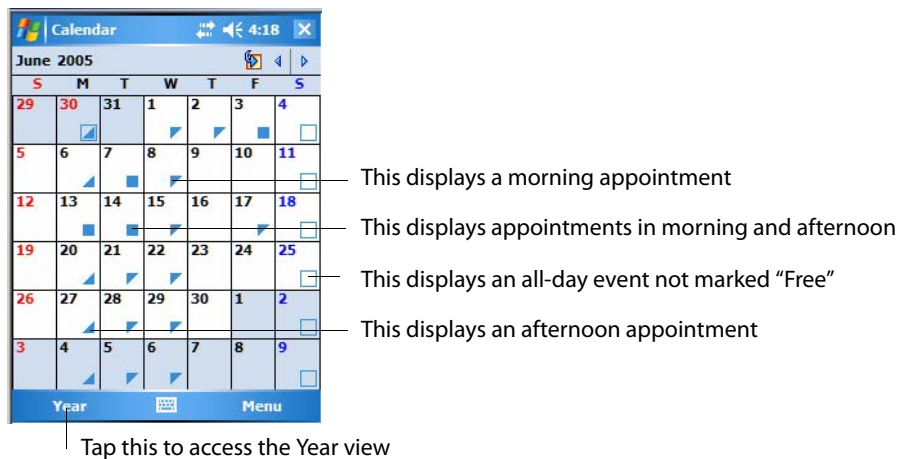
Creating or Changing an Appointment

To create an appointment, tap **Menu** > **New Appointment**. To select a new date from a pop-up calendar, tap the display date. To enter or select a new time, tap the display time. Enter the appointment details, and when finished, tap **ok** to return to the calendar.

If you are working in Day view, tap and hold the time slot for the new appointment, then select **New Appointment** to have the time automatically entered for you.

To change an appointment, tap it in the calendar, and then tap **Edit**. Change any appointment detail by tapping it and entering the new information. Tap the arrows to the right of the description and location boxes to choose from previous entries.

When entering a time, you can type military and abbreviated time forms, such as 2300 (becomes 11:00 PM), 913pm (becomes 9:13 PM), 911 (becomes 9:11 AM), and 9p (becomes 9:00 PM).

	Tap to return to calendar, saved automatically
	Tap to choose from predefined text
	Tap to choose from previous defined locations
	Tap to select a time
	Tap to select a date
	Notes is a good place for maps and directions
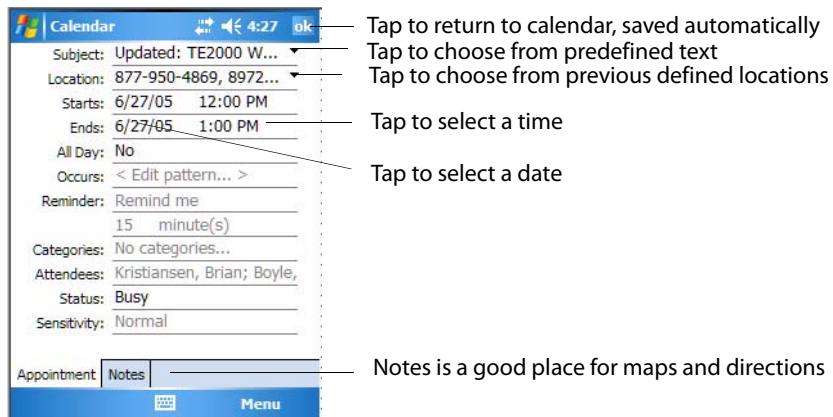
Creating an All-Day Event

To create an all-day event, do the following. To change an all-day event, switch to **Day** or **Agenda**, tap the event listed at the top of the calendar, then tap **Edit**. Change any appointment detail by tapping it and entering the new information.

1 Tap **Menu** > **New Appointment**.

2 Tap **All Day**, then select **Yes**.
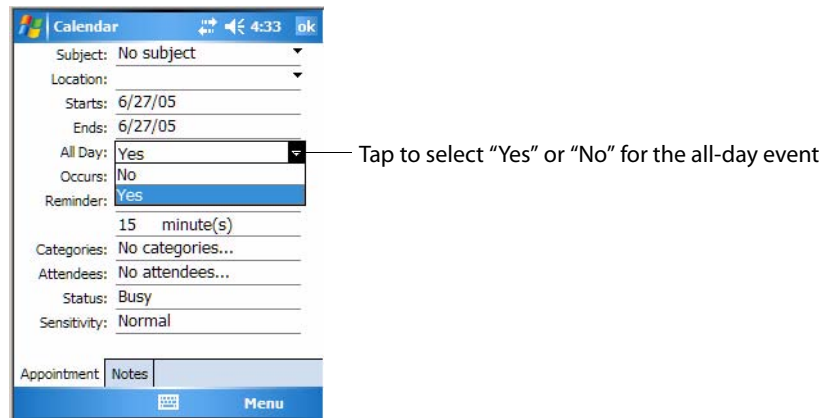
Tap to select "Yes" or "No" for the all-day event

You cannot modify or create all day events with attendees on the CN30 Computer. If you create all-day events with attendees on your desktop, use ActiveSync to copy such events to the CN30 Computer. Then, view them in Calendar. For more information on copying files, see *ActiveSync Help*. To use the CN30 Computer to schedule an appointment with attendees lasting all day, set type to **Normal**, then adjust date and time accordingly.

Setting a Reminder for an Appointment

Do the following to set a reminder for an appointment in the calendar:

1 Tap the appointment, then tap **Edit** to change the appointment.

2 Tap **Reminder** and select **Remind me**.

3 To change how many minutes before the appointment you are reminded, tap the minutes displayed, then select the new minutes from a drop-down or enter the new minutes. Tap **minutes** to change hours, days, or weeks.

Tap this to enable the reminder feature
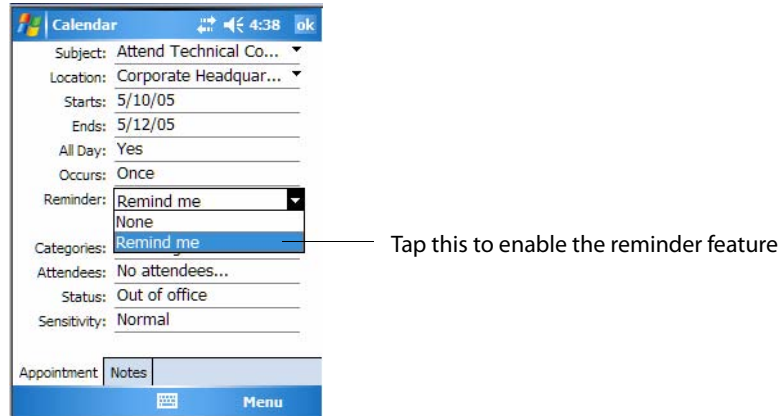
Note: To automatically set a reminder for all new appointments, in the calendar, tap **Menu** > **Options** > the **Appointments** tab, check **Set reminders for new items**, then tap the number and timeframe options to change the information given.

Tap this to set reminders for new appointments
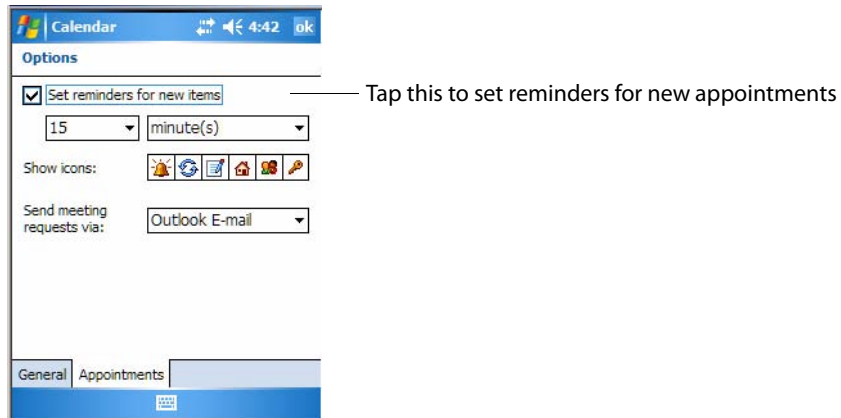
To choose how you are reminded, for example by a sound, tap **Start** > **Settings** > the **Personal** tab > the **Sounds & Notifications** icon.

Sounds & Notifications

Adding a Note to an Appointment

You can add written or typed notes and even recordings (if your CN30 Computer supports recordings) to an appointment. This is a good place for maps, drawings, and other detailed information. *To edit an existing note, tap the appointment in the calendar, tap* **Edit***, then tap the* **Notes** *tab.*

1 In the calendar, tap the appointment, then tap **Edit**.

2 Tap the **Notes** tab to enter notes. For specific instructions, tap **Start > Help**, then select a topic.
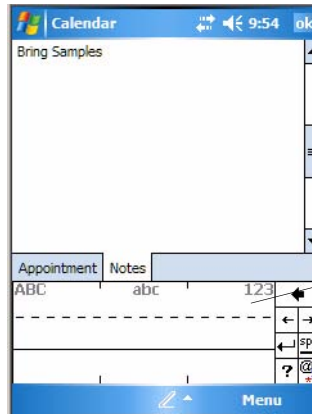
Use your stylus to write or draw information here

Making an Appointment Recurring

Do the following to make a recurring appointment:

1 In the calendar, tap the appointment, then tap **Edit**.

2 Tap **Occurs** and select a pattern from the list. Or, to create a new pattern, tap **<Edit pattern...>**, and follow the steps in the wizard.
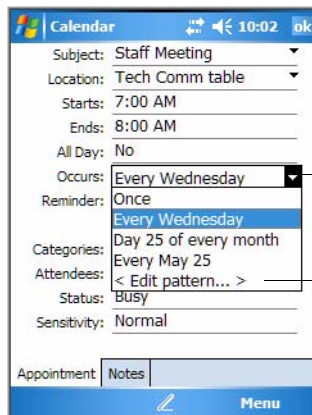
Select your recurrence from the drop-down list

Select <edit pattern> to customize your recurrence

Assigning an Appointment to a Category

To find an appointment assigned to a category, tap **Menu** > **Filter**, then select the type of appointment that you want displayed. To show all appointments again, tap **Menu** > **Filter** > **All Appointments** to clear all categories.

1 In the calendar, tap the appointment, tap **Edit**, then tap **Categories**.

2 Check the categories to which you want to assign the appointment.

3 To create a new category, tap **New**, enter the category name, then tap **Done**. The new category is automatically checked in the list.

4 Tap **ok** to return to the appointment.

A check mark indicates a selected category

Sending a Meeting Request

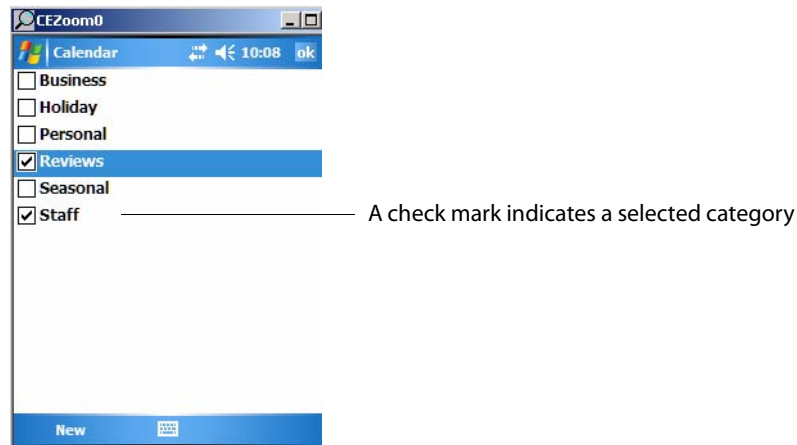Use Calendar to schedule meetings with people who use Outlook or Pocket Outlook. When attendees receive a meeting request, they can accept or decline the meeting. If they accept the request, the meeting is automatically added to their schedule, their response is sent back to you, and your calendar is updated.

Before you can send a meeting request, you must enter e-mail addresses in Contacts Help and set up Messaging to send and receive messages. For more information on sending and receiving meeting requests, open either the Calendar application or the Messaging application, tap **Start** > **Help**, then select a topic.

If you are sending the meeting request through a connection to an ISP or the network, rather than through synchronization with your desktop, tap **Menu** > **Options** > the **Appointments** tab. From the **Send meeting request via** drop-down list, tap the service to use to send the request.

1 Tap to hold a timeslot in the calendar, then tap **New Appointment**.

2 Enter the meeting information, hide the onscreen keyboard, if needed, then tap **Attendees**. Only those contacts with e-mail addresses are displayed. Select the contacts you want to invite, then tap **Add** to return to the list.

3 Repeat this procedure until you have everyone you want to invite to the meeting, then tap **ok**.

4 Messaging automatically creates a meeting request and sends it to the attendees the next time you synchronize with your desktop. Textual notes entered in the **Notes** tab (excluding writing) are also sent.
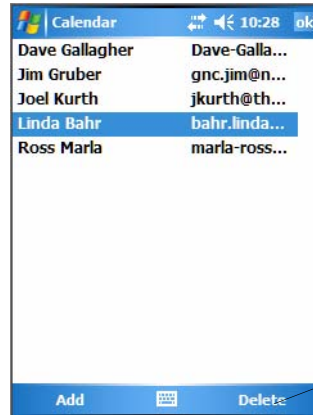
To remove a person, highlight that person, then tap **Delete**

Finding an Appointment

- Tap **Start** > **Programs** > the **Search** icon, enter the appointment name, tap the **Type** arrow and select "Calendar" from the drop-down list, and then tap **Search**. You can tap the **Search for** drop-down arrow to select from a list of previously searched items or phrases.

  Note for future access, this is added to your Start menu in the Recent Programs area, via **Start** > **Search**.

- To find an appointment assigned to a category, tap **Menu** > **Filter**, then select the type of appointment that you want displayed. To show all appointments again, tap **Menu** > **Filter** > **All Appointments** to clear all categories.
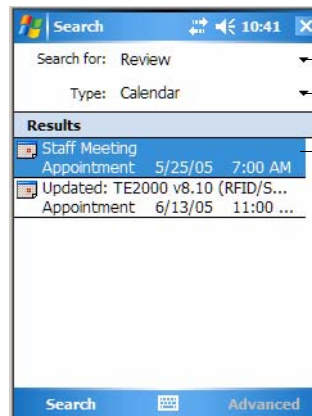
Tap to select or enter a phrase

Tap to select where to search for this phrase

Tap to see details

Deleting an Appointment

1 In the calendar, tap and hold the appointment.

2 On the pop-up menu, tap **Delete Appointment**. The next time you synchronize, the appointment is also deleted from the desktop.

Changing Calendar Options

In the calendar, tap **Menu** > **Options**, tap either tap, make your changes, then tap **ok** to return to the calendar.

- Tap the **General** tab to change the calendar view.
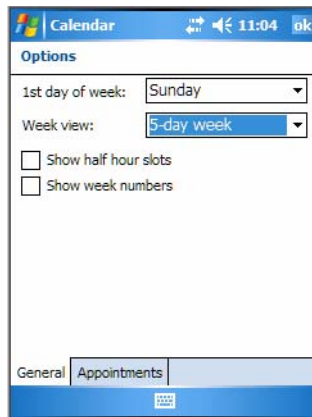
- Tap the **Appointments** tab to select what **Show icons** appointment indicators should appear when you view appointment contents. Tap and hold an icon to see its name. Selected icons are in black.
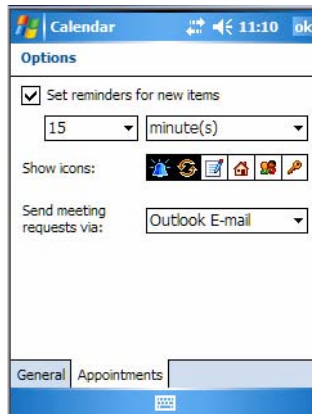
Contacts: Tracking Friends and Colleagues

To switch to Contacts on the CN30 Computer, tap **Start** > **Contacts**.

Contacts maintains a list of your friends and colleagues so that you can easily find the information you are looking for, whether you are at home or on the road. You can enter both personal and business information.

If you use Microsoft Outlook on your desktop, you can synchronize contacts between your CN30 Computer and your desktop.

Tap and enter part of a name to find it in the list

Tap to see additional phone numbers, e-mail addresses

Tap to display and edit contact details

Tap to create a new contact
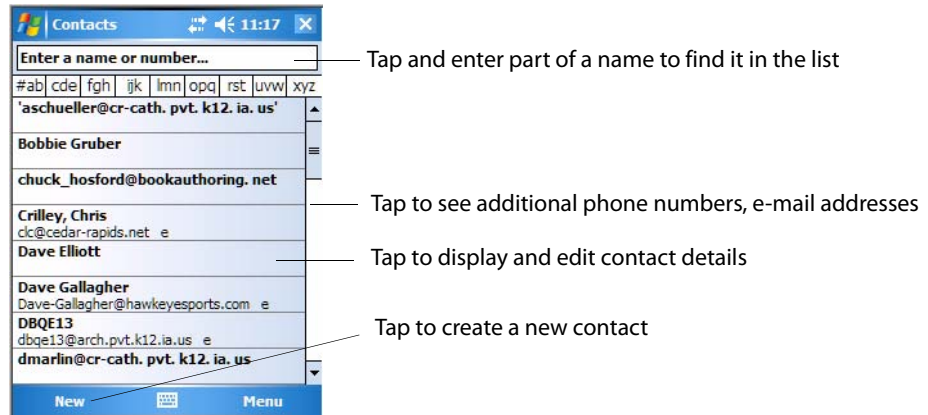
Creating a Contact

1 Tap **New**, then use the input panel to enter a name and other contact information. Scroll down to see all available fields.

2 To assign the contact to a category, scroll to and tap **Categories**, then select a category from the list. In the contact list, you can display contacts by category.

3 To add notes, tap the **Notes** tab. You can enter text or draw. For information on creating notes, see "Notes: Capturing Thoughts and Ideas" on page 66.

4 When finished, tap **ok** to return to the contact list.

Tap to return to the list, entry saved automatically

Scroll to see more fields

Use **Notes** to include maps and directions
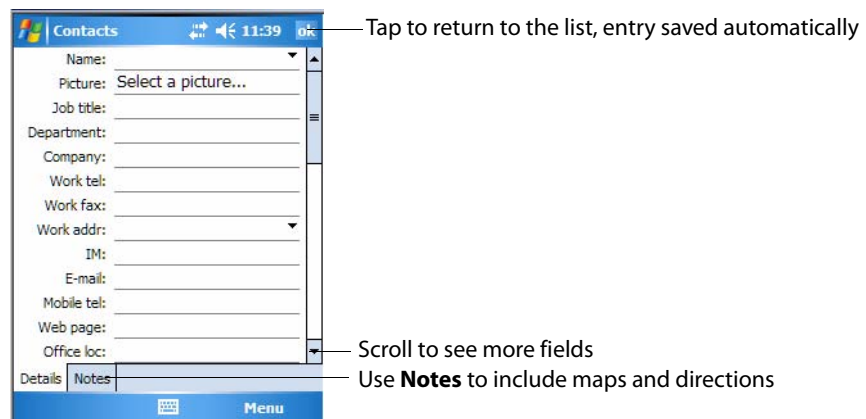
Synchronizing Contacts

Contacts stored on your CN30 Computer can be synchronized with Outlook contacts stored on your desktop or with Mobile Information Server 2002 or later.

New items entered in one location are copied to the other during synchronization. Handwritten notes and drawings are saved as pictures when synchronizing with your desktop, but are removed when synchronizing with a server.

For information on synchronization, see *ActiveSync Help* on the desktop.

Viewing Contacts

The contact list displays the contact name and the first primary phone number or e-mail address specified for that contact. Contacts are ordered by name of contact or company. *You can change the appearance of the Contacts list by tapping* **Menu** *>* **Options.**

- Tap the default letter (**h**ome, **w** ork, **m**obile, or **e**-mail) to the right of the contact to see additional phone numbers and e-mail addresses.

- Use the up/down controls on your keypad to highlight a contact, then press the left/right controls on your keypad to change the default number, displayed as a letter to the right of the contact name. The default number is highlighted in the contact's summary, like the sample below.

- To see more contact information, tap the contact.

- To see a list of available actions for a contact via a pop-up menu, tap and hold the contact.

- To see a list of contacts employed by a specific company, tap **Menu** > **View By** > **Company**. Then, tap the desired company name.

Indicates the default number

Tap to edit the default number
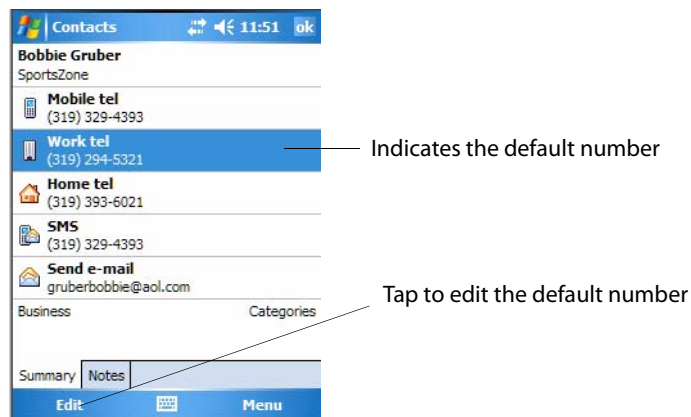
Creating or Changing a Contact

- To create a contact, tap **New**. To enter notes, tap the **Notes** tab. When finished, tap **ok** to return to the contact list. *New contacts are added to the displayed category.*

- To change a contact, tap it in the contact list, and then tap **Menu** > **Edit**. To cancel edits, tap **Menu** > **Undo**. When finished making changes, tap **ok** to return to the contact list.

Note: If you enter a name with more than two words, the middle word is recorded as a middle name. If your contact has a double first or last name, tap the **Name** arrow and enter the names in the proper box.
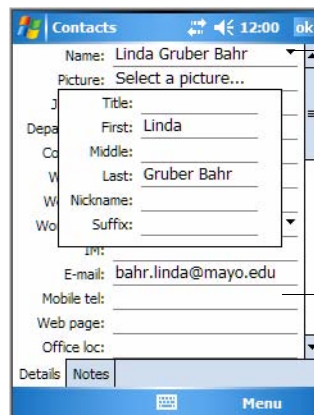
Tap to access the **Name** fields

Tap outside the box to close and return to details

Adding a Note to a Contact

You can add written or typed notes and even recordings (if your CN30 Computer supports recordings) to a contact. Notes are handy for maps and drawings. *To edit an existing note, tap the contact, tap **Menu** > **Edit**, then tap the **Notes** tab.*

1 In the contact list, tap the contact.

2 Tap the **Notes** tab. For instructions, tap **Start** > **Help**, then select a topic.
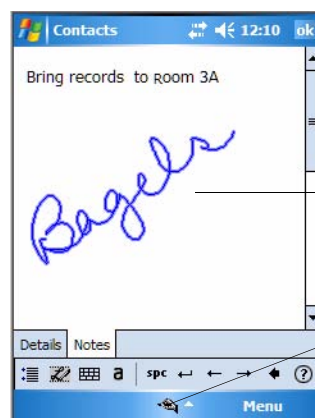
Use your stylus to write or draw your information

Tap to activate the input panel

Assigning a Contact to a Category

1 In the contact list, tap the contact, and then tap **Menu** > **Edit**.

2 Scroll to, tap **Categories**, then check categories to assign to the contact.

3 To create a new category, tap **New**, enter the category name, then tap **Done**. The new category is automatically checked in the list.

4 Tap **ok** to return to the contacts.

A check mark indicates a selected category
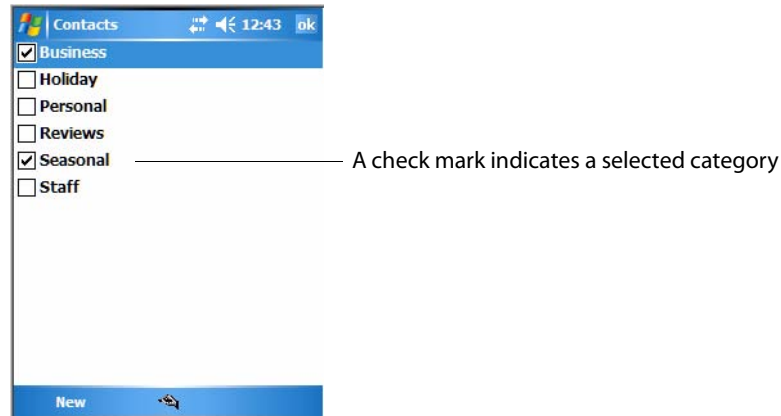
Copying a Contact

Press and hold a contact for a pop-up menu, then select **Copy Contact**; or if a contact is already highlighted, tap **Menu** > **Copy Contact**.

Sending a Message to a Contact

Press and hold a contact for a pop-up menu, then select **Send E-mail** or **Send SMS** depending on the type of message being sent. To send an e-mail message, you must have an e-mail address configured for the contact. To send an SMS (Short Messaging Service) message, you must have an SMS number for the contact, which is usually the mobile phone number.

Finding a Contact

Use any of the following methods to find a contact. To quickly move through a long list of contacts, tap one of the sets of letters displayed at the top to view contact names beginning with those letters.

• Tap **Start** > **Programs** > the **Search** icon, enter the contact name, tap the **Type** arrow and select "Contacts" from the drop-down list, and then tap **Search**. *You can tap the **Search for** drop-down arrow to select from a list of previously searched items or phrases.*

Note for future access, this is added to your Start menu in the Recent Programs area, via **Start** > **Search**.

• From Contacts, start typing a contact name until you see it displayed on the screen. To show all contacts again, tap the text box at the top of the screen and clear the text, or tap the arrow to the right of the text box.

- To find a contact assigned to a category, tap **Menu** > **Filter**, then select the type of contact to display. To show all contacts again, tap **Menu** > **Filter** > **All Contacts** to clear all categories.

- To view the names of companies for which your contacts work, in the contact list, tap **Menu** > **View By** > **Company**. The number of contacts that work for that company is displayed to the right of the company.
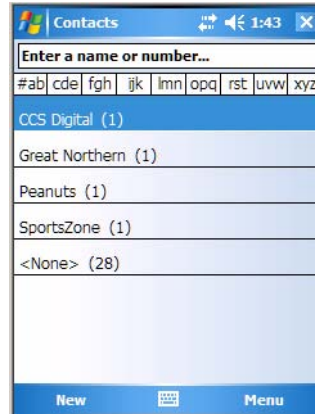
Deleting a Contact

Press and hold a contact for a pop-up menu, select **Delete Contact**, then select **Yes**; or if a contact is already highlighted, tap **Menu** > **Delete Contact**, then select **Yes**.

Changing Contacts Options

In the contact list, tap **Menu** > **Options**, make your changes, then click **ok** to return to the Contacts list.

Tasks: Keeping a To Do List

To switch to Tasks on your CN30 Computer, either tap **Start** > **Programs** > the **Tasks** icon. Note for future access, this is added to your Start menu in the Recent Programs area, via **Start** > **Tasks**.

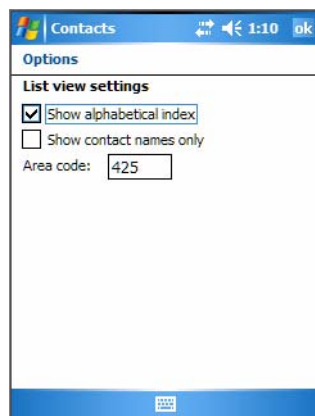Use Tasks to keep track of what you have to do. A variety of task information can display on the Today screen. If you use Microsoft Outlook on your desktop, you can synchronize tasks between your CN30 Computer and desktop. To change the way information is displayed, tap **Menu** > **Options**.

Use this to assign a task quickly
Indicates a high priority
Tap to display or edit details

Tap and hold to display a pop-up menu
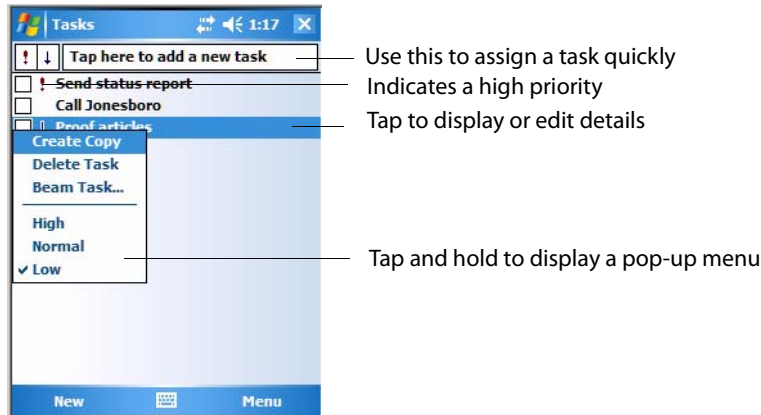
Creating a Task

To quickly create a task with only a subject, tap **Tap here to add a new task** and enter your task information.

- To quickly create a task, enter text in the **Tap here to add a new task** box at the top of the screen. If you do not see this box, tap **Menu** > **Options**, then check **Show Tasks entry bar**.

- To create a task with detailed information, such as start and due dates, tap **New**. To enter notes, tap the **Notes** tab. You can enter a start date and due date or enter other information by first tapping the field. If the input panel is open, you need to hide it to see all available fields. You can enter text or draw. For information on creating notes, see "Notes: Capturing Thoughts and Ideas" on page 66

- To change a task, tap it in the task list, and then tap **Edit**. Using the onscreen keyboard, enter a description. To assign the task to a category, tap **Categories** and check categories from the list. In the task list, you can filter tasks by category. When finished, tap **ok** to return to the task list.
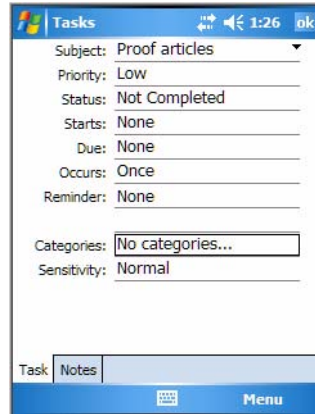
Synchronizing Tasks

Tasks stored on the CN30 Computer can synchronize with Microsoft Outlook on your desktop. Task synchronization is automatic in ActiveSync.

New items entered on one computer are copied to the other during synchronization. Handwritten notes and drawings are saved as metafiles (pictures). For information, see *ActiveSync Help* on the desktop.

Notes: Capturing Thoughts and Ideas

To switch to Notes on your CN30 Computer, tap **Start** > **Programs** > the **Notes** icon. For the future, this is added to the Start menu in the Recent Programs area, via **Start** > **Notes**.

Notes helps you quickly capture your ideas, notes, and thoughts. You can create a note using written and typed text, drawings, and recordings. You can also share your notes with others through e-mail, infrared, and synchronization with your desktop.

To create documents with advanced formatting or templates, such as bulleted lists and tabs, use word processing software developed for your CN30 Computer, such as Word Mobile.

Tap to change the sort order of the list
Tap to open a note or play a recording

Tap and hold to display a pop-up menu

Tap to record
Tap to create a new note
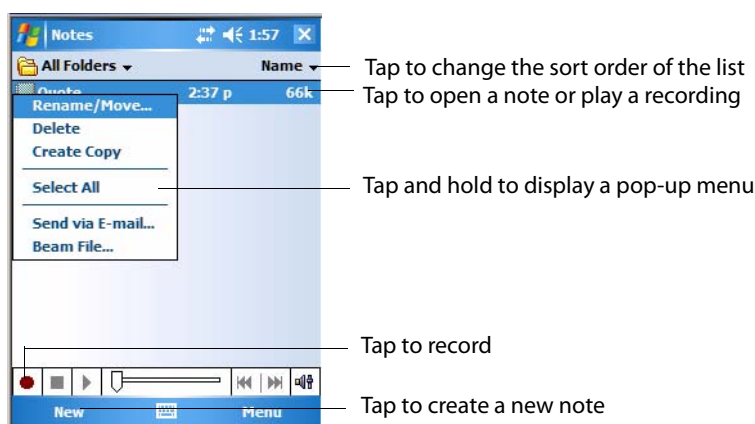
Creating a Note

To create your note, tap **New**, then write, draw, type, or record your information. For information about using the input panel, writing and drawing, and creating recordings, see "Basic Skills" on page 31.

- **Writing**
  Using the stylus, write directly on the screen.

- **Drawing**
  Using the stylus, draw directly on the screen.

- **Typing**
  Using the input panel, enter typed text into the CN30 Computer. Do this by tapping keys on the onscreen keyboard or by using handwriting recognition software.

- **Recording**
  Create a stand-alone recording or embed a recording into a note.

Synchronizing Notes

Notes can synchronize between your desktop and CN30 Computer either through notes synchronization or file synchronization. Notes synchronization synchronizes the notes on your CN30 Computer with Outlook Notes on your desktop. File synchronization synchronizes all notes on the CN30

Computer with the My Documents folder for the CN30 Computer on your desktop.

To synchronize your notes through notes synchronization, first select the Notes information type for synchronization in ActiveSync. The next time you synchronize, all notes in My Documents and its subfolder on your CN30 Computer appear in Outlook Notes on your desktop. Notes that contain only text appear as regular notes in Outlook on your desktop, while notes containing written text or drawings appear in the device format. In addition, all notes in the Notes group in Outlook on the desktop appear in Notes on the CN30 Computer.

To synchronize your notes as files, in ActiveSync, select the Files information type for synchronization and clear the Notes information type. When you select Files, the My Documents folder for the CN30 Computer is created on your desktop. All .PWI files placed in the My Documents folder on your CN30 Computer and all .DOC files placed in the My Documents folder for the CN30 Computer on your desktop are synchronized. Password-protected files cannot be synchronized.

ActiveSync converts documents during synchronization. For information on synchronization or file conversion, see *ActiveSync Help* on the desktop.

Note: When you delete or change an item on either your desktop or the CN30 Computer, the item is changed or deleted in the other location the next time you synchronize.

Note: If you synchronize your notes using file synchronization and then later decide to use notes synchronization, all of your notes are synchronized with Outlook on your desktop and no longer store in the My Documents folder for the CN30 Computer.

Messaging: Sending and Receiving E-mail Messages

To switch to Messaging on your CN30 Computer, tap **Start** > **Messaging**.

You can receive Internet e-mail messages and SMS messages in Messaging. Internet e-mail messages are sent by using an address you receive from your Internet service provider (ISP) or your employer. SMS messages are sent and received through your wireless phone service provider by using a phone number as the message address.

You can send and receive e-mail by synchronizing with your desktop, or by connecting to a Post Office Protocol 3 (POP3) or Internet Message Access Protocol 4 (IMAP4) mail server. You need to set up an e-mail account for each method that you use except for Microsoft ActiveSync, which is set up by default. The ActiveSync folder on your CN30 Computer stores messages that you send and receive through synchronization with a desktop. Account names appear as folders in the folder list (located on the left, under the navigation bar) in the Messaging message list.

With synchronization, messages are synchronized between the CN30 Computer Inbox and the PC Inbox by using ActiveSync and Microsoft Exchange or Microsoft Outlook. For more information, see "Synchronizing E-mail Messages" below.

When connecting to a POP3 or IMAP4 server, you use a modem to connect to your Internet service provider (ISP), or a modem or Ethernet card to connect to the local area network to which your e-mail server is connected. You can also use your phone to connect by using a cellular line connection. For more information, see "Connecting to a Mail Server" on page 69.

Synchronizing E-mail Messages

After selecting Messaging for synchronization in ActiveSync, e-mail messages are synchronized as part of the general synchronization process. During synchronization:

- Messages are copied from the Inbox folder on your desktop or the Microsoft Exchange server to the Inbox folder on your CN30 Computer. (Note that you can only synchronize information directly with an Exchange Server if your company is running Microsoft Mobile Information Server 2002 or later.) By default, you receive messages from the last three days only, the first 100 lines of each new message, and file attachments of less than 100 KB in size.

- Messages in the Outbox folder on your CN30 Computer are transferred to Exchange or Outlook and then sent from those programs.

- The messages on the two computers are linked. When you delete a message on your CN30 Computer, it is deleted from your desktop the next time you synchronize.

- Messages in subfolders in other e-mail folders in Outlook are synchronized only if they were selected for synchronization in ActiveSync.

For information on initiating Messaging synchronization or changing synchronization settings, see *ActiveSync Help* on your desktop or tap **Start** > **Help**, then select a topic.

Managing E-mail Messages and Folders

Each e-mail account and SMS account has its own folder hierarchy with five default folders: Inbox, Outbox, Deleted Items, Drafts, and Sent Items. The messages you receive and send through the mail account are stored in these folders. You can also create additional folders within each hierarchy. The Deleted Items folder contains messages that were deleted on the CN30 Computer. The behavior of the Deleted Items and Sent Items folders depends on the Inbox options you have chosen.

The behavior of the folders you create depends on whether you are using ActiveSync, SMS, POP3, or IMAP4.

- *If you use ActiveSync,* e-mail messages in the Inbox folder in Outlook automatically synchronize with your CN30 Computer. You can select to

synchronize additional folders by designating them for ActiveSync. The folders you create and the messages you move are then mirrored on the server. For example, if you move two messages from the Inbox folder to a folder named Family, and you have designated Family for synchronization, the server creates a copy of the Family folder and copies the messages into that folder. You can then read messages while away from your desktop.

- *If you use SMS,* messages are stored in the Inbox folder.

- *If you use POP3* and you move e-mail messages to a folder you created, the link is broken between the messages on the CN30 Computer and their copies on the mail server. The next time you connect, the mail server sees that the messages are missing from the CN30 Computer Inbox and deletes them from the server. This prevents you from having duplicate copies of a message, but it also means that you no longer have access to messages that you move to folders created from anywhere except the CN30 Computer.

- *If you use IMAP4,* the folders you create and the e-mail messages you move are mirrored on the server. Therefore, messages are available to you anytime you connect to your mail server, whether it is from your CN30 Computer or desktop. This synchronization of folders occurs whenever you connect to your mail server, create new folders, or rename/delete folders when connected.

For all accounts except ActiveSync, you can access folder options by tapping **Menu** > **Tools** > **Manage Folders**.

Connecting to a Mail Server

In addition to synchronizing e-mail messages with your desktop, you can send and receive e-mail messages by connecting to an e-mail server using a modem or network card connected to your CN30 Computer. You need to set up a remote connection to a network or an ISP, and a connection to your e-mail server. For more information, see "Getting Connected" on page 84.

When you connect to the e-mail server, new messages are downloaded to the CN30 Computer Inbox folder, messages in the CN30 Computer Outbox folder are sent, and messages that were deleted on the e-mail server are removed from the CN30 Computer Inbox folder.

Messages that you receive directly from an e-mail server are linked to your e-mail server rather than your desktop. When you delete a message on your CN30 Computer, it is also deleted from the e-mail server the next time you connect based on the settings selected in ActiveSync.

You can work online or offline. When working online, you read and respond to messages while connected to the e-mail server. Messages are sent as soon as you tap **Send**, which saves space on your CN30 Computer.

When working offline, once you have downloaded new message headers or partial messages, you can disconnect from the e-mail server and then decide

which messages to download completely. The next time you connect, Inbox downloads the complete messages you have marked for retrieval and sends the messages you have composed.

Setting Up or Changing an Account

To set up a a POP3 or IMAP4 e-mail account, tap **Menu** > **Tools** > **Options** > **New Account**. Follow the instructions in the New Account Wizard.

To set up an SMS account, tap **Menu** > **Switch Accounts**, and then tap **SMS**. Follow the instructions on the screen.

To change options for an account, tap **Menu** > **Tools** > **Options** > the name of the account, and follow the instructions on the screen.

To delete an account, tap **Menu** > **Tools** > **Options**, tap and hold the name of the account, and then tap **Delete**.

Note: You can set up several e-mail accounts including your ActiveSync account, but you can set up only one SMS account, which you cannot delete once it is set up.

Downloading Messages from the Server

Note that receiving entire messages consumes storage memory. The size column in the message list displays the local size and server size of a message. Even when a message has downloaded fully, these numbers may differ because the size of a message can vary between the server and the CN30 Computer.

1 Tap **Menu** > **Switch Accounts** and ensure that the account you want to use is selected (marked by a bullet.)

2 The messages on your CN30 Computer and e-mail server are synchronized: new messages are downloaded to the CN30 Inbox folder, messages in the CN30 Outbox folder are sent, and messages that were deleted from the server are removed from the CN30 Inbox. Tap a message in the message list to open it.

3 If you read a message and decide that you need the full copy, tap **Menu** > **Download Message** while in the message window. If you are in the message list, tap and hold the message, and then tap **Download Message**. This also downloads message attachments if you selected those options when you set up the e-mail account. You can also choose to download full copies of messages by default.

4 When finished, close Messaging.

Composing and Sending Messages

To compose a message, do the following.

If you are sending an SMS message and want to know if it was received, before sending the message, tap **Menu** > **Message Options** > **Request SMS text message delivery notification**.

Depending on the e-mail address options that you select, you can use a directory service in addition to your contact list to verify names.

1 In the message list, tap **New**.

2 To select an account, tap the **From** list and select "ActiveSync," "SMS," or the desired e-mail account.

3 Enter the e-mail address or SMS address of one or more recipients, separating them with semicolons. To access addresses and phone numbers from Contacts, tap **To**.

4 Enter your message. To quickly add common messages, tap **Menu** > **My Text**, select a desired message.

5 To check spelling, tap **Edit** > **Spell Check**.

6 Tap **Send**. If you are working offline, the message is moved to the Outbox folder and is sent the next time you connect.
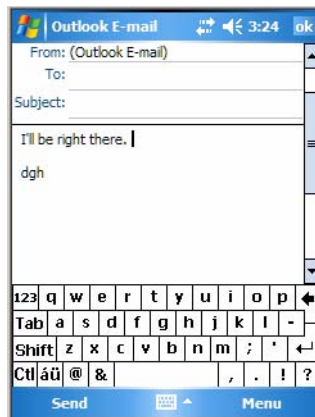
Companion Programs

The companion programs consist of Word Mobile, Excel Mobile, and PowerPoint Mobile, and Windows Media Player. To switch to a companion program on your CN30 Computer, tap **Start** > **Programs**, then tap the program name.

Word Mobile

Word Mobile works with Microsoft Word on your desktop to give you access to copies of your documents. You can create new documents on your CN30 Computer, or you can copy documents from your desktop to your CN30 Computer. Synchronize documents between your desktop and your CN30 Computer to have up-to-date content in both locations.

Unsupported Features in Word Mobile
Word documents created on your PC can be opened and edited on your CN30 Computer. However, Word Mobile does not fully support some features such as revision marks and password protection. Some data and for-

matting may be lost when you save the document on your CN30 Computer. The following features are not supported in Word Mobile:

Backgrounds	These are not displayed or saved by Word Mobile.
Bi-directional text	While Word Mobile will open documents containing bi-directional text, the indentations and alignment may be displayed and saved incorrectly.
Document protection	Word documents can be protected from unauthorized changes by using Protect Document on the PC. Word Mobile does not support displaying files that have been protected in this manner.
Metafiles	These are not retained by Word Mobile; instead, a graphical representation of the object is displayed.
Page borders	Lined page borders are supported; however, artistic page borders are not. The graphics are converted to lined borders.
Password-protected files	Word Mobile does not support opening password-protected documents. You must first remove the password protection in Word on the PC if you want to view the document on the CN30 Computer.
Shapes and text boxes	These are not displayed or saved by Word Mobile.
Smart tags	These are not displayed or saved by Word Mobile.

The following features are partially supported in Word Mobile:

Picture bullets	While regular bullets are supported, picture bullets are not. The picture bullets are not displayed or saved by Word Mobile.
Revision marks	These are not retained. When a document with revision marks is opened in Word Mobile, the document will appear as though all revision marks have been accepted. When the document is saved, revision marks will be lost.
Table styles	Some or all of the formatting defined in the style will be lost when a document is saved by Word Mobile.
Underline styles	Underline styles not supported by Word Mobile are mapped to one of the four supported styles: regular, dotted, wavy, or thick/bold/wide.
Legacy Pocket Word files	You can open *.PSW files in Word Mobile; however, if you edit a file, you will need to save it in *.DOC, *.RTF, *.TXT, or *.DOT formats.

The following features are not supported on the CN30 Computer; how-ever, they are retained in the file so that when a file is opened on the PC again, they appear as expected:

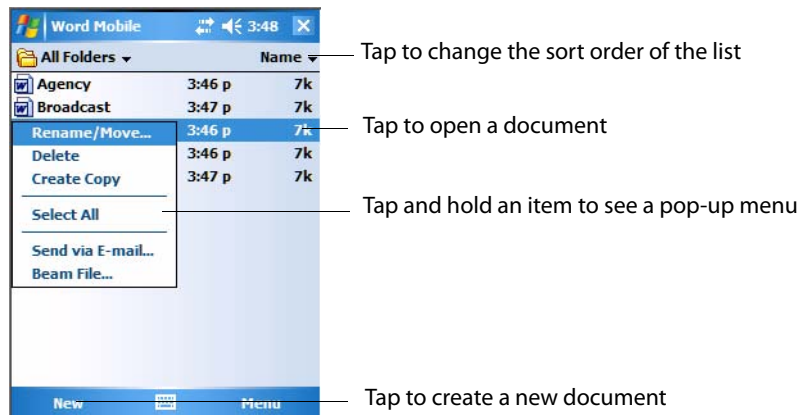|	
Fonts and font sizes	Fonts not supported by the CN30 Computer are mapped to the closest font available, although the original font will be listed on the CN30 Computer. When a document that has been edited in Word Mobile is opened on the PC, text is displayed in the original font.
Footnotes, endnotes, headers, footers	These features are not displayed by Word Mobile, but they are retained when a document is edited and saved on the CN30 Computer.
Lists	Indented lists are not displayed on the CN30 Computer in the same way they are displayed on the PC. They are mapped to the closest indentation level supported by Word Mobile. However, the list information is retained in the document, so when it is opened on a PC again, lists are displayed in their original form.
Page breaks	Word Mobile does not display breaks between pages. However, all page breaks except a break placed at the end of a document are retained in the document.

Creating a Document

Use Word Mobile to create documents, such as letters or meeting minutes. To create a new file, tap **Start** > **Programs** > the **Word Mobile** icon > **New**. You get either a blank document or a template, depending on what you have selected under **Menu** > **Tools** > **Options**.

For future use, this is added to your Start menu in the Recent Programs area, via **Start** > **Word Mobile**.

You can open only one document at a time; when you open a second docu-ment, you have to save the first. You can save a document you create or edit in formats such as Word (.DOC), Pocket Word (.PSW), Rich Text Format (.RTF), and Plain Text (.TXT).

Word Mobile contains a list of files stored on your CN30 Computer. Tap a file in the list to open it. To delete, make copies of, and send files, tap and hold a file in the list, then, select the action on the pop-up menu.

Tap to change the sort order of the list

Tap to open a document

Tap and hold an item to see a pop-up menu

Tap to create a new document

You can enter information in Word Mobile in by typing or writing. Each mode has its own toolbar, which you can show and hide by tapping the **Input Panel** icon in the center of the command bar.

You can change the zoom magnification by tapping **View** > **Zoom**, then select the percentage you want. Select a higher percentage to enter text and a lower one to see more of your document.

If you are opening a Word document created on a desktop, you may select **View** > **Wrap to Window** so that you can see the entire document.

To check spelling, select text, then tap **Menu** > **Tools** > **Spelling**. To use new documents as templates, move the documents to the Templates folder.

You can insert the data in a document. Tap and hold anywhere on the document, then tap **Insert Date** from the pop-up menu.

Typing Mode

Using the input panel, enter typed text into the document. For more information on entering typed text, see "Basic Skills" on page 31.

To format existing text and to edit text, first select the text. You can select text as you do in a Word document, using your stylus instead of the mouse to drag through the text you want to select. You can search a document to find text by tapping **Menu** > **Edit** > **Find/Replace**.

Tap to return to the document list
Tap and hold to see a pop-up menu

Tap to format text
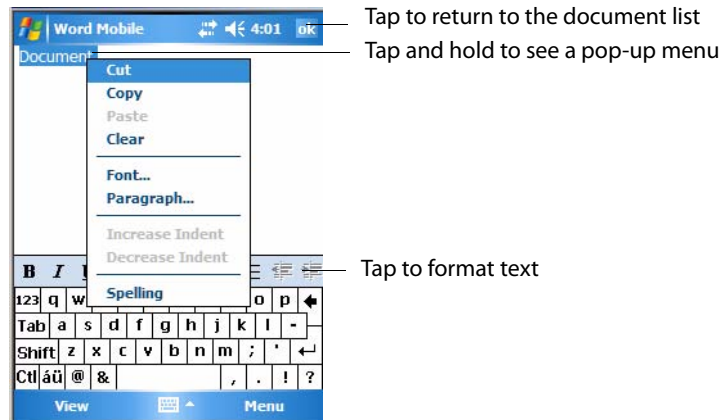
Writing Mode

In writing mode, use your stylus to write directly on the screen. Ruled lines are displayed as a guide, and the zoom magnification is greater than in typing mode to allow you to write more easily. For more information on writing and selecting writing, see "Basic Skills" on page 31.

Written words are converted to graphics (metafiles) when a Pocket Word document is converted to a Word document on your desktop.
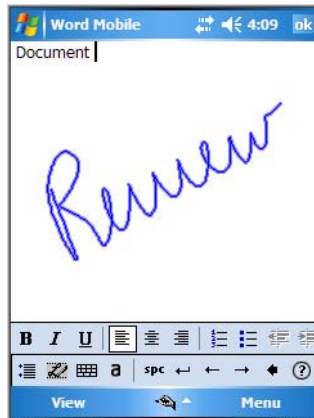
Synchronizing Word Mobile Documents

Word Mobile documents can be synchronized with Word documents on your desktop. To synchronize files, first select the Files information type for synchronization in ActiveSync. When you select Files, the My Documents folder for the CN30 Computer is created on your desktop. Place all files you want to synchronize with the CN30 Computer in this folder. Password-protected files cannot be synchronized.

All Word Mobile files stored in My Documents and its subfolders are synchronized with the desktop. ActiveSync converts documents during synchronization.

For more information on synchronization or file conversion, see *ActiveSync Help* on the desktop.

When you delete a file on either your desktop or your CN30 Computer, the file is deleted in the other location the next time you synchronize.

Excel Mobile

You can create and edit workbooks and templates in Excel Mobile as you do in Microsoft Excel on your desktop. Excel Mobile workbooks are usually saved as .PXL files, but you can also save them in .XLS format.

When you close a workbook, it is automatically named and placed in the Excel Mobile workbook list.

Unsupported Features in Excel Mobile

Excel workbooks created on your PC can be opened and edited on your CN30 Computer. However, Excel Mobile does not fully support some features such as formulas and cell comments. Some data and formatting may be lost when you save the workbook on your CN30 Computer. Note the following regarding these Excel Mobile formatting considerations:

|	
Alignment	Horizontal, vertical and wrap text attributes remain the same, but vertical text appears horizontal.
Borders	Appear as a single line.
Cell patterns	Patterns applied to cells are removed.
Fonts and font sizes	Fonts not supported by your device are mapped to the closest font available. The original font is listed on your CN30 Computer. When the workbook is opened in Excel on your PC again, the data is displayed in the original font.
Number formats	Numbers formatted using the Microsoft Excel 97 conditional formatting feature are displayed in Number format.
Formulas and functions	If an Excel file contains a function that is not supported by Excel Mobile, the function is removed, and only the returned value of the function appears. The following formulas are also converted to values: formulas entered as an array or containing an array argument, for example, =SUM({1;2;3;4}); formulas containing external link references or an intersection range reference; and formulas containing references past row 16384 are replaced with #REF!
Protection settings	Most worksheet and workbook protection features are disabled but not removed. However, support for password protection has been removed. Workbooks that are password-protected or workbooks in which one or more worksheets are password-protected cannot be opened. You must remove the password protection in Excel on the PC and then synchronize to open the file on the CN30 Computer.
Zoom settings	Are not retained. Excel supports a per worksheet zoom setting, while the Excel Mobile zoom setting is applied to the entire workbook.
Worksheet names	Names that reference worksheets within the same workbook are displayed accurately, but names that refer to other workbooks, arrays, for example, \{1;2;3;4}, array formulas, or intersection ranges are removed from the name list. If a name is removed from the list, it is left in formulas and functions, causing those formulas to be resolved as "#NAME?" All hidden names are not hidden.
AutoFilter settings	Are removed. However, you can use the **AutoFilter** command in Excel Mobile to perform similar functions. If you have an AutoFilter applied to a worksheet that causes rows to be hidden, the rows remain hidden when the file is opened in Excel Mobile. Use the **Unhide** command to display the hidden rows.
Chart formatting	All charts will be saved the way they are shown in Excel Mobile. Unsupported chart types are changed to one of these supported types: Column, Bar, Line, Pie, Scatter, and Area. Background colors, gridlines, data babels, trend lines, shadows, 3D effects, secondary axes, and logarithmic scales are turned off.
Worksheet features	The following features are not supported in Excel Mobile and are removed or modified when a workbook is opened on the CN30 Computer: VBA modules, macro sheets, and dialog sheets are removed and replaced with a place holder sheet; text boxes, drawing objects, pictures, lists, conditional formats, and controls are removed; pivot table data is converted to values.

Creating a Workbook

Use Excel Mobile to create workbooks, such as expense reports and mileage logs. To create a new file, tap **Start** > **Programs** > the **Excel Mobile** icon > **New** to access a blank workbook. Or, if you have selected a template for new workbooks under the **Menu** > **Tools** > **Options**, that template appears with appropriate text and formatting already provided.

For future use, this is added to your Start menu in the Recent Programs area, via **Start** > **Excel Mobile**.

You can open only one workbook at a time; when you open a second workbook, save the first. You can save a workbook you create or edit in a variety of formats, including Pocket Excel (.PXL) and Excel (.XLS). You can also save a workbook as a template by moving the workbook to the Templates folder.

Excel Mobile contains a list of the files stored on your CN30 Computer. Tap a file in the list to open it. To delete, make copies of, and send files, tap and hold a file in the list. Then select the appropriate action from the pop-up menu.

Excel Mobile provides fundamental spreadsheet tools, such as formulas, functions, sorting, and filtering. To display the toolbar, tap **View** > **Toolbar**.
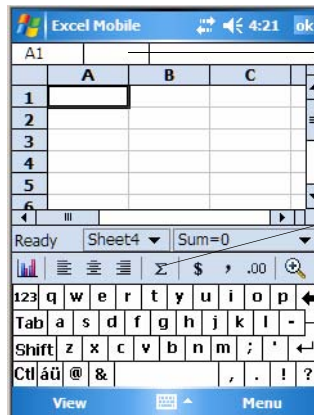
Cell contents appear here as you enter them

Autosum icon

Tips for Working in Excel Mobile
Note the following when working in large worksheets in Excel Mobile:

• View in full-screen mode to see as much of your worksheet as possible. Tap **View** > **Full Screen**. To exit full-screen mode, tap **View** > **Full Screen**.

• Tap **View** > **Zoom** and select a percentage so that you can easily read the worksheet.

• Show and hide window elements. Tap **View** > **Show**, then tap the elements you want to show or hide.

- Freeze panes on a worksheet. First select the cell where you want to freeze panes. Tap **View** > **Freeze Panes**. You might want to freeze the top and leftmost panes in a worksheet to keep row and column labels visible as you scroll through a sheet. Tap **View** > **Unfreeze Panes** to undo this process.

- Split panes to view different areas of a large worksheet. Tap **View** > **Split**. Then drag the split bar to where you want it. To remove the split, tap **View** > **Remove Split**.

For more information on using Excel Mobile, tap **Start** > **Help**, then select a topic.

PowerPoint Mobile

With PowerPoint Mobile on your CN30 Computer, you can open and view slide show presentations created on your PC. Whether the presentation is opened from an e-mail message, downloaded from a file share or the Internet, copied to the CN30 Computer via a storage card, or obtained by synchronizing with your PC, slide shows created in *.PPT and *.PPS format with PowerPoint 97 and later can be viewed on your CN30 Computer.

Many presentation elements built into the slide shows such as slide transitions and animations will play back on the device. If the presentation is set up as a timed slide show, one slide will advance to the next automatically. Links to URLs are also supported.

Unsupported Features in PowerPoint Mobile

PowerPoint features not supported on the CN30 Computer include:

Notes	Notes written for slides will not be visible.
Rearranging or editing slides	PowerPoint Mobile is a viewer only.
File formats	Files created in *.PPT format earlier than PowerPoint 97 and HTML files in *.HTM and *.MHT formats are not supported.

For more information on PowerPoint Mobile while you are in this application, tap **Start** > **Help**, then select a topic.

Starting a Slide Show Presentation

1 To start a slide show presentation, tap **Start** > **Programs** > the **Power-Point Mobile** icon. For future use, this is added to your Start menu in the Recent Programs area, via **Start** > **PowerPoint Mobile**.

2 In the presentation list, tap the slide show you want to view.
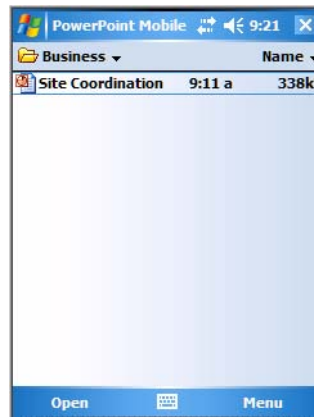
3 Tap the current slide to advance to the next slide. If the presentation is set up as a timed slide show, slides will advance automatically.

4 To view a PowerPoint Mobile presentation in portrait, or right-handed or left-handed landscape orientations, tap the slide icon *(in the bottom, left corner of the following illustration)* for a pop-up menu.

5 Tap **Show Options** > the **Orientation** tab, then select an orientation.

6 Tap **Default** to view the presentation in the orientation that best fits the size and shape of the screen.
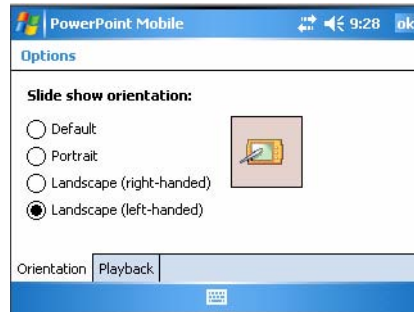
Windows Media Player for Windows Mobile

Use Microsoft Windows Media for Windows Mobile to play digital audio and video files that are stored on your CN30 Computer or on a network.

To switch to Windows Media on your CN30 Computer, tap **Start > Windows Media**.

Use Microsoft Windows Media Player on your desktop to copy digital audio and video files to your CN30 Computer. You can play Windows Media and MP3 files on your Windows Mobile.

Indicates the progress of the current track

Tap to adjust the volume

Tap to skip to the next song

Tap to play or pause

Tap to play the previous song

Tap to download from the Internet
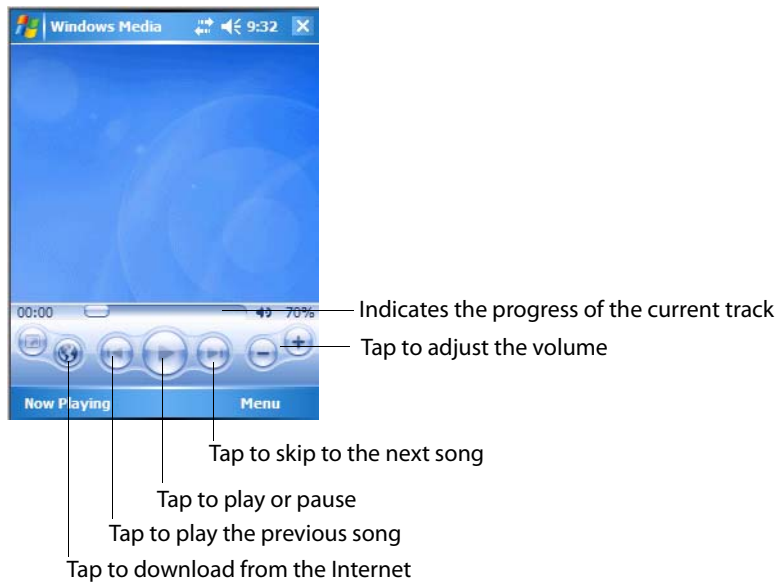
For more information about using Windows Media, tap **Start > Help**, then select a topic.

Internet Explorer Mobile

Use Internet Explorer Mobile to view Web or WAP pages in either of these ways:

- During synchronization with your desktop, download your favorite links and mobile favorites that are stored in the Mobile Favorites subfolder in Internet Explorer on the desktop.

- Connect to an ISP or network and browse the Web. To do this, create the connection first, as described in "Getting Connected" on page 84.

When connected to an ISP or network, you can also download files and programs from the Internet or intranet.

To switch to Internet Explorer Mobile on your CN30 Computer, tap **Start** > **Internet Explorer**.

Mobile Favorites

Only items stored in the Mobile Favorites subfolder in the Favorites folder in Internet Explorer on your desktop are synchronized with your CN30 Computer. This folder was created automatically when you installed ActiveSync.

Favorite Links

During synchronization, the list of favorite links in the Mobile Favorites folder on your desktop is synchronized with Internet Explorer Mobile on your CN30 Computer. Both computers are updated with changes made to either list each time you synchronize. Unless you mark the favorite link as a mobile favorite, only the link is downloaded to your CN30 Computer. Connect to your ISP or network to view the content.

1 In ActiveSync on your desktop, click **Tools** > **Options**, and select "Favorites" from the Windows PC list. For more information on using ActiveSync, see *ActiveSync Help* on the desktop.

2 In Internet Explorer on your desktop, save or move favorite links to the Mobile Favorites subfolder in the Favorites list via **Favorites** > **Organize Favorites**. For more information on using Internet Explorer, see *Internet Explorer Help* on the desktop.

3 Connect your CN30 Computer to your desktop. If synchronization does not start automatically, in ActiveSync on your desktop, click **Sync**.

Mobile Favorites

If you are using Microsoft Internet Explorer 5.0 or later on your desktop, you can download mobile favorites to your CN30 Computer. Synchronizing mobile favorites downloads Web content to your CN30 Computer so that you can view pages while you are disconnected from your ISP and desktop.

Use the Internet Explorer plug-in installed with ActiveSync to create mobile favorites quickly. To create a mobile favorite:

1 In ActiveSync on your desktop, click **Tools** > **Options**, and select "Favorites" from the Windows PC list. For more information on using ActiveSync, see *ActiveSync Help* on the desktop.

2 In Internet Explorer 5.0 or greater on your desktop, browse to the page you want to view offline, then click **Tools** > **Create Mobile Favorite**.

3 To change the link name, enter a new name in the **Name** box.

4 In the **Update** box, select a desired update schedule to keep the page in the Mobile Favorites folder up to date. You can also update content by clicking **Tools** > **Synchronize** in Internet Explorer.

5 To save the link in a subfolder of Mobile Favorites, click **Create In** and select the desired subfolder.

6 Click **OK**. Internet Explorer downloads the latest version of the page to your desktop.

7 To download the pages that are linked to the mobile favorite you just created, in Internet Explorer on the desktop, right-click the mobile favorite, then click **Properties**. On the **Download** tab, specify the number of links deep you want to download. *To conserve CN30 Computer memory, go only one level deep.*

8 Connect your CN30 Computer to your desktop. If synchronization between your CN30 Computer and desktop does not start, in ActiveSync on your desktop, click **Sync**.

Mobile favorites take up storage memory on your CN30 Computer. To minimize the amount of memory used:

• In the settings for the Favorites information, type in ActiveSync options, turn off pictures and sounds, or stop some mobile favorites from being downloaded to the CN30 Computer. For more information, see *ActiveSync Help*.

• Limit the number of downloaded linked pages. In Internet Explorer on the desktop, right-click the mobile favorite you want to change and then **Properties**. In the **Download** tab, specify "0" or "1" for the number of linked pages you want to download.

Using Internet Explorer Mobile

You can use Internet Explorer Mobile to browse mobile favorites and channels that were downloaded to your CN30 Computer without connecting to the Internet. You can also connect to the Internet through an ISP or a network connection and browse the Web.

Viewing Mobile Favorites and Channels

1 Tap **Favorites**, or **Menu** > **Favorites** to display your list of favorites.

2 Tap the page you want to view.

Tap the favorite you want to view

Tap to add or remove a folder or link
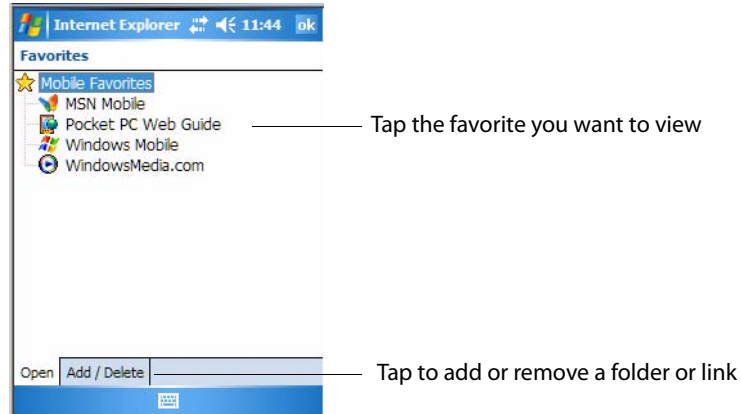
3 The page that was downloaded the last time you synchronized with your desktop opens. If the page is not on your CN30 Computer, the favorite is dimmed. Synchronize with your desktop again to download the page to your CN30 Computer, or connect to the Internet to view the page.

Browsing the Internet

1 Set up a connection to your ISP or corporate network using Connections, as described in "Getting Connected" on page 84.

2 To connect and start browsing, do one of the following:

- Tap **Favorites**, or **Menu** > **Favorites**, and then tap the favorite you want to view.

- In the address bar that appears at the top of the screen, enter the Web address you want to visit and then tap **Enter**. Tap the arrow to choose from previously entered addresses.

- To add a favorite link while using the CN30 Computer, go to the page you want to add, tap and hold on the page, and tap **Add to Favorites**.

Getting Connected

You can set up connections to the Internet and corporate network at work to do such activities as browsing the Internet or intranet, sending and receiving e-mail, and synchronizing information using ActiveSync.

Connections can be made using a modem, wireless network, or Ethernet. You can use a modem connection to set up connections with an external modem.

Your CN30 Computer has two groups of connection settings: My ISP and My Work Network. Use My ISP settings to connect to the Internet. Use My Work Network settings to connect to any private network, such as a corporate network used at work.

- My ISP: Once connected, you can send and receive e-mail messages by using Messaging and view Web or WAP pages by using Internet Explorer Mobile. The communication software for creating an ISP connection is already installed on your CN30 Computer. Your service provider provides the software needed to install other services, such as paging and fax services. If this is the method you want to use, see "Connecting to an Internet Service Provider" on page 85.

- My Work Network: Connect to the network at your company or organization where you work. Once connected, you can send and receive e-mail messages by using Messaging, view Web or WAP pages by using Internet Explorer Mobile, and synchronize with your desktop. If this is the method you want to use, see "Connecting to Work" on page 87.

Connecting to an Internet Service Provider

You can connect to your ISP, and use the connection to send and receive e–mail messages and view Web or WAP pages. You can connect to your ISP via a modem connection.

Get an ISP dial-up access telephone number, a user name, and a password from your ISP.

If you do not have a modem dock, use a NULL modem cable and appropriate adapters to connect an external modem to your CN30 Computer through the serial port.

To view additional information for any screen in the wizard or while changing settings, tap the **Help** icon.

1 Tap **Start** > **Settings** > the **Connections** icon. In **My ISP**, tap **Add a new modem connection**.
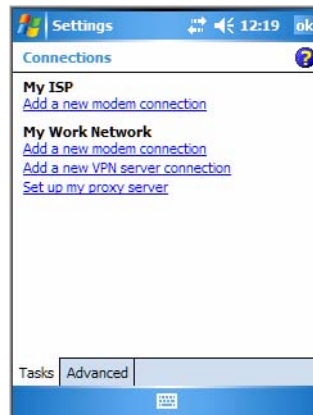
2 Enter a name for the connection, such as "ISP Connection." In the **Select a modem** list, select your modem type. If your modem type does not appear, try reinserting the CN30 Computer into your modem dock. If you are using an external modem that is connected to your CN30 Computer with a cable, select "Hayes Compatible on COM1." Tap **Next** to continue.
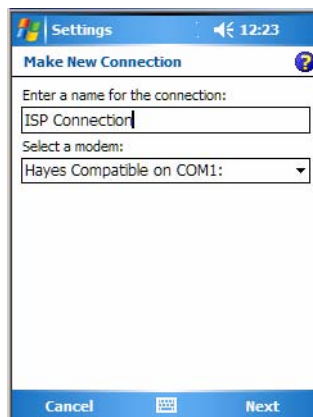
3 Enter the access phone number, then tap **Next**. For more information, tap **use dialing rules**.
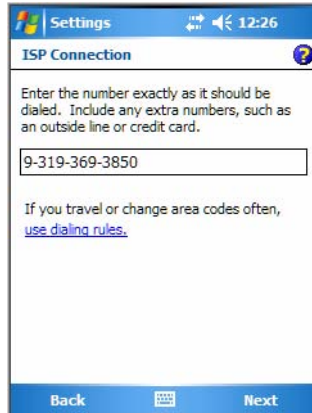
4 Enter the user name, password, and domain (if provided by an ISP or your network administrator), then tap **Finish**.
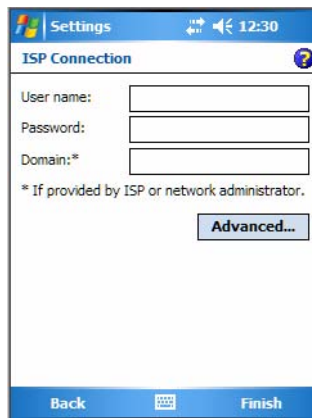
5 Tap the **Advanced** tab from the Connections screen, then tap **Dialing Rules** to specify your current location. These settings apply to all connections. Tap **Use dialing rules**, tap **OK**, then tap **Edit** to continue.

6 Specify your current phone type. If your phone type is pulse dialing, check **Pulse dialing**. If your type is tone dialing (as most phone lines are), then clear **Pulse dialing**. Continue to tap **ok** to close each page and return to the Settings page.
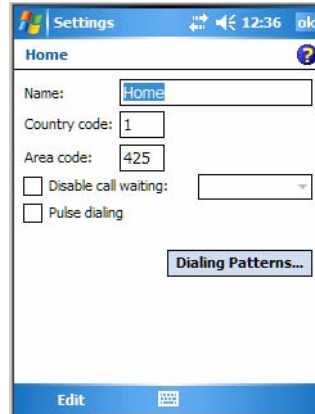
To start the connection, start using one of the following programs. Once connected, you can:

- Send and receive e-mail messages by using Messaging. Before you can use Messaging, you need to provide the information it needs to communicate with the e-mail server. For specific instructions, see "Connecting Directly to an E-mail Server" on page 92.

- Visit Web and WAP pages by using Internet Explorer Mobile. For more information, see "Internet Explorer Mobile" on page 81.

Note: To change modem connection settings in My ISP, tap **Manage existing connections**. Select the desired modem connection, tap **Settings**, then follow the instructions on the screen.

Connecting to Work

If you have access to a network at work, you can send e-mail messages, view intranet pages, synchronize your CN30 Computer, and possibly access the Internet. You can connect to work in one of two ways:

- Create a modem connection by using a RAS (Remote Access Server) account. Before you can create this modem connection, your network administrator needs to set up a RAS account for you. Your network administrator may also give you Virtual Private Network (VPN) settings.

- Get a dial-up access telephone number, a user name, and a password from your network administrator. If your CN30 Computer does not have access to a mobile phone network, insert your CN30 Computer into a modem dock.

Note: To change modem connection settings in My Work Network, tap **Manage existing connections**. Select the desired modem connection, tap **Settings**, then follow the instructions on the screen.

To view additional information for any screen in the wizard or while changing settings, tap the **Help** icon.

Creating a Modem Connection to Work

1 Tap **Start** > **Settings** > the **Connections** icon. In **My Work Network**, tap **Add a new modem connection**.
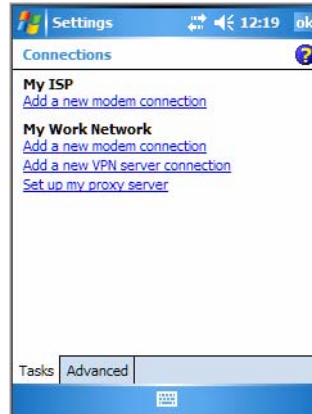
Connections

2 Enter a name for the connection, such as "Company Connection." In the **Select a modem list**, select your modem type, then tap **Next** to continue. If your modem type does not appear, try reinserting your CN30 Computer into your modem dock.

- If using an external modem connected to your CN30 Computer with a cable, select "Hayes Compatible on COM1."

- If using any type of external modem, select the modem by name. If a listing does not exist for your external modem, select "Hayes Compatible on COM1."
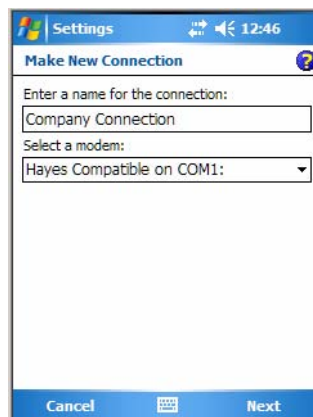
3 Enter the access phone number, using some of the following guidelines. If you know part of the phone number changes frequently as you travel, create dialing rules to avoid creating numerous modem connections for the same phone number. For more information, tap **use dialing rules**.

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

- Enter the APN provided by your mobile phone service provider.

- When using dialing rules, phone numbers are entered differently. To use additional numbers, such as a "9" to dial from an office complex or hotel, you must use additional dialing rules or change dialing patterns. See "*Create Dialing Rules*" via your online help for information.

  a In **Country/Region code**, enter the appropriate code when dialing internationally. For more information, contact an operator at your local phone company.

  b In **Area code**, enter the area code, if needed.

  c Enter the **Phone Number**, then tap **Next** to continue.
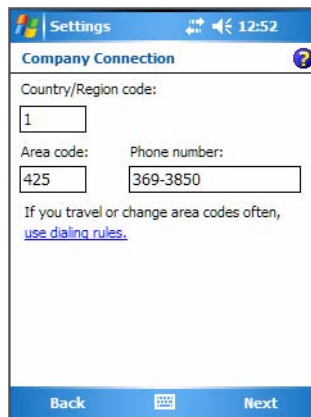
4 Enter the user name, password, and domain (if provided by an ISP or your network administrator). If a domain name was not provided, try the connection without entering a domain name. Tap **Finish**.
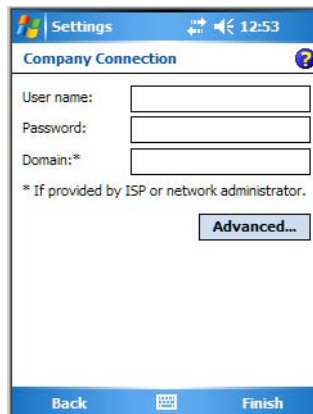
Creating a VPN Server Connection to Work

A VPN connection helps you to securely connect to servers, such as a corporate network, via the Internet. Ask your network administrator for the following: user name, password, domain name, TCP/IP settings, and host name or IP address of the VPN server

To view additional information for any screen in the wizard or while changing settings, tap the **Help** icon.

Note: To change existing settings in My Work Network, tap **Manage existing connections** > the **VPN** tab. Select the desired VPN connection, tap **Settings**, then follow the instructions on the screen.

Connections

1 Tap **Start** > **Settings** > the **Connections** icon. In **My Work Network**, tap **Add a new VPN server connection**.

2 In **Name**, enter a name for the connection, such as a company's name. In **Host name/ IP**, enter the VPN server name or IP address. Next to **VPN type**, select the type of authentication to use with your CN30 Computer: "IPSec/L2TP" or "PPTP." If you are not sure which option to choose, ask your network administrator. Tap **Next** to continue.
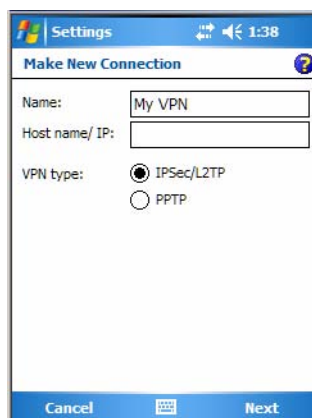
3 Select the type of authentication. If you select **A pre-shared key**, enter the key provided by your network administrator.
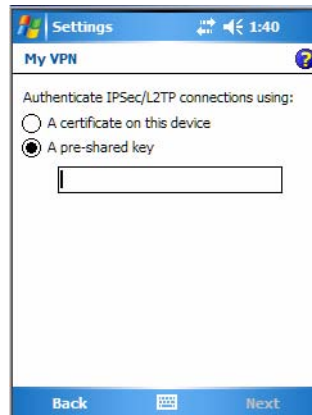
4 Enter your user name, password, and domain name as provided by your ISP or network administrator, then tap **Finish**. If a domain name was not provided, try the connection without entering a domain name.

Insert necessary equipment, such as a network (Ethernet) card, into the CN30 Computer, and use a desired program to begin connecting.
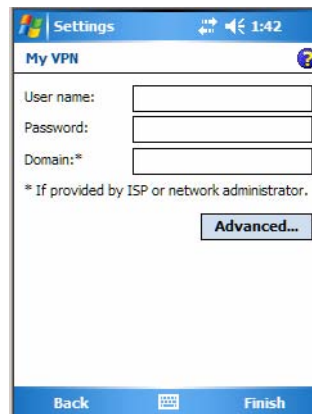
Ending a Connection

To disconnect, do one of the following:

- When connected via modem or VPN, tap the **Connectivity** icon on the top, then tap **Disconnect.**

- When connected via cable or cradle, detach your CN30 Computer.

- When connected via Infrared, move the CN30 Computer away from the other computer or device.

- When connected via a wireless network, switch off the connection.

Connecting Directly to an E-mail Server

You can set up a connection to an e-mail server so that you can send and receive e-mail messages by using a modem or network connection and Messaging on your CN30 Computer. The ISP or network must use a POP3 or IMSP4 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.

Setting Up an E-mail Account

Do the following to set up an e-mail service. Tap **Start** > **Help**, then select a topic for more assistance.

1 On your CN30 Computer, tap **Start** > **Messaging** to access the application. [Messaging]

2 Tap **Menu** > **Tools** > **New Account**. Enter an e-mail address, tap **Next**, then **Next** after the status of the automatic configuration is listed as "Completed."
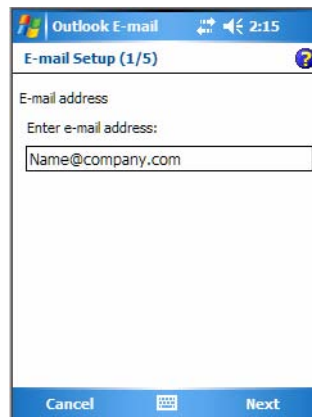
3 Enter the information, then tap **Next**.
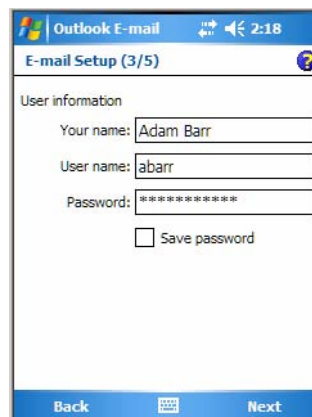
4 Select the appropriate service type from the **Account type** drop-down list, either "POP3" or "IMAP4," or enter a new account type, then tap **Next**.

5 In **Incoming mail**, enter the name of your e-mail server. In **Outgoing mail**, enter the name of your Simple Mail Transfer Protocol (SMTP) host. If you are using a network connection, enter your domain name in **Domain**. Tap **Options** to do additional configurations. Tap **Finish** to assign this service. Tap **Yes** to download e-mail to this new service.

3 Configuring the CN30 Computer

Use this chapter to understand how to install applications onto your CN30 Mobile Computer and how to configure the CN30 Computer to communicate in your network.

Note: Desktop icons and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the top, left corner of your CN30 desktop.

Developing Applications for the CN30 Computer

CN30 Computers run applications programmed in Microsoft Embedded Visual C++. Use this section to understand what you need to:

* Develop a new application for the CN30 Computer.

* Convert an application from an older computer to a CN30 application.

To develop applications for your CN30 Computer, use the Resource Kits in the Intermec Developer Library (IDL). Download the IDL from the Intermec web site at www.intermec.com. Contact your Intermec representative for more information.

You need the following 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

* For Windows CD 5.0, eVC 4.0 SP4 is required

* 128 MB RAM (196 MB recommended)

* 360 MB hard drive space for minimum installation (720 MB for complete)

* CD-ROM drive compatible with multimedia PC specification

* VGA or higher-resolution monitor (Super VGA recommended)

* Microsoft Mouse or compatible pointing device

Converting Older Computer Applications to CN30 Applications

If you have an existing application that you would like to run on the CN30 Computer, you can use the Migration Resource Kit to convert that application. This kit has a set of libraries and tools that convert your existing C applications into C++ applications for use on the CN30 Computer.

As you migrate from another computer to a CN30 Computer, you need to consider when converting other computer applications to run on the CN30 Computer, most APIs should work without changes, with the exception that arrow and tab keys may be reversed from other computers. Keyboard remapping is available on the CN30 Computer should you need to map these keys like that of the other computer.

You need these hardware and software components to use the Migration Resource Kit:

* a PC with at least 1MB of free disk space running Microsoft Windows 2000 or Windows XP

- Microsoft eMbedded Visual C++ version 4.0 with Service Pack 2
- Intermec Resource Kits and development tools
- Migration Resource Kit, which contains these files and utilities:
  - Functions library
  - Header files
  - Example files

The Migration Resource Kit is part of the IDL, which is available as a download from the Intermec web site at www.intermec.com. Contact your Intermec representative for more information.

Packaging Applications for the CN30 Computer

Use any of these methods to package applications for installation:

- You could package an application as a cabinet (CAB) file. *Recommended*
- For simple applications, the application itself may be the file to deliver.
- It could be a directory structure that contains the application, supporting files like ActiveX controls, DLLs, images, sound files, and data files.

Consider any of the following when choosing a location into which to store your application:

- In the basic CN30 Computer, there are two built-in storage options: the Object Store and the Flash File Store. The Object Store is a Disk on Chip (DOC) Flash that looks like a disk. The Flash File Store is an area of storage which is embedded in a section of the system's FLASH memory. This storage area is *not* erased during a cold-boot. It may, however, be erased during the reflashing process. In addition to storing applications and data files, you do have the option to store a persistent registry to the Flash File Store region.
- If the optional Secure Digital (SD) storage card is in the system, then consider this card the primary location to place applications installation files. The "\Storage Card" folder represents the SD card.
- Use the small non-volatile Flash File Store region to hold CAB files that rebuild the system at cold-boot or install applications from a CAB file *into* the Flash File Store so they are "ready-to-run" when a cold-boot is performed. Since the FLASH in the system has a limited number of write cycles, do not use the Flash File Store for excessive writing purposes; however, reading is okay.

CAB files *(short form of "cabinet" files)* are compressed folders as defined by Microsoft. A "cabinet" file is a single file, usually suffixed with .CAB, that stores compressed files in a file library. A compressed file can be spread over several cabinet files. During installation, the setup application decompresses the files stored in a cabinet and copies them to the user's system. Intermec recommends using CAB files to install your applications. The CN30 Com-

puter uses standard Windows Mobile CAB files and does install third-party CAB files.

For the CN30 Computer, CAB files register DLLs, create shortcuts, modify registry entries, and run custom setup programs. Tap a CAB file to extract that file or place the CAB file on one of the approved storage devices in the "\CabFiles" folder, then perform a warm-boot on the CN30 Computer. There are two methods available to extract a CAB file:

- Tap a CAB file to extract it. With this method, the CAB file is automatically deleted when the extraction process is successful, *unless* the CAB file is set with the read-only attribute.

- Use the AUTOCAB method to extract all files when a cold-boot is performed on the CN30 Computer. This method is in the *Intermec Developer Library* via the Intermec web site.

Installing Applications on the CN30 Computer

You can use either the Microsoft ActiveSync application or SD storage cards to install applications on the CN30 Computer.

Installing Applications Using Microsoft ActiveSync

You can use Microsoft ActiveSync to establish a connection between your PC and the CN30 Computer. Microsoft ActiveSync transfers files, synchronizes files, performs remote debugging, and other device management activities.

See Chapter 2, "Windows Mobile" for information about the Microsoft ActiveSync application as provided by Microsoft Corporation.

This can be a serial, a USB, or an 802.11b/g Microsoft ActiveSync connection. Files can be copied using Windows Explorer on a PC or a laptop computer. This is usually good when updating a few CN30 Computers.

These instructions assume that Microsoft ActiveSync was installed onto your PC and is up and running. If not, go to Chapter 2, "Windows Mobile" for an URL from which to download the latest application.

1 Connect the CN30 Computer to a PC using a USB or serial cable. You may have to detach, then reattach the cable to "wake" the connection.

2 Wait for a "Connected" message to appear in the Microsoft ActiveSync application to signal a connection to the CN30 Computer. If necessary, select **File** > **Get Connected** to initiate a connection or detach, then reattach the USB or serial cable.

3 Click **Explore** to access the "Mobile Device" folder on your unit.

4 From your PC, select **Start** > **Windows Explorer**, then browse the "C:\Intermec\CN30 Mgmt Tools\CabFiles" path for any CAB files needed for your CN30 Computer. Select the appropriate file, right-click the file for a pop-up menu, then select **Copy**.

5 Within the "My Windows Mobile-Based Device" folder, go to the folder where you want the files located on the CN30 Computer, do a right-click for a pop-up menu, then select **Paste**.

6 When all of the files are pasted, perform a warm-boot on the CN30 Computer. When the computer reboots, wait for the LED on the top left of your keypad to stop blinking. Tap **Start** > **Programs** > **Windows Explorer** to locate the newly copied executable files, then tap these files to activate their utilities.

Installing Applications Using a Secure Digital Card

If you have an SD card for your CN30 Computer, this is the best place for you to install applications.

1 If you are using an SD card reader, suspend the CN30 Computer, remove its SD card, and place it in the reader. For help, see "Using the Secure Digital Card" on page 18.

2 Copy your application file to the SD card. If you are using Microsoft ActiveSync to copy the files to the SD card, place the application in the "\Storage Card" folder on the CN30 Computer.

3 If using an SD card reader, insert the SD card back into the CN30.

4 Navigate to the "\Storage Card" folder and run your application. After your application is installed, you can run it from the Programs menu.

Launching Your Application Automatically

Note: This describes the system component startup for Intermec provided components only. It does not describe the bootstrap loader process. It only describes the component installation process provided by Windows Mobile. It is assumed that you understand the Microsoft Mobile startup procedures and are familiar with how Microsoft components start up.

You can configure the various media used in the Windows Mobile system with a folder name and can change the media in the registry of the system. Many of the startup components rely on folder names to locate information files, applications, or other related data.

The registry keys used by FolderCopy and other startup components to retrieve the folder names are as follows:

Flash File Store
[HKLM\Drivers\BuiltIn\FlshDrv]
"FolderName"="Flash File Store"

SD Card (Storage Card)
[HKLM\System\StorageManager\Profiles\SDMemory]
"Folder"="Storage Card"

Disk On Chip
[HKLM\System\StorageManager\Profiles\TRUEFFS_DOC]
"Folder"="DiskOnChip"

During normal Windows Mobile system startup, there are Intermec-specific and non-Intermec components that require an orderly start to properly function. These non-Intermec components may also need to start themselves so the Windows Mobile device can function properly. Since there are possible configurations that come from using one or more optional built-in peripheral devices, the platform components starting on the next page are required to manage startup.

PreShell

PreShell (PRESHELL.EXE) is launched prior to the Microsoft Shell and must execute a SignalStartup call before the Microsoft Shell launches.

PreShell searches the "\Flash File Store\SYSTEM" directory for an executable of the same name. If one exists, that application is launched. This application can do what a customer desires prior to launching the Microsoft Shell. This feature allows end customers to make their own application the shell of the system. If desired, do not exit the custom shell nor call Signal-Started.

PostShell

PostShell (POSTSHELL.EXE) can launch an application after the Microsoft Shell has launched. There are utility applications that exist that can take advantage of "hooking" the startup for maintenance, for example.

PostShell searches the "\Flash File Store\SYSTEM" directory for an executable of the same name. If one exists, that application is launched instead. This application can do what a customer desires and is launched after the Microsoft Shell starts initialization. The Microsoft Shell does not require complete initialization before this application begins and that may cause some application or system issues. These issues are expected and are considered normal for those developing PostShell applications. The application must test if the APIs it requires are available.

RunAutoRun

System components are installed and configured during the power up process from a single starting point. RunAutoRun (RUNAUTORUN.EXE), built into the operating system image and located in the "\Windows\Startup" folder, checks for AutoExec (AUTOEXEC.EXE) in a "\SYSTEM" folder on a mounted volume in this order:

- Secure Digital (SD)

- Object Store - may be non-volatile storage or RAM

- Disk on Chip - may map as Object Store

- Flash File Store - may map as Object Store. This is the default location for the AutoExec program in Intermec systems. Intermec system applications are started from this folder. The ordering of mounted volumes overrides this feature.

The folder names used for the mounted volumes above are retrieved from the registry to maintain coherence with the naming of the mounted volumes on the platform. These folder names are not hard-coded. If AutoExec is present in the "\SYSTEM" folder on any of these media, it executes the program only on the first media it is found on and no other.

AutoExec is reserved for Intermec use to configure Intermec-specific applications. It launches the CAB installer, AutoCab (AUTOCAB.EXE), to install platform cab files to the system, such as Intermec Data Collection.

When the AUTOEXEC.EXE process completes, Run Autorun then checks for the existence of AutoRun (AUTORUN.EXE) and executes this program from the first media it is found on. This order is the same as what is used by AutoExec.

AutoRun is reserved for customer use to configure application launch sequences. It launches the CAB installer, AutoCab, as well as any customer programs that added to the AUTOUSER.DAT file and is described on the next page. The hierarchy of these files is shown below.

```
                          ┌──────────────┐
                          │  runautorun  │
                          └──────────────┘
                ┌──────────────┴──────────────────────┐
         ┌──────────────┐                       ┌──────────────┐
         │   autoexec   │                       │   autorun    │
         └──────────────┘                       └──────────────┘
    ┌────────┬──────┴──────┬────────┐        ┌────────┴────────┐
┌────────┐┌────────┐┌──────────┐┌────────┐┌──────────┐┌────────┐
│autocopy││ autoreg ││foldercopy││ autocab ││ customer ││ autocab │
│        ││        ││          ││        ││applications││       │
└────────┘└────────┘└──────────┘└────────┘└──────────┘└────────┘
```
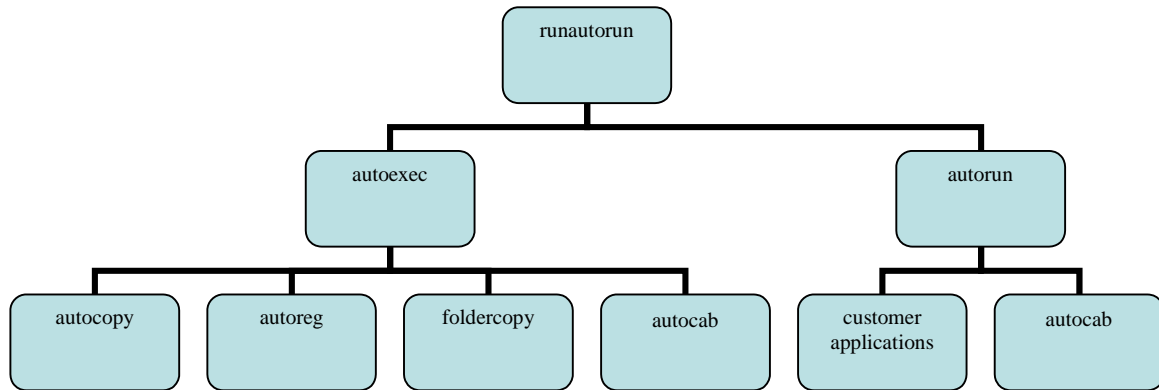
AutoExec

AutoExec (AUTOEXEC.EXE) automates operations such as pausing, launching processes, or signaling, and is configured through the AutoExec data file (AUTOEXEC.DAT). This script file must be in the same directory as the program itself.

Note: Intermec considers the usage of the AutoExec data file as "Intermec Private." AutoExec installs Intermec applications such as Data Collection, Security Supplicants, Intermec Management, applets, and shortcuts from components found in the Flash File System. Do not modify the AutoExec data file. Instead, use the AutoRun program to add software components.

Usage:

```
AutoExec [-%[W]] [-E=["X"]] [-F=["Y"]] [-LOG=] [-W=[Z]]
```

-%	Passes an ID to use in a call to SignalStarted. This argument is useful only during system startup that relies on a SignalStarted to call. W is an integer value.
-E	Passes a signal event name to use when autoexec completes. X is a string value.
-F	Overrides the data file to use. This must be a fully qualified name. Default is "autoexec.dat" in the same location as the AUTOEXEC.EXE program. Y is a string value.
-LOG	Set to any value logs activity to AUTOEXEC.TXT (in the same location as the AUTOEXEC.EXE program). Default is disabled.
-W	Pauses the autoexec process by calling sleep for the number of seconds specified by Z. Z is an integer value.

The return code from the process uses the standard error codes defined in WINERROR.H.

Keywords that AutoExec supports are:

QUIET	Enables user notification when an error occurs.
LOGGING	Enables logging to a trace file.
SIGNAL	Enables the specified named event and is immediately signaled. Useful for notifying other components of the current status.
CALL	Opens another .DAT file to process. After the called file is completed, this file is resumed.
RUN	Runs a program with a *SW_SHOWNORMAL* attribute. Autoexec does not wait for the child process to exit.
LOAD	Runs a program with a *SW_HIDE* attribute. Autoexec waits for 60 seconds for the child process to exit or *EXECWAIT* seconds if set.
EXEC	Runs the specified program. AutoExec waits 60 seconds for the child process to exit or *EXECWAIT* seconds if set.
EXECWAIT	Changes the default EXEC wait time from 60 seconds to the number of seconds specified. There is a maximum 10-minute limit imposed.
WAIT	Forces a sleep for the specified number of seconds to occur.
WAITFOR	Forces a sleep until the named event is signaled.

Examples of keyword usage are as follows:

```
; Allow message pop up if an error occurs.
QUIET 0

; Log any debug output to a trace file.
LOGGING 1

; Perform a SetEvent on the event name "autoexec_started".
SIGNAL "autoexec_started"

; Include this child data file, childexec.dat.
CALL "\childexec.dat"

; Use autocopy to copy the audio control panel from flash file store to the
windows directory. Wait for up to 60 seconds for it to exit.
EXEC "\Flash File Store\SYSTEM\autocopy.exe" -S"\Flash File Store\Sys-
tem\CPLAudio.cpl" -D"\Windows\CPLAudio.cpl"

; Change the default EXEC wait time to 90 seconds.
EXECWAIT 90

; Suspend processing any commands for 10 seconds.
WAIT 10

; Suspend processing any commands until event called MyEventName is signaled.
WAITFOR "MyEventName"
```

AutoRun

AutoRun (AUTORUN.EXE) automates operations such as launching other processes and is configured through the AutoRun data file (AUTORUN.DAT). This script file must be in the same directory as the program itself.

AutoRun supports the following script commands in AUTOUSER.DAT and AUTORUN.DAT.

Note: If you need to add steps at boot time, add them to AUTOUSER.DAT, not to AUTORUN.DAT. AUTORUN.DAT is provided by Intermec and is subject to change. AUTOUSER.DAT is the designated place for the end user to add steps to the boot time process.

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

AutoRun handles quoted file names for the first parameter which allows you to specify path names or file names that contain white space. Note that only one set of quotes per command is supported.

AUTORUN.DAT entry examples:

RUN	"Flash File Store\Apps\some.exe" arg1, arg2, arg3
CALL	"Flash File Store\2577\usercmds.dat"

AutoCopy

AutoCopy (AUTOCOPY.EXE) copies or moves files from one location to another. It has no user interface and is configured through command line arguments. It has support for the following parameters, in no particular order:

Usage:

```
AutoCopy [-D["W"]] [-L["X"]] [-M[D]] [-Q[Y]] [-S["Z"]]
```

-D	Indicates the destination file name and must be fully qualified. W is a string value.
-L	Indicates a fully qualified file name for logging to enable. Default is disabled. X is a string value.
-M	Moves file to a destination rather than copies the file. Default value is disabled. D is an integer value. D=1 indicates enabled, 0 is disabled.
-Q	Indicates if a message box should appear when an error occurs. Default is disabled. Y is an integer value.
-S	Indicates a source file name and must be fully qualified. Z is a string value.

The return code from the process uses the standard error codes defined in WINERROR.H.

Example:

```
; use AutoCopy to copy the control panel from flash file store to windows.
autocopy.exe -S"\Flash File Store\System\Audio.cpl" -D"\Windows\Audio.cpl"

; use AutoCopy to move the control panel from flash file store to windows.
autocopy.exe -M1 -S"\Flash File Store\System\Audio.cpl" -D"\Windows\Audio.cpl"
```

AutoReg

The AutoReg (AUTOREG.EXE) component adds registry information to the Windows Mobile registry. It has no user interface and is configured through command line arguments.

Usage:

```
AutoReg [-D] [-HKey] [-Q] "filename"
```

-D	Deletes the registry file after successfully loading it. This allows for systems that have hives implemented.
-H	Saves the registry path, and all child entries, to the specific .REG registry file.
-Q	Indicates whether a message box should appear when a fatal error occurs.
filename	Fully qualified file name to read from or write to, encased in double quotes to support spaces in paths or file names. See examples below.

The return code from the process uses the standard error codes defined in WINERROR.H.

Example:

```
; use AutoReg to install this registry information.
autoreg.exe "\Flash File Store\install.reg"

; use AutoReg to install this registry information. Delete the file afterwards.
autoreg.exe -D "\Flash File Store\install.reg"

; use AutoReg to extract registry information to a file.
autoreg.exe -HHKEY_LOCAL_MACHINE\Software\Intermec\Version "\version.reg"
```

The format of the input file, in this example, is the standard registry format which should ease the creation of the input file since there are many publicly available utilities to generate a registry file besides Notepad. One example of a tool is the Microsoft Remote Registry Editor.

AutoCab

AutoCab (AUTOCAB.EXE) extracts files, registry settings, and shortcuts from Windows Mobile cabinet (.CAB) files. The Windows Mobile startup sequence invokes AutoCab as a part of AutoExec and AutoRun. During the Windows Mobile startup sequence, AutoCab processes all CAB files in the "\CabFiles" directory relative to the current location of Autocab, unless the location is overridden by command line arguments. AutoCab can run as a stand-alone program to install a CAB file or a directory of CAB files.

AutoCab only installs the CAB file if it was not installed before by Auto-Cab. To track the installation of a CAB file, AutoCab marks the CAB file with the System attribute. This attribute is ignored if the device is performing a cold-boot on a non-persistent file system.

AutoCab preserves the CAB file after installation if the ReadOnly attribute is set. If not set, the CAB file is deleted automatically after installation.

Usage:

```
AutoCab [-ChkRst=][-File=][-Force][-Log=][-Move=][-Quiet=][-Show=][-Signal=]
```

Command line switches are described below.

-ChkRst=	Set to 1 to configure AutoCab to check for the Reset flag after all CAB files are installed. This file is created by CAB files that want a warm reset after installation. Default is 0 (do not check for flag).
-File=	Specifies the CAB files to extract. Note that the specified files need not end with the .CAB extension.
-Force	Forces the specified CAB files to extract regardless of whether it was previously extracted.
-Log=	Set to 1 to create a log file in the same folder that AutoCab is running. Useful for debugging CAB installation. Default is 0 (disabled).
-Move=	Set to 1 to force source CAB file deletion, even when read-only bit set on file. Default is 0 (disabled).
-Quiet=	Set to 0 to allow AutoCab to display user message box on errors. Useful for debugging CAB installation. Default is 1 (keep quiet).
-Show=	Set to 0 to prevent showing any installation progress interfaces. Also prevents user from canceling installation. Set to 1 to show normal installation. Set to 2 to show Intermec installation progress interface (user can see what is installing but cannot cancel it). Default is 1 (show normal).
-Signal=	Set to string name of signal to use at the completion of CAB installation before a reboot occurs (if enabled). AutoCab uses WaitForSingleObject on this name. Default is disabled.

If <PathName> references a single CAB file, that file is processed. If <PathName> references a directory, all the .CAB files in that directory is processed. If <PathName> is a wild card pattern, all files matching that pattern is processed, If <PathName> is omitted, InstallCab processes all the .CAB files in directory "\CabFiles."

Example:

```
; Install all cab files in the \Flash File Store\XYZ directory, regardless.
AutoCab -FILE="\Flash File Store\XYZ\*.cab" -FORCE

; Install only one cab file, use Intermec cab installation display
AutoCab -FILE="\myCab\app.cab" =show=2
```

Customizing How Applications Load on the CN30 Computer

If you have several processes that you need running in a specific order as the CN30 Computer turns on, you can use the AutoRun system to customize the way applications load. For compatibility with other Intermec computers, you can place a copy of AUTORUN.EXE in the same folder as your AUTORUN.DAT file but it is not required.

To create and install the AUTORUN.DAT file on your CN30 Computer

1 On the CN30 Computer, create a folder called "SYSTEM."

2 On your desktop, open the Notepad application.

3 Write commands for AUTORUN.DAT using these supported script commands:

Script Command	Description
EXEC	Launches a specified program and waits up to 10 minutes for it to complete.
CALL	Processes a specified file of commands, returns. When you use the CALL command, the execution of the current file pauses while a new file that follows the same set of commands executes. Once the new file completes executing, AutoRun.exe processes the current file.
CHAIN	Processes a specified file of commands and does not return. This command calls another file that follows the same set of commands and stops processing the current file.
RUN	Loads a specified program and executes it. Specifies the show window attribute so that the user interface is visible when the application launches.
LOAD	Loads a specified program and executes it. Specifies the hide window attribute so the user interface is hidden initially.

4 Save this Notepad file as AUTORUN.DAT.

5 Copy the AUTORUN.DAT file to the "\SYSTEM" folder on your CN30 Computer.

During every boot, the system scans for AUTORUN.DAT in the "\SYS-TEM" folder.

Here is a sample AUTORUN.DAT file that runs a dialer application and connects to a VPN:

```
EXEC "\Program Files\My Dialer\Dialer.exe" 348-2600
EXEC "\Program Files\My VPN\Connect.exe" MyDomain
```

Configuring CN30 Parameters

You can configure many parameters on the CN30 Computer, 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. Use configuration commands to configure the CN30 Computer.

Configuring with the Setup Assistant

When first setting up the CN30 Computer, use the Setup Assistant to set or enable basic network parameters and connect your CN30 Computer to the network.

The Setup Assistant guides you through setting the following basic network parameters: date and time (including time zone), SSID (Network name), DHCP server or IP address, subnet mask, and default router, primary and secondary DNS or WINS addresses, and device name.

To set other parameters, use another configuration method. The Setup Assistant runs on the CN30 Computer when you turn on the computer.

After the Setup Assistant is complete, the CN30 Computer should communicate with the network. A network connection icon appears in the taskbar.

Configuring the CN30 Computer With Intermec Settings

Use the Intermec Settings applet to configure the CN30 Computer and view system information. You can access the Intermec Settings applet while running any application.

From the CN30 desktop, select **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon.
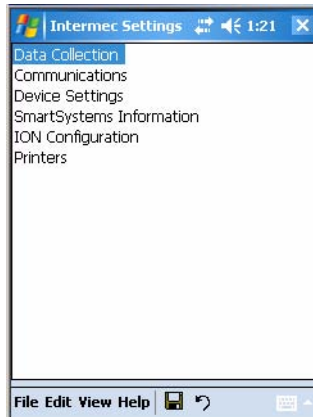
For detailed information on most of the commands available in the Intermec Settings applet, see the *Intermec Computer Command Reference Manual* (P/N 073529) via the Intermec web site. Go to "Before You Begin" for access information.

Synchronizing the CN30 Computer System Time with a Time Server

It is important that the time on all of your CN30 Computers be synchronized with a network time server to ensure real-time communications and updates. Network time servers acquire Coordinated Universal Time (UTC) from an outside source such as the U.S. Naval Observatory (USNO). The CN30 Computer uses Simple Network Time Protocol (SNTP) to synchronize with a network time server.

The default reference time server is the USNO (tock.usno.navy.mil). To synchronize the time on your CN30 with this time server, you must have a valid connection to the Internet. You can also synchronize the CN30 Computer system time with a corporate network server within your firewall that is SNTP-capable. To use an internal corporate network server, you need to set the command name in the registry.

Configuring the CN30 Computer through the Network

You can change the configuration parameters of the CN30 Computer by sending commands through a host computer or through the network. If you are using a network, you can configure one or more CN30 Computers at a time. You can remotely configure the wireless or Ethernet CN30 Computer by sending a command from an application on the host computer. *Note that you cannot set all parameters through the network. You can only set those commands that have a syntax in the Command Reference Manual.*

Note: You can continue running an application on the CN30 Computer while configuring it from the host computer.

Configuring the CN30 Computer in a TCP/IP Direct Connect Network

You can use the host computer to configure a wireless or Ethernet CN30 Computer in your TCP/IP network. To send and receive configuration data, you need to write a host application that can communicate with the CN30 Computer directly through an access point or through the Ethernet network. Use the TMF protocol to send and receive transactions between the host application and the CN30 Computer.

To set up the host computer, verify that you can communicate with the CN30 Computer. To set up the application, prepare and write a host application that can communicate with the Intermec Application Server and send transactions to and receive transactions from the CN30 Computer in this format:

TMF field	commands

where:

TMF field	A 2-byte field containing one of these values:
	CG Configuration Get request sent from the host application.
	Cg Configuration Get response sent from the CN30 Computer to the host computer.
	CS Configuration Set request sent from the host application.
	Cs Configuration Set response sent from the CN30 Computer to the host computer.
commands	The reader and configuration commands to set on the CN30 Computer or the current value to retrieve from the CN30 Computer. To save configuration changes in flash memory, send the `.+1` reader command as the last command. See the *Command Reference Manual* for a list of commands.

Example

In the host application, you want to get the current values of two configuration commands from the CN30 Computer. Send the `CG$+NABV` transaction from the host application

Note: The transaction header is not shown in this example. You do not need a transaction header for a host application in a TCP/IP network, but you do for a UDP Plus network.

where:

CG	is a TMF Configuration Get request.
$+	is the Change Configuration reader command.
BV	is the Beeper Volume configuration command.

The CN30 returns the `Cg$+BV4` transaction to the host application, where:

Cg	is a TMF Configuration Get response.
$+	is the Change Configuration reader command.
BV4	means the Beeper Volume configuration command is currently set to a value of 4, which is a very high beeper volume.

Configuring the CN30 Computer in a UDP Plus Network

You can use the host computer to configure a CN30 Computer in your wireless or Ethernet network. To send and receive configuration data or files, you need to write a host application that can communicate with an Intermec Application Server (formerly Gateway or DCS 30X).

For help, see the appropriate Gateway or DCS 30X User's Manual. Use the Terminal Message Format (TMF) protocol to send and receive transactions between the host application and the CN30 Computer.

To set up the Intermec Application Server, configure a peer-to-peer destination name for the host application. Create a transaction ID, $NGCFGRSP, that routes to this destination name. The Intermec Application Server uses the transaction ID to route responses from the CN30 Computer back to the host application. $NGCFGRSP is a special transaction ID that the server uses to forward configuration response data from a CN30.

All configuration responses are routed with the $NGCFGRSP transaction ID. The Intermec Application Server cannot track multiple applications sending reader or configuration commands. If you have two host applications sending reader or configuration commands, they must both be configured to receive the $NGCFGRSP transactions, and therefore both receive all responses from all CN30 Computers.

To set up the host computer, verify that the host computer can communicate with the Intermec Application Server.

To set up the application, prepare and write a host application that can communicate with the Intermec Application Server and send transactions to and receive transactions from the CN30 Computer in this format. *For an example of the host application transaction, see page 110.*

transaction header	TMF field	commands

where:

transaction header	A 96-byte field with message number, date, time, source application ID, destinations application ID, transaction ID, and other information. Set the system message (SYS$MSG) flag to E in the transaction header.
TMF field	A 2-byte field containing one of these values:
	CG Configuration Get request sent from the host application.
	Cg Configuration Get response sent from the CN30 Computer to the host computer.
	CS Configuration Set request sent from the host application.
	Cs Configuration Set response sent from CN30 to host computer
commands	The reader and configuration commands to set on the CN30 Computer or the current value to retrieve from the CN30 Computer. To save configuration changes in flash memory, send the `.+1` reader command as the last command. See the *Command Reference Manual* for a list of supported commands.

Configuring the CN30 Computer for Your Network

The CN30 Computer is a versatile handheld computer that you can add to your wired or wireless data collection network. You can connect your CN30 Computer to your network using any of these communications: serial, 802.11b/g radio, Ethernet, or Bluetooth™ radio.

Configuring Serial Communications

The CN30 Computer has a serial port to transfer data to and receive data from another device via RS-232 communications. You can also insert the CN30 Computer into a communications dock to transmit data to and receive data from a host computer or PC using RS-232 communications. The serial cable and the communications dock are sold separately. For more information, see "Accessories for the CN60 Computer" on page 25.

To use serial communications with your CN30 Computer, connect the CN30 Computer to the serial port of another device, by:

- connecting the CN30 Serial Port to the serial port of the other device using the 26-pin to DB9-pin serial cable adapter and a female-to-female null modem RS-232 cable;

- connecting the CN30 Dock to the serial port of the other device using a DB9-pin to DB9-pin serial adapter cable, then insert the CN30 Computer into the dock; or

- connecting a USB cable between the USB connector in the back of the CN30 Dock and your desktop computer.

Configuring 802.11b/g Radio Communications

⚠ **Caution**

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

Attention: Assurez-vous que la distance entre tous les éléments avec antennes soit d'au moins 30 centimètres (un pied) avant de faire la connexion avec l'alimentation électrique, faute de quoi vous risquez d'endommager votre installation.

The wireless CN30 Computer 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 CN30 Computer supports TCP/IP and UDP Plus network protocols.

The next sections explain the parameters you need to configure for the CN30 Computer to work in your wireless network.

Configuring the Network Parameters for a TCP/IP Network

In a TCP/IP network, the CN30 Computer 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.

To use wireless communications in a TCP/IP network, configure the Network Name (SSID), Host IP Address, IP Settings (if not using DHCP), and Network Port parameters on each CN30 Computer in the network.

Configuring the Network Parameters for a UDP Plus Network

In a UDP Plus network, the CN30 Computer communicates with a host computer through the Intermec Application Server.

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, configure the Network Name (SSID), Controller IP Address, IP Settings (if not using DHCP), and Network Port parameters on each CN30 in the network.

The easiest way to configure the network parameters on the CN30 Computer is to use the Intermec Settings applet. For help, see "Configuring the CN30 Computer With Intermec Settings" on page 108.

Configuring Bluetooth Radio Communications

"Bluetooth" is the name given to a technology standard using short-range radio links, intended to replace the cables connecting portable and fixed electronic devices. The standard defines a uniform structure for a wide range of devices to communicate with each other, with minimal user effort. Its key features are robustness, low complexity, low power, and low cost. The technology also offers wireless access to LANs, the mobile phone network, and the internet for a host of home appliances and portable hand-held interfaces.

Documentation

Information about other Bluetooth software is in the Bluetooth Resource Kit and the *Wireless Printing Development Guide* in the *Intermec Developer Library*, which is available as a download from the Intermec web site via www.intermec.com. Contact your Intermec representative for information.

About the Application

Bluetooth is not started automatically by default after a cold-boot is performed. To run Bluetooth, tap **Start** > **Settings** > the **Connections** tab > the **Bluetooth** icon. The CN30 Computer retains the Bluetooth state when either warm-boots or cold-boots are performed, for example:

- *If Bluetooth is enabled*, and either a warm-boot or a cold-boot was performed, the CN30 Computer boots up with the Bluetooth state enabled and Bluetooth virtual COM ports (such as printing) registered. However, you must reactivate connections, as the system does not do these automatically.

- *If Bluetooth is disabled*, and either a warm-boot or a cold-boot was per-
  formed, the CN30 Computer boots up with Bluetooth disabled. Do the
  following to turn on Bluetooth:

Select **Start** > **Settings** > the **Connections** tab > the **Bluetooth** icon > the
Mode tab. Check **Turn on Bluetooth**, check **Make this device discover-
able to other devices**, then click **ok** to apply this change.
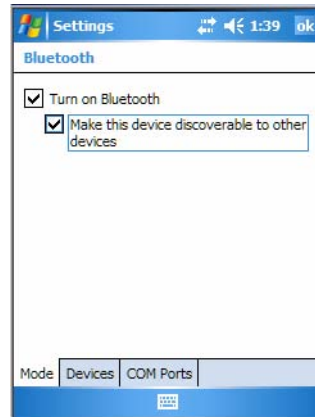
Devices

Use this tab to scan for other Bluetooth devices.

1 Tap **New Partnership** to discover (or scan) for remote Bluetooth devices.
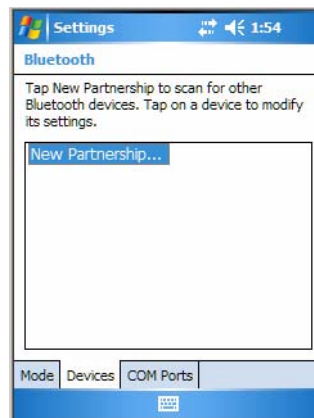
2 When the CN30 Computer is finished scanning, any newly discovered devices appear in the box. Tap **Refresh** to do additional discoveries.
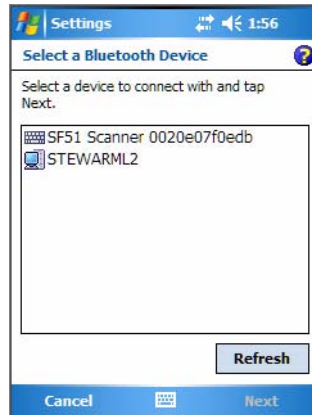
3 Select a device to which to connect, then click **Next**.
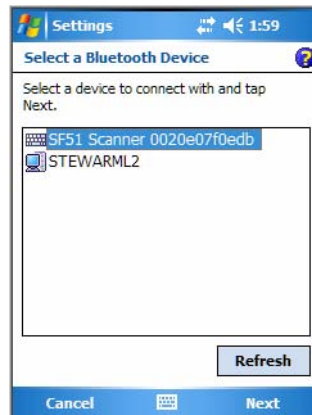
4 Enter a passkey to establish a secure connection, then tap **Next**. Tap **Yes** if prompted to let the other device connect with your CN30 Computer.
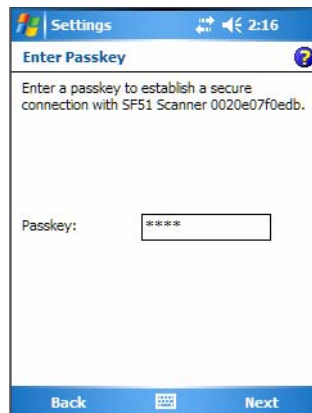
5 Select what services you want from this remote device, then click **Finish** to return to the **Devices** tab.
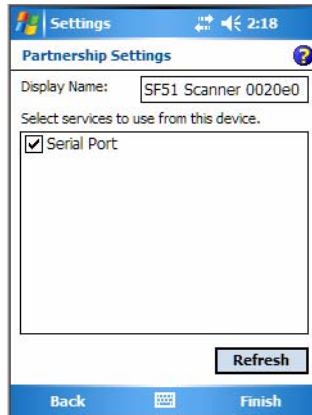
COM Ports

Use this page to connect to other devices or allow other devices to connect with your CN30 Computer.
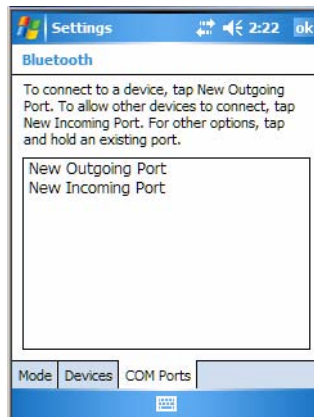
1 Tap **New Outgoing Port** to connection to a Bluetooth device, select the device to add, then click **Next**.
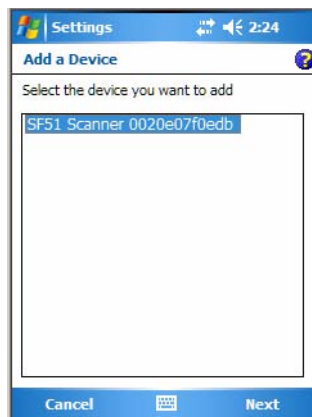
2 Select a port from the **Port** drop-down list, check **Secure Connection**, then click **Finish** to return to the COM Ports page.
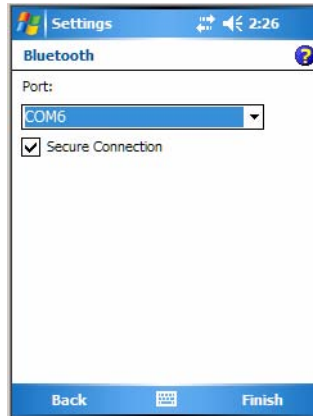
3 Tap **New Incoming Port** to allow other Bluetooth devices to connect with your CN30 Computer, select on which port to secure this connection, then click **Finish** to return to the COM Ports page.
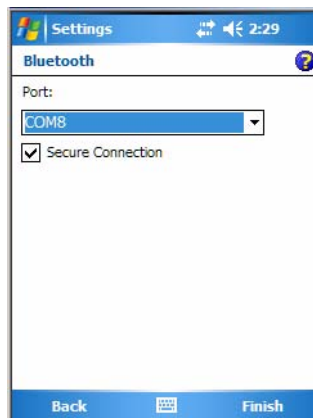
You can press and hold on a device to either edit that device or delete it from the list.
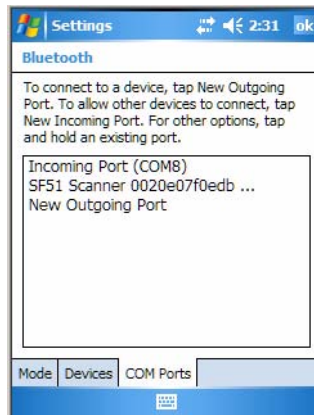
Wireless Printing

The Wireless Printing applet separates the task of wireless printing from other Bluetooth management items not relevant to this task.

Wireless Printing has a concept of the "current wireless printer." This printer is the one to which the CN30 Computer makes a connection when the wireless printing COM port is opened. If there is no current wireless printer, there is no wireless printing COM port. Registration and deregistration of this COM port is controlled by the Bluetooth COM port control. Use the Wireless Printing applet to handle the COM port registration. Customer software or other test applications can also use this applet to manage the COM port registration and deregistration.

The current wireless printer is stored in the registry and is registered and deregistered on Bluetooth stack load/unload. If the current wireless printer changes, the existing wireless printing COM port is deregistered, and the new one is registered instead. The registered COM port is stored in the registry as the "WPort."

For information on using Bluetooth communications, see the Bluetooth Resource Kit in the IDL, which is available as a download from the Intermec web site at www.intermec.com. Contact your Intermec representative for more information.

Use any of the following methods to set the wireless printer:

- Use a Bluetooth device discovery to locate the remote device (page 118)

- Manually enter the remote Bluetooth Device Address (page 119)

- Use the Bluetooth Device Manager to choose from previously discovered printers (page 120)

To do a Bluetooth device discovery, you can set your wireless printer via a Bluetooth Device Discovery, which takes about half a minute to locate all Bluetooth devices in your range.

1 Select **Start** > **Settings** > the **System** tab > the **Wireless Printing** icon.

2 Select **Device Discovery**, then tap **Acquire Printer** to initiate the device discovery.
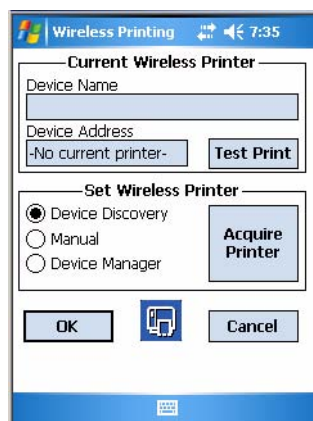
3 Momentarily, Bluetooth devices discovered within range appear. If your preferred printer is in the list, select to highlight the printer, then tap **OK**. If you do not see your preferred device, make sure this device is powered on and set to discovery, then tap **Device Discovery** again. Click **Cancel** to return to the first screen without making changes.
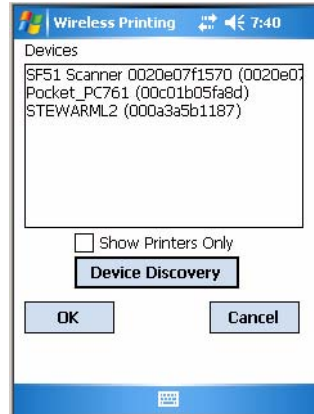
To enter the remote device address, if you know the Bluetooth Device Address of the printer you want to use, you do the following to avoid Device Discovery and perform a manual setup.

1 Select **Start** > **Settings** > the **System** tab > the **Wireless Printing** icon.

2 Select **Manual**, then tap **Acquire Printer** to go to the Manual Set dialog.
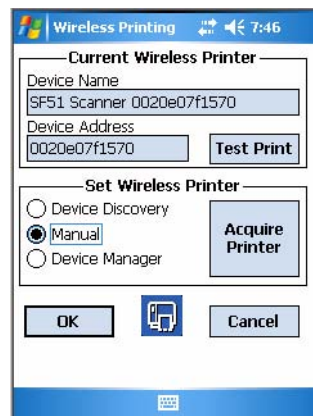
3 Type the address of your device in the field, then click **OK**. Tap **Cancel** to return to the first screen without making changes.

When you set your printer manually, your device does not receive the printer name. Therefore, "-unknown-" is displayed under Device Name unless you enter the correct value in to the registry in some other way.

To choose from previously discovered printers, do the following to select from a list of previously discovered printers:

1 Select **Start** > **Settings** > the **System** tab > the **Wireless Printing** icon.

2 Select **Device Manager**, then tap **Acquire Printer** to go to the list of previously discovered printers.

3 Select to highlight the printer of choice, then tap **OK**. Tap **Cancel** to
return to the first screen without making changes.

Bluetooth Audio

Use this applet to discover, activate, and connect to Bluetooth audio devices, such as Bluetooth headsets. You can select a desired audio mode or control the audio volume and microphone gain for the connected Bluetooth headset (if the connected headset has these capabilities).

From the CN30 desktop, select **Start** > **Settings** > the **System** tab > the **Bluetooth Audio** icon to access the Bluetooth Audio applet.
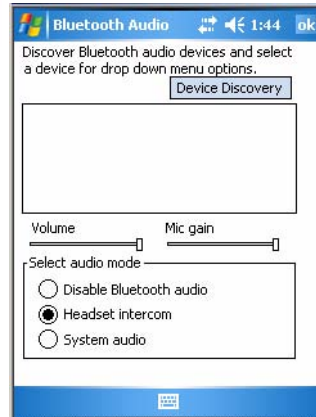
Bluetooth Audio

Discovering Bluetooth Headsets

To discover a Bluetooth headset with either a "headset" or a "hands-free" profile, tap **Device Discovery**. Discovered audio devices are added to the list with an icon to identify either profile.

Connecting to a Bluetooth Headset

Note that you can only select one Bluetooth audio device.

1 Double-tap a Bluetooth audio device from the list of discovered devices. When a pop-up menu appears and if the device selected was not authenticated during the discovery process, select **Authenticate** to continue.

2 Double-tap the device name, then select **Activate** from the pop-up menu. On successful device activation, the device icon changes to include a check mark.

3 If the activated device has a "hands-free" profile, press a button on the device to establish an audio connection between the CN30 and the activated device. *See the user manual for the Bluetooth device for information on what button to press.*

To establish an audio connection from the CN30 to the activated device with either a "headset" or "hands-free" profile, double-tap the device name, then select **Connect** from the menu. When connection is established, the "connected/disconnected" status changes to that of a "connected" status.

Selecting Audio Mode

• Tap the **Volume** slider bar to adjust the volume of the connected Bluetooth audio device.

- Tap the **Mic gain** slider bar to adjust the microphone gain of the connected Bluetooth audio device.

- Click **Disable Bluetooth audio** to disable Bluetooth audio input/output functionality.

- Click **Headset intercom** for a full duplex audio link between the CN30 and the headset.

- Click **System audio** to set up the Bluetooth headset as an audio input/output device to play audio files and audio (speech) input for voice automation or voice recognition software.

Configuring Bluetooth Using Intermec Settings

Intermec Settings

You can also configure your Bluetooth communications using the Intermec Settings applet. From the CN30 desktop, select **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. Tap to expand (+) **Communications**, then **Bluetooth** to configure its settings.
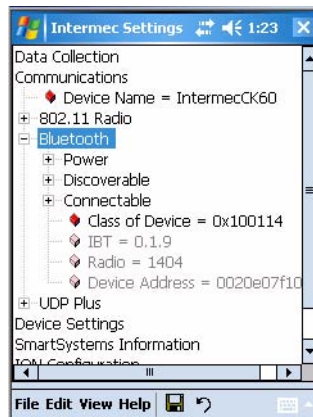
Reprogramming the CN30 Keypad

This section covers basic keypad remapping changes for the CN30, to redefine basic virtual key values generated by the CN30 keypad. Other, more advanced options such as multi-keys and named events are not covered here. For the advanced options, contact your Intermec representative.

Implementation

The CN30 keypad virtual key mappings are controlled by registry entries, which are read each time the keypad driver loads. You can "remap" the keypad after it has loaded by modifying the registry entries and then sending a signal to the keypad driver to re-read the registry mappings.

The keypad driver uses the scan code values returned by the keypad device as an index into these registry entries to determine the virtual key value sent to the system.

Registry Entries

There are three main "shift plane" registry entries which map the keypad device scancodes to the windows virtual key values. Each registry entry is an array of 128 WORDs (2 byte unsigned int, little endian). Since scan codes generated by the keypad device can range in value from 0x00 to 0x7f, the driver uses the generated scan code value as an index into one of the shift plane entries to determine the virtual key value sent up to the system.

The shift plane registry entry used is determined by the current state of the Orange and Green keys. If the Orange key is held down, then the "Orange shift plane" array is used. If the Green key is held down, then the "Green shift plane" array is used. If neither Orange nor Green key is held down, then the "Normal, unshifted plane" array is used.

The name of the three registry entries that define the Normal, Orange, and Green shift planes are as follows:

```
HKLM\HARDWARE\DEVICEMAP\KEYBD\xxxx\Vkey (Normal)
HKLM\HARDWARE\DEVICEMAP\KEYBD\xxxx\VkeyGold (Orange)
HKLM\HARDWARE\DEVICEMAP\KEYBD\xxxx\VkeyAlpha (Green)
```

Where xxxx is a four-digit keypad ID which identifies the type of keypad on your CN30 Computer.

These are the registry entries (which are arrays of 128 WORDs) you need to modify to remap your keypad.

Programming the Keypad

Do the following to change a single key on the CN30 keypad. You can change more than one key, if desired.

1 Identify your keypad
Read the four bytes of text stored in the registry entry. For this example, this value is referred to as <KPID>.

```
HKEY_LOCAL_MACHINE\Drivers\BuiltIn\KEYPAD\ActiveConfig
```

2 Read the shift plane mapping
Read each of these key values into a WORD array of size 128. *Note that not all keypads have entries for VkeyGold and VkeyAlpha.*

```
HKLM\HARDWARE\DEVICEMAP\KEYBD\<KPID>\Vkey (Normal)
HKLM\HARDWARE\DEVICEMAP\KEYBD\<KPID>\VkeyGold (Orange)
HKLM\HARDWARE\DEVICEMAP\KEYBD\<KPID>\VkeyAlpha (Green)
```

3 Modify the shift plane mapping
Write the desired virtual key value to the scan code offset of the desired shift plane.

You can use the scan code diagrams below and on the next page to find the scan code for the keys you want to remap. *Note that scan code 00h is the left scan trigger, scan code 10h is the right scan trigger, and all values are hexadecimal.*

4 Save the modified shift plane mappings
Write the registry values back.

5 Signal the keypad to reload
Open the "ITC_KEYBOARD_CHANGE" named event and call
SetEvent() to signal the keypad to reload.

Alphanumeric Scan Codes

Orange key

Green Key

Numeric Scan Codes

Orange key

Green key
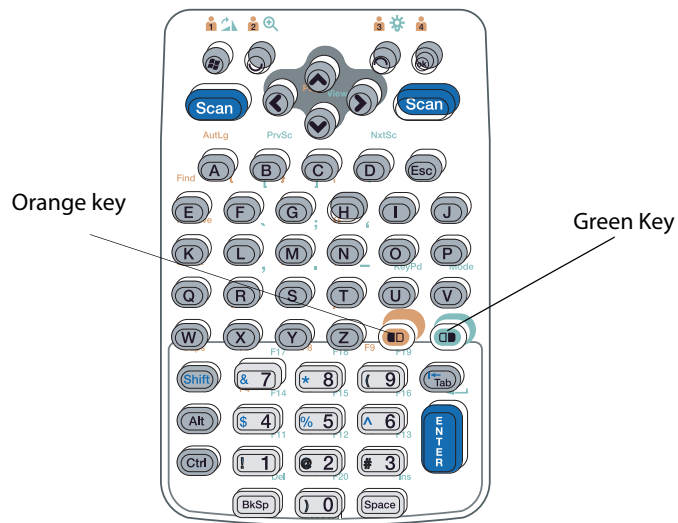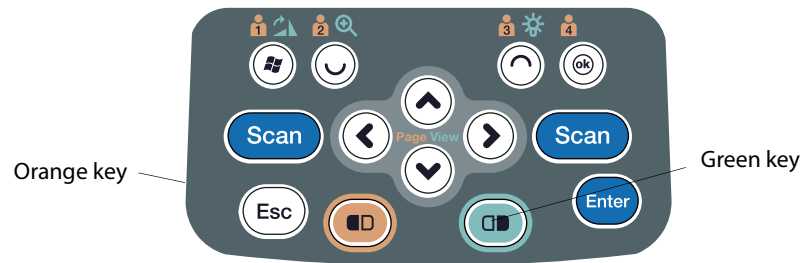
Configuring the SF51 Scanner

The following information pertains to configuring the SF51 Scanner to work with your CN30 Computer. These instructions assume you have the EasySet application installed on your desktop or laptop. The EasySet application is available from the Intermec Data Capture web site, contact your Intermec representative for information about this application.

Imager Settings

Depending on what is selected as the scanner model, image settings, decode security, scanner settings, and virtual wedge are configured from the Intermec Settings applet. See the *Intermec Computer Command Reference Manual*, available from the Intermec web site at www.intermec.com, for more information about each enabled option.

Enabling Bluetooth

Bluetooth is required for the SF51 Scanner. On the CN30 Computer, use the Bluetooth applet to enable Bluetooth communications before you configure the SF51 Scanner.

Select **Start** > **Settings** > the **Communications** tab > the **Bluetooth** icon, check **Turn on Bluetooth**, then click **ok** to apply this change.
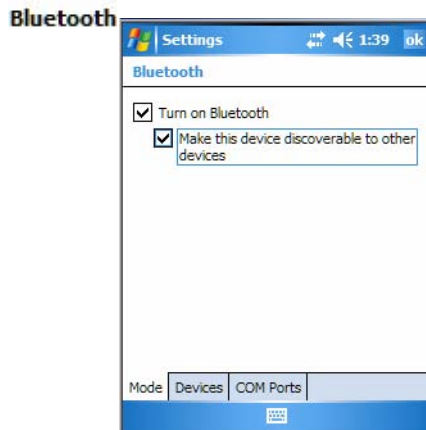
Creating an SF51 Connection Label

To initiate a connection from the SF51 Scanner, use your EasySet application to create an SF51 connection label with the CN30 Bluetooth address. The device address is listed in the Bluetooth applet via the **Devices** tab on your CN30 Computer, like the following example:
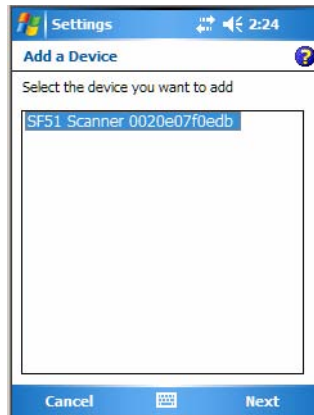
1 On your desktop or laptop, double-click the **EasySet** icon to activate the EasySet application if you have not already done so.

2 In the left side of the EasySet application, double-click **Data transmission settings** > **Bluetooth parameters** > **connect/disconnect** > **compose BT address**.
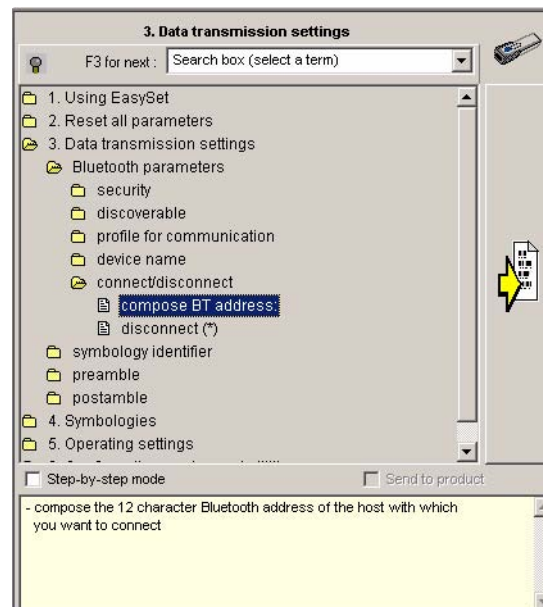
3 Enter the Bluetooth address assigned to your CN30 Computer (shown in your Bluetooth applet), then click **OK** to close this dialog.
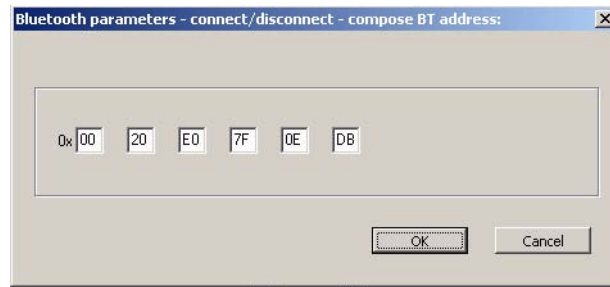
4 The connection label for the SF51 Scanner appears to the right in the EasySet application, similar to the following. Scan the label once, then confirm the Intermec Ready-To-Work™ indicator (green light) on the end of the SF51 Scanner starts blinking, which means it is trying to connect. When connected, the indicator assumes a steady blue, then SF51 data gets wedged through the keyboard interface.

Viewing SF51 Scanner Information from Your CN30 Computer

Note that in the CN30 Computer, the Intermec Settings applet can display up to seven separate SF51 connections. The following illustration shows such connections under the **Data Collection** option.
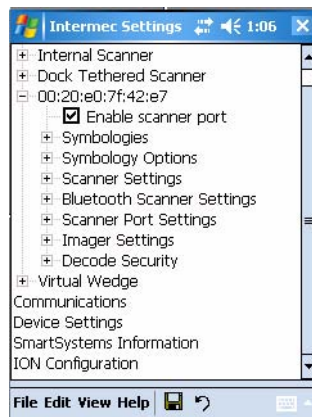
In this applet, tap **Data Collection**, then tap (+) to expand the **SF51 Scanner** connections to view MAC addresses, firmware version numbers, and whether each scanner is connected to the CN30 Computer. When you clear (uncheck) **Enable scanner port**, the SF51 Scanner is disconnected from the CN30 Computer. Check **Enable scanner port** again to reconnect.

If you want to rename these connections to descriptions more suitable for your situation, press the stylus on each **SF51 Scanner** connection for a pop-up menu, then select **Rename**. Enter the new description, then tap **ok** to save your entry.

When the SF51 Scanner is connected, configuration changes take effect immediately. When the SF51 Scanner is not connected, configuration changes take effect once the SF51 Scanner is reconnected.

Configuring Security

Use the next sections to understand how to configure each type of security on your wireless CN30 Computer. If you choose not to use security, see "Using Configuration Parameters" on page 159 for help.

The CN30 Computer provides three types of security for your wireless network: Wi-Fi Protected Access (WPA), 802.1x, and WEP.

If you are using 802.1x security, this sections also assumes that your authentication server and access points are properly configured.

You must use either Microsoft or Funk security to implement your security solution. For details, see "Choosing Between Microsoft and Funk Security" on page 131.

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 CN30 Computer and a trusted root certificate authority (CA) certificate. If you choose to use PEAP, you need to load a root CA certificate. You can use a third-party CA to issue unique client certificates and a root certificate.

If your CA is on your WLAN, select **Start** > **Settings** > the **System** tab > the **Certificates** icon to view certificate details. To remove a certificate, press and hold a certificate, then select **Delete**.
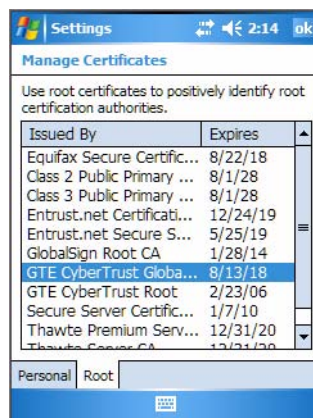
Wireless Network

Your wireless adapter (network interface card) connects to wireless networks of two types: infrastructure networks and ad-hoc networks.

- Infrastructure networks get you onto your corporate network and the internet. Your CN30 Computer establishes a wireless connection to an access point, which links you to the rest of the network. When you connect to a network via an access point, you are using the 802.11b/g infrastructure mode.

- Ad-hoc networks are private networks shared between two or more clients, even with no access point.

Each wireless network is assigned a name (or Service Set Identifier - SSID) to allow multiple networks to exist in the same area without infringement.

Intermec Technologies recommends using security measures with wireless networks to prevent unauthorized access to your network and to ensure your privacy of transmitted data. Authentication (cryptographically protected) by both the network and the user and transmitted data are required elements for secure networks. There are many schemes available for implementing these features.

Terminology

AES (Advanced Encryption Standard)	A block cipher, a type of symmetric key cipher that uses groups of bits of a fixed length - called blocks. A symmetric key cipher is a cipher that uses the same key for both encryption and decryption.
CKIP (Cisco Key Integrity Protocol)	This is Cisco's version of the TKIP protocol, compatible with Cisco Airnet products.
EAP (Extensible Authentication Protocol)	802.11b/g uses this protocol to perform authentication. This is not necessarily an authentication mechanism, but is a common framework for transporting actual authentication protocols. Intermec provides a number of EAP protocols for you to choose the best for your network.
EAP-FAST (Flexible Authentication via Secure Tunneling)	A publicly accessible IEEE 802.1X EAP type developed by Cisco Systems. It is available as an IETF informational draft. An 802.1X EAP type that does not require digital certificates, supports a variety of user and password database types, supports password expiration and change, and is flexible, easy to deploy, and easy to manage
TKIP (Temporal Key Integrity Protocol)	This protocol is part of the IEEE 802.11i encryption standard for wireless LANs., which provides per-packet key mixing, a message integrity check and a re-keying mechanism, thus overcoming most of the weak points of WEP. This encryption is more difficult to crack than the standard WEP. Weak points of WEP include: No Installation Vector (IV) reuse protection, weak keys, no protection against message replay, no detection of message tampering, and no key updates.
WEP (Wired Equivalent Privacy) **encryption**	With preconfigured WEP, both the client CN30 Computer and access point are assigned the same key, which can encrypt all data between the two devices. WEP keys also authenticate the CN30 Computer to the access point - unless the CN30 Computer can prove it knows the WEP key, it is not allowed onto the network. WEP keys are only needed if they are expected by your clients. There are two types available: 64-bit (5-character strings, 12345) (default) and 128-bit (13-character strings, 1234567890123). Enter these as either ASCII (12345) or Hex (0x3132333435).

WPA (Wi-Fi Protected Access)	This is an enhanced version of WEP that does not rely on a static, shared key. It encompasses a number of security enhancements over WEP, including improved data encryption via TKIP and 802.11b/g authentication with EAP. WiFi Alliance security standard is designed to work with existing 802.11 products and to offer forward compatibility with 802.11i.
WPA2 (Wi-Fi Protected Access)	Second generation of WPA security. Like WPA, WPA2 provides enterprise and home Wi-Fi users with a high level of assurance that their data remains protected and that only authorized users can access their wireless networks. WPA2 is based on the final IEEE 802.11i amendment to the 802.11 standard ratified in June 2004. WPA2 uses the Advanced Encryption Standard (AES) for data encryption and is eligible for FIPS (Federal Information Processing Standards) 140-2 compliance.

Choosing Between Microsoft and Funk Security

Before you can implement a security solution on the CN30 Computer, you need to choose between Microsoft and Funk security:

- Funk security is the default setting. It provides everything you get with Microsoft security plus the addition of CCX v1.0 compliance. If you want to use Funk security, you can start configuring your security now. See "Configuring Funk Security" below.

- If you want to use Microsoft security, you need to select Microsoft security as your security choice, then do your configurations. Go to "Configuring Microsoft Security" on page 154 to begin.

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

Configuring Funk Security

You can define up to four profiles for your Funk Odyssey security. Different profiles let your CN30 Computer communicate in different networks without having to change all of your security settings. For example, you might want to set up one profile for the manufacturing floor and one for the warehouse.

1 Select **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon.

2 Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security**.

Intermec Settings

3 Select an active profile, then configure its security settings.

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 maintains forward compatibility.

WPA runs in Enterprise (802.1x) 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 CK31. 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). *Note that you can also use a MobileLAN access point with software release 1.80 or later as an authentication server. For help, see the MobileLAN access WA2XG System Manual (P/N 074921).*

• an access point with an 802.11b/g radio that supports WPA.

• a CN30 Computer with the 802.11b/g radio and the 802.1x/WPA security option.

Configuring WPA Security With Funk Security
Use this procedure to set WPA security on your CN30 Computer with Funk security.

1 Make sure you have configured the communications and radio parameters on your CN30 Computer and that Funk is your security choice.

2 Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."

3 For **Association**, select "WPA" and press **Enter**. **Encryption** automatically defaults to TKIP.

4 For **8021x**, select "TTLS," "PEAP," or "TLS" and press **Enter**.

If you select "TTLS" or "PEAP:"

a Select **User Name**, type your user name, then press **Enter**.

b Select **User Password**, type a user password, then press **Enter**.

c For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CN30 Computer set correctly when you enable **Validate Server Certificate**.*

If you select "TLS:"

a Load a user and root certificate on your CN30 Computer. For help, see "Loading Certificates" on page 129.

b For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CN30 Computer set correctly when you enable **Validate Server Certificate**.*

c You must enter a **User Name** and **Subject Name**. You can also enter a **Server 1 Common name** or **Server 2 Common name** if you want to increase your level of security.

6 Exit the Intermec Settings applet.

Configuring WPA-PSK Security With Funk Security

Use this procedure to set WPA-PSK security on your CN30 Computer with Funk security.
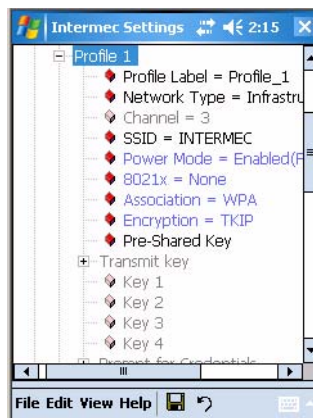
1 Make sure you have configured the communications and radio parameters on your CN30 Computer and that Funk is your security choice.

2 Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."

3 For **Association**, select "WPA" and press **Enter**. **Encryption** automatically defaults to TKIP.

4 For **8021x**, select "None" and press **Enter**.

5 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 chtomaracters. After you enter a passphrase, the CN30 Computer internally converts it to a pre-shared key. This value must match the passphrase on the authenticator.

6 Exit the Intermec Settings applet.

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 *Note that you can also use a MobileLAN access point with software release 1.80 or later as an authentication server. For help, see the MobileLAN access WA2X System Manual (P/N 073915)*

- An access point with an 802.11b/g radio

- A CN30 Computer with an 802.11b/g radio and the 802.1x/WPA security option

Configuring 802.1x Security With Funk Security

Use this procedure to set 802.1x security on your CN30 Computer with Funk security.

1 Make sure you have configured the communications and radio parameters on your CN30 Computer and that Funk is your security choice.

2 Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."

3 For **Association**, select "Open" and press **Enter**.

4 For **Encryption**, select "WEP" and press **Enter**.

5 For **8021x**, select "TTLS," "PEAP," or "TLS" and press **Enter**.

   If you select "TTLS" or "PEAP:"

   a Select **User Name**, type your user name, then press **Enter**.

   b Select **User Password**, type a user password, then press **Enter**.

   c For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CN30 Computer set correctly when you enable* **Validate Server Certificate**.

If you select "TLS:"

a Load a user and root certificate on your CN30 Computer. For help, see "Loading Certificates" on page 129.

b For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CN30 Computer set correctly when you enable **Validate Server Certificate**.*

c You must enter a **User Name** and **Subject Name**. You can also enter a **Server 1 Common name** or **Server 2 Common name** if you want to increase your level of security.

7 Exit the Intermec Settings applet.

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 other sessions.

To use LEAP security, you need a RADIUS server and Cisco access points.

Configuring LEAP Security with Funk Security

Use this procedure to set LEAP security on your CN30 Computer with Funk security.
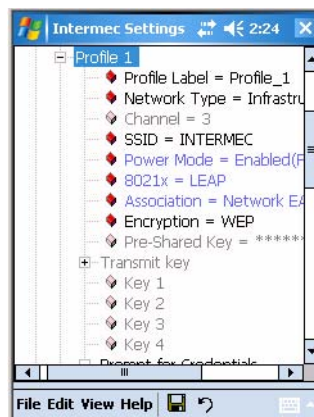
1 Make sure you have configured the communications and radio parameters on your CN30 Computer and that Funk is your security choice.

2 Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4.".

3 For **8021x**, select "LEAP" and press **Enter**.

4 For **Association**, select "Open" or "Network EAP" and press **Enter**.

5 For **Encryption**, select "WEP" and press **Enter**.

6 Select **User Name**, type your user name, then press **Enter**.

7 Select **User Password**, type a user password, press **Enter**, then exit the Intermec Settings applet.

Using Static WEP Security

The CN30 Computer 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 a CN30 Computer with an 802.11b/g radio and an access point with an 802.11b/g radio.

Configuring Static WEP Security With Funk Security

Use this procedure to set Static WEP security on your CN30 Computer with Funk security.
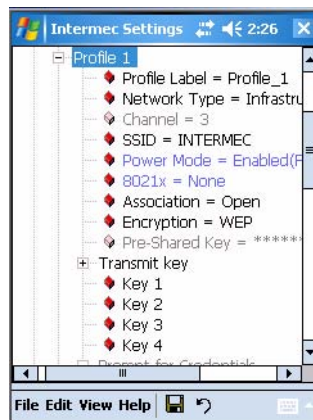
1 Make sure you have configured the communications and radio parameters on your CN30 Computer and that Funk is your security choice.

2 Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4.".

3 For **Association**, select "Open" and press **Enter**.

4 For **Encryption**, select "WEP" and press **Enter**.

5 For **8021x**, select "None" and press **Enter.**

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

8 Exit the Intermec Settings applet.

Using the Profile Wizard

To start 802.11b/g communications on the CN30 Computer, tap **Start** > **Settings** > the **System** tab > the **Wireless Network** icon to access the Profile Wizard for the 802.11b/g radio module.

A profile contains all the information necessary to authenticate you to the network, such as login name, password or certificate, and protocols by which you are authenticated.

You can have up to four profiles for different networks. For example, you may have different login names or passwords on different networks, or you may use a password on one network, and a certificate on another.

Use the Profiles page to select and configure between the networking environments assigned to this 802.11b/g radio.
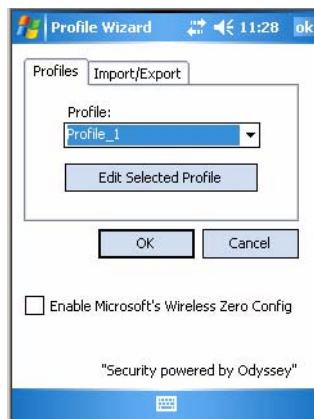
Profile	Tap the drop-down list to choose between four different profiles assigned to this unit, then tap **Edit Select Profile,** make the changes needed for this profile (starting on the next page), then tap **ok** to return to the Profiles page.
Enable Microsoft's Wireless Zero Config	Check this to enable Microsoft's Wireless Zero Config application and disable the Intermec software solution for 802.11b/g, including configuration via the Wireless Network applet.

Basic

Use the Basic page to set the network type, name, and manage battery power for this profile. Tap **ok** to return to the Profiles page.
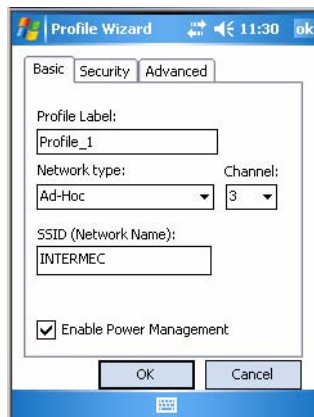
Profile Label	Enter a unique name for your profile.
Network type	Tap the list to select "Infrastructure" if the network uses access points to connect to the corporate network or internet; or "Ad-Hoc" to set up a private network with one or more participants.
Channel	If you select "Ad-Hoc" for the network type, select the channel on which you are communicating with others in your network. There are up to 11 channels available.
SSID (Network Name)	This assumes the profile name unless another name is entered in this field. If you want to connect to the next available network or are not familiar with the network name, enter "ANY" in this field. Consult your LAN administrator for network names.
Enable Power Management:	Check this box to conserve battery power (default), or clear this box to disable this feature.

Security

The following are available from the **8021x Security** drop-down list.

- None
- PEAP *(page 140)*
- TLS *(page 144)*
- TTLS *(page 146)*
- LEAP *(page 151)*

None

Use "None" to disable 802.11b/g Security and enable WEP encryption. To disable 802.1x security:

1 Set **8021x Security** as "None."

2 Set **Association** to "Open."

3 Set **Encryption** to "None."
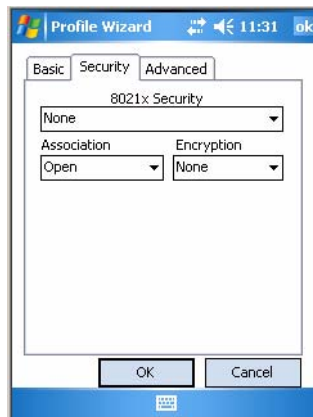
To enable WEP encryption:

1 Set **8021x Security** as "None."

2 Set **Association** to either "Open" if WEP keys are not required; or "Shared" when WEP keys are required for association.

3 Set **Encryption** to "WEP."

4 If you had set **Association** to "Shared," then select a data transmission key from the **Data TX Key** drop-down list near the bottom of this screen, then enter the encryption key for that data transmission in the appropriate **Key #** field.
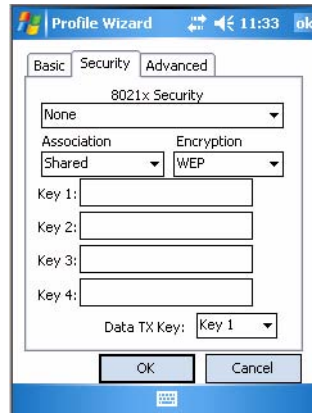
To enable WPA encryption using a pre-shared key:

1 Set **8021x Security** as "None."

2 Set **Association** to "WPA." Skip **Encryption** as it is automatically set to "TKIP."

3 Enter the temporal key as ASCII (12345) in the **Pre-Shared Key** field.
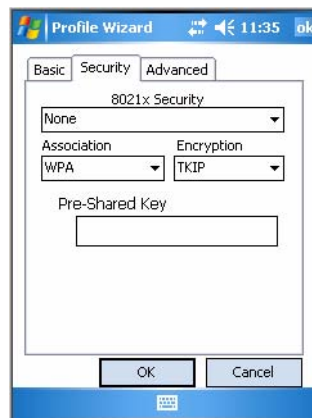
To enable WPA2 encryption using a preshared key:

1 Set **8021x Security** as "None."

2 Set **Association** to "WPA2."

3 Set **Encryption** to either "TKIP" or "AES."

4 Enter the temporal key as ASCII (12345) in the **Pre-Shared Key** field.
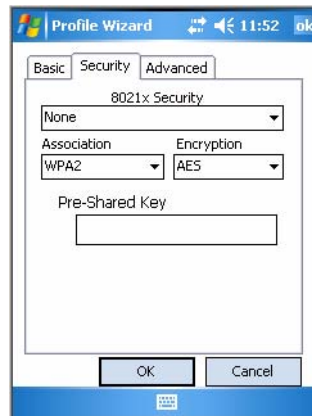
PEAP (Protected EAP)

This protocol is suitable for performing secure authentication against Windows domains and directory services. It is comparable to EAP-TTLS (see page 146), both in its method of operation and its security, though not as flexible. This does not support the range of inside-the-tunnel authentication methods supported by EAP-TTLS. Microsoft and Cisco both support this protocol.

Use "PEAP" to configure the use of PEAP as an authentication protocol and to select "Open," "WPA," "WPA2," or "Network EAP" as an association mode.

To enable PEAP with an open association:

1 Set **8021x Security** as "PEAP."

2 Set **Association** to "Open." Skip **Encryption** as it is automatically set to "WEP."

3 Enter your unique **Username** and password to use this protocol. Select **Prompt** for password to have the user enter this password each time to access the protocol; or leave **Use following password** as selected to automatically use the protocol without entering a password.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 143 for more information.


To enable PEAP with WPA encryption:

1 Set **8021x Security** as "PEAP."

2 Set **Association** to "WPA." Skip **Encryption** as it is automatically set to "TKIP."

3 Enter your unique **Username** and password to use this protocol. Select **Prompt** for password to have the user enter this password each time to access the protocol; or leave **Use following password** as selected to automatically use the protocol without entering a password.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 143 for more information.

To enable PEAP with WPA2 encryption:

1 Set **8021x Security** as "PEAP."

2 Set **Association** to "WPA2."

3 Set **Encryption** to either "TKIP" or "AES."

4 Enter your unique **Username** and password to use this protocol. Select **Prompt** for password to have the user enter this password each time to access the protocol; or leave **Use following password** as selected to automatically use the protocol without entering a password.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 143 for more information.

To enable PEAP with Network EAP:

1 Set **8021x Security** as "PEAP."

2 Set **Association** to "Network EAP."

3 Set **Encryption** to either "WEP" or "CKIP."

4 Enter your unique **Username** and password to use this protocol. Select **Prompt** for password to have the user enter this password each time to access the protocol; or leave **Use following password** as selected to automatically use the protocol without entering a password.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 143 for more information.

Additional PEAP Settings

1 Select an authentication method from the **Inner PEAP Authentication** drop-down list.

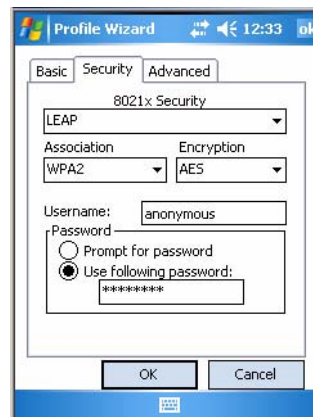|	
EAP/MS-CHAP-V2	Authenticates against a Windows Domain Controller and other non-Windows user databases. This is Microsoft's implementation of PEAP.
EAP/Token Card	Use with token cards. The password value entered is never cached. This is Cisco's implementation of PEAP.
EAP/MD5-Challenge	Message Digest 5. A secure hashing authentication algorithm.

2 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using PEAP.

3 Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*

4 Click **X** to return to the Security page.
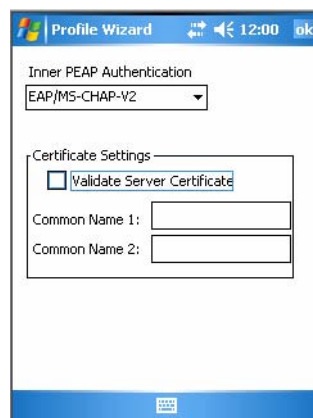
TLS (EAP-TLS)

EAP-TLS is a protocol that is based on the TLS (Transport Layer Security) protocol widely used to secure web sites. This requires both the user and authentication server have certificates for mutual authentication. While cryptically strong, this requires corporations that deploy this to maintain a certificate infrastructure for all their users.

Use "TLS" to configure the use of EAP-TLS as an authentication protocol, and select "Open," "WPA," "WPA2," or "Network EAP" as an association mode.

To enable TLS with an open association:

1 Set **8021x Security** as "TLS."

2 Set **Association** to "Open." Skip **Encryption** as it is automatically set to "WEP."

3 Enter your unique **Subject Name** and **User Name** to use this protocol.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to set options for server certificate validation and trust. See page 146 for more information.

To enable TLS with WPA encryption:

1 Set **8021x Security** as "TLS."

2 Set **Association** to "WPA." Skip **Encryption** as it is automatically set to "TKIP."

3 Enter your unique **Subject Name** and **User Name** as credentials for this profile.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to set options for server certificate validation and trust. See page 146 for more information.
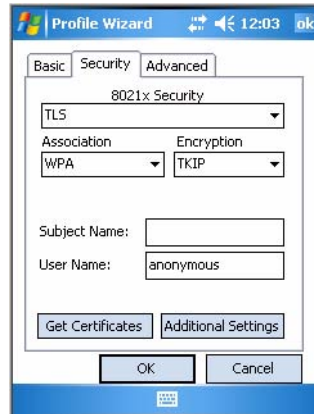

To enable TLS with WPA2 encryption:

1 Set **8021x Security** as "TLS."

2 Set **Association** to "WPA2."

3 Set **Encryption** to either "TKIP" or "AES."

4 Enter your unique **Subject Name** and **User Name** as credentials for this profile.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to set options for server certificate validation and trust. See page 146 for more information.

To enable TLS with Network EAP:

1 Set **8021x Security** as "TLS."

2 Set **Association** to "Network EAP."

3 Set **Encryption** to either "WEP" or "CKIP."

4 Enter your unique **Subject Name** and **User Name** as credentials for this profile.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to set options for server certificate validation and trust. See below for more information.
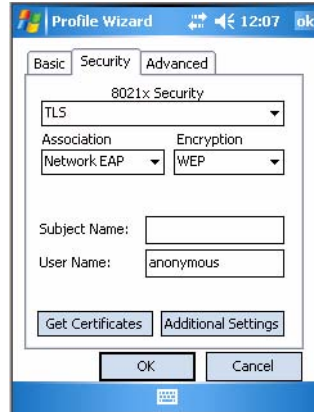
Additional TLS Settings

1 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TLS.

2 Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*

3 Click **X** to return to the Security page.
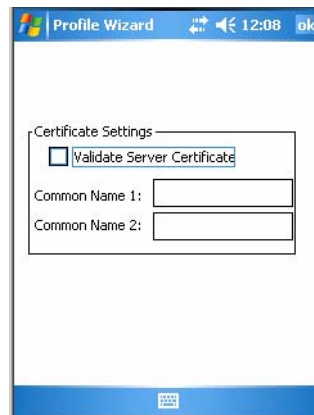
TTLS (EAP-Tunneled TLS)

This protocol provides authentication like EAP-TLS (see page 144) but does not require certificates for every user. Instead, authentication servers are issued certificates. User authentication is done using a password or other credentials that are transported in a securely encrypted "tunnel" established using server certificates.

EAP-TTLS works by creating a secure, encrypted tunnel through which you present your credentials to the authentication server. Thus, inside EAP-TTLS there is another *inner authentication protocol* that you must configure via Additional TTLS Settings.

Use "TTLS" to configure the use of EAP-TTLS as an authentication proto-col, and select "Open," "WPA," "WPA2," or "Network EAP" as an associa-tion mode.

To enable TTLS with an open association *(default configuration):*

1 Set **8021x Security** as "TTLS."

2 Set **Association** to "Open." Skip **Encryption** as it is automatically set to "WEP."

3 Enter your unique **Username** and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to auto-matically use the protocol without entering a password.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 149 for more information.

To enable TTLS with WPA encryption:

1 Set **8021x Security** as "TTLS."

2 Set **Association** to "WPA." Skip **Encryption** as it is automatically set to "TKIP."

3 Enter your unique **Username** and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to auto-matically use the protocol without entering a password.

4 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

5 Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 149 for more information.

To enable TTLS with WPA2 encryption:

1 Set **8021x Security** as "TTLS."

2 Set **Association** to "WPA2."

3 Set **Encryption** to either "TKIP" or "AES."

4 Enter your unique **Username** and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to auto-matically use the protocol without entering a password.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 149 for more information.

To enable TTLS with Network EAP:

1 Set **8021x Security** as "TTLS."

2 Set **Association** to "Network EAP."

3 Set **Encryption** to either "WEP" or "CKIP."

4 Enter your unique **Username** and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

5 Tap **Get Certificates** to obtain or import server certificates. See page 150 for more information.

6 Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 149 for more information.

Additional TTLS Settings

1 Select an authentication method from the **Inner TTLS Authentication** drop-down list.

PAP	Password Authentication Protocol. A simple authentication protocol that sends security information in the clear.
CHAP	Challenge Handshake Authentication Protocol. Use of Radius to authenticate a terminal without sending security data in the clear. Authenticates against non-Windows user databases. *You cannot use this if authenticating against a Windows NT Domain or Active Directory.*
MS-CHAP; MS-CHAP-V2	Authenticates against a Windows Domain Controller and other non-Windows user databases.
PAP/Token Card	Use with token cards. The password value entered is never cached.
EAP	Extensible Authentication Protocol

2 If you select "EAP" for the inner authentication protocol, then select an inner EAP protocol from the **Inner EAP** drop-down list.

3 Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*

4 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TTLS.

5 Enter the **Anonymous EAP-TTLS Name** as assigned for public usage. Use of this outer identity protects your login name or identity.

6 Click **X** to return to the Security page.
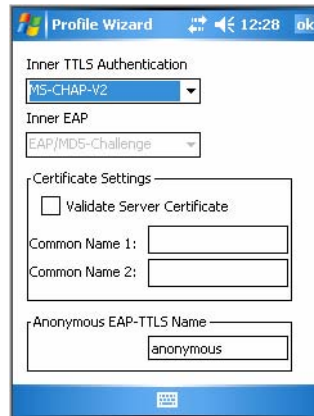
Get Certificates

Certificates are pieces of cryptographic data that guarantee a public key is associated with a private key. They contain a public key and the entity name that owns the key. Each certificate is issued by a certificate authority.

Use this page to import a certificate onto the CN30 Computer.

Root Certificates

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

2 Click **Import Root Cert** to install the selected certificate.

User Certificate

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

2 Tap the **<<<** button next to the **Key Path** field to select the private key (.PVK file) which corresponds to the user certificate chosen in step 1.

3 Tap **Import User Cert** to install the selected certificate.

Web Enrollment

Tap **Web Enrollment** to obtain a user certificate over the network from an IAS Server. Tap **X** to return to the Security page.
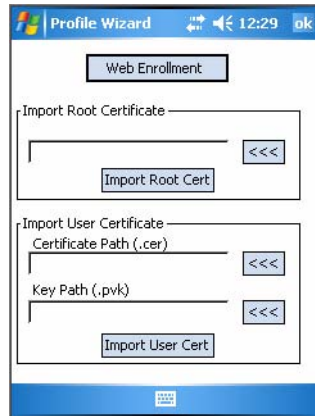
LEAP (Cisco Lightweight EAP)

LEAP is the Cisco Lightweight version of EAP.

Use "LEAP" to configure the use of LEAP as an authentication protocol, select "Open," "WPA," "WPA2," or "Network EAP" as an association mode, or assign "Network EAP." *Note that this defaults to the Network EAP.*

To enable LEAP with an open association:

1 Set **8021x Security** as "LEAP."

2 Set **Association** to "Open." Skip **Encryption** as it is automatically set to "WEP."

3 Enter your unique **Username** to use this protocol.

4 Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

To enable LEAP with WPA encryption:

1 Set **8021x Security** as "LEAP."

2 Set **Association** to "WPA." Skip **Encryption** as it is automatically set to "TKIP."

3 Enter your unique **Username** to use this protocol.

4 Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

To enable LEAP with WPA2 encryption:

1 Set **8021x Security** as "LEAP."

2 Set **Association** to "WPA2."

3 Set **Encryption** to either "TKIP" or "AES."

4 Enter your unique **Username** to use this protocol.

5 Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

To enable LEAP with Network EAP:

1 Set **8021x Security** as "LEAP."

2 Set **Association** to "Network EAP."

3 Set **Encryption** to either "WEP" or "CKIP."

4 Enter your unique **Username** to use this protocol.

5 Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.
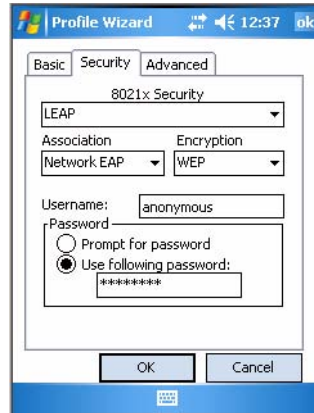
Advanced

Use this page to configure additional settings for this profile.
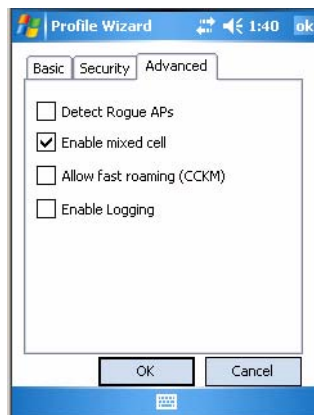
- **Detect Rogue APs:**
  Wireless NICs and APs associate based on the SSID configured for the NIC. Given an SSID, the BSSID with the strongest signal is often chosen for association. After association, 802.1x authentication may occur and during authentication credentials to uniquely identify a user - these are passed between the NIC and the AP.

  The base 802.1x technology does not protect the network from "rogue APs." These can mimic a legitimate AP to authentication protocols and

user credentials. This provides illegal users ways to mimic legitimate users and steal network resources and compromise security.

Check this box to detect and report client behavior suspected of being rogue APs. Once a rouge AP is detected, your CN30 Computer no longer associates with that AP until you perform a warm boot.

Clear this box to solve AP connection problems that result when an AP gets put on the rogue AP list due to inadvertent failed authentications and not because it is a real rouge.

- **Enable mixed cell**:
  Mixed cell is a profile-dependent setting. If enabled, you can connect to mixed cell without using WEP, then you can query the cell to determine whether you can use encryption.

- **Allow fast roaming (CCKM)**:
  When using a wireless LAN that uses Cisco Access Points, a LEAP-enabled client device can roam from one access point to another without involving the authentication (RADIUS) server. If enabled, Cisco Centralized Key Management (CCKM), an access point configured to provide Wireless Domain Services (WDS) takes the place of the RADIUS server (caching credentials of an initial authentication with the RADIUS server) and authenticates the client without perceptible delay in voice or other time-sensitive applications.

- **Enable Logging**:
  Check this box to log what activity incurs for this profile.

Configuring Microsoft Security

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

1 Select **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon.

2 Tap (+) to expand **Communications** > **802.11 Radio** > **Security Choice**. Tap to select "Microsoft Security" from the drop-down list, then press **Enter**.

3 An alert box appears telling you that you must save your settings and warm boot the CN30 Computer for your new security choice to take effect. Tap **Yes** or press **Esc** to clear this box.

4 Save your settings, then perform a warm-boot on the CN30 Computer.

Networks already configured are preferred networks. You can connect to only preferred networks or search for and connect to any available network.

A wireless network can be added either when the network is detected, or manually by entering settings information. To determine if authentication information is needed, see your network administrator.

1 Tap **Start** > **Settings** > the **Network Cards** icon, then tap **Add New . . .**
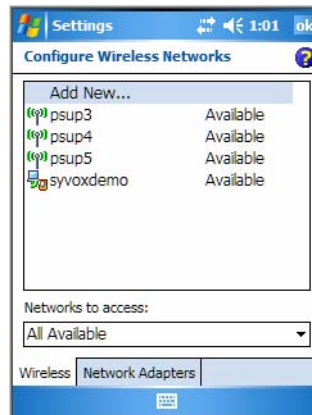
2 Tap the **General** tab, then enter a network name. If the network was detected, the network name is entered and cannot be changed.

From **Connects to**, select to what your network is to connect. If you select "Work," you can do a VPN connection or use proxy servers. If you select "The Internet," you can connect directly to the internet.

To connect to an ad-hoc connection, select **This is a device-to-device (ad-hoc) connection**.
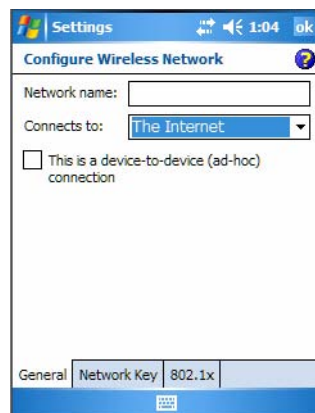
3 Tap the **Network Key** tab, then do the following to disable authentication:

    a Set **Authentication** to either "Open" if WEP keys are not required; or "Shared" when WEP keys are required for association.

    b Set **Data Encryption** to "Disabled."
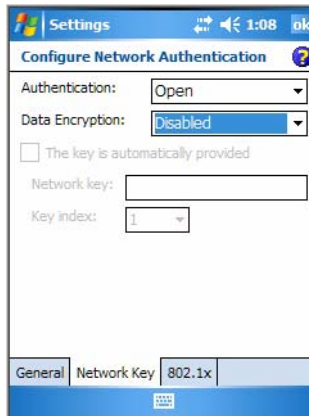
Do the following to enable WEP encryption:

    a Set **Authentication** to either "Open" if WEP keys are not required; or "Shared" when WEP keys are required for association.

    b Set **Data Encryption** to "WEP."

    c To change the network key, clear **The key is automatically**, then enter the new **Network key** and select the appropriate **Key index**.
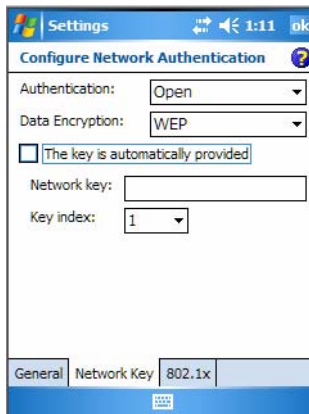
Do the following to enable WPA authentication:

a Set **Authentication** to "WPA."

b Set **Data Encryption** to either "WEP" or "TKIP."
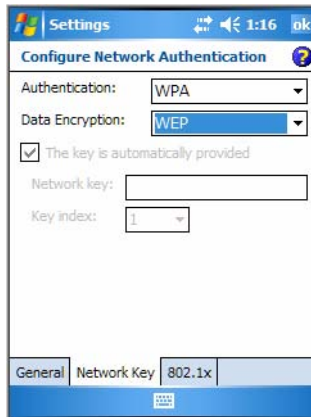
Do the following to enable WPA authentication using a preshared key:

a Set **Authentication** to "WPA-PSK."

b Set **Data Encryption** to either "WEP" or "TKIP."

c Enter the new **Network key.**
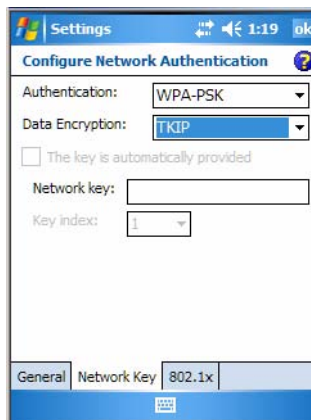
4 Tap the **802.1x** tab, select either "PEAP" or "Smart Card or Certificate" for the EAP type, then tap **Properties** to adjust its settings.
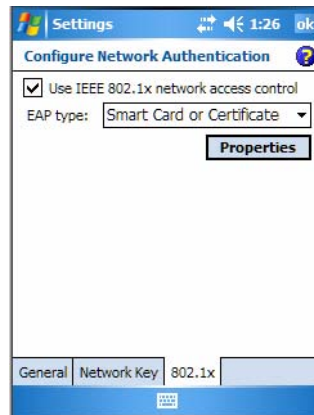
5 Tap **ok** to return to the Configure Wireless Network screen.

6 From the **Networks to access** drop-down list, select "All Available," "Only access points," or "Only computer-to-computer" depending on the type of networks to which you connect. Tap **ok** to close this screen.
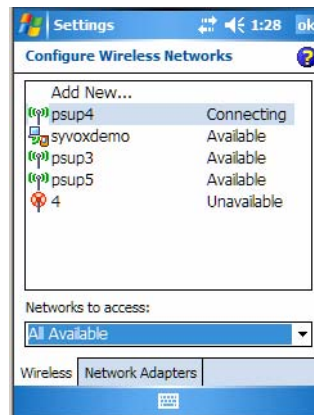
Note: If you select to automatically connect to non-preferred networks, your CN30 Computer detects any new networks and provides you the opportunity to configure them.

Using Configuration Parameters

A configuration parameter changes the way the CN30 Computer operates, such as configuring a parameter to have the CN30 Computer emit a very loud beep in a noisy environment. Use any of these methods to execute configuration parameters:

Scan EasySet bar code labels:
You can use the EasySet application from Intermec Technologies Corporation to print configuration labels. Scan the labels to change the imager configuration and data transfer settings. For more information, see the EasySet online help.

Send Reader Commands through the Network or from an Application
You can configure parameters by sending reader commands through the network or from an application. See the *Intermec Computer Command Reference Manual* (P/N: 073529) for more information.

4 Maintaining the CN30 Computer

Use this chapter to upgrade the operating system, solve problems you may encounter, and perform routine maintenance on your CN30 Mobile Computer.

Note: Desktop icons and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the top, left corner of your CN30 desktop.

Upgrading the Operating System on your CN30 Computer

You can use the *Intermec Recovery Tools CD* to reinstall or upgrade the operating system software on the CN30 Computer. For more information, contact your Intermec representative for more information about this CD.

In future releases, a SmartSystems™ 2.0 client will be made available in the Shared Tech "bundle." You can use the SmartSystems Foundation 2.0 application from Intermec to perform upgrades on your CN30 Computer, versions 2.0 or later. Contact your Intermec representative for more information about the SmartSystems Foundation software.

When you upgrade the operating system, you erase the current configuration and replace it with the new default configuration. You will need to reset the network parameters on the CN30 Computer to reestablish communications with other devices in the network. In other words, if you upgrade the operating system and the default registry from the operating system has changed, the registry is rolled back to the new default.

Troubleshooting Your CN30 Computer

If you have any problems using the CN30 Computer, look at the following for possible solutions:

- Problems While Operating the CN30 Computer (page 163)
- Problems While Configuring the CN30 Computer (page 163)
- Problems While Configuring 802.1x Security (page 164)
- Problems with Wireless Connectivity (page 165)
- Problems Transmitting Data through the Serial Port (page 166)
- Problems While Scanning Bar Codes (page 166)

If you send the CN30 Computer 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 device.

Problems While Operating the CN30 Computer

Problem	Solution
You press I to turn on the CN30 Computer and nothing happens.	• Make sure the backlight is on by pressing E. • Make sure you have a charged battery installed correctly. For help, see "Using the Battery" on page 8. • The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery and try again. • Perform a warm-boot.
The Battery status LED is on.	• If the battery status LED is a steady green, the battery is more than 95% charged and unit is on a charger. • If the battery status LED is blinking red, then the battery is low. The speed of the blinking increases as the battery power gets increasingly lower. • If the battery status LED is a steady red, the main battery is on charge. • If the battery status LED is a steady amber for more than 12 hours, then replace the battery pack.
The CN30 Computer appears to be locked up and you cannot enter data.	• Press I to turn off the CN30 Computer, then press I again to turn on the CN30 Computer. • Press and hold I for ten seconds to warm-boot the CN30 Computer. • Perform a cold-boot on the CN30 Computer. See "Resetting Your CN30 Computer" on page16. • Try reloading the firmware. For help, see "Upgrading the Operating System on your CN30 Computer" on page 162. • If the CN30 Computer does not boot or reset, contact your local Intermec representative for help.

Problems While Configuring the CN30 Computer

Problem	Solution
You scan a configuration command, such as Beeper Volume, and you hear three low beeps.	If you are working in the Intermec Settings applet, you cannot scan configuration commands. Exit the applet to scan configuration commands.
You scan or enter an option for the Scanner Model configuration command and you hear three low beeps.	You may have scanned or entered a Scanner Model command that does not apply to the type of scanner that you have installed. Try scanning or entering the Scanner Model command again and select an option for the type of device you are using.
You cannot type a character on the keypad or you can only type uppercase or lowercase letters.	You may have accidentally locked a modifier key on the keypad. Check the CN30 Computer status bar to see if it contains an icon with a locked symbol. Press the necessary key sequence to unlock the key. For help, see "Using the Keypad" on page 9.

Problems While Configuring 802.1x Security

If you have trouble configuring the computer for 802.1x security, check these problems and possible solutions.

Problems While Configuring 802.1x Security

Problem	Solution
The CN30 Computer indicates that it is authenticated, but it does not communicate with the host.	Make sure that the CN30 IP address, host IP address, subnet mask, and default router are properly configured for your network. **Note**: Do not perform a cold-boot on the CN30 Computer. Doing so resets the time and date. You must also update the time and date for the Certificate of Authority.
The CN30 Computer does not appear to be authenticating and a network connection icon does not appear on the status bar.	The CN30 Computer may not be communicating with your access point. Make sure the network name on the CN30 Computer is the same as the network name (SSID) of the access point with which you are trying to communicate. 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 status bar, but then disappears.	The CN30 Computer may not be communicating with the access point that you want it to communicate with. Make sure that the network name on the CN30 Computer is the same as the network name of the access point with which you are trying to communicate. The default network name is "INTERMEC." The access point with which you are trying to communicate may not be communicating with the server. Make sure your access point is turned on, properly configured, and has 802.1x security enabled.
The CN30 Computer indicates that it is not authenticated.	Make sure that: • The Users Name and Password parameters on your CN30 Computer match the user name and password on your authentication server. You may need to reenter the password on both your CN30 Computer and the authentication server. • On your authentication server, the user and group are allowed and the group policy is allowed to log into the server. For help, see the documentation that shipped with your authentication server software. • The IP address and secret key for your access point must match the IP address and secret key on your authentication server. You may need to reenter the IP address and secret key on both your access point and authentication server. • The authentication server software is running on the server PC.

Problems While Configuring 802.1x Security (continued)

Problem	Solution
You are setting up multiple access points in a network, with different SSIDs, and the connection fails.	The CN30 Computer does not save WEP key values when you change the SSID. Reenter the WEP key value after you change the SSID and select **Apply Network Settings** from the 802.11 Radio menu. You should now be able to connect to the different access points.
You receive a message saying "The server certificate has expired or your system date is incorrect" after you perform a cold-boot on the CN30 Computer.	The date and time on the CN30 Computer are not saved when a cold-boot is performed. You need to reenter the date and time and then select **Apply Network Settings** from the 802.11 Radio menu.

Problems with Wireless Connectivity

Problem	Solution
When you turn on the CN30 Computer after it was suspended for a while (10-15 minutes or longer), it can no longer send or receive messages over the network.	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 "KeepAlive" message (if possible) from the host so that the TCP session is maintained while a CN30 Computer is suspended.
The **No Network Connection** icon appears on the status bar. The CN30 Computer is not communicating with the access point.	The CN30 Computer is not connected to the access point. Make sure the access point is turned on and operating. You may also be using the CN30 Computer out of range of an access point. Try moving closer to an access point to reestablish communications.

Make sure the CN30 Computer is configured correctly for your network. The radio parameters on the CN30 Computer must match the values set for all access points with which the CN30 Computer may communicate. For help, see "Configuring 802.11b/g Radio Communications" on page 108.

If you have an 802.11b radio, the radio initialization process may have failed. Try resetting the CN30 Computer. See "Resetting Your CN30 Computer" on page 16.

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 representative. |
| The CN30 Computer is connected to the Intermec Application Server or host computer and you move to a new site to collect data. The **Network Connection** icon was visible, but is now replaced with the **No Network Connection** icon. | You may have gone out of range of an access point. Try moving closer to an access point or to a different location to reestablish communications. Once you are in range again, the **Network Connection** icon appears again. Any data you collected while out of range is transmitted over the network. |
| The **Network Connection** icon is in the status bar, but you cannot establish a terminal emulation session with the host computer. | There may be a problem with the host computer, a problem with the connection between the Intermec Application Server and the host computer, or a problem with the connection between the access point and the host computer. Check with your network administrator to make sure the host is running and allowing users to login to the system. |

Problems with Wireless Connectivity (continued)

Problem	Solution
The **Network Connection** icon is in the status bar, but the host computer is not receiving any data from the CN30 Computer.	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.

Problems Transmitting Data through the Serial Port

If you are having problems sending or receiving data through the integrated serial port on the CN30 Computer, check these possible problems:

- Make sure the CN30 Computer is connected to the PC, host computer, or RS-232 serial device using the appropriate cable adapter and null modem cable.

- If the CN30 Computer is in a communications dock, make sure that the communications dock is connected to the serial device using the appropriate cable.

For more information on using the serial port, see "Configuring Serial Communications" on page 107.

Problems While Scanning Bar Codes

Problem	Solution
You cannot see a red beam of light from the scanner when you press the **Scan** button and aim the scanner at a bar code label.	There are two possible problems: - 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. You can test the effective range of the scanner. Move within 2 feet 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 5.
When you release the **Scan** button or handle trigger, the **Good Read** light does not turn off.	The **Good Read** light will remain on if you configure the CN30 Computer to use continuous/edge triggering. If you configure the CN30 Computer for level triggering and the **Good Read** light remains on, there may be a problem. Press the **Scan** button or pull the trigger again without scanning a bar code label. If the light is still on, contact your local Intermec representative.
The input device attached to the CN30 Computer does not appear to work well or read bar code labels very quickly.	Try setting the Scanner Model command to the specific input device you have attached. Check the bar code symbologies you have enabled on the CN30 Computer. Enable only the symbologies that you are using.

Problems While Scanning Bar Codes (continued)

Problem	Solution
The scanner will not read the bar code label.	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 the Intermec Settings applet to check the symbologies. On the Data Collection option, expand the Symbologies option beneath each of the devices listed (scanner, virtual wedge) to see what symbologies has a check mark. If there is no check mark, then the bar code symbology is disabled. Check the symbology to enable it, then try scanning the bar code label again.
	Make sure that the application you are running on the CN30 Computer is expecting input from a bar code. You may need to type this information instead of scanning it.
The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured.	The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window.
You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label.	The CN30 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 CN30 Computer quickly and efficiently, you should enable only the bar code symbologies that you are going to scan.
You receive a message reading "Scanner Communication Failure" when trying to connect a 1551E or 1553 decoded scanner.	Make sure that: you are using the correct cable, the scanner cable is attached correctly (when you attach the scanner to the port, it should emit a single power up beep), try enabling the port state using the Intermec Settings applet, try upgrading the scanner firmware, and you select ASCII as the scanner model.
Your 1551E or 1553 scanner was working fine, but after changing the port setting you cannot change the configuration.	The 1551E or 1553 scanner port must be using the correct RS-232 settings to allow configuration in the Intermec Settings applet. Try disabling, then enabling the scanner port state.
Configuration settings in the Intermec Settings applet do not match the settings on your 1551E or 1553 Scanner.	Try disabling, then enabling the scanner port state to synchronize the CN30 Computer settings with the scanner.

Cleaning the Scanner Window and CN30 Screen

To keep the CN30 Computer in good working order, you may need to clean both the scanner window and the CN30 screen.

Clean the scanner window and CN30 screen as often as needed for the environment in which you are using the CN30 Computer. To clean the CN30 Computer, use a solution of ammonia and water.

⚠ Caution

There are no user-serviceable parts inside the CN30 Computer. Opening the unit will void the warranty and may cause damage to the internal components.

Attention: Le CN30 ne contient pas de pièces réparables par l'utilisateur. Le fait d'ouvrir l'unité annule la garantie et peut endommager les pièces internes.

Press (I) to turn off the CN30 Computer. Dip a clean towel or rag in the ammonia solution and wring out the excess. Wipe off the scanner window and screen. Do not allow any abrasive material to touch these surfaces. Wipe dry.

5 Network Support

The CN30 Mobile Computer automatically installs the appropriate software for radio use when the unit is powered on. It provides wireless connectivity via the Wireless Local Area Network (WLAN) using a radio option that provides up to 54 Mbps.

Note: Desktop icons and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the top, left corner of your CN30 desktop.

Configuring IP Address and Name Servers

Configure the IP address and name servers for your CN30 Computer using any of these methods:

Via Intermec Settings

You can set the IP address and name server information using the Intermec Settings applet regardless of the type of communications that may be in your CN30 Computer. To do so, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. Tap (+) to expand **Communications** > **802.11 Radio** > **IP Settings**.
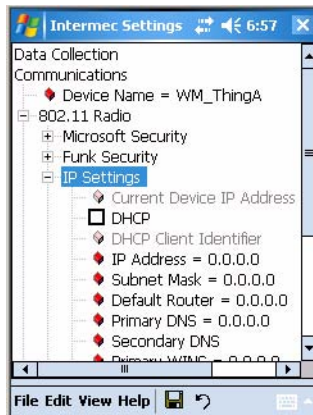
Ethernet Communications

Do the following to configure Ethernet connections:

1 Tap **Start** > **Settings** > the **Connections** tab > the **Network Cards** icon.

2 Select the appropriate option from the **My network card connects to** drop-down list.

3 Select an Ethernet option from the list of adapters, such as "Built-In Ethernet (10Mbps)".
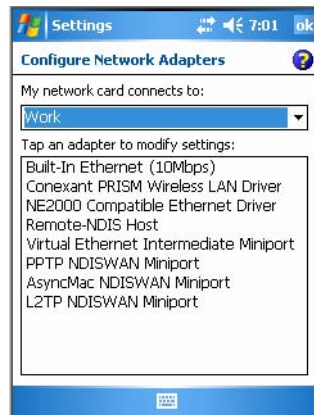
4 Configure the IP address and name server properties, tap **ok**, then **ok** again to return to the list of network card adapters.
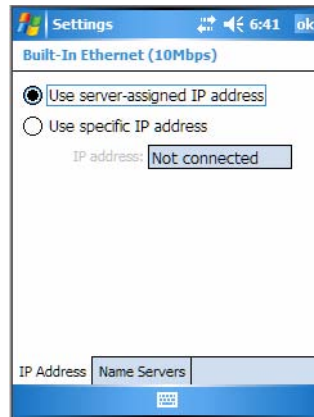
IP Address
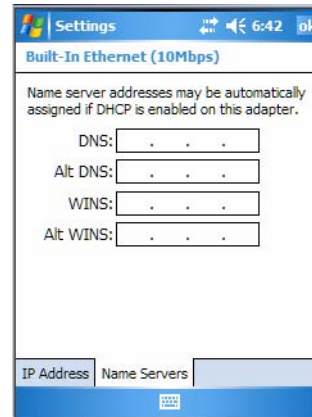
Name Servers

Wireless 802.11 Communications

Do the following to configure wireless connections:

Network Cards

1 Tap **Start** > **Settings** > the **Connections** tab > the **Network Cards** icon.

2 Select the appropriate option from the **My network card connects to** drop-down list.

3 Select a wireless option from the list of adapters, such as "Conexant PRISM Wireless LAN Driver."
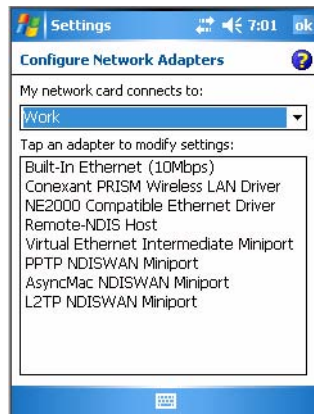
4 Configure the IP address and name server properties, tap **ok**, then **ok** again to return to the list of network card adapters.
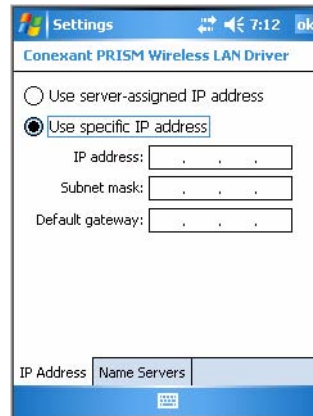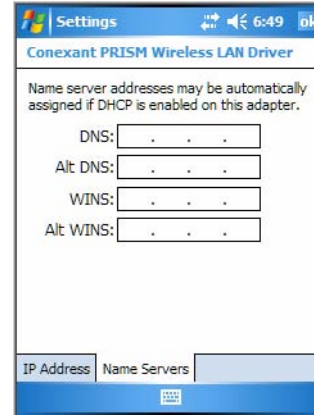
IP Address	Name Servers

Configuring Wireless 802.11 Communications

Go to Chapter 3 "Configuring the CN30 Computer" for configuration information.

To configure wireless 802.11 communications on the CN30 Computer, tap **Start** > **Settings** > the **System** tab > the **Wireless Network** icon to access the Profile Wizard for the 802.11b/g radio module.

You can also configure wireless 802.11 communications using the Intermec Settings applet, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon to access the **Communications** feature.

AutoIP/DHCP

Automatic Private IP Addressing (AutoIP) is enabled by default in Windows Mobile. To remain compatible with other versions of Windows Mobile, enable this setting. You can configure the registry settings in the following to set the required AutoIP/DHCP behavior:

`HKEY_LOCAL_MACHINE\Comm\PRISMNDS1\TcpIp`

Other registry keys that modify the behavior of AutoIP are as follows. You can find the appropriate settings and behavior of each of the AutoInterval, AutoIP, AutoMask, AutoSeed, and AutoSubnet keys in Microsoft Help.

When a TCP/IP client cannot find a DHCP server, it generates an AutoIP address from the 169.254.xxx.xxx block. The client then tries to check for a DHCP server every 15 seconds and if a DHCP server is found, the client drops the AutoIP address and uses the address from the DHCP server.

To disable AutoIP, set the AutoCfg registry entry to "0." If a DHCP server cannot be found, instead of using AutoIP, the system will display the "Unable to obtain a server assigned IP address" message.

Note: If you try to disable AutoIP using a CAB file to set the registry value for AutoIP, remember to set the EnableDHCP value to "1" to keep DHCP enabled.

Note: Use DhcpRetryDialogue and DhcpMaxRetry registry settings to extend the number of attempts that a DHCP client makes to get a DHCP address.

Note: Change the AutoInterval registry key value to make the client retry more often to obtain a DHCP address.

Index

Intermec

Corporate Headquarters
6001 36th Avenue West
Everett, Washington 98203
U.S.A.

tel 425.348.2600

fax 425.355.9551

www.intermec.com

CN30 Mobile Computer User's Manual

P/N 961-054-039A