

Compliance Statement Insert

Device Name: Mobile Computer

Model Number: Model CN30 with
14-Key and 56-Key Modules

The responsible party for the compliance of this device is:

Intermec Technologies Corporation
6001 36th Avenue West
Everett, WA 98203 USA
(425) 348-2600

CAUTION: See users guide instructions for handling, charging, and replacing batteries. Failure to follow those instructions can result in personal injury, fire, or battery explosion.

This product conforms to the following approvals. The user(s) of this product are cautioned to use accessories and peripherals approved by Intermec Technologies Corporation. The use of accessories other than those recommended, or changes to this product that are not approved by Intermec Technologies Corporation, may void the compliance of this product and may result in the loss of the users authority to operate the equipment.

FCC Digital Emissions Compliance

This equipment has been tested and found to comply with the limits for a Class B digital device, pursuant to Part 15 of the FCC Rules. These limits are designed to provide reasonable protection against harmful interference in a residential installation. This equipment generates, uses and can radiate radio frequency energy and, if not installed and used in accordance with the instructions, may cause harmful interference to radio communications. However, there is no guarantee that interference will not occur in a particular installation. If this equipment does cause harmful interference to radio or television reception, which can be determined by turning the equipment off and on, the user is encouraged to try to correct the interference by one or more of the following measures:

- Reorient or relocate the radio or television receiving antenna.
- Increase the separation between the computer equipment and receiver.
- Connect the equipment into an outlet on a circuit different from that to which the radio or television receiver is connected.
- Consult the dealer or an experienced radio television technician for help.

Canadian Digital Apparatus Compliance

This Class B digital apparatus meets all requirements of the Canadian Interference-Causing Equipment Regulations.

Cet appareil numérique de la classe B respecte toutes les exigences du Règlement sur le matériel brouilleur du Canada.

Radio Wave Exposure and Specific Absorption Rate (SAR) Information for Model CN30

The Model CN30 Mobile Computer has been designed to comply with applicable safety requirements for exposure to radio waves. These requirements are based on scientific guidelines that include safety margins designed to assure the safety of all persons, regardless of age and health.

The radio wave exposure guidelines employ a unit of measurement known as the Specific Absorption Rate or SAR. Tests for SAR are conducted using standardized methods with the device transmitting at its highest certified power level.

While there may be differences between the SAR levels of various products, they are all designed to meet the relevant guidelines for exposure to the radio waves.

This radio has been tested and meets the FCC RF exposure guidelines when used with the Intermec accessories supplied or designated for this product. Use of other accessories may not ensure compliance with FCC RF exposure guidelines. The highest SAR value for the CN30 Mobile Computer, as tested by Compliance Certification Services, for single or collocated configuration is 0.056 W/kg.

15.19(a)(3)

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.



DECLARATION OF CONFORMITY

(According to ISO/IEC Guide 22 and EN 45014)

PAGE ONE OF ONE

THE PRODUCT HEREWITH COMPLIES WITH THE REQUIREMENTS OF:
THE LOW-VOLTAGE DIRECTIVE 73/23/EEC.
THE EMC DIRECTIVE 89/336/EEC.
THE R&TTE DIRECTIVE 1999/05/EC.

Manufacturer's Name:
Intermec Technologies Corporation
6001 36th Avenue West
Everett, WA 98203

European Representative:
Intermec International Incorporated
Sovereign House, Vastern Road
Reading, Berkshire
RG1 8BT England

Declares that the product listed below:

Product Type: ITE/Residential, Commercial, and Light Industrial

Product Name: Model CN30

Model Number: Model CN30

Beginning Serial Number: All

Options: All, including 14-Key and 56-Key Modules

Date Issued: July 25, 2005

Conforms to the following product specifications:

Safety: IEC 60950-1 / EN 60950-1

EMC: EN 55022 : 1998 / CISPR Publication 22 : 1997, Class B Limits and Methods

EN 55024 : 1998 (CISPR 24) Information Technology Equipment – Immunity Characteristics –
Limits and Methods of Measurement
EN 61000-4-2 : 1995 – Electrostatic Discharge
EN 61000-4-3 : 1995 – Radiated RF Field
EN 61000-4-4 : 1995 – Electrical Fast Transients
EN 61000-4-5 : 1995 – Voltage Surge
EN 61000-4-6 : 1996 – Conducted RF Field
EN 61000-4-8 : 1995 – Magnetic Field
EN 61000-4-11 : 1994 – Voltage Dips, Short Interruptions, and Variations

EN61000-3-2 : 1995 + A1 : 1998 + A2 : 1998 + A14 : 2000 – Harmonic Current Emissions

EN61000-3-3 : 1994 – Voltage Fluctuation and Flicker

Radio: ETSI EN 300 328-2 V1.1.1 (2000-7)

EN 301 893 V1.2.3 (2003-08)

EN 301 489-17 V1.2.1 (2002-08)

Linear Imager: IEC 60825-1 / EN 60825-1 – Class 1 LED Product

I, the undersigned, hereby declare that the equipment specified above conforms to the above Directive(s) and Standard(s).

Company Official: Michael Abel

Position: Vice President

Signature: _____ Signed Copy on File

Date: July 25, 2005

European Contact: Intermec International Incorporated, Sovereign House, Vastern Road, Reading, Berkshire, RG1 8BT England;
Phone INT+44 118 987 9400; Fax INT+44 118 987 9401



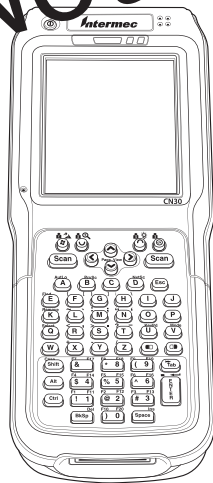


Intermec



User Manual

**Preliminary
Not for Distribution**



**CN30
Mobile
Computer**

Intermec Technologies Corporation

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Technical Communications Department
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Throughout this manual, trademarked names may be used. Rather than put a trademark (™ or ®) symbol in every occurrence of a trademarked name, we state that we are using the names only in an editorial fashion, and to the benefit of the trademark owner, with no intention of infringement.

There are U.S. and foreign patents pending.

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

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

Bluetooth is a trademark of Bluetooth SIG, Inc., U.S.A.

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Before You Begin

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

Safety Summary

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.

Do not repair or adjust alone

Do not repair or adjust energized equipment alone under any circumstances. Someone capable of providing first aid must always be present for your safety.

First aid

Always obtain first aid or medical attention immediately after an injury. Never neglect an injury, no matter how slight it seems.

Resuscitation

Begin resuscitation immediately if someone is injured and stops breathing. Any delay could result in death. To work on or near high voltage, you should be familiar with approved industrial first aid methods.

Energized equipment

Never work on energized equipment unless authorized by a responsible authority. Energized electrical equipment is dangerous. Electrical shock from energized equipment can cause death. If you must perform authorized emergency work on energized equipment, be sure that you comply strictly with approved safety regulations.

Safety Icons

This section explains how to identify and understand dangers, warnings, cautions, and notes that are in this manual. You may also see icons that tell you when to follow ESD procedures and when to take special precautions for handling optical parts. ..



A warning alerts you of an operating procedure, practice, condition, or statement that must be strictly observed to avoid death or serious injury to the persons working on the equipment.

Avertissement: Un avertissement vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour éviter l'occurrence de mort ou de blessures graves aux personnes manipulant l'équipement.



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.

Attention: Une précaution vous avertit d'une procédure de fonctionnement, d'une méthode, d'un état ou d'un rapport qui doit être strictement respecté pour empêcher l'endommagement ou la destruction de l'équipement, ou l'altération ou la perte de données.



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 <http://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 <http://www.intermec.com> to download our current manuals in PDF format. To order printed versions of the Intermec manuals, contact your local Intermec representative or distributor.

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

Telephone Support

These services are available from Intermec Technologies Corporation.

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

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

Who Should Read This Document

This document provides you with information about the features of the access points, and how to install, configure, operate, maintain, and troubleshoot them.

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

1 Using the CN30 Mobile Computer

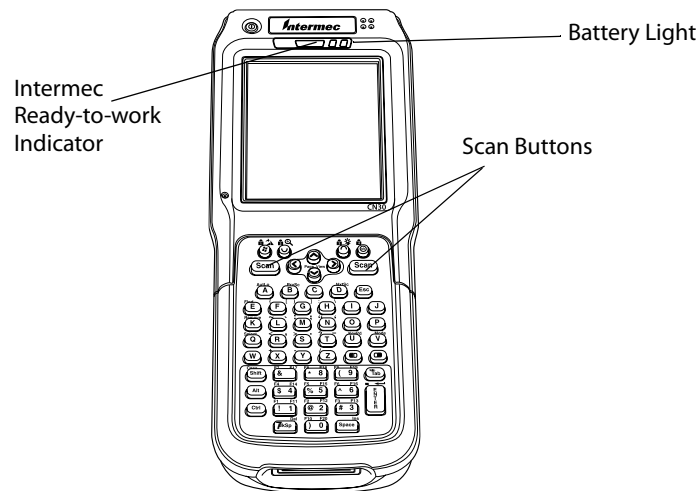


Use this chapter to familiarize yourself with the CN30 Mobile Computer. In this chapter you will find these sections:

- 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.



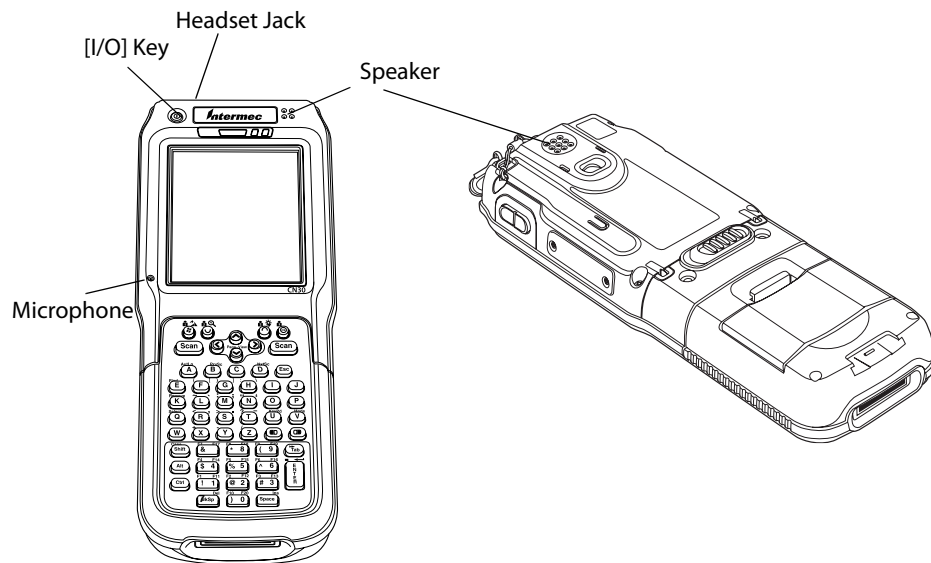
CN30 Mobile Computers with an IEEE 802.11b/g radio installed are Wi-Fi® certified for interoperability with other 802.11b/g wireless LAN devices.

Audio

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

Speaker

The main speaker 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.



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.



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.



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 présenter 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.



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 'Accessories for the CN30'.*

The batteries fully charge in approximately 4 hours.

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

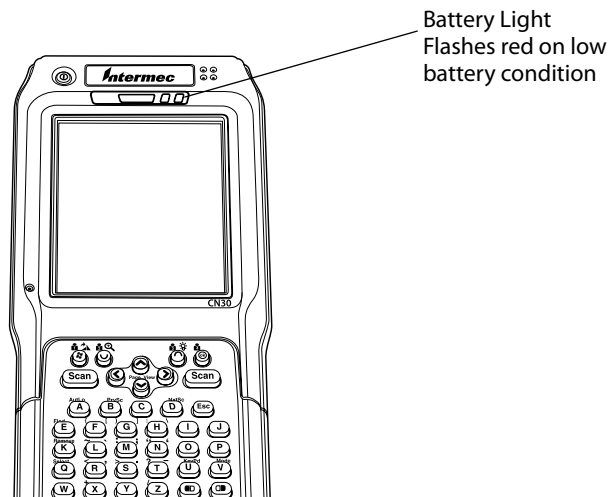
There are several things that you can do to prolong the life of your fully charged battery.

- 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.



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 a 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.

Beeper

For information about setting volume levels for screen taps, ActiveSync alert noises, etc., tap **Start > Help > Learning the Basics**, then select **Adjust the volume for sounds**.

Enable the Beeper

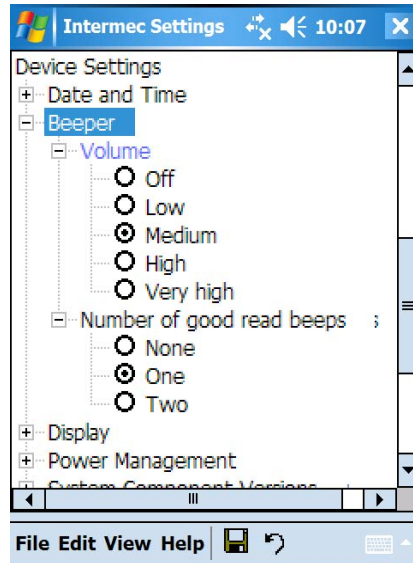
To enable the beeper:

- 1 Tap **Start > Settings > the Personal tab > Sounds & Notifications > the Volume tab**.
- 2 Drag the **System volume** slider bar to the bottom of the “Silent” position.
- 3 Tap **ok** to exit this applet.

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.

Disable the Beeper

Do the following to disable the beeper:

1 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 **OFF**, then close this option.

Using the Keypad

Your CN30 has one of the following keypads:

- 56-key full alphanumeric
- 14-key function

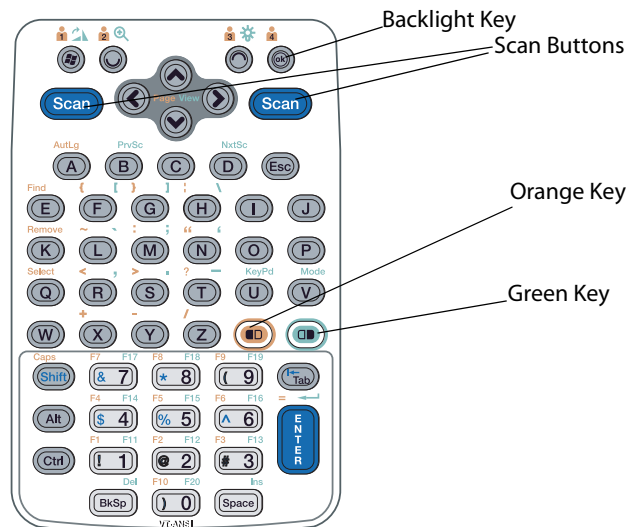
You can order all versions of the CN30 56-keypad with an international overlay. The international overlay supports English and many Western European languages, such as French, German, Italian, Portuguese, and Spanish. You enter all of the characters and functions printed above the keys just like you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

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



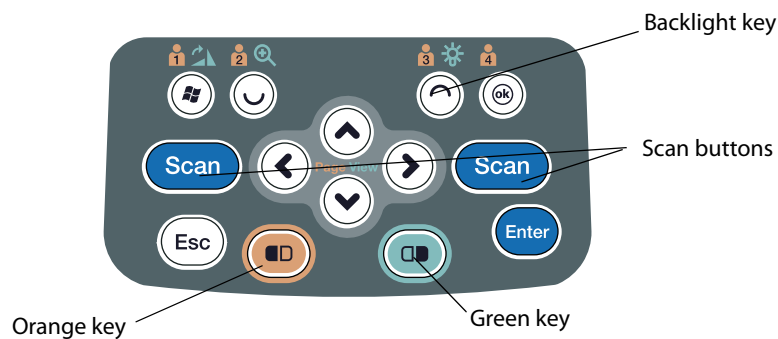
Using the Color-Coded Keys

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



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

To rotate the display

- 1 On the 14-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 56-key keypad, press the Green key.

- 2 Press the backlight 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

- 1 On the 14-key or 56-key keypad, press the orange key. Press the Magnifier key.
- 2 Tap and hold the stylus to move the displayed area of the screen. For more help see the Magnifier help under Windows help.



Note: The Magnifier window is only a display 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.

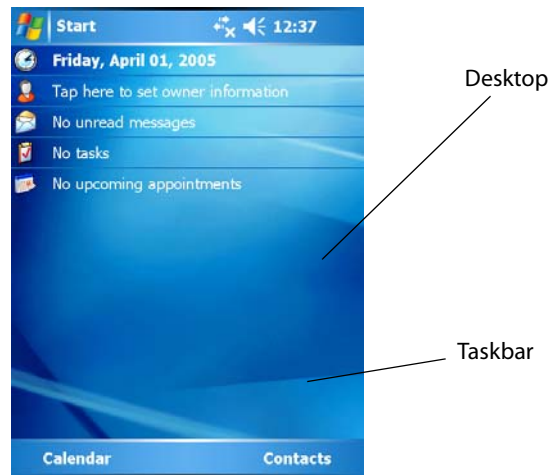
When you press the (I) key to turn the CN30 back on, your computer resumes where it was when you turned it off.

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 “Booting the CN30” on page 122.

Using the Screen

The CN30 Computer has a 3.8" diagonal 640x480 pixel (VGA) transfective 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.

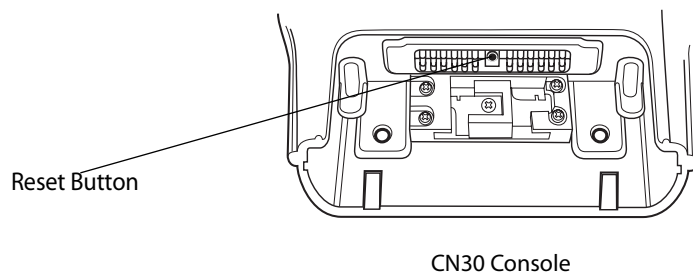
- Press and hold (I) for five to ten seconds, until the screen goes black.

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.



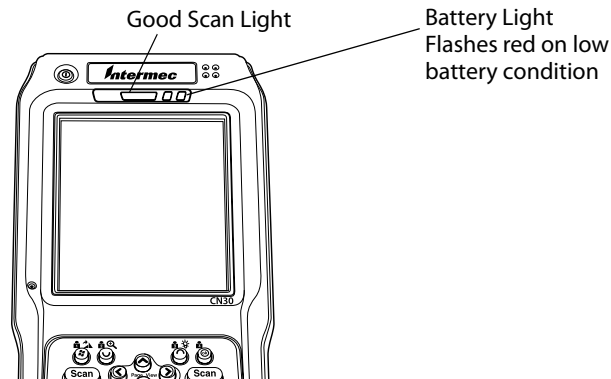
Software Build Version

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.



Understanding the Status Lights

The status lights on the CN30 Computer turn on to indicate battery status or successful bar decodes. 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 (under the right 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.



Scanning Bar Codes



Do not look directly into the window area or at a reflection of the laser beam while the laser is scanning. Long-term exposure to the laser beam can damage your vision.

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 CK60 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 46. For more information on the commands and their parameters, see the *Intermec Computer Command Reference Manual* (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.

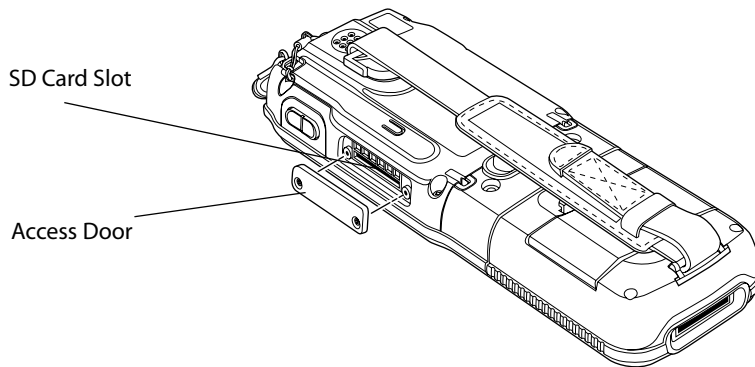
The CN30 Mobile Computer supports Secure Digital storage cards. To access the card slot, locate the access door at the side of the CN30 Mobile Computer, remove its two screws, then remove the door. See the *CN30 Mobile Computer Quick Start Guide* (P/N: 962-054-125) for more information.

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.



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.

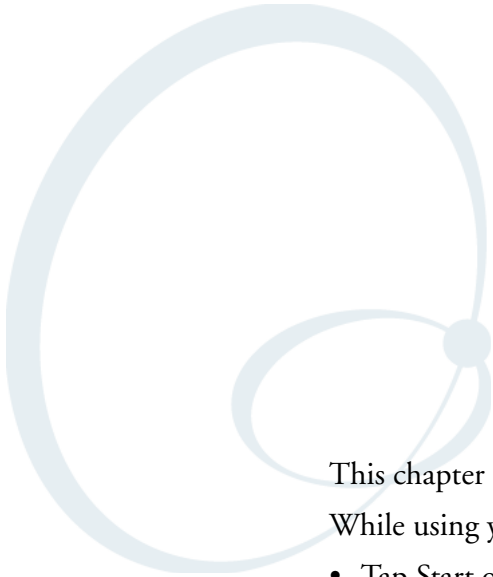
To insert an SD card

- 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.

2 Windows Mobile Version 5.0



This chapter introduces Microsoft Windows Mobile Version 5.0.

While using your CN30 Mobile Computer, remember to:

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

To Check the Intermec build of Windows Mobile Version 5.0 on your CN30:

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

2 Note the "Software Build" information displayed beneath the **Version Information** title. Do the following to determine which Intermec build of Windows Mobile Version 5.0 is on your unit.

Where to Find Information

This chapter describes your CN30 Mobile Computer hardware, provides an overview of the programs on your CN30 Mobile Computer, and explains how to connect your CN30 Mobile Computer to a desktop, a network, or the Internet. For instructions on setting up your CN30 Mobile Computer and installing ActiveSync, see the Quick Start Guide.

Up-to-date information on your Windows Mobile Computer is available from <http://www.microsoft.com/windowsmobile/resources/communities/default.aspx>

Windows Mobile and many of the technologies supported by the CN30 Mobile 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 Version 5.0:

- <http://msdn.microsoft.com/support/>
- <http://support.microsoft.com/>
- [news://news.microsoft.com](http://news.microsoft.com) (a free support option)

Getting Started

Learning to use your CN30 Mobile Computer is easy.

This section describes using and customizing your CN30 Mobile Computer.

Today Screen

When you turn on your CN30 Mobile 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 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.

Your day at a glance.

Tap to open the associated program.

Tap to create a

Tap to disconnect from ActiveSync.new item.

To customize what is displayed on the Today screen, including the background image, tap **Start > Settings > the Personal tab > Today**.

Status icons display information such as low batteries or when the CN30 Mobile 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 41.) To access some programs, tap Start > Programs, and then the program name.

You can also switch to some programs by pressing a program button. Your CN30 Mobile Computer has one or more program buttons located on the front or side of the computer. The icons on the buttons 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 Mobile Computer. Look on the *Windows Mobile Companion CD* for additional programs that you can install onto your CN30 Mobile Computer.

Synchronize information between your CN30 Mobile Computer and desktop.

Keep track of your appointments and create meeting requests.

Keep track of your friends and colleagues.

Send and receive e-mail messages.

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

Create handwritten or typed notes, drawings, and recordings.

Keep track of your tasks.

Play digital audio and video files that are stored on your CN30 Mobile 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. Tap to see more programs. Tap to switch to a program that you recently used. 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, buttons, and the Input Panel button. To create a new item in the current program, tap New. To see the name of a button, tap and hold the stylus on the button. Drag the stylus off the button so that the command is not carried out. Tap to display the input panel. Tap to select Tap to select button commands. menu commands.7

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 the menu to close it without performing an action.

Notifications

When you have something to do, your device 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 Mobile Computer.
- The CN30 Mobile Computer vibrates. You can choose the notification types.

Entering Information

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

- Synchronizing Using Microsoft ActiveSync, synchronize or copy information between your desktop and CN30 Mobile Computer. For more information on ActiveSync, see ActiveSync Help on your desktop.
- Typing
- Using the input panel, enter typed text into the CN30 Mobile Computer.

You can do this by tapping keys on the onscreen keyboard or by using handwriting 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 Mobile 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 button. Tap the arrow next to the Input Panel button to see your choices. Select an input method. Tap to see your choices.
- Input Panel button.

Tap **Start > Help** on your CN30 Mobile Computer to find additional information on Windows Mobile components. *Software Builds*
Do the following to determine which Intermec build of Windows Mobile Version 5.0 is on your unit.

- 1 Select Start > Internet Explorer > the Intermec logo.
- 2 Note the “Software Build” information displayed beneath the 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 Mobile Computer hardware, provides an overview of the programs on your CN30 Mobile Computer, and explains how to connect your CN30 Mobile Computer to a desktop, a network, or the Internet. For instructions on setting up your CN30 Mobile Computer and installing ActiveSync, see the Quick Start Guide. The following is a guide to more information to assist you use your CN30 Mobile Computer.

Windows Mobile and many of the technologies supported by the CN30 Mobile 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):

- <http://msdn.microsoft.com/support/>
- <http://support.microsoft.com/>
- [news://news.microsoft.com](http://news.microsoft.com) (a free support option)

Getting Started

Learning to use your CN30 Mobile Computer is simple and easy. This section describes using and customizing your CN30 Mobile Computer.

Today Screen

When you turn on your CN30 Mobile 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 (shown left) 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.

Your day at a glance. Tap to open the associated program.

Tap to create a new item

Tap to disconnect from ActiveSync.

To customize what is displayed on the Today screen, including the background image, tap Start > Settings > the Personal tab > Today.

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

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 XX.) To access some programs, tap Start > Programs, and then the program name.

You can also switch to some programs by pressing a program button. Your CN30 Mobile Computer has one or more program buttons located on the front or side of the computer. The icons on the buttons 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 Mobile Computer. Look on the Windows Mobile Companion CD for additional programs that you can install onto your CN30 Mobile Computer.

- Synchronize information between your CN30 Mobile Computer and desktop.
- Keep track of your appointments and create meeting requests.
- Keep track of your friends and colleagues.
- Send and receive e-mail messages.
- Browse Web and WAP (Wireless Application Protocol) sites, and download new programs and files from the Internet.
- Create handwritten or typed notes, drawings, and recordings.
- Keep track of your tasks.
- Play digital audio and video files that are stored on your CN30 Mobile 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.

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

Tap to display the input panel.

Tap to select

Tap to select button commands.
menu commands.

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 the menu to close it without performing an action.

Notifications

When you have something to do, your device 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 Mobile Computer.
- The CN30 Mobile Computer vibrates.

You can choose the notification types.

Entering Information

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

- Synchronizing

Using Microsoft ActiveSync, synchronize or copy information between your desktop and CN30 Mobile Computer. For more information on ActiveSync, see ActiveSync Help on your desktop.

- Typing

Using the input panel, enter typed text into the CN30 Mobile Computer. You can do this by tapping keys on the onscreen keyboard or by using handwriting 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 Mobile 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 button. Tap the arrow next to the Input Panel button to see your choices.

Select an input method. Tap to see your choices.

When you use the input panel, your CN30 Mobile 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 Mobile Computer, the more words it learns to anticipate. Tap a text box to display the currently selected input panel (in this case, Keyboard).

Tap to insert anticipated word.

To enter characters, tap them on the onscreen keyboard.

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 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.

Note: If you want to use larger keys, tap the 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 Mobile Computer. Letters, numbers, and punctuation you write are translated into typed text.

Tap the 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.

Using Letter Recognizer

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

Tap the 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.

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 arrow, then tap Transcriber. 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 on the Edit 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 button 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 button. 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 Tools > Undo and try again. You can also select text by tapping the Pen button 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 on the Edit menu.

Converting Writing to Text

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

Select the text you want to convert and tap Recognize

The writing is turned into text. on the pop-up menu. Tap to disable the pen function.

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 you want to 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 your 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 using the Tools menu. Recognition does not work well below a 150% zoom level.
- Write the letters of a word closely and leave big gaps between words so that the CN30 Mobile 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

- S Cross three ruled lines on your firststroke. A drawing box appears. Subsequent strokes in or touching the drawing box become part of the drawing. Drawings that do notcross three ruled lines are treated as writing.

The drawing box indicates the boundaries of the drawing.

Pen button.

Note: You may want to change the zoom levelso that you can more easily work on or view your drawing. Tap Tools and then 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 drawinguntil the selection handle appears. To select multiple drawings, deselect the Pen button and then drag to select the drawings you want.

You can cut, copy, and paste selected drawings by tapping and holding the selected drawingand then tapping an editing command on the pop-up menu, or by tapping the command on the Edit menu. To resize a drawing, make sure the Pen button 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 Inbox 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.

Creating a Recording

1 Hold the CN30 Mobile Computer's microphone close to your mouth or source of sound.

2 Tap and make your recording.

3 Tap when finished. If you are recording in an open note, an icon appears in the note. 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 show or hide the Recording toolbar. Tap to begin recording.

Using My Text

When using Inbox or MSN Messenger, use My Text to quickly insert preset or frequently used messages into the text entry area. To insert a message, tap My Text and tap a message.

- To quickly add common messages, tap My Text and tap a desired message.
- To edit a My Text message, tap Tools > Edit My Text Messages. Tap the message you want to edit and enter new text at the bottom of the screen.

Tap to select a prewritten message.

Finding and Organizing Information

The Find feature on your CN30 Mobile Computer helps you quickly locate information.

Tap Start > Find. Enter the text you want to find, select a data type, and then tap Go to initiate the search.

Note: To quickly find information that is taking up storage space on your CN30 Mobile Computer, select Larger than 64 KB in Type.

You can also use the File Explorer to find files on your CN30 Mobile Computer and to organize these files into folders. Tap Start > Programs > File Explorer.

Tap the folder name to open it.

Tap New Folder to create a new folder.

Note: You can move files in File Explorer by tapping and holding the item you want to move, and then tapping Cut or Copy and Paste on the popup menu.

Customizing Your CN30 Mobile Computer

You can customize your CN30 Mobile 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 of the following tabs located at the bottom of the screen. You might want to adjust the following:

Personal Tab Menus:

To customize what appears on the Start menu, and to enable a pop-up menu from the New button.

Owner Information:

To enter your contact information.

Password:

To limit access to your CN30 Mobile Computer.

Today:

To customize the look and information displayed on the Today screen.

System Tab

Clock:

To change the time or to set alarms.

Power:

To maximize battery life.

Adding or Removing Programs

Programs added to your CN30 Mobile 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 Mobile Computer after factory installation are stored in RAM (Random Access Memory).

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

Adding Programs Using ActiveSync

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

- 1 Determine your CN30 Mobile Computer and processor type so that you know which version of the software to install. Tap Start > Settings > the System tab > About > 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 Mobile Computer types and processors. Be sure to select the program designed for the Windows Mobile and your CN30 Mobile 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 Mobile 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 Mobile 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 Mobile 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 Mobile 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.

Adding a Program Directly from the Internet

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

Download the program to your CN30 Mobile 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 Mobile Computer types and processors. Be sure to select the program designed for the Windows Mobile and your CN30 Mobile Computer processor type.

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

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 > Menus > the Start Menu tab, and then the check box for the program. If you do not see the program listed, you can either use File Explorer on the CN30 Mobile 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 Mobile Computer

Tap Start > Programs > File Explorer, and locate the program (tap the folder list, labeled My Documents by default, and then My Device to see a list of all folders on the CN30 Mobile 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 40.

Using ActiveSync on the desktop

Use the Explorer in ActiveSync to explore your CN30 Mobile Computer files and locate the program. Right-click the program, and then click Create Shortcut. 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 > Remove Programs.

If the program does not appear in the list of installed programs, use File Explorer on your CN30 Mobile 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:

<http://www.microsoft.com/windowsmobile/resources/communities/default.msp>

Using Microsoft ActiveSync, you can synchronize the information on your desktop with the information on your CN30 Mobile Computer. Synchronization compares the data on your CN30 Mobile 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 Mobile Computer with Microsoft Outlook data on your desktop.
- Synchronize Microsoft Word and Microsoft Excel files between your CN30 Mobile 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 and off for specific information types.

With ActiveSync, you can also:

- Back up and restore your CN30 Mobile Computer data.
- Copy (rather than synchronize) files between your CN30 Mobile 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 Mobile Computer.

After installation is complete, the ActiveSync Setup Wizard helps you connect your CN30 Mobile Computer to your desktop, set up a partnership so you can synchronize information between your CN30 Mobile 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 Mobile Computer. Notice that information you have stored in Microsoft Outlook on your desktop was copied to your CN30 Mobile Computer, and you did not have to type a word. Disconnect the CN30 Mobile Computer from your computer and you are ready to go!

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

For information about using ActiveSync on your desktop, start ActiveSync on your desktop, and then see ActiveSync Help.

View connection status.

Tap to connect and synchronize. Tap to stop synchronization.

View synchronization status.

Tap to synchronize via IR or change synchronization settings.

For more information about ActiveSync on your CN30 Mobile Computer, switch to ActiveSync, then tap Start > Help.

Microsoft Pocket Outlook

Microsoft Pocket Outlook includes Calendar, Contacts, Tasks, Inbox, and Notes. You can use these programs individually or together. For example, you can use e-mail addresses stored in Contacts to address e-mail messages in Inbox.

Using ActiveSync, you can synchronize information in Microsoft Outlook or Microsoft Exchange on your desktop with your CN30 Mobile 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 Mobile Computer and desktop or server and updates both computers with the latest information. For information on using ActiveSync, 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 Mobile Computer, tap Start > 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 device and desktop.

Tap to go to Today

Tap to display or edit the appointment details.

Tap to create a new appointment

Synchronizing Calendar

Calendar items stored on your device 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 more 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 device 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 Month 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 device. If you create all day events with attendees on your desktop, use ActiveSync to copy such events to the device. Then, view them in Calendar. For more information on copying files, see ActiveSync Help. To use the device 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 Day 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 drop down 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, and Month). 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.

This displays the appointment in bold.

Tap to access the Agenda view

Note: Tap Start > Today to quickly see your 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 an all day event not marked Free.

This displays a morning appointment. This displays appointments in both morning and afternoon.

This displays an afternoon appointment.

Tap to access the Month view

Creating or Changing an Appointment

To create an appointment, tap New. 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 Dayview, tap the timeslot for the new appointment and then tap New 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.

Note: 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 the calendar
(the appointment is saved automatically).

Tap to choose from predefined text.

Tap to choose from previously entered 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:

- 1 Tap New.
- 2 Tap All Day, then select Yes.

Tap to select either Yes or No whether this is an all day event.

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

You cannot modify or create all day events with attendees on the CN30 Mobile Computer. If you create all day events with attendees on your desktop, use ActiveSync to copy such events to the CN30 Mobile Computer. Then, view them in Calendar. For more information on copying files, see ActiveSync Help. To use the device 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 to select Remind me to enable the reminder feature.

Note: To automatically set a reminder for all new appointments, in the calendar, tap Tools > Options, select 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 automatically.

To choose how you are reminded, for example by a sound, Tap Start > Settings > the Personal tab > the Sounds & Notifications icon.

Adding a Note to an Appointment

You can add written or typed notes and even recordings (if your device supports recordings) to an appointment. This is a good place for maps, drawings, and other detailed information.

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

2 Tap the Notes tab to enter notes. For specific instructions, tap Start > Help > Notes to see Notes Help.

These are controls for the recorder.

Use your stylus to write or draw your information here.

Tap to activate the keyboard. Tap to activate the writing pad. Tap to activate the recorder.

Note: To edit an existing note, tap the appointment in the calendar, tap Edit, then tap the Notes tab.

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 pattern from this dropdownlist.

Select <Edit pattern...> to access the wizard with which to customize your recurrence.

Assigning an Appointment to a Category

- 1 In the calendar, tap the appointment, then tap Edit.
- 2 Tap Categories.
- 3 On the Select tab, select the categories to which you want to assign the appointment.
- 4 To create a new category, tap the Add/Delete tab, enter the category name, then tap Add. The new category is automatically selected in the Select tab.
- 5 Tap ok to return to the appointment.

A check mark indicates a selected category.

Note: To find an appointment assigned to a category, tap Tools > Categories and select the type of appointment that you want displayed. To show all appointments again, tap Tools > Categories and clear all categories.

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 meeting is automatically added to their schedule. In addition, 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 Inbox to send and receive messages. For more information on sending and receiving meeting requests, tap Start > Help >

Calendar to see Calendar Help, and tap Start > Help > Inbox to see Inbox Help.

1 Tap New, then enter the meeting information.

2 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 ok to return to the appointment.

3 Select other desired options and then tap ok.

4 Inbox 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 or recordings) are sent also.

A check mark indicates a selected attendee.

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

Finding an Appointment

There are two ways to find an appointment:

- S Tap Start > Find, enter the appointment name, tap the Type arrow and select Calendar from the drop-down list, and then tap Go.
- S In the calendar, tap Tools > Categories and select the type of appointment you want displayed. To show all appointments again, tap Tools > Categories and clear all categories.

Tap this to select from a drop-down list or enter a phrase.

Tap this for a drop-down list of areas where to search this phrase.

Tap this to see its details.

Note: In Find, you can tap the Find arrow to select from a list of items of previously searched items or phrases.

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 Tools > Options.

- S To see appointment indicators, select icons to display in Show icons. You can choose to display indicators for such things as recurring appointments, appointments with notes, and appointments with reminders. Tap and hold an icon to see its name.

- If you are having trouble reading the calendar, select Use large font. You may see less appointment information.

Tap this to view larger text.

Tap to indicate private. Tap to indicate attendees. Tap to indicate locations.

Tap to indicate notes. Tap to indicate recurrences.

Tap to indicate reminders.

Contacts: Tracking Friends and Colleagues

To switch to Contacts on the CN30 Mobile 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 Mobile Computer and your desktop.

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

Tap to see additional phone numbers and e-mail addresses.

Tap to display or edit the contact details.

Tap and hold to display a pop-up menu of actions.

Creating a Contact

1 Tap New.

2 Using the input panel, enter a name and other contact information. Scroll down to see all available fields.

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

4 To add notes, tap the Notes tab. You can enter text, draw, or create a recording. For more information on creating notes, see “Notes: Capturing Thoughts and Ideas” on page 71.

5 When finished, tap OK to return to the contact list.

Tap to return to the contact list (the contact is saved automatically).

Scroll to see more fields.

Notes is a good place for maps and directions.

Synchronizing Contacts

Contacts stored on your device 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 more 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.

- Tap the default letter (home, work, mobile, or e-mail) to the right of the contact to see additional phone numbers and e-mail addresses.
- Select a contact and press the Left/Right controls to change the default number, displayed as a letter to the right of the contact name.
- 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 View > By Company. Then, tap the desired company name.

Note: You can change the appearance of the contact list by tapping Tools > Options.

Tap for a list of phone numbers and e-mail addresses.

Indicates the default number.

Tap to toggle By Name and By Company views.

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.
- To change a contact, tap it in the contact list, and then tap Edit. To cancel edits, tap Edit > 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 anywhere outside the box to close and return to details.

Note: New contacts are added to the displayed category.

Adding a Note to a Contact

You can add written or typed notes and even recordings (if your device supports recordings) to a contact. Notes are handy for maps and drawings.

1 In the contact list, tap the contact.

2 Tap the Notes tab. For specific instructions, tap Start > Help > Notes to see Notes Help.

These are controls for the recorder.

Use your stylus to write or draw your information here.

Tap to activate the keyboard.

Tap to activate the writing pad.

Tap to activate the recorder.

Note: To edit an existing note, tap the contact, tap Edit, then tap the Notes tab.

Assigning a Contact to a Category

1 In the contact list, tap the contact, and then tap Edit.

2 Scroll to and tap Categories.

3 On the Select tab, select the categories to which you want to assign the contact.

4 To create a new category, tap the Add/Delete tab, enter the category name, then tap Add. The new category is automatically selected in the Select tab.

5 Tap ok to return to the contacts.

A check mark indicates a selected category.

Copying a Contact

1 In the contact list, select the contact. To select multiple contacts, tap and drag.

2 Tap Tools, and then select Copy Contacts.

Sending a Message to a Contact

1 In the contact list, tap and hold the contact. To select multiple contacts, tap and drag. Then, tap and hold the selected contacts.

2 On the pop-up menu, select Send Email or Send SMS, depending upon the type of message to send.

Note: 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

There are four ways to find a contact:

- Tap Start > Find, enter the contact name (first, last, or middle), phone number, or address, select Contacts for the type, then tap Go.
- 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.
- In the contact list, tap the category list (labeled All Contacts by default) and tap the category to which you have assigned a contact. To show all contacts again, select All Contacts.
- To view the names of companies for which your contacts work, in the contact list, tap View > By Company. The number of contacts that work for that company is displayed to the right of the company name.

Note: To quickly move through a long list of contacts, tap one of the sets of letters displayed at the top of the contact list. This takes you to the contact names beginning with those letters.

Enter the first few letters of the contact in question here.

Tap to jump to that portion of the contacts list.

Tap to toggle to By Name (note the Company view)

Deleting a Contact

1 In the contact list, tap and hold the contact. To select multiple contacts, tap and drag. Then, tap and hold the selected contacts.

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

Adding a Contact to Speed Dial

You can create speed dials to call frequently-called numbers with a single tap. Before you can create a speed dial entry for a phone number, that number must already exist in Contacts.

1 From the Phone keypad, tap Speed Dial > New.

2 Tap the desired contact name and number.

3 In the Location field, tap the Up/Down arrows to select an available location to assign as the new speed dial entry. The first speed dial location is reserved for your voice mail.

To delete a speed dial entry, go to the Speed Dial list, tap and hold the contact name in the box to the right of the assigned speed dial number, then tap Delete.

Changing Contacts Options

In the contact list, tap Tools > Options.

- The area code and country/region for new contacts are automatically entered based on the information in Country/Region settings.
- If you are having trouble reading the contacts in the contact list, select Use large font.
- To increase the available space for displaying contacts in the list, clear Show ABC tabs.

Clear this to view more contacts per screen. Tap this to view larger text.

Enter the three-digit area code. Select from a drop-down list.

Tasks: Keeping a To Do List

To switch to Tasks on your CN30 Mobile Computer, tap 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 device and desktop.

Select the category of tasks you want displayed in the list.

Select the sort order of the list.

Use this entry bar to assign a task quickly.

Indicates a high priority.

Tap to display or edit the task details.

Tap and hold to display a pop-up menu of actions.

Tap to create a new task.

Note: To change the way information is displayed in the list, tap Tools > Options.

Creating a Task

- 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 Tools > 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, draw, or create a recording. For more information on creating notes, see “Notes: Capturing Thoughts and Ideas” on page XX.

- 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 select a category from the list. In the task list, you can display tasks by category.
- When finished, tap ok to return to the task list.

Tap to return to the tasklist (the task is saved automatically).

Tap to choose from predefined subjects.

Notes is a good place for maps and drawings.

Note: To quickly create a task with only a subject, tap Entry Bar on the Tools menu. Then, tap Tap here to add a new task and enter your task information.

Synchronizing Tasks

Tasks stored on your CN30 Mobile Computer can synchronize with Microsoft Outlook on your desktop. Task synchronization is automatically selected 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 more information on synchronization, see ActiveSync Help on the desktop.

Notes: Capturing Thoughts and Ideas

To switch to Notes on your CN30 Mobile Computer, tap 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.

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 of actions.

Tap to record.

Tap to show or hide the Recording toolbar.

Tap to create a new item.

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

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 26.

- 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 Mobile Computer.
- Do this by tapping keys on the onscreen keyboard or by using hand writing recognition software.
- Recording

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

Synchronizing Notes

Notes can be synchronized between your desktop and device either through notes synchronization or file synchronization.

Notes synchronization synchronizes the notes on your CN30 Mobile Computer with Outlook Notes on your desktop.

File synchronization synchronizes all notes on your CN30 Mobile Computer with the My Documents folder for the CN30 Mobile 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 device 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 device.

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 Mobile Computer is created on your desktop. All .PWI files placed in the My Documents folder on your device and all .DOC files placed in the My Documents folder for the CN30 Mobile Computer on your desktop are synchronized. Password-protected files cannot be synchronized.

ActiveSync converts documents during synchronization. For more 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 CN30 Mobile 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 Mobile Computer.

Inbox: Sending and Receiving E-mail Messages

To switch to Inbox on your CN30 Mobile Computer, tap Start > Inbox. You can receive Internet e-mail messages and SMS messages in Inbox. 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 Mobile 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 Inbox message list.

With synchronization, messages are synchronized between the device 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 75.

Synchronizing E-mail Messages

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

- S Messages are copied from the Inbox folder on your desktop or the Microsoft Exchange server to the Inbox folder on your CN30 Mobile 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.
- S Messages in the Outbox folder on your device are transferred to Exchange or Outlook and then sent from those programs.
- S The messages on the two computers are linked. When you delete a message on your CN30 Mobile Computer, it is deleted from your desktop the next time you synchronize.
- S 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 Inbox synchronization or changing synchronization settings, see ActiveSync Help on your desktop or select Start > Help > Connections to see Connections Help.

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 device. 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 device. 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 the 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 device and their copies on the mail server. The next time you connect, the mail server sees that the messages are missing from the device 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 Mobile 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 Mobile Computer or desktop. This synchronization of folders occurs whenever you connect to your mail server, create new folders, or rename or delete folders when connected.

For all accounts except ActiveSync, you can access folder options by tapping 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 Mobile 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 .

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

- To setup a POP3 or IMAP4 e-mail account, tap Accounts > New Account. Follow the instructions in the New Account Wizard.
- To setup an SMS account, tap Accounts > Accounts, and then tap SMS. Follow the instructions on the screen.

To change options for an account:

- 1 Tap Accounts > Accounts.
- 2 Tap the name of the account, and follow the instructions on the screen.

To delete an account:

- 1 Tap Accounts > Accounts.
- 2 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.

Note: You cannot add a new account while connected. Tap Accounts > Disconnect to disconnect.

Note: You cannot delete your SMS account.

Downloading Messages from the Server

In Inbox, tap Accounts > Connect to open a connection to the Internet or your corporate network, depending on the account. For more information, tap Start > Help > Connections to see Connections Help.

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

2 Tap Connect. The messages on your CN30 Mobile Computer and e-mail server are synchronized: new messages are downloaded to the CN30 Mobile Inbox folder, messages in the CN30 Mobile Outbox folder are sent, and messages that were deleted from the server are removed from the CN30 Mobile 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 Edit > Mark for Download while in the message window. If you are in the message list, tap and hold the message, and then tap Mark for Download. 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, tap Accounts > Disconnect.

Note: Receiving entire messages consumes storage memory.

Note: 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 device.

Composing and Sending Messages

To compose a message:

- 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 My Text and tap 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 Out-box folder and is sent the next time you connect.

Tap to show or hide the complete header.

Tap to show or hide the recording tool bar. Tap to display the Address Book. Tap to insert common (preset) messages.

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

You can directly call the sender of an SMS message by tapping the icon shown to the left, then Call.

Note: 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.

Companion Programs

The companion programs consist of Microsoft Word Mobile, Microsoft Excel Mobile, Windows Media Player. To switch to a companion program on your CN30 Mobile 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 Mobile Computer, or you can copy documents from your desktop to your CN30 Mobile Computer. Synchronize documents between your

desktop and your CN30 Mobile Computer to have up-to-date content in both locations.

Creating a Document

Use Word Mobile to create documents, such as letters or meeting minutes. To create a new file, tap Start > Programs > Word Mobile > New. You get either a blank document or a template, depending on what you have selected in the Tools > Options dialog box. Select an input mode from the View menu.

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

Word Mobile contains a list of files stored on your CN30 Mobile 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 of actions.

Tap to create a new document.

You can enter information in Word Mobile in one of four modes (typing, writing, recording, and drawing), which are displayed on the View menu. Each mode has its own toolbar, which you can show and hide by tapping the Show/Hide Toolbar button on 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 Tools > Spell Check. To use your new document as a template, move the document to the Templates folder.

You can insert the data in a document. First, make sure that no drawings are selected, 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 .

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 Edit > Find/Replace.

Tap and hold to see a pop-up menu of actions.

Tap to return to the document list (changes are saved automatically).

Tap to change formatting options.

Tap to format text.

Tap to show or hide the toolbar.

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 26.

With Space button selected, drag to insert space. An arrow appears showing the space direction and size.

Tap to highlight selected text.

Tap to select formatting options, such as pen weight and line color.

Space button.

Pen button.

Note: If you cross three ruled lines in a single stylus stroke, the writing becomes a drawing, and can be edited and manipulated as described in “Drawing Mode” on the next page.

Note: Written words are converted to graphics (metafiles) when a Word Mobile document is converted to a Word document on your desktop.

Recording Mode

In recording mode, embed a recording into your document. Recordings are saved as .WAV files. For more information on recording, see “Basic Skills” on page .

For more information on using Word Mobile, tap Start > Help > Word Mobile to see Word Mobile Help.

Drawing Mode

In drawing mode, use your stylus to draw on the screen. Grid lines appear as a guide. When you lift your stylus off the screen after the first stroke, a drawing box indicating the boundaries of the drawing appears. Every subsequent stroke within or touching the drawing box becomes part of the drawing. For more information on drawing and selecting drawings, see “Basic Skills” on page .

Resize an object by dragging the selection handles.

Tap to select formatting options, such as line weight, fill color, and line color.

Tap an arrow to see your choices.
Pen button.

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 Mobile Computer is created on your desktop. Place all files you want to synchronize with the device in this folder. Pass-word-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.

Note: When you delete a file on either your desktop or your CN30 Mobile 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 Microsoft 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. You can attach a password to a workbook to help ensure privacy.

Creating a Workbook

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

Zoom button.

AutoSum button.

Format button.

Note: If your workbook contains sensitive information, you can protect it with a password. To do so, open the workbook, tap Edit > Password. Every time you open the workbook, enter a password, preferably one that is easy for you to remember but hard for others to guess.

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 Restore.
- Tap View > Zoom and select a percentage so that you can easily read the worksheet.
- Show and hide window elements. Tap View and 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 left-most 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.

- Show and hide rows. To hide a row, select a cell in the row you want to hide. Then tap Format > Row > Hide. To show a hidden row, tap Tools > Go To, and then type a reference that is in the hidden row. Then tap Format > Row > Unhide.
- Do the same to show and hide columns. To hide a column, select a cell in the column you want to hide. Then tap Format > Column > Hide. To show a hidden column, tap Tools > Go To, and then type a reference that is in the hidden column. Then tap Format > Column > Un-hide.

For more information on using Excel Mobile, tap Start > Help > Excel Mobile to see Excel Mobile Help.

MSN Messenger

MSN Messenger on your CN30 Mobile Computer provides the same chat environment as MSN Messenger on your desktop. These features include:

- Seeing who is online
- Sending and receiving instant messages
- Having an instant message conversation with a group of contacts
- Telling contacts that you are unavailable
- Blocking contacts from seeing your status or sending you messages

To use MSN Messenger, you need a Microsoft Passport account, or a Microsoft Exchange e-mail account that your employer provides. Once you have one of these accounts, do the following:

- 1 Set up a connection on your CN30 Mobile Computer, such as a modem or wireless connection, that enables you to connect to the Internet.
- 2 Setup an account in MSN Messenger.
- 3 Sign in to MSN Messenger.

Note: To set up a free Hotmail account, go to <http://www.hotmail.com>.

To set up a Microsoft Passport account, go to <http://www.passport.com>.

To set up an Exchange account, see your network administrator.

For more information on using MSN Messenger, tap Start > Help > MSN Messenger to see MSN Messenger Help.

To switch to MSN Messenger, tap Start > Programs > MSN Messenger.

Setting Up an Account

Before you can use MSN Messenger, you must set up the instant messaging accounts to use. For MSN Messenger Service, you must have a Microsoft Passport or Hotmail account. For Exchange Instant Messaging, you must have an Exchange account.

1 Create a connection for your device. To use MSN Messenger Service, setup a connection to the Internet; to use Exchange Instant Messaging, setup a connection to your corporate network. See page for more information on getting connected.

2 In MSN Messenger, tap Tools > Options > the Accounts tab.

3 Select Enable MSN Messenger Service or Enable Exchange Instant Messaging.

4 Enter your sign-in name and password for the selected accounts. Your sign-in name is usually in the username@domain.com form.

5 If you selected both accounts, under Sign in using this account first, select which account to sign in to first.

Signing In and Out

- To sign in, tap anywhere on the screen. Follow the directions on the screen.
- To sign out, tap Tools > Sign Out.
- To sign in upon connecting, tap Tools > Options > General and select the Run this program upon connection box.
- Signing in to an Exchange account may take several minutes depending upon your connection speed. Reducing the number of Exchange contacts decreases your sign-in time.

Working with Contacts

The MSN Messenger window shows all of your messenger contacts at a glance, divided into Online and Not Online categories. From this view, while connected, you can chat, send e-mail, block the contact from chatting with you, or delete contacts from your list using the pop-up menu.

Tap a contact to start a chat.

Tap and hold to display a pop-up menu of actions.

To add a contact, tap Tools > Add a Contact and follow the directions on the screen.

To delete a contact, tap and hold the contact's name, then tap Delete Contact from the pop-up menu.

To see others online without being seen, tap Tools > My Status > Appear Offline.

Managing Contacts

To be alerted each time you are added to a contact list, tap Tools > Options > the Privacy tab.

- To block a contact from seeing your status and sending you messages, tap the contact and tap the right arrow. This moves the contact to the My Block List.
- To unblock a contact, tap the contact and tap the left arrow. This moves the contact to the My Allow List.
- To receive an alert when someone adds you to their contacts list, select Alert me when I am added to a Passport contact list.
- To see who has you listed as a contact, tap View.

Sending a Message

- Tap a contact to whom you want to send a message. Enter your message in the text entry area at the bottom of the screen and tap Send. To quickly add common messages, tap My Text and tap a desired message.
- To invite another contact to an ongoing chat, tap Tools > Invite and tap a contact.

To see who is already chatting or to switch between chats, tap Chats.

Enter a message.

Tap to send message.

Windows Media Player for Windows Mobile

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

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

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

Indicates the progress of the current track.

Tap to adjust volume.

Tap to skip to the next song.

Tap to play a previous song.

Tap to stop.

Tap to play or pause.

For more information about using Windows Media Player for Windows Mobile, tap Start > Help > Windows Media Player to see Windows Media Player Help.

Pocket Internet Explorer

Use Microsoft Pocket Internet Explorer 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 sub-folder 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 98.
- When connected to an ISP or network, you can also download files and programs from the Internet or intranet.

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

The Mobile Favorites Folder

Only items stored in the Mobile Favorites subfolder in the Favorites folder in Internet Explorer on your desktop are synchronized with your CN30 Mobile 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 Pocket Internet Explorer on your CN30 Mobile 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 Mobile 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 Mobile Device 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 Mobile 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 Mobile Computer. Synchronizing mobile favorites downloads Web content to your CN30 Mobile 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 Mobile Device 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 Mobile Computer memory, go only one level deep.
- 8 Connect your CN30 Mobile Computer to your desktop. If synchronization between your CN30 Mobile Computer and desktop does not start, in ActiveSync on your desktop, click Sync.

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

- S 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 Mobile 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 Pocket Internet Explorer

You can use Pocket Internet Explorer to browse mobile favorites and channels that were downloaded to your CN30 Mobile 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 the Favorites button 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 delete a folder or favorite link.

The page that was downloaded the last time you synchronized with your desktop opens. If the page is not on your CN30 Mobile Computer, the favorite is dimmed. Synchronize with your desktop again to download the page to your CN30 Mobile 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 98.

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

- Tap the Favorites button, and then tap the favorite you want to view.
- Tap View > Address Bar. In the address bar that appears at the top of the screen, enter the Web address you want to visit and then tap Go. Tap the arrow to choose from previously entered addresses.

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

Getting Connected

You can setup 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 instant messages, and synchronizing information using ActiveSync.

Connections can be made using a modem, wireless network, or Ethernet. You can use a modem connection to setup connections with an external modem, or through your mobile phone network using a cellular line or GPRS.

Your CN30 Mobile 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 Inbox and view Web or WAP pages by using Pocket Internet Explorer. The communication software for creating an ISP connection is already installed on your CN30 Mobile 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 .
- **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 Inbox, view Web or WAP pages by using Internet Explorer, and synchronize with your desktop. If this is the method you want to use, see “Connecting to Work” on page 102.

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.

Obtain the following information from your ISP. Some ISPs require information in front of the user name, such as MSN/username.

- ISP dial-up access telephone number
- User name
- Password

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

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

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 Mobile Computer into your modem dock. If you are using an external modem that is connected to your CN30 Mobile Computer with a cable, select “Hayes Compatible on COM1.” Tap Next to continue.

3 Enter the access phone number, then tap Next.

4 You should not need to change any settings in Advanced. Most ISPs now use a dynamically-assigned address. If the ISP you are connecting to does not use a dynamically-assigned address, tap Advanced > the TCP/IP tab, tap Use specific IP address, then enter the address. Tap ok to close the Advanced page.

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 Select Location to specify your current location. These settings apply to all connections. Tap Use dialing rules, tap OK, then tap Edit to continue.

Connecting to Work

Specify your current phone type. If your phone type is pulse dialing, check the Pulse dialing box. If your type is tone dialing (as most phone lines are), then clear the Pulse dialing box. 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 Inbox. Before you can use Inbox, 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 114.

- Visit Web and WAP pages by using Pocket Internet Explorer. For more information, see “Pocket Internet Explorer” on page 94.
- Send and receive instant messages with MSN Messenger. For more information, see “MSN Messenger” on page 84.

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

If you have access to a network at work, you can send e-mail messages, view intranet pages, synchronize your CN30 Mobile 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.

Note: To change modem connection settings in My Work Network, tap Manage existing connections. Select the desired modem connection, tap Edit, and 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 tab > the Connections icon. Tap Add a new modem connection beneath My Work Network to initiate this procedure.

2 Enter a name for the connection, such as “Company Connection.” In the Select a modem list, select your modem type. If your modem type does not appear, try reinserting your CN30 Mobile 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.”
- Wireless connections can be made via a mobile phone network or GPRS. If using a mobile phone network to connect, select “Cellular Line.” If using GPRS, tap “Cellular Line (GPRS).” Tap Next to continue.

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

- b In the Area code box, enter the area code. Area codes are not needed in all countries.
- c Enter the main 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.
 - 5 You should not need to change any advanced settings. Instances where you are to change advanced settings include the following. To change advanced settings, tap Advanced. Otherwise, tap Finish.
 - You want to change baudrate settings, dialing string commands, or credit card options.
 - You need to change port settings.
 - The server you are connecting to does not use dynamically-assigned addresses, and you need to enter your TCP/IP settings.

Note: The following information applies when you have “Wireless 802.11” selected via the NDISTRAY pop-up menu.

Creating a Wireless Network Connection

Microsoft Corporation’s wireless network configuration tool is called “Wireless Zero Config.” Intermec Technologies recommends that you use the Wireless Network control panel applet instead as it offers more security choices and exhibit better roaming behavior. Information about the Wireless Network control panel applet is in Appendix A.

Networks already configured are preferred networks and are listed in Wireless 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.

2 Tap the Advanced tab > Network Card > the Wireless tab > Add New

3 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.

4 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.”

To Enable WEP Encryption

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 provided for me automatically box, then enter the new Network key and select the appropriate Key index.

Note: The following information applies when you have Enable Microsoft's Wireless Zero Config checked via the Wireless Network control panel applet.

To Enable WPA Authentication

a Set Authentication to “WPA.” See page 364 for information about WPA encryption.

b Set Data Encryption to either “WEP” or “TKIP.” See page 364 for information about WEP and TKIP encryption.

To Enable WPA Authentication Using a Preshared Key (puters) a Set Authentication to “WPA-PSK.” See page 364 for information about WPA encryption.

b Set Data Encryption to either “WEP” or “TKIP.” See page 364 for information about WEP and TKIP encryption.

c Enter the new Network key.

5 Tap the 802.1x tab, select either “PEAP” or “Smart Card or Certificate” for the EAP type, then tap Properties to adjust its settings.

6 Tap ok to return to the Configure Wireless Network screen.

7 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.

To connect only to networks you have already configured, clear Automatically connect to non-preferred networks. Tap ok to close this screen.

Note: If you select to automatically connect to non-preferred networks, your device detects any new networks and provides you the opportunity to configure them.

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

Hostname or IP address of the VPNserver

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, and follow the instructions on the screen.

1 Tap Start > Settings >the Connections tab>the Connections icon. Tap Add a new VPNserver connection beneath My Work Network to initiate this procedure.

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

device: "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. If a domain name was not provided, try the connection without entering a domain name.

Ending a Connection

You should not need to change any Advanced settings. Instances where you must change advanced settings include:

- The server to which you are connecting does not use dynamically-assigned addresses, and you need to enter your TCP/IP settings.
- You need to change server DNS or WINS settings.

To change advanced settings, tap Advanced. Otherwise, tap Finish.

Insert necessary equipment, such as a network (Ethernet) card, into the device, and use a desired program to automatically begin connecting. For example, switch to Pocket Internet Explorer and browse to a Web page.

- To disconnect, do one of the following:
When connected via modem or VPN, tap the Connectivity icon on the navigation bar, and then tap Disconnect.
- When connected via cable or cradle, detach your device. S When connected via Infrared, move the device 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 In-box on your CN30 Mobile Computer.

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

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

Setting Up an E-mail Account

Do the following to set up an e-mail service. Tap the question mark at the top of the screen for more assistance.

1 On your CN30 Mobile Computer, tap Start > Inbox to access the Inbox application. Tap Accounts > New Account.

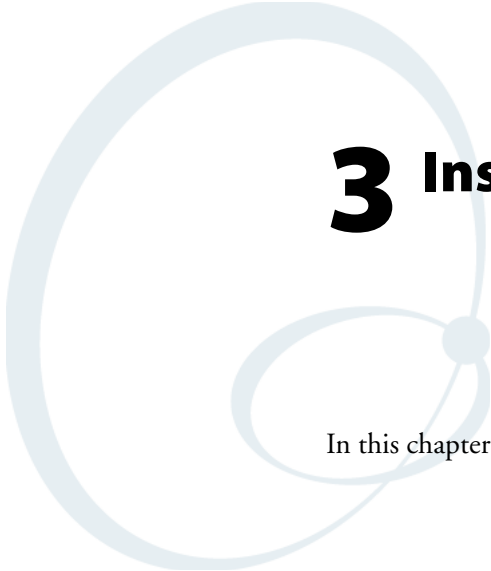
2 Enter an e-mail address, tap Next, Cancel, then Next after the status of the automatic configuration is listed as “Completed.”

3 Enter the Your name and Password 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.

When finished, to connect to your e-mail server, from the Inbox application, tap Accounts > Connect. For more information on using the Inbox application, see “Inbox: Sending and Receiving E-mail Messages” on page



3 Installing Applications

In this chapter you will find guidelines information on installing applications.

Installing Applications

Use the following options to get the package to the preferred location on your CN30 Computer.

- Microsoft ActiveSync
- Secure Digital storage cards

Using Microsoft ActiveSync

This can be a serial, USB, or 802.11i Microsoft ActiveSync connection.

These instructions assume that Microsoft ActiveSync was installed onto your PC and is up and running.

If not, go to Chapter 2, “*Windows Mobile Version 5.0*” for a URL from which to download the latest application.

- 1 Connect your CN30 Computer to your PC via a Microsoft ActiveSync cable.
- 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.
- 3 Click **Explore** to access the “Mobile Device” folder on your unit.
- 4 From your PC, select **Start > Windows Explorer**, then browse the folder for 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 “Mobile 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.

Using a Storage Card

Use the following steps to install an application using a storage card:

- 1 Suspend the CN30 Computer and remove its Secure Digital storage card.
- 2 Using a Secure Digital Adapter card, place the Secure Digital storage card in your PC card drive, then create a subdirectory on the PCMCIA Secure Digital drive in which to store your application.
- 3 Use the CEImager application to add the autorun system to the storage card. See the *Software Tools User's Manual* to learn about CEImager.
- 4 Copy your application, data files, and all required DLLs and drivers to the subdirectory created on the Secure Digital storage card.
- 5 Add your application to the AUTOUSER.DAT file on the “\SDMMC Disk\2577” directory with the following statement:

```
RUN=\<your directory>\<yourapp.exe>
```

where *your directory* is the directory on the Secure Digital storage card where the application was installed, and *yourapp.exe* is the name of your application. Finish the “RUN=” statement with a carriage return linefeed combination. There may be multiple run statements in the file.

- 6 Remove the Secure Digital storage card from your PC and reinstall it into the CN30 Computer, then warm-boot the CN30 Computer to add these files to the Secure Digital storage card.

If the AUTOUSER.DAT file is found and the “RUN=” statement is correct, the task manager launches and executes your program on startup.

Updating the System Software

You can use the *Intermec Developer's Library CD* to reinstall or update the operating system software on the CN30 Computer. For more information, contact your Intermec representative.

Application Migration

Note: These instructions assume that the CN30 Management Tools portion of the *Intermec Developer's Library CD* was installed on your PC and that a storage card was added to the base configuration of the CN30 Computer.

Do the following *required* steps to ensure that CAB files are restored, applications automatically start, and registry is restored on cold-boot:

- 1 From your PC, double-click the **Intermec CE Imager** icon to access the Intermec CEImager application. If this icon is not visible, then double-click the CEIMAGER.EXE executable from the “C:\Intermec\CN30 Mgmt Tools\Tools\CEImager” folder.
- 2 Click **Default** under **Components List** to activate the components.

3 Click (+) to expand the **AutoRun System** component, click (+) to expand the **Destination Media** option, then select the **Secure Digital Card** option.

4 Click **Install** to install the AUTORUN files onto the storage card.

5 Create a “\CabFiles” folder on the storage card. Copy any CAB files that are to be extracted on every startup into this folder.

6 In the “\2577” directory, add your custom AUTOUSER.DAT file. See the *Recovery Help* for more information on how to set up an AUTOUSER.DAT file.

Note: The CN30 Computer automatically calls the RegFlushKey() API every 5 seconds.

7 If you are using the RegFlushKey() API, you must enable persistent registry storage as follows. See Appendix A, “Configurable Settings,” for more information about the Utilities control panel applet.

- From the CN30 Computer, tap **Start > Settings > Control Panel**.
- Double-tap the **Utilities** icon, then tap the **Registry Save** tab.
- **b** Tap **Enable Registry Storage** to save the registry in the Flash File System (PSM) via the “\Flash_File_Store” path.
- Tap **OK** to save your entry and exit the applet.

8 Remove the storage card from the PC and install the card into the CN30 Computer.

9 Perform a cold-boot on the CN30 Computer. Files automatically install from the storage card upon reboot. Any calls to the RegFlushKey() API automatically writes the registry to the Flash File Store.

Migrating from Another 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. A few exceptions:

- Other computers may use the “\Storage Card” folder for nonvolatile storage. You may need to change the application to store data onto the “SDMMC Disk” folder instead of the “\Storage Card” folder if a Secure Digital storage card is present in the system.
- 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 (see page 36).

Installing Applications Using the FTP Server

The CN30 has a built-in FTP server that connects to a network through the 802.11b/g radio or Ethernet. You can use the server to transfer your application file to the CN30. Another benefit of using the FTP server is that you can create FTP scripts to automate the process of copying your files to the CN30. This option is useful when you need to send files to a large number of CN30s.

Installing Applications Using Wavelink Avalanche

You can use the Wavelink Avalanche™ device management system to install applications on all of your wireless CN30s. The CN30 ships with the Avalanche Enabler already loaded on it. Each time the Avalanche Enabler is activated (typically on a warm boot), the CN30 attempts to connect to the Avalanche Agent. When the CN30 connects to the agent, the Agent determines whether an update is available and immediately starts the software upgrade, file transfer, or configuration update.

To use Avalanche to remotely manage the CN30

- 1 Install software packages and updates for the CN30 using the Avalanche Administrative Console.
- 2 Schedule the CN30 updates or manually initiate an update using the Avalanche Administrative Console.

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

Cabinet File Installation

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.

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 on the *Intermec Developer's Library CD*, see its *Software Tools User's Manual* for information.



4 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 an 802.1x radio option that provides up to 11 Mb/sec throughput.

Configuring the CN30 With the Setup Assistant

When first setting up the CN30, use the Setup Assistant to set or enable basic network parameters and connect your CN30 to the network. The Setup Assistant guides you through setting the following basic network parameters:

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

Note: If you are using the CN30 in an EasyADC system, enable the ION client. Your CN30 configures the security parameters, reboots, and launches TE 2000. When the CN30 connects to its host, the Intermec Ready-to-Work Indicator turns on solid blue.

To set other parameters, use the Intermec Settings or another configuration method. The Setup Assistant runs on the CN30 the first time you turn on the computer.

Configuring the CN30 With Intermec Settings

Intermec Settings is an Intermec application that allows you to easily configure the CN30. You can use Intermec Settings in these ways:

- Intermec Settings can configure CN30s one-to-one through an ActiveSync connection.
- Intermec Settings runs as a plug-in to the Wavelink Avalanche device management system. Avalanche automates device management within a network and lets you install, update, and manage the software and configurations of wireless and other mobile devices.

The ActiveSync (one-to-one) version of Intermec Settings is available from the Intermec web site as part of the Intermec Developer's Library (IDL) download or from the IDL CD. For information on installing ActiveSync and establishing a partnership, see "Installing Applications Using ActiveSync" on page

Intermec Settings is also available as part of a Wavelink Avalanche package for the CN30. You can also download this package from the Intermec web site.

For information on how to use the Intermec Settings application, see the online manual available from the Help menu in Intermec Settings.

Configuring the CN30 for Your Network

The CN30 is a versatile Mobile computer that you can easily add to your wired or wireless data collection network. You can connect your CN30 to your network using:

- Serial communications
- 802.11b/g radio communications
- Ethernet communications
- Bluetooth™ radio communications

Configuring Serial Communications

The CN30 has a serial port to transfer data to and receive data from another device via RS-232 communications. You can also insert the CN30 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 on accessories and how to order them, see page XX.

To use serial communications with your CN30

- 1 Turn off the CN30.
- 2 Connect the CN30 to the serial port of another device. You can do this in one of the following ways:
 - Connect 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.
 - Connect the AD9 charge dock to the serial port of the other device using a DB9-pin to DB9-pin serial adapter cable. Insert the CN30 into the dock.
- 3 Turn on the CN30.

Configuring 802.11b/g Radio Communications

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

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 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 supports these network protocols:

- TCP/IP
- UDP Plus

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

Configuring the Network Parameters for a TCP/IP Network

In a TCP/IP network, the CN30 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

1 Configure these network parameters on each CN30 in the network:

- Network Name (SSID)
- IP Settings (if not using DHCP)

2 Configure security. For help, see “Configuring Security” on page XX.
work.

You can configure the network parameters on the CN30 with the Configuration Utility. For help, see “Configuring the CN30 with the Configuration Utility” on page XX.

Configuring Bluetooth Radio Communications

You can send information to printers wirelessly using the Bluetooth qualified module by Socket Communications. The Bluetooth technology uses short-range radio links and allows for communications over a 5-meter (16.4 ft) range.

To configure the CN30 for wireless printing

1 Go to **Settings > System > Wireless Printing**. The Bluetooth menu appears:

2 Select **Set Printer (Device Discovery)** to start the Bluetooth device discovery. A list of discovered devices appears in the Devices dialog box.

3 Select the device you want to use from the list and press **Enter**.

You are now ready to send information to the selected device. If devices are discovered, but your device is not displayed in the box, make sure your device and radio are turned on and try device discovery again. For more information on using Bluetooth communications, see the *Wireless Printing Development Guide* available on the *Intermec Developer's Library CD* (P/N 235-114-001) or the Intermec web site.

Configuring Security

The CN30 provides three types of wireless local area network (WLAN) security:

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

Use the next sections to understand how to configure each type of security on your wireless CN30. If you choose not to use security, see “Disabling Security” on page XX for help. Intermec always recommends that you implement security.

The CN30 provides both Microsoft and Funk security choices. Microsoft security is the default setting. Use the following sections to set security using either Microsoft or Funk as your security choice.

If you want to extend the connectivity of your WLAN to remote servers, you can configure a virtual private network (VPN) to communicate through a dedicated server to a corporate network over the internet. For help setting up a VPN, see “Configuring a VPN” on page 67. If you are using 802.1x security, this section also assumes that your authentication server and access points are properly configured. For more information on the different types of security, see the *MobileLAN™ secure 802.1x Security Solution*

Installation Guide (P/N 073134) available at www.intermec.com.

Using Funk Security

Funk security provides everything you receive with Microsoft security plus CCX v1.0 compliance. Funk security enables you to use LEAP and TTLS authentication on your CN30.

The type of security you can choose is not dependent on your authentication server. To use Funk security, you need to:

- Select Funk security as your security choice
- Select a profile

Selecting Funk as Your Security Choice

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

To select Funk security as your security choice

- 1 Press C and then B. The **System Main Menu** appears.
- 2 Select the **Configuration Utility**.
- 3 Select **Communications > 802.11 Radio > Funk Security**.
- 4 From the Security Choice dialog box, choose **Funk Security**. An alert box appears asking if you want to warm boot now.
- 5 Press **Enter**. Your CN30 warm boots.

Selecting a Profile

You can define up to four profiles for your Funk security. Different profiles let your CN30 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.

To select a profile

- 1 Press C and then B. The **System Main Menu** appears.
- 2 Select the **Configuration Utility**.
- 3 Select **Communications > 802.11 Radio > Select Profile**.
- 4 Select **Active Profile** and choose the profile you want to name.
- 5 (Optional) Select **Change Profile Label** to give the active profile a meaningful name.
- 6 Repeat Steps 4 and 5 for as many profiles as you want to define.
- 7 Select the profile you want to configure with security settings.
- 8 Press **Esc** to return to the 802.11 Radio menu.
- 9 Configure your security settings. **e**

Configuring WPA Security

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

Currently, WPA satisfies some of the requirements in the IEEE 802.11i draft standard. When the standard is finalized, WPA will maintain forward compatibility. WPA runs in 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 WLAN.
- In PSK mode, WPA provides user authentication using a shared key between the access point and the CN30. 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: You can also use a MobileLAN access point with software release 1.80 or later as an authentication server. For help, see the system manual for your access point.

- An access point with an 802.11b/g radio that supports WPA
- CN30 with the 802.11b/g radio and the 802.1x/WPA security option

Configuring WPA Security With Enterprise Security

Use these procedures to set WPA and WPA-PSK security on your CN30 with Funk security.

To enable WPA security on your CN30 with Funk security

- 1 Make sure you have configured the communications and radio parameters on your CN30.
- 2 Make sure you have selected Funk as your security choice.
- 3 Press C and then B to open the System Main Menu.
- 4 Choose **Configuration Utility > Communications > 802.11 Radio > Profile Settings**.
- 5 For **Association**, choose **WPA** and press **Enter**. Encryption automatically changes to TKIP.
- 6 For **Authentication**, choose **TTLS, PEAP, or TLS** and press **Enter**.

If you choose TTLS or PEAP:

- a Select **Password prompt**, choose **Enter password now**, and then press **Enter**.

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

- b Select **User Password**, type a user password, and then press **Enter**.
- c Select **User name**, type your user name, and then press **Enter**.
- d For **Validate Server Certificate**, choose **Enabled** and press **Enter**.

Note: You must have the date on the CN30 set correctly when you enable Validate Server Certificate..

If you choose TLS:

- a Load a user and root certificate on your CN30. For help, see “Loading Certificates” on page 64 for help.
 - b For **Validate Server Certificate**, choose **Enabled** and press **Enter**.
 - c You must enter a **User Name** and **Subject Name**. You can also enter a **Server Common Name** if you want to increase your level of security.
- 7 Exit the Configuration Utility.

To enable WPA-PSK security on your CN30 with Funk security

- 1 Make sure you have configured the communications and radio parameters on your CN30.
- 2 Make sure you have selected Funk as your security choice.
- 3 Press C and then B to open the System Main Menu.
- 4 Choose **Configuration Utility > Communications > 802.11 Radio > Profile Settings**.
- 5 For **Association**, choose **WPA** and press **Enter**. Encryption automatically changes to TKIP.
- 6 For **Authentication**, choose **None** and press **Enter**.
- 7 For **Pre-Shared Key**, enter the pre-shared key or the pass phrase. The pre-shared key must be a value of 32 Hex pairs. The preshared key must be preceded by 0x. The value must match the key value on the access point. The pass phrase must be between 8 and 63 characters.
- 8 Exit the Configuration Utility.

Configuring WPA Security With Microsoft Security

Use these procedures to set WPA and WPA-PSK security on your CN30 with Microsoft security.

To enable WPA security on your CN30 with Microsoft security

- 1 Make sure you have configured the communications and radio parameters on your CN30.
- 2 Press C and then B to open the System Main Menu.

3 Choose **Configuration Utility > Communications > 802.11 Radio > Security Settings**.

4 For **Network Authentication**, choose **WPA** and press **Enter**.

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

If you choose TLS:

a Select **Properties**. The Auth. Settings dialog box appears.

b Choose the **Select** button.

c Select your certificate from the list and press **Enter**.

If you choose PEAP:

a Select **Properties**. The Auth. Settings dialog box appears.

b Make sure the **Validate Server** check box is selected.

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

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

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

f Press **Enter**. You return to the **Communications** menu.

6 Exit the Configuration Utility.

To enable WPA-PSK security on your CN30

1 Make sure you have configured the communications and radio parameters on your CN30.

2 Press C and then B to open the System Main Menu.

3 Choose **Configuration Utility > Communications > 802.11 Radio > Security Settings**.

4 For **Network Authentication**, choose **WPA-PSK**.

5 For **Network Key Value**, enter a pass phrase or pre-shared key.

The pass phrase must be a value between 8 to 63 ASCII characters. The pre-shared key must be a value of 32 Hex pairs. The pre-shared key must be preceded by 0x. The value must match the key value on the access point.

6 Exit the Configuration Utility.

Configuring 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: 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 System Manual* (P/N 067150) or *MobileLAN access WA2X System Manual* (P/N 073915).

- An access point with an 802.11b/g radio
- A CN30 with an 802.11b/g radio and the 802.1x/WPA security option

Configuring 802.1x Security With Funk Security

Use this procedure to configure 802.1x security on your CN30 with Funk security.

To enable 802.1x security on your CN30 with Funk security

- 1 Make sure you have selected Funk as your security choice.
- 2 Make sure you have configured the communications and radio parameters on your CN30.
- 3 Press C and then B to open the System Main Menu.
- 4 Choose **Configuration Utility > Communications > 802.11 Radio > Profile Settings**.
- 5 For **Association**, choose **Open** and then press **Enter**.
- 6 For **Encryption**, choose **WEP** and then press **Enter**.
- 7 For **Authentication**, choose **TTLS**, **PEAP**, or **TLS** and then press **Enter**.

If you choose TTLS or PEAP:

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

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

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

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

d For **Validate Server Certificate**, choose **Enabled** and press

Enter.

If you choose TLS:

a Load a user and root certificate on your CN30. For help, see “Loading a Certificate” on page 64 for help.

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

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

8 Exit the Configuration Utility.

Configuring 802.1X Security With Microsoft Security

Use this procedure to configure 802.1x security on your CN30 with Microsoft security.

To enable 802.1x security on your CN30

1 Make sure you have configured the communications and radio parameters on your CN30.

2 Press C and then B to open the System Main Menu.

3 Choose **Configuration Utility > Communications > 802.11 Radio > Security Settings**.

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

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

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

If you choose TLS:

a Select **Properties** and choose the **Select** button.

b Select your certificate from the list and press **Enter** twice.

c Press **Esc** until you return to the Communications menu and “Apply Network Settings” appears on the screen. The User Logon dialog box appears.

d In the User Logon dialog box, enter the **User Name** and **Domain** and press **Enter**.

If you choose PEAP:

Once the radio starts to authenticate, the Network Password dialog box appears.

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

b Press **Enter**. You return to the **Communications** menu.

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

8 Exit the Configuration Utility.

Configuring LEAP Security

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

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

To use LEAP security, you need:

- A RADIUS server
- Cisco access points

Note: LEAP security is not supported with Microsoft security.

To enable LEAP security on your CN30

- 1 Make sure you have selected Funk as your security choice.
- 2 Make sure you have configured the communications and radio parameters on your CN30.
- 3 Choose Configuration Utility > Communications > 802.11 Radio > Profile Settings.
- 4 For Authentication, choose LEAP and then press Enter.
- 5 For Association, choose Open or Network EAP and then press Enter.
- 6 For Encryption, choose WEP and then press Enter.
- 7 Select Password prompt, choose Enter password now, and then press Enter.

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

- 8 Select **User name**, type your user name, and then press **Enter**.

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

- 10 Exit Intermec Settings.

Configuring Static WEP Security

The CN30 uses the Wired Equivalent Privacy (WEP) protocol to provide your wireless networks the same level of protection as a comparable wired network. WEP adds security to wireless local area networks (WLANs) based on the 802.11b standard.

To use WEP security, you need:

- A CN30 Mobile computer with an 802.11b/g radio.
- An access point with an 802.11b/g radio.

To enable WEP security on the CN30 with Funk security

- 1 Make sure you have selected Funk as your security choice.
 - 2 Make sure you have configured the communications and radio parameters on your CN30.
 - 3 Press C and then B to open the System Main Menu.
 - 4 Choose **Configuration Utility > Communications > 802.11 Radio > Profile Settings**.
 - 5 For **Association**, choose **Open** and then press **Enter**.
 - 6 For **Encryption**, choose **WEP** and then press **Enter**.
 - 7 For **Authentication**, choose **None** and then press **Enter**.
 - 8 Select **WEP Key** and then define a value for each WEP key.
- You can define up to four WEP keys. Enter an ASCII key or a hex key that is either 5 bytes or 13 bytes long depending on the 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.
- 9 Press **Esc** to return to the Profile.
 - 10 Select **Network Key Index**, choose the WEP key you want to use, and press **Enter**.
 - 11 Exit the Configuration Utility.

To enable WEP security on the CN30 with Microsoft security

- 1 Make sure you have configured the communications and radio parameters on your CN30.
- 2 Press C and then B to open the System Main Menu.
- 3 Choose **Configuration Utility > Communications > 802.11 Radio > Security Settings**.
- 4 For **Network Authentication**, choose **Open** or **Shared**.
Intermec recommends using Open.
- 5 For **Data Encryption**, choose WEP.
- 6 For **Network Key Setting**, choose **Enter Key and Index**.

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

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

9 Exit the Configuration Utility.

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 and a trusted root certificate authority (CA) certificate. You can use a third-party CA to issue unique client certificates and a root certificate. If you are using Active Directory® to issue certificates, you can use the Enroll Certificates application to load the certificates. If you are using another third-party CA, you can use the Import Root or User Certificates programs to load the certificates.

Note: Do not cold boot the CN30. Cold booting the computer resets the time and date.

To load certificates on the CN30 if you are using Active Directory

1 Configure the network and radio settings for the CN30 to communicate with your certificate authority.

2 From the Configuration Utility, Select **Communications > 802.11 Radio > Certificates**.

3 Select **Enroll Certificates**. The Enroll Certificates dialog box appears.

4 In the Enroll Certificates dialog box, enter the **User Name**,

Password, and **Server (IP address)** to log into the CA server.

5 Press **Enter**. A dialog box appears asking if you want to load the root certificate.

6 Press **Enter** for yes. The Enrollment Tool message box appears telling you that the user certificate has been added.

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

8 Configure your CN30 for WPA or 802.1x security.

To load certificates on the CN30 if you are using another third-party CA

Note: You need to create the \temp\root and \temp\user folders on your CN30 before you can copy the certificate files to your Mobile computer.

1 Copy your .cer file to the \temp\root folder on the CN30.

2 Copy your .cer and .pvk files to the \temp\user folder on the CN30.

3 From the Configuration Utility, select **Communications > 802.11 Radio > Certificates**.

- 4 Select **Import Root Certificates** to load the .cer file. A dialog box appears asking if you want to add the certificate to the root store.
- 5 Press **Enter** to add the certificate. A message box appears telling you that the root certificate has been imported.
- 6 Press **Enter** to close the Success message box.
- 7 Select **Import User Certificate** to load the .cer and .pvk files.
A message box appears telling you that the certificate has been imported.
- 8 Press **Enter** to close the Success message box.
- 9 Configure your CN30 for WPA or 802.1x security.

Disabling Security

If you choose not to use security with your WLAN, you need to disable it on the CN30. By default, security is disabled on the CN30. Intermec recommends that you always set security in your network.

To disable security

- 1 For Network Authentication, choose **Open**.
- 2 For Data Encryption, choose **Disabled**.

Configuring a VPN

A virtual private network (VPN) is a private network that uses a public network (Internet) to connect remote sites or users together. These networks use encryption and other security mechanisms to ensure that only authorized users can access the network and that data cannot be intercepted. The CN30 uses the Microsoft CE .NET Remote Access Service (RAS) to set up the VPN. You can configure the CN30 to use either Point-to-Point Tunneling Protocol (PPTP) or Layer Two Tunneling Protocol (L2TP).

PPTP is a network protocol that adds a security infrastructure for the transfer of data from a remote CN30 to a private server, thus creating a VPN by using TCP/IP-based data networks. Like PPTP, L2TP also uses Point-to-Point Protocol (PPP) to encrypt data. L2TP uses Internet Protocol Security Protocol (IPSec) to enable a more secure VPN client connection from your CN30 to a remote server.

IPSec supports the following settings:

- Public key certificates
- Pre-shared keys

Note: If you want to use L2TP and IPSec, they must be supported by the corporate server.

To configure a VPN

- 1 From the Configuration Utility, select **Communications > VPN**.
- 2 Select **Create New VPN**.
- 3 Select **VPN Name**, type a VPN name, and then press **Enter**.

- 4 Select **VPN Type**, choose PPTP or P2TP, and then press **Enter**.
- 5 Select **Host Name**, type a host name, and then press **Enter**.
- 6 Select **Create the new VPN**. A message box appears to tell you that your new VPN has been created.
- 7 Press **Enter**.
- 8 Select **View/Edit VPN**.
- 9 Select **TCP/IP Settings** and make the settings match those of your remote server.
- 10 Select **Security** and make the settings match those of your remote server.
- 11 If you are using L2TP, select **IPSEC Setting** and make the settings match those of your remote server.
- 12 Select **Connect Current VPN**.
- 13 Exit the Configuration Utility.

Saving Your Configuration Changes to Flash Memory

If you want to save your configuration changes through a cold boot, you need to save your changes to the flash memory. You can save your changes to flash memory by:

- using the Configuration Utility main menu.
- scanning a bar code.
- sending a reader command through the network.

To save configuration changes using the Configuration Utility

- 1 From the System Main Menu, select **Configuration Utility**.
- 2 From the Configuration Utility, select **Save to Flash**. The Save Settings dialog box appears.
- 3 Press **Enter**.

SNMP Configuration on the CN30 Mobile Computer

In short, SNMP is an application-layer protocol that facilitates the exchange of management information between network devices. The CN30 Mobile Computer is such an SNMP-enabled device. Use SNMP to control and configure the CN30 Mobile Computer anywhere on an SNMP-enabled network.

The CN30 Mobile Computer supports four proprietary Management Information Bases (MIBs) and Intermec Technologies provides SNMP support for MIB-II through seven read-only MIB-II (RFC1213-MIB) Object Identifiers (OIDs).

Note: You can only query these seven OIDs through an SNMP management station.

Management Information Base

The Management Information Base is a database that contains information about the elements to be managed. The information identifies the management element and specifies its type and access mode (Read-Only, Read-Write). MIBs are written in ASN.1 (Abstract Syntax Notation.1) — a machine independent data definition language. *Note: Elements to be managed* are represented by objects. The MIB is a structured collection of such objects.

You will find the following MIB files either in the CN30 Mobile Management Tools portion of the *Intermec Developer's Library CD* or on the web via www.intermec.com:

- **INTERMEC.MIB**
- Defines the root of the Intermec MIB tree.
- **ITCADC.MIB**
- Defines objects for Automated Data Collection (ADC), such as bar code symbologies.
- **ITCSNMP.MIB**
- Defines objects for Intermec SNMP parameters and security methods, such as an SNMP security IP address.
- **ITCTERMIAL.MIB**
- Defines objects for CN30 Mobile parameters, such as key clicks.

Object Identifiers

Each object has a unique identifier called an OID, which consist of a sequence of integer values represented in dot notation. Objects are stored in a tree structure and OIDs are assigned based on the position of the object in the tree. For example, the internet OID is equal to 1.3.6.1. Seven MIB OIDs are shown in the following table:

MIB Object Identifiers

MIB-II Item OID Group or Table Description

ifNumber 1.3.6.1.2.1.2.1.0 Interfaces Group Indicates the number of adapters present in the system. For the 700 Color Computer, if one adapter is present in the system, then *ifNumber* = 1 and *ifIndex* = 1.

ifIndex 1.3.6.1.2.1.2.2.1.1.ifIndex Interfaces Table (ifTable) A unique value for each interface. The value ranges between 1 and the value of *ifNumber*.

ifDescr 1.3.6.1.2.1.2.2.1.2.ifIndex Interfaces Table (ifTable) A textual string containing information about the interface.

ifType 1.3.6.1.2.1.2.2.1.3.ifIndex Interfaces Table (ifTable) An integer containing information about the type of the interface. It is equal to 1 for Other.

ipAdEntAddr 1.3.6.1.2.1.4.20.1.1.IpAddress IP address Table (ipAddrTable)

The IP address to which this entry's addressing information pertains (*same as 700 IP address*), where IP Address is the valid non-zero IP address of the CN30 Mobile Computer.

ipAdEntIfIndex 1.3.6.1.2.1.4.20.1.2.IpAddress IP address Table (ipAddrTable)

The index value that uniquely identifies the interface to which this entry is applicable (*same as ifIndex*).

ipAdEntNetMask 1.3.6.1.2.1.4.20.1.3.IpAddress IP address Table (ipAddrTable)

The subnet mask associated with the IP address of this entry (*same as Subnet Mask*).

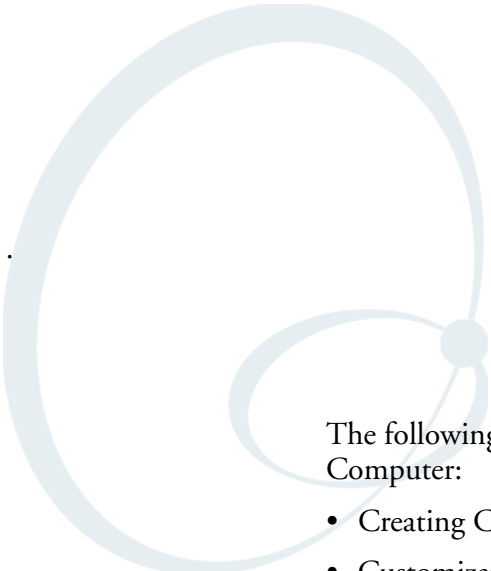
Configuring with SNMP

The community string allows an SNMP manager to manage the CN30 Mobile Computer with a specified privilege level. The default read-only community string is “public” and “private” is the default read/write community string. See the specific configuration parameter to find its OID. To configure the CN30 Mobile Computers using SNMP:

- 1 Configure CN30 Mobile Computers for RF or Ethernet communications.
- 2 Determine the OID (Object Identifier) for the parameter to be changed. The Intermec base OID is 1.3.6.1.4.1.1963.

3 Use your SNMP management station to get and set variables that are defined in the Intermec MIBs. You can set the traps, identification, or security configuration parameters for SNMP. *See Appendix A, “Configurable Settings,”* to learn more about these parameters.

7 Programming



The following programming information pertains to the CN30 Mobile Computer:

- Creating CAB Files
- Customization and Lockdown
- Kernel I/O Control Functions
- Networking APIs
- Notifications
- Reboot Functions
- Remapping the Keypad

Creating CAB Files

The Windows CE operating system uses a .CAB file to install an application on a Windows CE-based device. A .CAB file is composed of multiple files that are compressed into one file. Compressing multiple files into one file provides the following benefits:

- All application files are present.
- A partial installation is prevented.
- The application can be installed from several sources, such as a desktop computer or a Web site.

Use the CAB Wizard application (CABWIZ.EXE) to generate a .CAB file for your application.

Creating Device-Specific CAB Files

Do the following to create a device-specific .CAB file for an application, *in the order provided*:

- 1 Create an .INF file with Windows CE-specific modifications.
- 2 *Optional* Create a SETUP.DLL file to provide custom control of the installation process.
- 3 Use the CABWizard to create the .CAB file, using the .INF file, the optional SETUP.DLL file, and the device-specific application files as parameters.

Creating an .INF File

An .INF file specifies information about an application for the CAB Wizard.

Below are the sections of an .INF file:

[Version]

This specifies the creator of the file, version, and other relevant information.

Required? Yes

- **Signature:** “*signature_name*”
“\$Windows NT\$”

- **Provider:** “*INF_creator*”

The company name of the application, such as “Microsoft.”

- **CESignature**
“\$Windows CE\$”

Example

[Version]

```
Signature = ì$Windows NT$î  
Provider = ìIntermecî  
CESignature = ì$Windows CE$î
```

[CEStrings]

This specifies string substitutions for the application name and the default installation directory.

Required? Yes

- **AppName:** *app_name*

Name of the application. Other instances of %AppName% in the .INF file are replaced with this string value, such as RP32.

- **InstallDir:** *default_install_dir*

Default installation directory on the device. Other instances of %InstallDir% in the .INF file are replaced with this string value. Example:

\SDMMC_Disk\%AppName%

Example

[CEStrings]

AppName=iGame Packi

InstallDir=%CE1%\%AppName%

[Strings]

This section is optional and defines one or more string keys. A string key represents a string of printable characters.

Required? No

- **string_key:** *value*

String consisting of letters, digits, or other printable characters. Enclose *value* in double quotation marks “” if the corresponding string key is used in an item that requires double quotation marks. No string_keys is okay.

Example

[Strings]

reg_path = Software\Intermec\My Test App

[CEDevice]

Describes the platform for the targeted application. All keys in this section are optional. If a key is nonexistent or has no data, Windows CE does not perform any checking with the exception being *UnsupportedPlatforms*. If the *UnsupportedPlatforms* key exists but no data, the previous value is not overridden.

Required? Yes

- **ProcessorType:** *processor_type*

The value that is returned by **SYSTEMINFO.dwProcessorType**. For example, the value for the ARM CPU is 2577

- **UnsupportedPlatforms:** *platform_family_name*

This lists known unsupported platform family names. If the name specified in the **[CEDevice.xxx]** section is different from that in the **[CEDevice]** section, both *platform_family_name* values are unsupported for the microprocessor specified by xxx. That is, the list of unsupported platform family names is appended to the previous list of unsupported

names. Application Manager does not display the application for an unsupported platform. Also, a user is warned during the setup process if the .CAB file is copied to an unsupported device.

Example

[CEDevice]

UnsupportedPlatforms = *pltfrm1* ; *pltfrm1* is unsupported

[CEDevice.SH3]

UnsupportedPlatforms = ; *pltfrm1* is still unsupported

- **VersionMin:** *minor_version*

Numeric value returned by **OSVERSIONINFO**.dwVersionMinor. The .CAB file is valid for the currently connected device if the version of this device is greater than or equal to **VersionMin**.

- **VersionMax:** *major_version*

Numeric value returned by **OSVERSIONINFO**.dwVersionMajor. The .CAB file is valid for the currently connected device if the version of this device is less than or equal to **VersionMax**.

- **BuildMin:** *build_number*

Numeric value returned by **OSVERSIONINFO**.dwBuildNumber. The .CAB file is valid for the currently connected device if the version of this device is greater than or equal to **BuildMin**.

- **BuildMax:** *build_number*

Numeric value returned by **OSVERSIONINFO**.dwBuildNumber. The .CAB file is valid for the currently connected device if the version of this device is less than or equal to **BuildMax**.

Example

The following code example shows three **[CEDevice]** sections: one that gives basic information for any CPU and two that are specific to the SH3 and the MIPS microprocessors.

[CEDevice] ; A *template* for all platforms

UnsupportedPlatforms = *pltfrm1* ; Does not support *pltfrm1*

; The following specifies version 1.0 devices only.

VersionMin = 1.0

VersionMax = 1.0

[CEDevice.ARM] ; Inherits all [CEDevice] settings

; This will create a .CAB file specific to ARM devices.

ProcessorType = 2577 ; ARM .cab file is valid for ARM microprocessors.

UnsupportedPlatforms = ; *pltfrm1* is still unsupported

; The following overrides the version settings so that no version checking is performed.

VersionMin =

VersionMax =

[CEDevice.MIPS] ; Inherits all [CEDevice] settings

; This will create a .CAB file specific to *MIPS* devices.

ProcessorType = 4000 ; MIPS .CAB file is valid for MIPS

microprocessor.

UnsupportedPlatforms =pltfrm2 ; pltfrm1, pltfrm2 unsupported for MIPS .CAB file.

Note: To create the two CPU-specific .CAB files for the SETUP.INF file in the previous example, run the CAB Wizard with the “/cpu arm mips” parameter.

!

[DefaultInstall]

This describes the default installation of your application. Note that under this section, you will list items expanded upon later in this description.

Required? Yes

- **Copyfiles:** *copyfile_list_section*

Maps to files defined later in the .INF file, such as Files.App, Files.Font, and Files.Bitmaps.

- **AddReg:** *add_registry_section*

Example: RegSettings.All

- **CEShortcuts:** *shortcut_list_section*

String that identifies one more section that defines shortcuts to a file, as defined in the [CEShortcuts] section.

- **CESetupDLL:** *setup_DLL*

Optimal string that specifies a SETUP.DLL file. It is written by the Independent Software Vendor (ISV) and contains customized functions for operations during installation and removal of the application. The file must be specified in the [SourceDisksFiles] section.

- **CESelfRegister:** *self_reg_DLL_filename*

String that identifies files that self-register by exporting the **DllRegisterServer** and **DllUnregisterServer** Component Object Model (COM) functions. Specify these files in the [SourceDiskFiles] section. During installation, if installation on the device fails to call the file’s exported **DllRegisterServer** function, the file’s exported **DllUnregisterServer** function will not be called during removal.

Example

[DefaultInstall]

AddReg = RegSettings.All

CEShortcuts = Shortcuts.All

[SourceDiskNames]

This section describes the name and path of the disk on which your application resides.

Required? Yes

- **disk_ordinal:** *disk_label,,path*

1=,“App files” , C:\Appsoft\RP32\...

2=,“Font files”,C:\RpTools\...

3=,“CE Tools” ,,C:\windows ce tools...

- **CESignature:** “\$Windows CE\$”

Example

```
[SourceDisksNames] ; Required section
1 = ,ìCommon filesì,,C:\app\common ; Using an absolute path
[SourceDisksNames.SH3]
2 = ,ìSH3 filesì,,sh3 ; Using a relative path
[SourceDisksNames.MIPS]
2 = ,ìMIPS filesì,,mips ; Using a relative path
```

[SourceDiskFiles]

This describes the name and path of the files in which your application resides.

Required? Yes

- **filename:** *disk_number[,subdir]*

RPM.EXE = 1,c:\appsoft\...

WCESTART.INI = 1

RPMCE212.INI = 1

TAHOMA.TTF = 2

Note: [,subdir] is relative to the location of the INF file.

Example

```
[SourceDisksFiles] ; Required section
begin.wav = 1
end.wav = 1
sample.hlp = 1
[SourceDisksFiles.SH3]
sample.exe = 2 ; Uses the SourceDisksNames.SH3 identification of 2.
[SourceDisksFiles.MIPS]
sample.exe = 2 ; Uses the SourceDisksNames.MIPS identification of 2.
```

[DestinationDirs]

This describes the names and paths of the destination directories for the application on the target device. *Note Windows CE does not support directory identifiers.*

Required? Yes

- **file_list_section:** *0,subdir*

String that identifies the destination directory. The following list shows the string substitutions supported by Windows CE. Use these only for the beginning of the path. \

%CE1% \Program Files

%CE2% \Windows

%CE3% \My Documents

%CE4% \Windows\Startup

%CE5% \My Documents

%CE6% \Program Files\Accessories

%CE7% \Program Files\Communication
 %CE8% \Program Files\Games
 %CE9% \Program Files\Pocket Outlook
 %CE10% \Program Files\Office
 %CE11% \Windows\Start Menu\Programs
 %CE12% \Windows\Start Menu\Programs\Accessories
 %CE13% \Windows\Start Menu\Programs\Communications
 %CE14% \Windows\Start Menu\Programs\Games
 %CE15% \Windows\Fonts
 %CE16% \Windows\Recent
 %CE17% \Windows\Start Menu
 %InstallDir%

Contains the path to the target directory selected during installation. It is declared in the **[CEStrings]** section

%AppName%

Contains the application name defined in the **[CEStrings]** section.

Example

[DestinationDirs]

```
Files.Common = 0,%CE1%\My Subdir ; \Program Files\My Subdir
Files.Shared = 0,%CE2% ; \Windows
```

[CopyFiles]

This section, under the **[DefaultInstall]** section, describes the default files to copy to the target device. Within the **[DefaultInstall]** section, files were listed that must be defined elsewhere in the INF file. This section identifies that mapping and may contain flags.

Required? Yes

- **copyfile_list_section:** *destination_filename*,*[source_filename]*

The *source_filename* parameter is optional if it is the same as *destination_filename*.

- **copyfile_list_section:** *flags*

The numeric value that specifies an action to be done while copying files.

The following table shows values supported by Windows CE.

Flag Value Description

COPYFLG_WARN_IF_SKIP	0x00000001	Warn user if skipping a file is attempted after error.
COPYFLG_NOSKIP	0x00000002	Do not allow a user to skip copying a file.
COPYFLG_NO_OVERWRITE	0x00000010	Do not overwrite files in destination directory.
COPYFLG_REPLACEONLY	0x00000400	Copy the source file to the destination directory only if the file is already in the destination directory.
CE_COPYFLG_NO_DATE_DIALOG	0x20000000	Do not copy files if the target file is newer.
CE_COPYFLG_NODATECHECK	0x40000000	Ignore date while overwriting the target file.
CE_COPYFLG_SHARED	0x80000000	Create a reference when a shared DLL is counted.

Example

[DefaultInstall.SH3]

CopyFiles = Files.Common, Files.SH3

[DefaultInstall.MIPS]

CopyFiles = Files.Common, Files.MIPS

[AddReg]

This section, under the **[DefaultInstall]** section, is optional and describes the keys and values that the .CAB file adds to the device registry. Within the **[DefaultInstall]** section, a reference may have been made to this section, such as “AddReg=RegSettings.All”. This section defines the options for that setting.

Required? No

- **add_registry_section:** *registry_root_string*

String that specifies the registry root location. The following list shows the values supported by Windows CE.

- HKCR Same as HKEY_CLASSES_ROOT
- HKCU Same as HKEY_CURRENT_USER
- HKLM Same as HKEY_LOCAL_MACHINE
- **add_registry_section:** *value_name*

Registry value name. If empty, the “default” registry value name is used.

- **add_registry_section:** *flags*

Numeric value that specifies information about the registry key. The following table shows the values that are supported by Window CE.

Flag Value Description

FLG_ADDREG_NOCLOBBER 0x00000002 If the registry key exists, do not overwrite it. Can use with any of the other flags in this table.

FLG_ADDREG_TYPE_SZ 0x00000000 REG_SZ registry data type.

FLG_ADDREG_TYPE_MULTI_SZ 0x00010000 REG_MULTI_SZ registry data type. Value field that follows can be a list of strings separated by commas.

FLG_ADDREG_TYPE_BINARY 0x00000001 REG_BINARY registry data type. Value field that follows must be a list of numeric values separated by commas, one byte per field, and must not use the 0x hexadecimal prefix.

FLG_ADDREG_TYPE_DWORD 0x00010001 REG_DWORD data type. The noncompatible format in the Win32 Setup .INF documentation is supported.

Example

AddReg = RegSettings.All

[RegSettings.All]

HKLM,%reg_path%,,0x00000000,alpha ; <default> = ìalphaî

HKLM,%reg_path%,test,0x00010001,3 ; Test = 3

HKLM,%reg_path%\new,another,0x00010001,6 ; New\another = 6

[CEShortCuts]

This section, a Windows CE-specific section under the **[DefaultInstall]** section, is optional and describes the shortcuts that the installation application creates on the device. Within the **[DefaultInstall]** section, a reference may have been made to this section, such as “ShortCuts.All”. This section

defines the options for that setting.

Required? No

- **shortcut_list_section:** *shortcut_filename*

String that identifies the shortcut name. It does not require the .LNK extension.

- **shortcut_list_section:** *shortcut_type_flag*

Numeric value. Zero or empty represents a shortcut to a file; any nonzero numeric value represents a shortcut to a folder.

- **shortcut_list_section:** *target_file_path*

String value that specifies the destination location. Use the target file name for a file, such as MyApp.exe, that must be defined in a file copy list. For a path, use a *file_list_section* name defined in the **[Destination-Dirs]** section, such as *DefaultDestDir*, or the *%InstallDir%* string.

- **shortcut_list_section:** *standard_destination_path*

Optional string value. A standard *%CEX%* path or *%InstallDir%*. If no value is specified, the *shortcut_list_section* name of the current section or the *DefaultDestDir* value from the **[DestinationDirs]** section is used.

Example

```
CEShortcuts = Shortcuts.All
```

```
[Shortcuts.All]
```

```
Sample App,0,sample.exe ; Uses the path in DestinationDirs. Sample
```

```
App,0,sample.exe,%InstallDir% ; The path is explicitly specified.
```

Sample .INF File

```
[Version] ; Required section
```

```
Signature = ì$Windows NT$î
```

```
Provider = ìIntermec Technologies Corporationî
```

```
CESignature = ì$Windows CE$î
```

```
;[CEDevice]
```

```
;ProcessorType =
```

```
[DefaultInstall] ; Required section
```

```
CopyFiles = Files.App, Files.Fonts, Files.BitMaps, Files.Intl,
```

```
Files.TelecomNcsCE, Files.Windows, Files.Import, Files.Export, Files.Work,
```

```
Files.Database, Files.WinCE AddReg = RegSettings.All ;CEShortcuts =
```

```
Shortcuts.All
```

```
[SourceDisksNames] ; Required section
```

```
1 = ,ìApp filesî , ,c:\appsoft\...
```

```
2 = ,ìFont filesî , ,c:\WinNT\Fonts
```

```
3 = ,ìCE Toolsî , ,c:\windows ce tools\wce400\700ie\mfc\lib\x86
```

```
[SourceDisksFiles] ; Required section
```

```
rpm.exe = 1,C:\Appsoft\program\wce400\WCEX86Rel700
```

```
wcestart.ini = 1
```

```
rpmce212.ini = 1
```

```
intermec.bmp = 1
```

```
rpmlogo.bmp = 1
```

```
rpmname.bmp = 1
```

```

import.bmp = 1
export.bmp = 1
clock.bmp = 1
printer.bmp = 1
filecopy.bmp = 1
readme.txt = 1
lang_eng.bin = 1
rpmdata.dbd = 1,database\wce1
tahoma.ttf = 2
mfcce212.dll = 3
olece212.dll = 3
olece211.dll = 1,c:\windows ce tools\wce400\NMSD61102.11\mfc\lib\x86
rdm45wce.dll = 1,c:\rptools\rdm45wce\4_50\lib\wce400\wcex86rel
picfmt.dll = 1,c:\rptools\picfmt\1_00\wce400\wcex86rel6110
fmtctrl.dll = 1,c:\rptools\fmtctrl\1_00\wce400\wcex86rel6110
ugrid.dll = 1,c:\rptools\ugrid\1_00\wce400\wcex86rel6110
simple.dll = 1,c:\rptools\pspbm0c\1_00\wce400\wcex86rel
psink.dll = 1,c:\rptools\psink\1_00\wce400\WCEX86RelMinDependency
pslpwce.dll = 1,c:\rptools\pslpm0c\1_00\wce400\WCEX86RelMinDependency
;npcppport.dll = 1,c:\rptools\cedk\212_03\installable drivers\printer\npcp
;dexcom.dll = 1,c:\rptools\psdxm0c\1_00\x86
ncsce.exe = 1,c:\rptools\ncsce\1_04
nrinet.dll = 1,c:\rptools\ncsce\1_04
[DestinationDirs] ; Required section
;Shortcuts.All = 0,%CE3% ; \Windows\Desktop
Files.App = 0,%InstallDir%
Files.DataBase = 0,%InstallDir%\DataBase
Files.BitMaps = 0,%InstallDir%\Bitmaps
Files.Fonts = 0,%InstallDir%\Fonts
Files.Intl = 0,%InstallDir%\Intl
Files.TelecomNcsCE = 0,%InstallDir%\Telecom\NcsCE
Files.Windows = 0,%InstallDir%\Windows
Files.Import = 0,%InstallDir%\Import
Files.Export = 0,%InstallDir%\Export
Files.Work = 0,%InstallDir%\Work
Files.WinCE = 0,\storage_card\wince
[CEStrings] ; Required section
AppName = Rp32
InstallDir = \storage_card\%AppName%
[Strings] ; Optional section
;[Shortcuts.All]
;Sample App,0,sample.exe ; Uses the path in DestinationDirs.
;Sample App,0,sample.exe,%InstallDir% ; The path is explicitly specified.
[Files.App]
rpm.exe,,0
rpm.ini,rpmce212.ini,,0
mfcce212.dll,,0
olece212.dll,,0

```

```

olece211.dll,,,0
rdm45wce.dll,,,0
picfmt.dll,,,0
fmtctrl.dll,,,0
ugrid.dll,,,0
simple.dll,,,0
psink.dll,,,0
pslpwce.dll,,,0
;npcppport.dll,,,0
;dexcom.dll,,,0
[Files.DataBase]
rpmdata.dbd,,,0
[Files.Fonts]
tahoma.ttf,,,0
[Files.BitMaps]
intermec.bmp,,,0
rpmlogo.bmp,,,0
rpmname.bmp,,,0
import.bmp,,,0
export.bmp,,,0
clock.bmp,,,0
printer.bmp,,,0
filecopy.bmp,,,0
[Files.Intl]
lang_eng.bin,,,0
[Files.TelecomNcsCE]
ncsce.exe,,,0
nrinet.dll,,,0
[Files.Windows]
readme.txt,,,0
[Files.Import]
readme.txt,,,0
[Files.Export]
readme.txt,,,0
[Files.Work]
readme.txt,,,0
[Files.WinCE]
wcestart.ini,,,0
[RegSettings.All]
HKLM,îSOFTWARE\\Microsoft\\Shell\\AutoHideî,,0x00010001,1
; Autohide the taskbar HKLM,îSOFTWARE\\Microsoft\\Shell\\OnTopî,,0x00010001,0
; Shell is not on top
HKLM,îSOFTWARE\\Microsoft\\Clockî,SHOW_CLOCK,0x00010001,0
; Clock is not on taskbar

```

Using Installation Functions in SETUP.DLL

SETUP.DLL is an optional file that enables you to perform custom operations during installation and removal of your application. The following

list shows the functions that are exported by SETUP.DLL.

Install_Init Called before installation begins. Use this function to check the application version when reinstalling an application and to determine if a dependent application is present.

Install_Exit Called after installation is complete. Use this function to handle errors that occur during application installation.

Uninstall_Init Called before the removal process begins. Use this function to close the application, if the application is running.

Uninstall_Exit Called after the removal process is complete. Use this function to save database information to a file and delete the database and to tell the user where the user data files are stored and how to reinstall the application.

Note; Use **[DefaultInstall] > CESSelfRegister** in the .INF file to point to SETUP.DLL.

After the CAB File Extraction

Cab files that need to cause a warm reset after cab extraction will need to create the __RESETMEPLEASE__.TXT file in the “\Windows” directory.

The preferred method to create this file is within the DllMain portion of the SETUP.DLL file. It looks like this:

```
#include <windows.h>
#include <Tlhelp32.h>
#include <winioctl.h>
#include <ce_setup.h> // in the public SDK dir
#define IOCTL_TERMINAL_RESET CTL_CODE (FILE_DEVICE_UNKNOWN, FILE_ANY_ACCESS,
2050, METHOD_NEITHER)
BOOL APIENTRY DllMain( HANDLE h, DWORD reason, LPVOID lpReserved )
{
return TRUE;
} // DllMain
/*****
// $DOCBEGIN$
// BOOL IsProcessRunning( TCHAR * pname );
//
// Description: Get process table snapshot, look for pname running.
//
// Arguments: pname - pointer to name of program to look for.
// for example, app.exe.
//
// Returns: TRUE - process is running.
// FALSE - process is not running.
// $DOCEND$
*****/
BOOL IsProcessRunning( TCHAR * pname )
{
HANDLE hProcList;
PROCESSENTRY32 peProcess;
DWORD thDeviceProcessID;
TCHAR lpname[MAX_PATH];
if ( !pname || !*pname ) return FALSE;
```



```

_tcsncpy( lpname, pname );
_tcslwr( lpname );
hProcList = CreateToolhelp32Snapshot( TH32CS_SNAPPROCESS, 0 );
if ( hProcList == INVALID_HANDLE_VALUE ) {
    return FALSE;
} // end if
memset( &peProcess, 0, sizeof(peProcess) );
peProcess.dwSize = sizeof(peProcess);
if ( !Process32First( hProcList, &peProcess ) ) {
    CloseToolhelp32Snapshot( hProcList );
    return FALSE;
} // end if
thDeviceProcessID = 0;
do {
    _tcslwr( peProcess.szExeFile );
    if ( _tcsstr( peProcess.szExeFile, lpname ) ) {
        thDeviceProcessID = peProcess.th32ProcessID;
        break;
    } // end if
} while ( Process32Next( hProcList, &peProcess ) );
if ( ( GetLastError() == ERROR_NO_MORE_FILES ) && ( thDeviceProcessID == 0 ) ) {
    CloseToolhelp32Snapshot( hProcList );
    return FALSE;
} // end if
CloseToolhelp32Snapshot( hProcList );
return TRUE;
} // IsProcessRunning

codeINSTALL_INIT Install_Init(
    HWND hwndParent,
    BOOL fFirstCall,
    BOOL fPreviouslyInstalled,
    LPCTSTR pszInstallDir )
{
    return codeINSTALL_INIT_CONTINUE;
}

codeINSTALL_EXIT Install_Exit (
    HWND hwndParent,
    LPCTSTR pszInstallDir,
    WORD cFailedDirs,
    WORD cFailedFiles,
    WORD cFailedRegKeys,
    WORD cFailedRegVals,
    WORD cFailedShortcuts )
{
    HANDLE h;
    TCHAR srcfile[MAX_PATH];
    TCHAR dstfile[MAX_PATH];

```

```

if (cFailedDirs || cFailedFiles || cFailedRegKeys ||
cFailedRegVals || cFailedShortcuts)
return codeINSTALL_EXIT_UNINSTALL;
if ( IsProcessRunning( L"autocab.exe" ) )
{
h = CreateFile( L"\\Windows\\__resetmeplease__.txt",
(GENERIC_READ | GENERIC_WRITE), 0, NULL, CREATE_ALWAYS,
FILE_ATTRIBUTE_HIDDEN, NULL );
if ( h != INVALID_HANDLE_VALUE )
CloseHandle( h );
else
{
// Couldn't create the file. If it failed because the file already
exists, it is not fatal.
// Otherwise, notify user of the inability to reset the device and they
will have to
// perform it manually after all of the installations are complete.
} // end if
}
else
{
DWORD dret;
h = CreateFile( L"SYSIO",
(GENERIC_WRITE | GENERIC_READ), 0, NULL, OPEN_EXISTING,
FILE_ATTRIBUTE_NORMAL, NULL );
// Force a warm start NOW.
if ( h != INVALID_HANDLE_VALUE )
{
DeviceIoControl( h, IOCTL_TERMINAL_RESET, NULL, 0, NULL, 0, &dret,
NULL);
// Won't return, but we'll show clean up anyway
CloseHandle( h );
}
else
{
// Couldn't access SYSIO. Notify user.
} // end if
} // end if
return codeINSTALL_EXIT_DONE;
}
codeUNINSTALL_INIT
Uninstall_Init(
HWND hwndParent,
LPCTSTR pszInstallDir ) {
// TODO: Perform the reverse of INSTALL_INIT here
return codeUNINSTALL_INIT_CONTINUE;
}
codeUNINSTALL_EXIT

```

```

Uninstall_Exit(HWND hwndParent) {
// TODO: Perform the reverse of INSTALL_EXIT here
return codeUNINSTALL_EXIT_DONE;
}

```

The system software looks for the following directory structure and files on the installed Secure Digital media card or embedded flash file system. No other folders need exist.

```

\2577\autorun.exe
\2577\autorun.dat
\2577\autocab.exe
\2577\autocab.dat
\cabfiles\*.cab

```

Creating CAB Files with CAB Wizard

After you create the .INF file and the optional SETUP.DLL file, use the CAB Wizard to create the .CAB file. The command-line syntax for the CABWizard is as follows:

```
cabwiz.exe inf_file [/dest dest_directory] [/err error_file] [/cpu cpu_type
[cpu_type]]
```

A batch file, located in <program> directory, with the following commands, works well:

```
cabwiz.exe c:\appsoft\<program>\<inf_file_name>
cd \appsoft\<program>
```

inf_file The SETUP.INF file path.

dest_directory The destination directory for the .CAB files. If no directory is specified, the .CAB files are created in the “inf_file” directory.

error_file The file name for a log file that contains all warnings and errors that are encountered when the .CAB files are compiled. If no file name is specified, errors are displayed in message boxes. If a file name is used, the CAB Wizard runs without the user interface (UI); this is useful for automated builds.

cpu_type Creates a .CAB file for each specified microprocessor tag, which is a label used in the Win32 SETUP. INF file to differentiate between different microprocessor types. The /cpu parameter, followed by multiple *cpu_type* values, must be the last qualifier in the command line.

Example

This example creates .CAB files for the ARM and MIPS microprocessors, assuming the Win32 SETUP.INF file contains the ARM and MIPS tags:

```
cabwiz.exe ic:\myfile.inf /err myfile.err /cpu arm mips
```

Note: CABWIZ.EXE, MAKECAB.EXE, and CABWIZ.DDF (Windows CE files available on the Windows CE Toolkit) must be installed in the same directory on the desktop computer. Call CABWIZ.EXE using its full path for the CAB Wizard application to run correctly.

Troubleshooting the CABWizard

To identify and avoid problems that might occur when using the CAB Wizard, follow these guidelines:

- Use %% for a percent sign (%) character when using this character in

an .INF file string, as specified in Win32 documentation. This will not work under the **[Strings]** section.

- Do not use .INF or .CAB files created for Windows CE to install applications on Windows-based desktop platforms.
- Ensure the MAKECAB.EXE and CABWIZ.DDF files, included with Windows CE, are in the same directory as CABWIZ.EXE.
- Use the full path to call CABWIZ.EXE.
- Do not create a .CAB file with the MAKECAB.EXE file included with Windows CE. You must use CABWIZ.EXE, which uses MAKECAB.EXE to generate the .CAB files for Windows CE.
- Do *not* set the read-only attribute for .CAB files.

Customization and Lockdown

Although many customers want a CE .NET device, some customers would prefer that their users not have access to all of the CE .NET features. Intermec cannot customize the operating system in any way but a custom application can:

Delete items from the Start menu, and Programs folder. These items are just shortcuts in the file system so the application

is not really being deleted. Cold booting the device does bring these items back so the application will need to run on every cold boot.

Use the RegFlushKey() API to save a copy of the registry to a storage device. See the 751G Management Tools portion

of the *Intermec Developer's Library CD* for more information on how to do this. Saving a copy of the registry restores most system settings in a cold boot situation.

Use the SHFullScreen() API in conjunction with other APIs to make the application take up the entire display and prevent the start menu from being available.

Remap keys and disable keys on the keypad.

Create a custom SIP.

Make changes to the registry to configure the device.

Kernel I/O Controls

This describes the KernelIoControl() functions available to application programmers. Most C++ applications need to prototype the function as the following to avoid link and compile errors.

```
extern "C" BOOL KernelIoControl(DWORD dwIoControlCode, LPVOID lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD nOutBufSize, LPDWORD lpBytesReturned);
```

IOCTL_HAL_GET_DEVICE_INFO

This IOCTL returns either the platform type or the OEMPLATFORM name based on an input value.

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_GET_DEVICE_INFO, LPVOID lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Points to a DWORD containing either the SPI_GETPLATFORMTYPE or SPI_GETOEMINFO value.

lpInBufSize Must set to sizeof(DWORD).

lpOutBuf Must point to a buffer large enough to hold the return data of the function. If SPI_GETPLATFORMTYPE is specified in *lpInBuf*, then the “XScale\0” Unicode string is returned. If SPI_GETOEMINFO is specified in *lpInBuf*, then the “Intermec 751\0” Unicode string is returned.

nOutBufSize The size of *lpOutBuf* in bytes. Must be large enough to hold the string returned.

lpBytesReturned The actual number of bytes returned by the function for the data requested.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

IOCTL_HAL_ITC_READ_PARM

Usage

#include “oemioctl.h”

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_ITC_READ_PARM, LPVOID
  lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
  nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Points to this structure. See “ID Field Values” below.

```
struct PARMS {
  BYTE id;
  BYTE ClassId;
};
```

nInBufSize Must set to the size of the PARMS structure.

lpOutBuf Must point to a buffer large enough to hold the return data of the function. If this field is set to NULL and *nOutBufSize* is set to zero when the function is called the function returns the number bytes required by the buffer.

nOutBufSize The size of *lpOutBuf* in bytes.

lpBytesReturned Number of bytes returned by the function for the data requested.

Return Values

Returns TRUE if the function succeeds. Returns FALSE if the function fails. May use GetLastError() to get the error value. Either ERROR_INVALID_PARAMETER or ERROR_INSUFFICIENT_BUFFER may return when this function is used to get the error.

ID Field Values

The *id* field of the PARMS structure may be one of the following values:

ID Field Values

ITC_NVPARM_SERIAL_NUM

This IOCTL returns the serial number of the device in BCD format. Six bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_MANF_DATE

This IOCTL returns the device date of manufacture in the BCD YYYY/MM/DD format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_SERVICE_DATE

This IOCTL returns the device's date of last service in BCD YYYY/MM/DD format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_DISPLAY_TYPE

This IOCTL returns the device's display type. One byte is returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_ECN

This IOCTL returns ECNs applied to the device in a bit array format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ID Field Values (continued)**ITC_NVPARM_CONTRAST**

This IOCTL returns the device default contrast setting. Two bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_MCODE

This IOCTL returns the manufacturing configuration code for the device. Sixteen bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ITC_NVPARM_VERSION_NUMBER

This IOCTL returns the firmware version for various system components. These values for the *ClassId* field of the PARMS structure are allowed when ITC_NVPARM_VERSION_NUMBER is used in the *id* field:

- **VN_CLASS_KBD** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the keypad microprocessor version in the system. The format of the string is x.xx with a terminating null character.
- **VN_CLASS_ASIC** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the version of the FPGA firmware in the system. The format of the string is x.xx with a terminating null character.
- **VN_CLASS_BOOTSTRAP** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the version of the Bootstrap Loader firmware in the system. The format of the string is x.xx with a terminating null character.

ITC_NVPARM_INTERMEC_SOFTWARE_CONTENT

This IOCTL reads the manufacturing flag bits from the non-volatile data store that dictates certain software parameters. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer* that indicates if Intermec Content is enabled in the XIP regions. TRUE indicates that it is enabled. FALSE indicates that it is not enabled.

ITC_NVPARM_RTC_RESTORE

This IOCTL reads the state of the real-time clock restore flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the RTC is restored upon a cold boot. FALSE indicates that the RTC is not restored.

ITC_NVPARM_INTERMEC_DATACOLLECTION_SW

This IOCTL reads the state of the data collection software enabled flag. A BOOLEAN DWORD is returned in the buffer pointer to by *lpOutBuffer* that indicates the data collection software is to install at boot time. FALSE indicates the data collection software should not install.

ITC_NVPARM_INTERMEC_DATACOLLECTION_HW

This IOCTL reads the data collection hardware flags. A BYTE is returned in the buffer pointer to by *lpOutBuffer* that indicates the type of data collection hardware installed. The maximum possible value returned is ITC_DEVID_SCANHW_MAX.

- **ITC_DEVID_OEM2D_IMAGER** OEM 2D imager is installed.
- **ITC_DEVID_INTERMEC2D_IMAGER** Intermec 2D imager is installed.

The high bit indicates whether the S6 scanning engine is installed. The bit mask for this is **ITC_DEVID_S6ENGINE_MASK**. A non-zero value indicates that the S6 scanning engine is installed.

ITC_NVPARM_80211_INSTALLED

This IOCTL reads the state of the 802.1x radio installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the 802.1x radio is installed. FALSE indicates that no 802.1x radio is installed.

ITC_NVPARM_80211_RADIO_TYPE

This IOCTL reads the 802.1x radio ID installed by manufacturing. A BYTE is returned in the buffer pointer to by *lpOutBuffer* that indicates the type of 802.1x radio hardware installed. The maximum possible value returned is **ITC_DEVID_80211RADIO_MAX**. The current definitions are:

- **ITC_DEVID_80211RADIO_NONE** No 802.1x radio installed.
- **ITC_DEVID_80211RADIO_INTEL_2011B** Intel 2011B radio installed.

ITC_NVPARM_SERIAL2_INSTALLED

This IOCTL reads the state of the serial 2 (COM2) device installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the serial 2 device is installed. FALSE indicates that no serial 2 device is installed.

ITC_NVPARM_VIBRATE_INSTALLED

This IOCTL reads the state of the vibrate device installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the vibrate device is installed. FALSE indicates that no vibrate device is installed.

ITC_NVPARM_SIM_PROTECT_HW_INSTALLED

This IOCTL reads the state of the SIM card protection hardware installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection hardware is installed. FALSE indicates that no SIM card protection hardware is installed.

ITC_NVPARM_SIM_PROTECT_SW_INSTALLED

This IOCTL reads the state of the SIM card protection software installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection software is installed. FALSE indicates that no SIM card protection software is installed.

ITC_NVPARM_SIM_PROTECT_SW_INSTALLED

This IOCTL reads the state of the SIM card protection software installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection software is installed. FALSE indicates that no SIM card protection software is installed.

IOCTL_HAL_ITC_WRITE_SYSPARM

Describes and enables the registry save location.

Usage

#include "oemioctl.h"

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_ITC_WRITE_SYSPARM, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf A single byte that may be one of the *id* values. See "ID Field Values" on the next page.

nInBufSize Must set to the size of the *lpInBuf* in bytes.

lpOutBuf Must point to a buffer large enough to hold the data to write to the

non-volatile data store.

nOutBufSize The size of *lpOutBuf* in bytes.

lpBytesReturned The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the error value. Either

ERROR_INVALID_PARAMETER or

ERROR_INSUFFICIENT_BUFFER may return when this function is used to get the error.

ID Field Values

The *id* field of *lpInBuf* may be one of the following values:

ITC_REGISTRY_SAVE_ENABLE

This function enables or disables the save registry to non-volatile media feature of the RegFlushKey() function.

lpOutBuf must be set to zero (FALSE) if the feature is to disable or one (TRUE) if the feature is to enable.

ITC_WAKEUP_MASK

This IOCTL sets a bit mask that represents the mask for the five programmable wakeup keys. The I/O key is not a programmable wakeup key. By default it is always the system resume key and all other keys are set to disable key wakeup. A zero in a bit position masks the wakeup for that key. A one in a bit position enables wakeup for that key.

lpOutBuf must point to a buffer that contains a byte value of a wakeup mask consisting of the OR'ed constants as defined in OEMIOCTL.H. Only the following keys are programmable as wakeup events.

```
#define SCANNER_TRIGGER 1
```

```
#define SCANNER_LEFT 2
```

```
#define SCANNER_RIGHT 4
```

```
#define GOLD_A1 8
```

```
#define GOLD_A2 0x10
```

ITC_AMBIENT_KEYBOARD

This IOCTL sets the threshold for the keypad ambient sensor. This can be a value from 0 (always off) to 255 (always on). *lpOutBuf* must point to a buffer that contains a byte value of the desired setting.

ITC_AMBIENT_FRONTLIGHT

This IOCTL sets the threshold for the frontlight ambient sensor. This can be a value from 0 (always off) to 255.

lpOutBuf must point to a buffer that contains a byte value of the desired setting.

IOCTL_HAL_GET_DEVICEID

This IOCTL returns the device ID. There are two types of device IDs supported, which are differentiated based on the size of the *output* buffer.

The UUID is returned if the buffer size is set to

sizeof(UNIQUE_DEVICEID), otherwise the oldstyle device ID is returned.

Usage

```
#include "pkfuncs.h"
```

```
#include "deviceid.h"
```

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_GET_DEVICEID, LPVOID  
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD  
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL. STRICT_ID settings are not supported.

lpInBufSize Should set to zero.

lpOutBuf Must point to a UNIQUE_DEVICEID structure as defined by DEVICEID.H if the UUID is to return

nOutBufSize The size of the UNIQUE_DEVICEID in bytes if the UUID is to return. A DEVICE_ID as defined by PKFUNCS.H is returned if the size in bytes is greater than or equal to *sizeof(DEVICE_ID)*.

lpBytesReturned The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

IOCTL_HAL_GET_OAL_VERINFO

Returns the HAL version information of the Windows CE .NET image.

Usage

#include "oemioctl.h"

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_GET_OAL_VERINFO,LPVOID
lpInBuf,DWORD nInBufSize,LPVOID lpOutBuf,DWORD
nOutBufSize,LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Must point to a VERSIONINFO structure as defined by OEMIOCTL.H. The fields should have these values:

- `cboemverinfo` *sizeof*(tagOemVerInfo);
- `verinfover` 1
- `sig`; "ITC\0"
- `id`; 'N'
- `tgtcustomer` ""
- `tgtplat` SeaRay
- `tgtplatversion` Current build version number
- `tgtcputype[8]`; "Intel\0"
- `tgtcpu` "PXA255\0";
- `tgtcoreversion` ""
- `date` Build time
- `time` Build date

nOutBufSize The size of VERSIONINFO in bytes.

lpBytesReturned Returns *sizeof(PVERSIONINFO)*.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

IOCTL_HAL_GET_BOOTLOADER_VERINFO

Returns the HAL version information of the Windows CE .NET image.

Usage

#include "oemioctl.h"

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_GET_OAL_VERINFO, LPVOID  
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD  
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

nInBufSize Should set to zero.

lpOutBuf Must point to a VERSIONINFO structure as defined by OEMIOCTL.H. The fields should have these values:

- `cboemverinfo` `Sizeof (tagOemVerInfo);`
- `verinfover` 1
- `sig`; "ITC\0"
- `id`; 'B'
- `tgtcustomer` ""
- `tgtplat` SeaRay
- `tgtplatversion` Current build version number of the bootstrap loader
- `tgtcputype[8]`; "Intel\0";
- `tgtcpu` "PXA255\0"
- `tgtcoreversion` ""
- `date` Build time
- `time` Build date

nOutBufSize The size of VERSIONINFO in bytes.

lpBytesReturned The number of bytes returned to *lpOutBuf*.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use `GetLastError()` to get the extended error value.

IOCTL_HAL_WARMBOOT

Causes the system to perform a warm-boot. The object store is retained.

Usage

#include "oemioctl.h"

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_WARMBOOT, LPVOID  
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD  
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Should be NULL.

nOutBufSize Should be zero.

Return Values

None.

IOCTL_HAL_COLDBOOT

Causes the system to perform a cold-boot. The object store is cleared.

Usage

#include "oemioctl.h"

Syntax

```

BOOL KernelIoControl( IOCTL_HAL_COLDBOOT, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );

```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Should be NULL.

nOutBufSize Should be zero.

Return Values

None.

IOCTL_HAL_GET_RESET_INFO

This IOCTL code allows software to check the type of the most recent reset.

Usage

#include "oemioctl.h"

Syntax

```

BOOL KernelIoControl( IOCTL_HAL_GET_RESET_INFO, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );

```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Must point to a HAL_RESET_INFO structure. See sample below.

nOutBufSize The size of HAL_RESET_INFO in bytes.

lpBytesReturned The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

Sample

```

typedef struct {
DWORD ResetReason; // most recent reset type
DWORD ObjectStoreState; // state of object store
} HAL_RESET_INFO, * PHAL_RESET_INFO;
// Reset reason types
#define HAL_RESET_TYPE_UNKNOWN 0
#define HAL_RESET_REASON_HARDWARE 1 // cold
#define HAL_RESET_REASON_SOFTWARE 2 // suspend
#define HAL_RESET_REASON_WATCHDOG 4
#define HAL_RESET_BATT_FAULT 8 // power fail
#define HAL_RESET_VDD_FAULT 16 // warm boot

```

```
// Object store state flags
#define HAL_OBJECT_STORE_STATE_UNKNOWN 0
#define HAL_OBJECT_STORE_STATE_CLEAR 1
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```

IOCTL_HAL_GET_BOOT_DEVICE

This IOCTL code allows software to check which device CE booted from.

Usage

#include “oemioctl.h”

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_GET_BOOT_DEVICE, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Must point to a buffer large enough to hold a DWORD (4 bytes) that contains the boot device. The following boot devices are supported:

```
#define HAL_BOOT_DEVICE_UNKNOWN 0
#define HAL_BOOT_DEVICE_ROM_XIP 1
#define HAL_BOOT_DEVICE_ROM 2
#define HAL_BOOT_DEVICE_PCMCIA_ATA 3
#define HAL_BOOT_DEVICE_PCMCIA_LINEAR 4
#define HAL_BOOT_DEVICE_IDE_ATA 5
#define HAL_BOOT_DEVICE_IDE_ATAPI 6
```

nOutBufSize The size of *lpOutBuf* in bytes (4).

lpBytesReturned The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

IOCTL_HAL_REBOOT

Causes the system to perform a warm-boot. The object store is retained.

Usage

#include “oemioctl.h”

Syntax

```
BOOL KernelIoControl( IOCTL_HAL_REBOOT, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

lpInBufSize Should set to zero.

lpOutBuf Should be NULL.

nOutBufSize Should be zero.

Return Values

None.

IOCTL_PROCESSOR_INFORMATION

Returns processor information.

Usage

#include “pkfuncs.h”

Syntax

```
BOOL KernelIoControl( IOCTL_PROCESSOR_INFORMATION, LPVOID
lpInBuf, DWORD nInBufSize, LPVOID lpOutBuf, DWORD
nOutBufSize, LPDWORD lpBytesReturned );
```

Parameters

lpInBuf Should set to NULL.

nInBufSize Should set to zero.

lpOutBuf Should be a pointer to the PROCESSOR_INFO structure. The PROCESSOR_INFO structure stores information that describes the CPU more descriptively.

```
typedef __PROCESSOR_INFO {
WORD wVersion; // Set to value 1
WCHAR szProcessorCore[40]; // \0
WORD wCoreRevision; // 4
WCHAR szProcessorName[40]; // \0
WORD wProcessorRevision; // 0
WCHAR szCatalogNumber[100]; // 0
WCHAR szVendor[100]; // \0
DWORD dwInstructionSet; // 0
DWORD dwClockSpeed; // 400
}
```

nOutBufSize Should set to sizeof(PROCESSOR_INFO) in bytes.

lpBytesReturned Returns sizeof(PROCESSOR_INFO);

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

IOCTL_GET_CPU_ID

Returns Xscale processor ID.

Usage

#include “oemioctl.h”

Syntax

```
BOOL KernelIoControl( IOCTL_GET_CPU_ID, LPVOID lpInBuf,
DWORD nInBufSize, LPVOID lpOutBuf, DWORD nOutBufSize, LPDWORD
lpBytesReturned );
```

Parameters

lpInBuf Should point to a CPUIdInfo structure defined in OEMIOCTL.H.

lpInBufSize Should be sizeof(CPUIdInfo).

lpOutBuf Should be NULL.

nOutBufSize Should set to 0.

lpBytesReturned Returns *sizeof(PROCESSOR_INFO)*;

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails.

May use GetLastError() to get the extended error value.

Networking APIs

The API provided by Intermec Technologies exposes a limited set of routines

that allows a programmer to access and affect the 802.1x network interface card from within their application. The routines provided also reads/writes values to the CE registry that pertain to the 802.1x radio driver.

By using the provided functions, a programmer can alter the 802.1x parameters of Network Name (SSID), WEP keys, infrastructure modes, radio channel, and power management modes. A programmer can also retrieve

network connect status and signal strength indication from the RF network card.

The API is contained within the 80211API.DLL file that should be present in any load with the 802.1x networking installed.

PRISMNDS.DLL This file is the 802.1x driver. It is present in all 700 CE loads that use the 802.1x network interface card.

80211API.DLL This file is an Intermec authored file that provides the programmer with a set of API calls

to configure or monitor status of the 802.1x network.

80211PM.DLL This handles profile management for radio configurable values.

URODDSV.C This handles radio configuration and security authentication based on a selected profile.

There is a user interface to this service that provides status of the supplicant as well as

status of the 8021x authentication process.

ZNICZIO.DLL A replacement for NDISUIO.DLL that supports the Funk Supplicant.

The Profile Manager supports up to four radio configuration profiles.

These profiles are the same as those set by the WirelessNetwork control

panel applet that runs on the Windows CE unit. You can configure different 802.1x profiles and switch between them using the 802.11 API. See the `ConfigureProfile()` function for more information.

Basic Connect/Disconnect Functions

Below are functions available for the CN30 Mobile Computer when enabled with the 802.1x radio module.

RadioConnect()

Connects to the available radio. Use this function if you plan on using a lot of API calls that talk directly to the radio. Note that the 802.1x radio must be enabled via NDISTRAY before you can connect to it.

Syntax `UINT RadioConnect( );`

Parameters None.

Return Values `ERROR_SUCCESS` when successful, otherwise

`ERR_CONNECT_FAILED`

Remarks Call this function before you call any other function found within this API. It hunts out and connects to the 802.1x radio available on the system. Check extended error codes if it returns anything else for information.

Definitions `#ifdef DYNAMIC_LOADING`

`typedef UINT (*PFN_RadioConnect)();`

`#else`

`UINT RadioConnect();`

`#endif`

RadioDisconnect()

Call this function when done using the 802.11 API to clean up a connection from a previous `RadioConnect()` call. If you do not call this function, you may leave memory allocated.

Syntax `UINT RadioDisconnect( );`

Parameters None.

Return Values `ERROR_SUCCESS` when successful, otherwise

`ERR_CONNECT_FAILED`.

Remarks None.

Definitions `#ifdef DYNAMIC_LOADING`

`typedef UINT (*PFN_RadioDisconnect)();`

`#else`

`UINT RadioDisconnect();`

`#endif`

RadioDisassociate()

Call this function to have the 802.1x radio disassociate from the current service set. The radio then enters an “off” mode until it is woken again by setting the Service Set Identifier (SSID). Also, the NDIS driver generates an NDIS media disconnect event.

Syntax `UINT RadioDisassociate( );`

Parameters None.

Return Values `ERROR_SUCCESS` when successful, otherwise

`ERR_CONNECT_FAILED`.

Remarks None.

Definitions `#ifdef DYNAMIC_LOADING`


```
typedef UINT (*PFN_RadioDisassociate)();
#else
UINT RadioDisassociate();
#endif
```

Query Information Functions

GetAssociationStatus()

Call this function to obtain the radio's current association status with a service set.

Syntax **UINT GetAssociationStatus(ULONG &);**

Parameters **NDIS_RADIO_ASSOCIATED** Indicates the radio is associated with an access point

NDIS_RADIO_SCANNING Indicates the radio is looking for an access point with which to associate

Return Values **ERROR_SUCCESS** when successful, **ERR_QUERY_FAILED** when the query failed, or **ERR_CONNECT_FAILED** if a connection with the radio failed.

Remarks Data is only valid if the function returns **ERROR_SUCCESS**. Also, if **ERROR_SUCCESS** is returned, your **ULONG** reference is populated by one of the parameters listed above.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetAssociationStatus)(ULONG &);
#else
UINT GetAssociationStatus(ULONG &);
#endif
```

GetAuthenticationMode()

Call this function to obtain the radio's current authentication mode.

Syntax **UINT GetAuthenticationMode(ULONG &);**

Parameters **NDIS_RADIO_AUTH_MODE_OPEN** 802.1x Open Authentication. Indicates that the radio is using an open system.

NDIS_RADIO_AUTH_MODE_SHARED 802.1x Shared Authentication. Indicates that the radio is using a shared key.

NDIS_RADIO_AUTH_MODE_AUTO Auto switch between Open/Shared. Indicates automatic detection is used when available.

NDIS_RADIO_AUTH_MODE_ERROR Defined as error value. Indicates the authentication mode was not determined at this time or is unknown.

NDIS_RADIO_AUTH_MODE_WPA WPA Authentication

NDIS_RADIO_AUTH_MODE_WPA_PSK WPA Preshared Key Authentication

NDIS_RADIO_AUTH_MODE_WPA_NONE WPA None

Return Values **ERROR_SUCCESS** when successful, **ERR_QUERY_FAILED** when the query failed, or **ERR_CONNECT_FAILED** if a connection with the radio failed.

Remarks Data is only valid if **ERROR_SUCCESS** is returned. Also, if **ERROR_SUCCESS** is returned, your **USHORT** reference is populated with one of the parameters listed above.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetAuthenticationMode)(ULONG &);
#else
UINT GetAuthenticationMode(ULONG &);
#endif
```

GetBSSID()

Call this function to get the current MAC address (BSSID) of the service

set. In ESS mode, this is the MAC address of the access point the radio is associated with. In IBSS mode, this is a randomly generated MAC address, and serves as the ID for the IBSS.

Syntax **UINT GetBSSID(TCHAR *);**

Parameters Pointer to a character array, which is populated with the current BSSID after a successful call.

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your TCHAR array is populated with the BSSID of the current service set: xx-xx-xx-xx-xx-xx

Definitions **#ifdef DYNAMIC_LOADING**

typedef UINT (*PFN_GetBSSID)(TCHAR *);

#else

UINT GetBSSID(TCHAR *);

#endif

GetDiversity()

Call this function to get the current diversity setting of your 802.1x radio.

This function uses an optional NDIS5.1 OID to query the radio, which a large number of 802.1x devices do not support. This function may be inaccurate.

Syntax **UINT GetDiversity(USHORT *);**

Parameters ANT_PRIMARY The primary antenna is selected.

ANT_SECONDARY The secondary antenna is selected.

ANT_DIVERSITY The radio is in diversity mode, and uses both antennas

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your USHORT reference is populated with one of the parameters listed above.

Definitions **#ifdef DYNAMIC_LOADING**

typedef UINT (*PFN_GetDiversity)(USHORT *);

#else

UINT GetDiversity(USHORT *);

#endif

GetLinkSpeed()

Call this function to get the current link speed of the 802.1x radio.

Syntax **UINT GetLinkSpeed(int &);**

Parameters This function accepts an int reference, and your int is populated with the current link speed, in Mbps, rounded to the nearest whole integer, for example: 1, 2, 5, 11, etc.

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks Data returned is valid if ERROR_SUCCESS is returned.

Definitions **#ifdef DYNAMIC_LOADING**

typedef UINT (*PFN_GetLinkSpeed)(int &);

#else

UINT GetLinkSpeed(int &);

#endif

GetMac()

Call this function to get the MAC address of the 802.1x radio.

Syntax `UINT GetMac( TCHAR * );`

Parameters Pointer to a character array, which is populated with the MAC address after a successful call.

Return Values `ERROR_SUCCESS` when successful, `ERR_QUERY_FAILED` when the query failed, or `ERR_CONNECT_FAILED` if a connection with the radio failed.

Remarks If `ERROR_SUCCESS` is returned, your `TCHAR` array is populated with the formatted MAC address of the adapter, as follows: `xx-xx-xx-xx-xx-xx`

Definitions `#ifdef DYNAMIC_LOADING`

```
typedef UINT (*PFN_GetMac)(TCHAR *);
```

```
#else
```

```
UINT GetMac(TCHAR *);
```

```
#endif
```

Note: Be sure to call `RadioConnect()` *before* calling this function for this function to work properly.

GetNetworkMode()

Call this function to get the current Network Mode (SSID) for the 802.1x radio.

Syntax `UINT GetNetworkMode( ULONG & );`

Parameters `NDIS_NET_MODE_IBSS` 802.1x Ad-Hoc Mode.

`NDIS_NET_MODE_ESS` 802.1x Infrastructure Mode.

`NDIS_NET_MODE_UNKNOWN` Anything Else/Unknown Error

`NDIS_NET_AUTO_UNKNOWN` Automatic Selection. *Use of this option is not supported or recommended.*

`NDIS_NET_TYPE_OFDM_5G` 5 Gigahertz 54Mbps

`NDIS_NET_TYPE_OFDM_2_4G` 802.1x 2.4 Gigahertz

Return Values `ERROR_SUCCESS` when successful, `ERR_QUERY_FAILED` when the query failed, or `ERR_CONNECT_FAILED` if a connection with the radio failed.

Remarks If `ERROR_SUCCESS` is returned, your `ULONG` reference is populated with one of the parameters listed above.

Definitions `#ifdef DYNAMIC_LOADING`

```
typedef UINT (*PFN_GetNetworkMode)(ULONG &);
```

```
#else
```

```
UINT GetNetworkMode(ULONG &);
```

```
#endif
```

GetNetworkType()

Call this function to get the current network type of the radio. Do not confuse this with `GetNetworkMode()`.

Syntax `UINT GetNetworkType( ULONG & );`

Parameters `NDIS_NET_TYPE_FH` Indicates this is a frequency hopping radio.

`NDIS_NET_TYPE_DS` Indicates that this is a direct sequence radio.

`NDIS_NET_TYPE_UNDEFINED` Indicates this radio type is unknown or undefined.

Return Values `ERROR_SUCCESS` when successful, `ERR_QUERY_FAILED` when the query failed, or `ERR_CONNECT_FAILED` if a connection with the radio failed.

Remarks If `ERROR_SUCCESS` is returned, your `ULONG` reference is populated with one of the parameters listed above.

Definitions `#ifdef DYNAMIC_LOADING`

```
typedef UINT (*PFN_GetNetworkType)(ULONG &);
```

```
#else
```

```
UINT GetNetworkType(ULONG &);  
#endif
```

GetSSID()

Call this function to get the desired SSID of the 802.1x radio.

Syntax **UINT GetSSID(TCHAR *);**

Parameters Pointer to a character array, which is populated with the current SSID when successful.

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your TCHAR array is populated with the desired SSID.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetSSID)(TCHAR *);
```

#else

```
UINT GetSSID(TCHAR *);
```

#endif

Note: Call RadioConnect() *before* this function for this function to work properly.

GetPowerMode()

Call this function to get the current power savings mode of the radio.

Syntax **UINT GetPowerMode(ULONG &);**

Parameters NDIS_RADIO_POWER_MODE_CAM Continuous Access Mode (*ie: always on*).

NDIS_RADIO_POWER_MODE_PSP Power Saving Mode.

NDIS_RADIO_POWER_UNKNOWN Unknown power mode.

NDIS_RADIO_POWER_AUTO Auto.

NDIS_RADIO_POWER_MODE_FAST_PSP Fast PSP, good savings, fast

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetPowerMode)(ULONG &);
```

#else

```
UINT GetPowerMode(ULONG &);
```

#endif

Note: Do not use Automatic Switching mode at this time.

GetRSSI()

Call this function to get the current RSSI (Radio Signal Strength Indicator), in Dbm.

Syntax **UINT GetRSSI(ULONG &);**

Parameters References a ULONG that is populated with the current RSSI after a successful call.

Return Values ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your ULONG reference contains the RSSI. Valid RSSI range is from -100 Dbm to -30 Dbm.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetRSSI)(ULONG &);
```

#else

```
UINT GetRSSI(ULONG &);
#endif
```

GetTXPower()

Call this function to get the current transmit power of the radio.

Syntax **UINT GetTXPower(ULONG &);**

Parameters **NDIS_POWER_LEVEL_63** 63 mW

NDIS_POWER_LEVEL_30 30 mW

NDIS_POWER_LEVEL_15 15 mW

NDIS_POWER_LEVEL_5 5 mW

NDIS_POWER_LEVEL_1 1 mW

NDIS_POWER_LEVEL_UNKNOWN Unknown Value or Error.

Return Values **ERROR_SUCCESS** when successful, **ERR_QUERY_FAILED** when the query failed, or **ERR_CONNECT_FAILED** if a connection with the radio failed.

Remarks If **ERROR_SUCCESS** is returned, your **ULONG** reference is populated with the TX power in milliwatts (mW). Valid ranges are from 5 mW to 100 mW.

Definitions **#ifdef DYNAMIC_LOADING**

```
typedef UINT (*PFN_GetTXPower)(ULONG &);
```

```
#else
```

```
UINT GetTXPower(ULONG &);
```

```
#endif
```

GetWepStatus()

Call this function to get the current state of the radio's WEP and encryption levels.

Syntax **UINT GetWepStatus(ULONG &);**

Parameters **NDIS_ENCRYPTION_1_ENABLED** WEP is enabled; TKIP and AES are not enabled, and a transmit key may or may not be available.

(same as **NDIS_RADIO_WEP_ENABLED**)

NDIS_ENCRYPTION_DISABLED Indicates that AES, TKIP, and WEP are disabled, and a transmit key is available. (Same as

NDIS_RADIO_WEP_DISABLED)

NDIS_ENCRYPTION_NOT_SUPPORTED Indicates encryption (WEP, TKIP, AES) is not supported. (Same as

NDIS_RADIO_WEP_NOT_SUPPORTED)

NDIS_ENCRYPTION_1_KEY_ABSENT Indicates that AES, TKIP, and WEP are disabled, and a transmit key is not available.

(Same as **NDIS_RADIO_WEP_ABSENT**)

NDIS_ENCRYPTION_2_ENABLED Indicates that TKIP and WEP are enabled; AES is not enabled, and a transmit key is available.

NDIS_ENCRYPTION_2_KEY_ABSENT Indicates that there are no transmit keys available for use by TKIP or WEP, TKIP and WEP are enabled; and AES is not enabled.

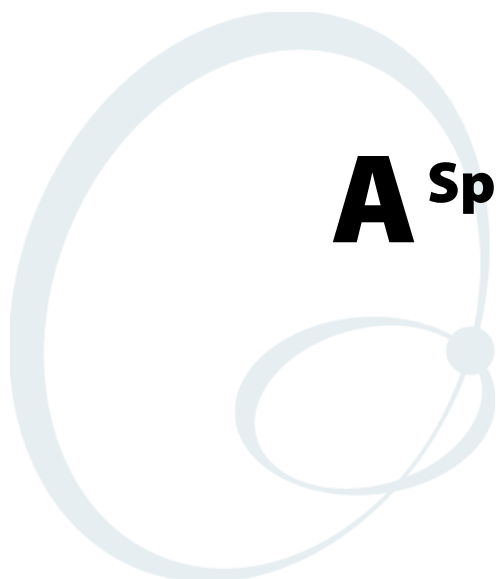
NDIS_ENCRYPTION_3_ENABLED Indicates that AES, TKIP, and WEP are enabled, and a transmit key is available.

NDIS_ENCRYPTION_3_KEY_ABSENT Indicates that there are no transmit keys available for use by AES, TKIP, or WEP, and AES, TKIP, and WEP are enabled.

Return Values **ERROR_SUCCESS** when successful, **ERR_QUERY_FAILED** when the query failed, or **ERR_CONNECT_FAILED** if a connection with the radio failed.

Remarks If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.

```
Definitions #ifdef DYNAMIC_LOADING
typedef UINT (*PFN_GetWepStatus)(ULONG &);
#else
UINT GetWepStatus(ULONG &);
    • #endif
```



A Specifications

Physical and Environmental Specifications

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

Hardware

Microprocessor: Intel XScale 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: 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 (3.8 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~~ **PENDING**

Accessories for the CN30

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

Battery

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

AD9 Charge Dock

Use the AD9 to charge a battery or keypad module. The battery charger is designed to sense when a battery is fully charged and not overcharge it, ensuring long and consistent battery life.

AC9 Quad Charging Dock

Use the AC9 to charge up to four batteries or keypad modules without having to remove them from the CN30. You can insert up to four CN30s with batteries installed making it easy to remember to charge your batteries overnight.

The following accessories are available for the CN30 Mobile Computer. Contact your Intermec representative for information about these and other accessories not on this list.

The handstrap is available as an orderable accessory.

- 14-Key Module
- 56-Key Module
- 56-Key Module Battery Pack
- Scan Handle
- Belt Clip
- Charge Dock
- Quad Charger

