Intermec

User's Manual


# CK60 Mobile Computer with Windowsr CE

Intermec Technologies Corporation

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## Document Change Record

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

| | Date | Description of Change |
|---|---|---|
| B | 12/2006 | Replaced Audio Devices applet information with Bluetooth Audio applet information. Updated 802.11 information to include “A” functionality. Added information about Microsoft WordPad and Media Player. |

# Contents

# Before You Begin

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

## Safety Information

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

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


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


**A caution alerts you to an operating procedure, practice, condition, or statement that must be strictly observed to prevent equipment damage or destruction, or corruption or loss of data.**

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

## Global Services and Support

### Warranty Information

To understand the warranty for your Intermec product, visit the Intermec web site at **www.intermec.com** and click **Service & Support**. The Intermec Global Sales & Service page appears. From the Service & Support menu, move your pointer over **Support**, and then click **Warranty**.

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

### Web Support

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

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

### Telephone Support

These services are available from Intermec Technologies Corporation.

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

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

## Who Should Read This Manual

This document is written for the person who is responsible for installing, configuring, and maintaining the CK60.

This document provides you with information about the features of the CK60, and how to install, configure, operate, maintain, and troubleshoot.

Before you work with the CK60, you should be familiar with your network and general networking terms, such as IP address.

## Related Documents

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

| Document Title | Part Number |
|---|---|
| *CK60 Mobile Computer Quick Start Guide* | 962-054-115 |
| *Intermec Computer Command Reference Manual* | 073529 |
| *TE 2000 Terminal Emulation Programmer's Guide* | 977-055-008 |

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

### To download documents

1. Visit the Intermec web site at **www.intermec.com**.
2. Click **Service & Support** > **Manuals**.
3. In the **Select a Product** field, choose the product whose documentation you want to download.

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

## Patent Information

4,882,476; 4,894,523; 4,953,113; 4,961,043; 4,970,379; 4,988,852; 5,019,699; 5,021,642; 5,038,024; 5,081,343; 5,095,197; 5,144,119; 5,144,121; 5,182,441; 5,187,355; 5,187,356; 5,195,183; 5,195,183; 5,195,183; 5,216,233; 5,216,550; 5,218,191; 5,227,614; 5,233,172; 5,241,488; 5,243,602; 5,258,606; 5,278,487; 5,288,985; 5,308,966; 5,322,991; 5,331,136; 5,331,580; 5,342,210; 5,349,678; 5,359,185; 5,371,858; 5,373,478; 5,389,770; 5,397,885; 5,410,141; 5,414,251; 5,416,463; 5,442,167; 5,464,972; 5,468,947; 5,468,950; 5,477,044; 5,486,689; 5,488,575; 5,500,516; 5,502,297; 5,504,367; 5,508,599; 5,514,858; 5,530,619; 5,534,684; 5,536,924; 5,539,191; 5,541,419; 5,548,108; 5,550,362; 5,550,364; 5,565,669; 5,567,925; 5,568,645; 5,572,007; 5,576,529; 5,592,512; 5,594,230; 5,598,007; 5,608,578; 5,616,909; 5,619,027; 5,627,360; 5,640,001; 5,657,317; 5,659,431; 5,671,436; 5,672,860; 5,684,290; 5,719,678; 5,729,003; 5,742,041; 5,761,219; 5,764,798; 5,777,308; 5,777,309; 5,777,310; 5,786,583; 5,793,604; 5,798,509; 5,798,513; 5,804,805; 5,805,807; 5,811,776; 5,811,777; 5,818,027; 5,821,523; 5,828,052; 5,831,819; 5,834,749; 5,834,753; 5,837,987; 5,841,121; 5,842,070; 5,844,222; 5,854,478; 5,862,267; 5,869,840; 5,873,070; 5,877,486; 5,878,395; 5,883,492; 5,883,493; 5,886,338; 5,889,386; 5,895,906; 5,898,162; 5,902,987; 5,902,988; 5,912,452; 5,923,022; 5,936,224; 5,949,056; 5,969,321; 5,969,326; 5,969,328; 5,979,768; 5,986,435; 5,987,192; 5,992,750; 6,003,775; 6,012,640; 6,016,960; 6,018,597; 6,024,289; 6,034,379; 6,036,093; 6,039,252; 6,064,763; 6,075,340; 6,095,422; 6,097,839; 6,102,289; 6,102,295; 6,109,528; 6,119,941; 6,128,414; 6,138,915; 6,149,061; 6,149,063; 6,152,370; 6,155,490; 6,158,661; 6,164,542; 6,164,545; 6,173,893; 6,195,053; 6,234,393; 6,234,395; 6,244,512; 6,249,008; 6,328,214; 6,330,975; 6,345,765; 6,356,949; 6,367,699; 6,375,075; 6,375,076; 6,431,451; 6,435,411; 6,484,944; 6,488,209; 6,497,368; 6,532,152; 6,538,413; 6,539,422; 6,621,942; 6,641,046; 6,681,994; 6,687,403; 6,688,523; 6,732,930;
Des. 417445
There may other U.S. and foreign patents pending.

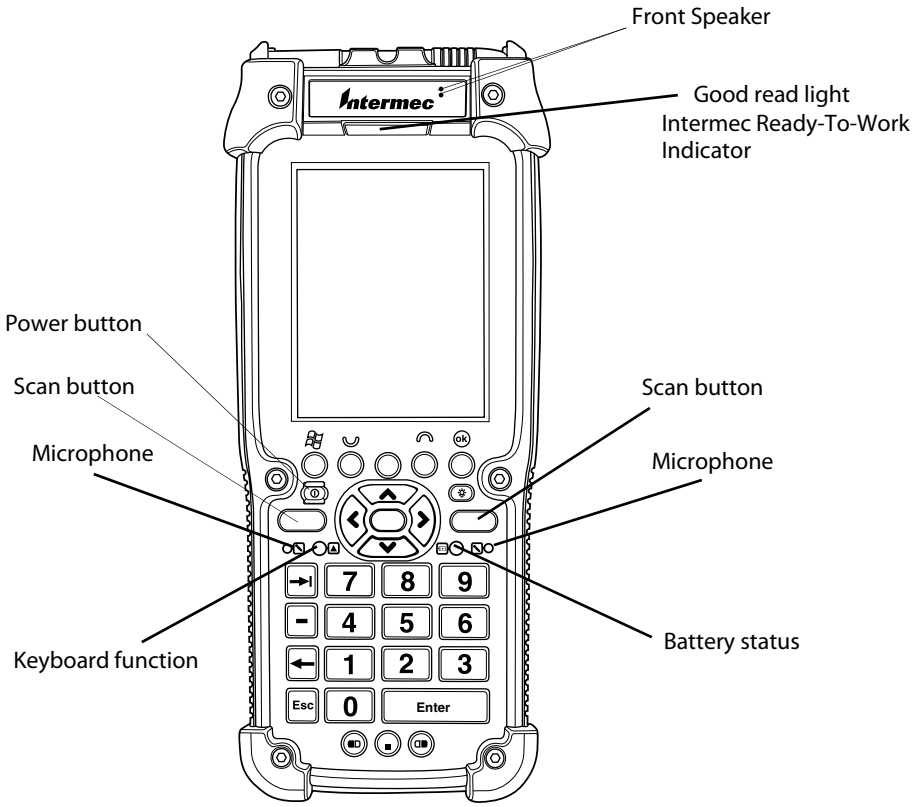
# 1 Using the Computer

This chapter introduces the CK60 Mobile Computer, developed by Intermec Technologies Corporation to enhance wireless connectivity needs and contains hardware and software configuration information to assist you in making the most out of your CK60.

**Note**: Desktop and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the bottom, left corner of your CK60 desktop. 

# Introducing the CK60 Mobile Computer

The Intermec CK60 Mobile Computer is an ergonomically designed handheld computer built on the Microsoft® Windows® CE 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.




The CK60 is available with the following:

- Ethernet
- 802.11a/b/g radio
- Bluetooth - *Bluetooth is a trademark owned by Bluetooth SIG, Inc., USA
- 64MB or 128MB RAM/64MB Flash Memory
- Disk on Chip (128MB)
- 2D Area Imager
- EV10 Imager

Use this manual to understand how to use the features and options available on the CK60.

CK60s with an IEEE 802.11a/b/g radio installed are Wi-Fi® certified for interoperability with other 802.11a/b/g wireless LAN devices.

# Learning Software Build Versions

The Persistent Storage Manager (PSM) is an area of storage which is embedded in a section of the system's FLASH memory. This storage area is *not* erased when a cold-boot is performed. It may, however, be erased during the reflashing process. In addition to storing applications and data files, you do have the option to store a persistent registry to the PSM region.


To check to see if your CK60 has the latest PSM build or the latest operating system build, double-tap the **Internet Explorer** icon from the desktop, then see the information under **CK60 Version Information**.


# Resetting Your Computer

When the CK60 completely stops responding, an application is locked up and does not respond, when you upgrade the firmware, or when you reflash the CK60, it may be necessary to perform a reset.

## Preferred Reset Method

The recommended method in recovering the CK60 is to press and hold the power switch on the front of the CK60 for about 10 seconds. This performs a graceful system shutdown and no data is lost in the process.

## Secondary Reset Method

If performing the preferred reset method does not restore system operation, it may be necessary to press the reset button inside the battery compartment of the CK60. This method does not guarantee that cached disk data will be saved, and as such, transactional data may be lost during the reset. All other data is preserved.

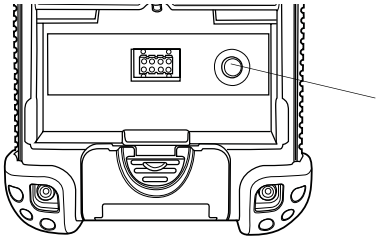
### To press the reset button

1 Press the power switch to suspend the CK60.

2 Remove the battery pack from the back of the CK60.

3 With a stylus, press the reset button in the battery cavity in the back.

4 Press and hold the power switch as you put the battery back in the unit.




Warning

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

## Clean Boot Process

If performing either reset method fails to restore system operation, it may be necessary to perform a clean-boot. This is a boot method which formats the object store to clean data and registry information from the CK60 system and restores them to their factory-default state.

**Note**: This will erase the memory in the CK60, including all applications and data files found in the object store (user store). See **"Packaging Applications for the Computer" on page 74** for more information.

### To perform a clean-boot

1 Press the power switch to suspend the CK60.

2 Remove the battery pack from the back of the CK60.

3 With a stylus, press the reset button in the battery cavity in the back.

4 Press and hold the power switch as you put the battery back in the unit.

5 Continue to hold the power switch until a Warning message appears on the display, release the power switch, then read the message.

6 To continue with the clean-boot, press the right side button.

To cancel the clean-boot, press the left side button.

# Scanning Bar Codes

Warning

**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 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 CK60, the Code39, UPC/EAN, and PDF417 *(with imager)* bar code symbologies are enabled.

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 applet to enable and disable symbologies for your scanner. For help on using the Intermec Settings applet, see **"Using the Intermec Settings Applet" on page 10**.

## Scanning with the 2D Area Imager

The CK60 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 CK60 in any orientation to scan a bar code label. Using the 2D area imager is similar to taking a digital pictures.

1. Press the power button to turn on the CK60.
2. Point the scanner window at the bar code label and hold the CK60 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 CK60 successfully reads a bar code label, you hear a high beep and the green **Good Read** indicator 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 **"Using the Intermec Settings Applet" on page 10**. For more information on the commands and their parameters, see the *Intermec Computer Command Reference Manua*l (P/N 073529) via the Intermec web site. See **"Before You Begin"** for information how to download this .chm file.

## Supported Devices

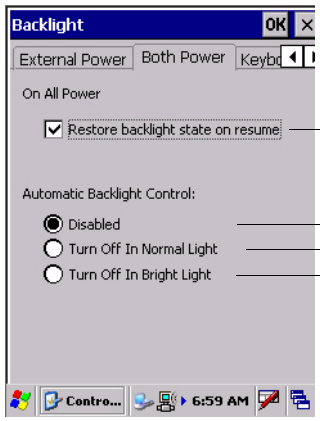
The CK60 should connect the following scanner models: 1551, 1553, 1555; ScanPlus 1800SR, 1800ST, 1800VT; Scan Image 1470; SF51; and SF61. There are a number of different scan engines covered by these models, including RFID and XLR scan engines. Model 1555 and Scan Image 1470 are supported as input devices only; configuration of these models are accomplished by scanning labels.

# Using the Ambient Light Sensor

The ambient light sensor automatically turns off the display lighting as surrounding light increases to conserve your CK60 battery power. As configured from the factory, the ambient light sensor is disabled.

### To enable the ambient light sensor and change its settings


1. Tap **Start** > **Settings** > **Control Panel**.
2. Double-tap the **Backlight** icon.
3. Tap the right arrow to scroll to and tap the **Both Power** tab.
4. Make your selections, then tap **OK** to exit this applet.




# Using the Battery

The CK60 uses a 17.3 Watt-hour, 7.2V, replaceable Lithium-Ion (Li-ion) battery. Fully charge the battery before using the CK60. When changing the battery, a backup battery (super capacitor) maintains your state, memory, and real-time clock for at least 10 minutes.


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


**If you fail to replace the battery immediately, you may lose important state or applications.**

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

Several factors determine the life of your battery such as extreme temperatures, input devices, and your usage. For example, if you use a tethered scanner every day, you need to replace your battery more often than someone who uses an internal scanner.

**Note**: The CK60 has an internal backup super capacitor which retains data for an average of ten minutes after the battery is removed. It also shuts down the CK60 if the battery suddenly goes away (removed from the computer). Depending upon the processes running, it may not have adequate power for a graceful shut down. If so, the CK60 performs a cold-boot the next time power is applied.

**In short, put the CK60 into a suspend (sleep) mode before you remove the battery.**

You can configure the battery power fail level so that after the system shuts down in a low battery condition, there is still sufficient charge to allow the unit to remain configured, keep proper time, and maintain DRAM (Dynamic Random Access Memory) for at least ten minutes at room temperature if the main battery remains in the handheld computer, using the Power applet (see **page 8**). The state and time are lost if:

- The battery discharges beyond this level.
- The battery is removed when the computer is *not in suspend mode*.

## Charging and Installing the Battery

Make sure you fully charge the battery before you install it in your CK60; and that you take at least 20 minutes to initially charge the backup battery using a charging dock before the backup system is fully functional.

### To charge the battery

- Either insert the battery into the quad battery charger,
- or place the CK60 with battery installed in a single dock, a single dock with modem, or a multidock.

The battery charge time is four hours or less on any of these docks if the temperature is within the battery charging range.

You could also use a power adapter to keep the CK60 on full power.

For maximum efficiency, store your CK60 on external power with which to charge your batteries.

For more information on these accessories, see **"Accessories for the Computer" on page 19**.

To install the battery, insert the tabs on the bottom of the charged battery into the CK60 and snap the battery into place.

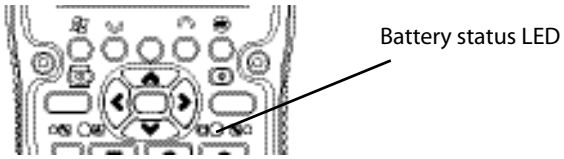
Below are things you can do to maximize the life of your battery.

### Maximizing Battery Life

| When You Want To: | Do This to Save Battery Power: |
|---|---|
| Operate the CK60 and the Low Battery status icon appears or the Battery light comes on. | 1 Press the power switch to turn off the CK60.<br>2 Remove the battery and insert another fully charged battery as quickly as possible or you may lose state. Or, insert the CK60 into a powered quad battery charger. |
| | 1 Make sure the low battery icon is not on the screen and that the Battery light is not turned on.<br>2 Press the power switch to turn off the CK60. |
| Store the CK60 for more than a day. | 1 Save your state and end your computer session.<br>2 Press the power switch to turn off the CK60.<br>3 Insert a fully charged battery. |

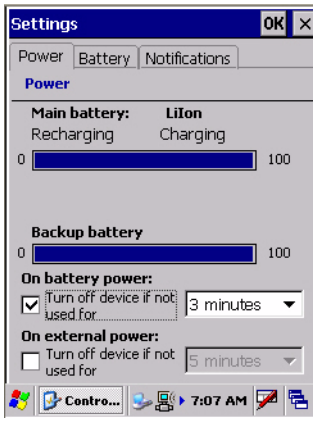
## Checking the Battery Status

The battery status LED above your CK60 keypad, as shown in the following illustration, indicates the status of your battery. See the following table to understand the meanings of the lights emitted from the LED.





You can also use the Power applet to view the status of this battery. Tap **Start** > **Settings** > **Control Panel**. Double-tap the **Power** icon, then tap the **Power** tab. Tap **OK** to exit this applet.




### Battery Status LED

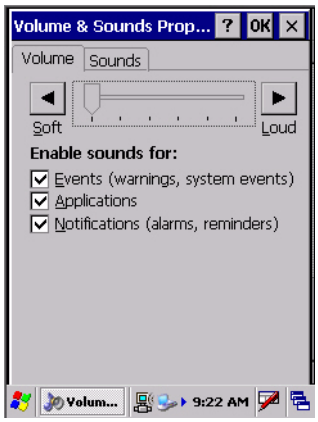
| LED Color | Description |
|---|---|
| Steady Green | Battery is more than 95% charged and computer is on a charger. |
| Blinking Red | Battery is low. |
| Steady Red | Main battery is on charge. |
| Steady Amber | The battery is either out of the computer or the pack temperature is too hot or too cold to charge. |

# Adjusting the Beeper

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

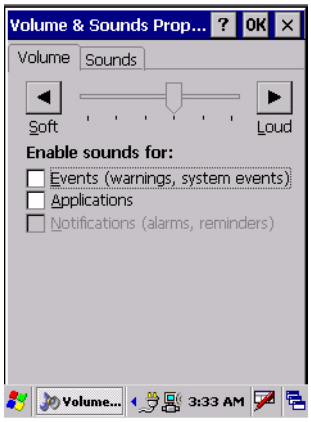
### To enable the beeper


1. Tap **Start** > **Settings** > **Control Panel**, then double-tap the **Volume & Sounds** icon.
2. Check for which features the CK60 should enable sounds, then tap **OK** to close.




### To disable the beeper


1. Tap **Start** > **Settings** > **Control Panel**, then double-tap the **Volume & Sounds** icon.
2. Clear the options to disable their sounds, then tap **OK** to close.



# Using the Intermec Settings Applet

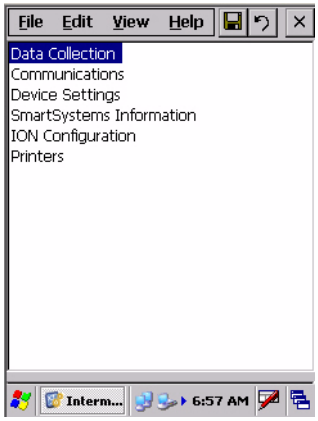
Use the Intermec Settings applet to gather, view, and update device configuration settings. Information about the settings you can configure with the Intermec Settings applet is in the *Intermec Computer Command Reference Manual* available online at **www.intermec.com**.

See the Data Collection Resource Kit in the Intermec Developer Library (IDL) for information about data collection functions. The IDL is available as a download from the Intermec web site at **www.intermec.com/idl**. Contact your Intermec representative for more information.

### To access the Intermec Settings applet


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

2 Double-tap the **Intermec Settings** icon to access the applet.

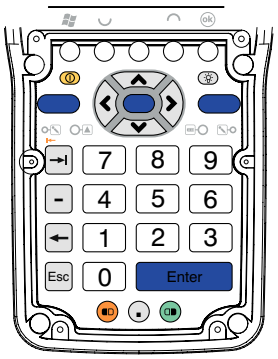



# Using the Keypad

Your CK60 has one of the following keypad overlay options: a 32-key large numeric keypad or a 58-key full alphanumeric keypad.

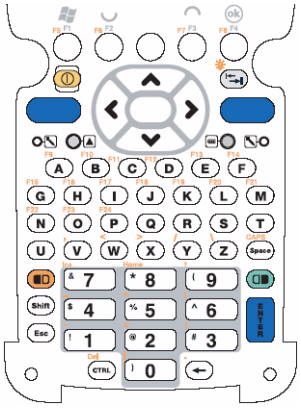
## 32-Key Large Numeric Keypad

This keypad is for applications that enter mainly numeric data (0-9). It also lets you enter special characters by pressing color-coded key sequences.



## 58-Key Full Alphanumeric Keypad

This keypad is for applications that enter mainly numeric data (0-9) and that may need to enter the entire alphabet. This keypad also provides shift function keys (F1-F24) and special characters, symbols, and functions by pressing color-coded key sequences.



## Using the Color-Coded Keys

Each keypad available for the CK60 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 CK60: 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. Note that there are several hidden characters (such as < or >) on each CK60 keypad that require using the color-coded keys to access them.

## Capitalizing All Characters

To type all alphanumeric characters as uppercase letters, you can enable the Caps Lock feature on the CK60 keypad. To enable Caps Lock, on the 58-key keypad, press the key, then the **Space** key. Press the same key sequence to disable the Caps Lock.

## Using the Power Key

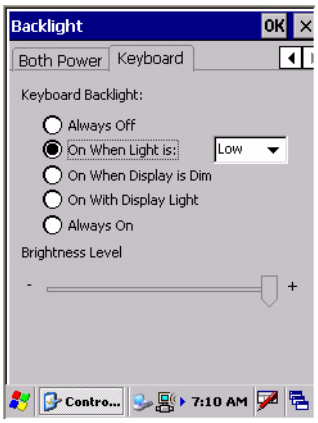
When you press the power button to turn off the CK60, you actually put the CK60 in Suspend mode. In Suspend mode, the CK60 continues to supply power to all memory, but turns off power to most hardware. This power-saving feature is to prolong battery life.

When you press the power button to turn the CK60 back on, your computer resumes where it was when you turned it off. If the Battery light flashes and the CK60 does not resume after pressing the power button, your battery may be too low to supply power. Replace the battery.

## Turning on the Keypad Backlight

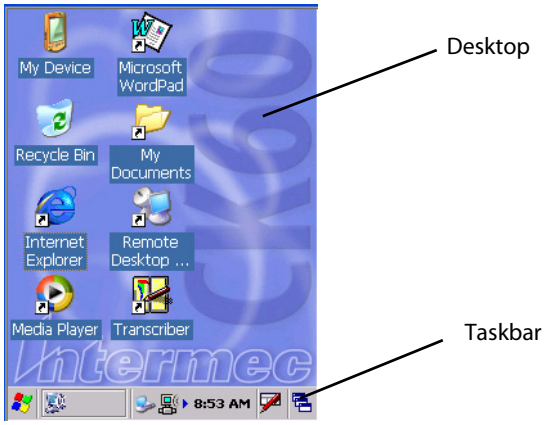

To adjust the keypad backlight for work in low-light settings:

1. Tap **Start** > **Settings** > **Control Panel**.
2. Double-tap the **Backlight** icon.
3. Tap the right arrow, then tap the **Keyboard** tab.
4. Make your selection, then tap **OK**.




# Using the Screen

The CK60 has a 3.8" diagonal, 240x320 pixel (QVGA) transflective TFT-LCD 64K color display. The screens support 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 CK60. The taskbar displays the Start menu, the time, the onscreen keyboard icon, and the desktop icon.



Your CK60 has a stylus for selecting items and entering information. Use the stylus in place of a mouse.

### *Things You Can Do with a Stylus*

| Action | How to Do the Action |
|---|---|
| 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 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 to perform. |

# Using Software Tools

The following Intermec software tools are available as free downloads:

## SmartSystems Foundation Console (www.intermec.com/SmartSystems)

This tool includes a management console that provides a default method to configure and manage Intermec devices "out-of-the-box," without the purchase of additional software licenses. This is for anyone who must configure and deploy multiple devices or manage multiple licenses.

## SmartSystems Platform Bundles (SSPB)

The SmartSystems Platform Bundle (SSPB) is a bundle of software that contains the Data Collection Engine (DCE), SmartSystems, Funk Supplicant, Intermec Settings, and Intermec Developer Library (IDL) runtime.

The SSPB is stored in the "\Flash File Store" folder off the root of your CK60 and automatically installed on the device when it is initially started up. Updated bundles are available as software downloads from the Intermec web site at www.intermec.com/SmartSystems. Click **Downloads** on the left to access the latest.

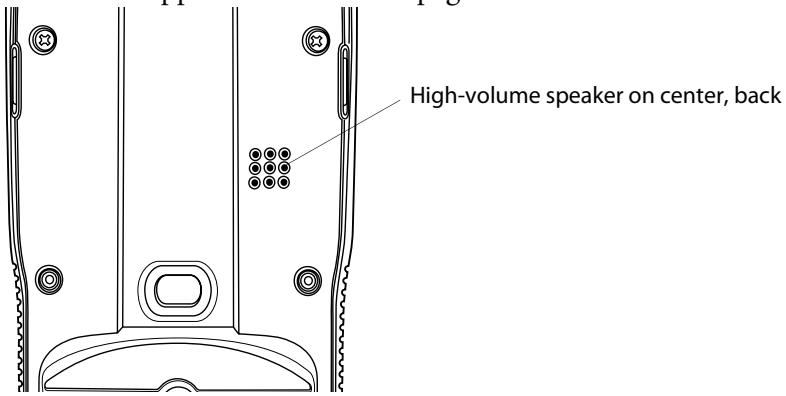
## Intermec Resource Kits (www.intermec.com/IDL)

Resource Kits provide tools that build applications using the features of Intermec devices. Resource kits include: Bluetooth, Communications, Data Collection, Device Settings, Mobile Gadgets, Printing, and RFID.

This is for anyone who develops software for the CK60.

# Using the Speakers

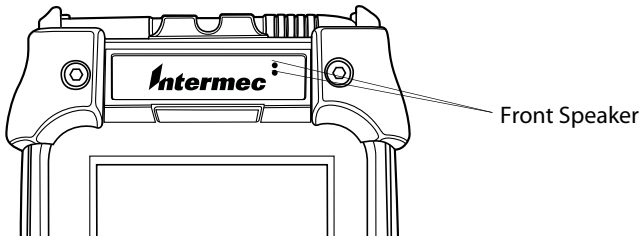
The high-volume speaker on the back of the CK60 is capable of variable volume levels. This speaker is capable of reproducing voice and WAV files, and is used primarily to convey status tones. There is a separate volume control in the Intermec Settings and Volume & Sounds applets. Information on these applets is on the next page.




Warning

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

The front speaker is a full-voice range speaker of cell-phone quality with a separate volume control. See below for information on this volume control.



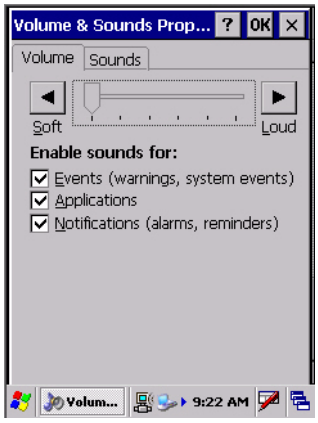
### To adjust the volume using the Volume & Sounds applet


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

2 Double-tap the **Volume & Sounds** icon.

3 Tap the **Volume** tab, drag the slider bar to the right to the "Soft" position, then tap **OK** to exit this applet.

To disable the speaker, tap the **Soft** button to drag the slider all the way to the left.




### To adjust the volume using the Intermec Settings applet

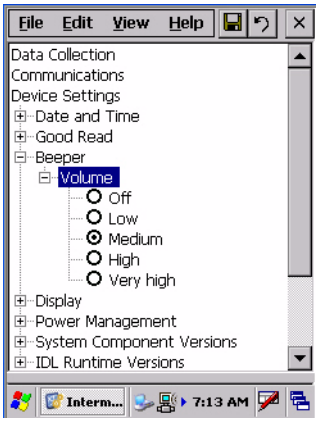

1 Tap **Start** > **Settings** > **Control Panel**.

2 Double-tap the Intermec Settings icon.

3 Tap (+) to expand **Device Settings** > **Beeper** > **Volume**.

4 Tap any of the options other than "Off" to enable and adjust.

To disable the speaker, tap the **Off** option.



# Using the Status Indicators

The status indicators on the CK60 turn on to indicate the battery status or a successful bar code decode. The battery indicators and screen icon work to alert you to your battery status. If the battery indicator (to the right of the **Scan** button) comes on, check the toolbar to see what icon appears. The battery may be critically low and need replacing. The green **Good Read** indicator above the display appears when you have decoded a bar code successfully.

# Using the Secure Digital Card

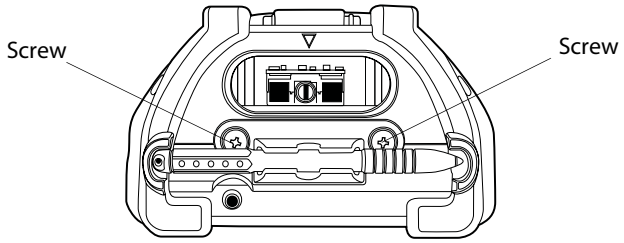
**Note**: MultiMediaCards (MMCs) and CompactFlash (CF) storage cards are not supported in the CK60.

Use a SanDisk Secure Digital card to increase file storage and install software. Its card slot is on the top of the CK60 just above the scanner window. Do the following to insert a card in the CK60:

Warning

**You can corrupt your Secure Digital card if you do not follow these installation and removal procedures exactly. Before installing a Secure Digital card, inspect the gasket on the door for any damage or wear, and replace the door if any damage or wear is found**

1. Press the power switch to turn off the CK60.
2. Remove the two screws on the Secure Digital card slot door and remove the door *(see the following illustration)*. Be sure to torque the screws to this door to 1.5 in-lbs.
3. Gently insert the Secure Digital card into the CK60 with the printed side facing the keypad and screen side of the CK60.
4. Push the card into the slot until it latches in place and the steel card retainer covers the end of the Secure Digital card.
5. *(Optional)* Replace the door, insert the door catch into the slot above the steel card retainer, replace the two screws, then press the power button to turn on the CK60.




6. To remove the card, push in on the Secure Digital card until you hear it unlatch. The card should eject far enough that you can easily remove it from the CK60. If the card does not eject easily, turn the door upside down, then use the catch to pull out the Secure Digital card.

# Physical and Environmental Specifications

Use this section to locate technical information about the CK60 and its available features and options.

## Physical Dimensions

| | |
|---|---|
| Length: | 22.2 cm (8.75") |
| Width: | 9.0 cm (3.55") |
| Height: | 5.3/3.6 cm (2.08"/1.4") at top/keypad |
| Weight: | 704 g (24.8 oz) |

## Hardware

| | |
|---|---|
| Microprocessor: | Intel XScale PXA272 520MHz |
| 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: | 32-key with large numeric keys or 58-key with full alphanumeric keys; both with LED backlighting |

## Operating System

Microsoft Windows CE 5.0

## Software

| | |
|---|---|
| Development Environments: | Embedded Visual C++ 4.0, .NET Compact Framework v2.0 (VB. NET, C#) |
| IDL: | 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, Ethernet 10/100 Base-T, Bluetooth Class 1, V2.0 + EDR, RS232 Serial, IrDA 1.1

## Wireless LAN

| | |
|---|---|
| Standards Compliant: | IEEE 802.11g (2.4 GHz - OFDM)<br>IEEE 802.11b (2.4 GHz - DSSS)<br>IEEE 802.11a (5.0 GHz - OFDM) |
| Data Rates: | Up to 54 Mbps for 802.11g<br>Up to 11 Mbps for 802.11b<br>Up to 54 Mbps for 802.11a |
| Radio Power Output: | 50 m W |
| Security: | WEP, WPA, 802.11i, 802.1x<br>(EAP-TLS, TTLS, LEAP, PEAP) |
| Certifications: | Wi-Fi, WPA2, Cisco Compatible Extensions V2 |

## 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 added utilities. |

## Power Specifications

| | |
|---|---|
| Operating: | Removable, rechargeable Li-ion battery pack; AB11 7.2 V, 2400 mAh (17.3 Watt-hours); battery life is application-dependent; recharging cycle is 4 hours or less |
| Backup: | Super capacitor supplies 10 minutes bridge time while replacing the main battery |

## Electrical Specifications

| | |
|---|---|
| External Charge Power: | 11 to 28 VDC @ 1.5 A max. (18 W max.) |

## Environment

| | |
|---|---|
| Operating temperature: | -20° to 50°C (-4° to 122°F) |
| Storage temperature: | -30° to 70°C (-22° to 158°F) |
| Humidity: | 5% to 95% noncondensing |
| Electrostatic Discharge: | ±8kV Contact Discharge; ±15kV Discharge |
| Rain and Dust Resistance: | IP64 compliant |
| Drop Survival: | Multiple 6 ft (1.8 m) drops to steel or concrete |

## Screen Specifications

Transflective TFT; QVGA Color with touch panel; 240x320 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

# Accessories for the Computer

You can use these accessories (sold and ordered separately) with the CK60. To order accessories, contact your local Intermec representative.

### AC4 Quad Battery Charger

Use the Quad Battery Charger to charge up to four batteries without having to remove them from the CK60. You can insert up to four CK60s with batteries installed making it easy to remember to charge your batteries overnight. The charger also provides power to your CK60s while communicating via Ethernet.

### AD3 Ethernet Multidock

Use the AD3 Ethernet Multidock to hold up to four CK60s with a batteries installed. The multidock charges the batteries, provides power to the CK60s, provides one Ethernet connector, and provides a serial port for each inserted CK60.

### AD5 Single Dock

Use the AD5 Single Dock to hold a CK60 with its battery installed. The single dock charges the battery, provides power to the CK60, provides an Ethernet connector, provides a USB port, provides an ActiveSync USB port, and provides a serial port for the inserted CK60.

### AD6 Single Dock with Modem

Use the AD6 Single Dock with Modem to hold a CK60 with its battery installed. The single dock charges the battery, provides power to the CK60, provides an ActiveSync USB port, provides a standard USB port, and provides a telephone line connector for the inserted CK60.

### CK60 Holster and Belt

Use the holster and belt to carry your CK60while not using it. The holster and belt support either right- or left-handed use and you can use it to carry a CK60 with or without a handle. You can only use this with a CK60 that has either the 1D linear imager or the 2D imager.

### CK60 Handstrap

The removable and adjustable handstrap make it easy for you to hold and use the CK60 without tiring your hand.

### CK60 Power Adapter, AA6 USB Adapter, and Snap-On Adapters

Provides power to all of the docks and chargers.

# 2 Windows CE

This chapter introduces Microsoft® Windows® CE 5.0. While using your CK60 Mobile Computer, keep this key point in mind:

- Tap **Start** on the task bar, located at the bottom, left corner of the screen, to quickly move to programs, files, and settings. Use the task bar at the bottom of the screen to perform tasks in programs. The task bar includes menus, buttons, and the onscreen keyboard.

**Note**: Desktop and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the bottom, left corner of your CK60 desktop. 

# Software Builds

See **"Learning Software Build Versions" on page 3** to determine which Intermec build of Windows CE is on your unit.

# Where to Find Information

This chapter describes your CK60 hardware, provides an overview of the programs on your CK60, and explains how to connect your CK60 to a desktop, a network, or the Internet. For instructions on setting up your CK60 and installing ActiveSync, see the Quick Start Guide. The following is a guide to more information to assist you use your CK60.

| | **See this source:** |
|---|---|
| Programs on your handheld computer. | This chapter. |
| Connecting to and synchronizing with a PC. | The Quick Start Guide or *ActiveSync Help* on your PC. |
| Last-minute updates, detailed technical information. | Read Me files in the Microsoft ActiveSync folder on the PC. |
| Up-to-date information on Windows CE device. | **msdn.microsoft.com/embedded/downloads/ce/default.aspx** |

Windows CE and many of the technologies supported by the CK60 are not from Intermec. Many of the utilities and features on a Windows CE device come directly from Microsoft without any modification from Intermec. There may be certain Microsoft-specific issues that Intermec 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 CE:

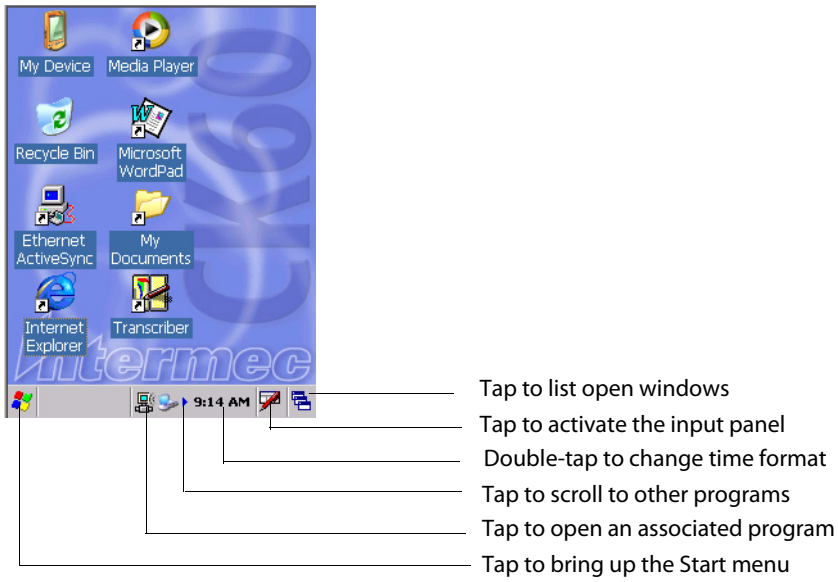
- **msdn.microsoft.com/support**
- **support.microsoft.com**
- **www.microsoft.com/technet/community/newsgroups/security/default.mspx** *(a free support option)*

# Basic Skills

Learning to use your CK60 is easy. This section describes the basic concepts of using and customizing your CK60.

## Desktop Screen

When you turn on your CK60 for the first time each day, you see the **Desktop** screen.





To customize what is displayed on the Desktop screen, including the background image, tap **Start** > **Settings** > **Control Panel**, then double-tap the **Display** icon.

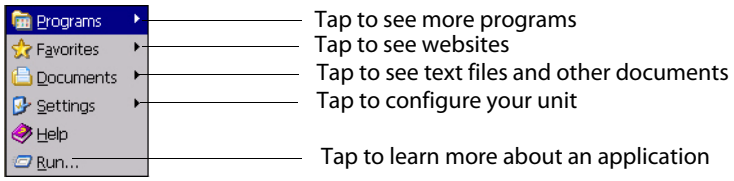
Status icons display information such as low batteries or when the CK60 is connected to a PC or to the Internet. You can tap an icon to open the associated setting or program.

## Programs

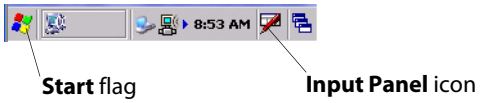
You can switch from one program to another by selecting it from the **Start** menu. To access some programs, tap **Start** > **Programs**, and then the program name.

## Start Menu and Task Bar

The Start Menu is at the bottom of the screen above the task bar. It displays the active program, and allows you to switch to programs and close screens.




The task bar at the bottom of the screen includes the **Start** flag, the **Input Panel** icon, and the system tray with the current time and notification.



## Notifications

Your device can notify you in any of the following notification types:

- A message box appears on the screen.
- A sound, which you can specify, is played.
- A light flashes on your CK60.

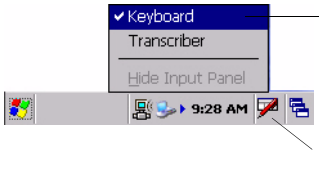
## Entering Information

You can enter information on your CK60 in several ways, depending on the type of device you have and the program you are using:

| | |
|---|---|
| Typing | Using the input panel, enter typed text into the CK60. 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. |

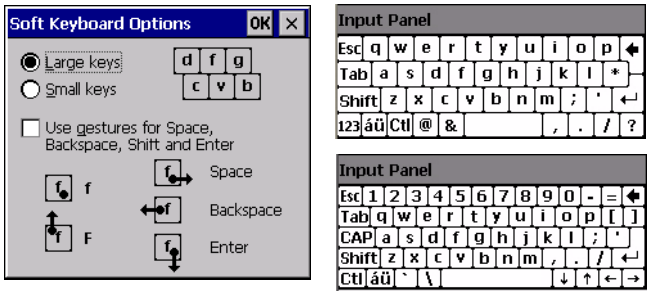
Use the input panel to enter information in any program on your CK60. You can either type using the onscreen keyboard or write using **Transcriber** (described on **page 25**). The characters appear as typed text.

To show the input panel, tap the **Input Panel** icon, then tap **Keyboard**. To hide the input panel, tap the **Keyboard** icon, then tap **Hide Input Panel**.




### Large Keys Versus Small Keys on "Soft" Keyboard


The default setting for the onscreen or "soft" keyboard is with small keys. If you want to use larger keys, tap **Start** > **Settings** > **Control Panel**, then double-tap the **Input Panel** icon. Tap **Options** for the Soft Keyboard Options, then select **Large keys**. Tap **OK**, then **OK** again to close. Below are the "soft" keyboards.



## Typing With the Onscreen Keyboard

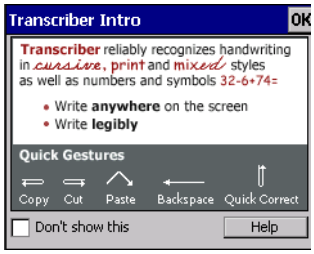
Tap the stylus input icon, then tap **Keyboard**. On the soft keyboard that is displayed, tap the keys with your stylus.

- 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. *Note that the CAP key only appears when the keyboard is set to small keys.*
- 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, drag the stylus to the left across at least two keys.
- To insert a carriage return, tap and hold the stylus on the keyboard and drag down.

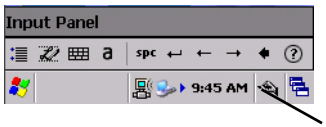
## Using Transcriber

With Transcriber, you can write on the screen with the stylus just as you would on paper. You can write a sentence or more of information, then pause and let Transcriber change written characters to typed characters.


For specific instructions on using Transcriber, double-tap the **Transcriber** shortcut on the desktop screen or tap the **Transcriber** option in the Input Panel menu, then tap **Help**. Tap **OK** to close the Transcriber Intro box.




To enable the Transcriber, tap the **Input Panel** icon on the task bar, select **Transcriber**, tap **OK** to close the Transcriber Intro, select an option, then write anywhere on the screen for the input to appear in the active window. Tap the **Input Panel** icon, then select **Hide Input Panel**, to disable.




**Input Panel** icon

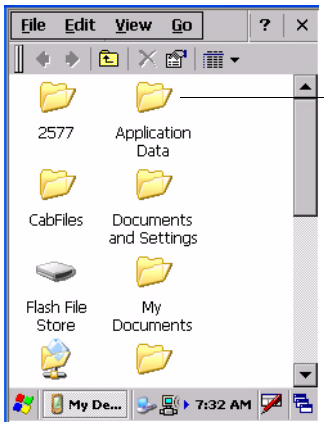
## Selecting Typed Text

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

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.

## Finding and Organizing Information

Use the Windows Explorer to find and organize files on your CK60. Tap **Start** > **Programs** > **Windows Explorer**.




## Customizing Your Computer

You can customize your CK60 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** > **Control Panel**, then double-tap any of the applets. You might want to adjust the following:


**Date/Time**
To change the time or calendar.


**Display**
To customize the look of the desktop.


**Owner**
To enter your contact information.


**Password**
To limit access to your CK60.


**Power**
To maximize battery life.

## Adding or Removing Programs

Programs added to your CK60 at the factory are stored in ROM (Read Only Memory). You cannot remove this software, and you cannot accidentally lose ROM contents.

You can install any program created for your CK60, as long as your CK60 has enough memory. The most popular place to find software for your CK60 is on the Windows CE .NET web site (**msdn.microsoft.com/embedded/downloads/ce/default.aspx**).

## Adding Programs Using Microsoft ActiveSync

Install software developed for the CK60 onto your PC before installing the same software onto your CK60. Once installation is complete, tap **Start** > **Programs**, then the program icon to switch to it.


1 Determine your CK60 and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > **Control Panel**, then double-tap the **System** icon. Note the processor information on the **General** tab beneath the **Computer** heading.


2 Download the program to your PC (or insert the CD or disk that contains the program into your PC). You may see a single *.EXE or *.ZIP file, a SETUP.EXE file, or several files for different CK60 types and processors. Be sure to select the program designed for the Windows CE and your CK60 processor type.

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

4 Connect the CK60 and PC, then 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 CK60.
- If the file is not an installer, a message states the program is valid but is for a different computer. Move this file to your CK60 using Microsoft ActiveSync Explore to copy the program file to the "My Computer\Program Files" folder on your CK60.

## Adding a Program Directly from the Internet

Install the appropriate software for your CK60 on your PC before installing it on your CK60. Once installation is complete, tap **Start** > **Programs**, then the program icon to switch to it.


1. Determine your CK60 and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > **Control Panel**, then double-tap the **System** icon. Note the processor information on the **General** tab beneath the **Computer** heading.
2. Download the program to your CK60 straight from the Internet using Internet Explorer. You may see a single *.EXE or *.ZIP file, a SETUP.EXE file, or several versions of files for different CK60 types and processors. Be sure to select the program designed for the Windows CE and your CK60 processor type.
3. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide instructions.
4. Tap the file, such as *.EXE file to start the installation wizard. Follow the directions on the screen.

## Adding a Program to the Start Menu

You can either use Windows Explorer on the CK60 to move the program to the "\My Computer\Windows\Start Menu" folder, or use Microsoft ActiveSync on the PC to create a shortcut to the program and place the shortcut in the "\My Computer\Windows\Start Menu" folder.

### Using Windows Explorer on the Computer

Tap **Start** > **Programs** > **Windows Explorer**, locate the program, tap and hold the program, then tap **Cut** on the pop-up menu. Open the "\My Computer\Windows\Start Menu" folder, tap and hold a blank area of the window, then select **Paste** to have the program appear on the **Start** menu.

### Using Microsoft ActiveSync on the PC

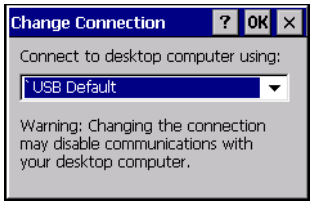
Use the Explore feature in Microsoft ActiveSync to explore your CK60 files and locate programs. Right-click the program, click **Create Shortcut**, then move the shortcut to the "\My Computer\Windows\Start Menu" folder for it to appear on the **Start** menu. See *ActiveSync Help* for more information.

## Removing Programs


Tap **Start** > **Settings** > **Control Panel**, then double-tap the **Remove Programs** icon. If the program does not appear in the list of installed programs, use Windows Explorer on your CK60 to locate the program, tap and hold the program, and then tap **Delete** on the pop-up menu.

# Microsoft ActiveSync


Tap **Start** > **Settings** > **Control Panel**, then double-tap the **PC Connection** icon. Tap **Change Connection**, select the connection type from the list.




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

**msdn.microsoft.com/embedded/downloads/ce/default.aspx**

With Microsoft ActiveSync, you can back up and restore your CK60 data, and copy files between your CK60 and your PC.

Install Microsoft ActiveSync on the desktop of your PC from the following URL. For more information, on installing Microsoft ActiveSync, see your Quick Start card. ActiveSync is already installed on your CK60.

**msdn.microsoft.com/downloads/**

After installation is complete, the ActiveSync Setup Wizard helps you connect your CK60 to your PC or set up a partnership so you can browse for or move data between your CK60 and your PC.

**Note**: While ActiveSync does synchronize files between your PC and your CK60, the Windows CE operating system does not include Calendar, Contacts, Tasks, Inbox, Channels, and Pocket Access applications.

# Microsoft WordPad

WordPad works with Microsoft Word on your desktop to access copies of your documents. You can create new documents on your CK60, or you can copy documents from your desktop to your CK60. Synchronize documents between your PC and CK60 to have up-to-date content in both locations.


To access WordPad, either double-tap the Microsoft WordPad icon on your desktop, or select **Start** > **Programs** > **Microsoft WordPad**. For more information on using Microsoft WordPad, select **Start** > **Help** > **WordPad**.

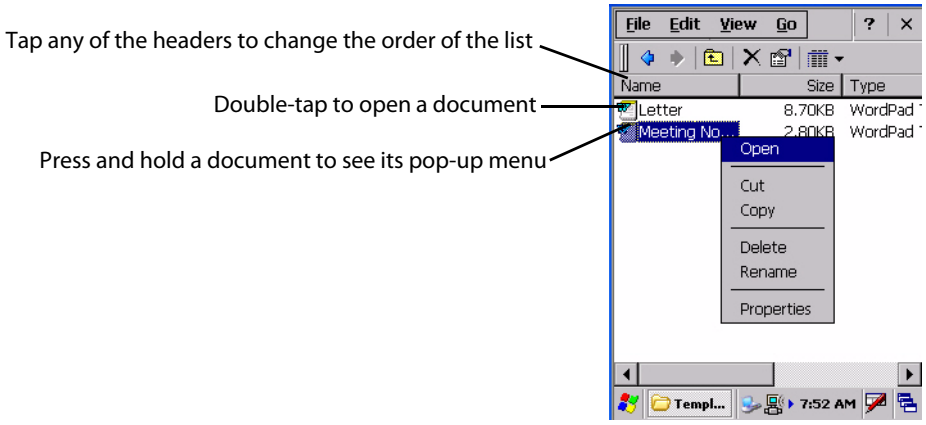
## Creating a Document

Use WordPad to create documents, such as letters or meeting minutes. To create a new file, tap **File** > **New**, then select 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. Documents you create or edit are

usually saved as WordPad (.WPD), but you can also save documents in other formats such as Word (.DOC) or Rich Text Format (.RTF).

Windows Explorer contains a list of files stored on your CK60. Double-tap a file to open it. To delete, make copies of, and rename files, tap and hold a file in the list, then, select the action on the pop-up menu.




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.

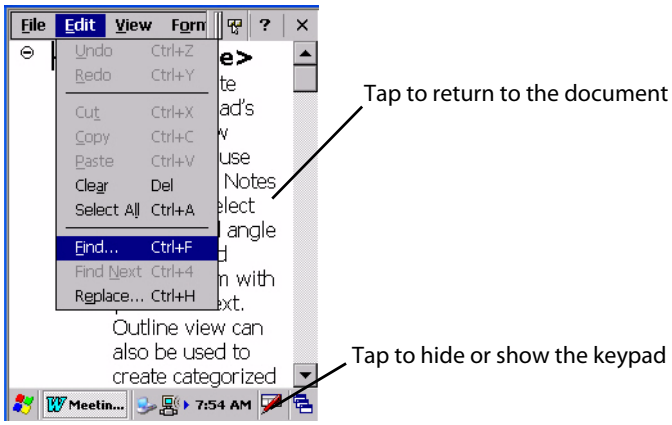
If you are opening a Word document created on a desktop, you may select **View** > **Wrap to Window** so that you can see the entire document.

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.

## Typing Mode

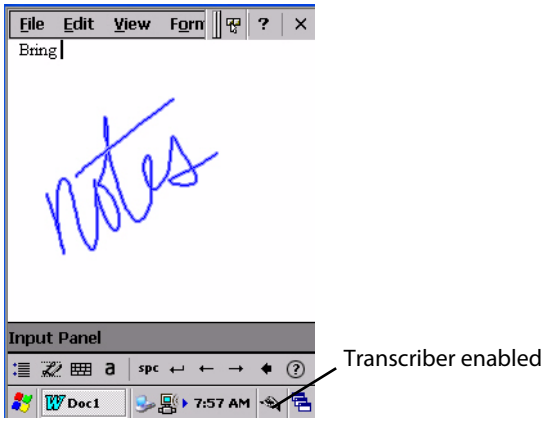
Enter typed text into the document using the keypad. For information on entering typed text, see **"Entering Information" on page 24**.

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**.



## Writing Mode

With Transcriber enabled, use your stylus to write directly on the screen. 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 **"Entering Information" on page 24**.




## Synchronizing WordPad Documents

You can synchronize WordPad documents with Word documents on your desktop. Select the Files information type for synchronization in ActiveSync to have the My Documents folder for the CK60 is created on your desktop, then place all the files to synchronize in this folder. You cannot synchronize password-protected files.

All WordPad files stored in My Documents, subfolders are synchronized with the desktop. ActiveSync converts documents during synchronization. For information on synchronization or file conversion, see *ActiveSync Help* on the desktop.

**Note**: When you delete a file on either your desktop or your CK60, the file is deleted in the other location when you synchronize.

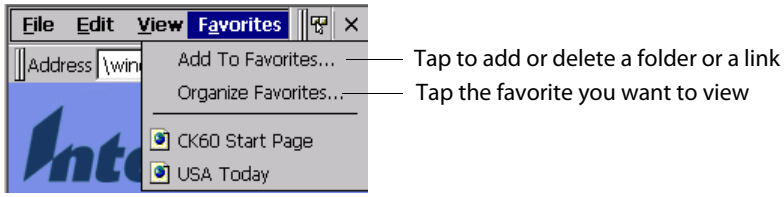
# Internet Explorer

Use Microsoft Internet Explorer to view web sites. To do this, create the connection first via an ISP or network (**"Remote Access (Modems)" on page 86**), then you can also download files and programs from the Internet


To switch to Internet Explorer on your CK60, double-tap the **Internet Explorer** icon on your desktop.


## Viewing Mobile Favorites and Channels

Tap **Favorites** from the tool menu to display your list of favorites, then tap the page you want to view.

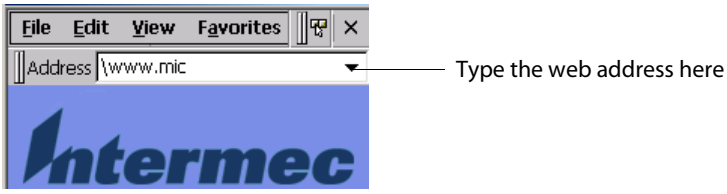



## Browsing the Internet

1 Set up a connection to your ISP or corporate network using information as described in **"Remote Access (Modems)" on page 86**.

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

- Tap **Favorites** from the toolbar, and then tap the favorite to view.
- In the **Address** bar that appears at the top of the screen, enter the web address you want to visit using the input panel, then tap the [**Enter**] key on the panel to go to that web site.



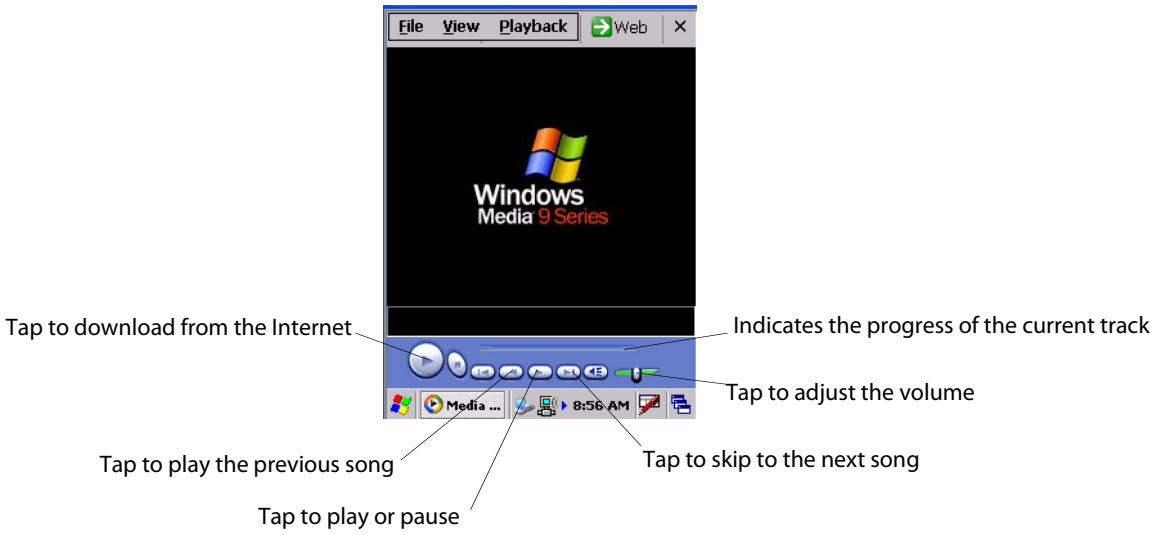
- Tap the drop-down arrow to select from previously entered addresses.


**Note**: To add a favorite link while using the CK60, go to the page you want to add, then select **Favorites** > **Add to Favorites**.

# Media Player


To switch to this application, tap **Start** > **Programs** > **Media Player**, or double-tap the Media Player icon on the desktop. For more information about using Windows Media, tap **Start** > **Help**, then select a topic.

Use Windows Media Player on your desktop to copy digital audio and video files to your CK60. You can play Windows Media and MP3 files on your Windows Mobile.



# 3 Configuring the Computer

Use this chapter to understand how to install applications onto your CK60 Mobile Computer and how to configure the CK60 to communicate in your network.

**Note**: Desktop and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the bottom, left corner of your CK60 desktop. 

# Developing Applications for the Computer

CK60s run applications programmed in Microsoft Embedded Visual C++. Use this section to understand what you need to:

- Develop a new application for the CK60.
- Convert an application from an older computer to a CK60 application.

To develop applications for your CK60, use the Resource Kits in the Intermec Developer Library (IDL). Download the IDL from the Intermec web site at **www.intermec.com/idl**. Contact your Intermec representative for more information.

You need the following hardware and software components to use the Resource Kits:

- Pentium PC, 400 MHz or higher
- Windows 2000 (Service Pack 2 or later) or Windows XP (Home, Professional, or Server)
- For native C++ development, Microsoft eMbedded Visual C++ version 4.0
- For Windows CE 5.0, eVC 4.0 SP4 is required
- 128 MB RAM (196 MB recommended)
- 360 MB hard drive space for minimum installation (720 MB for complete)
- CD-ROM drive compatible with multimedia PC specification
- VGA or higher-resolution monitor (Super VGA recommended)
- Microsoft Mouse or compatible pointing device

# Converting Older Computer Applications to CK60 Applications

If you have an existing application that you would like to run on the CK60, you can use the Migration Resource Kit to convert that application. The kit has a set of libraries and tools to convert your existing "C" applications into C++ applications for use on the CK60.

As you migrate from another computer to a CK60, you need to consider when converting other computer applications to run on the CK60, most APIs should work without changes, with the exception that arrow and tab keys may be reversed from other computers. Keyboard remapping is available on the CK60 should you need to map these keys like that of the other computer.

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

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

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

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

# Packaging Applications for the Computer

Use any of these methods to package applications for installation:

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

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

- In the basic CK60, there are two built-in storage options: the Object Store and the Flash File Store. The Object Store is a Disk on Chip (DOC) Flash that looks like a disk. The Flash File Store is an area of storage which is embedded in a section of the system FLASH memory. This storage area is *not* erased during a cold-boot. It may, however, be erased during the reflashing process.
- If the optional Secure Digital (SD) storage card is in the system, then consider this card the primary location to place applications installation files. The "\SD Card" folder represents the SD card.
- Use the small non-volatile Flash File Store region to hold .cab files that rebuild the system at cold-boot or install applications from a .cab file *into* the Flash File Store so they are "ready-to-run" when a cold-boot is performed. Since the FLASH in the system has a limited number of write cycles, do not use the Flash File Store for excessive writing purposes; however, reading is okay.

Cab files *(short form of "cabinet" files)* are compressed folders as defined by Microsoft. A "cabinet" file is a single file, usually suffixed with .cab, that stores compressed files in a file library. A compressed file can be spread over several cabinet files. During installation, the setup application decompresses the files stored in a cabinet and copies them to the user's system. Intermec recommends using .cab files to install your applications. The CK60 uses standard Windows CE .cab files and does install third-party .cab files.

For the CK60, .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 CK60. 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 CK60. This method is available in the *Software Tools User's Manual* via the IDL, which is downloadable from the Intermec web site at **www.intermec.com/idl**. Contact your Intermec representative for information.

# Installing Applications on the Computer

Consider any of these options to get the package to the preferred location on your CK60:

- Microsoft ActiveSync (*below*)
- Secure Digital storage cards (**page 39**)
- SmartSystems™ Console (**page 40**)

## Using Microsoft ActiveSync

You can use Microsoft ActiveSync to establish a connection between your PC and the CK60. Microsoft ActiveSync transfers files, synchronizes files, performs remote debugging, and other device management activities.

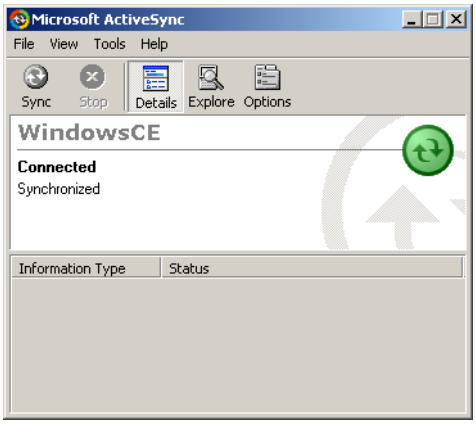
See **Chapter 2 "Windows CE"** for information about the Microsoft ActiveSync application as provided by Microsoft Corporation.

This can be a serial, a USB, or an 802.11b/g Microsoft ActiveSync connection. Files can be copied using Windows Explorer on a PC or a laptop computer. This is usually good when updating a few CK60s.

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

1 Connect the CK60 to a PC using a USB or serial cable. You may have to detach, then reattach the cable to "wake" the connection.

2 Wait for a "Connected" message to appear in the Microsoft ActiveSync application to signal a connection to the CK60. If necessary, select **File** > **Get Connected** to initiate a connection or detach, then reattach the USB or serial cable.





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

4 From your PC, select **Start** > **Windows Explorer**, then browse the "C:\Intermec\CK60 Mgmt Tools\CabFiles" path for any .cab files needed for your CK60. 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 CK60, 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 CK60. 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 Secure Digital Card

If you have a Secure Digital card for your CK60, this is the best place for you to install applications.

1 If you are using a Secure Digital card reader, suspend the CK60, remove its Secure Digital card, and place it in the reader. For help, see **"Using the Secure Digital Card" on page 16**.

2 Copy your application file to the Secure Digital card. If you are using Microsoft ActiveSync to copy the files to the Secure Digital card, place the application in the "\SD Card" folder on the CK60.

3 If using a Secure Digital card reader, insert the Secure Digital card back into the CK60.

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

## Using the SmartSystems Console

Use the SmartSystems Console to drag-and-drop Intermec applications onto your CK60s. The CK60 ships with the SmartSystems client loaded on it. The console is part of SmartSystems Foundation and is available from the Intermec web site. To download SmartSystems Foundation, go to **www.intermec.com/idl** and open the Device Management page.

### To use SmartSystems Console to install an application

1. Download your application file from the Intermec web site and unzip it on your desktop.
2. From the SmartSystems Console, drag-and-drop the application onto each CK60 discovered in your network.

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

# Launching Your Application Automatically

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

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

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

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

*SD Card*
[HKLM\System\StorageManager\Profiles\SDMemory]
"Folder"="SD Card"

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

**Note**: On standard CK60 builds, this is mapped to Object Store and does not appear as an actual device to which you can navigate. If any are mapped as Object Store, they are not addressable via the defined folders.

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

## PreShell

PreShell.exe is launched prior to the Microsoft Shell and must execute a SignalStartup call before the Microsoft Shell launches.

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

## PostShell

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

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

## RunAutoRun

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

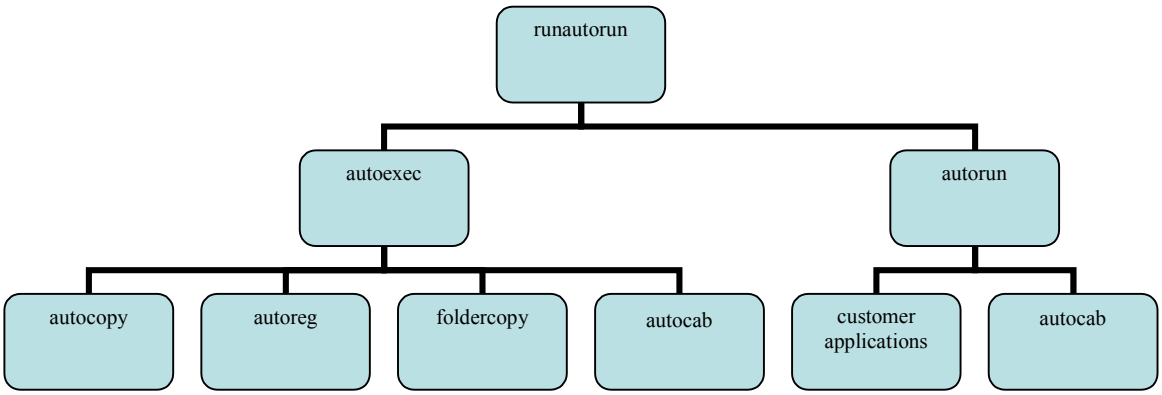
- Secure Digital
- Object Store - may be non-volatile storage or RAM
- Disk On Chip - may map as Object Store
- Flash File Store - may map as Object Store. This is the default location for the AutoExec program in Intermec systems. Intermec system applications are started from this folder. The ordering of mounted volumes overrides this feature.

The folder names used for the mounted volumes above are retrieved from the registry to maintain coherence with the naming of the mounted volumes on the platform. These folder names are not hard-coded. If AutoExec is present in the "\SYSTEM" folder on any of these media, it executes the program only on the first media in which it is found.

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

When the AutoCab.exe process completes, RunAutoRun then checks for the existence of AutoRun.exe and executes this program from the first media found. This order is the same as what is used by AutoExec.

AutoRun is reserved for customer use to configure application launch sequences. It launches the CAB installer, AutoCab, as well as customer programs added to the autouser.dat file and is described on the next page.




## AutoExec

AutoExec.exe automates operations such as pausing, launching processes, or signaling, and is configured through the AutoExec data file (AuotExec.dat). This script file must be in the same folder as the program.

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

### Usage:

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

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

The return code from the process uses the standard error codes defined in WinError.h. Keywords that AutoExec supports are:

| | |
|---|---|
| QUIET | Enables user notification when an error occurs. |
| LOGGING | Enables logging to a trace file. |

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

### Examples of keyword usage are as follows:

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

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

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

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

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

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

; Suspend processing any commands for 10 seconds.
WAIT 10

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

## AutoRun

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

AutoRun supports the following script commands in AutoUser.dat and AutoRun.dat.

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

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

AutoRun handles quoted file names for the first parameter which specifies path names or file names that contain white space. Note only one set of quotes per command is supported. AutoRun.dat entry examples:

| | |
|---|---|
| RUN | “Flash File Store\Apps\some.exe” arg1, arg2, arg3 |
| CALL | “Flash File Store\SYSTEM\usercmds.dat” |

## AutoCopy

AutoCopy.exe copies or moves files from one location to another. It has no user interface and is configured through command line arguments. It has support for these parameters, in no particular order:

**Usage:**

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

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

The return code from the process uses the standard error codes defined in WinError.h.

**Example:**

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

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

## AutoReg

AutoReg.exe adds registry information to the Windows CE registry. It has no user interface and is configured through command line arguments.

**Usage:**

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

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

The process return code uses the standard error codes defined in WinError.h.

**Example:**

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

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

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

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

## AutoCab

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

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

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

**Usage:**

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

Command line switches are described below.

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

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

**Example:**

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

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

# Customizing How Applications Load on the Computer

If you have several processes that you need running in a specific order as the CK60 turns on, you can use the AutoRun system to customize the way applications load. For compatibility with other Intermec computers, you can place a copy of AutoRun.exe in the same folder as your AutoRun.dat file but it is not required.

### To create and install the AutoRun.dat file on your CK60

1 On the CK60, create a folder called "SYSTEM."

2 On your desktop, open the Notepad application.

3 Write commands for AutoRun.dat with these script commands:

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

4 Save this Notepad file as AutoRun.dat.

5 Copy the AutoRun.dat file to the "\SYSTEM" folder on your CK60.

During every boot, the system scans for AutoRun.dat in the "\SYSTEM" folder.

Here is a sample AutoRun.dat file that runs a dialer application and connects to a VPN:

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

# Configuring CK60 Parameters

You can configure many parameters on the CK60, such as bar code symbologies or the network settings using the Intermec Settings applet.

You can control some characteristics with configuration parameters. The values you set for these parameters determine how the CK60 operates.

## Configuring with the Setup Assistant

When first setting up the CK60, use the Setup Assistant to set or enable basic network parameters and connect your CK60 to the network. The Setup Assistant helps set the date and time (including time zone), SSID (Network name), DHCP server or IP address, subnet mask, and default router, primary and secondary DNS or WINS addresses, and device name.

To set other parameters, use another configuration method, such as with the Intermec Settings applet described in the next section. You can initiate the Setup Assistant manually. After the Setup Assistant is done, the CK60 should communicate with the network and add an icon in the taskbar.

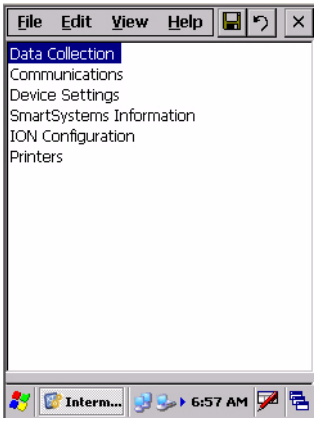
## Configuring the Computer With Intermec Settings

Use the Intermec Settings applet to configure the CK60 and view system information. You can access the Intermec Settings applet while running any application.

### To access the Intermec Settings applet:


1 From the CK60 desktop, select **Start** > **Settings** > **Control Panel**.

2 Double-tap the Intermec Settings icon.




For detailed information on most of the commands available in the Intermec Settings applet, see the *Intermec Computer Command Reference Manual* (P/N 073529) from the Intermec web site. Go to **"Related Documents" on page x** for information how to download this .chm file.

## Synchronizing the Computer System Time with a Time Server

The time on all CK60s must be synchronized with a network time server to ensure real-time communications and updates. Network time servers acquire Coordinated Universal Time (UTC) from an outside source such as the U.S. Naval Observatory (USNO). Simple Network Time Protocol (SNTP) is used to synchronize with a network time server.

The default reference time server is the USNO (tock.usno.navy.mil). To synchronize the CK60 time with this time server, have a valid connection to the Internet. You can also synchronize the CK60 system time with a corporate network server within your firewall that is SNTP-capable.

## Configuring the Computer through the Network

You can change the configuration parameters of the CK60 by sending commands through a host computer or through the network. If you are using a network, you can configure one or more CK60s at a time. You can remotely configure the wireless or Ethernet CK60 by sending a command from an application on the host computer. *Note that you cannot set all parameters through the network. You can only set those commands that have a syntax in the Intermec Computer Command Reference Manual.*

**Note**: You can continue running an application on the CK60 while configuring it from the host computer.

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

You can use the host computer to configure a wireless or Ethernet CK60 in your TCP/IP network. To send and receive configuration data, write a host application that can communicate with the CK60 directly through an access point or through the Ethernet network. Use the TMF protocol to send and receive transactions between the host application and the CK60.

To set up the host computer, verify you can communicate with the CK60. To set up the application, prepare and write a host application that can communicate with the Intermec Application Server and send or receive transactions to and from the CK60 in this format:

```
TMF field   commands
```

where:

| | |
|---|---|
| *TMF field* | 2-byte field containing one of these values:<br>• CG - Configuration Get request sent from the host application.<br>• Cg - Configuration Get response sent from the CK60 to the host computer.<br>• CS - Configuration Set request sent from the host application.<br>• Cs - Configuration Set response sent from the CK60 to the host computer. |
| *commands* | Reader and configuration commands to set on the CK60 or current values to retrieve from the CK60. To save configuration changes in flash memory, send `.+1` reader command as last command. For list of all commands, see *Intermec Computer Command Reference Manual*. |

### Example

In the host application, you want to get the current values of two configuration commands from the CK60. Send the `CG$+NABV` transaction from the host application

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

where:

| | |
|---|---|
| CG | TMF Configuration Get request. |
| $+ | Change Configuration reader command. |
| BV | Beeper Volume configuration command. |

The CK60 returns the following transaction to the host application:

```
CgS+BV4
```

where:

| | |
|---|---|
| Cg | TMF Configuration Get response. |
| $+ | Change Configuration reader command. |
| BV4 | Beeper Volume command set to 4 (very high beeper volume) |

### Configuring the Computer in a UDP Plus Network

You can use the host computer to configure a CK60 in your wireless or Ethernet network. To send and receive configuration data or files, you need to write a host application that can communicate with an Intermec Application Server (formerly Gateway or DCS 30X).

For help, see the appropriate *Gateway or DCS 30X User's Manual*. Use the Terminal Message Format (TMF) protocol to send and receive transactions between the host application and the CK60.

To set up the Intermec Application Server, configure a peer-to-peer destination name for the host application. Create a transaction ID, $NGCFGRSP, to route to this destination name. The Intermec Application Server uses the transaction ID to route responses from the CK60 back to the host application. $NGCFGRSP is a special transaction ID the server uses to forward configuration response data from a CK60.

All configuration responses are routed with the $NGCFGRSP transaction ID. The Intermec Application Server cannot track multiple applications sending reader or configuration commands. If you have two host applications sending reader or configuration commands, they must both be configured to receive the $NGCFGRSP transactions, and therefore both receive all responses from all CK60s.

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

To set up the application, prepare and write a host application that can communicate with the Intermec Application Server and send transactions to and receive transactions from the CK60 in this format. *For an example of the host application transaction, see* **page 49**.

```
transaction header      TMF field   commands
```

where:

| | |
|---|---|
| *transaction header* | 96-byte field with message number, date, time, source application ID, destinations application ID, transaction ID, and other information. Set system message (SYS$MSG) flag to E in transaction header. |
| *TMF field* | 2-byte field containing one of these values:<br>• CG - Configuration Get request sent from the host application.<br>• Cg - Configuration Get response sent from the CK60 to the host computer.<br>• CS - Configuration Set request sent from the host application.<br>• Cs - Configuration Set response sent from the CK60 to the host computer. |
| *commands* | Reader and configuration commands to set on the CK60 or current values to retrieve from the CK60. To save configuration changes in flash memory, send `.+1` reader command as last command. See *Intermec Computer Command Reference Manual* for list of supported commands. |

# Reprogramming the Keypad

This addresses basic keypad remapping changes for the CK60, to redefine basic virtual key values generated by the CK60 keypad. Other, more advanced options such as multi-keys and named events are not covered here. For more advanced options, contact your Intermec representative.

## Implementation

The CK60 keypad virtual key mappings are controlled by registry entries read each time the keypad driver loads. You can "remap" the keypad after it has loaded by modifying the registry entries and then sending a signal to the keypad driver to re-read the registry mappings. The keypad driver uses the scan code values returned by the keypad device as an index into these registry entries to determine the virtual key value sent to the system.

## Registry Entries

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

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

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

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

Where xxxx is a four-digit keypad ID which identifies the type of keypad on your CK60.

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

## Programming the Keypad

Do the following to change a single key on the CK60 keypad. You can change more than one key, if desired.

**1 Identify your keypad**

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

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

**2 Read the shift plane mapping**

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

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

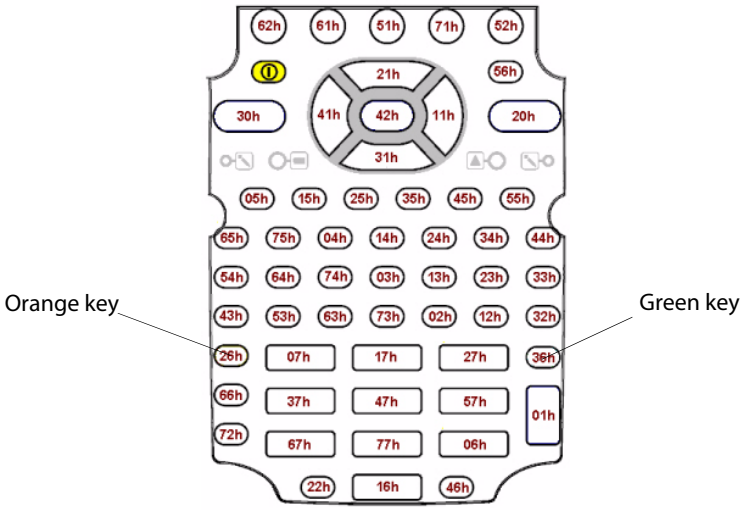
3 **Modify the shift plane mapping**
Write the desired virtual key value to the scan code offset of the desired shift plane.

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

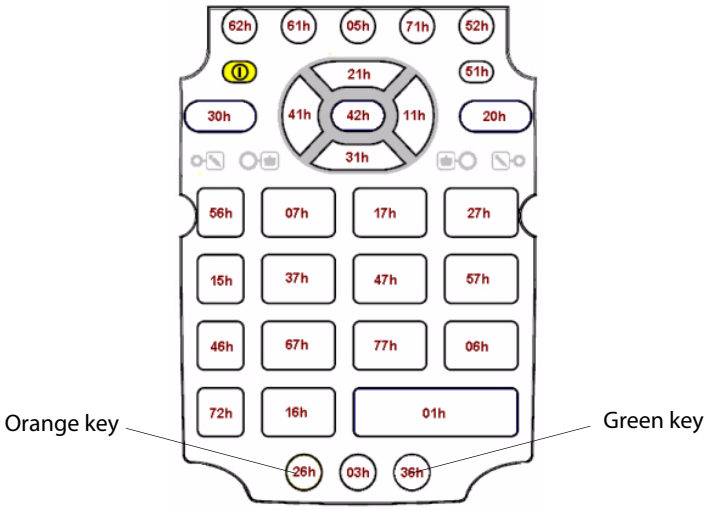
4 **Save the modified shift plane mappings**
Write the registry values back.

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

## Alphanumeric Scan Codes




## Numeric Scan Codes



# Configuring the SF51 Cordless Scanner

The following information pertains to configuring the SF51 Cordless Scanner to work with your CK60. These instructions assume you have EasySet version 5.4 or later installed on your desktop or laptop. EasySet is available at no charge from the Intermec web site at **www.intermec.com**.

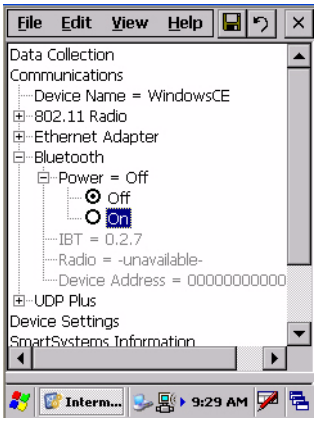
## Imager Settings

Depending on what is selected as the scanner model, image settings, decode security, scanner settings, and virtual wedge are configured from the Intermec Settings applet. See the *Intermec Computer Command Reference Manual*, available from the Intermec web site for information.

## Enabling Bluetooth

On the CK60, use the Intermec Settings applet to enable Bluetooth communications before you configure the SF51.


1. Select **Start** > **Settings** > **Control Panel**.
2. Double-tap the **Intermec Settings** icon.
3. Tap (+) to expand **Communications** > **Bluetooth** > **Power**.
4. Select **On** to enable Bluetooth.




5. Tap **Yes** to refresh the power and save the settings.


6. Tap **File** > **Save Settings**, then **File** > **Exit** to close the applet.

The following table contains the Bluetooth options in the Intermec Settings applet and their descriptions:

### Bluetooth Features in Intermec Settings Applet

| Option | Description |
|---|---|
| Discoverable | Check this to ensure your CK60 is discoverable to other Bluetooth devices. The default is for the CK60 to be undiscoverable as it does not offer any incoming services out of the box. |
| Connectable | Check this to allow other Bluetooth devices to connect to your CK60. The default is for the CK60 to be unconnectable as it does not offer any incoming services out of the box. |
| Class of Device | This sets how a CK60 appears to other devices during a device search. The default is "0x920100" which specifies that the CK60 is capable of services of information, object transfer, and networking. |
| IBT | IBT = Intermec Bluetooth<br>Version number of the library of Bluetooth functionality that ships on the device and is documented in the Intermec Developer Library. |
| Radio | Universally unique and cannot be changed - read-only. |
| Device Address | Universally unique and cannot be changed - read-only. |

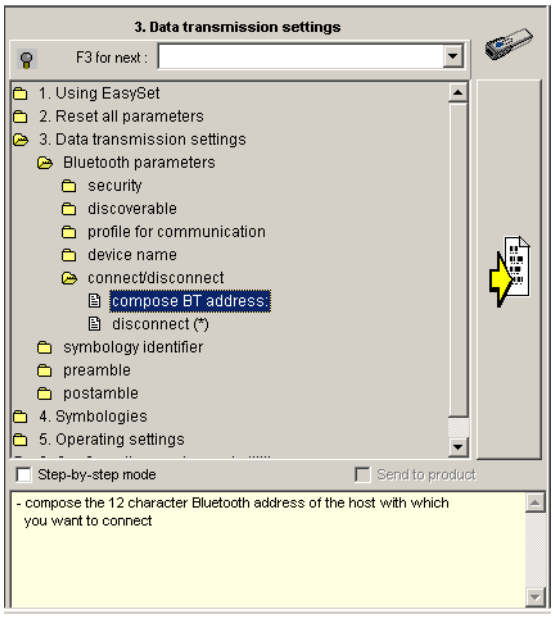
## Creating an SF51 Connection Label

To initiate a connection from the SF51, use EasySet to create an SF51 connection label with the CK60 Bluetooth address. The device address is listed in the Intermec Settings applet on your CK60.

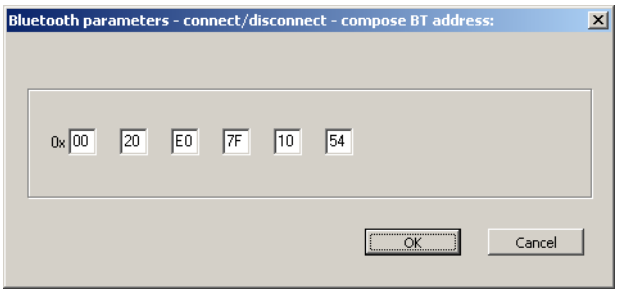
### To create an SF51 connection label


1 On your desktop or laptop, double-click the **EasySet** icon if you have not already done so.

2 In the commands window, double-click **Data transmission settings** > **Bluetooth parameters** > **connect/disconnect** > **compose BT address**.



3 Enter the Bluetooth address assigned to your CK60 (shown in your Intermec Settings applet), then click **OK** to close.




4 The connection label for the SF51 appears to the right in EasySet, similar to the following. Scan the label once, then confirm the blue Intermec Ready-to-Work™ indicator on the SF51 starts blinking, which means it is trying to connect.


5 Enter the PIN number when prompted, such as "0000."

6 When connected, the blue Intermec Ready-to-Work indicator assumes a steady blue.

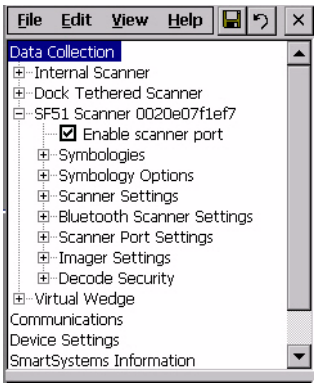
## Viewing SF51 Scanner Information from Your Computer

Note in the CK60, the Intermec Settings applet can display up to seven separate SF51 connections. The following illustration shows such connections under the **Data Collection** option.

### To view SF51 scanner information


1 From the CK60 desktop, select **Start** > **Settings** > **Control Panel**.

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




3 Tap **Data Collection**, then tap (+) to expand the **SF51 Scanner** connections to view MAC addresses, firmware version numbers, and whether each scanner is connected to the CK60.

4 When you clear (uncheck) **Enable scanner port**, the SF51 is disconnected from the CK60. Check **Enable scanner port** again to reconnect.

5 Select **File** > **Save Settings** to put these settings into effect.

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

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

# Configuring Bluetooth Communications for Wireless Scanners

You can send and receive information to devices wirelessly using the Bluetooth radio. The Bluetooth technology uses short-range radio links and allows for communications over a 10 m (32.8 ft) range.

## Enabling Bluetooth

On the CK60, use the Intermec Settings applet to enable Bluetooth communications before you configure the wireless scanner. See **"Enabling Bluetooth" on page 53** to enable Bluetooth.

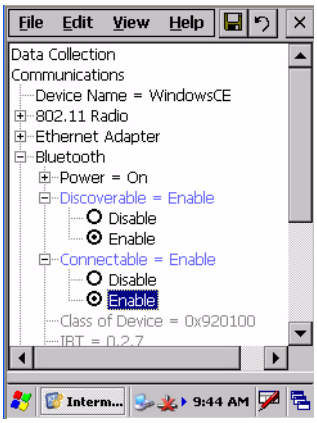
### To allow incoming connections from wireless scanners

1 In the Intermec Settings applet, tap (+) to expand **Communications** > **Bluetooth** > **Power**.

2 Tap (+) to expand **Discoverable**, then select **Enable**.

3 Tap (+) to expand **Connectable**, then select **Enable**.

4 Select **File** > **Save Settings**, then **File** > **Exit** to close the applet.




**Note**: To avoid incoming connections, disable both the **Discoverable** and the **Connectable** options.

## Connecting to the Wireless Scanners

With the Bluetooth Scanner Wizard, you can connect up to seven scanners using device search, manual entry, Quick Connect bar code scan, or choose from previously used devices.

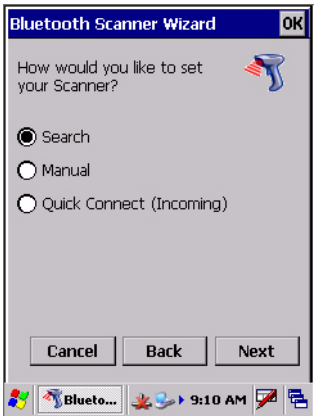
### To connect to a wireless scanner


1 From the CK60, select **Start** > **Programs** > **Windows Explorer**.

2 Browse to the "\Program Files\Intermec\Network\Bluetooth" folder.

3 Double-tap the **BluetoothScannerWizard** icon.


4 Tap **Add Device**, select one of the options provided on the screen, then tap **Next** to continue:



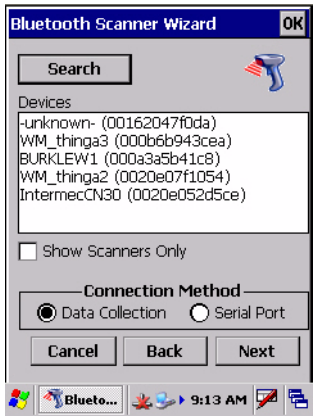

- Search (next page)
- Manual (**page 59**)
- Quick Connect (Incoming) (**page 60**)

## Search

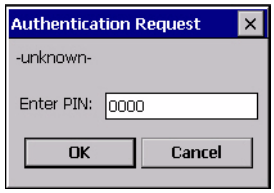
You can set your scanner via a Bluetooth Device Discovery, which takes about half a minute to locate all Bluetooth scanners in your range. Select **Search**, then tap **Next** to discover such scanners.

### To find the Bluetooth scanners using Search

1. Momentarily, Bluetooth scanners discovered within range appear. If your preferred scanner is in the list, select to highlight the scanner, then tap **Next**.
2. If you do not see your preferred scanner, make sure this scanner is powered on and set to "discoverable" or "visible," then tap **Search**. Tap **Back** to return to the first screen without making changes.




3. If prompted for an authentication request, enter the passcode such as "0000," then tap **OK**. The passcode is provided by the manufacturer of your Bluetooth audio device. You can usually find your passcode in the user manual that came with the Bluetooth device.



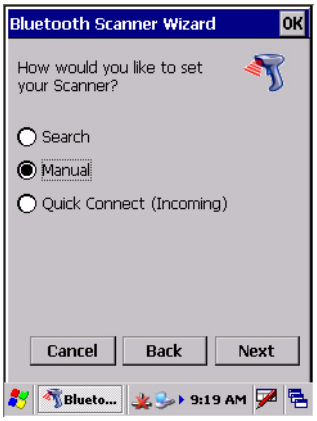

4. Tap **Finish** to save your discovery and close the wizard.

## Manual

Use this feature to enter the remote device address, if you know the Bluetooth Device Address of the scanner you want to use.

### To avoid device discovery and perform a manual setup

1 Select **Manual**, then tap **Next** to go to the Manual Set screen.




2 Type the address of your scanner in the field, then tap **Next**.

Tap **Back** to return to the first screen without making changes.


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

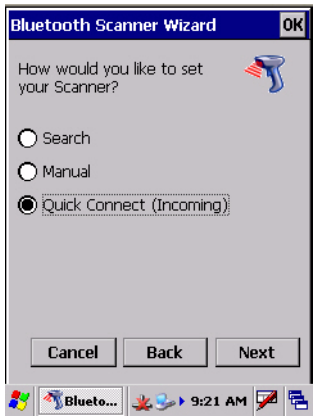
### Quick Connect (Incoming)

This feature allows you to take your scanner and attach it to the CK60 by scanning a bar code provided by the wizard.

#### To do a quick connection

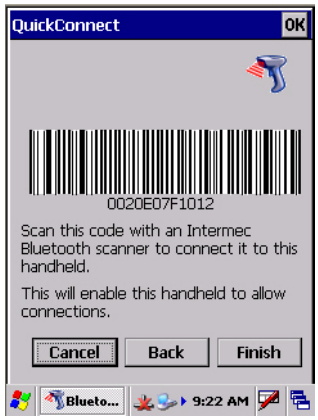
1 Select **Quick Connect** (**Incoming**).

2 Tap **Next** to go to the QuickConnect screen.




3 Scan the bar code with your scanner, then tap **Finish** to close the wizard.

Tap **Back** to return to the first screen without making changes.




## Disconnecting a Wireless Scanner

Should you need to remove a scanner from communications with your CK60, do the following:

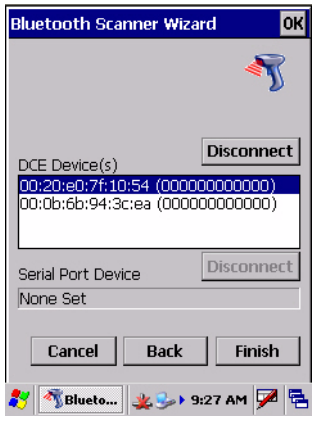
### To disconnect a wireless scanner

1 Tap **Remove Scanner** from the initial wizard screen.


2 Select to highlight a scanner from the list of **DCE Devices**.

3 Tap **Disconnect** to stop communications.

4 Tap **Back** to return to the initial wizard screen or **Finish** to close the wizard.




# Using Configuration Parameters

A configuration parameter changes the way the CK60 operates, such as configuring a parameter to have the CK60 emit a very loud beep in a noisy environment. Use either of these methods to execute configuration parameters:

**Scan EasySet bar code labels:**
You can use EasySet from Intermec Technologies Corporation to print configuration labels. Scan the labels to change the imager configuration and data transfer settings. For information, see its online help.

**Send Reader Commands through the Network or from an Application**
You can configure parameters by sending reader commands through the network or from an application. See the *Intermec Computer Command Reference Manual* for more information.

# 4 Maintaining the Computer

Use this chapter to upgrade the operating system, run diagnostics, solve problems you may encounter, and perform routine maintenance on your CK60 Mobile Computer:

**Note**: Desktop and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the bottom, left corner of your CK60 desktop. 

# Upgrading the Operating System on your Computer

You can use the *Intermec Recovery Tools CD* to reinstall or upgrade the operating system software on the CK60. Contact your Intermec representative for more information about this CD.

Use the SmartSystems™ Foundation 2.0 application from Intermec to perform upgrades on your CK60, versions 2.0 or later. Contact your Intermec representative for more information about the SmartSystems Foundation software.

When you upgrade the operating system, you erase the current configuration and replace it with the new default configuration. You will need to reset the network parameters on the CK60 to reestablish communications with other devices in the network. In other words, if you upgrade the operating system and the default registry from the operating system has changed, the registry is rolled back to the new default.

When you upgrade your CK60, you are updating the operating system (OS) and the Persistent Storage Manager (PSM) files.

The PSM files are stored on the DiskOnChip, and deliver Intermec value-added functionality such as data collection, unit configuration and diagnostics, and Intermec's wireless security suite. As new features are added to these components, you can upgrade your PSM files without needing to upgrade the operating system image. Similarly, features added to the operating system image do not affect the functionality of the PSM, and you can choose to upgrade only the operating system image.

There are two ways to upgrade the CK60:

- You can use a Secure Digital card to upgrade the CK60. For help, see **"Using a Secure Digital Card to Upgrade the Computer" on page 65**.
- You can use the SmartSystems Console to upgrade the CK60. For help, see **"Using the SmartSystems Console to Upgrade the Computer" on page 67**.

You need to download the latest upgrade files from the Intermec web site to your desktop PC, and then determine if you will be upgrading both operating system and PSM files, just the operating system, or just the PSM files.

### To download the latest upgrade files

1. Start your web browser and go to the Intermec web site at **www.intermec.com**.
2. Go to **Service & Support** > **Downloads**.
3. Select **Computers: CK60 Mobile Computer** from the drop-down list. A list of available downloads appears.
4. Choose which download you need. Make sure the download you select is for the CK60.

5 Look at the description (or the ReadMe file) to determine if this download will upgrade both the operating system and PSM files, just the operating system, or just the PSM. You will need this information later.

6 Click the link and download the .zip file to your PC.

7 If you are using a Secure Digital card to upgrade the CK60, see below.

If you are using the SmartSystems Console to upgrade the CK60, see **"Using the SmartSystems Console to Upgrade the Computer" on page 67**.

## Using a Secure Digital Card to Upgrade the Computer

To use a Secure Digital card to upgrade the CK60, you need a Secure Digital card reader and a Secure Digital card formatted as FAT16

**Note**: The CK60 currently supports SanDisk Secure Digital cards only. Intermec cannot guarantee that other Secure Digital cards will work with the CK60.

- For both the operating system and PSM files, see below.
- For just the operating system, see **"Upgrading the Operating System" on page 66**.
- For just the PSM files, see **"Upgrading the Persistent Storage Manager Files" on page 66**.

### Upgrading Both Operating System and PSM Files Simultaneously

You may download files that upgrade both the operating system and PSM files simultaneously.

1 Extract the upgrade files to a Secure Digital card. Make sure you select the option to use folder names when extracting the files.

2 Remove the battery pack from the CK60 and place the CK60 in a dock connected to external power. For help, see **"Charging and Installing the Battery" on page 7**.

**Note**: The upgrade will fail if the CK60 is not connected to external power. For help, see the accessories list in **"Accessories for the Computer" on page 19**.

3 Insert the Secure Digital card in the CK60. For help, see **"Using the Secure Digital Card" on page 16**.

4 Using a stylus, press the **Reset** button inside the battery cavity.

Warning

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

5 When the Bootloader Menu appears, remove the Security Digital card, then press the **Reset** button again.

When the CK60 finishes rebooting, you may use it. You have reset the CK60 to its default configuration. You need to set the date and time and to set its network communications parameters to reestablish communications with the other devices in the wireless network.

## Upgrading the Operating System

You may download files that upgrade only the operating system.

1 Extract the upgrade files to a Secure Digital card. Make sure you select the option to use folder names when extracting the files. You should see the NK.boot and EBOOT.bin files.

2 Remove the battery pack from the CK60 and place the CK60 in a dock connected to external power. For help, see **"Charging and Installing the Battery" on page 7**.

**Note**: The upgrade will fail if the CK60 is not connected to external power. For help, see the accessories list in **"Accessories for the Computer" on page 19**.

3 Insert the Secure Digital card in the CK60. For help, see **"Using the Secure Digital Card" on page 16**.

4 Using a stylus, press the **Reset** button inside the battery cavity.


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

5 On the CK60, select **Update Bootloader + OS**, then press **Enter**. Messages about the download status appear at the bottom of the screen. The "Need Reboot" message appears and **Cold Boot** is selected.

6 Press **Enter**. The CK60 performs a cold boot and the Refreshing File System status box appears. If the Confirm File Replace dialog box appears, tap **Yes To All**. The CK60 finishes rebooting, and your operating system is updated.

When the CK60 finishes booting, you may use it. You have reset the CK60 to its default configuration. You need to set the date and time and to set its network communications parameters to reestablish communications with the other devices in the wireless network.

## Upgrading the Persistent Storage Manager Files

You may download files that upgrade only the PSM files.

1 Extract the upgrade files to a Secure Digital card. Make sure you select the option to use folder names when extracting the files. You should see the "2577" and "DOCImage" folders.

2 Remove the battery pack from the CK60 and place the CK60 in a dock connected to external power. For help, see **"Charging and Installing the Battery" on page 7**.

**Note**: The upgrade will fail if the CK60 is not connected to external power. For help, see the accessories list in **"Accessories for the Computer" on page 19**.

3 Insert the Secure Digital card in the CK60. For help, see **"Using the Secure Digital Card" on page 16**.

4 Using a stylus, press the **Reset** button inside the battery cavity.

Warning

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

5 A prompt appears to state the PSM is updating. When this process is complete, the CK60 performs a cold boot again and installs the files.

After the CK60 performs a cold boot, the Refreshing the File System dialog box appears. Your CK60 is loaded with the new PSM files.

6 Remove the Security Digital card, insert the battery, then install the battery door. You may use the CK60.

## Using the SmartSystems Console to Upgrade the Computer

Use the SmartSystems Console to upgrade the operating system on your CK60. The console is part of SmartSystems Foundation and is available from the Intermec web site via the IDL. Before you can upgrade your computer, you need:

- the SmartSystems Foundation. To download SmartSystems Foundation, go to **www.intermec.com/idl** and open the Device Management page.
- the device upgrade .exe file, which is available from the Intermec web site at **www.intermec.com**. Go to **Service & Support** > **Downloads**.

### To upgrade a CK60 using the SmartSystems Console

1 Install SmartSystems Foundation on your PC and open the console.

2 Make sure the console and the CK60s are on the same subnet.

3 Make sure your CK60s are either in a communications dock, or that power management is disabled.

4 Download the device upgrade .exe file to your desktop PC.

5 Double-click the .exe file on your desktop PC. An InstallShield application starts and walks you through the process of extracting the upgrade files in the default location.

**Note**: Do not change the default location where InstallShield extracts files. The SmartSystems Console requires files be located in the default directory.

6 From the SmartSystems Console, locate the device upgrade to install.

7 Drag-and-drop the device upgrade onto each CK60 icon.

Once the upgrade is done downloading, your CK60 replaces the operating system, then automatically performs a cold boot.

The SmartSystems Console shows the CK60 as offline *(via a red stop sign)* until the CK60 reboots and reconnects to the system.

# Troubleshooting Your Computer



Before sending the CK60 in for service, save its data and configuration. Intermec is responsible only for the keypad and hardware features to match the original configuration when doing repairs or replacements.

## Problems While Operating the Computer

| | Solution |
|---|---|
| You press the power button to turn on the CK60 and nothing happens. | • Make sure the backlight is on by pressing ☼.<br>• Make sure you have a charged battery installed correctly. For help, see **"Using the Battery" on page 6**.<br>• The battery may be discharged. Replace the battery with a spare charged battery, or charge the battery.<br>• Perform a warm-boot. |
| | • If the battery status LED is a steady green, the battery is more than 95% charged and unit is on a charger.<br>• If the battery status LED is blinking red, then the battery is low. The speed of the blinking increases as the battery power gets increasingly lower.<br>• If the battery status LED is a steady red, the main battery is on charge.<br>• If the battery status LED is a steady amber for more than 12 hours, then replace the battery pack. |
| The CK60 appears locked up and you cannot enter data. | • Press the power button to turn off the CK60, then press the power button again to turn on the CK60.<br>• Press and hold the power button for ten seconds to warm-boot the CK60.<br>• Perform a clean-boot on the CK60. See **"Resetting Your Computer" on page 3**.<br>• Try reloading the firmware. See **"Upgrading the Operating System on your Computer" on page 64**.<br>• If the CK60 does not boot or reset, contact your local Intermec representative for help. |

### Problems While Configuring the Computer

| | Solution |
|---|---|
| You scan a configuration command, such as Beeper Volume, and you hear three low beeps. | If you are working in the Intermec Settings applet, you cannot scan configuration commands. Exit the applet to scan configuration commands. |
| You scan or enter an option for the Scanner Model configuration command and you hear three low beeps. | You may have scanned or entered a Scanner Model command that does not apply to the type of scanner that you have installed. Try scanning or entering the Scanner Model command again and select an option for the type of device you are using. |
| You cannot type a character on the keypad or you can only type uppercase or lowercase letters. | You may have locked a modifier key on the keypad. Check the CK60 toolbar to see if it contains an icon with a locked symbol. Press the necessary key sequence to unlock the key. See **"Using the Keypad" on page 10**. |

## Problems While Configuring 802.1x Security

If you have trouble configuring the computer for 802.1x security, check these problems and possible solutions.

| Problem | Solution |
|---|---|
| The CK60 indicates that it is authenticated, but it does not communicate with the host. | Ensure CK60 IP address, host IP address, subnet mask, default router are configured for network. Do not perform a cold-boot as this resets the time and date. Update time and date for Certificate of Authority. |
| The CK60 does not appear to be authenticating and a network connection icon does not appear on the toolbar. | CK60 may not be communicating with access point. Ensure CK60 network name matches access point network name (SSID). Default name is "INTERMEC."<br>802.1x security network may not be active. Ensure the server software is properly loaded and configured on server PC. For help, see server software documentation. |
| A network connection icon appears in the toolbar, but then disappears. | The CK60 may not be communicating with the intended access point. Ensure the CK60 network name matches the access point network name. Default network name is "INTERMEC."<br>Access point may not be communicating with server. Ensure the access point is turned on, properly configured, and has 802.1x security enabled. |
| The CK60 indicates that it is not authenticated. | • Users Name and Password parameters on CK60 match the user name and password on authentication server. You may need to reenter the password on both the CK60 and the authentication server.<br>• On your authentication server, the user and group are allowed and the group policy is allowed to log into the server. For help, see the documentation that shipped with your authentication server software.<br>• IP address and secret key for access point must match the IP address and secret key on authentication server. You may need to reenter the IP address and secret key on both your access point and authentication server.<br>• Authentication server software is running on server PC |

| Problem | Solution |
|---|---|
| You are setting up multiple access points in a network, with different SSIDs, and the connection fails. | The CK60 does not save WEP key values when changing the SSID. Reenter the WEP key value after changing the SSID, select **Apply Network Settings** from the 802.11 Radio menu. You should now be able to connect to the different access points. |
| You receive a message saying "The server certificate has expired or your system date is incorrect" after you perform a cold-boot on the CK60. | Date and time are not saved when a cold-boot is performed. Reenter the date and time, then select **Apply Network Settings** from the 802.11 Radio menu. |

### *Problems with Wireless Connectivity*

| | Solution |
|---|---|
| When you turn on the CK60 after it was suspended for a while (10-15 minutes or longer), it can no longer send or receive messages over the network. | Host may have deactivated or lost current terminal emulation session. In a TCP/IP direct connect network, turn off the "KeepAlive" message from host to maintain the TCP session while a CK60 is suspended. |
| The **No Network Connection** icon appears on the toolbar. The CK60 is not communicating with the access point. | The CK60 is not connected to access point. Ensure access point is turned on and operating. Move closer to access point to reestablish communications. Ensure CK60 is configured correctly for network. CK60 radio parameters must match all access point values (**page 83**).<br>If you have an 802.11b radio and its radio initialization process failed, reset the CK60 (see **page 4**).<br>If **No Network Connection** icon still appears, you may have a defective radio card. For help, contact your local Intermec representative. |
| The CK60 is connected to the Intermec Application Server or host computer and you move to a new site to collect data. The **Network Connection** icon was visible, but now replaced with the **No Network Connection** icon. | Move closer to an access point or to a different location to reestablish communications until the **Network Connection** icon appears. Any data you collected while out of range is transmitted over the network. |
| The **Network Connection** icon is in the toolbar, but you cannot establish a terminal emulation session with the host computer. | There may be a problem with the host computer, with the connection between the Intermec Application Server and the host computer, or with the connection between the access point and the host computer. Check with network administrator to make sure the host is running and allowing users to login to the system. |
| The **Network Connection** icon is in the toolbar, but the host computer is not receiving any data from the CK60. | In a UDP Plus network, there may be a problem with the connection between the Intermec Application Server and the host computer. Check with network administrator or see the user's manual for the Intermec Application Server.<br>In a TCP/IP network, there may be a problem with the connection between the access point and the host computer. Check with network administrator or use your access point user's manual. |

## Problems Transmitting Data through the Serial Port

If you are having problems sending or receiving data through the integrated serial port on the CK60, check these possible problems:

- Make sure the CK60 is connected to the PC, host computer, or RS-232 serial device using the appropriate cable adapter and null modem cable.
- If the CK60 is in a communications dock, make sure the communications dock is connected to the serial device using the appropriate cable.

For more information on using the serial port, see **"Configuring Serial Communications" on page 83**.

## Problems While Scanning Bar Codes

| | Solution |
|---|---|
| You cannot see a red beam of light from the scanner when you press the **Scan** button and aim the scanner at a bar code label. | • You may be too far away from the bar code label. Try moving closer to the bar code label and scan it again.<br>• You may be scanning the bar code label "straight on." Change the scanning angle and try again.<br>Move within two feet of a wall to test the effective scan of the scanner. For help scanning bar codes, see **page 4**. |
| When you release the **Scan** button or handle trigger, the **Good Read** light does not turn off. | The **Good Read** light will remain on if you configure the CK60 to use continuous/edge triggering. If you configure the CK60 for level triggering and the **Good Read** light remains on, there may be a problem. Press the **Scan** button or pull the trigger again without scanning a bar code label. If the light is still on, contact your local Intermec representative. |
| The input device attached to the CK60 does not work well or read bar code labels very quickly. | Set the Scanner Model command to the specific attached input device. Check enabled bar code symbologies and enable only the symbologies being used. |
| The scanner will not read the bar code label. | Aim the scanner beam to cross entire bar code label in one pass. Vary the scanning angle.<br>Check the quality of the bar code label, Scan a bar code label that you know will scan. Compare the two bar code labels to see if the bar code quality is too low. You may need to replace the label that you cannot scan.<br>Ensure the bar code symbology is enabled. Use the Intermec Settings applet to check the symbologies. Expand **Data Collection** > **Symbologies** beneath devices listed (scanner, virtual wedge) to check and enable symbologies, then scan the bar code label again.<br>Ensure the CK60 application is expecting input from a bar code. You may need to type this information instead. |
| The scanner does not read the bar code labels quickly, or the scanning beam seems to be faint or obscured. | The scanner window may be dirty. Clean the window with a solution of ammonia and water. Wipe dry. Do not allow abrasive material to touch the window. |
| You scan a valid bar code label to enter data for your application. The data decoded by the scan module does not match the data encoded in the bar code label. | The CK60 may have decoded the bar code label in a symbology other than the label's actual symbology. Try scanning the bar code label again. Make sure you scan the entire label. |
| You receive a message reading "Scanner Communication Failure" when trying to connect a 1551E or 1553 decoded scanner. | Make sure that you:<br>• are using the correct cable.<br>• the scanner cable is attached correctly. When attaching to the port, a single power up beep should emit.<br>• enable the port state using the Intermec Settings applet.<br>• try upgrading the scanner firmware.<br>• select ASCII as the scanner model. |
| | 1551E or 1553 scanner port must use the correct RS-232 settings to allow configuration in the Intermec Settings applet. Disable, then enable the scanner port state. |
| Configuration settings in the Intermec Settings applet do not match the settings on your 1551E or 1553 Scanner. | Disable, then enable the scanner port state to synchronize the CK60 settings with the scanner. |

# Cleaning the Scanner Window and CK60 Screen

To keep the CK60 in good working order, you may need to clean both the scanner window and the CK60 screen.

Clean the scanner window and CK60 screen as often as needed for the environment in which you are using the CK60. To clean the CK60, use a solution of ammonia and water.


**There are no user-serviceable parts inside the CK60. Opening the unit will void the warranty and may cause damage to the internal components.**

### To clean the CK60

1. Press the power button to turn off the CK60.
2. Dip a clean towel or rag in the ammonia solution and wring out the excess.
3. Wipe off the scanner window and screen. Do not allow any abrasive material to touch these surfaces.
4. Wipe dry.

# 5 Network Support

The CK60 Mobile Computer automatically installs the appropriate software for radio use when the computer is turned on. It provides wireless connectivity via the Wireless Local Area Network (WLAN) using a radio option that provides up to 54 Mbps.

**Note**: Desktop and applet icons are shown to the left. Any place that **Start** is mentioned, tap the following Windows icon in the bottom, left corner of your CK60 desktop. 

# Personal Area Networks

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

Wireless Printing can also be done with Microsoft APIs, including Bluetooth extensions for Winsock, and Bluetooth virtual COM ports. Information about other Bluetooth software is in the Bluetooth Resource Kit and the *Bluetooth Resource Kit User's Guide* via the Intermec Developer Library (IDL), which is available as a download from the Intermec web via **www.intermec.com/idl**. See your Intermec representative for information.

## Using the Intermec Settings Applet

The Intermec Settings applet displays the device name, the device address, enables or disables Bluetooth communications, and sets discoverable and connectable settings. This also provides a versions screen for various Bluetooth items in the system.

### To enable Bluetooth communications before configuring radio communications

1 See **"Enabling Bluetooth" on page 53** to enable Bluetooth.

2 Tap (+) to expand the **Discoverable** and **Connectable** options.

3 Tap **File** > **Save Settings**, then **File** > **Exit** to close the applet.

## Using the Wireless Printing Applet

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

Wireless Printing has a concept of the "current wireless printer." This printer is the one to which the CK60 makes a connection when the wireless printing COM port is opened. If there is no current wireless printer, there is no wireless printing COM port. Registration and deregistration of this COM port is controlled by the Bluetooth COM port control. Use the Wireless Printing applet to handle the COM port registration. Customer software or other test applications can also use this applet to manage the COM port registration and deregistration.

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

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

### To use the Wireless Printing applet


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

2 Double-tap the **Wireless Printing** icon.

3 Use any of the following methods to select the wireless printer:

- Use a Bluetooth device search to locate the remote device (**page 75**)
- Manually enter the remote Bluetooth Device Address (**page 76**)
- Use the Bluetooth Device Manager to set a different printer (**page 76**)

In all situations, after a printer selection was made and you return to the Current Wireless Printer screen, tap **Test Print** to have the selected printer print a short message to verify that it was selected as the current printer.

## Searching for Bluetooth Devices

You can set your wireless printer via a Bluetooth Device Search, which takes about half a minute to locate all Bluetooth devices in your range.

### To do a Bluetooth device search

1 Tap **Search** to find devices. Momentarily, Bluetooth devices found within range appear.


2 If your preferred printer is in the list, select to highlight the printer, then tap **OK**.

3 If you do not see your preferred device, make sure this device is powered on and set to discovery, then tap **Search** again.

4 Click **Cancel** to return to the first screen without making changes.


## Entering the Remote Bluetooth Device Address

Use this method if you know the Bluetooth Device Address of the printer you want to use.

### To avoid a device search and perform a manual setup

1 Tap **Manual**.

2 Type the address of your device in the field.

3 Click **OK**.

4 Tap **Cancel** to return to the first screen without making changes.


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

## Setting a Different Printer

Use this feature to move from the selected printer to another printer that was previously found.

### To set a different printer

1 Tap **Set Different Printer** to go to the list of previously found printers.


2 Select to highlight the printer of choice.

3 Tap **OK**.

4 Tap **Cancel** to return to the first screen without making changes.


## Connecting to the Network Via Bluetooth DUN

**Note**: While these instructions apply to many Bluetooth devices, these instructions use the Nokia 3650 for example purposes.

Before you connect to the network, make sure Bluetooth is enabled on your CK60 so you can find and connect to remote devices. Bluetooth is required for the SF51 Cordless Scanner. See **"Enabling Bluetooth" on page 53** to enable Bluetooth.

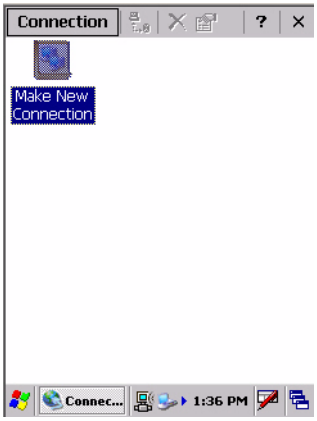
Also make sure Bluetooth is enabled on your mobile phone. For example, with the Nokia 3650, go to its menu, select **Connectivity** > **Bluetooth**, then set **My phone's visibility** to "Shown to all."

First, establish a Bluetooth connection between the CK60 and your mobile phone, then establish a dial-up networking session with your wireless network.

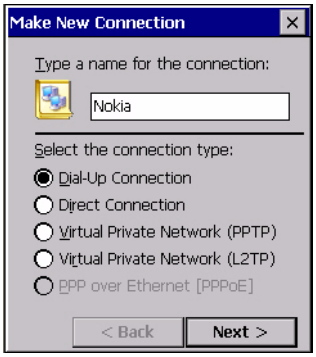
Once connected, you should be able to browse Internet websites and use other online resources from your CK60.

### To establish a Bluetooth connection between your CK60 and your mobile phone

1 Tap **Start** > **Settings** > **Network and Dial-up Connections**, then double-tap **Make New Connection**.



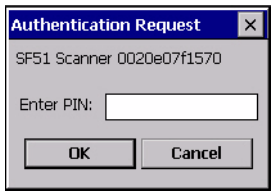

2 Enter a name for the connection, such as "Nokia," tap **Dial-Up Connection**, then tap **Next** to continue.



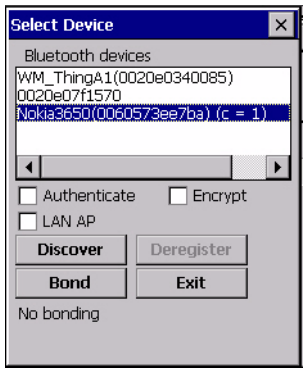

3 Select "Bluetooth" from the **Select a modem** drop-down list, then tap **Bluetooth** to access the Add Bluetooth Modem dialog.

4 Tap **Search Device** to find and link to a Bluetooth modem or to a Bluetooth-enabled mobile phone.

5 When prompted, enter the passkey, PIN, or applicable value in the Authentication Request dialog. *See the user manual of your Bluetooth device for its default value.*




6 Select your device from the list of found devices, then tap **Bond**.




7 On successful bonding, notification appears at the bottom of the dialog, such as "0060573ee7ba channel 1 is running on BSP1:"


8 Tap **Exit** to complete the search and bonding of your device, tap **Next**, enter the phone number for your connection, then tap **Finish**.

### To establish a dial-up networking session with your wireless network


1 Double-tap your connection icon.

2 Enter your dial-up networking account information in the **User Name** and **Password** fields.

3 Tap **Connect** to establish a connection.

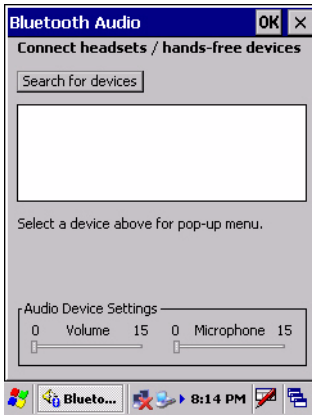

## Connecting to Bluetooth Audio Devices

The Bluetooth audio user interface is a part of the Bluetooth Audio applet. You can use this applet to find, activate, and connect to Bluetooth audio devices, such as Bluetooth headsets. You can control the audio volume and microphone amplification for the connected Bluetooth audio device (if the connected device has these capabilities).

### To access the Bluetooth Audio applet


1 From the CK60 desktop, select **Start** > **Settings** > **Control Panel**.

2 Double-tap the **Bluetooth Audio** icon.

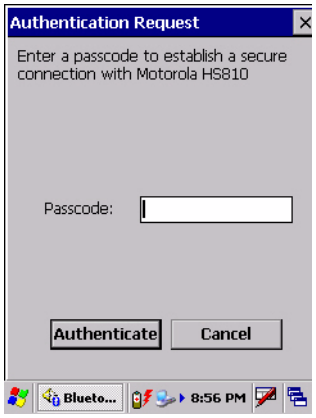



### Searching for Bluetooth Headsets

To find a Bluetooth headset with either a “headset” or a “hands-free” profile, tap **Search for devices**. Audio devices that are found are added to the list with an icon to identify either profile.

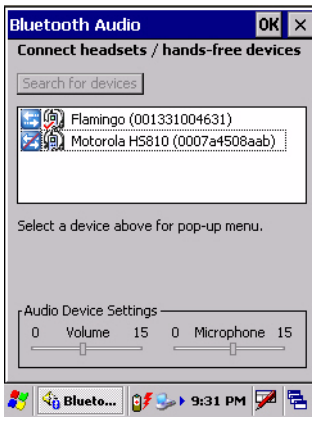
When a device is found, you are prompted to enter a passcode, such as “0000,” then tap **Authenticate** to finish pairing with your audio device.

The passcode is provided by the manufacturer of your Bluetooth audio device. You can usually find your passcode in the user manual that is provided with your audio device.




Once the pairing is successfully completed, the Bluetooth audio device appears in the list of found devices. You can double-tap any of the devices for a pop-up menu to set it as a default, make a connection, refresh the connection, or delete the device from the list.

**Note**: You can only select one Bluetooth audio device as the default device. You must set a device to default before you can connect to that device.




Each device has two icons to the left, one to reflect its connection status, the other to reflect its default status. This table lists their meanings:

### Bluetooth Audio Device Status Icons

| Icon | Description |
|---|---|
|  | Your CK60 and your Bluetooth audio device are not connected. *Note the red diagonal bar.* |
|  | |
|  | Your Bluetooth audio device is not set as the default. |
|  | |

## Connecting to a Bluetooth Headset

If several Bluetooth audio devices are found, you can only connect to one. Before connecting to that audio device, you must set it as the default.

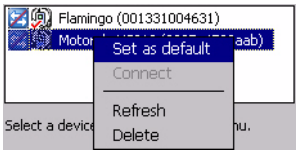
### To connect to an audio device

1 Double-tap a device for its pop-up menu.

2 Select to check **Set as default** if it is not already checked.

On successful device activation, the device icon changes to include a red check mark. You can set another device as the default without having to clear the red check mark on the original.

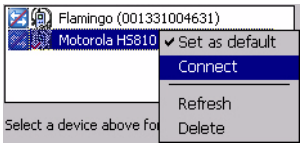
Select **Refresh** to retrieve missing information from a device. Select **Delete** to remove a device from the list.




3 If the activated device has a “hands-free” profile, press a button on the device to establish an audio connection between the CK60 and the activated device. *See the user manual for the Bluetooth device for information on what button to press.*

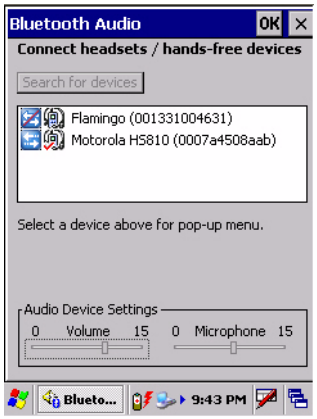
4 To establish an audio connection to the activated device with either a “headset” or “hands-free” profile, double-tap the audio device, then select **Connect** from the pop-up menu.

A check mark is added to this option in the pop-up menu. To disconnect from the audio device, repeat this step to clear the check mark.




5 When connection is established, the “connected/disconnected” status changes to that of a “connected” status and the **Audio Device Settings** are enabled to adjust settings of the connected Bluetooth audio device.

Tap the **Volume** slider bar to adjust the volume




Tap the **Microphone** slider bar to adjust the amplification

# Local Area Networks

**Note**: The 802.11a radio is an extra cost option not supported on all CK60s. Contact your Intermec representative for more information.

The CK60 is a versatile handheld computer that you can add to your wired or wireless data collection network. You can connect your CK60 to your network using any of these communications: serial, 802.11a/b/g radio, Ethernet, or Bluetooth™ radio.

## Configuring Serial Communications

The CK60 has a serial port to transfer data to and receive data from another device via RS-232 communications. You can also insert the CK60 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, see **page 19**.

To use serial communications with your CK60, connect the CK60 to the serial port of another device by:

- connecting the CK60 Serial Port to the serial port of the other device using the 26-pin to DB9-pin serial cable adapter and a female-to-female null modem RS-232 cable;
- connecting the dock to the serial port of the other device using a DB9-pin to DB9-pin serial adapter cable, then insert the CK60 into the dock; or
- connecting a USB cable between the USB connector in the back of the dock and your desktop computer.

## Configuring 802.11a/b/g Radio Communications

Caution

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

The wireless CK60 has an internal 802.11a/b/g radio to transfer data using wireless communications. This manual assumes 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.

The CK60 supports TCP/IP and UDP Plus network protocols

### Configuring the Network Parameters for a TCP/IP Network

In a TCP/IP network, the CK60 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 configure the network parameters for a TCP/IP network

1 Configure the network name (SSID), host IP address, IP settings (if not using DHCP), and network port parameters on each CK60.

2 Configure security. For help, see **"Configuring Security" on page 93**.

## Configuring the Network Parameters for a UDP Plus Network

In a UDP Plus network, the CK60 communications with a host computer through the Intermec Application Server.

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

### To configure the network parameters for a UDP Plus network

1 Configure the network name (SSID), controller IP address, IP settings (if not using DHCP), and network port parameters on each CK60.

2 Configure security. For help, see **"Configuring Security" on page 93**.

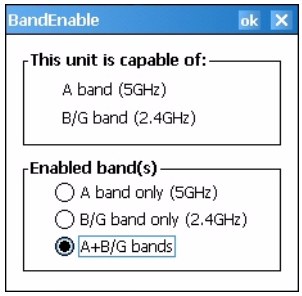
The easiest way to configure the network parameters on the CK60 is to use the Intermec Settings applet. For help, see **"Using the Intermec Settings Applet" on page 10**.

## Controlling the 802.11 Radio Usage


The CK60 is able to support 802.11 radio usage of either the A-band (5GHz) or the B/G-band (2.4GHz).

### To determine which band your CK60 is supporting

1 Tap **Start** > **Settings** > **Control Panel**, then double-tap the **BandEnable** icon.




2 To change the band to enable, select the desired band.

3 Tap **ok**.

4 Perform a warm-boot for the new setting to take effect.

Your CK60 may be capable of using both bands or just the B/G band. The BandEnable applet can enable or mask usage of any band the CK60 is capable of using. The band setting defaults to enable all available bands. At least one band must be enabled.

#### To read the current enabled operating bands

- Call DeviceIoControl using IOCTL_NDISUIO_QUERY_OID_VALUE with the OID_GET_BAND parameter. This returns the enabled bands masked by what the CK60 supports.

**Note**: If "Registry Restore" is enabled, you must flush the registry before cold-booting or the change will be lost.

## Configuring Ethernet Communications

You can use the CK60 directly in an Ethernet network if you have ordered the Ethernet option on your CK60 and you insert it into a dock. The communications dock as an Ethernet connector makes it possible for the CK60 to communicate with your Ethernet network.

#### To use the CK60 in an Ethernet network

1. Configure the Network Name (SSID), Host IP Address, IP Settings (if not using DHCP), and Network Port parameters on each CK60.
2. If required for your network, set the Primary and Secondary DNS Server and Primary and Secondary WINS Server parameters on each CK60.

## AutoIP/DHCP

Automatic Private IP Addressing (AutoIP) is enabled by default in Windows CE. To remain compatible with other versions of Windows CE, enable this setting. You can configure the registry settings in the following to set the required AutoIP/DHCP behavior:

HKEY_LOCAL_MACHINE\Comm\PRISMNDS1\TcpIp

Other registry keys that modify the behavior of AutoIP are as follows. You can find the appropriate settings and behavior of each of the AutoInterval, AutoIP, AutoMask, AutoSeed, and AutoSubnet keys in Microsoft Help.

When a TCP/IP client cannot find a DHCP server, it generates an AutoIP address from the 169.254.xxx.xxx block. The client then tries to check for a DHCP server every 15 seconds and if a DHCP server is found, the client drops the AutoIP address and uses the address from the DHCP server.

To disable AutoIP, set the AutoCfg registry entry to "0." If a DHCP server cannot be found, instead of using AutoIP, the system will display the "Unable to obtain a server assigned IP address" message.

**Note**: If you try to disable AutoIP using a CAB file to set the registry value for AutoIP, set the EnableDHCP value to "1" to keep DHCP enabled.

**Note**: Use DhcpRetryDialogue and DhcpMaxRetry registry settings to extend attempts that a DHCP client makes to get a DHCP address.

**Note:** Change the AutoInterval registry key value to make the client retry more often to obtain a DHCP address.

# Wide Area Networks

The CK60 does not support wide area networks.

# Remote Access (Modems)

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

Connections can be made using a wired or wireless network. Once connected, you can view web pages by using Internet Explorer. The communication software for creating an ISP connection is already installed on your CK60. Your service provider may provide the software needed to install other services, such as paging and fax services.

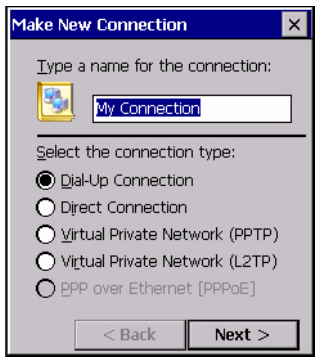
## Connecting to an Internet Service Provider

To use your ISP connection to view web pages, get the ISP dial-up access telephone number, user name, and password from your ISP.

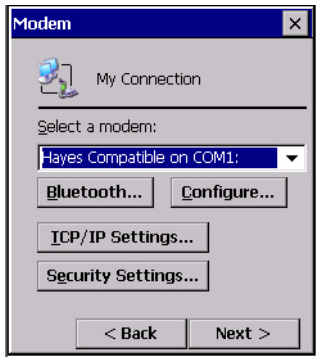
To view additional information for any screen in the wizard or while changing settings, tap **Help** in the upper-right corner.

1 Tap **Start** > **Settings** > **Network and Dial-up Connections**, then double-tap **Make New Connection**.

**2** Enter a name for the connection, such as "My Connection," tap **Next**.




**3** In **Select a modem**, select "Hayes Compatible on COM1," tap **Next**.

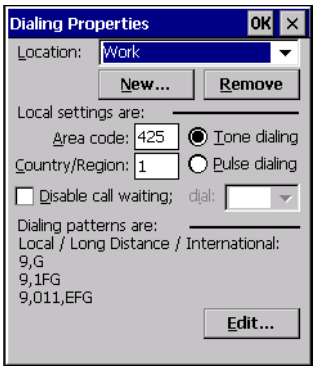



**4** Enter the phone number, then tap **Finish**.



**5** Double-tap the new **My Connection** icon, then enter the user name, password, and domain (if provided by an ISP or your network administrator).

6 Tap **Dial Properties**, then specify your current location from the drop-down list. Specify your current phone type. If your phone type is pulse dialing, select **Pulse dialing**. If your type is tone dialing (as most phone lines are), then select **Tone dialing**. Tap **OK** to close the Dialing Properties page. These settings apply to all connections.



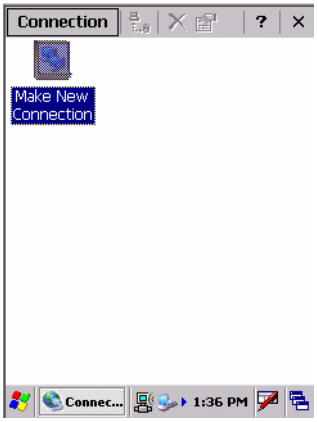

7 To start the connection, start visiting web sites by using Internet Explorer. See **"Internet Explorer" on page 32** for information.

## Direct Connection

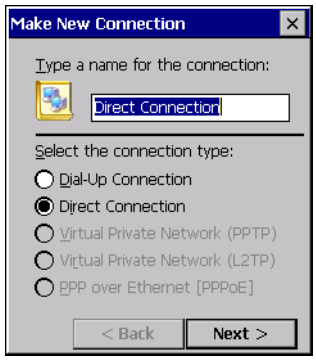
A direct connection securely connects to servers via the Internet. Ask your network administrator for the user name, password, domain name, TCP/IP settings, and host name or IP address of the server.


To view additional information for any screen in the wizard or while changing settings, tap **Help** in the upper-right corner.

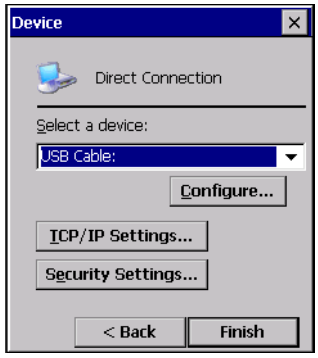
1 Tap **Start** > **Settings** > **Network and Dial-up Connections**, then double-tap **Make New Connection**.



2 Enter a name for the connection, such as "Direct Connection." Select **Direct Connection**, then tap **Next** to continue.




3 Select a device through which a connection is made from the **Select a device** drop-down list, tap **Configure** to adjust the port settings, tap **OK** to return to the Device screen, then tap **Finish**.





4 Insert the necessary equipment into the device, then double-tap the new **Direct Connection** icon to connect to the host, then use a program to automatically begin connecting.

To disconnect, either detach your device when connected via cable or cradle, or switch off the connection when connected via a wireless network.

# iConnect

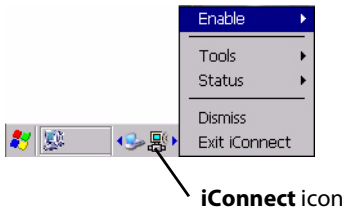
The default network adapter or radio is dependent on what radios are installed in your CK60. With the iConnect menu, using the **Enable** feature, you can specify "802.11b," "Ethernet," or "No Networking" to load onto your CK60 when a cold-boot is performed.

If you had specified a network prior to when a warm-boot is performed on the CK60, the iConnect application restores your network interfaces to what they were before the warm-boot was performed.

See the Developer's Support area of the Intermec web site for the latest information on network adapters for your unit.

### To access the iConnect menu

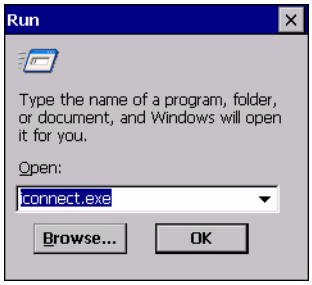
1 Tap the **iConnect** icon in your toolbar for the following menu:




2 Select **Dismiss** from the iConnect menu to end the session without exiting the application.

3 Select **Exit iConnect** to exit the application.

**Note**: To access the iConnect application after you have exited it, select **Start** > **Run**, enter "iconnect.exe" in the **Open** field, then tap **OK**. The **iConnect** icon then reappears in the toolbar.



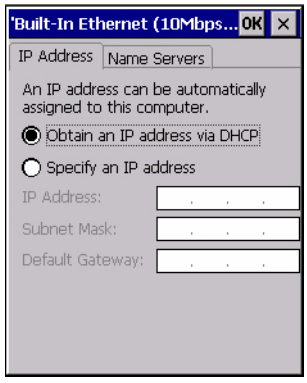

## Ethernet Communications

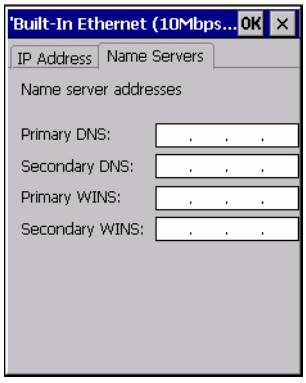
If your system does not contain an 802.11a/b/g radio, then **Ethernet networking using DHCP** is selected as the default.

When you select **Enable** > **Ethernet** from the iConnect menu, the **Ethernet** icon *(shown to the left)* appears in the toolbar as circled in the illustration.

### To view information about the Ethernet communications

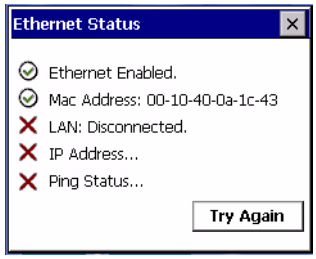
- Select **Tools** > **Ethernet IP Settings** from the iConnect menu for the following:




### To view the status of the Ethernet communications

- Select **Status** > **Ethernet** from the iConnect menu for the following. Tap **Try Again** to check the status after you make changes to the connection.




## No Networking

When you select **Enable** > **No Networking** from the iConnect menu, neither icon appears in the toolbar.

## Wireless Communications

When you select **Enable** > **Wireless** from the iConnect menu, the **Wireless** icon *(shown to the left)* appears in the toolbar.

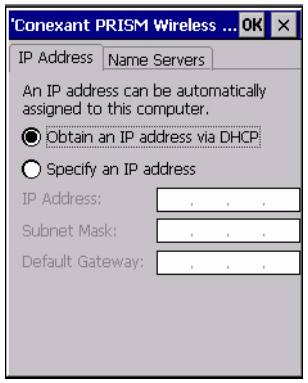
### To configure wireless 802.11b communications on the CK60

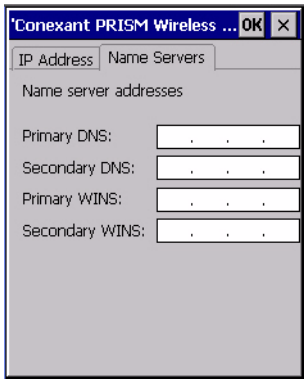
- Select **Tools** > **Wireless Settings** from the iConnect menu to access the Profile Wizard for the 802.11a/b/g radio module.

**Note**: You can configure wireless 802.11b communications using the Wireless Network applet. Tap **Start** > **Settings** > **Control Panel**, then double-tap the **Wireless Network** icon to access the Profile Wizard. Go to **"Configuring Microsoft Security" on page 100** for information.

### To view information about the Wireless 802.11b communications,

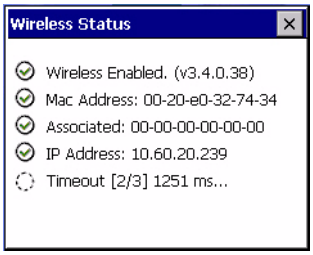
- Select **Tools** > **Wireless IP Settings** from the iConnect menu for the following:




### To view the status of the Wireless communications

- Select **Status** > **Wireless** from the iConnect menu to view the status. Tap **Try Again** to check the status after you make changes to the connection.



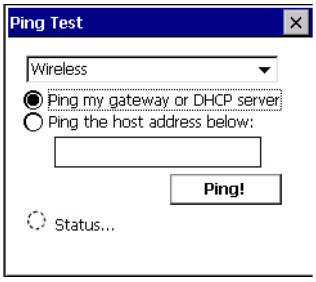

## Pinging Your Gateway or DHCP Server

Use the Ping Test feature to test your CK60 connection against your network.

### To ping your gateway or DHCP Server

1. Select **Tools** > **Ping Test** from the iConnect menu.
2. To ping your gateway or DHCP server, select **Ping my gateway or DHCP server**, then select which to ping from the top drop-down list.
3. To ping a specific host, select **Ping the host address below**, then enter its IP address in the field beneath.

4 After you make your selection, tap **Ping!** and wait for results.




# Configuring Security

Use the next sections to understand how to configure each type of security on your wireless CK60.

## 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 CK60 and a trusted root certificate authority (CA) certificate. If you choose to use PEAP, you need to load a root CA certificate. You can use a third-party CA to issue unique client certificates and a root certificate.

### To load certificates


1 If your CA is on your WLAN, select Start > Settings > **Control Panel**.

2 Double-tap the Certificates icon.

3 Tap **View** to see certificate details.

4 To remove a certificate, press and hold a certificate, then select **Delete**.


## Wireless Networks

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

- Infrastructure networks get you onto your corporate network and the Internet. With the 802.11b/g infrastructure mode, the CK60 establishes a wireless connection to an AP, linking you to the rest of the network.

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

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

Intermec recommends using security measures with wireless networks to prevent unauthorized access to your network and to ensure your privacy of transmitted data. Authentication (cryptographically protected) by both the network and the user, transmitted data, and encryption are required elements for secure networks. Schemes are available to implement the features.

### Encryption

| | |
|---|---|
| **AES** (Advanced Encryption Standard) | A block cipher, a type of symmetric key cipher that uses groups of bits of a fixed length - called blocks. A symmetric key cipher is a cipher using the same key for both encryption and decryption. As implemented for wireless, this is also known as CCMP, which implements AES as TKIP and WEP are implementations of RC4. |
| **CKIP** (Cisco Key Integrity Protocol) | This is Cisco's version of the TKIP protocol, compatible with Cisco Aironet products. |
| **TKIP** (Temporal Key Integrity Protocol) | This protocol is part of the IEEE 802.11i encryption standard for wireless LANs, which provides per-packet key mixing, a message integrity check and a re-keying mechanism, thus overcoming most of the weak points of WEP. This encryption is more difficult to crack than the standard WEP. Weak points of WEP include: No Initiation Vector (IV) reuse protection, weak keys, no protection against message replay, no detection of message tampering, and no key updates. |
| WEP (Wired Equivalent Privacy) encryption | With preconfigured WEP, both the client CK60 and access point are assigned the same key, which can encrypt all data between the two devices. WEP keys also authenticate the CK60 to the access point - unless the CK60 can prove it knows the WEP key, it is not allowed onto the network. WEP keys are only needed if they are expected by your clients. There are two types available: 64-bit (5-character strings, 12345) (default) and 128-bit (13-character strings, 1234567890123). Enter these as either ASCII (12345) or Hex (0x3132333435). |

### Key Management Protocols

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

### Authentication

| | |
|---|---|
| EAP (Extensible Authentication Protocol) | 802.11b/g uses this protocol to perform authentication. This is not necessarily an authentication mechanism, but is a common framework for transporting actual authentication protocols. Intermec provides a number of EAP protocols for you to choose the best for your network. |
| EAP-FAST (Flexible Authentication via Secure Tunneling) | A publicly accessible IEEE 802.1X EAP type developed by Cisco Systems. It is available as an IETF informational draft. An 802.1X EAP type that does not require digital certificates, supports a variety of user and password database types, supports password expiration and change, and is flexible, easy to deploy, and easy to manage. |

### *Authentication (continued)*

| | |
|---|---|
| LEAP (Lightweight Extensible Authentication Protocol) | Also known as Cisco-Wireless EAP, provides username/password based authentication between a wireless client and a RADIUS server. In the 802.1x framework, traffic cannot pass through a wireless network access point until it successfully authenticates itself. |
| EAP-PEAP (Protected Extensible Authentication Protocol) | Performs secure authentication against Windows domains and directory services. It is comparable to EAP-TTLS both in its method of operation and its security, though not as flexible. This does not support the range of inside-the-tunnel authentication methods supported by EAP-TTLS. Microsoft and Cisco both support this protocol. |
| EAP-TLS (Transport Layer Security) | Based on the TLS (Transport Layer Security) protocol widely used to secure web sites. This requires both the user and authentication server have certificates for mutual authentication. While cryptically strong, this requires corporations that deploy this to maintain a certificate infrastructure for all their users. |
| EAP-TTLS (Tunneled Transport Layer Security) | This protocol provides authentication like EAP-TLS (see page 95) but does not require certificates for every user. Instead, authentication servers are issued certificates. User authentication is done using a password or other credentials that are transported in a securely encrypted "tunnel" established using server certificates.<br>EAP-TTLS works by creating a secure, encrypted tunnel through which you present your credentials to the authentication server. Thus, inside EAP-TTLS there is another *inner authentication protocol* that you must configure via Additional TTLS Settings. |

The CK60 provides three types of security for your wireless network: Wi-Fi Protected Access 2 (WPA2/802.11i), WPA, and WEP. 802.1x should be referred to as an authentication method used for WPA and WPA2. Another authentication method for WPA and WPA2 would be the Pre-Shared Key (PSK).

## Choosing Between Microsoft and Funk Security

Before you can implement a security solution on the CK60, you need to choose between Microsoft and Funk security:

- By default, Funk security is enabled. It provides everything you get with Microsoft security plus the addition of Cisco Compatible Extensions features. It also provides additional authentication types like EAP-TTLS, LEAP, and EAP-FAST.
- Microsoft security, with its Microsoft Zero Config feature, is also available. To switch to Microsoft security, go to **"Configuring Microsoft Security" on page 100** to start.

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

### Configuring Funk Security

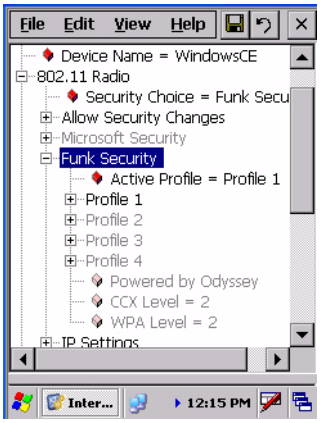
You can define up to four profiles for your Funk Odyssey security. Different profiles let your CK60 communicate in different networks without having to change all of your security settings. For example, you can set up one profile for the manufacturing floor and one for the warehouse.

### To configure Funk Security


1 Select **Start** > **Settings** > **Control Panel**, then double-tap the **Intermec Settings** icon.

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

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




## Using WPA Security

Wi-Fi Protected Access (WPA) is a strongly enhanced, interoperable Wi-Fi security that addresses many of the vulnerabilities of Wired Equivalent Privacy (WEP). Instead of WEP, WPA uses Temporal Key Integrity Protocol (TKIP) for its data encryption method. Currently, WPA satisfies IEEE 802.11i standards.

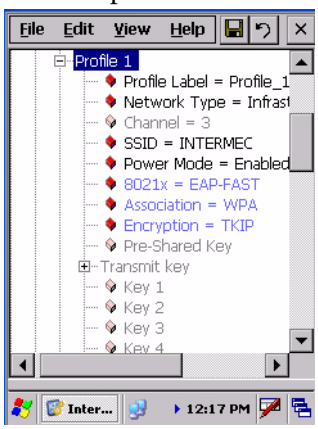
WPA runs in Enterprise (802.1x) mode or PSK mode:

- In Enterprise mode, WPA provides user authentication using 802.1x and the Extensible Authentication Protocol (EAP). That is, an authentication server (such as a RADIUS server) must authenticate each device before the device can communicate with the wireless network.
- In PSK mode, WPA provides user authentication using a shared key between the authenticator and the CK60. 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 access point with an 802.11b/g radio that supports WPA.

### Configuring WPA Security With Funk Security

Use this procedure to set WPA security with Funk security.




1. Make sure you have configured the communications and radio parameters on your CK60 and that Funk is your security choice.
2. Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."
3. For **Association**, select "WPA" and press **Enter**.
4. For **8021x**, select "PEAP," "TLS," "TTLS," "LEAP," or "EAP-FAST" and press **Enter**.

#### If you select "TTLS" or "PEAP:"

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

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

c. For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CK60 set correctly when you enable Validate Server Certificate.*

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

#### If you select "TLS:"

a. Load a user and root certificate on your CK60. For help, see **"Loading Certificates" on page 93**.

b. For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CK60 set correctly when you enable Validate Server Certificate.*

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

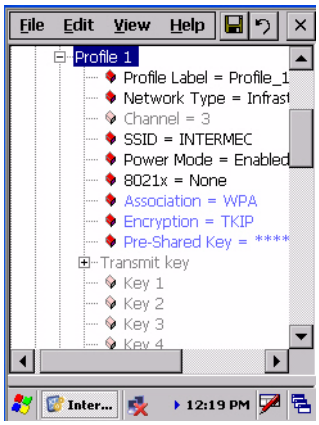
#### If you select "LEAP" or "EAP-FAST:"

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

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

### Configuring WPA-PSK Security With Funk Security

Use this procedure to set WPA-PSK security on your CK60 with Funk security.




1. Make sure you have configured the communications and radio parameters on your CK60 and that Funk is your security choice.
2. Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."
3. For **Association**, select "WPA" and press **Enter**.
4. For **8021x**, select "None" and press **Enter**.
5. For **Pre-Shared Key**, enter the pre-shared key or the passphrase.

   The pre-shared key must be a value of 32 hex pairs preceded by 0x for a total of 66 characters. The value must match the key value on the access point. The passphrase must be from 8 to 63 chtomaracters. After you enter a passphrase, the CK60 internally converts it to a pre-shared key. This value must match the passphrase on the authenticator.

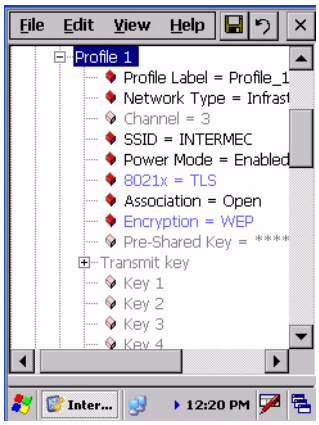
## Using 802.1x Authentication

802.1x authentication 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 access point with an 802.11b/g radio.
- A CK60 with an 802.11b/g radio and the 802.1x/WPA security option.

### Configuring 802.1x Security With Funk Security

This sets 802.1x security on your CK60 with Funk security.




1. Make sure you have configured the communications and radio parameters on your CK60 and that Funk is your security choice.
2. Open Intermec Settings. Tap (+) to expand **Communications** > **802.11 Radio** > **Funk Security** > **Profile X** with "X" being "1" through "4."
3. For **Association**, select "Open" and press **Enter**. When working with Cisco Aironet access points, you can select "Network-EAP."
4. For **Encryption**, select "WEP" and press **Enter**.
5. For **8021x**, select "PEAP," "TLS," "TTLS," "LEAP," or "EAP-FAST" and press **Enter**.

   **If you select "TTLS" or "PEAP:"**

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

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

   c. For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CK60 set correctly when you enable Validate Server Certificate.*

   d. Enter a **User Name** and **Subject Name**. You can also enter a **Server 1 Common name** or **Server 2 Common name** to increase security.

   **If you select "TLS:"**

   a. Load a user and root certificate on your CK60 (**page 93**).

   b. For **Validate Server Certificate**, select "Yes," then press **Enter**. *Note that you must have the date on the CK60 set correctly when you enable Validate Server Certificate.*

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

   **If you select "LEAP" or "EAP-FAST:"**

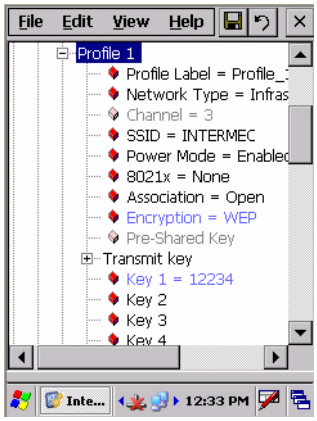
   Select **User Name**, then type your user name. press **Enter**, select **User Password**, type a user password, then press **Enter**.

## Using Static WEP Security

The CK60 uses the Wired Equivalent Privacy (WEP) protocol to add security to your wireless network based on the 802.11b/g standard. To use WEP security, you need an access point with an 802.11b/g radio.

### Configuring Static WEP Security With Funk Security

Use this procedure to set Static WEP security with Funk security.




1 Make sure you have configured the communications and radio parameters on your CK60 and that Funk is your security choice.

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

3 For **Association**, select "Open" and press **Enter**.

4 For **Encryption**, select "WEP" and press **Enter**.

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

7 For **Transmit key**, select which WEP key to use for encryption of transmitted data.

8 Define a value for each key, up to four. Enter an ASCII key or a hex key either 5 or 13 bytes long based on the radio capability. Set a 5-byte value for 64-bit WEP or a 13-byte value for 128-bit WEP. Precede hex keys with 0x and make sure the keys use 5 or 13 hex pairs.

## Configuring Microsoft Security

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

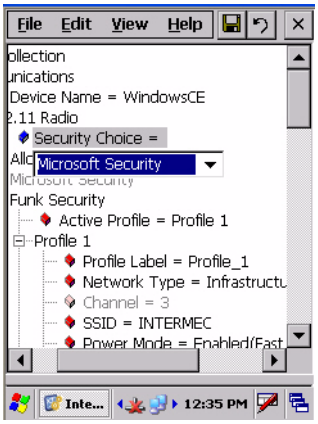
### To select Microsoft Security


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

2 Double-tap the Intermec Settings icon.

3 Tap (+) to expand **Communications** > **802.11 Radio** > **Security Choice**.

4 Select “Microsoft Security” from the drop-down list, then press **Enter**.




5 Tap **Yes** or press **Esc** to clear the alert box.

6 Tap **File** > **Save Settings** to save your settings.

7 Perform a clean-boot on the CK60. See **“Resetting Your Computer” on page 3** for more information.

# SmartSystems™ Foundation

Use the SmartSystems Foundation (www.intermec.com/SmartSystems) to configure and manage your network. You can also contact your Intermec representative for support.

This tool, available as a free download from Intermec, includes a management console that provides a default method to configure and manage Intermec devices "out-of-the-box," without the purchase of additional software licenses. This is for anyone who must configure and deploy multiple devices or manage multiple licenses.

Use the Intermec Settings applet to do device configuration settings within the SmartSystems Foundation. Information about the Intermec Settings applet is in the *Intermec Computer Command Reference Manual* (P/N 073529) available online at www.intermec.com.

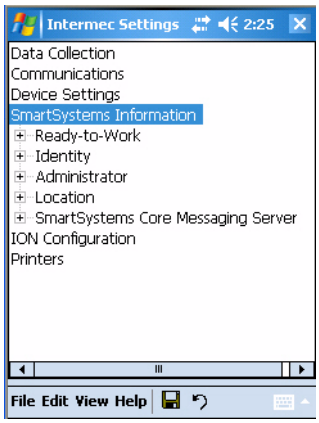
Information about the SmartSystems Foundation is available as an online help within the SmartSystems Console application. Select **SmartSystems** > **Help** in the console to access the manual.

### To view your SmartSystems information


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

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

3 Tap (+) to expand the **SmartSystems Information** option.



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CK60 Mobile Computer with Windows CE User's Manual

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