Intermec

User's Manual

700 Series Color Mobile Computer

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

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

Document Change Record

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

Revision	Date	Description of Change
B	11/2002	Added information about the Siemens MC45 radio module, the tethered scanner, CAB extraction, FTP Server parameters, and Data Collection control panel applet imager options.
C	04/2003	Added information about the ambient light sensor, the beeper, keypad sequences, the alphanumeric keypad, the vibrator, an accessories list, programming notifications, the MaxiCode symbology, the Utilities control panel applet, and the Wireless Network control panel applet.
D	08/2003	Upgraded Pocket PC 2002 information to Windows Mobile 2003, upgraded all illustrations to gray-scale, added new Imager functions, moved the Automatic Data Collection COM Interface material to the SDK User's Manual.
E	01/2004	Added 730 Computer information, revised CDMA Setup information, and revised Wireless Area Network Printing information.
F	04/2004	Updated 802.11 security supplicant information. Added new network selection APIs. Incorporated information about the Intermec Settings control panel applet for PSM Builds 3.00 or newer. Added information about the PhoneUtility application. Revised Chapter 4, "*Network Support*." Added tethered scanner and internal scanner configuration and troubleshooting information to Chapter 6, "*Scanner Support*."
G	10/2004	Added information about resetting the 700 Series Computer. Updated the Profile Wizard information in Appendix A, "*Configurable Settings*." Revised information about using Sprint Watcher in Chapter 4, "*Network Support*." Added information about the 700CXL Computer, including the Phone CDMA and Phone GSM applications.

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Before You Begin

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

Safety Summary

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

Do not repair or adjust alone

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

First aid

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

Resuscitation

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

Energized equipment

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

Safety Icons

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

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

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

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

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

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

Global Services and Support

Warranty Information

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

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

Web Support

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

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

Telephone Support

These services are available from Intermec Technologies Corporation.

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

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

Who Should Read this Manual?

This manual provides you with information about the features of the 700 Series Color Mobile Computer and how to configure, troubleshoot, and support it. You must be familiar with your host PC, your network, and your other Intermec equipment.

Related Documents

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

Document Title	Part Number
700 Color with Windows Mobile 2003 Quick Start Guide	962-054-069
730 Mobile Computer Quick Start Guide	962-054-068
Intermec Computer Command Reference Manual	073529
Intermec Developer's Library CD	235-114-001 *(Kit)*
700C Recovery CD Windows Mobile 2003 Edition *English*	235-110-001 *(Kit)*

The Intermec web site at http://www.intermec.com contains many of our documents that you can download in PDF format.

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

1 Introduction

This chapter introduces the 700 Series Color Mobile Computer, developed by Intermec Technologies Corporation to enhance wireless connectivity needs.

This chapter contains hardware and software configuration information to assist you in making the most out of your 700 Color Computer. The components include:

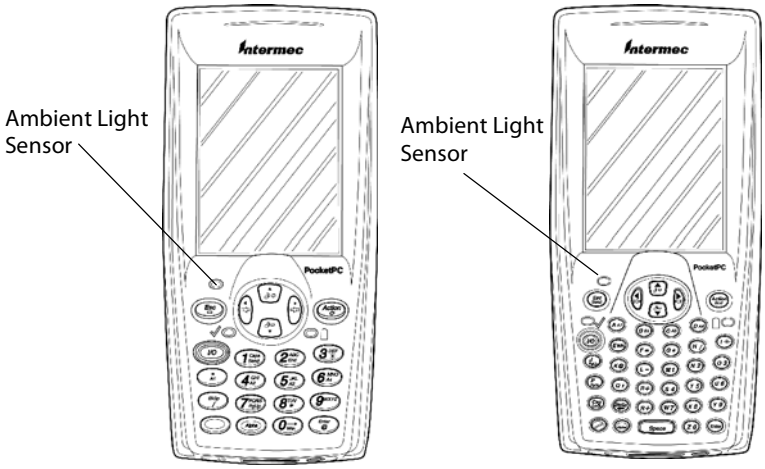
- Ambient light sensors *(next page)*
- Audio system *(page 3)*
- Battery *(page 5)*
- Beeper *(page 7)*
- Keypad *(page 11)*
- Modem support *(page 16)*
- PSM build version *(page 16)*
- Resetting your 700 Series Computer *(page 17)*
- Software build version *(page 18)*
- Storage media *(page 19)*
- Vibrator *(page 20)*
- Wireless network support *(page 21)*

Note: Desktop icons and control panel applet icons are shown to the left.

Ambient Light Sensor

Note: This information does *not* apply to the 730 Computer.

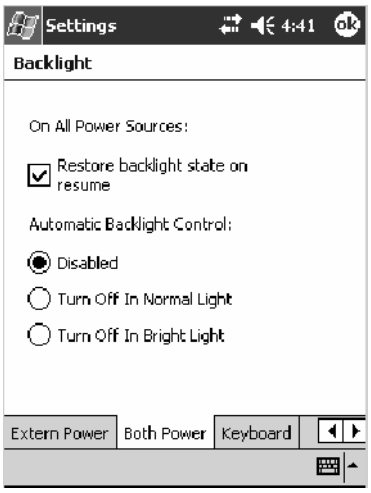
The ambient light sensor turns on the display lighting when conditions warrant but automatically turns if off again as surrounding light increases. This conserves your 700 Color and 700CXL battery power.



This illustration shows the 700 Color Computer with a numeric keypad (left) and an alphanumeric keypad (right).

Backlight

To adjust the ambient light sensor, tap **Start** > **Settings** > the **System** tab > the **Backlight** icon > the **Both Power** tab. Make your selections, then tap **ok** to exit this applet.

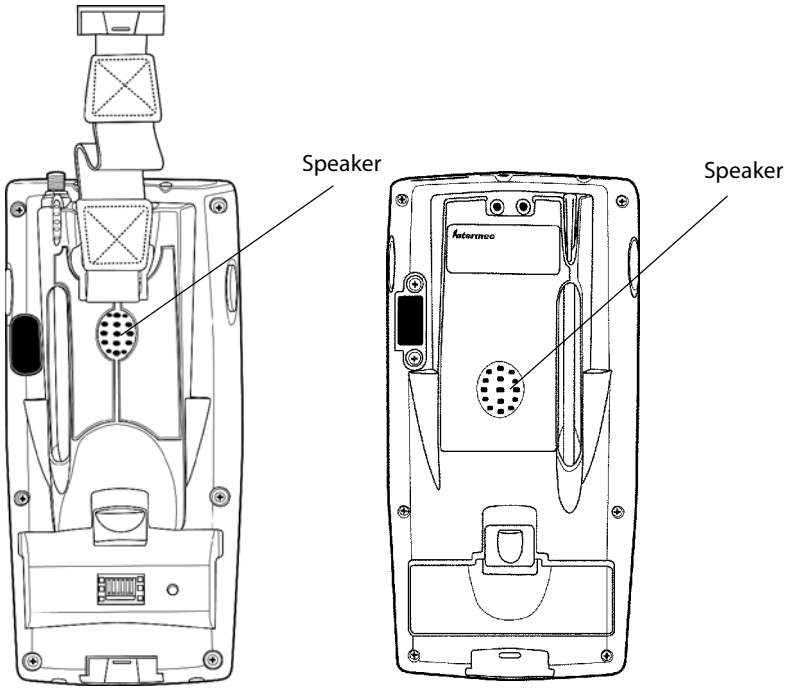


Audio System

The audio system consists of the speaker, internal microphone, and the external headset jack.

Speaker

A speaker capable of variable volume levels is located on the back of the computer. This speaker has a transducer volume of 85 dB min at 10 CM and a frequency range of 1–8 KHz.

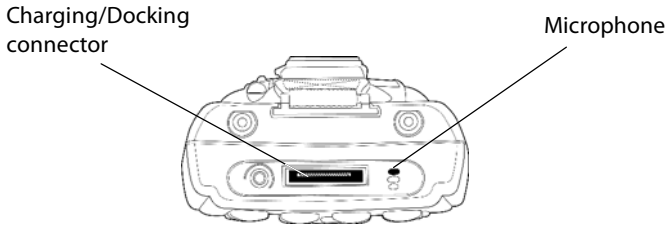


700 Color or 700CXL Computer

730 Computer

Microphone

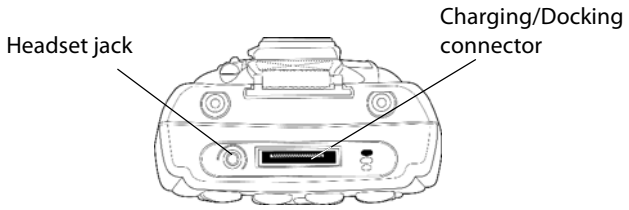
The built-in microphone is located on the bottom of the unit next to the Hirose docking connector.



This is the bottom of the 700 Color Computer. Note that the keypad is to the bottom in this illustration.

External Headset Jack

The external headset jack connects a mobile phone style headset to your mobile computer for use in noisy environments. The jack is a 2.5 mm, three-conductor jack, with autosensing of the headset jack insertion which disables the internal speaker and microphone. The external headset jack is located on the bottom of the mobile computer next to the Hirose docking connector.



This is the bottom of the 700 Color Computer. Note that the keypad is to the bottom in this illustration.

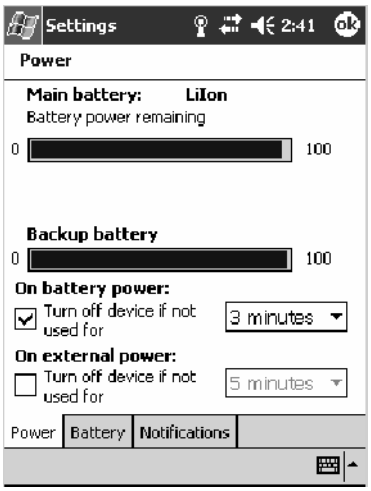
Battery

The 700 Series and 700CXL Computers come with a 14.4 Watt-hour, 7.2V, replaceable Lithium-Ion (LiIon) battery.

The 730 Computer comes with an 8.8 Watt-hour, 3.7V, replaceable LiIon battery.

Power

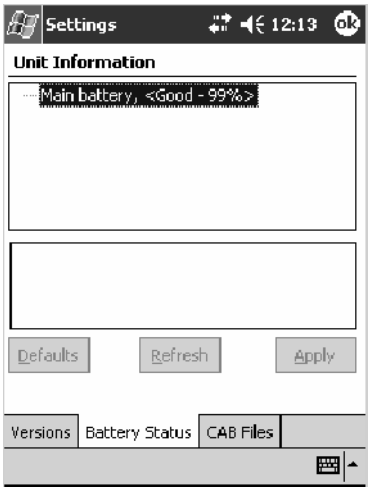
To view the status of this battery from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Power** icon > the **Power** tab to view the current status of both the main battery and the backup battery. Tap **ok** to exit this information.



For Units With PSM Builds Older than 3.00

Unit Information

You can also view the battery status for the 700 Series Computer by accessing the **Unit Information** control panel applet. Tap **Start** > **Settings** > the **System** tab > the **Unit Information** icon > the **Battery Status** tab to view the current status. Tap **ok** to exit this information.



If your computer shuts down because of low battery conditions, your computer does not operate. This is done to ensure that data is protected. Although the battery does protect the data against loss for several hours, you should connect your computer to a power source when you first detect a low battery condition.

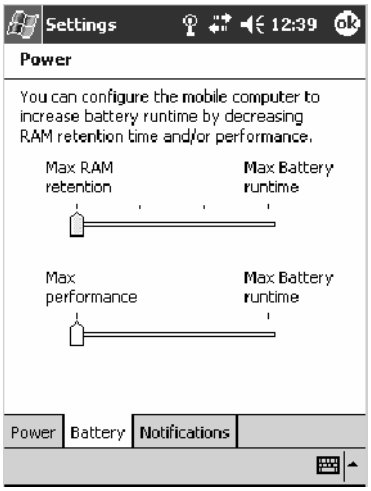
Your computer contains an internal super capacitor, a temporary power storage device, that protects data for up to ten minutes. This is to give you time to replace the main battery pack before that data is lost. *Be sure to put the computer in a suspend mode before doing so.*

If you have at least one device in your 700 Series Computer (radio, scanner, imager, or Ethernet), the battery power fail level is set 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 23 to 32 hours at room temperature *if* the main battery remains in the mobile computer. The configuration and time are lost if:

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

Power

You can modify RAM maintenance in a limited way. On the 700 Computer, tap **Start** > **Settings** > the **System** tab > the **Power** icon > the **Battery** tab. Drag the slider bar to the right to change the suspend voltage to favor suspend time over rundown time, then click **ok** to exit.



Beeper

Note: Each time the 700 Computer is cold-booted, all default settings are restored.

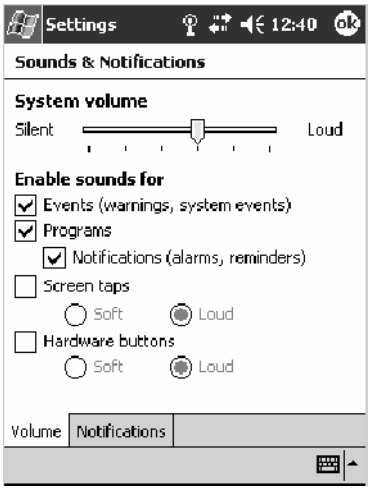
If the beeper is disabled on your 700 Color Computer, do the following instructions to enable the beeper. If you are not able to enable the beeper, then contact Customer Support.

For information about setting volume levels for screen taps, ActiveSync alert noises, etc., tap **Start** > **Help** > **Pocket PC Basics**, then select **Notifications**.

Enable the Beeper

Do the following to enable the beeper:

1. Tap **Start** > **Settings** > the **Personal** tab > **Sounds & Notifications** > the **Volume** tab.
2. Drag the **System volume** slider bar to the right off the "Silent" position.
3. Tap **ok** to exit this applet.



Disable the Scanner Mute

Note: This information does *not* apply to the 730 Computer.

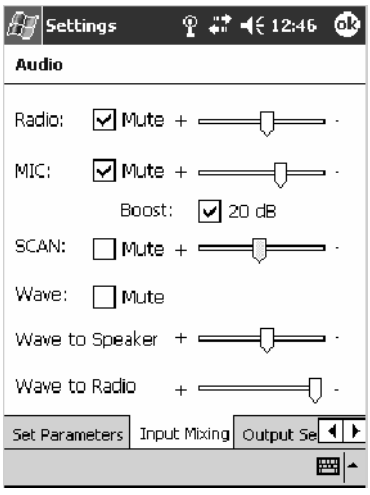
Do the following to disable the mute feature on the scanner.

Audio

1 Tap **Start** > **Settings** > the **System** tab > the **Audio** icon, then select **User defined audio settings**.

2 Tap the **Input Mixing** tab, then clear the **SCAN Mute** box.

3 Drag its slider bar (note the greyed slider bar) to the appropriate level of loudest, with the left side being the most quiet and the right side being the most loud. Tap **ok** to exit this applet.



Select a Beeper Volume

Note: The 730 Computer does *not* support the laser scanner.

To determine your PSM Build version, tap **Start** > **Programs** > **File Explorer** > the **Flash File Store** folder > the **PSMinfo** text file.

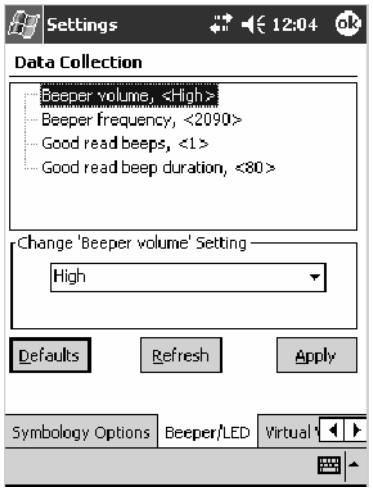
For Units With PSM Builds Older than 3.00

Data Collection

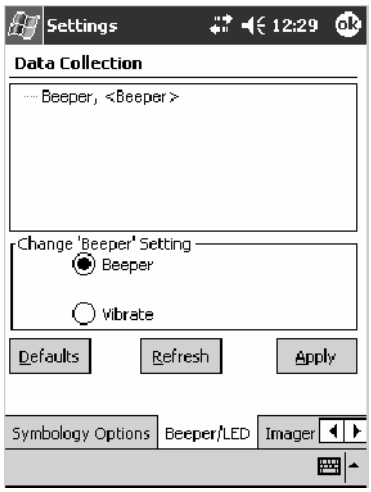
Do the following to select a beeper volume. 700 Computers built with a laser scanner have three options: Off, High, or Medium. 700 Computers built with an imager have just two: Beeper or Vibrate. 730 Computers have just the **Beeper** option. See Appendix A, "*Configurable Settings*," for more information about the **Beeper Volume** or **Beeper** option.

1. Tap **Start** > **Settings** > the **System** tab > the **Data Collection** icon to access its control panel applet.
2. Use the right and left arrows to scroll to the **Beeper/LED** tab, then tap this tab.
3. *For units with laser scanners:*
   Tap **Beeper Volume**, select an option, then tap **Apply** to change the setting.

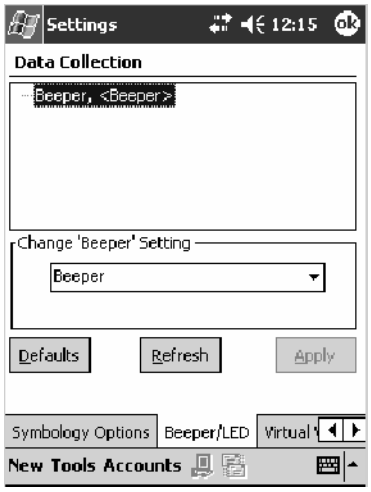
   For units with imagers:
   Select either option, then tap **Apply** to change the setting. *For 730 Computers, the Vibrate option is not supported.*
4. Tap **ok** to confirm this change, then tap **ok** to exit the Data Collection control panel applet.



700 Color with Laser Scanner Screen



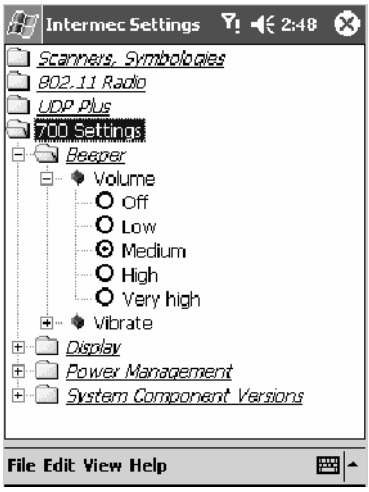
700 Color with Imager Screen



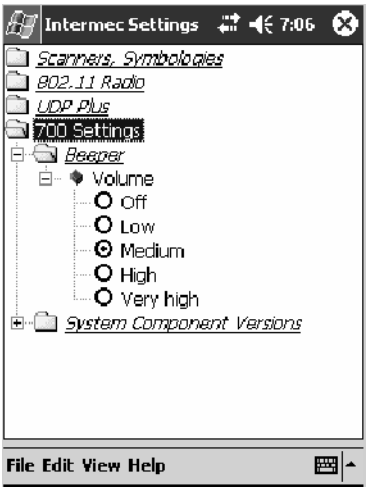
730 Screen

For Units With PSM Build 3.00 or Newer

To select a beeper volume for the 700 Color Computer, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. Tap the **700 Settings** folder twice, tap (+) to expand the **Beeper** folder, then tap (+) to expand the **Volume** option. Select an item, then tap (+) to close this option.



700 Color Screen



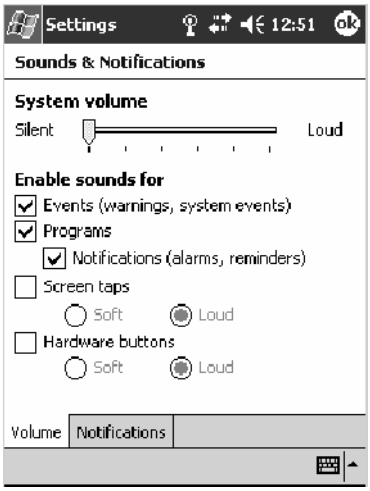
730 Screen

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

Disable the Beeper

Do the following to disable the beeper:

1. Tap **Start** > **Settings** > the **Personal** tab > **Sounds & Notification** > the **Volume** tab.
2. Drag the **System volume** slider completely to the left to "Silent."
3. Tap **ok** to exit this applet.



Keypad

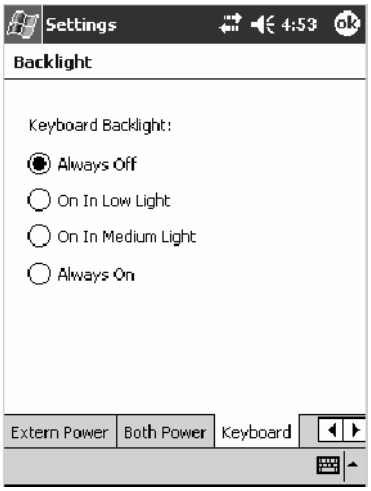
Instructions for the keypad include the backlight and keypress sequences.

Backlight for Keypad

Note: This information does *not* apply to the 730 Computer.

Backlight

You can configure your keypad to turn on a backlight to assist you when you are working in low lighting. To adjust the backlight for the keypad, tap **Start** > **Settings** > the **System** tab > **Backlight**. Use the left/right scroll arrows to move to and tap the **Keyboard** tab. Make your selection, then tap **ok** to exit this applet.



Key Sequences

Use the following key sequences to enter characters into your 700 Color Computer using either a numeric keypad or an alphanumeric keypad.

[Gold] or [Gold/White] Plane Keys

The [**Gold**] plane key (numeric keypad) or the [**Gold/White**] plane key (alphanumeric keypad) provides you access to display controls, special characters, and Pocket PC options.

Press the [**Gold**] key or the [**Gold/White**] key for each gold plane key stroke you wish to make. For example to turn on the front light, press and hold the [**Gold**] key plus the 3 DEF key on the numeric keypad or press and hold the [**Gold/White**] key plus the I key on the alphanumeric keypad. To turn the front light off, press the appropriate keys again.

Below and on the next page are the key sequences.

Numeric Keypad

The following table lists sequences that use the [**Gold**] plane key. See Chapter 2, "*Windows Mobile 2003*," for information about the Pocket PC applications.

Press the Keys	To Do This
[**Gold**] 3 DEF	Toggle the backlight on or off (also goes through backlight power levels if held down)
[**Gold**] A1	Access the Pocket PC Record application *(see Note)*.
[**Gold**] 4 GHI A2	Access the Pocket PC Calendar application *(see Note)*.
[**Gold**] 5 JKL A3	Access the Pocket PC Contacts application *(see Note)*.
[**Gold**] 6 MNO A4	Access the Pocket PC Tasks application *(see Note)*.
[**Gold**] 7 PQRS PgUp	Move up one page.
[**Gold**] 8 TUV	Enter an asterisk (*).
[**Gold**] 9 WXYZ	Move down one page.
[**Gold**] 0 Win	Access the Pocket PC Start menu.
[**Gold**] Enter @	Enter an at symbol (@).
[**Gold**] BkSp /	Enter a backslash (/).
[**Gold**] Esc –	Enter a minus sign (–).
[**Gold**] Action +	Enter a plus sign (+).
[**Gold**] →	Tab to the right.
[**Gold**] ←	Tab to the left.

***Note**: Pocket PC applications are accessible only if configured to do so in the App Launch portion of the Utilities control panel applet. See page 365 for more information.*

Alphanumeric Keypad

Note: This information does *not* apply to the 730 Computer.

The following table lists sequences that use the [**Gold/White**] plane key. See Chapter 2, "*Windows Mobile 2003*," for information about the Pocket PC applications.

Press the Keys	To Do This
[Gold/White] I	Toggle the backlight on or off (also goes through backlight power levels if held down)
[Gold/White] A A1	Access the Pocket PC Record application *(see Note)*.
[Gold/White] B A2	Access the Pocket PC Calendar application *(see Note)*.
[Gold/White] C A3	Access the Pocket PC Contacts application *(see Note)*.
[Gold/White] D A4	Access the Pocket PC Tasks application *(see Note)*.
[Gold/White] J PgUp	Move up one page.
[Gold/White] G *	Enter an asterisk (*).
[Gold/White] P PgDn	Move down one page.
[Gold/White] E Win	Access the Pocket PC Start menu.
[Gold/White] K @	Enter an at symbol (@).
[Gold/White] H /	Enter a backslash (/).
[Gold/White] L -	Enter a minus sign (–).
[Gold/White] R +	Enter a plus sign (+).
[Gold/White]	Tab to the right.
[Gold/White]	Tab to the left.

***Note**: Pocket PC applications are accessible only if configured to do so in the App Launch portion of the Utilities control panel applet. See page 365 for more information.*

Alpha (Blue) Plane Keys

The alphabet can be entered with either the numeric keypad or the alpha-numeric keypad. Below and on the next page are the key sequences.

Numeric Keypad

When you press (Alpha), the Scanning/Alpha LED (✓◎) shows 'red' for the Alpha mode. The keypad stays in Alpha mode until you press (Alpha).

To type a lowercase 'c,' press (Alpha) (2 ABC End) (2 ABC End) (2 ABC End) (the [2] key three times). To type a letter on the same key as the last letter entered, wait two seconds, then enter the correct series of keystrokes to create the next letter.

While you are in the Alpha mode and you press (1 Caps Send) to initiate the CAPS mode, you will render a CAPS LOCK until you press (1 Caps Send) again. Once you are in CAPS mode, you stay in CAPS until it is pressed again.

Press (0 Win) to enter a space.

To Enter	Press the Keys	To Enter	Press the Keys
a	(Alpha) (2 ABC End)	A	(Alpha) (1 Caps Send) (2 ABC End)
b	(Alpha) (2 ABC End) (2 ABC End)	B	(Alpha) (1 Caps Send) (2 ABC End) (2 ABC End)
c	(Alpha) (2 ABC End) (2 ABC End) (2 ABC End)	C	(Alpha) (1 Caps Send) (2 ABC End) (2 ABC End) (2 ABC End)
d	(Alpha) (3 DEF *)	D	(Alpha) (1 Caps Send) (3 DEF *)
e	(Alpha) (3 DEF *) (3 DEF *)	E	(Alpha) (1 Caps Send) (3 DEF *) (3 DEF *)
f	(Alpha) (3 DEF *) (3 DEF *) (3 DEF *)	F	(Alpha) (1 Caps Send) (3 DEF *) (3 DEF *) (3 DEF *)
g	(Alpha) (4 GHI A2)	G	(Alpha) (1 Caps Send) (4 GHI A2)
h	(Alpha) (4 GHI A2) (4 GHI A2)	H	(Alpha) (1 Caps Send) (4 GHI A2) (4 GHI A2)
i	(Alpha) (4 GHI A2) (4 GHI A2) (4 GHI A2)	I	(Alpha) (1 Caps Send) (4 GHI A2) (4 GHI A2) (4 GHI A2)
j	(Alpha) (5 JKL A3)	J	(Alpha) (1 Caps Send) (5 JKL A3)
k	(Alpha) (5 JKL A3) (5 JKL A3)	K	(Alpha) (1 Caps Send) (5 JKL A3) (5 JKL A3)
l	(Alpha) (5 JKL A3) (5 JKL A3) (5 JKL A3)	L	(Alpha) (1 Caps Send) (5 JKL A3) (5 JKL A3) (5 JKL A3)
m	(Alpha) (6 MNO A4)	M	(Alpha) (1 Caps Send) (6 MNO A4)
n	(Alpha) (6 MNO A4) (6 MNO A4)	N	(Alpha) (1 Caps Send) (6 MNO A4) (6 MNO A4)
o	(Alpha) (6 MNO A4) (6 MNO A4) (6 MNO A4)	O	(Alpha) (1 Caps Send) (6 MNO A4) (6 MNO A4) (6 MNO A4)
p	(Alpha) (7 PQRS PgUp)	P	(Alpha) (1 Caps Send) (7 PQRS PgUp)
q	(Alpha) (7 PQRS PgUp) (7 PQRS PgUp)	Q	(Alpha) (1 Caps Send) (7 PQRS PgUp) (7 PQRS PgUp)
r	(Alpha) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp)	R	(Alpha) (1 Caps Send) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp)
s	(Alpha) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp)	S	(Alpha) (1 Caps Send) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp) (7 PQRS PgUp)
t	(Alpha) (8 TUV)	T	(Alpha) (1 Caps Send) (8 TUV)
u	(Alpha) (8 TUV) (8 TUV)	U	(Alpha) (1 Caps Send) (8 TUV) (8 TUV)
v	(Alpha) (8 TUV) (8 TUV) (8 TUV)	V	(Alpha) (1 Caps Send) (8 TUV) (8 TUV) (8 TUV)
w	(Alpha) (9 WXYZ)	W	(Alpha) (1 Caps Send) (9 WXYZ)
x	(Alpha) (9 WXYZ) (9 WXYZ)	X	(Alpha) (1 Caps Send) (9 WXYZ) (9 WXYZ)
y	(Alpha) (9 WXYZ) (9 WXYZ) (9 WXYZ)	Y	(Alpha) (1 Caps Send) (9 WXYZ) (9 WXYZ) (9 WXYZ)
z	(Alpha) (9 WXYZ) (9 WXYZ) (9 WXYZ) (9 WXYZ)	Z	(Alpha) (1 Caps Send) (9 WXYZ) (9 WXYZ) (9 WXYZ) (9 WXYZ)

Alphanumeric Keypad

When you press Alpha, the Scanning/Alpha LED (✓◎) lights 'red' to indicate Alpha mode. The keypad stays in the Alpha mode until you press Alpha again.

If you want to type a lowercase 'c,' press Alpha C A3. If you want an uppercase "C," press and hold the Cap Lock key, then press C A3.

Press Space to enter a space.

To Enter	Press the Keys	To Enter	Press the Keys
a	Alpha A A1	A	Alpha Cap Lock A A1
b	Alpha B A2	B	Alpha Cap Lock B A2
c	Alpha C A3	C	Alpha Cap Lock C A3
d	Alpha D A4	D	Alpha Cap Lock D A4
e	Alpha E Win	E	Alpha Cap Lock E Win
f	Alpha F =	F	Alpha Cap Lock F =
g	Alpha G *	G	Alpha Cap Lock G *
h	Alpha H /	H	Alpha Cap Lock H /
i	Alpha I ☼	I	Alpha Cap Lock I ☼
j	Alpha J PgUp	J	Alpha Cap Lock J PgUp
k	Alpha K @	K	Alpha Cap Lock K @
l	Alpha L -	L	Alpha Cap Lock L -
m	Alpha M 1	M	Alpha Cap Lock M 1
n	Alpha N 2	N	Alpha Cap Lock N 2
o	Alpha O 3	O	Alpha Cap Lock O 3
p	Alpha P PgDn	P	Alpha Cap Lock P PgDn
q	Alpha Q ,	Q	Alpha Cap Lock Q ,
r	Alpha R +	R	Alpha Cap Lock R +
s	Alpha S 4	S	Alpha Cap Lock S 4
t	Alpha T 5	T	Alpha Cap Lock T 5
u	Alpha U 6	U	Alpha Cap Lock U 6
v	Alpha V .	V	Alpha Cap Lock V .
w	Alpha W 7	W	Alpha Cap Lock W 7
x	Alpha X 8	X	Alpha Cap Lock X 8
y	Alpha Y 9	Y	Alpha Cap Lock Y 9
z	Alpha Z 0	Z	Alpha Cap Lock Z 0

Modem Support

The 700 Series Computer has the following modem options:

- Modem dock that provides charging and includes a built-in modem and a serial port between which an application can switch.
- Snap-on modem, a stand-alone product, that attaches to the bottom of your 700 Color Computer. Note that you cannot place this modem in a dock, printer, or other devices. Contact your Intermec representative for more information.

PSM Build Version

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 during a cold-boot. It may, however, be erased during the re-flashing process. In addition to storing applications and data files, you do have the option to store a persistent registry to the PSM region.

File Explorer

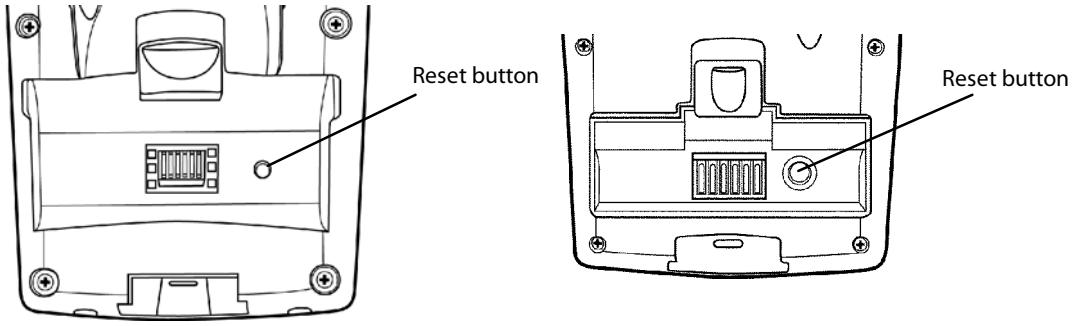
To determine what PSM Build is on your 700 Series Computer, tap **Start** > **Programs** > **File Explorer**. Access the **Flash File Store** folder from the **My Device** root directory, then tap the **PSMinfo** text file. Take note of your information, then tap **ok** to exit.

Resetting Your 700 Series Computer

In some cases where the 700 Series Computer completely stops responding, it may be necessary to perform a cold reset. Because cold resetting may result in data loss, it is not recommended unless all other recovery methods have failed.

Note: Cold resetting deletes all programs and data stored in RAM including the Object Store. Make sure data is backed up to your host computer or a storage card before performing a cold reset.

1. Release the lower clip of the hand strap.
2. Remove the battery pack.
3. Press the Reset button.
4. Reinstall the battery pack.



700 Series Computer

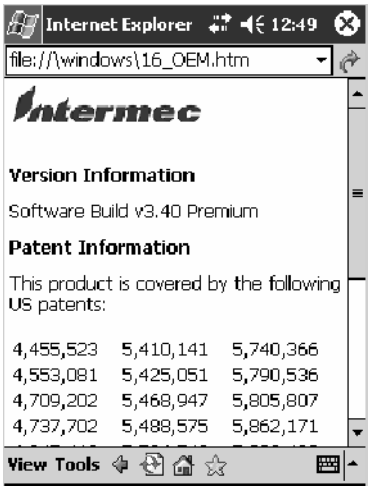
730 Computer

This illustration shows the back of the 700 Series Computer on the left and of the 730 Computer on the right.

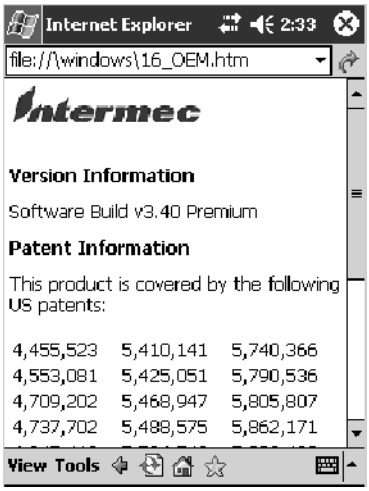
Software Build Version

To check to see if your 700 Series Computer has the latest software build, select **Start** > **Internet Explorer** > the **Intermec** logo.

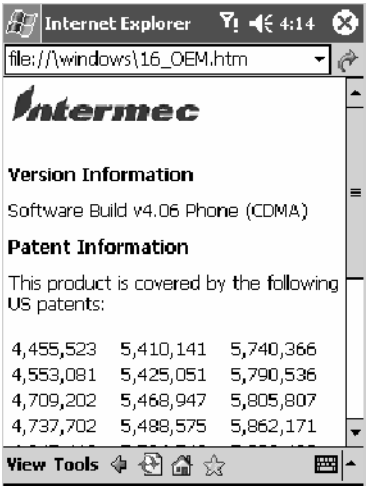
The latest software build version is displayed beneath the **Version Information** title. This information would be useful should you need assistance.



700 Color Screen



730 Screen

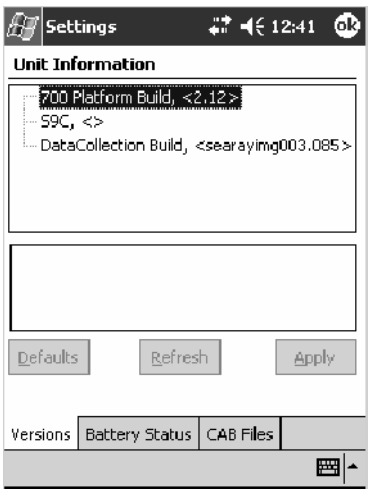


700CXL Screen

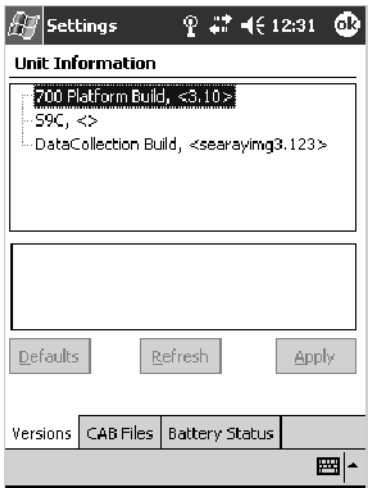
Unit Information

For Units With PSM Builds Older than 3.00

You can also view the latest software build by accessing the Unit Information control panel applet. Select **Start** > **Settings** > the **System** tab > the **Unit Information** icon > the **Versions** tab to view the current build.



700 Color Screen



730 Screen

Storage Media

Note: MultiMediaCards (MMCs) are not supported in 700 Series Computers.

The 700 Color Computer supports both CompactFlash and Secure Digital storage cards. To access either card slot, locate the access door at the top of the 700 Series Computer, remove its two screws, then remove the door. See the *700 Color with Windows Mobile 2003 Quick Start Guide* (P/N: 962-054-069) for more information.

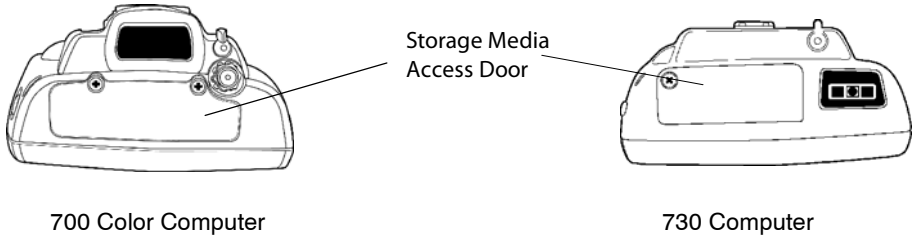
The 730 Mobile Computer only supports the Secure Digital storage card. The CompactFlash card slot is embedded in the 730 Computer and cannot be removed. To access the Secure Digital card slot, locate the access door at the top of the 730 Computer, remove its screws, then remove the door. See the *Model 730 Mobile Computer Quick Start Guide* (P/N: 962-054-068) for more information.

CompactFlash Cards

On 700 Color Computers, the CompactFlash card slot accepts either a storage card or the 802.11b radio, which is factory-installed and cannot be removed. The 730 Computer does not support CompactFlash storage cards.

Secure Digital Cards

The Secure Digital card slot accepts storage cards only.



This illustration shows the top of the 700 Color Computer on the left and of the 730 Computer on the right. Note that the keypad is to the bottom.

Vibrator

Note: This information does *not* apply to the 730 Computer.

If your 700 Color Computer is built with an imager or scanner and the vibrator is disabled, do the following instructions to enable the vibrator. If you are not able to enable the vibrator, then contact Customer Support.

For information about setting volume levels for screen taps, ActiveSync alert noises, etc., tap **Start** > **Help** > **Pocket PC Basics**, then select **Notifications**.

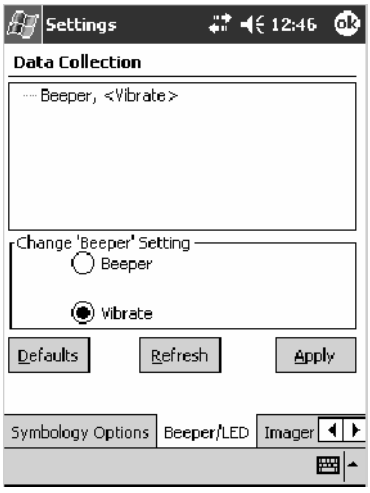
See Chapter 7, "*Programming*," to see how to programmatically control the vibrator. See Appendix A, "*Configurable Settings*," for more information about the **Beeper Volume** option.

Note: Each time the 700 Computer is cold-booted, all default settings are restored.

For Units With PSM Builds Older than 3.00

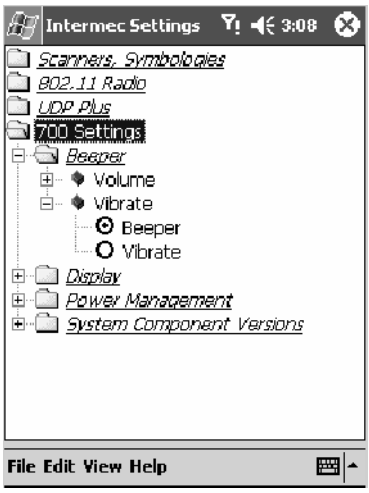
Data Collection

1. Tap **Start** > **Settings** > the **System** tab > **Data Collection** to access its control panel applet.
2. Use the right and left arrows to scroll to the **Beeper/LED** tab, then tap this tab.
3. Tap **Beeper**, select the "Vibrate" option, then tap **Apply**.
4. Tap **ok** to confirm this change, then tap **ok** to exit the Data Collection control panel applet.



For Units With PSM Build 3.00 or Newer

Do the following to enable the vibrator for the 700 Color Computer. Tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. Tap the **700 Settings** folder twice, tap (+) to expand the **Beeper** folder, then tap (+) to expand the **Vibrate** option. Select an item, then tap (+) to close this option.



Note: Information about the settings you can configure with the Intermec Settings control panel applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com

Wireless Network Support

Radios are installed at the factory and cannot be installed by a user. The 700 Color Computer must be serviced to install or replace radios. Contact your Intermec representative for more information. See Chapter 4, "*Network Support*" for information about supported radios.

Note: Changes or modifications not expressly approved by Intermec Technologies Corporation could void the user's authority to operate the equipment.

Accessories

The following accessories are available for the 700 Series Computer. *Note that this is not a complete list.* Contact your Intermec representative for information about these and other accessories that are not in this list.

Accessory Descriptions	Intermec Part Number	700 Color	730 Computer
Single Dock Charger with Ethernet and Auxiliary Battery Charger	225-681-001		X **
Single Dock Charger with USB and Ethernet	225-683-001	X	X **
Quad Battery Charger	852-060-001 852-054-001	X	 X
Single Battery Charger	852-060-002	X	
Multidock — Charge Only *(holds four 700 Computers)*	225-682-004	X	X
Multidock Charging with Ethernet support *(holds four units)*	225-682-003	X	
Modem Dock	225-683-002	X	X
Vehicle Dock	225-685-001	X	X
Vehicle Cradle	225-680-101	X	X
Snap-On Modem	225-687-001	X	
Long Range Tethered Scanning Adapter (3.3v to 5v)	225-686-002	X	
DEX Adapter	225-683-001	X	
Standard Scan Handle Option	714-525-001 714-502-001	X	 X
Dockable Scan Handle	714-525-002	X	
Belt Clip	805-612-001	X	X
** No Ethernet Support			

What's New

The newest functionality is available in PSM builds 3.40 or greater. These changes have occurred since the last release of this manual:

- Added information about resetting the 700 Series Computer to this chapter.
- Updated information about the Profile Wizard in Appendix A, "*Configurable Settings*."
- Revised information about using Sprint Watcher in Chapter 4, "*Network Support*."
- Added information about the 700CXL Computer, including the Phone application.

2 Windows Mobile 2003

This chapter introduces Microsoft Windows Mobile 2003 for Pocket PC. While using your 700 Color Computer, keep these key points in mind:

- Tap **Start** on the navigation bar, located at the top of the screen, to quickly move to programs, files, and settings. Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menus, buttons, and the onscreen keyboard.
- Tap and hold an item to see a pop-up menu containing a list of actions you can perform. Pop-up menus give you quick and easy access to the most common actions.

Below is a list of Windows Mobile 2003 components described in this chapter. Additional information on these and other Windows Mobile components can be found on your 700 Color Computer by tapping **Start** > **Help**.

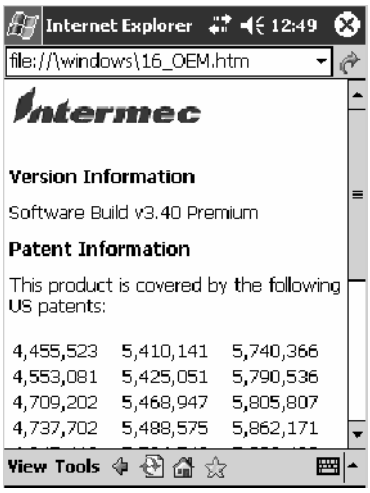
Windows Mobile 2003 Components
Microsoft ActiveSync Client *(page 44)*
Microsoft Pocket Outlook *(page 46)*
Pocket Word *(page 78)*
Pocket Excel *(page 82)*
MSN Messenger *(page 84)*
Windows Media Player for Pocket PC *(page 89)*
Microsoft Reader *(page 90)*
Pocket Internet Explorer *(page 94)*

Software Builds

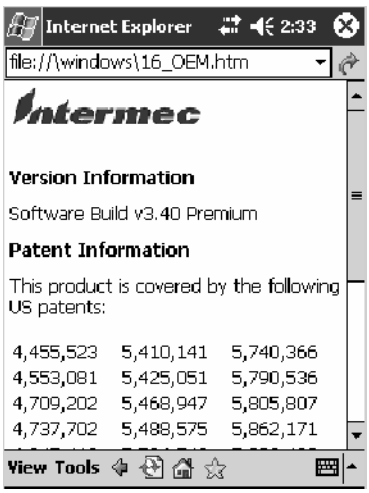
Do the following to determine which Intermec build of Windows Mobile 2003 is on your unit.

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

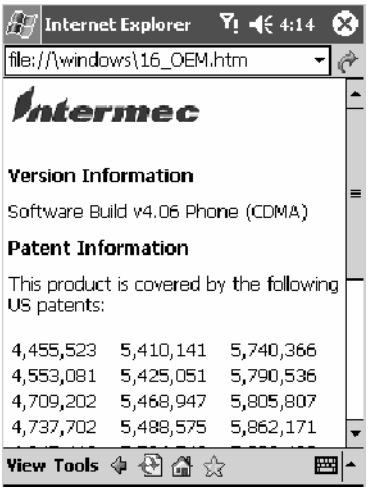
2 Note the "Software Build" information displayed beneath the **Version Information** title.



700 Color Screen



730 Screen



700CXL Screen

3 Tap the **Close** icon in the top right corner to exit the Internet Explorer.

Where to Find Information

This chapter describes your 700 Color Computer hardware, provides an overview of the programs on your 700 Color Computer, and explains how to connect your 700 Color Computer to a desktop, a network, or the Internet. For instructions on setting up your 700 Color Computer and installing ActiveSync, see the Quick Start Guide. The following is a guide to more information to assist you use your 700 Color Computer.

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

Windows Mobile and many of the technologies supported by the 700 Color Computer are not from Intermec Technologies. Many of the utilities and features on a Windows Mobile device come directly from Microsoft without any modification from Intermec Technologies. There may be certain Microsoft-specific issues that Intermec Technologies would not be able to support, so contact our front-line support personnel to determine the best source of assistance.

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

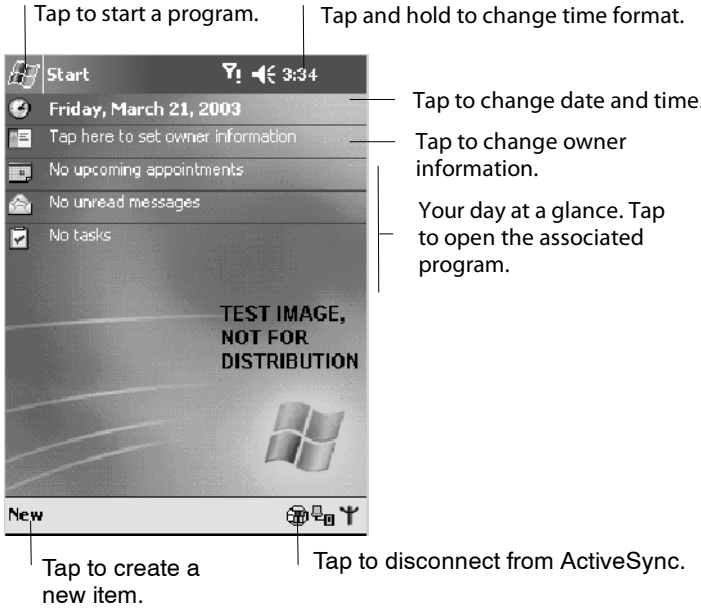
- http://msdn.microsoft.com/support/
- http://support.microsoft.com/
- news://news.microsoft.com *(a free support option)*

Basic Skills

Learning to use your 700 Color Computer is easy. This section describes the basic concepts of using and customizing your 700 Color Computer.

Today Screen

When you turn on your 700 Color Computer for the first time each day *(or after four hours of inactivity)*, you see the **Today** screen. You can also display it by tapping the **Start** flag *(shown left)* and then **Today**. On the Today screen, you can see important information for the day.



Today

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

Status icons display information such as low batteries or when the 700 Color Computer is connected to a desktop or to the Internet. You can tap an icon to open the associated setting or program.

Programs

You can switch from one program to another by selecting it from the **Start** menu. (You can customize which programs you see on this menu. For information, see "*Adjusting Settings*" on page 41.) To access some programs, tap **Start** > **Programs**, and then the program name.

You can also switch to some programs by pressing a program button. Your 700 Color Computer has one or more program buttons located on the front or side of the computer. The icons on the buttons identify the programs to which they switch.

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

The following is a partial list of programs that are on your 700 Color Computer. Look on the *Windows Mobile Companion CD* for additional programs that you can install onto your 700 Color Computer.

Synchronize information between your 700 Color Computer and desktop.

Keep track of your appointments and create meeting requests.

Keep track of your friends and colleagues.

Send and receive e-mail messages.

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

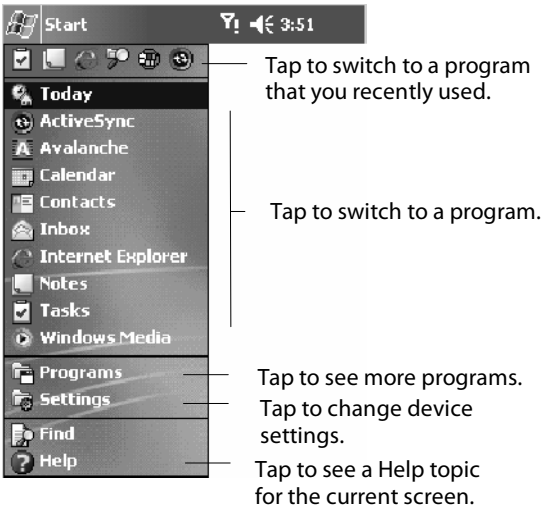
Create handwritten or typed notes, drawings, and recordings.

Keep track of your tasks.

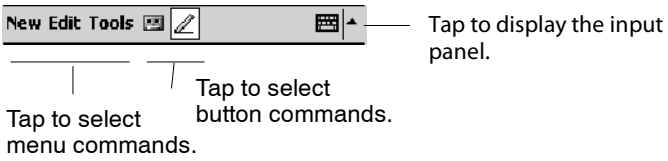
Play digital audio and video files that are stored on your 700 Series Computer or on a network.

Navigation Bar and Command Bar

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

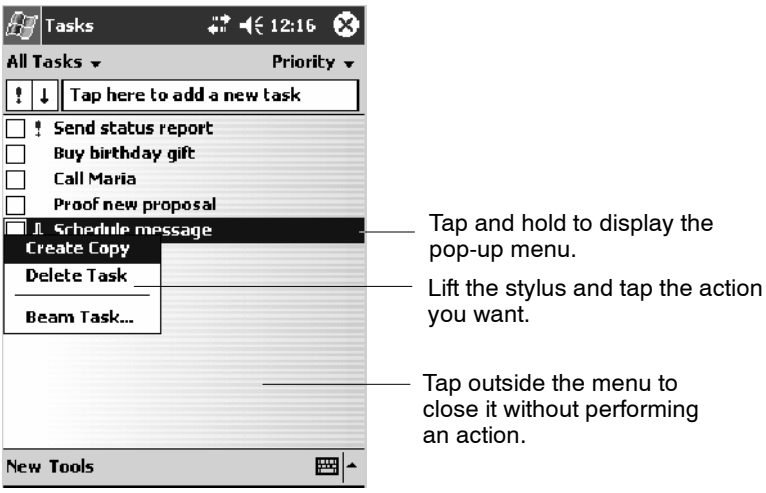


Use the command bar at the bottom of the screen to perform tasks in programs. The command bar includes menu names, buttons, and the **Input Panel** button. To create a new item in the current program, tap **New**. To see the name of a button, tap and hold the stylus on the button. Drag the stylus off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



Pop-up Menus

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



Notifications

When you have something to do, your device notifies you in a variety of ways. For example, if you have set up an appointment in Calendar, an e-mail message arrives, or a friend sends you an instant message, you are notified in any of the following ways:

- A message box appears on the screen.
- A sound, which you can specify, is played.
- A light flashes on your 700 Color Computer.
- The 700 Color Computer vibrates.

You can choose notification types.

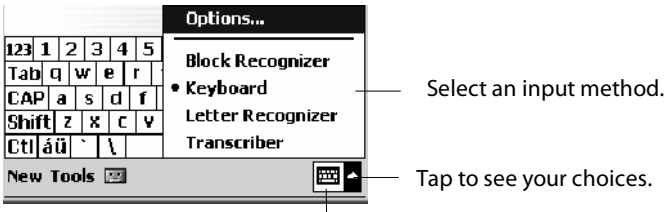
Entering Information

You can enter information on your 700 Color Computer in several ways, depending on the type of device you have and the program you are using:

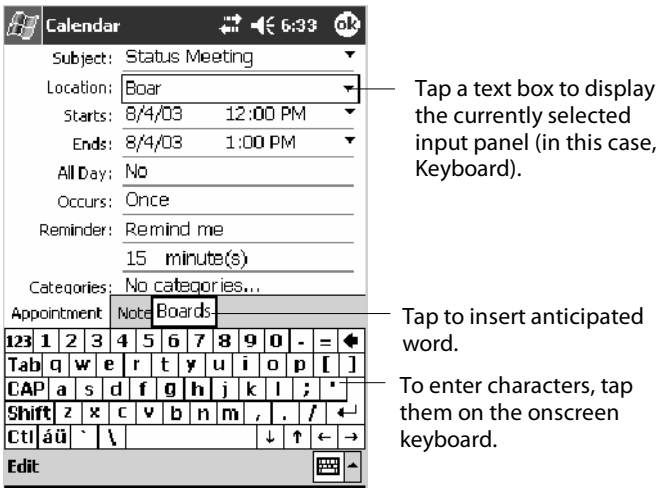
- **Synchronizing**
  Using Microsoft ActiveSync, synchronize or copy information between your desktop and 700 Color Computer. For more information on ActiveSync, see *ActiveSync Help* on your desktop.
- **Typing**
  Using the input panel, enter typed text into the 700 Color Computer. You can do this by tapping keys on the onscreen keyboard or by using handwriting recognition software.
- **Writing**
  Using the stylus, write directly on the screen.
- **Drawing**
  Using the stylus, draw directly on the screen.
- **Recording**
  Create a stand-alone recording or embed a recording into a document or note.

Use the input panel to enter information in any program on your 700 Color Computer. You can either type using the onscreen keyboard or write using **Block Recognizer**, **Letter Recognizer**, or **Transcriber**. In either case, the characters appear as typed text on the screen.

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



When you use the input panel, your 700 Color Computer anticipates the word you are typing or writing and displays it above the input panel. When you tap the displayed word, it is inserted into your text at the insertion point. The more you use your 700 Color Computer, the more words it learns to anticipate.



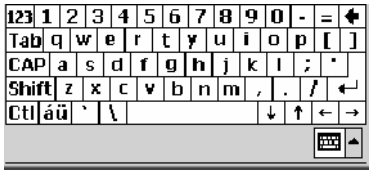
Input

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

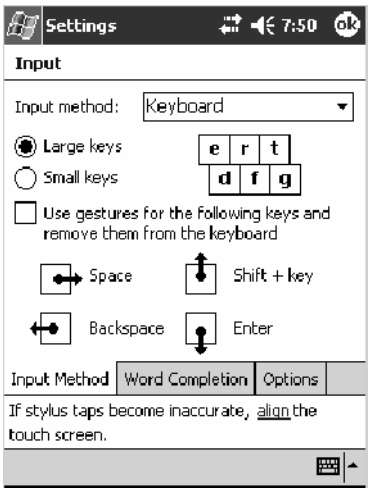
Typing With the Onscreen Keyboard

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

- To type lowercase letters, tap the keys with the stylus.
- To type a single uppercase letter or symbol, tap the **Shift** key. To tap multiple uppercase letters or symbols, tap the **CAP** key.
- To convert a letter to uppercase, tap and hold the stylus on the letter and drag up.
- To add a space, drag the stylus to the right across at least two keys.
- To backspace one character, drag the stylus to the left across at least two keys.
- To insert a carriage return, tap and hold the stylus anywhere on the keyboard and drag down.



Note: If you want to use larger keys, tap the arrow, tap **Options**, select "Keyboard" from the **Input method** drop-down list, then select **Large keys**.

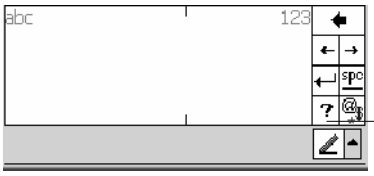


Using Block Recognizer

Character recognition software gives you a fast and easy method for entering information in any program on your 700 Color Computer. Letters, numbers, and punctuation you write are translated into typed text.

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

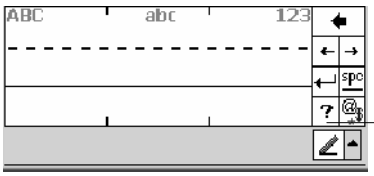
For specific instructions on using Block Recognizer, with Block Recognizer open, tap the question mark next to the writing area.



Using Letter Recognizer

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

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

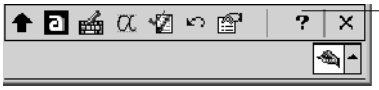


Using Transcriber

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

Tap the arrow, then tap Transcriber. Write anywhere on the screen.

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



Selecting Typed Text

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

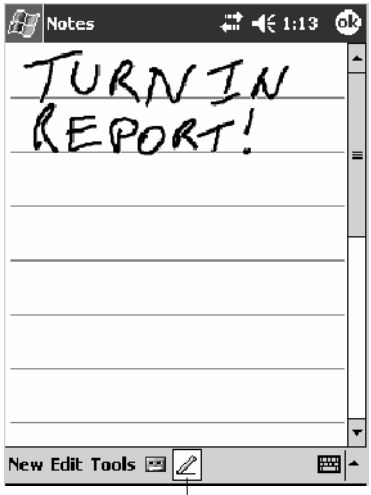
- Drag the stylus across the text you want to select.

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

Writing on the Screen

In any program that accepts writing, such as the Notes program, and in the **Notes** tab in Calendar, Contacts, and Tasks, you can use your stylus to write directly on the screen. Write the way you do on paper. You can edit and format what you have written and convert the information to text at a later time.

- Tap the **Pen** button to switch to writing mode. This action displays lines on the screen to help you write.



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

Selecting the Writing

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

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

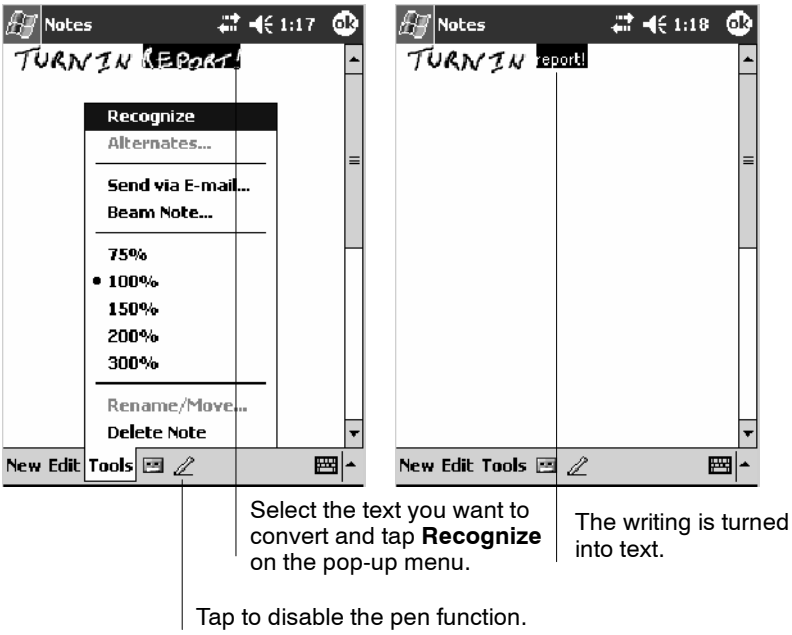
If you accidentally write on the screen, tap **Tools** > **Undo** and try again. You can also select text by tapping the **Pen** button to deselect it and then dragging the stylus across the screen.

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

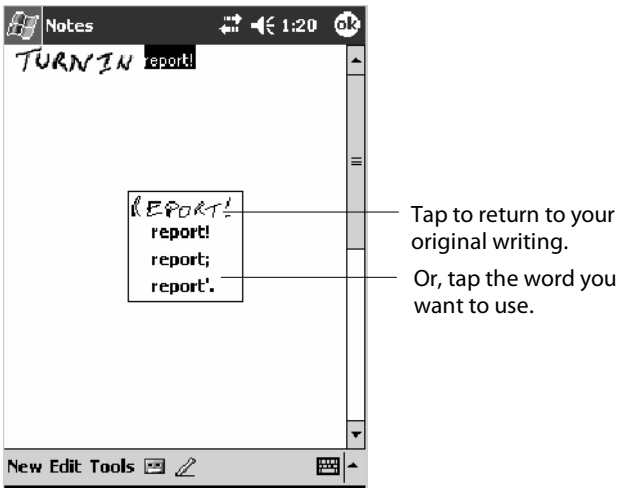
Converting Writing to Text

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

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



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



Tips for getting good recognition:

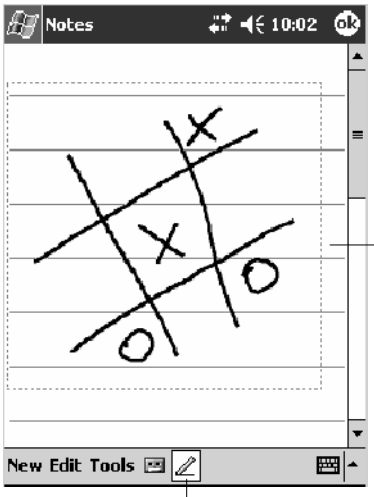
- Write neatly.
- Write on the lines and draw descenders below the line. Write the cross of the "t" and apostrophes below the top line so they are not confused with the word above. Write periods and commas above the baseline.
- For better recognition, try increasing the zoom level to 300% by using the **Tools** menu. Recognition does not work well below a 150% zoom level.
- Write the letters of a word closely and leave big gaps between words so that the 700 Color Computer can easily tell where words begin and end.
- Hyphenated words, foreign words that use special characters such as accents, and some punctuation cannot be converted.
- If you add writing to a word to change it (such as changing a "3" to an "8") after you attempt to recognize the word, the writing you add is not included if you attempt to recognize the writing again.

Drawing on the Screen

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

Creating a Drawing

- Cross three ruled lines on your first stroke. A drawing box appears. Subsequent strokes in or touching the drawing box become part of the drawing. Drawings that do not cross three ruled lines are treated as writing.



The drawing box indicates the boundaries of the drawing.

Pen button.

Note: You may want to change the zoom level so that you can more easily work on or view your drawing. Tap **Tools** and then a zoom level.

Selecting a Drawing

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

- Tap and hold the stylus on the drawing until the selection handle appears. To select multiple drawings, deselect the **Pen** button and then drag to select the drawings you want.

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

Recording a Message

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

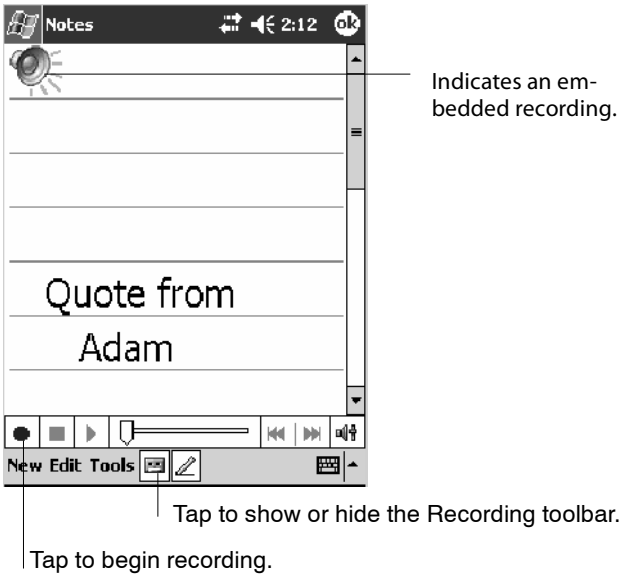
In the Inbox program, you can add a recording to an e-mail message. In Calendar, Tasks, and Contacts, you can include a recording in the **Notes** tab. In the Notes program, you can create a stand-alone recording or add a recording to an open note.

Creating a Recording

1. Hold the 700 Color Computer's microphone near your mouth or source of sound.
2. Tap and make your recording.
3. Tap when finished. If you are recording in an open note, an icon appears in the note. If you are creating a stand-alone recording, it appears in the note list.
4. To play a recording, tap the recording icon in the open note or tap the recording in the note list.

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

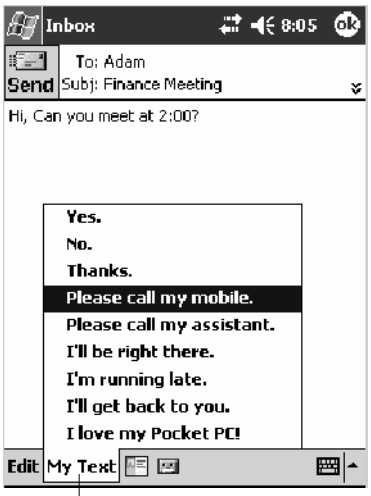
To play a recording, tap it in the list or tap its icon in the note.



Using My Text

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

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



Tap to select a prewritten message.

Finding and Organizing Information

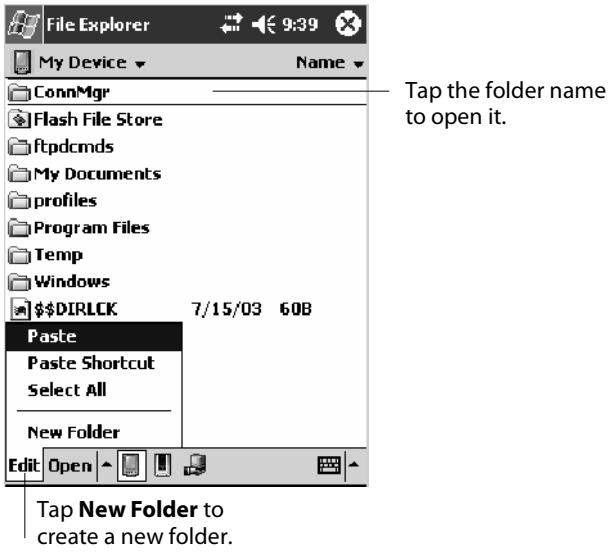
The **Find** feature on your 700 Color Computer helps you quickly locate information.

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

Note: To quickly find information that is taking up storage space on your 700 Color Computer, select **Larger than 64 KB** in **Type**.

File Explorer

You can also use the File Explorer to find files on your 700 Color Computer and to organize these files into folders. Tap **Start** > **Programs** > **File Explorer**.



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

Customizing Your 700 Color Computer

You can customize your 700 Color Computer by adjusting settings and installing additional software.

Adjusting Settings

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

Personal Tab

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

Owner Information:
To enter your contact information.

Password:
To limit access to your 700 Color Computer.

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

System Tab

Clock:
To change the time or to set alarms.

Power:
To maximize battery life.

Adding or Removing Programs

Programs added to your 700 Color Computer at the factory are stored in ROM (Read Only Memory). You cannot remove this software, and you cannot accidentally lose ROM contents. ROM programs can be updated using special installation programs with a *.XIP extension. All other programs and data files added to your 700 Color Computer after factory installation are stored in RAM (Random Access Memory).

You can install any program created for your 700 Color Computer, as long as your 700 Color Computer has enough memory. The most popular place to find software for your 700 Color Computer is on the Windows Mobile Web site (http://www.microsoft.com/windowsmobile/resources/communities/default.mspx).

Adding Programs Using ActiveSync

Install the appropriate software for your 700 Color Computer on your desktop before installing it on your 700 Color Computer.

1. Determine your 700 Color Computer and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > the **System** tab > **About** > the **Version** tab, then make a note of the information in **Processor**.
2. Download the program to your desktop (or insert the CD or disk that contains the program into your desktop). You may see a single *.XIP, *.EXE, or *.ZIP file, a SETUP.EXE file, or several versions of files for different 700 Color Computer types and processors. Be sure to select the program designed for the Windows Mobile and your 700 Color Computer processor type.
3. Read any installation instructions, Read Me files, or documentation that comes with the program. Many programs provide special installation instructions.
4. Connect your 700 Color Computer and desktop.
5. Double-click the *.EXE file.
   - If the file is an installer, the installation wizard begins. Follow the directions on the screen. Once the software is installed, the installer automatically transfers the software to your 700 Color Computer.
   - If the file is not an installer, an error message stating that the program is valid but it is designed for a different type of computer is displayed. Move this file to your 700 Color Computer. If you cannot find any installation instructions for the program in the Read Me file or documentation, use ActiveSync Explore to copy the program file to the Program Files folder on your 700 Color Computer. For more information on copying files using ActiveSync, see *ActiveSync Help*.

Once installation is complete, tap **Start** > **Programs**, and then the program icon to switch to it.

Adding a Program Directly from the Internet

1. Determine your 700 Color Computer and processor type so that you know which version of the software to install. Tap **Start** > **Settings** > the **System** tab > **About** > the **Version** tab, then make a note of the information in **Processor**.
2. Download the program to your 700 Color Computer straight from the Internet using Pocket Internet Explorer. You may see a single *.XIP, *.EXE, or *.ZIP file, a SETUP.EXE file, or several versions of files for different 700 Color Computer types and processors. Be sure to select the program designed for the Windows Mobile and your 700 Color Computer processor type.
3. Read program installation instructions, Read Me files, or other documentation. Many programs provide installation instructions.
4. Tap the file, such as a *.XIP or *.EXE file to start the installation wizard. Follow the directions on the screen.

Adding a Program to the Start Menu

Tap **Start** > **Settings** > **Menus** > the **Start Menu** tab, and then the check box for the program. If you do not see the program listed, you can either use File Explorer on the 700 Color Computer to move the program to the **Start Menu** folder, or use ActiveSync on the desktop to create a shortcut to the program and place the shortcut in the **Start Menu** folder.

Using File Explorer on the 700 Color Computer

Tap **Start** > **Programs** > **File Explorer**, and locate the program (tap the folder list, labeled **My Documents** by default, and then **My Device** to see a list of all folders on the 700 Color Computer). Tap and hold the program and tap **Cut** on the pop-up menu. Open the **Start Menu** folder located in the Windows folder, tap and hold a blank area of the window, and tap **Paste** on the pop-up menu. The program now appears on the **Start** menu. For more information on using File Explorer, see "*Finding and Organizing Information*" on page 40.

Using ActiveSync on the desktop

Use the Explorer in ActiveSync to explore your 700 Color Computer files and locate the program. Right-click the program, and then click **Create Shortcut**. Move the shortcut to the **Start Menu** folder in the Windows folder. The shortcut now appears on the **Start** menu. For more information, see *ActiveSync Help*.

Removing Programs

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

If the program does not appear in the list of installed programs, use File Explorer on your 700 Color Computer to locate the program, tap and hold the program, and then tap **Delete** on the pop-up menu.

Microsoft ActiveSync

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

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

Using Microsoft ActiveSync, you can synchronize the information on your desktop with the information on your 700 Color Computer. Synchronization compares the data on your 700 Color Computer with your desktop and updates both computers with the most recent information. For example:

- Keep Pocket Outlook data up-to-date by synchronizing your 700 Color Computer with Microsoft Outlook data on your desktop.
- Synchronize Microsoft Word and Microsoft Excel files between your 700 Color Computer and desktop. Your files are automatically converted to the correct format

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

With ActiveSync, you can also:

- Back up and restore your 700 Color Computer data.
- Copy (rather than synchronize) files between your 700 Color Computer and desktop.
- Control when synchronization occurs by selecting a synchronization mode. For example, you can synchronize continually while connected to your desktop or only when you choose the synchronize command.
- Select which information types are synchronized and control how much data is synchronized. For example, you can choose how many weeks of past appointments you want synchronized.

Before you begin synchronization, install ActiveSync on your desktop from the *Windows Mobile Companion CD*. For more information on installing ActiveSync, see your Quick Start card. ActiveSync is already installed on your 700 Color Computer.

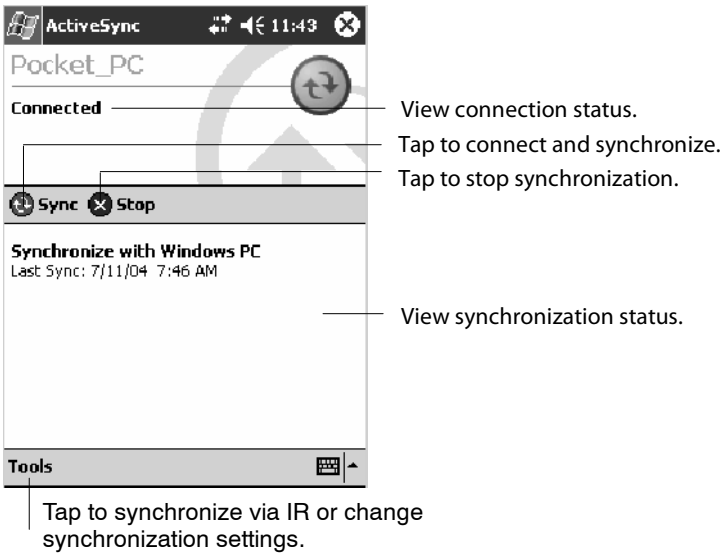
After installation is complete, the ActiveSync Setup Wizard helps you connect your 700 Color Computer to your desktop, set up a partnership so you can synchronize information between your 700 Color Computer and your desktop, and customize your synchronization settings. Your first synchronization process automatically begins when finished using the wizard.

After your first synchronization, look at Calendar, Contacts, and Tasks on your 700 Color Computer. Notice that information you have stored in Microsoft Outlook on your desktop was copied to your 700 Color Computer, and you did not have to type a word. Disconnect the 700 Color Computer from your computer and you are ready to go!

ActiveSync

Once you have set up ActiveSync and completed the first synchronization process, you can initiate synchronization from your 700 Color Computer. To switch to ActiveSync on your 700 Color Computer, tap **Start** > **ActiveSync**. Note that if you have a wireless LAN card, you can synchronize remotely from your 700 Color Computer.

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



For more information about ActiveSync on your 700 Color Computer, switch to ActiveSync, then tap **Start** > **Help**.

Microsoft Pocket Outlook

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

Using ActiveSync, you can synchronize information in Microsoft Outlook or Microsoft Exchange on your desktop with your 700 Color Computer. You can also synchronize this information directly with a Microsoft Exchange server. Each time you synchronize, ActiveSync compares the changes you made on your 700 Color Computer and desktop or server and updates both computers with the latest information. For information on using ActiveSync, see *ActiveSync Help* on the desktop.

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

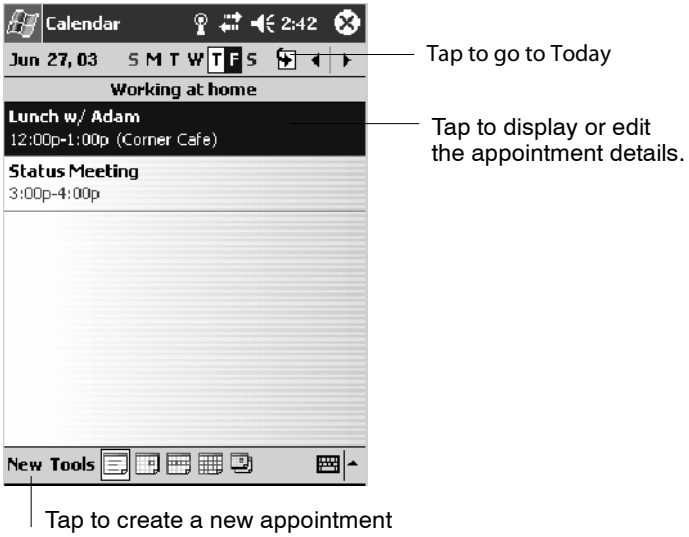
Calendar: Scheduling Appointments and Meetings

To switch to Calendar on the 700 Color Computer, tap **Start** > **Calendar**.

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

Appointments for the day can display on the Today screen.

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



Synchronizing Calendar

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

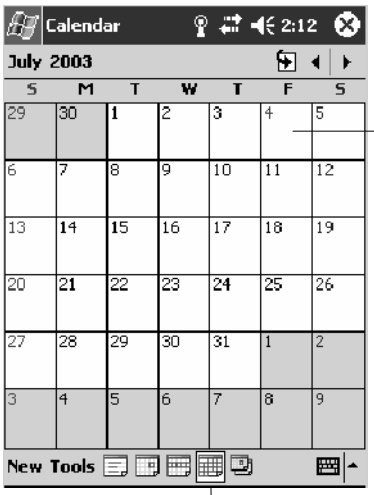
Calendar items entered on one computer are copied to the other during synchronization. Handwritten notes and drawings are saved as metafiles (pictures).

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

Why Use Categories in the Calendar?

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

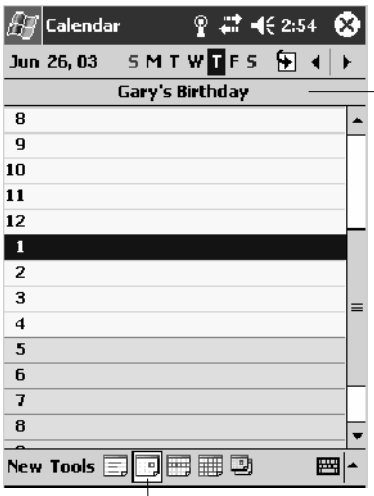
Note: In Month View, the day of an appointment assigned to the Holiday category appears in red.



What's an All Day Event?

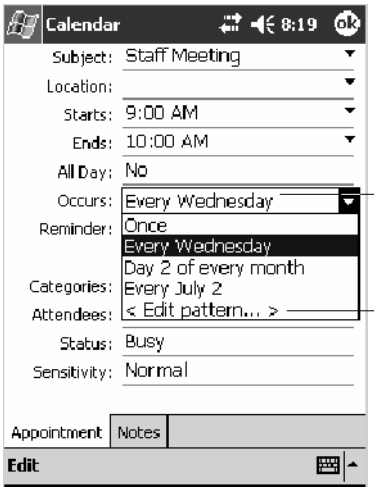
An appointment can either be a normal appointment or an all day event, which lasts the full day or spans many days. Examples include a trade show, a vacation, or a seminar. You can also use all day events to schedule an annual event, such as a birthday or anniversary. In this case, change the Status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

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



What's a Recurrence Pattern?

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



Select your recurrence pattern from this drop-down list.

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

Viewing Appointments

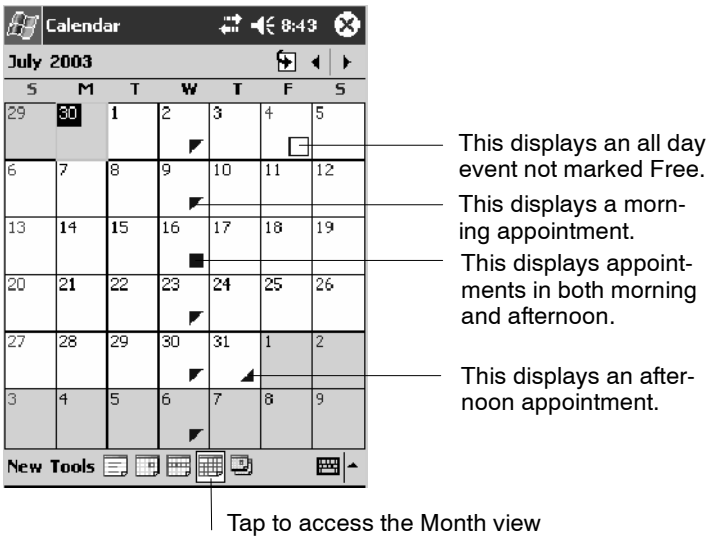
You can view appointments in one of several views (Agenda, Day, Week, and Month). In Agenda view, upcoming appointments are displayed in bold. To see detailed appointment information in any view, tap the appointment. To see a list of available actions for an appointment, tap and hold the appointment.

This displays the appointment in bold.

Tap to access the Agenda view

Note: Tap **Start** > **Today** to quickly see your appointments for the day.

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



Creating or Changing an Appointment

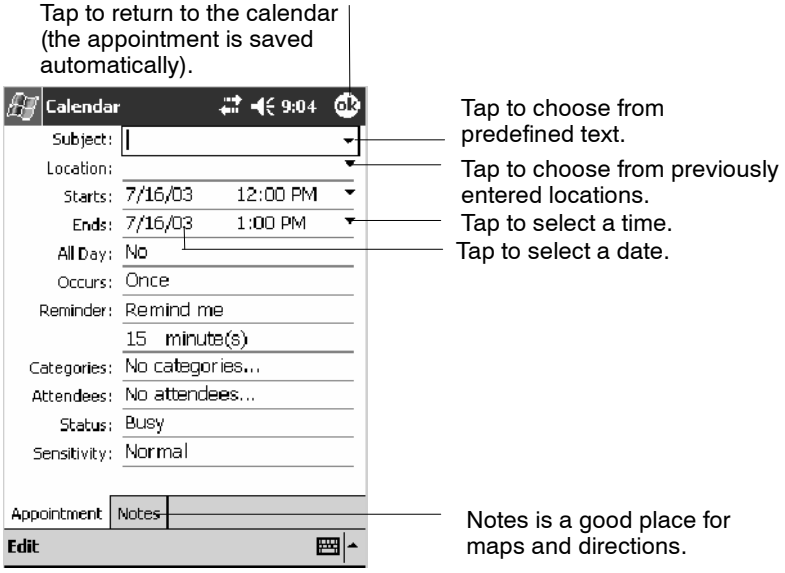
To create an appointment, tap **New**. To select a new date from a pop-up calendar, tap the display date. To enter or select a new time, tap the display time. Enter the appointment details, and when finished, tap **OK** to return to the calendar.

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

To change an appointment, tap it in the calendar, and then tap **Edit**. Change any appointment detail by tapping it and entering the new information.

Note: Tap the arrows to the right of the description and location boxes to choose from previous entries.

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

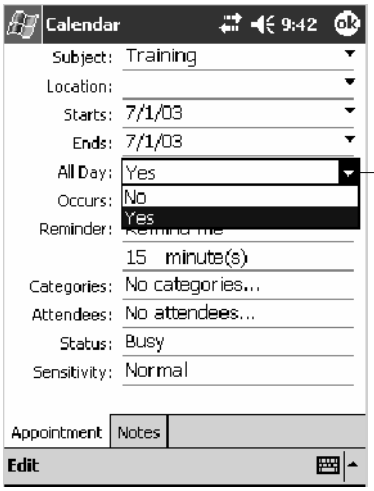


Creating an All Day Event

To create an all day event, do the following:

1 Tap **New**.

2 Tap **All Day**, then select **Yes**.



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

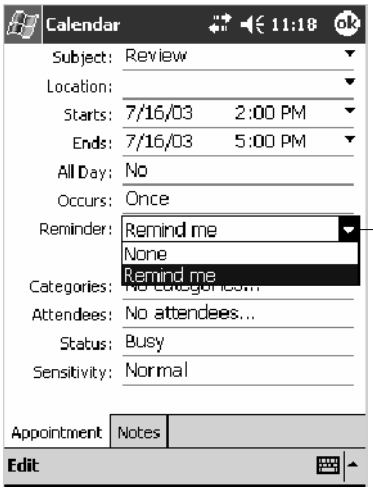
You cannot modify or create all day events with attendees on the 700 Color Computer. If you create all day events with attendees on your desktop, use ActiveSync to copy such events to the 700 Color Computer. Then, view them in Calendar. For more information on copying files, see *ActiveSync Help*. To use the device to schedule an appointment with attendees lasting all day, set type to Normal, then adjust date and time accordingly.

Setting a Reminder for an Appointment

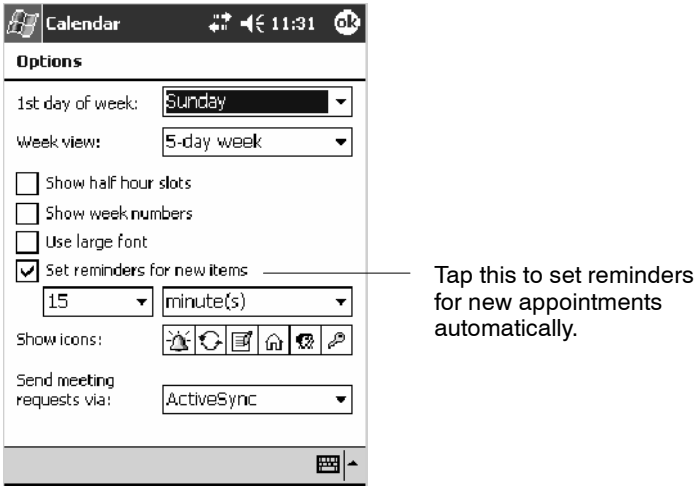
Do the following to set a reminder for an appointment in the calendar:

1. Tap the appointment, then tap **Edit** to change the appointment.
2. Tap **Reminder** and select **Remind me**.
3. To change how many minutes before the appointment you are reminded, tap the minutes displayed, then select the new minutes from a drop-down or enter the new minutes.

   Tap **minutes** to change hours, days, or weeks.



Note: To automatically set a reminder for all new appointments, in the calendar, tap **Tools** > **Options**, select **Set reminders for new items**, then tap the number and timeframe options to change the information given.



Sounds & Notifications

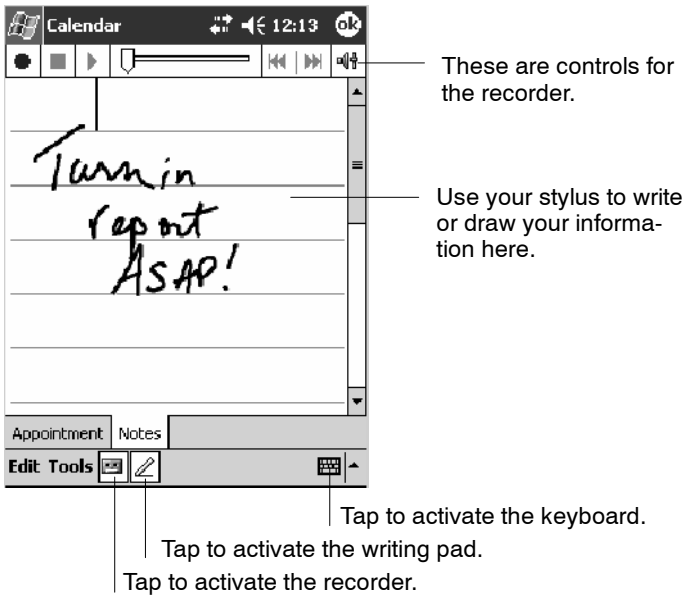
To choose how you are reminded, for example by a sound, Tap **Start** > **Settings** > the **Personal** tab > the **Sounds & Notifications** icon.

Adding a Note to an Appointment

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

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

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

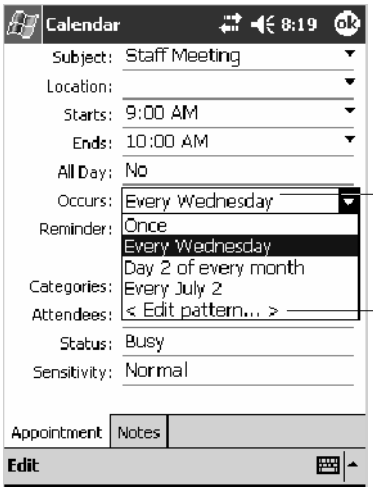


Note: To edit an existing note, tap the appointment in the calendar, tap **Edit**, then tap the **Notes** tab.

Making an Appointment Recurring

Do the following to make a recurring appointment:

1. In the calendar, tap the appointment, then tap **Edit**
2. Tap **Occurs** and select a pattern from the list. Or, to create a new pattern, tap **<Edit pattern...>**, and follow the steps in the wizard.



Select your recurrence pattern from this drop-down list.

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

Assigning an Appointment to a Category

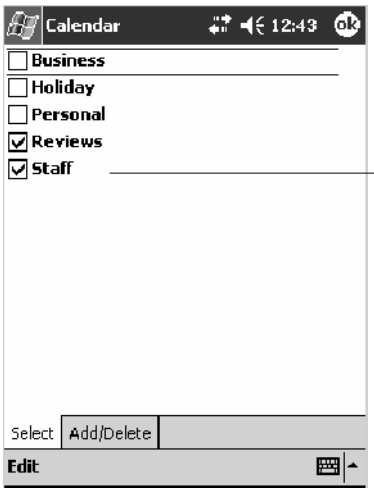
1 In the calendar, tap the appointment, then tap **Edit**.

2 Tap **Categories**.

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

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

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



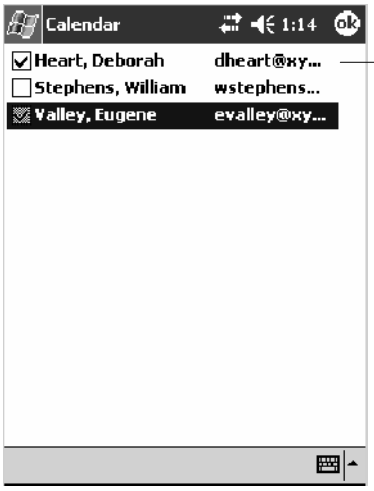
Note: To find an appointment assigned to a category, tap **Tools** > **Categories** and select the type of appointment that you want displayed. To show all appointments again, tap **Tools** > **Categories** and clear all categories.

Sending a Meeting Request

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

Before you can send a meeting request, you must enter e-mail addresses in Contacts Help and set up Inbox to send and receive messages. For more information on sending and receiving meeting requests, tap **Start** > **Help** > **Calendar** to see *Calendar Help*, and tap **Start** > **Help** > **Inbox** to see *Inbox Help*.

1. Tap **New**, then enter the meeting information.
2. Hide the onscreen keyboard, if needed, then tap **Attendees**. Only those contacts with e-mail addresses are displayed. Select the contacts you want to invite, then tap **ok** to return to the appointment.
3. Select other desired options and then tap **ok**.
4. Inbox automatically creates a meeting request and sends it to the attendees the next time you synchronize with your desktop. Textual notes entered in the **Notes** tab (excluding writing or recordings) are sent also.

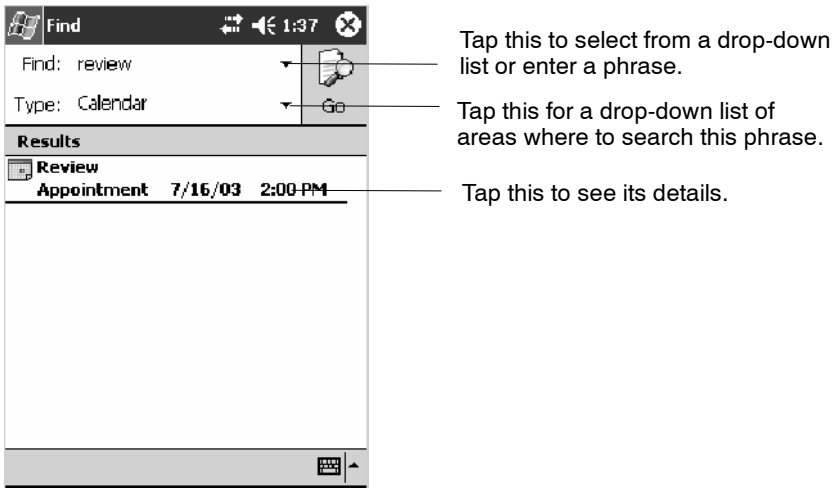


Note: If you are sending the meeting request through a connection to an ISP or the network, rather than through synchronization with your desktop, tap **Tools** > **Options**. From the **Send meeting requests via** drop-down list, tap the service to use to send the meeting request.

Finding an Appointment

There are two ways to find an appointment:

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



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

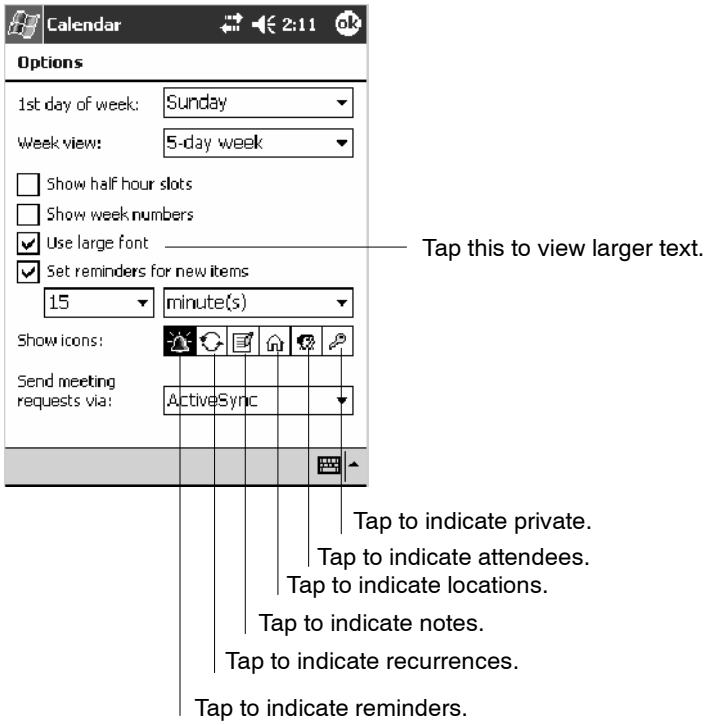
Deleting an Appointment

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

Changing Calendar Options

In the calendar, tap **Tools** > **Options**.

- To see appointment indicators, select icons to display in **Show** icons. You can choose to display indicators for such things as recurring appointments, appointments with notes, and appointments with reminders. Tap and hold an icon to see its name.
- If you are having trouble reading the calendar, select **Use large font**. You may see less appointment information.

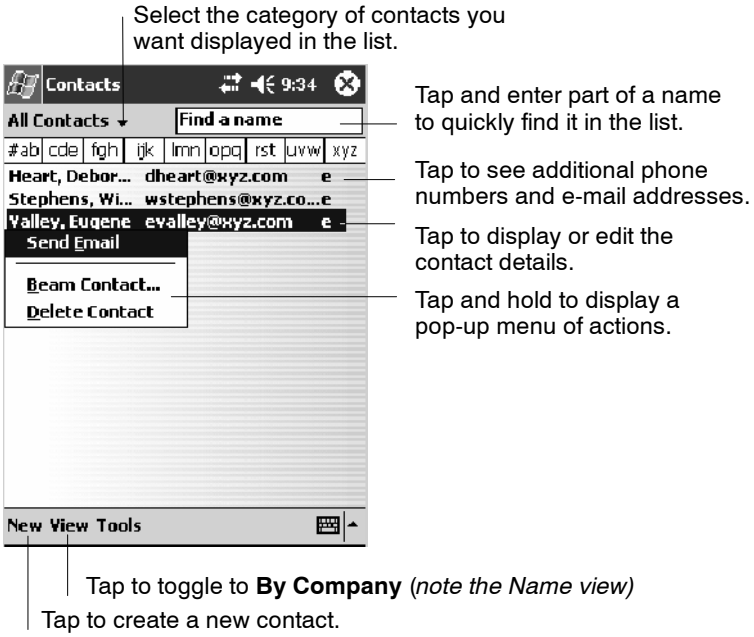


Contacts: Tracking Friends and Colleagues

To switch to Contacts on the 700 Color Computer, tap **Start** > **Contacts**.

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

If you use Microsoft Outlook on your desktop, you can synchronize contacts between your 700 Color Computer and your desktop.



Creating a Contact

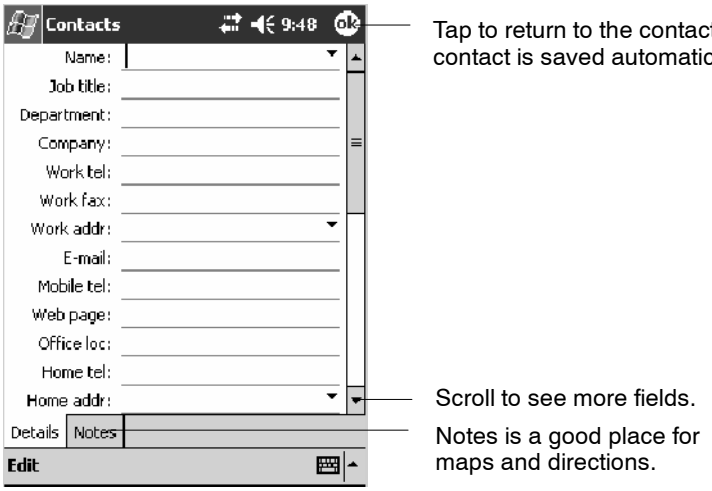
1 Tap **New**.

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

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

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

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



Synchronizing Contacts

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

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

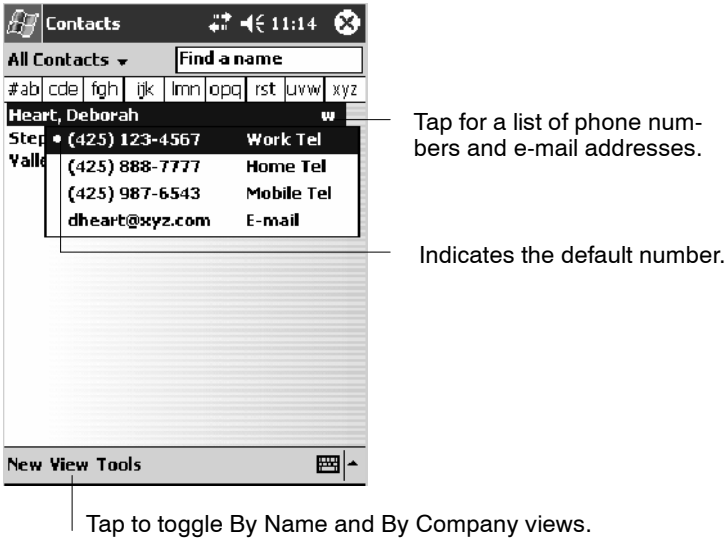
For more information on synchronization, see *ActiveSync Help* on the desktop.

Viewing Contacts

The contact list displays the contact name and the first primary phone number or e-mail address specified for that contact. Contacts are ordered by name of contact or company.

- Tap the default letter (**h**ome, **w** ork, **m**obile, or **e**-mail) to the right of the contact to see additional phone numbers and e-mail addresses.
- Select a contact and press the Left/Right controls to change the default number, displayed as a letter to the right of the contact name.
- To see more contact information, tap the contact.
- To see a list of available actions for a contact via a pop-up menu, tap and hold the contact.
- To see a list of contacts employed by a specific company, tap **View** > **By Company**. Then, tap the desired company name.

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



Creating or Changing a Contact

- To create a contact, tap **New**. To enter notes, tap the **Notes** tab. When finished, tap **ok** to return to the contact list.
- To change a contact, tap it in the contact list, and then tap **Edit**. To cancel edits, tap **Edit** > **Undo**. When finished making changes, tap **ok** to return to the contact list.

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

Tap to access the **Name** fields.

Tap anywhere outside the box to close and return to details.

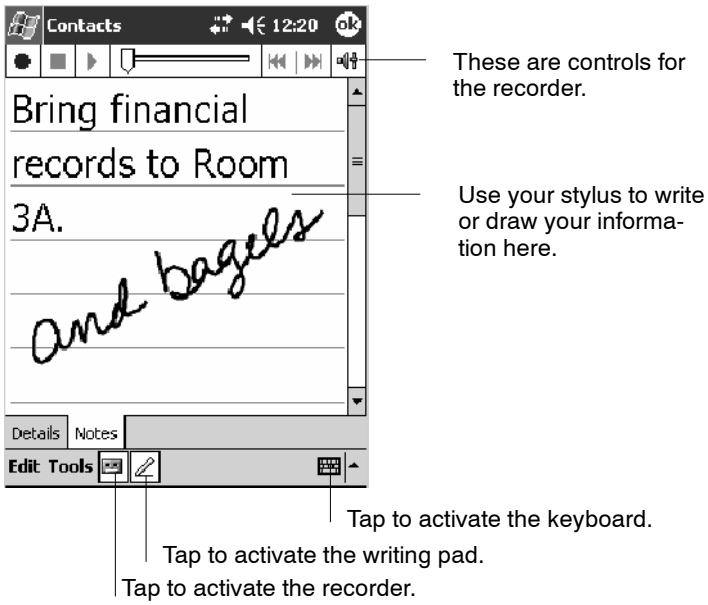
Note: New contacts are added to the displayed category.

Adding a Note to a Contact

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

1 In the contact list, tap the contact.

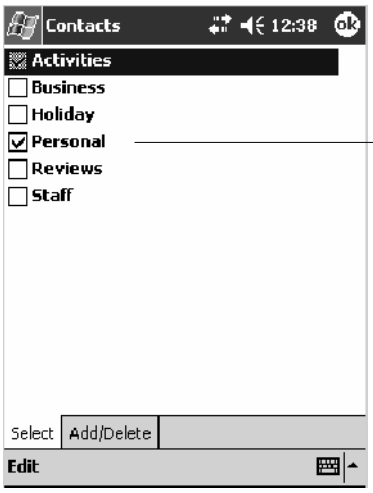
2 Tap the **Notes** tab. For specific instructions, tap **Start** > **Help** > **Notes** to see *Notes Help*.



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

Assigning a Contact to a Category

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



Copying a Contact

1. In the contact list, select the contact. To select multiple contacts, tap and drag.
2. Tap **Tools**, and then select **Copy Contacts**.

Sending a Message to a Contact

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

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

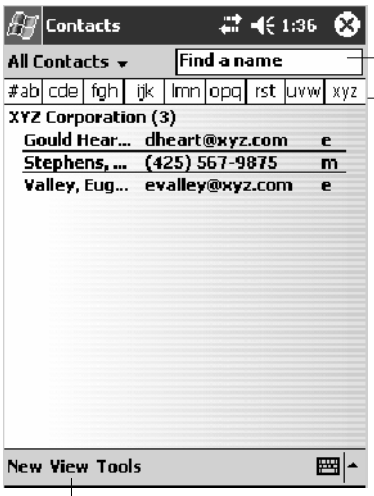
Note: To send an e-mail message, you must have an e-mail address configured for the contact. To send an SMS (Short Messaging Service) message, you must have an SMS number for the contact, which is usually the mobile phone number.

Finding a Contact

There are four ways to find a contact:

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

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



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

Tap to jump to that portion of the contacts list.

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

Deleting a Contact

1. In the contact list, tap and hold the contact. To select multiple contacts, tap and drag. Then, tap and hold the selected contacts.
2. On the pop-up menu, tap **Delete Contact**. The next time you synchronize, the contact is deleted from the desktop also.

Adding a Contact to Speed Dial

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

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

2 Tap the desired contact name and number.

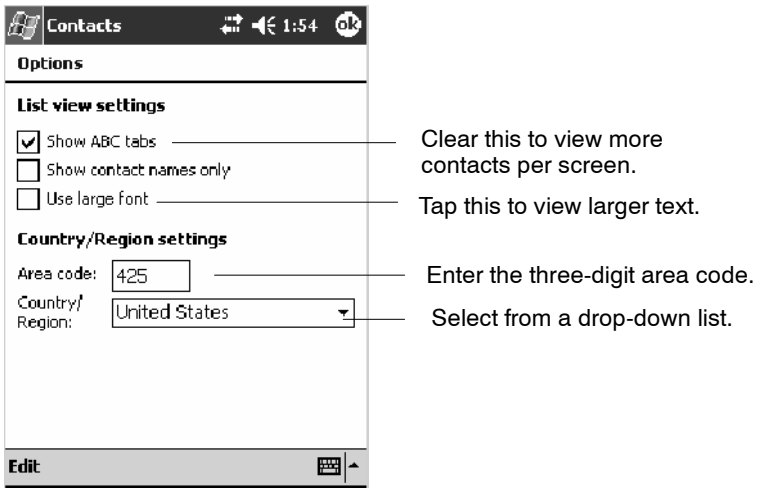
3 In the **Location** field, tap the **Up/Down** arrows to select an available location to assign as the new speed dial entry. The first speed dial location is reserved for your voice mail.

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

Changing Contacts Options

In the contact list, tap **Tools** > **Options**.

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

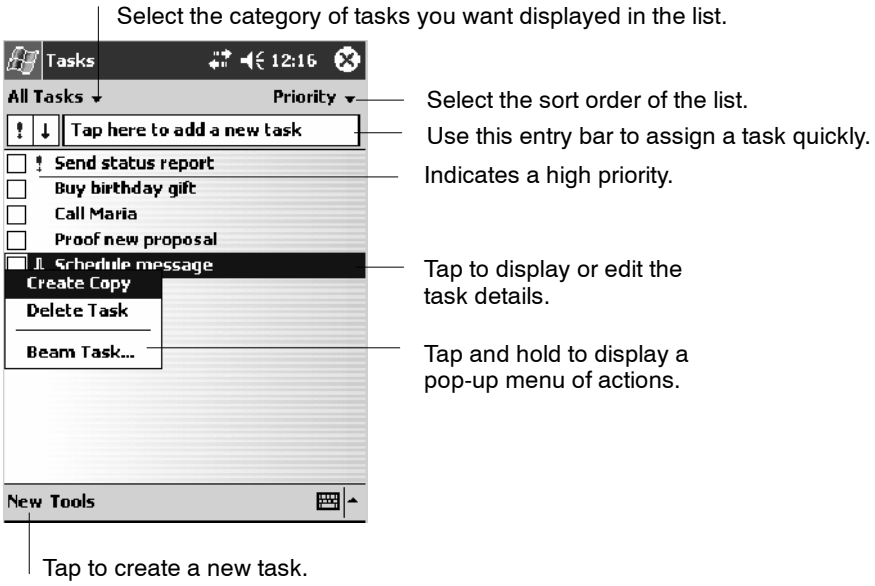


Tasks: Keeping a To Do List

Tasks

To switch to Tasks on your 700 Color Computer, tap **Start** > **Tasks**.

Use Tasks to keep track of what you have to do. A variety of task information can display on the Today screen. If you use Microsoft Outlook on your desktop, you can synchronize tasks between your device and desktop.



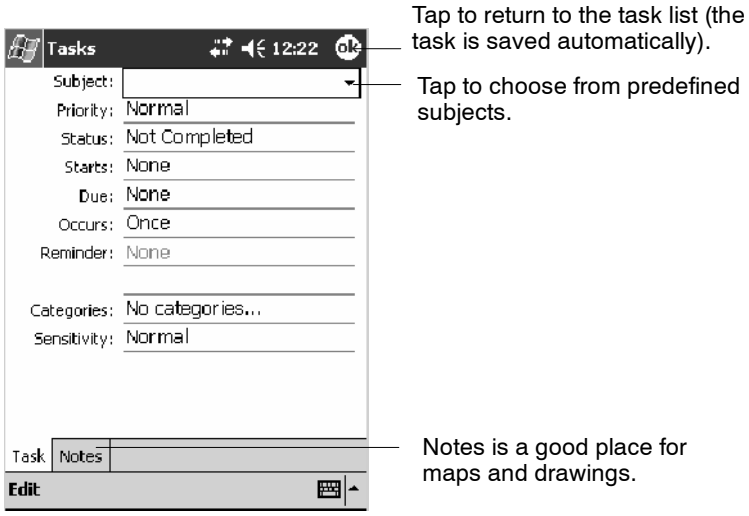
Note: To change the way information is displayed in the list, tap **Tools** > **Options**.

Creating a Task

- To quickly create a task, enter text in the **Tap here to add a new task** box at the top of the screen. If you do not see this box, tap **Tools** > **Entry Bar**.
- To create a task with detailed information, such as start and due dates, tap **New**. To enter notes, tap the **Notes** tab.

  You can enter a start date and due date or enter other information by first tapping the field. If the input panel is open, you need to hide it to see all available fields.

  You can enter text, draw, or create a recording. For more information on creating notes, see "*Notes: Capturing Thoughts and Ideas*" on page 71.
- To change a task, tap it in the task list, and then tap **Edit**.
- Using the onscreen keyboard, enter a description.
- To assign the task to a category, tap **Categories** and select a category from the list. In the task list, you can display tasks by category.
- When finished, tap **ok** to return to the task list.



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

Synchronizing Tasks

Tasks stored on your 700 Color Computer can synchronize with Microsoft Outlook on your desktop. Task synchronization is automatically selected in ActiveSync.

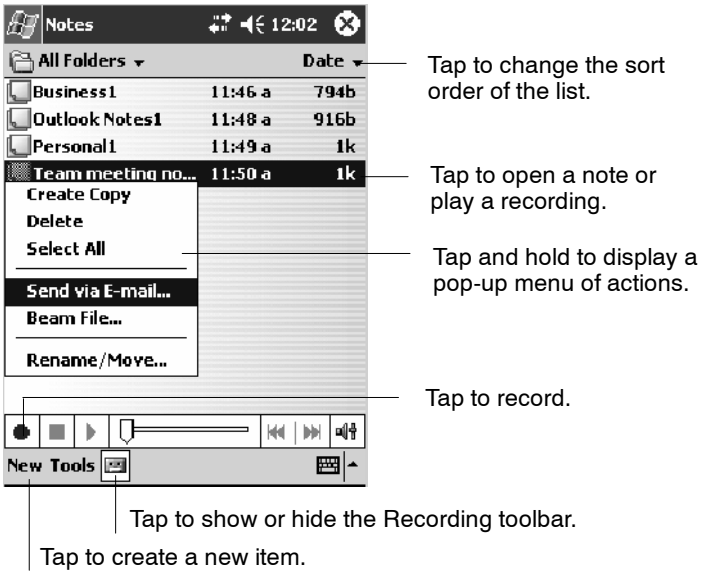
New items entered on one computer are copied to the other during synchronization. Handwritten notes and drawings are saved as metafiles (pictures).

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

Notes: Capturing Thoughts and Ideas

To switch to Notes on your 700 Color Computer, tap **Start** > **Notes**.

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



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

Creating a Note

To create your note, tap **New**, then write, draw, type, or record your information. For information about using the input panel, writing and drawing, and creating recordings, see "*Basic Skills*" on page 26.

- **Writing**
  Using the stylus, write directly on the screen.
- **Drawing**
  Using the stylus, draw directly on the screen.
- **Typing**
  Using the input panel, enter typed text into the 700 Color Computer. Do this by tapping keys on the onscreen keyboard or by using handwriting recognition software.
- **Recording**
  Create a stand-alone recording or embed a recording into a note.

Synchronizing Notes

Notes can be synchronized between your desktop and device either through notes synchronization or file synchronization. Notes synchronization synchronizes the notes on your 700 Color Computer with Outlook Notes on your desktop. File synchronization synchronizes all notes on your 700 Color Computer with the My Documents folder for the 700 Color Computer on your desktop.

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

To synchronize your notes as files, in ActiveSync, select the Files information type for synchronization and clear the Notes information type. When you select Files, the My Documents folder for the 700 Color Computer is created on your desktop. All .PWI files placed in the My Documents folder on your device and all .DOC files placed in the My Documents folder for the 700 Color Computer on your desktop are synchronized. Password-protected files cannot be synchronized.

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

Note: When you delete or change an item on either your desktop or 700 Color Computer, the item is changed or deleted in the other location the next time you synchronize.

Note: If you synchronize your notes using file synchronization and then later decide to use notes synchronization, all of your notes are synchronized with Outlook on your desktop and no longer store in the My Documents folder for the 700 Color Computer.

Inbox: Sending and Receiving E-mail Messages

To switch to Inbox on your 700 Color Computer, tap **Start** > **Inbox**.

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

You can send and receive e-mail by synchronizing with your desktop, or by connecting to a Post Office Protocol 3 (POP3) or Internet Message Access Protocol 4 (IMAP4) mail server. You need to set up an e-mail account for each method that you use except for Microsoft ActiveSync, which is set up by default. The ActiveSync folder on your 700 Color Computer stores messages that you send and receive through synchronization with a desktop. Account names appear as folders in the folder list (located on the left, under the navigation bar) in the Inbox message list.

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

When connecting to a POP3 or IMAP4 server, you use a modem to connect to your Internet service provider (ISP), or a modem or Ethernet card to connect to the local area network to which your e-mail server is connected. You can also use your phone to connect by using a cellular line connection. For more information, see "*Connecting to a Mail Server*" on page 75.

Synchronizing E-mail Messages

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

- Messages are copied from the Inbox folder on your desktop or the Microsoft Exchange server to the Inbox folder on your 700 Color Computer. (Note that you can only synchronize information directly with an Exchange Server if your company is running Microsoft Mobile Information Server 2002 or later.) By default, you receive messages from the last three days only, the first 100 lines of each new message, and file attachments of less than 100 KB in size.
- Messages in the Outbox folder on your device are transferred to Exchange or Outlook and then sent from those programs.
- The messages on the two computers are linked. When you delete a message on your 700 Color Computer, it is deleted from your desktop the next time you synchronize.
- Messages in subfolders in other e-mail folders in Outlook are synchronized only if they were selected for synchronization in ActiveSync.

For information on initiating Inbox synchronization or changing synchronization settings, see *ActiveSync Help* on your desktop or select **Start** > **Help** > **Connections** to see *Connections Help*.

Managing E-mail Messages and Folders

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

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

- *If you use ActiveSync,*
  e-mail messages in the Inbox folder in Outlook automatically synchronize with your device. You can select to synchronize additional folders by designating them for ActiveSync. The folders you create and the messages you move are then mirrored on the server. For example, if you move two messages from the Inbox folder to a folder named Family, and you have designated Family for synchronization, the server creates a copy of the Family folder and copies the messages into that folder. You can then read the messages while away from your desktop.
- *If you use SMS,*
  messages are stored in the Inbox folder.
- *If you use POP3*
  and you move e-mail messages to a folder you created, the link is broken between the messages on the device and their copies on the mail server. The next time you connect, the mail server sees that the messages are missing from the device Inbox and deletes them from the server. This prevents you from having duplicate copies of a message, but it also means that you no longer have access to messages that you move to folders created from anywhere except the 700 Color Computer.
- *If you use IMAP4*,
  the folders you create and the e-mail messages you move are mirrored on the server. Therefore, messages are available to you anytime you connect to your mail server, whether it is from your 700 Color Computer or desktop. This synchronization of folders occurs whenever you connect to your mail server, create new folders, or rename or delete folders when connected.

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

Connecting to a Mail Server

In addition to synchronizing e-mail messages with your desktop, you can send and receive e-mail messages by connecting to an e-mail server using a modem or network card connected to your 700 Color Computer. You need to set up a remote connection to a network or an ISP, and a connection to your e-mail server. For more information, see "*Getting Connected*" on page 98.

When you connect to the e-mail server, new messages are downloaded to the 700 Color Computer Inbox folder, messages in the 700 Color Computer Outbox folder are sent, and messages that were deleted on the e-mail server are removed from the 700 Color Computer Inbox folder.

Messages that you receive directly from an e-mail server are linked to your e-mail server rather than your desktop. When you delete a message on your 700 Color Computer, it is also deleted from the e-mail server the next time you connect based on the settings selected in ActiveSync.

You can work online or offline. When working online, you read and respond to messages while connected to the e-mail server. Messages are sent as soon as you tap **Send**, which saves space on your 700 Color Computer.

When working offline, once you have downloaded new message headers or partial messages, you can disconnect from the e-mail server and then decide which messages to download completely. The next time you connect, Inbox downloads the complete messages you have marked for retrieval and sends the messages you have composed.

Setting Up or Changing an Account

To set up an account:

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

To change options for an account:

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

To delete an account:

1. Tap **Accounts** > **Accounts**.
2. Tap and hold the name of the account, and then tap **Delete**.

Note: You can set up several e-mail accounts including your ActiveSync account, but you can set up only one SMS account.

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

Note: You cannot delete your SMS account.

Downloading Messages from the Server

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

1. Tap **Accounts** and ensure that the account you want to use is selected (marked by a bullet.)
2. Tap **Connect**. The messages on your 700 Color Computer and e-mail server are synchronized: new messages are downloaded to the 700 Color Inbox folder, messages in the 700 Color Outbox folder are sent, and messages that were deleted from the server are removed from the 700 Color Inbox. Tap a message in the message list to open it.
3. If you read a message and decide that you need the full copy, tap **Edit** > **Mark for Download** while in the message window. If you are in the message list, tap and hold the message, and then tap **Mark for Download**. This also downloads message attachments if you selected those options when you set up the e-mail account. You can also choose to download full copies of messages by default.
4. When finished, tap **Accounts** > **Disconnect**.

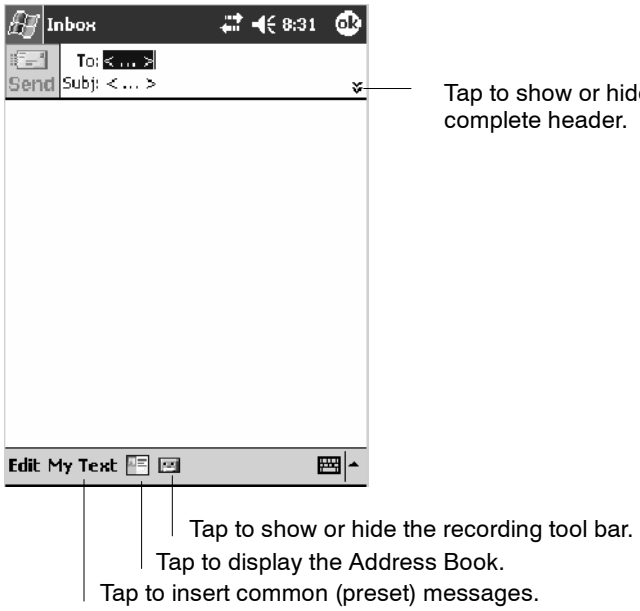
Note: Receiving entire messages consumes storage memory.

Note: The size column in the message list displays the local size and server size of a message. Even when a message has downloaded fully, these numbers may differ because the size of a message can vary between the server and the device.

Composing and Sending Messages

To compose a message:

1. In the message list, tap **New**.
2. To select an account, tap the **From** list and select "ActiveSync," "SMS," or the desired e-mail account.
3. Enter the e-mail address or SMS address of one or more recipients, separating them with semicolons. To access addresses and phone numbers from Contacts, tap **To**.
4. Enter your message. To quickly add common messages, tap **My Text** and tap a desired message.
5. To check spelling, tap **Edit** > **Spell Check**.
6. Tap **Send**. If you are working offline, the message is moved to the Outbox folder and is sent the next time you connect.



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

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

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

Companion Programs

The companion programs consist of Microsoft Pocket Word, Microsoft Pocket Excel, Windows Media Player, and Microsoft Reader. To switch to a companion program on your 700 Color Computer, tap **Start** > **Programs**, then tap the program name.

Pocket Word

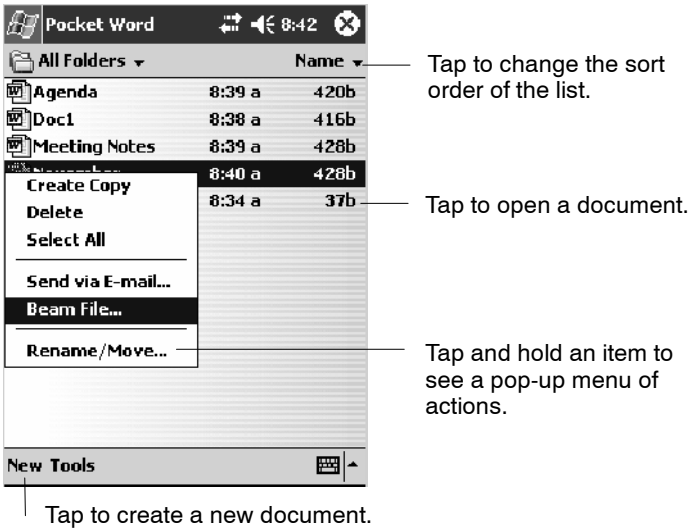
Pocket Word works with Microsoft Word on your desktop to give you access to copies of your documents. You can create new documents on your 700 Color Computer, or you can copy documents from your desktop to your 700 Color Computer. Synchronize documents between your desktop and your 700 Color Computer to have up-to-date content in both locations.

Creating a Document

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

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

Pocket Word contains a list of files stored on your 700 Color Computer. Tap a file in the list to open it. To delete, make copies of, and send files, tap and hold a file in the list, then, select the action on the pop-up menu.



You can enter information in Pocket Word in one of four modes (typing, writing, recording, and drawing), which are displayed on the **View** menu. Each mode has its own toolbar, which you can show and hide by tapping the **Show/Hide Toolbar** button on the command bar.

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

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

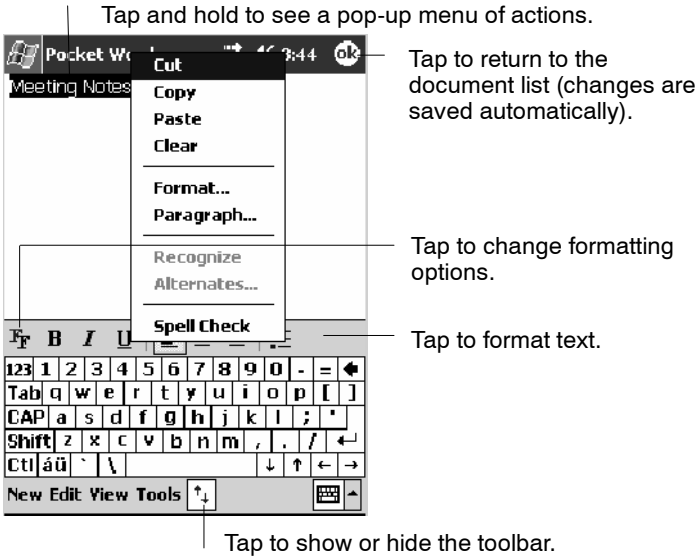
To check spelling, select text, then tap **Tools** > **Spell Check**. To use your new document as a template, move the document to the Templates folder.

You can insert the data in a document. First, make sure that no drawings are selected, tap and hold anywhere on the document, then tap **Insert Date** from the pop-up menu.

Typing Mode

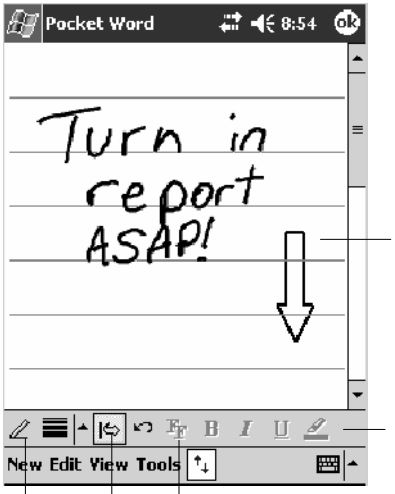
Using the input panel, enter typed text into the document. For more information on entering typed text, see "*Basic Skills*" on page 26.

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



Writing Mode

In writing mode, use your stylus to write directly on the screen. Ruled lines are displayed as a guide, and the zoom magnification is greater than in typing mode to allow you to write more easily. For more information on writing and selecting writing, see "*Basic Skills*" on page 26.



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

Tap to highlight selected text.

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

Space button.

Pen button.

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

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

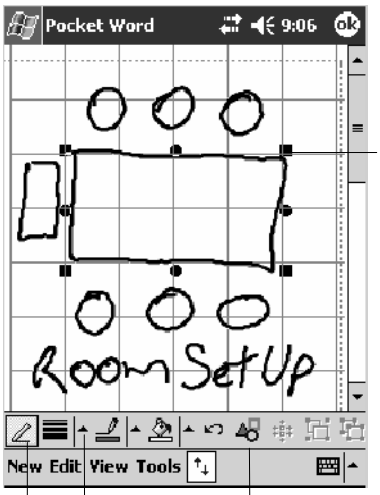
Recording Mode

In recording mode, embed a recording into your document. Recordings are saved as .WAV files. For more information on recording, see "*Basic Skills*" on page 26.

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

Drawing Mode

In drawing mode, use your stylus to draw on the screen. Grid lines appear as a guide. When you lift your stylus off the screen after the first stroke, a drawing box indicating the boundaries of the drawing appears. Every subsequent stroke within or touching the drawing box becomes part of the drawing. For more information on drawing and selecting drawings, see "*Basic Skills*" on page 26.



Resize an object by dragging the selection handles.

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

Tap an arrow to see your choices.

Pen button.

Synchronizing Pocket Word Documents

Pocket Word documents can be synchronized with Word documents on your desktop. To synchronize files, first select the Files information type for synchronization in ActiveSync. When you select Files, the My Documents folder for the 700 Color Computer is created on your desktop. Place all files you want to synchronize with the device in this folder. Password-protected files cannot be synchronized.

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

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

Note: When you delete a file on either your desktop or your 700 Color Computer, the file is deleted in the other location the next time you synchronize.

Pocket Excel

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

When you close a workbook, it is automatically named and placed in the Pocket Excel workbook list. You can attach a password to a workbook to help ensure privacy.

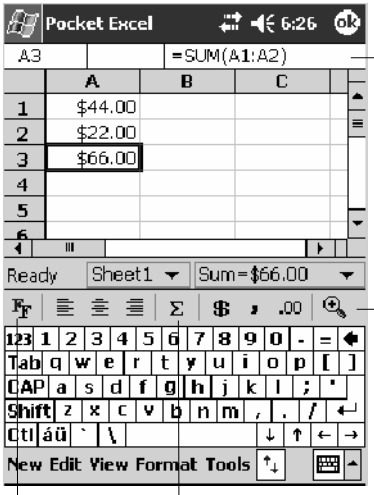
Creating a Workbook

Pocket Excel

Use Pocket Excel to create workbooks, such as expense reports and mileage logs. To create a new file, tap **Start** > **Programs** > **Pocket Excel** > **New**. A blank workbook appears. Or, if you have selected a template for new workbooks in the **Tools** > **Options** dialog box, that template appears with appropriate text and formatting already provided. You can open only one workbook at a time; when you open a second workbook, save the first. You can save a workbook you create or edit in a variety of formats, including Pocket Excel (.PXL) and Excel (.XLS). You can also save a workbook as a template by moving the workbook to the Templates folder.

Pocket Excel contains a list of the files stored on your 700 Color Computer. Tap a file in the list to open it. To delete, make copies of, and send files, tap and hold a file in the list. Then select the appropriate action from the pop-up menu.

Pocket Excel provides fundamental spreadsheet tools, such as formulas, functions, sorting, and filtering. To display the toolbar, tap **View** > **Toolbar**.



Cell contents appear here as you enter them.

Zoom button.

AutoSum button.

Format button.

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

Tips for Working in Pocket Excel

Note the following when working in large worksheets in Pocket Excel:

- View in full-screen mode to see as much of your worksheet as possible. Tap **View** > **Full Screen**. To exit full-screen mode, tap **Restore**.
- Tap **View** > **Zoom** and select a percentage so that you can easily read the worksheet.
- Show and hide window elements. Tap **View** and then tap the elements you want to show or hide.
- Freeze panes on a worksheet. First select the cell where you want to freeze panes. Tap **View** > **Freeze Panes**. You might want to freeze the top and leftmost panes in a worksheet to keep row and column labels visible as you scroll through a sheet. Tap **View** > **Unfreeze Panes** to undo this process.
- Split panes to view different areas of a large worksheet. Tap **View** > **Split**. Then drag the split bar to where you want it. To remove the split, tap **View** > **Remove Split**.
- Show and hide rows. To hide a row, select a cell in the row you want to hide. Then tap **Format** > **Row** > **Hide**. To show a hidden row, tap **Tools** > **Go To**, and then type a reference that is in the hidden row. Then tap **Format** > **Row** > **Unhide**.
- Do the same to show and hide columns. To hide a column, select a cell in the column you want to hide. Then tap **Format** > **Column** > **Hide**. To show a hidden column, tap **Tools** > **Go To**, and then type a reference that is in the hidden column. Then tap **Format** > **Column** > **Unhide**.

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

MSN Messenger

MSN Messenger on your 700 Color Computer provides the same chat environment as MSN Messenger on your desktop. These features include:

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

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

1. Set up a connection on your 700 Color Computer, such as a modem or wireless connection, that enables you to connect to the Internet.
2. Set up an account in MSN Messenger.
3. Sign in to MSN Messenger.

Note: To set up a free Hotmail account, go to http://www.hotmail.com. To set up a Microsoft Passport account, go to http://www.passport.com. To set up an Exchange account, see your network administrator.

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

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

Setting Up an Account

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

1. Create a connection for your device. To use MSN Messenger Service, set up a connection to the Internet; to use Exchange Instant Messaging, set up a connection to your corporate network. See page 98 for more information on getting connected.
2. In MSN Messenger, tap **Tools** > **Options** > the **Accounts** tab.
3. Select Enable MSN Messenger Service or Enable Exchange Instant Messaging.
4. Enter your sign-in name and password for the selected accounts. Your sign-in name is usually in the username@domain.com form.
5. If you selected both accounts, under Sign in using this account first, select which account to sign in to first.

Signing In and Out

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

Working with Contacts

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

Tap a contact to start a chat.

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

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

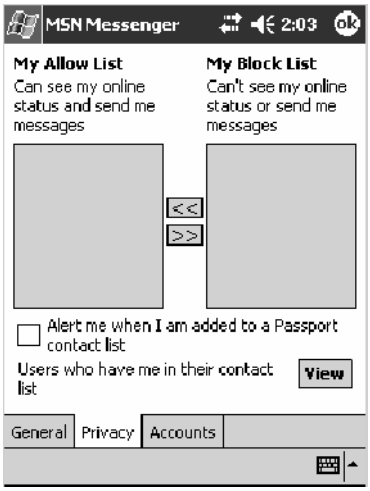
To delete a contact, tap and hold the contact's name, then tap **Delete Contact** from the pop-up menu.

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

Managing Contacts

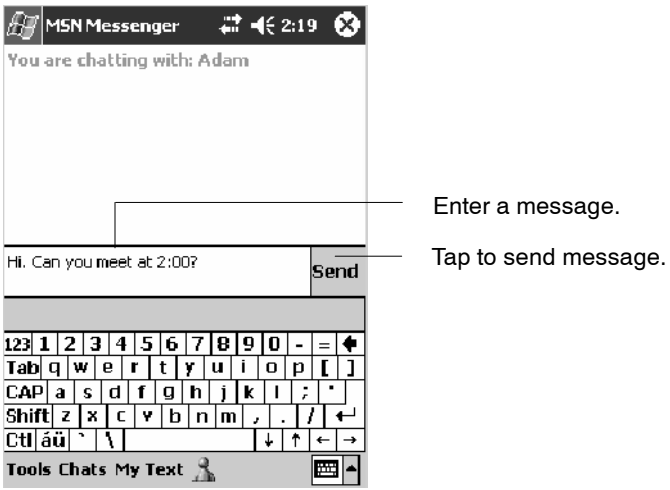
To be alerted each time you are added to a contact list, tap **Tools** > **Options** > the **Privacy** tab.

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



Sending a Message

- Tap a contact to whom you want to send a message. Enter your message in the text entry area at the bottom of the screen and tap **Send**. To quickly add common messages, tap **My Text** and tap a desired message.
- To invite another contact to an ongoing chat, tap **Tools** > **Invite** and tap a contact.
- To see who is already chatting or to switch between chats, tap **Chats**.

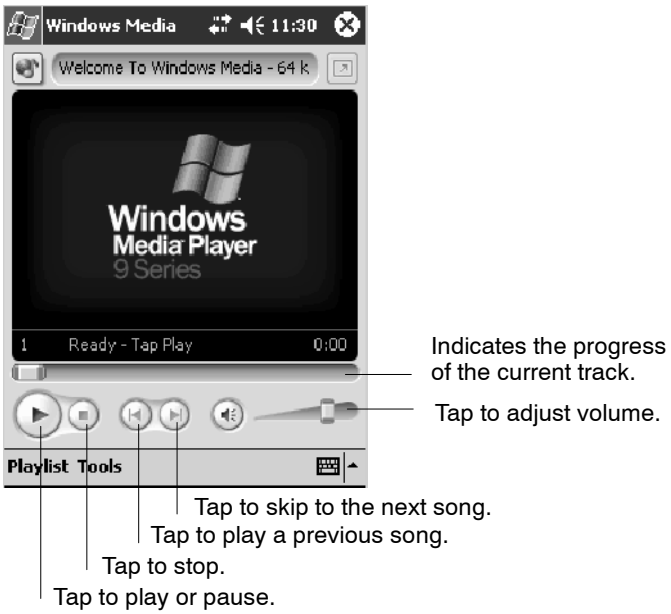


Windows Media Player for Windows Mobile

Use Microsoft Windows Media Player for Windows Mobile to play digital audio and video files that are stored on your 700 Series Computer or on a network.

To switch to Windows Media Player on your 700 Color Computer, tap **Start** > **Windows Media**.

Use Microsoft Windows Media Player on your desktop to copy digital audio and video files to your 700 Color Computer. You can play Windows Media and MP3 files on your Windows Mobile.



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

Microsoft Reader

Use Microsoft Reader to read eBooks on your 700 Color Computer. Download books to your desktop from your favorite eBook Web site. Then, use ActiveSync to copy the book files to your activated 700 Color Computer. The books appear in the Reader Library, where you can tap them in the list to open them. Each book consists of a cover page, an optional table of contents, and the pages of the book. You can:

- Page through the book by using the Up/Down control on your 700 Color Computer or by tapping the page number on each page.
- Annotate the book with highlighting, bookmarks, notes, and drawings.
- Search for text and look up definitions for words.

The Guidebook contains all the information needed to use the software. To open the Guidebook, tap **Help** on the Reader command bar. Or, on a book page, tap and hold on the book title, and then tap **Help** on the pop-up menu.

To switch to Microsoft Reader, tap **Start** > **Programs** > **Microsoft Reader**.

Getting Books on Your 700 Color Computer

You can download book files from the Web. Just visit your favorite eBook retailer and follow the instructions to download the book files.

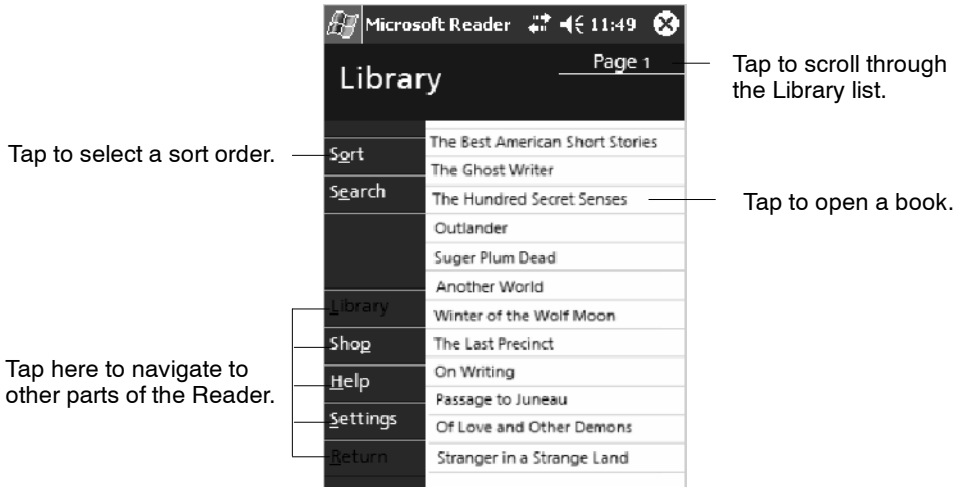
Sample books and a dictionary are also included in the MSReader folder in the Extras folder on the *Windows Mobile Companion CD*.

Use ActiveSync to download the files from your desktop to your activated mobile computer as described in the *Read Me* file in the MSReader folder.

Using the Library

The Library is your Reader home page; it displays a list of all books stored on your 700 Color Computer or storage card. To open the Library:

1. On the Reader command bar, tap **Library**.
2. On a book page, tap the book title, then tap **Library** on the pop-up menu.
3. To open a book, tap its title in the Library list.

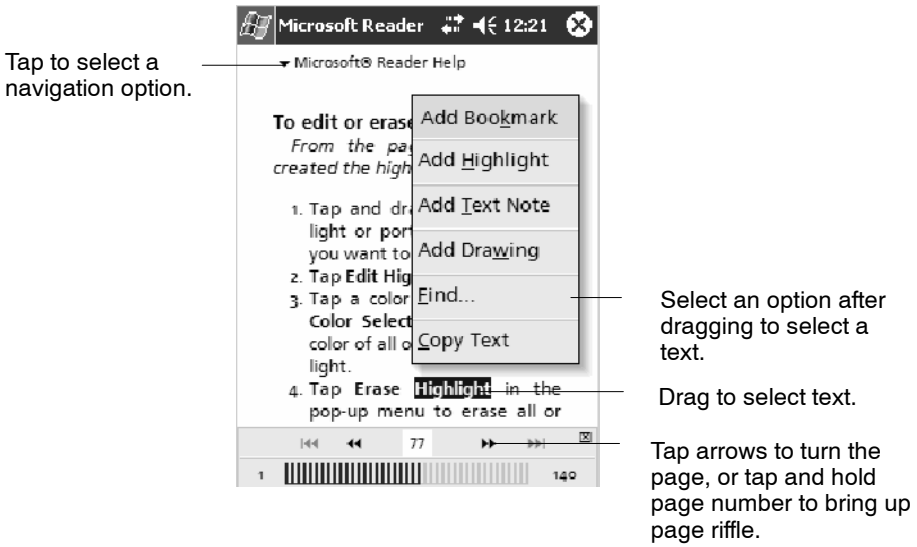


Reading a Book

Each book consists of a cover page, an optional table of contents, and the pages of the book. Navigation options are listed in the bottom portion of the cover page.

The first time you open a book, go to the first page or to the table of contents, if there is one. Subsequently, whenever you open the book, you are automatically taken to the last page read.

In addition to the text, each book page includes a page number and book title.



You can also page through a book by using the Up/Down/Left/Right controls on your 700 Color Computer.

Using Reader Features

Reading a book electronically gives you several options not available with paper books. These options are available from any book page.

Select text by dragging across the text on the page. Then, tap an option on the pop-up menu, as described here:

- **Searching for Text**
  Find text in a book by tapping **Find** on the pop-up menu. Enter the word you want to search for, and tap the desired **Find** option. Reader highlights found text on the page. To close **Find**, tap outside the box. To return to your original page, tap the title and then tap **Return** on the pop-up menu.
- **Copying Text**
  You can copy text from books that support this feature into any program that accepts text. On a book page, select the text you want to copy. Then, tap **Copy Text** on the pop-up menu. The text can be pasted into the program of your choice.
- **Adding Bookmarks**
  When you add a bookmark to a book, a color-coded bookmark icon appears in the right margin. You can add multiple bookmarks to a book. Then, from anywhere in the book, tap the bookmark icon to go to the bookmarked page.
- **Highlighting Text**
  When you highlight text, it appears with a colored background.
- **Attaching Notes to Text**
  When you attach a note to text, you enter the text in a notepad that appears on top of the book page. A **Note** icon displays in the left margin. To show or hide the note, tap the icon.
- **Adding Drawings**
  When you add a drawing, a **Drawing** icon appears in the bottom-left corner of the page, and drawing tools appear across the bottom of the page. Draw by dragging your stylus.
- **Annotations Index**
  To see a list of a book's annotations, including bookmarks, highlights, text notes, and drawings, tap **Annotations Index** on the book's cover page. You can tap an entry in the list to go to the annotated page.

Removing a Book

When you finish reading a book, you can delete it to conserve space on your 700 Color Computer. If a copy of the book is stored on your desktop, you can download it again at any time.

To remove a book from your 700 Color Computer, tap and hold the title in the Library list, and then tap **Delete** on the pop-up menu.

Pocket Internet Explorer

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

- During synchronization with your desktop, download your favorite links and mobile favorites that are stored in the Mobile Favorites subfolder in Internet Explorer on the desktop.
- Connect to an ISP or network and browse the Web. To do this, create the connection first, as described in "*Getting Connected*" on page 98.

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

To switch to Pocket Internet Explorer on your 700 Color Computer, tap **Start** > **Internet Explorer**.

The Mobile Favorites Folder

Only items stored in the Mobile Favorites subfolder in the Favorites folder in Internet Explorer on your desktop are synchronized with your 700 Color Computer. This folder was created automatically when you installed ActiveSync.

Favorite Links

During synchronization, the list of favorite links in the Mobile Favorites folder on your desktop is synchronized with Pocket Internet Explorer on your 700 Color Computer. Both computers are updated with changes made to either list each time you synchronize. Unless you mark the favorite link as a mobile favorite, only the link is downloaded to your 700 Color Computer. Connect to your ISP or network to view the content.

1. In ActiveSync on your desktop, click **Tools** > **Options**, and select "Favorites" from the **Mobile Device** list. For more information on using ActiveSync, see *ActiveSync Help* on the desktop.
2. In Internet Explorer on your desktop, save or move favorite links to the Mobile Favorites subfolder in the Favorites list via **Favorites** > **Organize Favorites**. For more information on using Internet Explorer, see *Internet Explorer Help* on the desktop.
3. Connect your 700 Color Computer to your desktop. If synchronization does not start automatically, in ActiveSync on your desktop, click **Sync**.

Mobile Favorites

If you are using Microsoft Internet Explorer 5.0 or later on your desktop, you can download mobile favorites to your 700 Color Computer. Synchronizing mobile favorites downloads Web content to your 700 Color Computer so that you can view pages while you are disconnected from your ISP and desktop.

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

1. In ActiveSync on your desktop, click **Tools** > **Options**, and select "Favorites" from the **Mobile Device** list. For more information on using ActiveSync, see *ActiveSync Help* on the desktop.
2. In Internet Explorer 5.0 or greater on your desktop, browse to the page you want to view offline, then click **Tools** > **Create Mobile Favorite**.
3. To change the link name, enter a new name in the **Name** box.
4. In the **Update** box, select a desired update schedule to keep the page in the Mobile Favorites folder up to date. You can also update content by clicking **Tools** > **Synchronize** in Internet Explorer.
5. To save the link in a subfolder of Mobile Favorites, click **Create In** and select the desired subfolder.
6. Click **OK**. Internet Explorer downloads the latest version of the page to your desktop.
7. To download the pages that are linked to the mobile favorite you just created, in Internet Explorer on the desktop, right-click the mobile favorite, then click **Properties**. On the **Download** tab, specify the number of links deep you want to download. *To conserve 700 Color Computer memory, go only one level deep.*
8. Connect your 700 Color Computer to your desktop. If synchronization between your 700 Color Computer and desktop does not start, in ActiveSync on your desktop, click **Sync**.

Mobile favorites take up storage memory on your 700 Color Computer. To minimize the amount of memory used:

- In the settings for the Favorites information, type in ActiveSync options, turn off pictures and sounds, or stop some mobile favorites from being downloaded to the 700 Color Computer. For more information, see *ActiveSync Help*.
- Limit the number of downloaded linked pages. In Internet Explorer on the desktop, right-click the mobile favorite you want to change and then **Properties**. In the **Download** tab, specify "0" or "1" for the number of linked pages you want to download.

Using AvantGo Channels

AvantGo is a free interactive service that gives you access to personalized content and thousands of popular Web sites. You subscribe to AvantGo channels directly from your 700 Color Computer. Then, you synchronize your 700 Color Computer and desktop, or connect to the Internet to download the content. For more information, visit the AvantGo Web site. To synchronize an AvantGo channel:

1. In Pocket Internet Explorer on your 700 Color Computer, tap to display your list of favorites.
2. Tap the **AvantGo Channels** link.
3. Tap **Activate**.
4. Follow the directions on the screen. Synchronize your 700 Series Computer with your desktop, then tap **My Channels** to complete the AvantGo setup.
5. When synchronization is complete, tap the **AvantGo Channels** link in your list of favorites to see a few of the most popular channels.

To add or remove channels, tap the **Add** or **Remove** link.

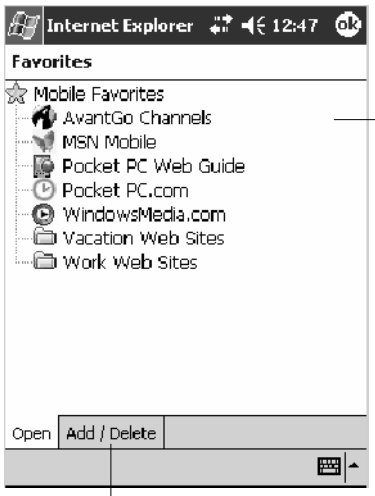
Using Pocket Internet Explorer

You can use Pocket Internet Explorer to browse mobile favorites and channels that were downloaded to your 700 Color Computer without connecting to the Internet. You can also connect to the Internet through an ISP or a network connection and browse the Web.

Viewing Mobile Favorites and Channels

1 Tap the **Favorites** button to display your list of favorites.

2 Tap the page you want to view.



The page that was downloaded the last time you synchronized with your desktop opens. If the page is not on your 700 Color Computer, the favorite is dimmed. Synchronize with your desktop again to download the page to your 700 Color Computer, or connect to the Internet to view the page.

Browsing the Internet

1 Set up a connection to your ISP or corporate network using **Connections**, as described in "*Getting Connected*" on page 98.

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

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

Note: To add a favorite link while using the 700 Color Computer, go to the page you want to add, tap and hold on the page, and tap **Add to Favorites**.

Getting Connected

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

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

Your 700 Color Computer has two groups of connection settings: My ISP and My Work Network. My ISP settings connect to the Internet, and My Work Network settings connect to any private network, such as a corporate network you use at work.

- My ISP. ***Note:*** *This is available only on 700 Color and 730 Computers.* Once connected, you can send and receive e-mail messages by using Inbox and view Web or WAP pages by using Pocket Internet Explorer. The communication software for creating an ISP connection is already installed on your 700 Color or 730 Computer. Your service provider provides the software needed to install other services, such as paging and fax services. If this is the method you want to use, see "*Connecting to an Internet Service Provider*" on page 99.
- My Work Network: Connect to the network at your company or organization where you work. Once connected, you can send and receive e-mail messages by using Inbox, view Web or WAP pages by using Pocket Internet Explorer, and synchronize with your desktop. If this is the method you want to use, see "*Connecting to Work*" on page 105.
- PCS Vision: ***Note:*** *This is available only on 700CXL Computers.* Personal Communications System (PCS) Vision expands wireless possibilities from rich, full-color graphic screens to a dynamic selection of advanced multimedia services. PCS Vision puts the power of crytsal clear wireless directly in your hand. With PCS Vision, you can get email, games, and Web access. If this is the method you want to use, see "*Connecting through PCS Vision*" on page 115.

Connecting to an Internet Service Provider

Note: This does *not* apply to the 700CXL Computer.

You can connect to your ISP, and use the connection to send and receive e-mail messages and view Web or WAP pages. You can connect to your ISP in one of two ways:

- Create a modem connection. If this is the method you want to use, see "*Creating a Modem Connection to an ISP*" below.
- Use an Ethernet card and a net tap to connect to the network. If this is the method you want to use, see "*Creating an Ethernet Connection to an ISP*" on page 103. ***Note:*** *This does not apply to the 730 Computer.*

Creating a Modem Connection to an ISP

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

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

If you do not have a built-in modem, install a modem card, or use a NULL modem cable and appropriate adapters to connect an external modem to your 700 Color Computer through the serial port.

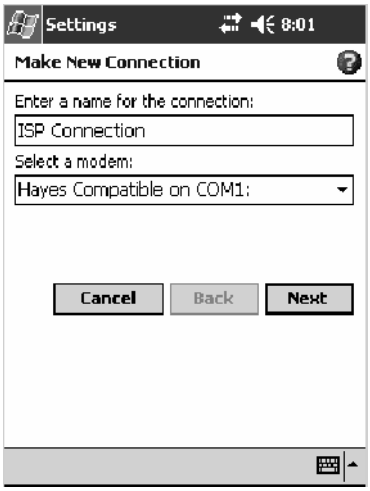
To view additional information for any screen in the wizard or while changing settings, tap the **Help** icon.

Connections

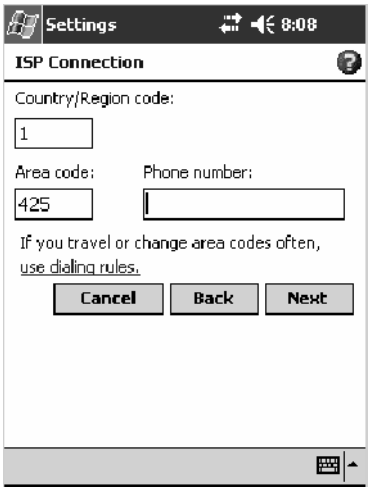
1 Tap **Start** > **Settings** > the **Connections** tab > the **Connections** icon. In **My ISP**, tap **Add a new modem connection**.

2 Enter a name for the connection, such as "ISP Connection."

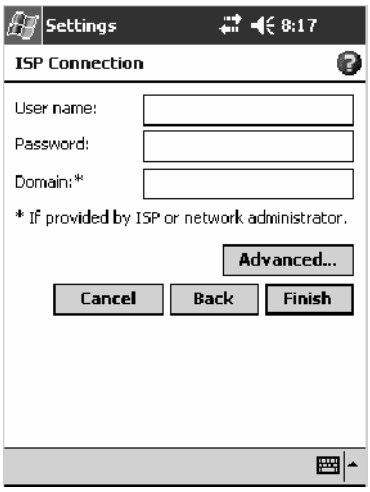
In the **Select a modem** list, select your modem type. If your modem type does not appear, try reinserting the modem card. If you are using an external modem that is connected to your 700 Color Computer with a cable, select "Hayes Compatible on COM1." Tap **Next** to continue.



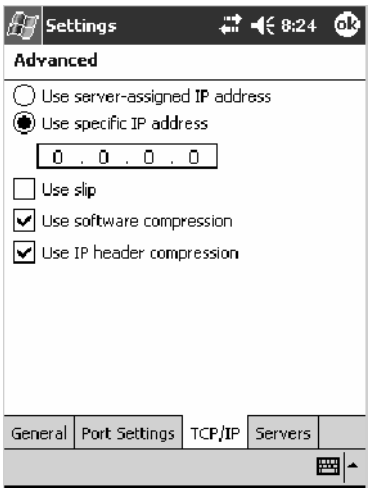
3 Enter the access phone number, then tap **Next**.



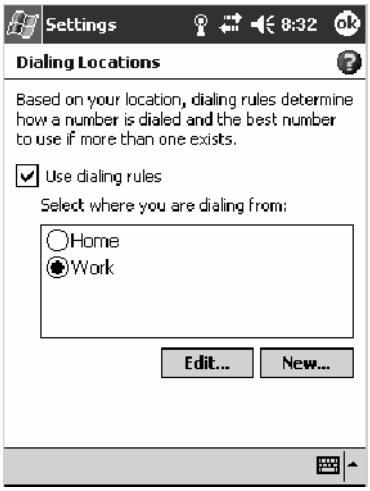
4 Enter the user name, password, and domain (if provided by an ISP or your network administrator).



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



6 Tap the **Advanced** tab, then tap **Select Location** to specify your current location. These settings apply to all connections. Tap **Edit** to continue.



7 Specify your current phone type. If your phone type is pulse dialing, check the **Pulse dialing** box. If your type is tone dialing (as most phone lines are), then clear the **Pulse dialing** box. Continue to tap **ok** to close each page and return to the Settings page.

To start the connection, start using one of the following programs. Once connected, you can:

- Send and receive e-mail messages by using Inbox. Before you can use Inbox, you need to provide the information it needs to communicate with the e-mail server. For specific instructions, see "*Connecting Directly to an E-mail Server*" on page 118.
- Visit Web and WAP pages by using Pocket Internet Explorer. For more information, see "*Pocket Internet Explorer*" on page 94.

- Send and receive instant messages with MSN Messenger. For more information, see "*MSN Messenger*" on page 84.

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

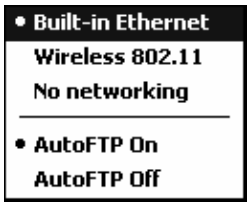
Creating an Ethernet Connection to an ISP

Note: This information does *not* apply to the 730 Computer.

You do not need to create a new connection on your 700 Color Computer. Instead, you must purchase a dock to enable on-board Ethernet.

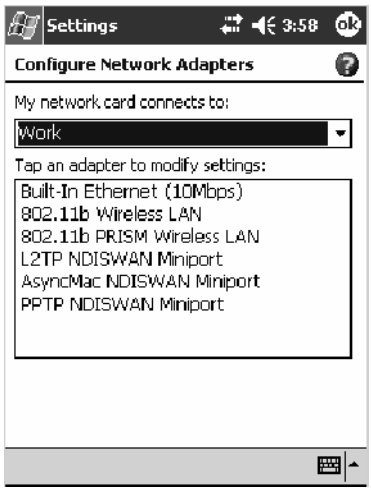
1 Obtain your user name, password, and domain name from your ISP.

2 Place your 700 Color Computer in a dock, tap **Start** > **Today**, then look in the System Tray for the Ethernet icon *(shown left)*. If not there, then tap the antenna icon for the NDISTRAY pop-up menu and select **Built-in Ethernet** from the menu.



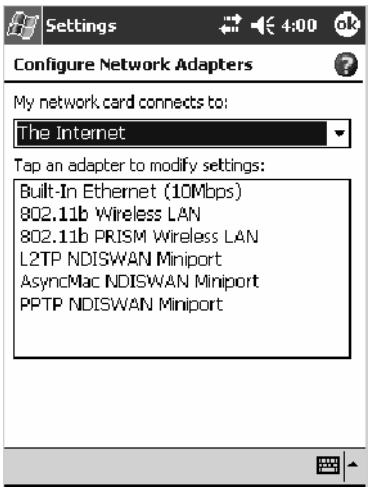
Connections

3 *If using an on-board Ethernet,* then tap **Start** > **Settings** > the **Connections** tab > **Connections** > the **Advanced** tab > **Network Card**. Tap "Built-In Ethernet (10Mbps)" from the list of adapters installed to access and configure its properties.



4 Connect the dock to the network by using a network cable. For information, see your owner's manual.

5 Tap **ok** three times to return to the Connections page. Select "The Internet" from the **My network card connects to** drop-down list.



To start the connection, simply start using one of the programs listed in the preceding section. Once connected, you can perform the same activities as listed in the preceding section.

Connecting to Work

If you have access to a network at work, you can send e-mail messages, view intranet pages, synchronize your 700 Color or 700CXL Computer, and possibly access the Internet. You can connect to work in one of two ways:

- Create a modem connection by using a RAS (Remote Access Server) account. Before you can create this modem connection, your network administrator needs to set up a RAS account for you. If this is the method you want to use, see "*Creating a Modem Connection to Work*" below. Your network administrator may also give you Virtual Private Network (VPN) settings.
- ***Note**: This does not apply to the 730 Computer.* Use an embedded Ethernet card and a net tap to connect to the network. To use this method, see "*Creating an Ethernet Connection to Work*" on page 114.

Get the following information from your network administrator.

- Dial-up access telephone number
- User name
- Password

If your 700 Color or 700CXL Computer does not have access to a mobile phone network, insert a modem card.

Connections

Tap **Start** > **Settings** > the **Connections** tab > the **Connections** icon. In **My Work Network**, set up a modem connection via work *(page 106)*, wireless network *(page 109)*, or VPN server *(page 111)*.

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

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

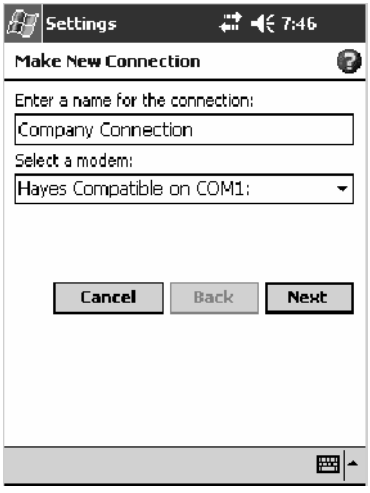
Creating a Modem Connection to Work

1 Tap **Add a new modem connection** beneath My Work Network to initiate this procedure.

2 Enter a name for the connection, such as "Company Connection." In the **Select a modem** list, select your modem type. If your modem type does not appear, try reinserting the modem card.

- If you are using an external modem connected to your 700 Computer with a cable, select "Hayes Compatible on COM1."
- If you are using any type of external modem, select the modem by name. If a listing does not exist for your external modem, select "Hayes Compatible on COM1."
- Wireless connections can be made via a mobile phone network or GPRS. If you are using a mobile phone network to connect, select "Cellular Line." If you are using GPRS, tap "Cellular Line (GPRS)."

Tap **Next** to continue.



3 Enter the access phone number, using some of the following guidelines. If you know part of the phone number changes frequently as you travel, create dialing rules to avoid creating numerous modem connections for the same phone number. For more information, tap **Use Dialing Rules**.

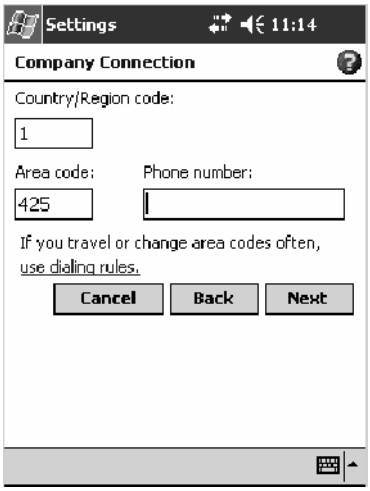
- Enter the phone number exactly as you want it dialed. For example, if you call from a business complex or hotel that requires a nine before dialing out, enter "9" in front of the phone number.
- Enter the APN provided by your mobile phone service provider.
- When using dialing rules, phone numbers are entered differently. To use additional numbers, such as a "9" to dial from an office complex or hotel, you must use additional dialing rules or change dialing patterns. See "*Create Dialing Rules*" via your online help for information.

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

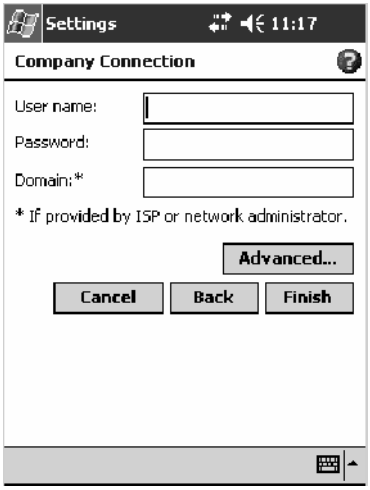
b In the **Area code** box, enter the area code. Area codes are not needed in all countries.

c In the **Phone number** box, enter the main phone number.

Tap **Next** to continue.



4 Enter the user name, password, and domain (if provided by an ISP or your network administrator). If a domain name was not provided, try the connection without entering a domain name.



5 You should not need to change any advanced settings. Instances where you are to change advanced settings include the following. To change advanced settings, tap **Advanced**. Otherwise, tap **Finish**.

- You want to change baud rate settings, dialing string commands, or credit card options.
- You need to change port settings.
- The server you are connecting to does not use dynamically-assigned addresses, and you need to enter your TCP/IP settings.

Note: The following information applies when you have **Enable Microsoft's Wireless Zero Config** checked via the Wireless Network control panel applet. See page 373 for more information.

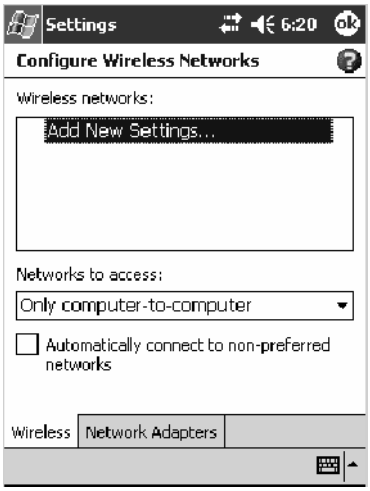
Creating a Wireless Network Connection to Work

Networks already configured are preferred networks and are listed in Wireless networks. You can connect to only preferred networks or search for and connect to any available network.

A wireless network can be added either when the network is detected, or manually by entering settings information. To determine if authentication information is needed, see your network administrator.

Connections

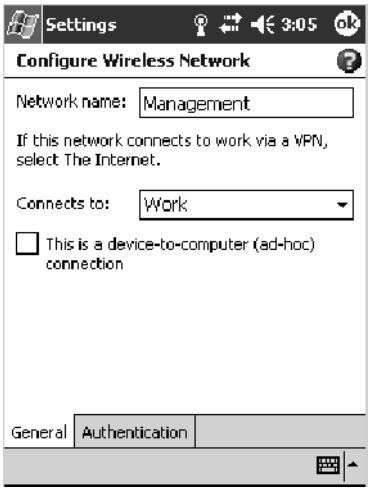
1 Tap **Start** > **Settings** > the **Connections** tab > **Connections** > the **Advanced** tab > **Network Card** > the **Wireless** tab > **Add New Settings**.



2 Tap the **General** tab, then enter a network name. If the network was detected, the network name is entered and cannot be changed.

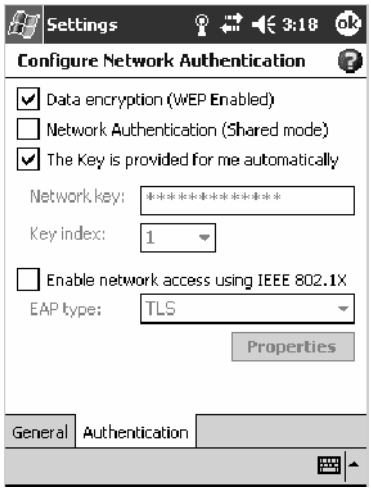
From **Connects to**, select to what your network is to connect: "Work" or "The Internet."

To connect to an ad-hoc connection, select **This is a device-to-computer (ad-hoc) connection**.



3 Tap the **Authentication** tab, then do the following:

- To use data encryption, tap **Data encryption (WEP Enabled)**.
- To use Shared Key authentication, tap **Network Authentication (Shared mode)**. Be sure to have a network key.
- To automatically use a network key, tap **The Key is provided for me automatically**. Otherwise, enter the network key.
- For increased security, select **Enable network access using IEEE 802.1X**. Then, select the appropriate EAP type.

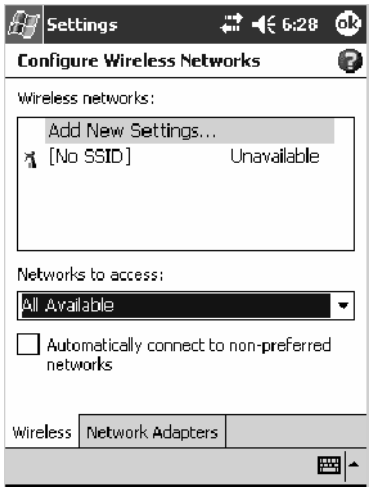


4 Tap **ok** to return to the Configure Wireless Network screen.

5 From the **Networks to access** drop-down list, select "All Available," "Only access points," or "Only computer-to-computer" depending on the type of networks to which you connect.

6 To connect only to networks you have already configured, clear **Automatically connect to non-preferred networks**.

7 Tap **ok** to close this screen.



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

Creating a VPN Server Connection to Work

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

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

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

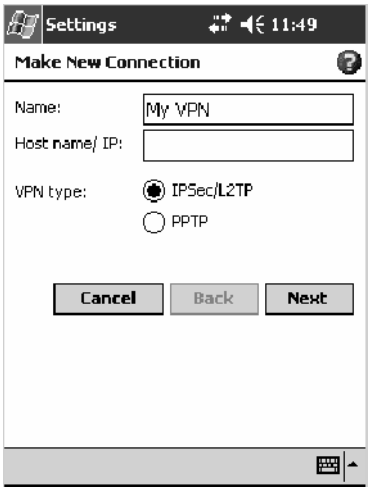
1 Tap **Add a new VPN server connection** beneath My Work Network to initiate this procedure.

2 In **Name**, enter a name for the connection, such as a company's name.

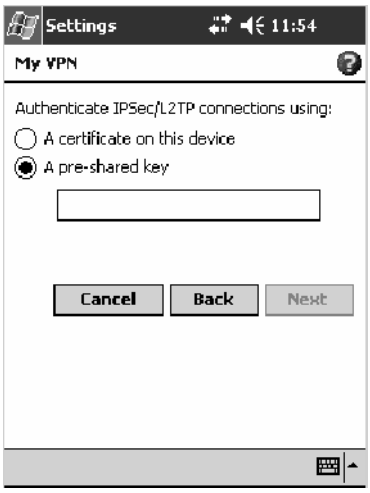
In **Host name/ IP**, enter the VPN server name or IP address.

Next to **VPN type**, select the type of authentication to use with your device: "IPSec/L2TP" or "PPTP." If you are not sure which option to choose, ask your network administrator.

Tap **Next** to continue.



3 Select the type of authentication. If you select **A pre-shared key**, enter the key provided by your network administrator.



4 Enter your user name, password, and domain name as provided by your ISP or network administrator. If a domain name was not provided, try the connection without entering a domain name.

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

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

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

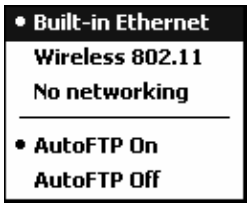
Insert necessary equipment, such as a network (Ethernet) card, into the device, and use a desired program to automatically begin connecting. For example, switch to Pocket Internet Explorer and browse to a Web page.

Creating an Ethernet Connection to Work

Note: This information does *not* apply to the 730 Computer.

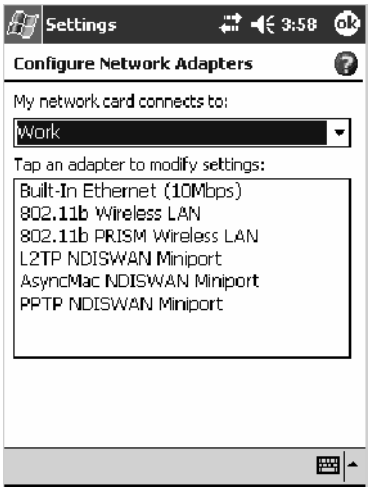
You do not need to create a new connection on your 700 Color or 700CXL Computer. Instead, purchase a dock to enable on-board Ethernet. Obtain the user name, password, and domain name from your ISP.

1 *If using an on-board Ethernet*, place your 700 Color or 700CXL Computer in a dock, tap **Start** > **Today**, then look for the Ethernet icon *(shown left)* in the System Tray. If not there, tap the antenna icon for the NDISTRAY pop-up menu, then select **Built-in Ethernet**.

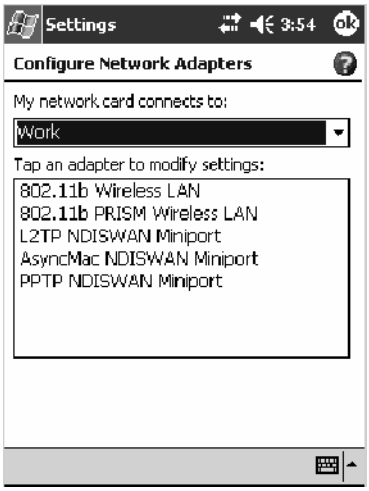


Connections

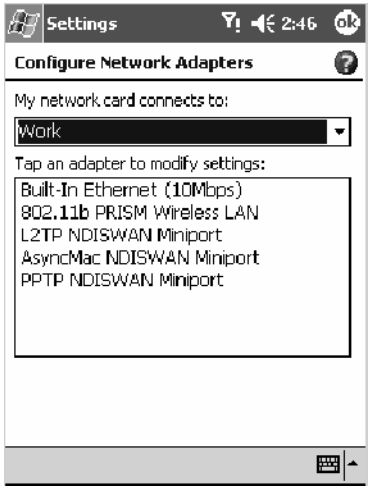
2 Tap **Start** > **Settings** > the **Connections** tab > **Connections** > the **Advanced** tab > **Network Card**. Tap "Built-In Ethernet (10Mbps)."



700 Color Screen



730 Screen



700CXL Screen

3 Connect the dock to the network by using a network cable. For information, see your owner's manual.

4 To synchronize your 700 Color or 700CXL Computer, tap **Start** > **ActiveSync** to access Microsoft ActiveSync, then tap **Tools** > **Options** > the **PC** tab, check **Sync with this PC during manual sync**, and select your computer's name from the **Use this PC** drop-down list.

Remote synchronization with a desktop works only if a partnership is set up with that computer through ActiveSync set to allow remote connections. Other restrictions apply. See *ActiveSync Help* on your desktop.

Use one of the programs listed in the preceding section to start a connection. Once connected, you can perform the activities listed previously.

Connecting through PCS Vision

Note: This option only applies to the 700CXL Computer.

If you have access to a network, you can send e-mail messages, view intranet pages, play online games, synchronize your 700CXL Computer, and possibly access the Internet. You can connect to the network this way:

- Create a modem connection by using a PCS Vision account. Before you can create this modem connection, your network administrator needs to set up a PCS account for you.

Get the following information from your network administrator.

- Dial-up access telephone number
- User name
- Password

If your 700CXL Computer does not have access to a mobile phone network, insert a modem card.

Note: To change modem connection settings in PCS Vision, tap **Manage existing connections** > the **Modem** tab. Select the desired modem connection, tap **Edit**, and follow the instructions on the screen.

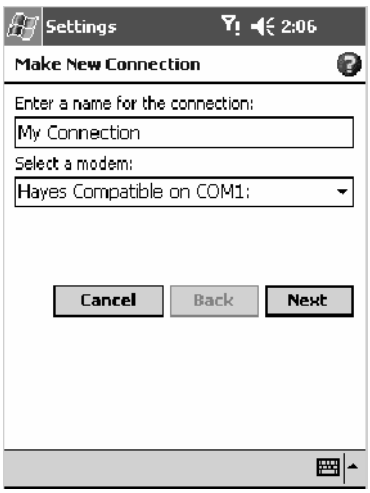
To view additional information for any screen in the wizard or while changing settings, tap the **Help** icon.

1 Tap **Start** > **Settings** > the **Connections** tab > the **Connections** icon. In **PCS Vision**, tap **Add a new modem connection** to set up a modem connection.

2 Enter a name for the connection, such as "My Connection." In the **Select a modem** list, select your modem type. If your modem type does not appear, try reinserting the modem card.

- If you are using an external modem connected to your 700CXL Computer with a cable, select "Hayes Compatible on COM1."
- If you are using any type of external modem, select the modem by name. If a listing does not exist for your external modem, select "Hayes Compatible on COM1."
- Wireless connections can be made via a mobile phone network or GPRS. If you are using a mobile phone network to connect, select "Cellular Line." If you are using GPRS, tap "Cellular Line (GPRS)."

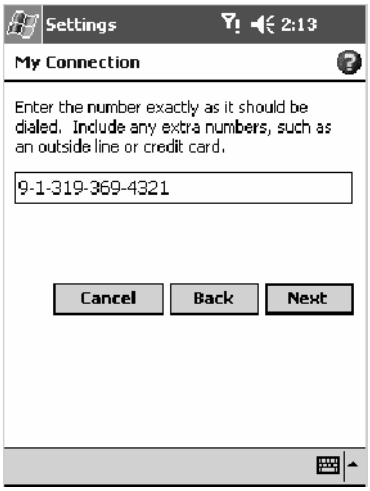
Tap **Next** to continue.



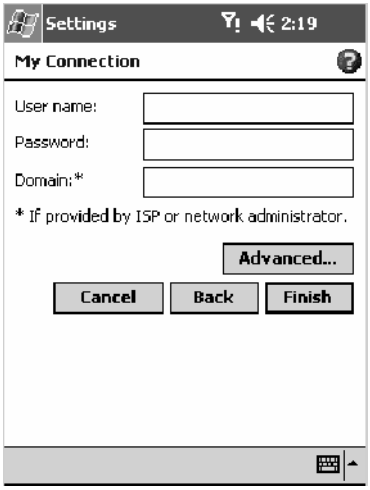
3 Enter the access phone number, using some of the following guidelines. If you know part of the phone number changes frequently as you travel, create dialing rules to avoid creating numerous modem connections for the same phone number. For more information, tap **Start** > **Help** , then click **Use Dialing Rules** near the bottom.

- Enter the phone number exactly as you want it dialed. For example, if you call from a business complex or hotel that requires a nine before dialing out, enter "9" in front of the phone number.
- Enter the APN provided by your mobile phone service provider.
- When using dialing rules, phone numbers are entered differently. To use additional numbers, such as a "9" to dial from an office complex or hotel, you must use additional dialing rules or change dialing patterns. See "*Create Dialing Rules*" via your online help for information.

Tap **Next** to continue.



4 Enter the user name, password, and domain (if provided by an ISP or your network administrator). If a domain name was not provided, try the connection without entering a domain name.



5 You should not need to change any advanced settings. Instances where you are to change advanced settings include the following. To change advanced settings, tap **Advanced**. Otherwise, tap **Finish**.

- You want to change baud rate settings, dialing string commands, or credit card options.
- You need to change port settings.
- The server you are connecting to does not use dynamically-assigned addresses, and you need to enter your TCP/IP settings.

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

Ending a Connection

To disconnect, do one of the following:

- When connected via modem or VPN, tap the **Connectivity** icon on the navigation bar, and then tap **Disconnect**.
- When connected via cable or cradle, detach your device.
- When connected via Infrared, move the device away from the other computer or device.
- When connected via a network (Ethernet) card, remove the card from your device. *Note this does not apply to 730 Computers.*
- When connected via a wireless network, switch off the connection.

Connecting Directly to an E-mail Server

You can set up a connection to an e-mail server so that you can send and receive e-mail messages by using a modem or network connection and Inbox on your 700 Color Computer.

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

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

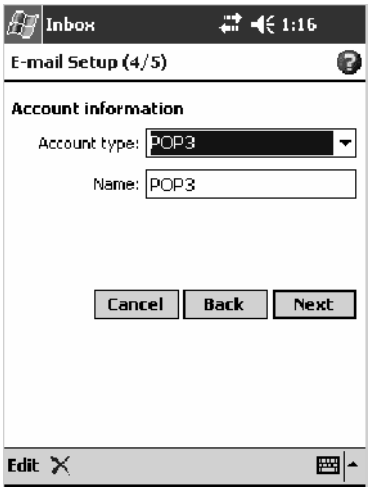
Setting Up an E-mail Account

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

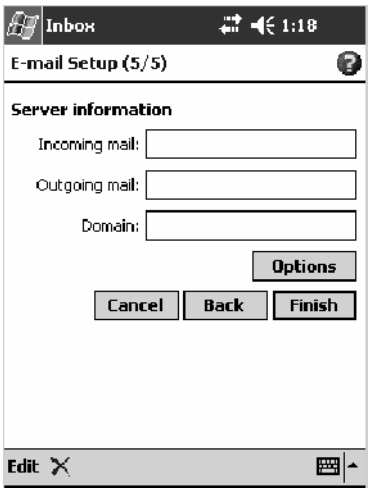
1. On your 700 Color Computer, tap **Start** > **Inbox** to access the Inbox application. Tap **Accounts** > **New Account**.
2. Enter an e-mail address, tap **Next**, then **Skip** after the status of the automatic configuration is listed as "Completed."

3 Enter your user name and password, then tap **Next**.

4 Select the appropriate service type from the **Account type** drop-down list, either POP3 or IMAP4, or enter a new account type, then tap **Next**.



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



When finished, to connect to your e-mail server, from the Inbox application, tap **Accounts** > **Connect**. For more information on using the Inbox program, see "*Inbox: Sending and Receiving E-mail Messages*" on page 73.

3 Installing Applications

There are multiple ways to get an application to your 700 Series Color Mobile Computer; just as there are multiple ways to package the application for delivery.

Packaging an Application

Use any of these methods to package an application for installation:

- For very simple applications, the application itself might be the only file that needs to be delivered.
- It could be a directory structure that contains the application, supporting files like ActiveX controls, DLLs, images, sound files, and data files.
- Or, you could package an application via a CAB file.

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

- In the basic 700 Color Computer, there are two built-in storage options: the Object Store and the Persistent Storage Manager (PSM). The Object Store is RAM that looks like a disk. Anything copied here is deleted when a cold-boot is performed on the 700 Color Computer. The PSM is an area of storage which is embedded in a section of the system's FLASH memory. This storage area is *not* erased during a cold-boot. It may, however, be erased during the reflashing process. In addition to storing applications and data files, you do have the option to store a persistent registry to the PSM region.
- If the optional Secure Digital or CompactFlash storage card is in the system, then consider this card the primary location for placing an applications install files. The following folders represent either card:
  - The Secure Digital storage card creates the "\SDMMC Disk" folder.
  - The CompactFlash storage card creates the "\Storage Card" folder.

Note: The 730 Mobile Computer does *not* support the Compact Flash storage 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.

Files copied to any of these locations are safe when a cold-boot is performed on a 700 Color Computer — *providing the AutoRun system is installed in the appropriate location* You can find this system in the 700 Color Management Tools portion of the *Intermec Developer's Library CD.* Copying a CAB file to the "\CABFILES" folder on one of these cards automatically extracts that CAB file on every cold-boot to ensure that your system is properly set up (see page 128).

Installing Applications

Consider any of the following options to get the package to the preferred location on your 700 Series Computer.

- Microsoft ActiveSync
- FTP Server *(page 124)*
- Secure Digital or CompactFlash storage cards *(page 124)*

Using Microsoft ActiveSync

Note: These instructions assume the 700 Color Management Tools portion of the *Intermec Developer's Library CD* was installed on your desktop.

The Microsoft ActiveSync tool is located on the *700 Color Companion CD*. See Chapter 2, "*Windows Mobile 2003*," for information about this tool as provided by Microsoft Corporation.

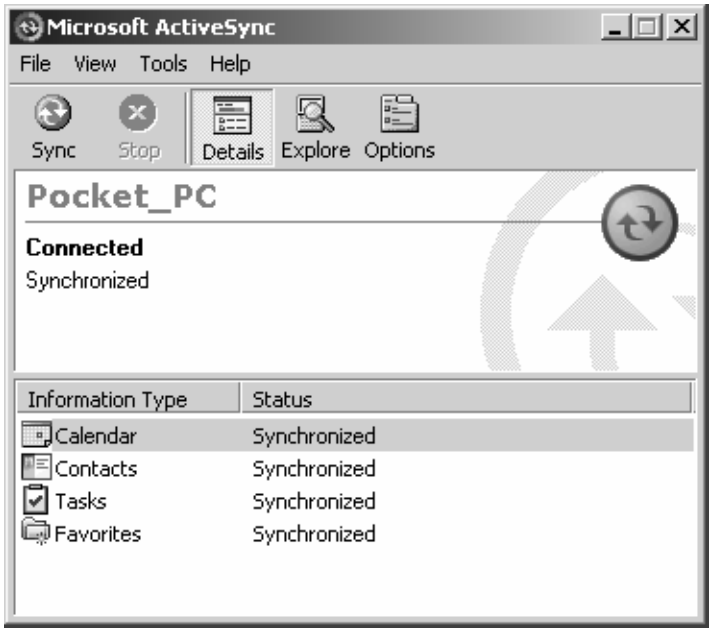
This can be a serial, USB, Ethernet, InfraRed, or 802.11b ActiveSync connection. Files can be copied using File Explorer on a desktop or a laptop computer. This is usually good when updating few 700 Color Computers.

Note: The 730 Computer does *not* support Ethernet.

These instructions assume that Microsoft ActiveSync was installed onto your desktop and is up and running. If not, go to Chapter 2, "*Windows Mobile 2003*," for an URL from which to download the latest application.

1 Connect your 700 Color Computer to your desktop computer via an ActiveSync cable or IrDA.

2 Wait for a "Connected" message to appear in the Microsoft ActiveSync application to signal a connection to the 700 Series Computer. If necessary, select **File** > **Get Connected** to initiate a connection.



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

4 From your desktop, select **Start** > **Windows Explorer**, then browse the "C:\Intermec\700C Mgmt Tools\CabFiles" path for any CAB files needed for your 700 Color Computer. Select the appropriate file, right-click the file for a pop-up menu, then select **Copy**.

5 Within the Mobile Device directory, go to the directory where you want the files located on the 700 Color Computer, do a right-click for a pop-up menu, then select **Paste**.

6 When all of the files are pasted, perform a warm-boot on the 700 Color Computer. When the computer reboots, wait for the LED on the top left of your keypad to stop blinking. Tap **Start** > **Programs** > **File Explorer** to locate the newly copied executable files, then tap these files to activate their utilities.

Using the FTP Server

The 700 Color Computer has a built-in FTP Server that connects to a network via Ethernet, 802.11b, or WAN (Wireless Access Network). This allows connections to the 700 Color Computer to perform file transfers or computer management functions. Another benefit is you can create FTP scripts to automate the process of copying files to the 700 Color Computer. This option is good for when a large number of 700 Color Computers need updating. See Chapter 7, "*Programming*," for more information.

Using a Storage Card

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

Copying to a CompactFlash Card

Note: These instructions do *not* apply to the 730 Computer.

1 Suspend the 700 Color Computer and remove its CompactFlash drive, which holds a SanDisk CompactFlash storage card.

2 Using a CompactFlash Adapter card, place the CompactFlash drive in your desktop PC card drive.

3 Create a subdirectory on the PCMCIA CompactFlash drive in which to store your application.

4 Use the CEImager application to add the autorun system to the storage card. See the *Software Tools User's Manual* to learn about CEImager.

5 Copy your application, data files, and all required DLLs and drivers to the subdirectory created on the CompactFlash drive.

6 Add your application to the AUTOUSER.DAT file on the "\Storage Card\2577" directory with the following statement:

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

where *your directory* is the directory on the CompactFlash storage card where the application was installed, and *yourapp.exe* is the name of your application. Finish the "RUN=" statement with a carriage return line-feed combination. There may be multiple run statements in the file.

7 Remove the CompactFlash card from your desktop and reinstall it into the 700 Color Computer.

8 Warm-boot the 700 Color Computer to add these files to the CompactFlash storage card.

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

Copying to a Secure Digital Storage Card

1 Suspend the 700 Color Computer and remove its Secure Digital drive, which holds a Secure Digital storage card.

2 Using a Secure Digital Adapter card, place the Secure Digital drive in your desktop PC card drive.

3 Create a subdirectory on the PCMCIA Secure Digital drive in which to store your application.

4 Use the CEImager application to add the autorun system to the storage card. See the *Software Tools User's Manual* to learn about CEImager.

5 Copy your application, data files, and all required DLLs and drivers to the subdirectory created on the Secure Digital drive.

6 Add your application to the AUTOUSER.DAT file on the "\SDMMC Disk\2577" directory with the following statement:

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

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

7 Remove the Secure Digital card from your desktop and reinstall it into the 700 Color Computer.

8 Warm-boot the 700 Color Computer to add these files to the Secure Digital storage card.

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

Updating the System Software

You can use the *Intermec Developer's Library CD* to reinstall or update the operating system software on the 700 Color Computer. For more information, contact your Intermec representative.

Application Migration

Note: These instructions assume that the 700 Color Management Tools portion of the *Intermec Developer's Library CD* was installed on your desktop and that a storage card was added to the base configuration of the 700 Color Computer.

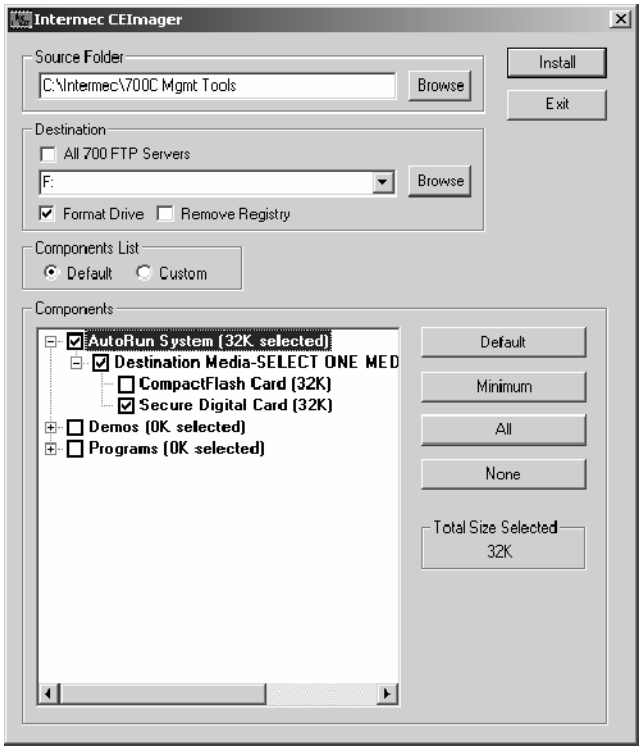
Do the following *required* steps to ensure that CAB files are restored, applications automatically start, and registry is restored on cold-boot:

1 From your desktop, double-click the **Intermec CE Imager** desktop icon to access the Intermec CEImager application. If this icon is not on your desktop, then double-click the CEIMAGER.EXE executable from the "C:\Intermec\700C Mgmt Tools\Tools\CEImager" folder.

2 Click **Default** under **Components List** to activate the components.

3 Click (+) to expand the **AutoRun System** component, click (+) to expand the **Destination Media** option, then select *either* the **CompactFlash Card** option or the **Secure Digital Card** option. *Do not select both storage cards, as the AutoRun files copied will work for one storage card, but* ***not*** *work on the other storage card.*

Note: The 730 Computer does *not* support CompactFlash storage cards.



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

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

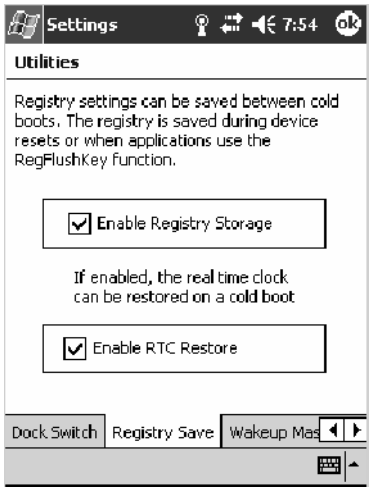
6 In the "\2577" directory, add your custom AUTOUSER.DAT file. See the *Recovery Help* for more information on how to set up an AUTOUSER.DAT file.

7 If you are using the RegFlushKey() API, the application must use a special API to make sure the registry is written to the appropriate card; or you can use the **Utilities** control panel applet, as follows. See Appendix A, "*Configurable Settings*," for more information about this applet.

a From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Utilities** icon > the **Registry Save** tab.

b Tap **Enable Registry Storage** to save the registry in the Flash File System (PSM) via the "\Flash_File_Store\Registry" path.

c Tap **ok** to save your entry and exit the **Utilities** control panel applet.



700 Color and 700CXL Screens

730 Screen

8 Remove the storage card from the desktop PC and install the card into the 700 Color Computer.

9 Perform a cold-boot on the 700 Color Computer. Files automatically install from the storage card upon reboot. Any calls to the RegFlushKey() API automatically writes the registry to the appropriate location.

Note: Both the warm-boot and the cold-boot procedures, via the software API, will also flush the registry.

Migrating from a 700 Monochrome Computer

As you migrate from a 700 Monochrome Computer to a 700 Color Computer, you need to consider the following: When converting a 700 Monochrome Computer application to run on the 700 Color Computer, most APIs should work without changes. Below are a few exceptions:

- The 700 Monochrome Computer uses the "\Storage Card" folder for nonvolatile storage. You may need to change the application to store data onto the "SDMMC Disk" folder instead of the "\Storage Card" folder if a Secure Digital storage card is present in the system.
- If the application uses the RegFlushKey() API, it must first verify that the proper media is available in the system and call the special API mentioned in Step 7 on the previous page.
- If the application is using the 700 Color switchable dock, use the IOCTL_DOCK_SWITCH value from the IOCTL_HAL_ITC_WRITE_SYSPARM function to set the proper port on the dock before communications. See more information about this KernelIOControl function in Chapter 7, "*Programming.*"
- Some WAN radio options have changed. Review the WAN radio information in Chapter 4, "*Network Support,*"to determine if any changes are required in your application.
- Arrow and tab keys are reversed from the 700 Monochrome Computer. Keyboard remapping is available on the 700 Color Computer should you need to map these keys like that of the 700 Monochrome Computer (see page 125).
- Special SDKs are not needed to compile applications for the Xscale processor. Targeting the SA1110 processor creates applications that run on the 700 Color Computer.

Cabinet File Installation

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

For the 700 Color Computer, CAB files register DLLs, create shortcuts, modify registry entries, and run custom setup programs. Tap a CAB file to extract that file or place the CAB file on one of the approved storage devices in the "\CabFiles" folder, then perform a warm-boot on the 700 Color Computer. There are two methods available to extract a CAB file:

- Tap a CAB file to extract it. With this method, the CAB file is automatically deleted when the extraction process is successful, *unless* the CAB file is set with the read-only attribute.
- Use the AUTOCAB method to extract all files when a cold-boot is performed on the 700 Color Computer. This method is on the *Intermec Developer's Library CD*, see its *Software Tools User's Manual* for information.

4 Network Support

The 700 Series Color Mobile Computer can integrate up to three radios in a single unit, and automatically installs the appropriate software for radio use when the unit is powered on.

The Intermec CORE (Common Object Resource Environment) application, which provides a framework for various modules that let you configure and manage your Intermec products, defaults to the most recently used module. If a module is not yet used or set, CORE defaults to the first module as listed alphabetically.

The following communication options on the 700 Series Computer provide wired and wireless connectivity:

- **Onboard wired Ethernet** *(standard on 700 Color and 700CXL Computers, not available on 730 Computers)*
- **Wireless Local Area Network** *(standard on 730 Computers)*
  This 802.11b radio option provides up to 11 Mb/sec throughput.
- **Wireless Wide Area Network** *(not available on 730 Computers)*
  Includes support for GSM/GPRS and CDMA/1xRTT radios.
- **Wireless Personal Area Network**
  This allows for cable-free communications with peripheral devices, such as printers, over a ten-meter range. This compatibility is provided via a Bluetooth qualified module by Socket Communications.

CORE

The Intermec CORE application provides a framework for various modules that let you configure and manage your Intermec products. These modules are software plug-ins that can be configuration tools, such as the 802.11b radio configuration module, or they can provide information on your environment, such as a battery life module.

CORE modules are collections of specific information. Each module can display general and detailed information. Tap the **General** and **Details** tabs near the bottom to switch between general and detailed information. Note that not all modules have detailed information.

Activating CORE

CORE is built into the operating system of every 700 Color Computer. To run CORE for the first time, select **Start** > **Programs** > **File Explorer**, select "\Flash File Store\Apps\CORE," then tap the CORE executable file.

After CORE is run on the 700 Color Computer, tap **Start** > **Programs** > **Core** to access this application henceforth.

Install an Available Radio Module

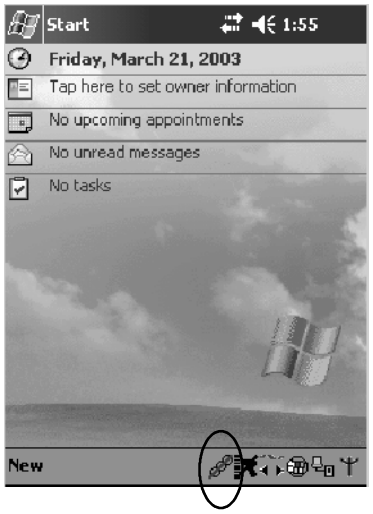
To install an available radio module onto your 700 Color Computer, tap **Modules** > **Add/Remove**, select a module from the bottom Available box, then tap **Add** to put the selected module in the upper Installed box. Click **OK** to exit the Add/Remove Modules screen.

Loading a Radio Module

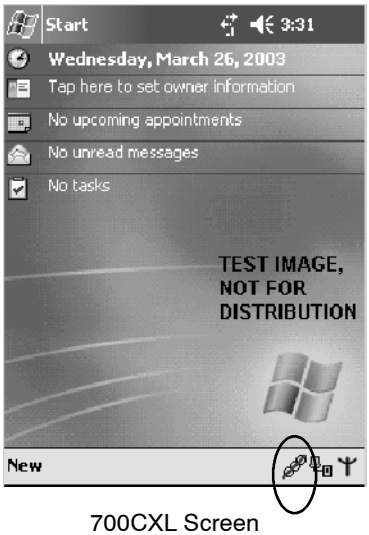
To load or switch to another radio module installed on the 700 Color Computer, tap **Modules** > **Choose Module**, select a module from the Installed Modules box, then tap **Choose** to initialize and begin using that module.

To learn more about this application, see its online help. Tap **Start** > **Programs** > **File Explorer** and select "\Flash File Store\Apps\CORE," then tap the **corehelp** .HTM file.

Note: Once CORE is running, you can return to it by tapping its icon from the System Tray via the Today screen. Tap **Start** > **Today** > the **Core** three-ring icon *(circled in the following illustration)*.



700 Color and 730 Screens



700CXL Screen

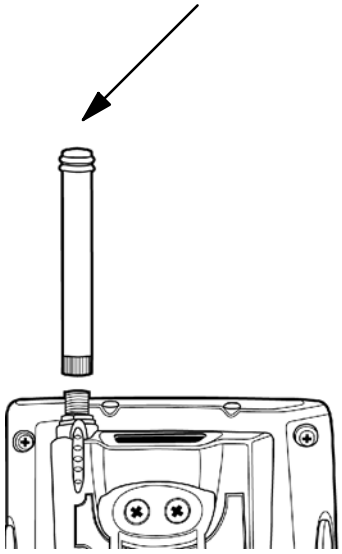
Network Adapters

Your 700 Color or 700CXL Computer can have up to three radios installed. The default network adapter or radio is dependent on what radios are installed in your 700 Series Computer.

The 730 Computer only has the 802.11b radio and wireless printing. Other radios are *not* supported.

Below are the the network adapters that exist as of this publication. See the Developer's Support web site for the latest information on network adapters for your unit.

- Ethernet Communications — page 132.
- 802.11b Radios *(802.11b Wireless LAN driver)* — page 133.
- WWAN *(Wireless WAN)* — page 138.
- Wireless Personal Area Networking — page 186.



Note that the tip of the antenna attached to your 700 Color or 700CXL Computer is color-coded to identify its WWAN radio type. *This does not apply to the 730 Computer.* Refer to the following to determine your radio type:

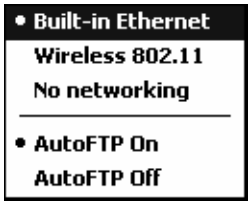
- **Red**
  CDMA (non-Sprint networks) and GSM/GPRS US/Canada
- **White**
  GPRS US/Canada and CDMA Sprint networks
- **Blue**
  GPRS International

Ethernet Communications

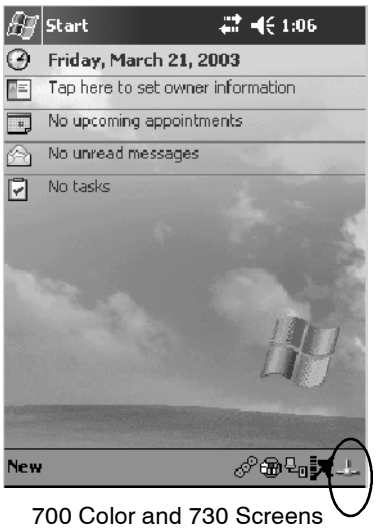
Note: This section does *not* apply to the 730 Computer.

Follow the steps below to start Ethernet communications on the 700 Color or 700CXL Computer. If your system does not contain an 802.11b radio, then **Ethernet networking using DHCP** is selected as the default.

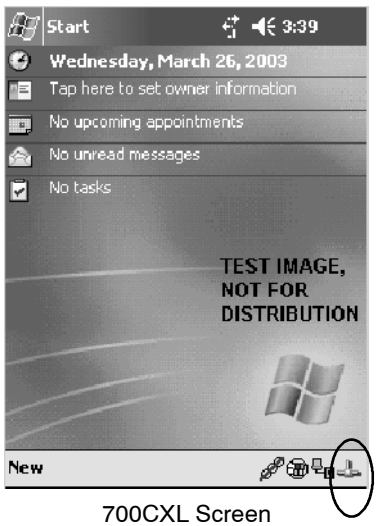
When "Built-in Ethernet" is selected from the NDISTRAY pop-up menu (the Network Driver Interface Specification tray application),



then the **Ethernet** icon shown to the left appears in the System Tray *as circled in the following illustration*.



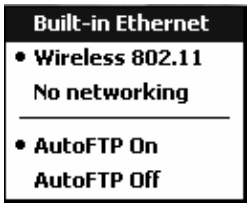
700 Color and 730 Screens



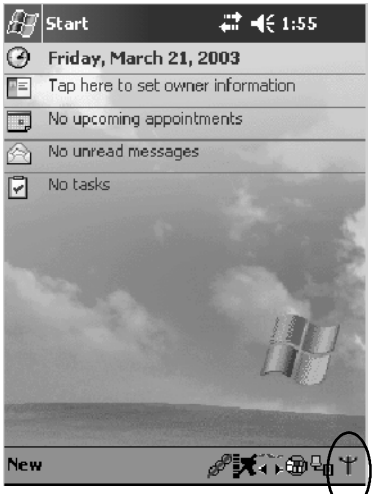
700CXL Screen

802.11b Communications

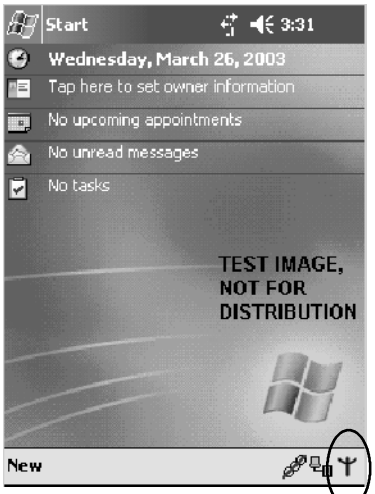
When "Wireless 802.11" is selected via the NDISTRAY pop-up menu:



the **802.11 antenna** icon shown to the left appears in the system tray *as circled in the following illustration*.



700 Color and 730 Screens



700CXL Screen

To configure 802.11b communications on the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Wireless Network** to access the Profile Wizard for the 802.11b radio module. Go to Appendix A, "*Configurable Settings*," for configuration information.

802.11b Radio CORE Module

Note: See page 130 for information on loading this module in CORE.

The 802.11b radio CORE module displays helpful information about the 802.11b radio option built into your 700 Series Computer.

Note that you can configure the 802.11b radio module from this CORE application. Select **Configure** > **Configure Intermec 802.11 CF** from the bottom menu bar to access the Profile Wizard application. See Appendix A, "*Configurable Settings*," for information about this application via the Wireless Network control panel applet.

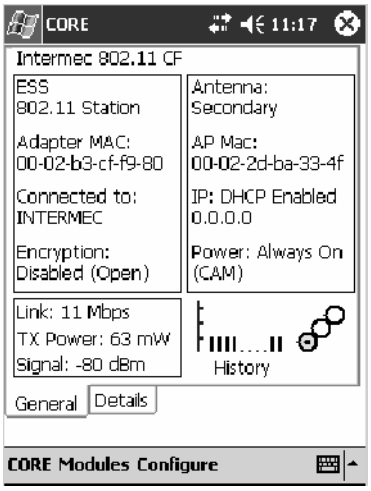
General

Below are descriptions and meanings for each piece of information provided via the **General** tab. *Note that the information is listed alphabetically*.

Adapter MAC	Identifies the MAC address for this 802.11b adapter.
Antenna	Identifies the antenna used with the 802.11b radio: "Primary," "Secondary," or "Diversity."
AP Mac	Identifies the MAC address of the access point to which this 700 Series Computer is connected.
Connected to	Reports the connection status and to which SSID this 700 Series Computer is attached.
Encryption	Reports the encryption mode and the association mode (in parentheses). See page 375 for information about WEP encryption.
ESS	Identifies the type of network to which you are attached, either an ESS (Extended Service Set) 802.11 Station, or Ad-hoc.
IP	Provides the IP address which can be set as either DHCP (Dynamic Host Configuration Protocol) or statically.
Link	Indicates the speed at which a connection is made.
Power	Indicates the power status of this 802.11b profile.
Signal	Identifies the radio signal strength (in dBm).
TX Power	Shows the transmit power (in milliwatts) at which transmissions are made.

History:
This bar graph displays an active history of this radio module's quality of connections.

Friendly Indicator:
This indicates the general quality of the 802.11b connection. Three filled dots indicates the best quality; two filled dots dictates good quality; one filled dot is of fair quality; and when all three dots are empty, the quality is considered poor.



Details

Below are descriptions and meanings for each piece of information provided via the **Details** tab. *Note the information is listed alphabetically.*

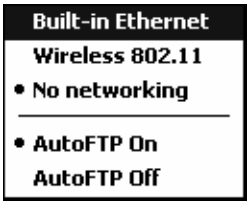
Attach-Roam Cnt	Includes the number of new associations made during the current session, including any found roaming.
CCX Status	States the status of the CCX, either enabled or disabled.
Desired SSID	Identifies the preferred Service Set Identifier (SSID).
Driver Name	Identifies the 802.1x driver installed on this 700 Series Computer.
Last 5 Supp Msgs	Monitors and reports the 802.1x Security Supplicant activity.
Scanlist	Indicates whether the Scan List option was enabled or disabled.
Supplicant Status	Monitors the 802.1x security activity on the client: “Running” or “Stopped.”
Watchdog Status	Monitors the activity of the Scan List: “Running” or “Stopped.”

700 Color Screen

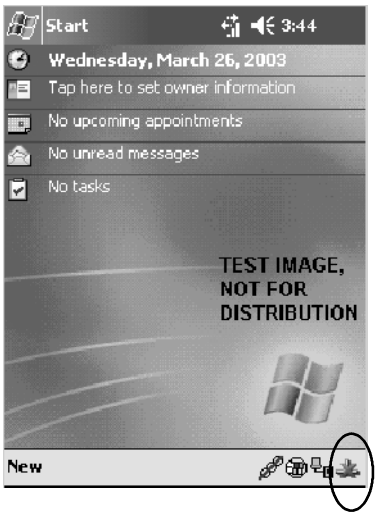
730 and 700CXL Screens

No Networking

When "No networking" is selected from the NDISTRAY pop-up menu:



the **disconnected** icon shown to the left appears in the system tray *as circled in the following illustration*.



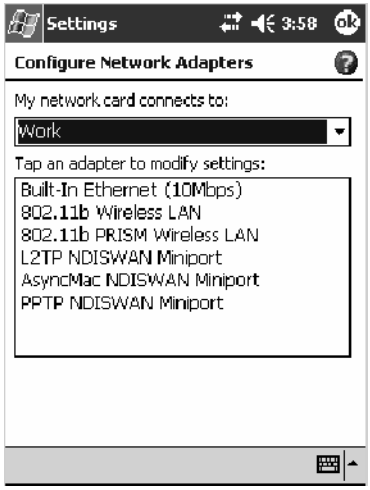
Network Selection APIs

The Network Selection APIs change the network adapter configuration programmatically. Both drivers support the same IOCTL function numbers for loading and unloading the drivers. Go to Chapter 7, "*Programming*," to see the APIs.

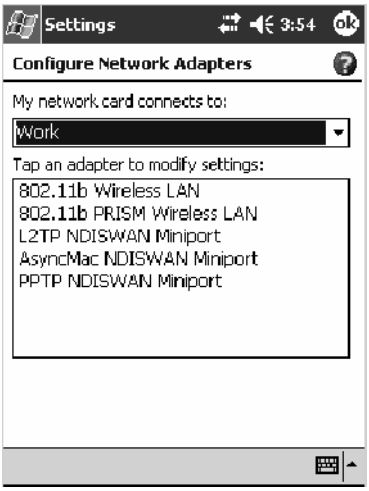
Network Connections

Connections

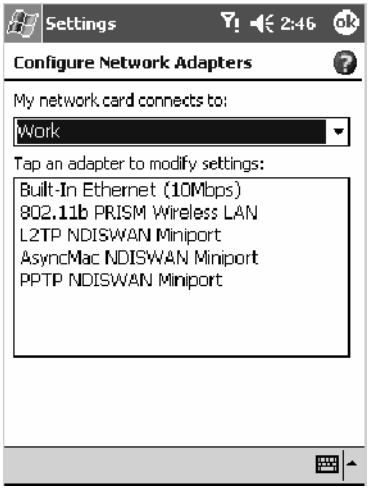
From the 700 Series Computer, tap **Start** > **Settings** > the **Connections** tab > **Connections** > the **Advanced** tab > **Network Card** to access the network connections for this unit. Make the changes necessary for your network, then tap **ok** when finished.



700 Color Screen



730 Screen



700CXL Screen

Note: "Built-In Ethernet (10Mbps)" is for Ethernet, the "802.11b Wireless LAN" is for 802.11b radios on 750 Computers, and the "802.11b PRISM Wireless LAN" is for 802.11b radios on 730 and 700CXL Computers.

WWAN Radio Options

Note: This section does *not* apply to the 730 Computer.

Go to the following pages to learn more about your radio module:

- CDMA/1xRTT radio module *(see below)*
- GSM/GPRS radio module *(page 169)*

CDMA/1xRTT

Code Division Multiple Access (CDMA) is a form of wide area wireless communications. **1XRTT** supports up to 144 KB per second packet data transmission and doubles the voice capacity of current generation CDMA networks.

The WAN radio CORE module displays helpful information about the CDMA/1xRTT radio option built into your 700 Series Computer.

WAN Monitor — General

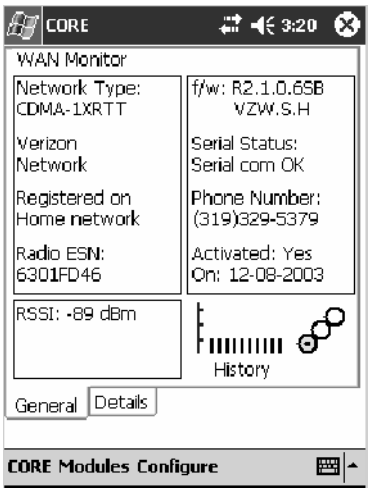
Note: See page 130 for information on loading this module in CORE.

Below are descriptions and meanings for each piece of information provided via the **General** tab. *Note that the information is listed alphabetically*.

Activated	Indicates whether the ESN on this unit was activated by your service provider. *Note a decimal version of your ESN is on the Details page*.
f/w	Identifies the firmware version, if available.
Network Type	The network type which would list "CDMA-1XRTT."
On	Indicates when activation was provided by your service provider.
Phone Number	Identifies the telephone number (or MDN) assigned to the WAN Module installed in your unit.
Radio ESN	Lists the Electronic Serial Number (ESN) assigned to this radio module or "Unavailable" if a number cannot be read from the radio. *This number is required for activation.* You must provide this number to your service provider, such as Sprint, Verizon, Bell Mobility, etc., for activation.
Registered on home network	If the WAN radio module has registered with a service provider network, then one of the following will appear: • *Registered on home network*: Radio module is registered on its "home" network. • *Registered on roamed network*: Radio module registered on another service provider's network. • *Radio Not Registered*: There is no network within range of this radio module.
RSSI	Displays the Received Signal Strength Indicator (RSSI) frequency or lists "Unavailable" if there is no signal or the signal cannot be retrieved from the radio module.
Serial Status	Indicates whether serial communications passed ("Serial com OK") or failed ("Serial com FAIL") in its last transaction. A status of "Serial com FAIL" typically indicates that the 700 Series Computer is unable to establish communication with the radio module installed within.
Verizon Network	Identifies your network service provider.

History:
This bar graph displays an active history of this radio module's quality of connections.

Friendly Indicator:
Usually indicates the signal strength for this radio module. Three filled dots indicate a high quality or strong signal. Three empty dots indicate that the signal is out of range or there is no signal detected.

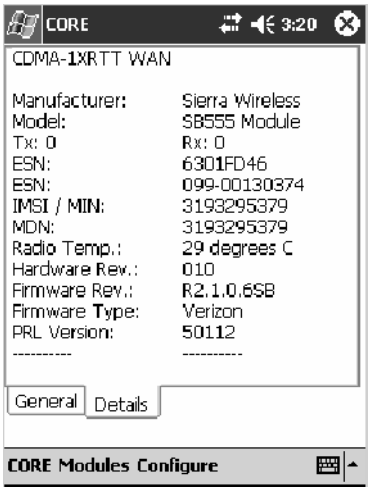


WAN Monitor — Details

Note: See page 130 for information on loading this module in CORE.

Below are descriptions and meanings for each piece of information provided via the **Details** tab. Most of this is similar to what is shown under the **General** tab. *Note that the information is listed alphabetically*.

ESN	Lists the Electronic Serial Number (ESN) assigned to this radio module or "Unavailable" if a number cannot be read from the radio. **This number is required for activation.** You must provide this number to your service provider, such as Sprint, Verizon, Bell Mobility, etc., for activation. *Note that both the hex version and the decimal version of your ESN is provided.*
Firmware Rev	Identifies the firmware version, if available.
Firmware Type	Identifies the type of firmware installed in the WAN radio module. It should match the carrier you are using as your network provider.
Hardware Rev	Identifies the hardware revision of the WAN radio module installed in your unit.
IMSI/MIN	Shows the IMSI (International Mobile Subscriber Identity) number assigned to the Subscriber Identity Module (SIM) card installed in this 700 Series Computer.
Manufacturer	Lists the name of the manufacturer that developed this radio module, such as "Sierra Wireless."
MDN	Shows the MDN (Mobile Directory Number) or DN (Directory Number) — the number that identifies the account tied to your device. You can consider this the "phone number." *Note that the MDN and IMSI/MIN numbers can be the same*.
Model	Lists the product name for this radio module, such as "Model 72."
Phone Number	Identifies the telephone assigned to the WAN radio module.
PRI Version	Provides the version number of the Preferred Roaming List (PRL).
Radio Temp	Identifies the temperature of the radio module, or lists "Unavailable degrees" if no information or temperature cannot be measured.
Rx	*(abbreviation for receive)* Indicates the number of bytes received over the WAN connection since the CORE WAN Module was started.
Tx	*(abbreviation for transmit)* Indicates the number of bytes received over the WAN connection since the CORE WAN Module was started.



CDMA Radio Set Up

Note: Set up and provision information is also available in the *700 Color CDMA Radio Setup Quick Start Guide* P/N: 962-054-063.

This tells you how to set up your CDMA radio in your 760 Computer. Below are terms to familiarize you with CDMA radio technology:

Activation	The process of programming the radio with the lock code (MSL) and phone number (MIN) to allow it to communicate on the provider's network. Once activation is complete you can make voice calls *(if enabled by the carrier)* with the mobile computer.
Data Provisioning	The process of activating the ability for the CDMA radio to establish data connections, such as connecting to the Internet. The CDMA radio makes data connection only after it is activated and data provisioned.
NID (Network ID)	A numeric value programmed into the CDMA radio at the factory or during the activation process. Your carrier may or may not use this value, but your carrier may provide this for activation purposes.
SID (System ID)	A numeric value programmed into the CDMA radio at the factory or during the activation process. This number is used by your carrier to determine if the radio belongs to its CDMA network. Your carrier may provide this number for activation purposes.

Note: Descriptions in this chapter are for Sprint PCS, Bell Mobility, Telus, and Verizon Networks versions of the SB555 Watcher program. Other carriers may be added pending regulatory and carrier approval.

Copying CDMA Radio Module CAB Files from Intermec Web Site

Copy CAB files from the Intermec web site at http://www.intermec.com onto your desktop. *Note that this is subject to change.*

1. Select **Service & Support** > **Developers Support** from the blue navigation bar on the Intermec home page.
2. Select **700 Color Support** from the Developers Support navigation column on the left side of the screen.
3. Select **Downloads** from beneath the **700 Color Support** selection in the Developers Support navigation column on the left side of the screen.
4. Select **WWAN** from the center of the screen, beneath the "Downloads" title.
5. From beneath the "Sierra Wireless 'Watcher' Application" title, download any of the CAB files shown, then choose your carrier CAB files.

Intermec recommends two methods with which to load these CAB files onto your 760 Computer: via the Microsoft ActiveSync application (next paragraph) or via a CompactFlash or Secure Digital storage card (next page). See Chapter 3, "*Installing Applications*," for more information about these methods.

Via Microsoft ActiveSync

You can transfer files from your desktop to your 760 Computer via Microsoft ActiveSync. See Chapter 2, *"Windows Mobile 2003"* for more information about ActiveSync.

1 Obtain software from the Intermec web site as described earlier. Download the software to any location on your 760 Computer, such as the **Temp** folder via the **My Device** root location.

2 Tap the carrier CAB file to install the application.

3 Go to "*Finishing the Installation*" on page 143.

Via a CompactFlash or Secure Digital Storage Card

Note: These instructions are based on default locations. You can change the location to which to copy your CAB files.

Utilities

1 Make sure the Registry Restore feature on your 760 Computer is disabled. Select **Start** > **Settings** > the **System** tab. Tap the **Utilities** desktop icon, then the **Registry Save** tab. Clear the **Enable Registry Save** box.

2 Copy the CAB files for your carrier to your CompactFlash or Secure Digital storage card after downloading it from the web site.

3 Cold-boot your 760 Computer. Remove the battery pack and press the reset button in the bottom of the battery compartment.

4 Go through the normal getting started steps detailed in your *700 Color CDMA Radio Setup Quick Start Guide*.

5 Install the CompactFlash or Secure Digital memory card into the card slot in your 760 Computer. *Note that if you do not want the CAB files erased after installation, set the CAB file attributes to "read-only" after copying them to the storage card.*

File Explorer

6 From the 760 Computer, tap **Start** > **Programs** > the **File Explorer** icon.

7 Tap the pull-down menu for **My Documents** and tap the **My Device** root location.

8 *If you are using a CompactFlash storage card*, tap **Storage Card**.

If you are using an Secure Digital storage card, tap **SDMMC Disk**.

9 Scroll down, then tap the **Sprint Watcher** CAB file to install the application.

10 Go to "*Finishing the Installation*" in the next paragraph.

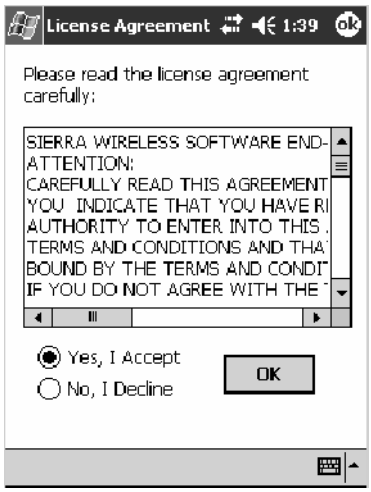
Finishing the Installation

Do the following to run the SB555 Watcher application. Be sure to do step 1 as it is important to perform a warm-boot on your 760 Computer. Upon restart, the Watcher application sets up on the 760 Computer for activation.

1 Press and hold down the I/O button on your 760 Computer for about 12 seconds to warm start the terminal.

2 Tap **Start** > **Programs** > the **Watcher** icon.

3 Tap **Yes, I accept** to accept the license agreement, then tap **OK** to continue. *Note that this license agreement does not appear again after this installation.*



4 Tap **OK** for the 760 Computer to perform a warm-boot and complete the installation.

Activation

Note: Set the date and time before doing this activation.

SB555 Watcher is for activation and data provisioning. Once you enable voice capability, data capability, or both depending on the carrier, remove this program from the system by cold-booting your computer.

Intermec Technologies does not recommend using the SB555 Watcher program to make data and voice calls on a daily basis for these reasons:

- The SB555 Watcher application is a third-party application unaware of certain power management methods used in your 760 Computer. Therefore, the application consumes more power than necessary.
- The application size consumes memory better used for your application data.

The process of setting up the account with your carrier and enabling the CDMA WAN radio in your 760 Computer is called *activation*.

The CDMA radio is pre-programmed for a specific carrier, such as Sprint, Telus, Bell Mobility, Verizon, etc.). Therefore, information about your radio should already be in your carrier's database.

You need to notify the carrier and set up mobile accounts for each unit you are activating. The Electronic Serial Number (ESN hex 63xxxxxx) that you need to supply to your carrier is located in two places:

- On the outside of the 760 Computer shipping box.
- On the inside of the 760 Computer battery compartment.

The ESN comes in both decimal and hexadecimal formats. Most carriers accept either format, but with a preference for the decimal format. You only need to provide one number to your carrier.

- The decimal format consists of 11 digits, beginning with "099."
- The hexadecimal format is an 8-digit number, beginning with "63."

Accounts for Verizon and Sprint carriers can be set up for data only. Canadian carriers (Telus and Bell Mobility) can be set for data only, voice only, or both voice and data. This is determined by your application and the services your carrier offers.

After the all ESNs are provided to the carrier and the carrier has established the accounts, you will be provided with the lock codes and telephone numbers needed to complete the activation process. You use the SB555 Watcher program to accomplish this task. *Be sure to write down this information for future use.*

Note: Ensure that you receive a spreadsheet with your order that calls out all ESNs in both decimal and hexadecimal formats.

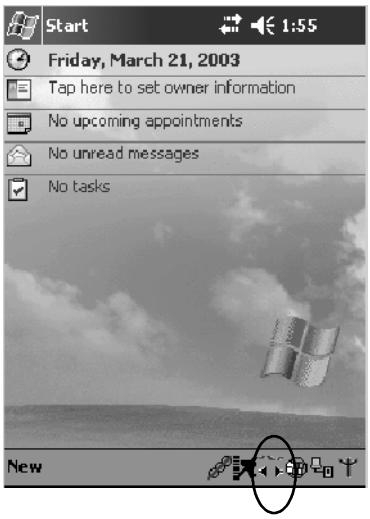
Note: Not all of the elements listed are required by all service providers.

ESN of the modem
Lock/Activation Code (may be termed one of the following): • MSL — Master Subsidy Lock • OTSL — OneTime Subsidy Lock • SPC — Service Provisioning Code • OTKSL — One Time Key Subsidy Lock
SID (System ID)
NID (Network ID)
User Name
Password
MIN
MSD
MDN

Note: The activation process for your Watcher version may vary from the following steps. Thus, you may not have to do all of them.

Watcher

1 Tap **Start** > **Programs** > the **Watcher** icon or tap the Watcher icon from the NDISTRAY via the Today screen *(circled in the following illustration)* to launch the SB555 Watcher program.



2 The Activation Wizard should start automatically. If not, then tap **Admin** > **Activation Wizard** from the bottom of the screen.

3 Follow the screen prompts, tapping **Next** to move from one screen to the next.

4 When you reach the Activation screen, select **Manual Activation**.

5 At the appropriate screen, enter the **Activation Code** (OTSL, MSL, OTKSL, or SPC) provided by your carrier and tap **Next**.

6 Enter the phone number provided when your 760 Computer was activated and tap **Next**.

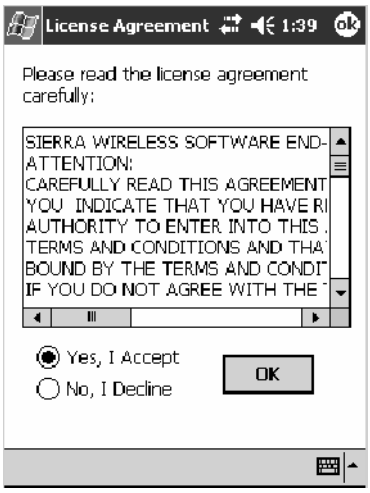
Verizon Automated Activation Process

Note: This process takes approximately 60 seconds.

Using Verizon Watcher

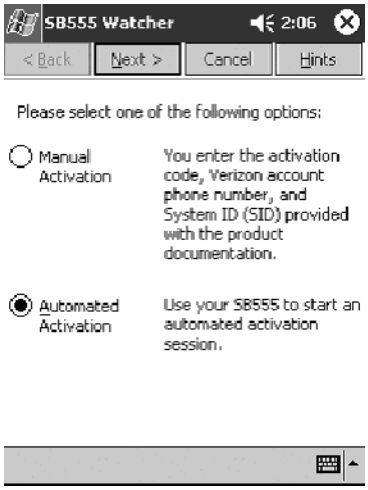
Do the following to activate Verizon on your 760 Computer:

1 After initializing the Watcher program, tap **Yes, I accept** to accept the license agreement, then tap **OK** to perform a warm-start on the 760 Computer. *Note that this license agreement does not appear again after the installation.*



2 Start the Watcher program again, select **Automated Activation**, then click **Next**.

Note: You must be in the Verizon coverage area to activate your 760 Computer and only in the location of intended use.



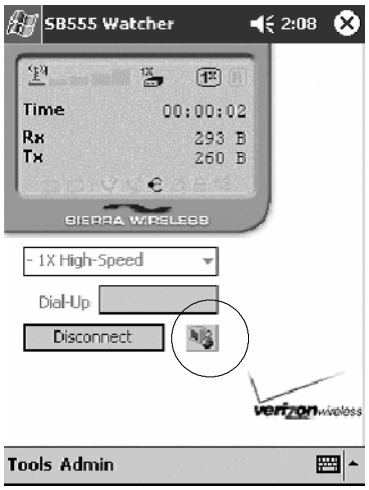
3 Click **Next**, click **Next** again to dial the number displayed on the screen.

4 The activation process starts automatically.

5 You will see a series of unlock codes on your screen.

6 The following illustration shows the result of a successful activation.

7 Click the **Connect** button *(circled in the following illustration)* to connect to the carrier's network.



Internet Explorer

8 Select **Start** > **Internet Explorer**, then choose a web site. Your unit is now successfully activated.

9 Perform a cold-boot on your 760 Computer to uninstall the Watcher application. Watcher is intended for activation purposes only. Intermec recommends using the following for establishing and maintaining connection to the WAN radio.

- Custom application using Intermec's WWAN Toolkit API
- WWANInit demo program (see page 161)
- Custom customer application using Connection Manager Interface

Note: When connecting to the WAN radio via Pocket PC Connection Manager, use the 10-digit phone number@vzw3g.com for the user name (such as 1234567890@vzw3g.com) and "vzw" for the password.

Sprint Automated Activation Process

Note: Sprint PCS uses a data provisioning method termed IOTA (Internet Over The Air) to complete its activation and data enablement. The following steps detail how to properly activate and data provision your 760 Computer.

Do the following to set up activation:

1 Provide Sprint with your ESN, rate plan, and account information.

2 Sprint provides you with the following for each ESN:

- MDN, such as 214-555-5555
- MSID, such as 214-555-5555
- MSL/OTKSL (Activation Code), such as 945614
- NAI (Network Access Identifier), such as the following: CustomerNameo103@sprintpcs.com

You must use a Secure Digital storage card with *only* the SPRINT_WATCHER.CAB file in the "\SDMMC/Cabfiles" directory.

Note: Other CAB files in the "SDMMC/Cabfiles" directory may cause problems with testing — remove or uninstall these before proceeding.

You need at least 80% (4 of 5 bars) CDMA signal strength for a successful over-the-air activation.

Download and Activate Sprint Watcher

Utilities

1 Make sure the Registry Restore feature on your 760 Computer is disabled. Select **Start** > **Settings** > the **System** tab. Tap the **Utilities** desktop icon, then the **Registry Save** tab. Clear the **Enable Registry Save** box.

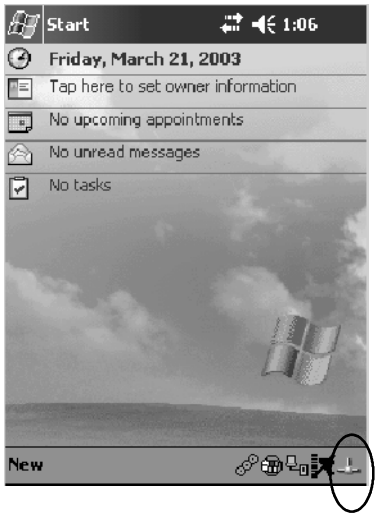
2 Perform a cold-boot on your 760 Computer, then go through the normal Pocket PC set-up (i.e. Align Screen etc.).

3 **Important!** Set the Date and Time.

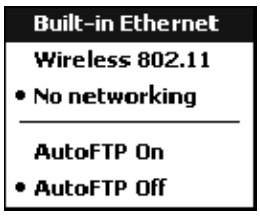
4 Tap the SPRINT_WATCHER.CAB file to perform the installation.

5 Perform a warm-boot on your 760 Computer to load the CAB file.

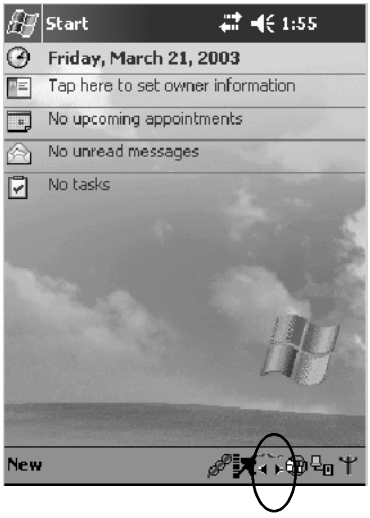
6 From the Today screen, tap the **LAN Network** icon in the System Tray *(circled in the following illustration)*.



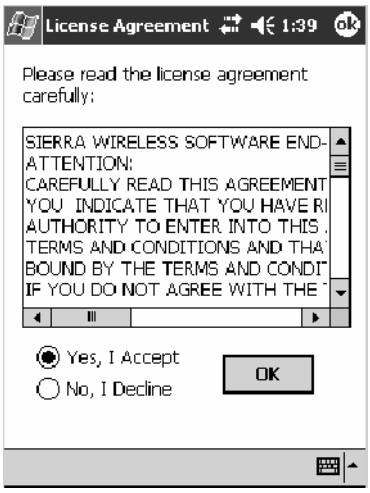
7 In the NDISTRAY pop-up menu (the Network Driver Interface Specification tray application), select **No Networking** and **Auto FTP Off**. Tap anywhere on the screen to close the menu.



8 Tap **Start** > **Programs** > the **Watcher** icon or tap the Watcher icon from the NDISTRAY via the Today screen *(circled in the following illustration)* to launch the SB555 Watcher program.



9 Tap **Yes, I accept** to accept the license agreement, then tap **OK** to continue. *Note that this license agreement does not appear again after this installation.*

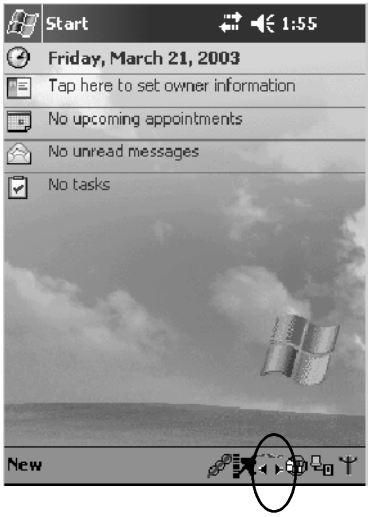


Tap **OK** for the 760 Computer to perform a warm-boot and complete the installation.

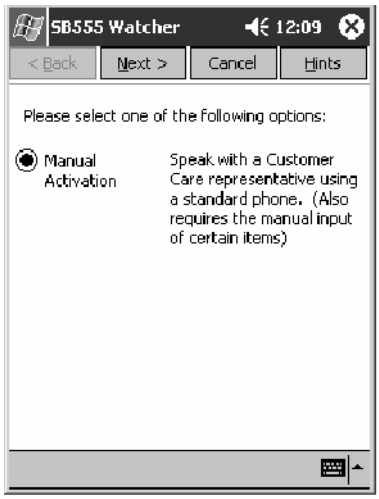
Using Sprint Watcher

Before you start using the Sprint Watcher application, make sure you match the correct ESN with each 760 Computer and that you have at least 80% CDMA signal strength.

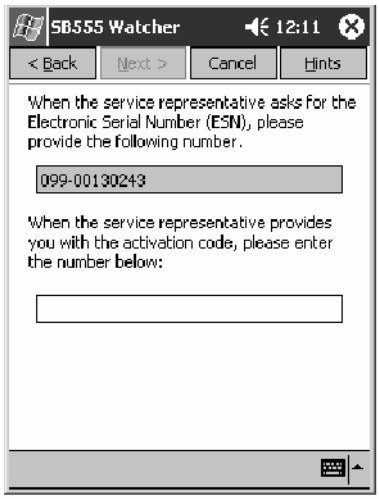
1 Tap **Start** > **Programs** > the **Watcher** icon or tap the Watcher icon from the NDISTRAY via the Today screen *(circled in the following illustration)* to launch the SB555 Watcher program.



2 If your 760 Computer was not previously activated, Watcher automatically starts the Activation Wizard. Otherwise, select **Manual Activation** to continue.



3 Enter the MSL or lock code received from Sprint.



4 Enter the phone number (MIN) and MSID received from Sprint. These numbers may be the same.

5 After entering the phone number and MSID, the modem resets. Watcher displays the following two screens:

Note: If the "searching for SB555" screen does not proceed to the next screen after 30-40 seconds, perform a warm-boot on your 760 Computer, then restart the Watcher program.

Data Provisioning

At this point, the activation on the Sprint network is complete. It is recommended by Sprint to wait before you launch data provisioning to allow time for the activation to propagate through your Sprint network.

Before you manually launch data provisioning, wait at least 30 minutes. In some cases, you may have to wait up to two hours.

1 If **Data Provisioning** does not start automatically, select **Admin** > **Data Provisioning** from the bottom menu bar.

2 Tap **Yes** to proceed with data provisioning.

Activation over the air typically takes 1–20 minutes.

If data provisioning fails, do the following:

- If Data Provisioning fails and the message "could not prepare data services, please contact Sprint" displays, retry the Data Provisioning step by tapping the "Admin" menu icon at the bottom of the Watcher screen. Select "Data Provisioning..." and answer "yes" to the request.
- If after several attempts to complete the Data Provisioning over the air, it may be necessary to manually enter the data activation method.
- Manual activation is beyond the scope of this guide, therefore, go to Intermec Knowledge Central (http://www.intermec.com, then select **Service & Support** > **Knowledge Central**) The article (number 5749) is titled *How to Manually Activate a Sprint CDMA WAN Radio in the 760 Device*.

3 The following screen appears once data provisioning is complete:

4 Test the data connection by tapping on the "connect" button to make a data connection to the network. Watcher progresses through the following two screens. Once you see the second screen you know that your mobile computer has successfully connected to the 1XRTT network.

Internet Explorer

5 Select **Start** > **Internet Explorer**, then choose a web site. Your unit is now successfully activated.

Perform a cold-boot on your 760 Computer to uninstall the Watcher application. Watcher is intended for activation purposes only. Intermec recommends using the following for establishing and maintaining connection to the WAN radio.

- Custom application using Intermec's WWAN Toolkit API
- WWANInit demo program *(see page 161)*
- Custom customer application using Connection Manager Interface

Telus and Bell Mobility Activation

Activation of Bell Mobility and Telus are similar to the first portion of the Sprint activation process. Follow the instructions for manual activation using the Bell Mobility Watcher.CAB or Telus Watcher.CAB file to install the applicable application. Enter the activation lock codes and phone numbers as requested.

Username, Password, SID Information

	Bell Mobility	Telus
Username	10 digit phone number@1xbell.ca	10-digit phone number@1x.telusmobility.com
Password	Original Voice Mail system password (usually a 4 digit number) This is available from the activating organization.	The 11-digit ESN printed inside the 760 Computer battery compartment, begins with 099.
SID	16420	16422

WWANInit Demo Program

Make sure your 760 Computer with CDMA card is activated and data provisioned.

You must use a Secure Digital storage card with *only* the WWANINITxxxxx.CAB file in the "SDMMC/Cabfiles" directory, where "xxxxx" is the version number.

You can download this CAB file from the Intermec web site, via the following:

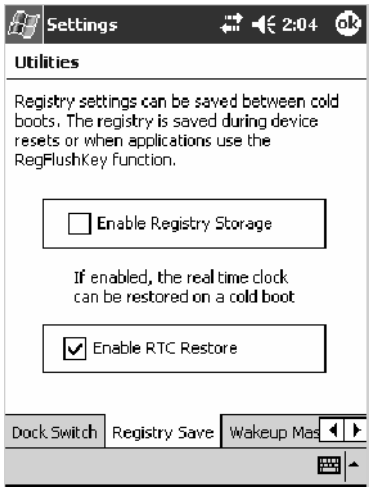
1. Select **Service & Support** > **Developers Support** from the blue navigation bar on the Intermec home page.
2. Select **700 Color Support** from the Developers Support navigation column on the left side of the screen.
3. Select **Downloads** from beneath the **700 Color Support** selection in the Developers Support navigation column on the left side of the screen.
4. Under the **Tools** category, scroll down to "WWANInit xxx Connection Program-WWAN Radios," then click **Download**

Note: Other CAB files in the "SDMMC/Cabfiles" directory may cause problems with testing — remove or uninstall these before proceeding.

Set Up the WWANInit Companion Program

Do the following to set up the WWANInit xxx Companion Program:

1 Make sure the Registry Restore feature on your 760 Computer is disabled. Select **Start** > **Settings** > the **System** tab. Tap the **Utilities** desktop icon, then the **Registry Save** tab. Clear the **Enable Registry Save** box.

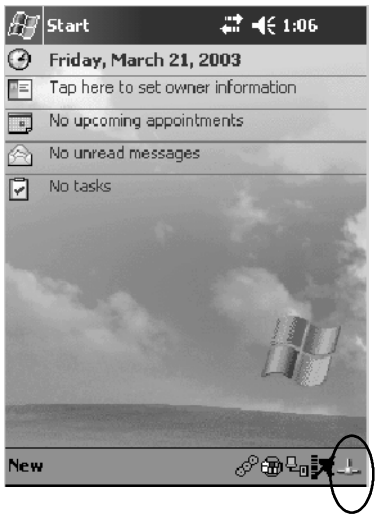


2 Perform a cold-boot on your 760 Computer, then go through the normal Pocket PC set-up (i.e. Align Screen etc.).

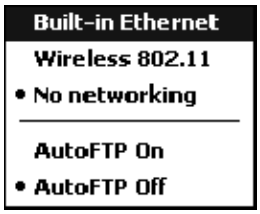
3 Tap the WWANINITxxxxx.CAB file to perform the installation.

4 Perform a warm-boot on the 760 Computer.

5 From the Today screen, tap the **Ethernet** icon in the System Tray *(circled in the following illustration)*.



6 In the NDISTRAY pop-up menu (the Network Driver Interface Specification tray application), select **No Networking** and **Auto FTP Off**. Tap anywhere on the screen to close the menu.

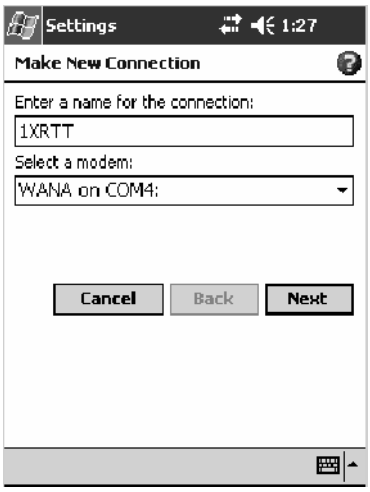


Create a New Connection

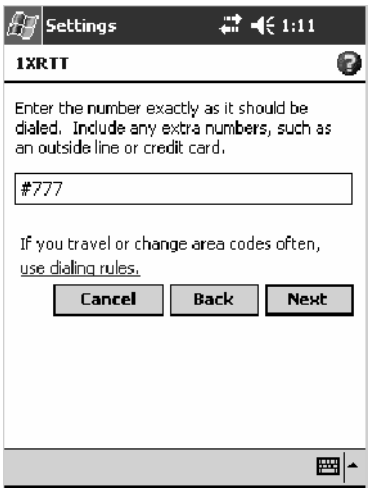
Note: This does *not* apply to the 700CXL Computer.

1 Select **Start** > **Settings** > the **Connections** tab > **Connetions**. Under **My ISP**, tap **Add a new modem connection**.

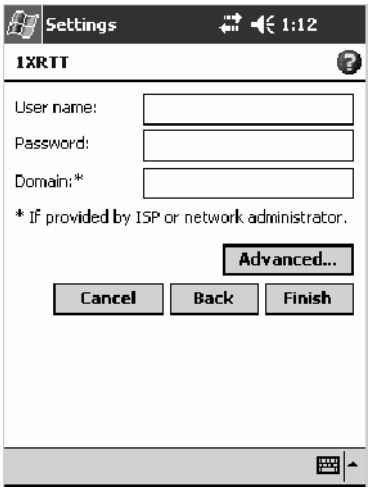
2 Enter "1XRTT" as the name for the connection, select "WANA on COM4" from the **Select a modem** drop-down list, then tap **Next**.



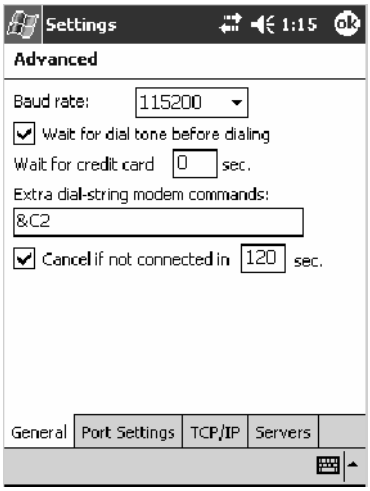
3 Enter #777 for the phone number as it should be dialed, then tap **Next** to continue. Select **Start** > **Help** for more information or tap **use dialing rules** to make modifications. *Note that this screen may vary based on your dialing rules.*



4 Tap **Advanced** to continue.



5 Tap the **General** tab, select "115200" from the **Baud rate** drop-down list, enter "&C2" *without the quotes* in the **Extra dial-string modem commands** field, then tap **ok** to return to the 1xRTT settings.

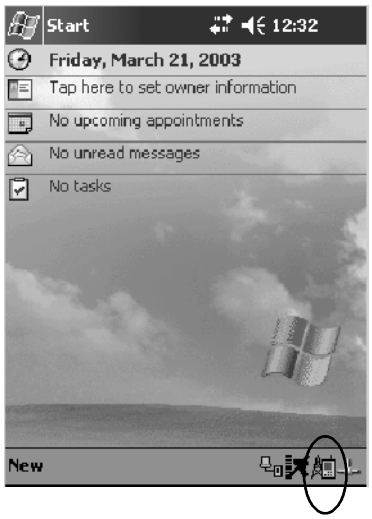


6 Tap **Finish** to return to the Connections page.

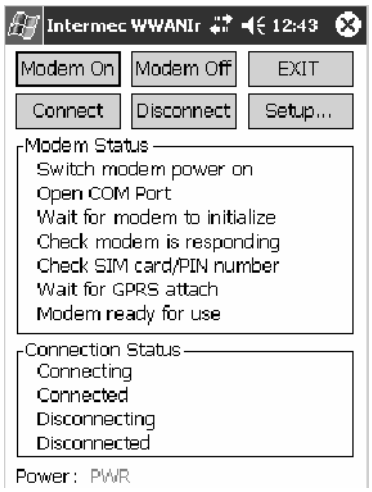
Using the WWANInit Companion Program

Do the following to run the WWANInit application:

1 From the Today screen, tap the **WAN Network** icon in the System Tray *(circled in the following illustration)* or select **Start** > **WWANInit** to start the application.



2 Tap **Modem On**. Let it step through process (usually about 30 seconds) until **Modem Ready for use** appears.



3 Tap **Connect**.

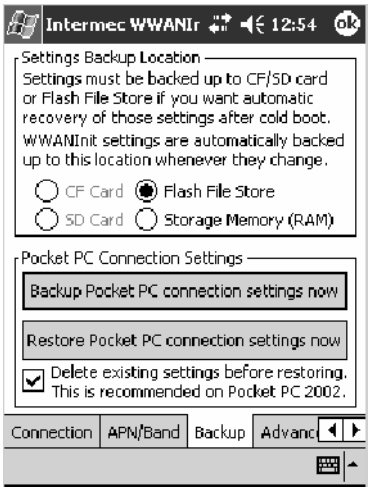
4 *For Telus, Bell Mobility, and Verizon carriers*, click **Save password**. *For Sprint carriers,* leave the field blank.

Username and Password Information

	Verizon	Bell Mobility	Telus
Username	10-digit phone number@vzw3g.com	10 digit phone number@1xbell.ca	10-digit phone number@1x.telusmobility.com
Password	vzw	Original Voice Mail system password (usually a 4 digit number) This is available from the activating organization.	The 11-digit ESN printed inside the 760 Computer battery compartment, begins with 099.

5 Click **OK**. You should see a pop-up message with "Connecting to my connection→then connected".

6 Tap **Setup**, then the **Backup** tab. Choose the location of the backup file, then tap **Backup Pocket PC connection settings now**.



7 Tap **ok** when prompted.

8 Select **Start** > **Internet Explorer**, then tap the large **MSN Mobile** link.

9 Tap the small **connect to MSN Mobile** link. After about 20 seconds, you should connect to the web.

GSM/GPRS

GSM (Global System for Mobile communications) is an open, nonproprietary wireless system. **GPRS** (General Packet Radio Service) is the high-speed data evolution of GSM that supports Internet Protocol (IP), enabling access to Internet and intranet content and applications from GPRS wireless devices.

Note: See page 130 for information on loading this module in CORE.

WAN Monitor — General

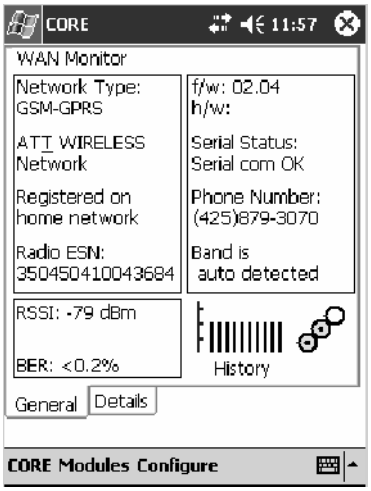
The WAN Monitor CORE module displays helpful information about the GSM/GPRS radio option built into your 700 Series Computer. *The following illustrations are for a GSM/GPRS Siemens MC45 radio.*

Below are descriptions and meanings for each piece of information provided via the **General** tab. *Note that the information is listed alphabetically.*

ATT Wireless Network	Lists the name of the service providing the network support.
Baud	Identifies the frequency bandwidth used by the radio module.
BER	(Bit Error Rate) The average number of bits transmitted in error.
f/w	Identifies the firmware version, if available.
h/w	Identifies the hardware version, if available.
Network Type	The network type which would list "GSM-GPRS."
Phone Number	Identifies the telephone number assigned to the SIM card.
Radio ESN	The Electronic Serial Number (ESN) assigned to this radio module. "Unavailable" appears if a number cannot be read from the radio.
Registered on home network	If the WAN radio module has registered with a service provider network, then one of the following will appear: • *Registered on home network*: Radio module is registered on its "home" network. • *Registered on roamed network*: Radio module registered on another service provider's network. • *Radio Not Registered*: There is no network within range of this radio module.
RSSI	Displays the Received Signal Strength Indicator (RSSI) frequency or lists "Unavailable" if there is no signal or the signal cannot be retrieved from the radio module.
Serial Status	Indicates whether serial communications passed ("Serial com OK") or failed ("Serial com FAIL") in its last transaction. A status of "Serial com FAIL" typically indicates that the 700 Series Computer is unable to establish communication with the radio module installed within.

History:
This bar graph displays an active history of this radio module's quality of connections.

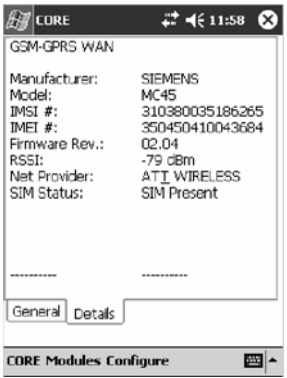
Friendly Indicator:
Usually indicates the signal strength for this radio module. Three filled dots indicate a high quality or strong signal. Three empty dots indicate that the signal is out of range or there is no signal detected.



WAN Monitor — Details

Below are descriptions and meanings for each piece of information provided via the **Details** tab. Most of this is similar to what is shown under the **General** tab. *Note that the information is listed alphabetically*.

Firmware Rev	Identifies the firmware version, if available.
IMEI #	The IMEI (International Mobile station Equipment Identity) serial number of the GSM/GPRS radio module.
IMSI #	Shows the IMSI (International Mobile Subscriber Identity) number assigned to the SIM card installed in this 700 Series Computer.
Manufacturer	Lists the name of the manufacturer that developed this radio module, such as “Siemens.”
Model	Lists the product name for this radio module, such as “MC45.”
Net Provider	Lists the name of the service providing the network support.
RSSI	Displays the RSSI frequency or lists “Unavailable” if there is no signal or the signal cannot be retrieved from the radio module.
SIM Status	Identifies whether a SIM card is installed in this 700 Series Computer.



PhoneUtility

Note: This application is for GPRS radios only, due to E911 requirements issued by the FCC. CDMA radios no longer have voice activation.

With the WAN radio module installed in your 700 Series Computer, you can send and receive telephone calls. Use the speaker on the back of the computer as your earpiece and use the connector on the bottom of the computer for your mouthpiece.

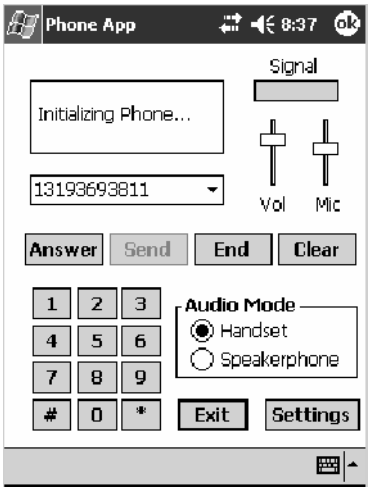
PhoneUtility

Tap **Start** > **PhoneUtility** from the Today screen to access the application which will process your phone calls. Tap **Exit** or **ok** to close this application and return to the Today screen.

Audio Mode

Select either **Handset** or **Speakerphone** from the **Audio Mode** box, then do the following to send or answer a phone call:

- Tap the numbers for a phone call, using **Clear** to erase each digit, then tap **Send** to initiate the call.
- Tap **Answer** to receive an incoming call.
- Tap **End** to disconnect a transaction.
- Drag the **Vol** slider up or down to adjust the speaker volume.
- Drag the **Mic** slider up or down to adjust the microphone sensitivity.

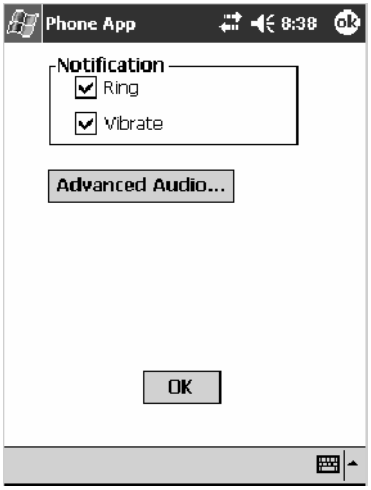


Handset Audio Mode

Speakerphone Audio Mode

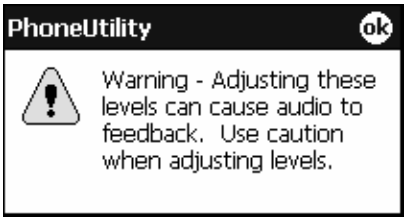
Notification

Tap **Settings** to set your 700 Series Computer to either ring or vibrate or do both, then tap **OK** or **ok** to return to the Audio Mode screen. If you need to adjust the audio settings, tap **Advanced Audio** to continue.

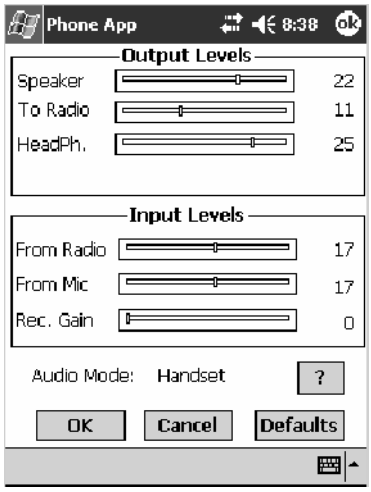


Advanced Audio

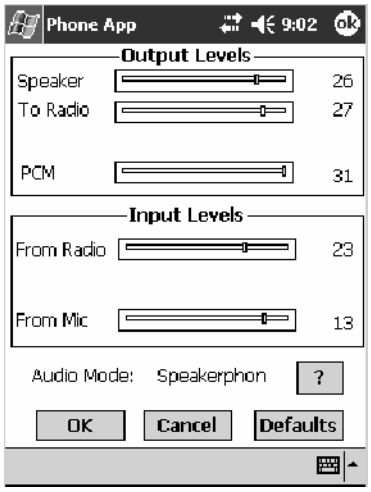
Tap **ok** to close the warning and continue.



Drag the appropriate slider bars left or right to adjust the output and input levels. Tap **Defaults** to return the handset or speakerphone levels to their factory defaults. Click **OK** or **ok** to return to the Notification screen.

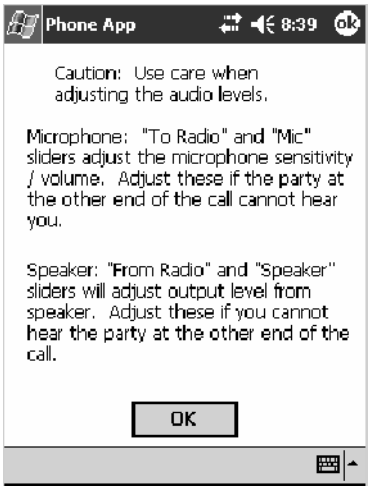


Handset Output/Input Levels



Speakerphone Output/Input Levels

Tap **?** for more information on these level settings, then click **ok** or **OK** to return to the Output/Input Levels screen.



Phone Application for 700CXL Computers with GPRS Radios

Note: This application is for 700CXL Computers with GPRS radios.

With the WAN radio module installed in your 700CXL Computer, you can send and receive telephone calls. Use the speaker on the back of the computer as your earpiece and use the connector on the bottom of the computer for your mouthpiece.

Phone Application for 700CXL Computers with CDMA Radios

Note: This application is for 700CXL Computers with CDMA radios.

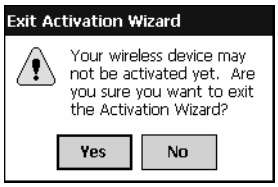
With the WAN radio module installed in your 700CXL Computer, you can send and receive telephone calls. Use the speaker on the back of the computer as your earpiece and use the connector on the bottom of the computer for your mouthpiece.

Phone

Tap **Start** > **Programs** > the **Phone** desktop icon from the Today screen to access the application which will process your phone calls. Tap the Close button in the upper right corner of this application to close this application.

Activation Wizard

When you reboot your 700CXL Computer, if your unit is not activated to use the PCS wireless, a Activation Wizard starts up. If you wish to do this activation another time, tap **Cancel** to close this wizard, then tap **Yes**.

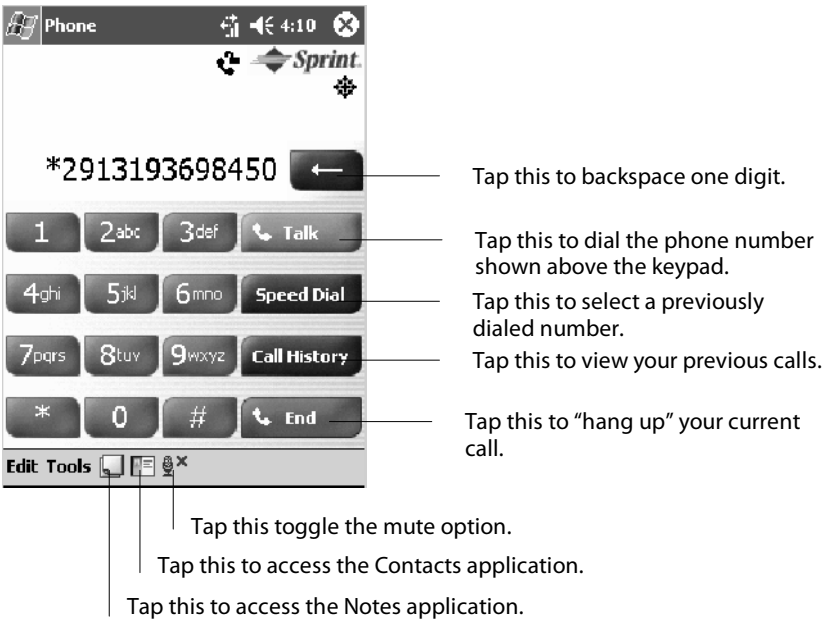


1 Have your activation code, phone number (MDN), and MSID information ready before you tap **Next** to continue. You can get this information from your network provider.

2 Enter your activation code, then tap **Next** to continue.

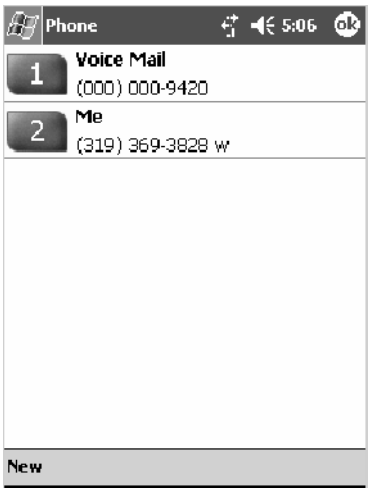
Phone Application

Tap the appropriate keys to enter a telephone number, then tap **Talk** to dial the number. Tap **End** to "hang up" the phone.



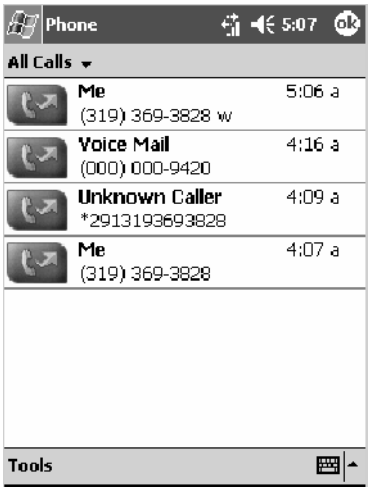
Speed Dial

Tap **Speed Dial** to select a telephone number with which the 700CXL Computer is to dial automatically. To add to this list, use the **Contacts** application. See Chapter 2, "*Windows Mobile 2003,*" for more information.



Call History

Tap **Call History** to note the telephone numbers that were previously dialed from this 700CXL Computer.

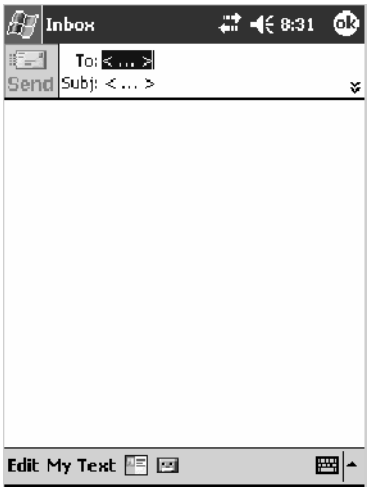


Tools

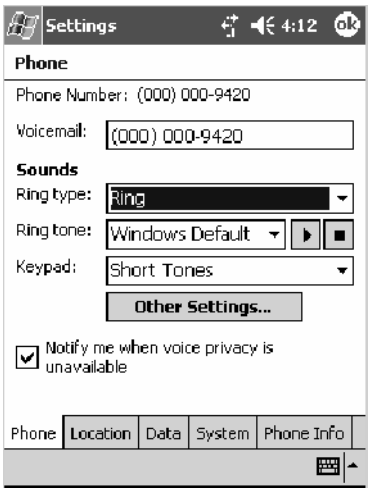
Use the Tools menu to send a voice mail, access the Activation Wizard, send an SMS email message, or other configurations. *Select **Start** > **Help** for more online information about most of these features.*

- Tap **Tools** > **Voice Mail** to call and leave a voice message.
- Tap **Tools** > **Activation Wizard** to access the wizard with which to activate your 700CXL Computer. Be sure to have an activation code, a phone number, and MSID information ready. See page 175 for instructions in using this wizard.

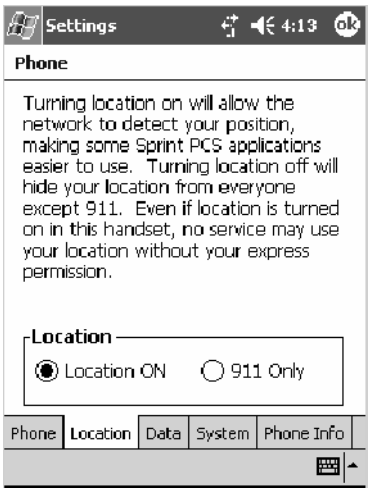
- Tap **Tools** > **Send SMS** tab to access the Inbox application and send an SMS (Short Messaging Service) message. Be sure to have an SMS number ready to send the message — this is usually the mobile phone number. See Chapter 2, "*Windows Mobile 2003*," for information about the Inbox application.



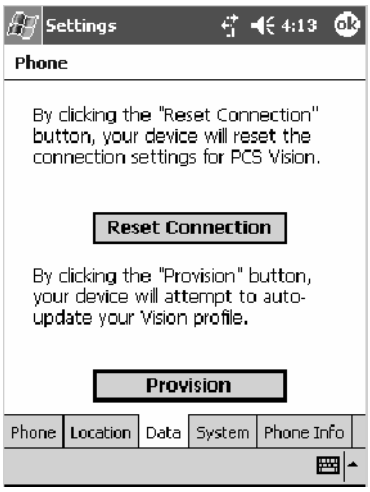
- Tap **Tools** > **Options** > the **Phone** tab to customize your phone settings such as the ring type and ring tone to use for incoming calls, and the keypad tone to use when entering phone numbers. Tap **Other Settings** to go to the Sounds & Notifications control panel applet.



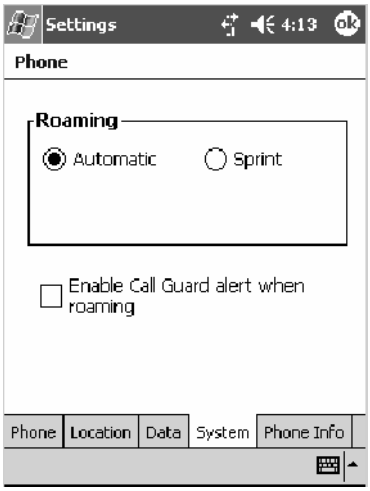
- Tap **Tools** > **Options** > the **Location** tab to toggle between letting your location be visible for everyone to detect and hiding your location from everyone except 911.



- Tap **Tools** > **Options** > the **Data** tab to either reset your connection settings for PCS Vision or update your PCS Vision profile.



- Tap **Tools** > **Options** > the **System** tab to toggle between automatic or Sprint roaming and to enable the Call Guard alert when roaming.



- Tap **Tools** > **Options** > the **Phone Info** tab to view the phone settings.

AT Command Interface

This interface specification is based on the following recommendation:

- **ETSI GSM 07.05**:
  European Digital Cellular Telecommunication System (phase 2)
  Use of DTE-DCE interface for Short message and cell broadcast service.
- **ETSI GSM 07.07**:
  European Digital Cellular Telecommunication System (phase 2)
  AT command set for GSM Mobile Equipment.
- **ITU-T Recommendation V.25 ter**
  Serial asynchronous automatic dialing and control.

Note: You need the Adobe Acrobat Reader application to view a PDF document. Go to http://www.adobe.com/prodindex/acrobat/readstep.html to install or download the latest Adobe Acrobat Reader.

Command Set for Sierra Wireless SB555

Use the AT command interface from Sierra Wireless to program the CDMA/1xRTT SB555 radio module. Documentation for this interface is available via the following URL. Click the "General AT command reference" link for a PDF document, which is 680 KB in size. *Note that this URL is subject to change.*
http://www.sierrawireless.com/ProductsOrdering/embedded_docs.html

Command Set for Siemens MC45

Use the MC45 AT command interface from Siemens AG to program the GPRS/GSM MC45 radio module. The "*MC45 Siemens Cellular Engine AT Command Set*" is available either from Intermec Technologies or from Siemens AG. Contact either your Intermec representative or the Siemens AG support personnel at the following URL for more information. *Note this URL is subject to change.*
http://www.siemens-mobile.com/btob/CDA/presentation/ap_btob_cda_presentation_frontdoor/0,2950,12,FF.html

Testing the AT Commands

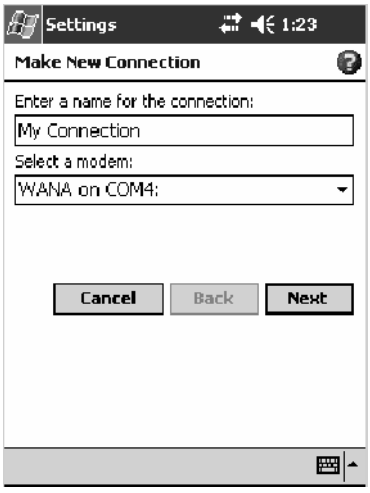
Note: This does *not* apply to the 700CXL Computer.

These commands can be sent to either WAN radio by setting up a dial-up networking connection to COM4. Do the following to initiate this connection and test these commands to your radio:

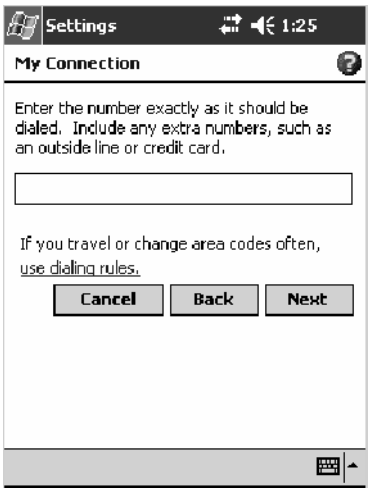
Connections

1 From the 700 Series Computer, select **Start** > **Settings** > the **Connections** tab > **Connections**. Under **My ISP**, tap **Add a new modem connection**.

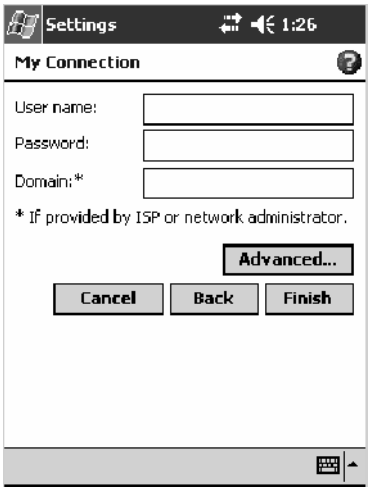
2 Enter a name for the connection, select "WANA on COM4" from the **Select a modem** drop-down list, then tap **Next** to continue.



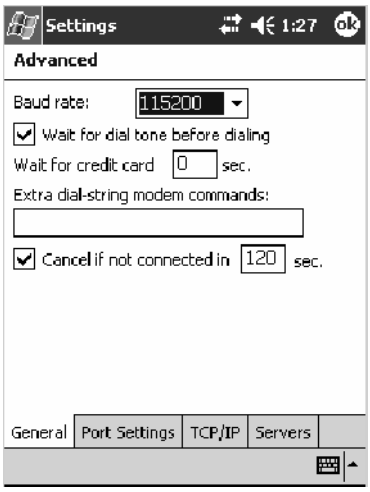
3 Enter a phone number as it should be dialed, then tap **Next** to continue. Select **Start** > **Help** for more information or tap **use dialing rules** to make modifications. *Note that this screen may vary based on your dialing rules.*



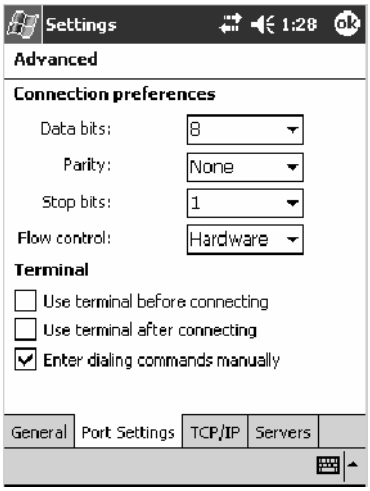
4 Tap **Advanced** to continue.



5 Select “115200” from the **Baud rate** drop-down list via the General page.

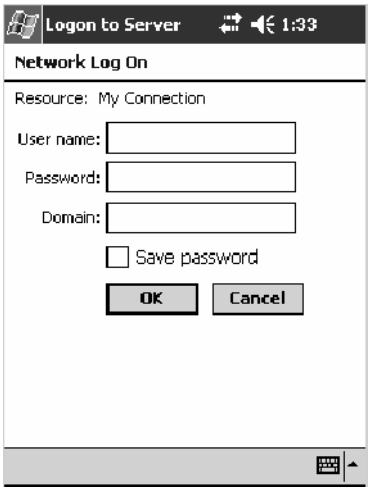


6 Tap the **Port Settings** tab, check **Enter dialing commands manually**, then tap **ok**, then **Finish** to return to the Connections screen.



7 Press and hold the new connection for a pop-up menu, then tap **Connect** to initiate the connection.

8 Wait about ten seconds for the Network Log On screen, then tap **OK**. *Note: You do not need to enter any information within the Network Log On screen.*



Use either the onscreen keyboard, or press the keys to type any of the AT commands provided. Press or tap **Enter** to send each command. The results of each command sent will print onscreen. *Note that each "AT" command **must** start with the "at" characters.*

- To see what you typed onscreen, type "ate1" to initiate the AT Echo command, then press **Enter**.

Wireless Personal Area Networking

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

Documentation

Information about additional Bluetooth software is in the Wireless Printing SDK and in the *Wireless Printing Development Guide* (on the *Intermec Developer's Library CD*, via the "\Wireless Printing SDK" directory off the root).

About the Application

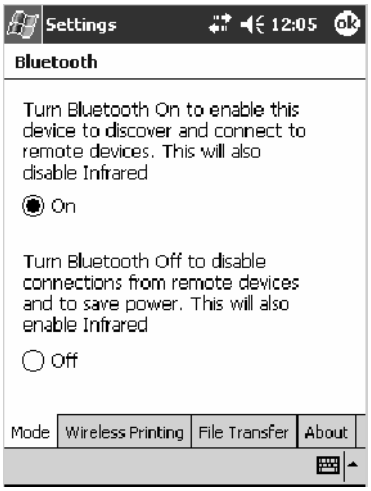
Bluetooth is not started automatically by default after a cold-boot is performed. To run Bluetooth, tap **Start** > **Settings** > the **Connections** tab > the **Bluetooth** icon.

The 700 Series Computer retains the Bluetooth state when warm-boots are performed, for example:

- *If Bluetooth is active*, and a warm-boot was performed, the 700 Series Computer boots up with the Bluetooth state activated and Bluetooth virtual COM ports (such as printing) registered. However, you must reactivate connections, as the system does not do these automatically.
- *If Bluetooth is inactive*, and a warm-boot was performed, the 700 Series Computer boots up with Bluetooth deactivated.

Mode

The default tab activates or deactivates Bluetooth. When Bluetooth is activated, the 700 Series Computer can discover and connect to remote devices.



Wireless Printing

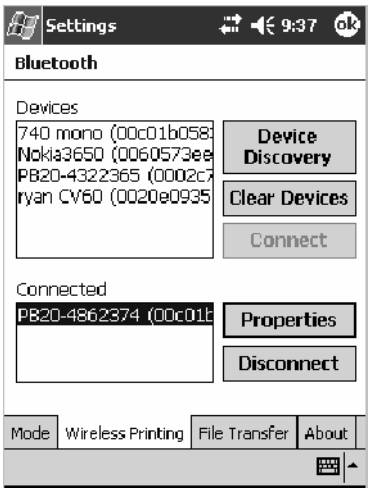
Use this tab to print via Bluetooth devices. Tap **Device Discovery** to discover (or scan) for remote Bluetooth devices. When the 700 Series Computer is finished scanning, any newly discovered devices appear in the upper **Devices** box.

Tap **Clear Devices** to remove the list from the **Devices** box.

To print to a Bluetooth device, select any of the devices listed in the **Devices** box, then tap **Connect**. Once connected, the selected device moves to the lower **Connected** box.

To view connection information or register a COM port for a device, from the lower **Connected** box, select a device, then tap **Properties**. *See "Properties" on the next page for information.*

When done printing to a device, select that device in the **Connected** box, then tap **Disconnect**. This moves the device in question back to the upper **Devices** box.

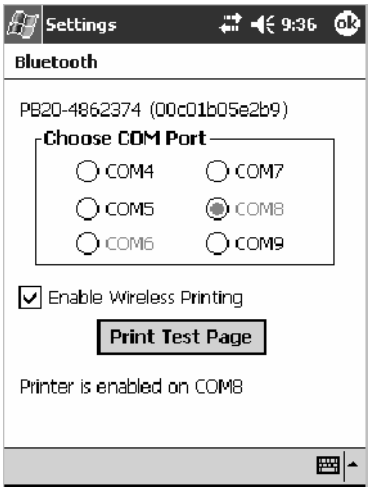


Properties

Select a COM Port from the **Choose COM Port** box to register for this device, then check **Enable Wireless Printing** to complete the COM port registration. To change your COM port selection, clear (uncheck) the **Enable Wireless Printing** box, select a new COM port, then check **Enable Wireless Printing** again. COM ports that already are in use are grayed out.

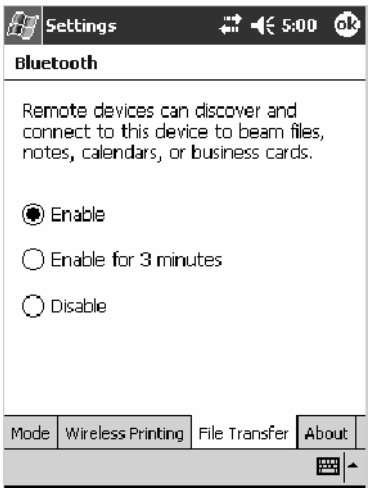
When you enable Wireless Printing, a status message is shown near the bottom of the screen to confirm your action. To print a test page to your printer, tap **Print Test Page**.

Tap **ok** to return to the Wireless Printing page.



File Transfer

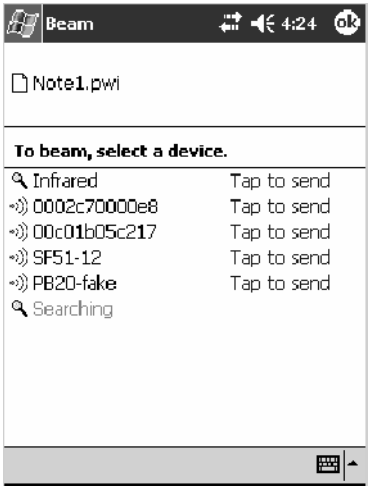
Use this page to enable your unit to receive files from another Bluetooth device, or from any device that supports this function.



File Explorer

From this point, this transfer is similar to an IrDA file transfer. To transfer a file, tap **Start** > **Programs** > **File Explorer** and locate the file to transfer. Press and hold on the file for a pop-up menu, then select **Beam File**.

The system searches for a list of Bluetooth devices that will accept a connection from your unit. When the list is complete, tap on a device to which to send the file. *Note: in some cases, the user of the target device has to "accept" the file before it is transmitted.*



AutoIP/DHCP

Automatic Private IP Addressing (AutoIP) is enabled by default in Windows Mobile 2003. To remain compatible with other versions of Pocket PC, this setting needs to be enabled. You can configure the registry settings in the following to set the required AutoIP/DHCP behavior:

- For Ethernet: `HKEY_LOCAL_MACHINE\Comm\LAN9001\TcpIp`
- Fot 802.11b: `HKEY_LOCAL_MACHINE\Comm\NETWLAN1\TcpIp`

Other registry keys that can modify the behavior of AutoIP are as follows. You can find the appropriate settings and behavior of each of these keys in Microsoft Help.

- AutoInterval
- AutoMask
- AutoSubnet
- AutoIP
- AutoSeed

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 300 seconds (5 minutes) and if a DHCP server is found, the client drops the AutoIP address and uses the address from the DHCP server.

In the MSDN Windows CE documentation available out on the Microsoft Developer Network web site (http://www.msdn.com), see "*Automatic Client Configuration*" for more information on AutoIP.

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 AutoIP is defined using CAB files, the EnableDHCP registry key must also be defined and set to "1" before the system will attempt to obtain a DHCP address.

Note: To extend the number of attempts that a DHCP client makes to get a DHCP address, use the DhcpRetryDialogue and DhcpMaxRetry registry settings.

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

SNMP Configuration on the 700 Series Computer

In short, SNMP is an application-layer protocol that facilitates the exchange of management information between network devices. The 700 Series Computer is such an SNMP-enabled device. Use SNMP to control and configure the 700 Series Computer anywhere on an SNMP-enabled network.

The 700 Series Computer supports four proprietary Management Information Bases (MIBs) and Intermec Technologies provides SNMP support for MIB-II through seven read-only MIB-II (RFC1213-MIB) Object Identifiers (OIDs).

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

Management Information Base

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

You will find the following MIB files either in the 700 Color Management Tools portion of the *Intermec Developer's Library CD* or on the web via http://www.intermec.com:

- **INTERMEC.MIB**
  Defines the root of the Intermec MIB tree.
- **ITCADC.MIB**
  Defines objects for Automated Data Collection (ADC), such as bar code symbologies.
- **ITCSNMP.MIB**
  Defines objects for Intermec SNMP parameters and security methods, such as an SNMP security IP address.
- **ITCTERMINAL.MIB**
  Defines objects for 700 Series parameters, such as key clicks.

Object Identifiers

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

MIB Object Identifiers

MIB-II Item	OID	Group or Table	Description
ifNumber	1.3.6.1.2.1.2.1.0	Interfaces Group	Indicates the number of adapters present in the system. For the 700 Series Computer, if one adapter is present in the system, then *ifNumber* = 1 and ifIndex = 1.
ifIndex	1.3.6.1.2.1.2.2.1.1.ifIndex	Interfaces Table (ifTable)	A unique value for each interface. The value ranges between 1 and the value of *ifNumber*.
ifDescr	1.3.6.1.2.1.2.2.1.2.ifIndex	Interfaces Table (ifTable)	A textual string containing information about the interface.
ifType	1.3.6.1.2.1.2.2.1.3.ifIndex	Interfaces Table (ifTable)	An integer containing information about the type of the interface. It is equal to 1 for Other.
ipAdEntAddr	1.3.6.1.2.1.4.20.1.1.IpAddress	IP address Table (ipAddrTable)	The IP address to which this entry's addressing information pertains *(same as 700 IP address)*, where IP Address is the valid non-zero IP address of the 700 Series Computer.
ipAdEntIfIndex	1.3.6.1.2.1.4.20.1.2.IpAddress	IP address Table (ipAddrTable)	The index value that uniquely identifies the interface to which this entry is applicable *(same as ifIndex)*.
ipAdEntNetMask	1.3.6.1.2.1.4.20.1.3.IpAddress	IP address Table (ipAddrTable)	The subnet mask associated with the IP address of this entry *(same as Subnet Mask)*.

Configuring with SNMP

The community string allows an SNMP manager to manage the 700 Series Computer with a specified privilege level. The default read-only community string is "public" and "private" is the default read/write community string. See the specific configuration parameter to find its OID. To configure the 700 Series Computers using SNMP:

1. Configure 700 Series Computers for RF or Ethernet communications.
2. Determine the OID (Object Identifier) for the parameter to be changed. The Intermec base OID is 1.3.6.1.4.1.1963.
3. Use your SNMP management station to get and set variables that are defined in the Intermec MIBs. You can set the traps, identification, or security configuration parameters for SNMP. *See Appendix A, "Configurable Settings," to learn more about these parameters.*

5 Printer Support

The 700 Series Color Mobile Computer works with the following printers from Intermec Technologies. Contact an Intermec representative for information about these printers.

- **6820**
  A full-page, 80-column printer.
- **6808**
  A 4-inch belt-mount printer.
- **PB20**
  A 2-inch belt-mount printer with a Bluetooth compatible module from Socket Communications.
- **782T**
  A 2-inch workboard printer.

Printing ASCII

The following methods for printing using Pocket PC at this time is as follows:

- Add port drivers to print ASCII directly to the port.
- Use LinePrinter ActiveX Control from the Software Developer's Kit (SDK) — *see the SDK User's Manual for more information.*
- Via wireless printing - *see the Wireless Printing Development Guide on the Intermec Developer's Library CD for more information.*

Directly to a Port

Printing directly to the port sends RAW data to the printer. The format of this data depends upon your application and the printer capabilities.

You must understand the printer commands available for your specific printer. Generally, applications just send raw ASCII text to the printer. Since you are sending data to the printer from your application directly to the port you are in complete control of the printers operations. This allows you to do line printing *(print one line at a time)* rather than the page format printing offered by the GDI approach. It is also much faster since data does not have to be converted from one graphics format to the other (display to printer). Most Intermec® printers use Epson Escape Sequences to control print format operations.

These commands are available in documentation you receive with your printers or from technical support. Win32 APIs are required to print directly to the port.

Directly to a Generic Serial Port

To print directly to a generic serial port printer (non-Intermec printers):

- Use CreateFile() to open ports - COM1: can be opened on most devices.
- Use WriteFile() to send data directly to the printer.
- Use CloseHandle() when you are finished printing to close the port.

IrDA Printer Driver

IrDA printing is only available on the certain devices and is supported directly by the Windows CE load via the IrSock API provided by the Microsoft Win32 API without need for additional drivers. Intermec 6804, 6805, 6806, 6808 and 6820 and other IrDA printers are supported.

NPCP Printer Driver

The NPCP printer communications driver (NPCPPORT.DLL) is a Stream Device Driver built into the operating system. The driver supports only NPCP communications to and from the 6820 and 4820 printers over a selected serial port.

All applications use WIN32 API functions to access the drivers. Basic operations are easily implemented by applications through the CreateFile(), WriteFile(), ReadFile(), DeviceIOControl(), and CloseHandle() Win32 APIs.

Operations to upgrade printer modules, perform printer diagnostics, and get printer configuration are performed largely via DeviceIOControl() functions.

About NPCP

NPCP (Norand® Portable Communications Protocol) is a proprietary protocol that provides session, network, and datalink services for Intermec mobile computers in the Intermec LAN environment used with printers and data communications.

NPCP Driver Installation and Removal

Use LPT9: for the NPCP printer device and COM1 for the last parameter. COM1 is the connection available via the 700 Series Computer.

Applications use the RegisterDevice() function to install the driver. DeregisterDevice() uninstalls the device driver and frees memory space when the driver is not required. Use the HANDLE returned by RegisterDevice() as the parameter to DeregisterDevice().

Use the RegisterDevice() function call as demonstrated below. Specify the full path name to the driver starting at the root for the RegisterDevice() function to work properly. The last parameter to RegisterDevice() is a DWORD that represents the name of the port for the NPCP stream driver to use. Build this parameter on the stack if it is not to be paged out during the call. The first parameter “LPT” (Device Name) and the second parameter “9’ (index), indicate the name of the registered device, such as LPT9. This is used in the CreateFile() function call.

```
Install()
{
  HANDLE hDevice;
  TCHAR port[6];
  port[0] = TCHAR(‘C’);
  port[1] = TCHAR(‘O’);
  port[2] = TCHAR(‘M’);
  port[3] = TCHAR(‘1’);
  port[4] = TCHAR(‘:’);
  port[5] = TCHAR(0);
  hDevice = RegisterDevice ( (TEXT(”LPT”), 9,
  TEXT(“\\STORAGE CARD\\WINDOWS\\NPCPPORT.dll”), (DWORD)port);
}
```

Opening the NPCP Driver

The application opens the NPCP driver by using the CreateFile() function. The call can be implemented as follows. The first parameter "LPT9:" must reflect the device name and index used in the RegisterDevice() function call and will fail for any of the following reasons:

```
hFile = CreateFile(_T("LPT9:"), GENERIC_WRITE |
GENERIC_READ, 0, NULL, OPEN_ALWAYS, FILE_ATTRIBUTE_NORMAL,
NULL);
```

- The port associated with the device during RegisterDevice() is in use.
- The NPCP device is already open.
- The share mode is not set to zero. The device cannot be shared.
- Access permissions are not set to GENERIC_WRITE | GENERIC_READ. Both modes must be specified.

Closing the NPCP Driver

Using the CloseHandle() (hFile) function closes the NPCP driver. Where *hFile* is the handle returned by the CreateFile() function call.

- TRUE = the device is successfully closed.
- FALSE = an attempt to close NULL HANDLE or an already closed device.

Reading from the NPCP Driver

Reading of the NPCP printers is not supported since all responses from the printer are the result of commands sent to the printer. DeviceIoControl() functions are provided where data is to be received from the printer.

Writing to the NPCP Driver

All Print data can be sent to the printer using the WriteFile() function. The print data written to the driver must contain the proper printer commands for formatting. If the function returns FALSE, the NPCP error may be retrieved using IOCTL_NPCP_ERROR. See the description on the next page.

NPCP Driver I/O Controls

An application uses the DeviceIoControl() function to specify an printer operation to be performed. Certain I/O controls are required to bind and close communication sessions with the printer, and must be completed before any other commands to the driver can execute properly.

The function returns TRUE to indicate the device successfully completed its specified I/O control operation, otherwise it returns FALSE. The following I/O control codes are defined:

```
#define IOCTL_NPCP_CANCEL
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x400,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_BIND
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x401,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_CLOSE
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x402,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_ERROR
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x403,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_FLUSH
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x404,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_IOCTL
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x405,METHOD_BUFFERED,FILE_ANY_ACCESS)
#define IOCTL_NPCP_PRTVER
CTL_CODE(FILE_DEVICE_SERIAL_PORT,0x406,METHOD_BUFFERED,FILE_ANY_ACCESS)
```

- **IOCTL_NPCP_CANCEL**
  This cancels all printing at the printer. It flushes the printer buffers and reinitializes the printer to its default state. No parameters are required.
- **IOCTL_NPCP_BIND**
  This command is required before any data is sent or received by the printer. Once the driver is opened, the application must bind the communications session with the printer before any data can be sent or received by the printer. If an error occurs during the bind, the application may use IOCTL_NPCP_ERROR to get the current extended error code. No parameters are required.
- **IOCTL_NPCP_CLOSE**
  This command closes the current session with the printer. This function always returns TRUE. No parameters are required.
- **IOCTL_NPCP_ERROR**
  This command returns the extended NPCP error code in PL/N format. The word returned will contain the PL/N compatible error code in the low byte and completion flags in the high byte. If the frame that returned an error was not received correctly by the printer the FRAME_NOT_ACKED bit will be set in the high byte. This operation always returns TRUE. An output buffer of at least 2 bytes is required. See "*NPCP Error Codes*" on page 199.
- **IOCTL_NPCP_FLUSH**
  This command allows the application to poll the printer for errors while the report is completing the print process at the printer. If an error occurs during the polling process, the operation will return FALSE and the application can get the extended error code by using IOCTL_NPCP_ERROR. No parameters are required.

NPCP Printer Communications

All NPCP printer communications should be based on the following flow:

1. Use CreateFile(); to open the printer driver.
2. Use IOCTL_NPCP_BIND to bind a session with the printer; IOCTL_NPCP_ERROR to check for errors on the bind to ensure success; and IOCTL_NPCP_CANCEL to cancel any outstanding print jobs.
3. Use IOCTL_NPCP_FLUSH to poll the printer to free up printer buffer resources. Use IOCTL_NPCP_FLUSH to poll the printer's status. If an error is reported by the IOCTL, then use IOCTL_NPCP_ERROR to get the error and determine the correct recovery procedure.
4. Use WriteFile(); to write your data to the printer. Check for errors and that all data were written. Use IOCTL_NPCP_ERROR to get the extended error. If the error is critical in nature, use IOCTL_NPCP_CLOSE, followed by CloseFile(), to end the communications session. Start a new session, beginning with step 1 to ensure proper printing. For noncritical errors display the error and retry the operation.
5. After all data is sent to the printer, ensure that the printer continues to print the report properly by polling the printer's status. Use IOCTL_NPCP_FLUSH to poll the printer's status. If an error is reported by the IOCTL, then use IOCTL_NPCP_ERROR to get the error and determine the correct recovery procedure.

Sample Code

See sample code in the "\700C Dev Tools\Installable Drivers\Port Drivers\Npcp\NPCPPrint\" directory for more details on printing, printer communications and error code handling.

NPCP Error Codes

Call the IOCTL_NPCP_ERROR I/O control function to receive PL/N compatible error codes. Applications must decide how to act upon the data returned.

```
// Definition of NPCP communications Errors and Printer Errors
#define PNRDY (BYTE)102 // link not ready error
#define RXTMO (BYTE)104 // link no receive error
#define TXTMO (BYTE)106 // link no transmit error
#define BADADR (BYTE)111 // frame address error
#define GAPERR (BYTE)112 // link gap error (timeout) in receive data
#define LSRPE (BYTE)113 // frame parity error on length field
#define IFTS (BYTE)120 // session layer - invalid frame this state
#define NS_NE_VR (BYTE)121 // session layer sequence error
#define NR_NE_VS (BYTE)122 // session layer sequence error
#define MAC_CRCERR (BYTE)124 // MAC CRC error
#define RLENERR (BYTE)123 // MAC too much data received
#define FRMERR (BYTE)200 // Frame Reject
#define FRMERR_IF (BYTE)201 // Frame Reject - Invalid Frame
#define FRMERR_NR (BYTE)202 // Frame Reject - NR Mismatch
#define FRMERR_NS (BYTE)203 // Frame Reject - NS Mismatch
#define NDMERR (BYTE)204 // Normal Disconnect mode error
#define BINDERR (BYTE)210 // bind error
#define IPLDUR (BYTE)221 // invalid presentation layer response
#define HEADJAM (BYTE)222 // printer head jam
#define PAPEROUT (BYTE)223 // printer paper out
#define LOWVOLTS (BYTE)224 // printer low voltage
#define HIVOLTS (BYTE)225 // printer over voltage
#define LOWBAT (BYTE)226 // printer low battery
#define COVEROFF (BYTE)227 // printer cover off error
#define HEADFAULT (BYTE)228 // printer head short or driver short error
#define PFFAULT (BYTE)229 // paper feed motor fault.
#define FRAME_NOT_ACKED 0x8000 // frame was not received by printer and need
to be resent.
```

O'Neil Printer Driver

The DTR printer communications driver is a Stream Device Driver named ONEIL.DLL.

All applications use WIN32 API functions to access drivers. Basic operations are easily implemented by applications through the CreateFile(), WriteFile(), DeviceIOControl() and CloseHandle() Win32 APIs.

The driver supports communications to 6804DM, 6804T, 6805A, 6806, 6808, 681T, and PB20 printers over a selected serial port.

DTR Driver Installation and Removal

Your application must install the device driver by using the RegisterDevice() function. The driver name is ONEIL.DLL. We recommend that you use "DTR" for the Device Name parameter, "1" for the Device Driver index parameter, and use any of the following strings for the last parameter:

- NULL (==0) Defaults to COM1 @ 9600
- "COM1" only COM port specified defaults to 9600
- "COM1:9600" sets to COM port and specified bit rate
- "COM1:19200" sets to COM port and specified bit rate

Use the HANDLE returned by RegisterDevice() as the parameter to DeregisterDevice(). The correct usage of the RegisterDevice() function call is demonstrated below. You may use DeregisterDevice() to uninstall the driver.

```
Install()
{

  HANDLE hDevice;
  TCHAR port[6];
  port[0] = TCHAR('C');
  port[1] = TCHAR('O');
  port[2] = TCHAR('M');
  port[3] = TCHAR('1');
  port[4] = TCHAR(':');
  port[5] = TCHAR(0);
  hDevice = RegisterDevice ( (TEXT("DTR"), 1, TEXT("\\WINDOWS\\ONEIL.DLL"),
  (DWORD)port);

}
```

Opening the DTR Driver

The application opens the DTR driver by using the CreateFile() function. The call can be implemented as follows:

```
hFile = CreateFile(_T("DTR1:"), GENERIC_WRITE, 0, NULL,
OPEN_ALWAYS, FILE_ATTRIBUTE_NORMAL, NULL);
```

The first parameter "DTR1:" must reflect the device name and index used in the RegisterDevice() function call.

The function call will fail for any of the following reasons:

- The port associated with the device during RegisterDevice() is currently in use.
- The DTR device is already open.
- The share mode is not set to zero. The device cannot be shared.
- Access permissions are not set to GENERIC_WRITE.

Closing the DTR Driver

Using the CloseHandle() (hFile) function closes the DTR driver. Where *hFile* is the handle returned by the CreateFile() function call.

- TRUE indicates the device is successfully closed.
- FALSE indicates an attempt to close a NULL HANDLE or an already closed device.

Writing to the DTR Driver

You can use the WriteFile() function to send all Print data to the printer. The print data being written must contain the proper formatting printer commands.

DTR Printer Communications

All DTR printer communications should be based on the following flow:

1. Use CreateFile(); to open the printer driver.
2. Use WriteFile() to write your data to the printer. Check for errors and that all data were written.
3. Use CloseHandle() to close the driver.

6 Scanner Support

The 700 Series Color Mobile Computer is available with imaging or laser scanning technologies, including the following:

APS Linear Imager: *(standard for 730 Computers)* — includes the EV10 Scan Engine	Reads 1D symbologies and PDF417 bar codes. Linear imaging using Vista Scanning technology reads low-contrast bar codes, laminated bar codes, and bar codes displayed on CRT or TRT displays. This imaging uses harmless LEDs for illumination and does not require any warning labels. Vista Scanning is more reliable than lasers as it is a completely solid state with no moving parts or oscillating mirrors.
2D Imager: *(not supported on 730 Computers)* — includes the IT4000 Scan Engine	This decodes several stacked 1D and 2D symbologies, including PDF417, Data Matrix, and MaxiCode without "painting." It can also read 1D codes from any orientation, for example the scan beam does not need to align perpendicular to the symbol to read it. Photography is a secondary application; the lens in the device favors bar code reading. Photos are 640x480, 256 gray-scale.
1D Laser Scanner: *(not supported on 730 Computers)* — includes the SE900, SE900HS, SE900-S6, and SE900HS-S6 scan engines	Traditional laser scanner that decodes 1D bar codes.
PDF417 Laser Scanner: *(not supported on 730 Computers)*	Higher speed laser scanner that can read PDF417 labels by "painting" the label.

A 700 Color Imager Demo application demonstrates the more common features of the 700 Color Computer imager. See the *Imager Demo V1.0 User's Guide* on the *Intermec Developer's Library CD* for information.

Scanner Control and Data Transfer

Note: To use the methods described below, enable Data Collection functionality on the 700 Computer using the bootloader configuration menu.

The Data Server and associated software provide several ways to manipulate scanner control and data transfer between the scanner subsystem and user applications:

- **Automatic Data Collection COM Interfaces**:
  These COM interfaces allow user applications to receive bar code data, and configure and control the bar code reader engine.
- **ITCAxBarCodeReaderControl functions**:
  These ActiveX controls allow user applications to collect bar code data from the scanner, to configure the scanner, and to configure audio and visual notification when data arrives.
- **ITCAxReaderCommand functions**:
  Use these ActiveX controls to modify and retrieve configuration information using the reader interface commands.
- **Scanning EasySet bar code labels**:
  You can use the EasySet® bar code creation software from Intermec Technologies Corporation to print configuration labels. Scan the labels to change the scanner configuration and data transfer settings.

For more information, see the *SDK User's Manual* provided with your *Windows CE/PocketPC SDK.*

EasySet Software

Use the Intermec EasySet software to print configuration labels you can scan to change your configuration settings. For more information, see the EasySet online help. EasySet is available from the Intermec Data Capture web site.

Data Collection Configuration

For Units with PSM Builds Older than 3.00

Scanner settings for the 700 Series Computer can be configured via the **Data Collection** control panel applet. From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Data Collection**. See *Appendix A*, "*Configurable Settings*" for more information about the following parameters. *Note that these are in alphabetical order.*

- Codabar *(page 304)*
- Code 11 *(page 318)*
- Code 128 *(page 307)*
  - Code 128 Options *(page 308)*
  - Code 128 FNC1 Character *(page 309)*
- Code 39 *(page 302)*
- Code 93 *(page 306)*
  - Code 93 Length *(page 306)*
- Data Matrix *(page 320)*
- Interleaved 2 of 5 *(page 315)*
- Matrix 2 of 5 *(page 316)*
- MaxiCode *(page 321)*
- MSI *(page 311)*
- PDF417 *(page 312)*
  - Macro PDF *(page 312)*
  - Micro PDF417 *(page 314)*
- Plessey *(page 310)*
- QR Code *(page 319)*
- Standard 2 of 5 *(page 303)*
- Telepen *(page 317)*
- UPC/EAN *(page 305)*

For Units With PSM Build 3.00 or Newer

You can configure scanner settings for the 700 Series Computer via the Intermec Settings control panel applet. From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon. See the *Intermec Computer Command Reference Manual* (P/N: 073529) for information about the settings you can configure with this applet. This online manual is available from the Intermec web site at www.intermec.com.

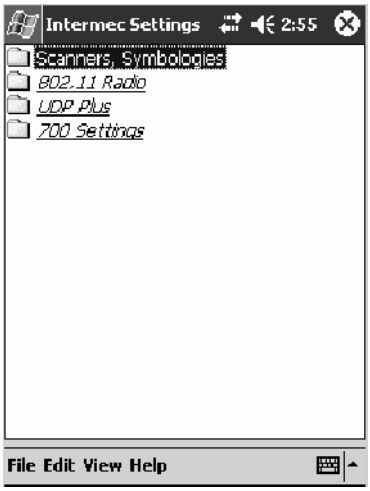
Internal Scanners

The Intermec Internal Scanner feature allows Automatic Data Collection (ADC) by accepting data from the COM1 port and wedging it into the keyboard interface. You can enable or disable this feature from the Today screen on the 700 Series Computer.

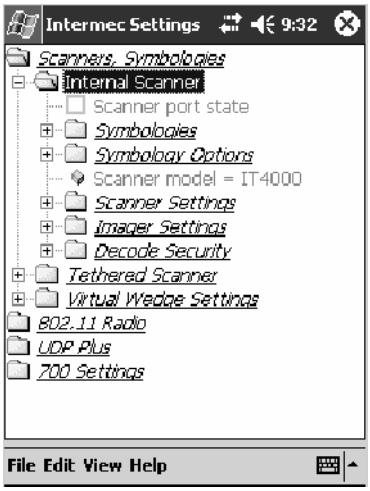
For Units With PSM Build 3.00 or Newer

Do the following before you configure your internal scanner from the Intermec Settings control panel applet. Information about the settings you can configure with this applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com.

1 From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon.



2 Double-tap the **Scanners, Symbologies** folder, then expand (+) the **Internal Scanner** option. *This sample screen is for the IT4000 scan engine.*



Scanner and 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 the *Intermec Computer Command Reference Manual*, available from the Intermec web site at www.intermec.com, for more information about each enabled option.

Internal Scanner Supported Symbologies

See the following table for a guideline and Appendix B, "*Bar Code Symbologies*" for more information on each supported symbology:

Symbologies	EV10	IT4000	SE900	SE900HS	SE900-S6	SE900HS-S6
Code39	X	X	X	X	X	X
UPC/EAN	X	X	X	X	X	X
Code 128	X	X	X	X	X	X
Interleaved 2 of 5	X	X	X	X	X	X
Code 93	X	X	X	X	X	X
Codabar	X	X	X	X	X	X
Code 2 of 5	X	X	X	X	X	X
MSI	X	X	X	X	X	X
Plessey	X	X	X	X	X	X
Code 11	X	X	X	X	X	X
Matrix 2 of 5	X	X	X	X	X	X
Telepen	X	X	X	X	X	X
PDF417	X	X	X	X	X	X
Micro PDF417	X	X	X	X	X	X
MaxiCode		X				
Data Matrix		X				
QR Code		X				
RSS 14	X	X	X	X	Available in f/w Sxxp304	Available in f/w Sxxp304
RSS Limited	X	X	X	X	Available in f/w Sxxp304	Available in f/w Sxxp304
RSS Expanded	X	X	X	X	Available in f/w Sxxp304	Available in f/w Sxxp304
Codablock A	X	X	X	X	X	X
Codablock F	X	X	X	X	X	X
UCC Composite		X				

Tethered Scanners

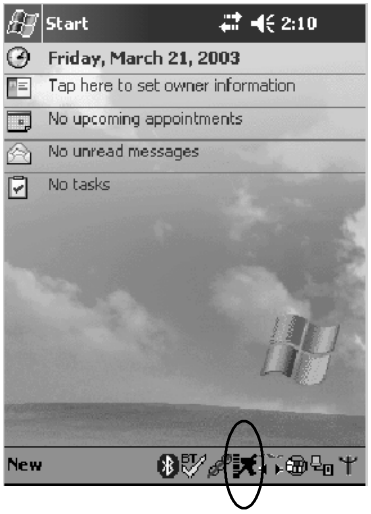
The Intermec Tethered Scanner feature allows Automatic Data Collection (ADC) by accepting data from the COM1 port and wedging it into the keyboard interface. You can enable or disable this feature from the Today screen on the 700 Series Computer.

The following information is divided between units with PSM Builds older than 3.00 *(next paragraph)* or units with PSM Builds 3.00 or newer *(starting on page 213)*.

For Units With PSM Builds Older than 3.00

Enabling and Disabling

On the 700 Series Computer, tap **Start** > **Today**. Tap the bar code scanner icon in the System Tray *(circled below)*. Initially, the bar code scanner icon indicates that this feature is disabled *(shown to the left)*.

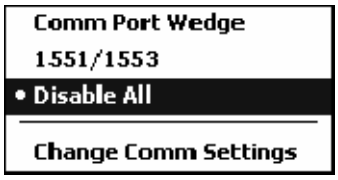


- Select **Comm Port Wedge** to send any data, coming into the 700 Series Computer through the COM1 port from an external input device, as keyboard data to an application on the desktop.

  For example, if you have Pocket Word running on your 700 Series Computer desktop, information scanned with a scanner connected to the COM1 port appears in the Word document. If another data collection application is running and is active on the 700 Series Computer, the scanned information appears in that application.

Note: When **Comm Port Wedge** is selected, regardless of the data sent by the external input device, you cannot control the device or the data format using any of the Intermec scanner control or data transfer APIs from the SDK or the internal Data Collection software. The external input device is governed by what software it has onboard to tell it how to scan, take pictures, or send the data elsewhere.

- Select **1551/1553** to enable the Sabre 1551E or 1553 Tethered Scanner to scan, then send data as keyboard data. The 1551/1553 Tethered Scanner has software onboard that translates scanned data into characters, so the running/active application does not need to know how to do that. All the scanner control and data transfer APIs will work with the 1551/1553 Tethered Scanner, so you can control the device.
- Select **Disable All** to disable this feature and use the COM1 port for another application, such as ActiveSync. An error message will result if this option were not selected, but this action was attempted. Similarly, if ActiveSync is using the COM1 port, and you select **Comm Port Wedge** or **1551/1553**, an error message will result. See "*Error Message*" for more information.



Error Message

If the COM1 port is used by another application, such as ActiveSync, neither the Comm Port Wedge nor the 1551/1553 Tethered Scanner can be enabled. As a result, the following message may appear. *Note that this message is for the Comm Port Wedge.* You must disable that application to free up the COM1 port before you can enable either the wedge or the scanner.

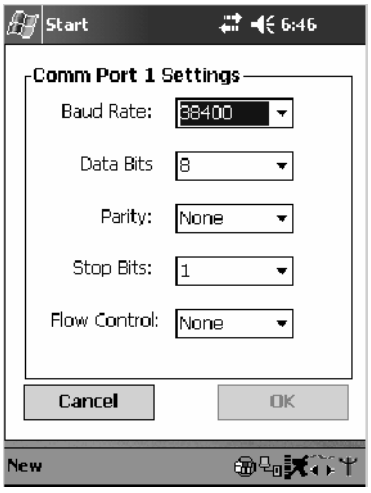
Changing Comm Settings

Tap **Change Comm Settings** to configure the settings for the COM1 port. Current settings are restored after a warm-boot is performed, but are lost after a cold-boot is performed. When these settings are not changed, the **OK** button is disabled (grayed out). When changes are made, tap **OK** after it is enabled to accept these changes.

- **Baud Rate**: 1200, 2400, 4800, 9600, 19200, 38400, 57600, 115200
- **Data Bits**: 7 or 8
- **Parity**: None, Odd, Even, Mark, Space
- **Stop Bits**: 1 or 2
- **Flow Control**: None or Hardware

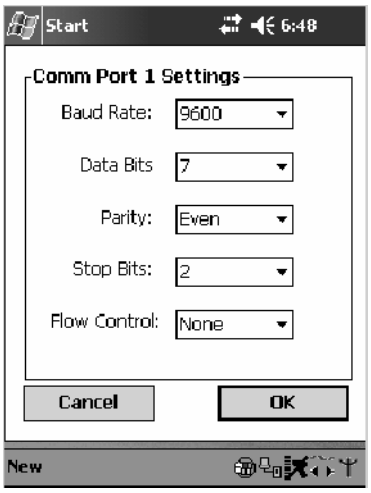
Tethered Scanner

Default settings for the Tethered Scanner are shown in this illustration:



Sabre 1551E or 1553 Tethered Scanner

The default communication configuration for the Sabre 1551E or 1553 Tethered Scanner is shown in the following illustration. Scan the EasySet Reset Factory Defaults label to set the Sabre 1551E or 1553 tethered scanner communications settings to this configuration. The COM1 port configuration settings must also match those of the scanner to scan labels.



Welch Allyn 1470 Imager Settings

You can set the Welch Allyn 1470 Imager to this configuration by scanning the Factory Default Settings label.

Scanner Cabling

A null modem cable is required for the Welch Allyn 1470 Imager to communicate with the 700 Series Computer when using the 700 Series Serial Cable (P/N: 226-999-001).

Sabre 1551E / 1553 Cables connect directly to the Model 700 COM Port.

Limitations and Capabilities

The Tethered Scanner has the following limitations:

- No auto detection of a scanner's physical connection to COM1 port. User needs to ensure the communication settings of COM1 port matched the settings of the device.
- The Pocket PC Pocket Office applications misbehave when control characters such as carriage return are wedged. This is a known Pocket PC problem, which is being worked with Microsoft and for which a work around is being developed.
- Communications port is COM1 and cannot be changed.
- A complete bar code label is detected when the time between bytes (the inter-byte gap) exceeds 100 ms. This allows that data could be concatenated if two labels were received while the Comm Port Wedge or the 1551/1553 Tethered Scanner was not performing a read. That is, it could be wedging data just read or the read thread could be preempted. Also, the labels could appear concatenated if the scanner itself were to buffer the labels before transmitting them.

When enabled, the "Comm Port Wedge" menu option has this limitation:

- There is no bar code API to get bar code data from the bar code scanner. The Comm Port Wedge transmits the data through the keyboard interface only.

When enabled, the "1551/1553" menu option has these capabilities:

- Grid Data Editing is available.
- The source of the symbology configurations is only available via the Easy Set command labels. You can only configure the Virtual Wedge configurations via the Data Collection control panel applet Virtual Wedge page. See Appendix A, "*Configurable Settings*," for information.
- May transmit the data through the keyboard interface (via the Virtual Wedge).

- The bar code APIs, defined in the IADC interface, are available to get bar code data from the bar code scanner. The following example shows how to programmatically collects bar code data:

```
#include “IADC.h”                    // Linked with ITCUUID.LIB
#include “ITCAdcMgmt.h”              // Linked with ITCAdcDevMgmt.lib

  IADC* pIADC;
  HRESULT hrStatus = S_OK;

// Create a ADC COM interface to collect bar code data from the 1551E/1553
// when the 1551/1553 menu option is enabled.
  hrStatus =
  ITCDeviceOpen(TEXT(“ExtScanner”), // Name of the ADC device.
    IID_IADC,                       // COM interface to return
    ITC_DHDEVFLAG_READAHEAD,        // Device’s Flags
    (LPVOID *) &pIADC);             // the returned interface

if( SUCCEEDED(hrStatus) )
  {
    BYTE byteBuffer[MAX_LABEL_SIZE];
    DWORD dwLength = 0;
  HRESULT hr = pIDC->Read(
    byteBuffer,                     // Buffer to put the ADC data.
    MAX_LABEL_SIZE,                 // Size of pDataBuffer in bytes.
    &dwLength,                      // Number bytes returned.
    NULL,                           // Time stamp of the received data. NULL.
    INFINITE                        // Number of milliseconds to wait.
  );

}
    when done using this COM interface, delete it:
ITCDeviceClose( (IUnknown **) pIADC);
```

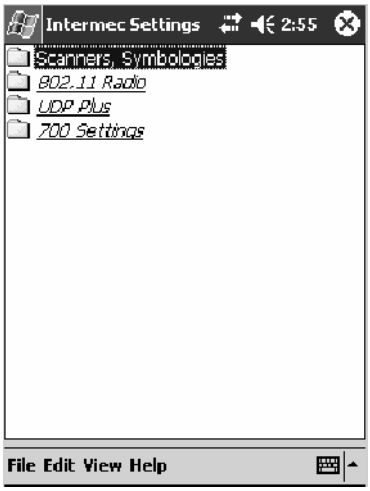
For Units With PSM Build 3.00 or Newer

Configuring the Tethered Scanner

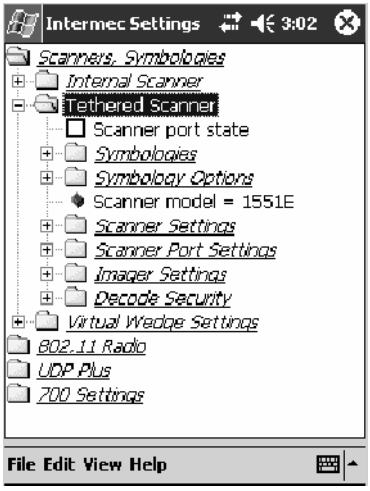
Do the following before you configure your tethered scanner from the Intermec Settings control panel applet. Information about the settings you can configure with this applet is described in the *Intermec Computer Command Reference Manua*l. The online manual is available from the Intermec web site at www.intermec.com.

1 Connect your tethered scanner to the tethered scanner port.

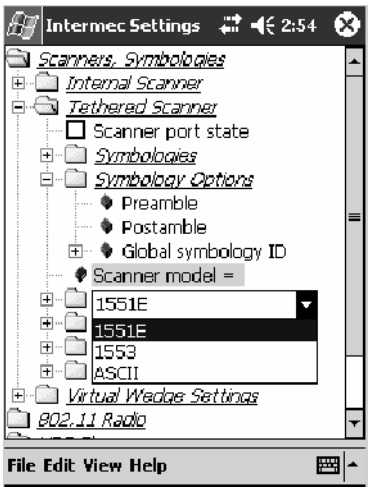
2 From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Intermec Settings** icon.



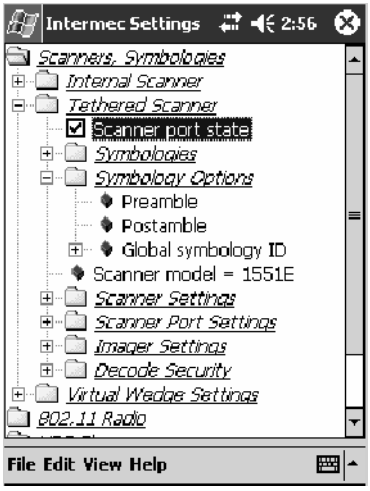
3 Double-tap the **Scanners, Symbologies** folder, then expand (+) the **Tethered Scanner** option.



4 Tap the **Scanner model** option for a drop-down list, then select the applicable scanner, such as “1551E” or “1553” in this sample screen.



5 Make sure a scanner is connected to your 700 Computer properly. Then, tap to check **Scanner Port State**, then tap **File** > **Save Settings** from the bottom of the screen. These changes will take several moments to reset.



1551E or 1553 Selected for Scanner Model

When "1551E" or "1553" is selected from the **Scanner model** option *(see step 4 above)*, and the port state is already enabled *(see step 5)*, the process will take several moments to reset. When 1551E or 1553 is successfully connected during this step, the unit will emit some beeps. Here, the terminal is initializing the scanner at 9600 for the baud rate, 7 data bits, even parity, and 2 stop bits and synchronizing the terminal's configuration with the attached scanner.

With "1551E" or "1553" selected, Symbologies, Symbology Options, Hardware Trigger, and Scanner Port settings are configured from the Intermec Settings applet. See the the *Intermec Computer Command Reference Manual*, available from the Intermec web site at www.intermec.com, for more information about each enabled option.

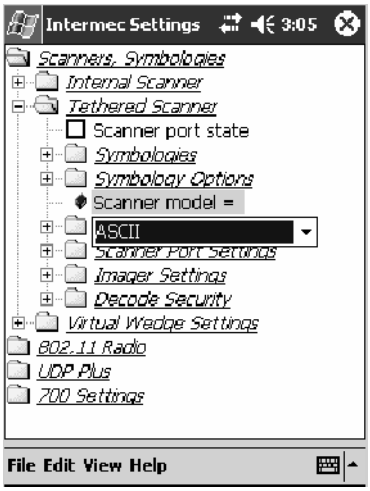
ASCII Selected for Scanner Model

To send data coming into the 700 Series Computer through the COM1 port from an external input device, as keyboard data to an application on the desktop, do the following:

1 Select "ASCII" from the **Scanner model** option.

2 Tap to check **Scanner Port State**.

3 Tap **File** > **Save Settings** from the bottom of the screen.



With "ASCII" selected, Symbology Options, Hardware Trigger, and Scanner Port settings are configured from the Intermec Settings applet. See the the *Intermec Computer Command Reference Manual*, available from the Intermec web site at www.intermec.com, for more information about each enabled option.

Note: When selecting either the 1551E or the 1553 Scanner or enabling the scanner port for these scanners, the 700 Computer tries to communicate with the attached scanner. If the scanner is not powered, if the cable is not connected properly, the wrong cable is used, or if the scanner firmware is older than 2.0, and the "Failed to save one or more settings" message appears, then this step failed.

This process can take time as the terminal is going through a group of RS-232 settings to communicate with the scanner. After successful communicated with the scanner (about eight beeps are generated), it initializes the scanner with the 700 Computer's current settings. This process might generate a series of beeps pending on the firmware version installed in the scanner. These beeps are suppressed in firmware versions 2.08 or greater.

Troubleshooting the 1551E/1553 Tethered Scanner

Do the following to troubleshoot your 1551/1553 Tethered Scanner:

1. Ensure the correct cable is used for the scanner on the tethered scanner port. *Note the 700 Computer cannot supply power to the scanner.*
2. Perform a quick test to determine whether the connection is good. Temporary select the scanner model as "ASCII," then enable the scanner port state. Go to a command prompt or a notepad and scan a data label. If a label is wedged into the command prompt or notepad, then the connection is good.
3. If step 2 passes, reset the scanner configurations to their defaults (scan the Reset Factory Defaults label on the next page) to prevent miscommunication, then reenable the scanner port state.
4. If step 2 fails, then the firmware installed in the tethered scanner may be older than version 2.0. Upgrade your scanner firmware.

Reset Factory Defaults

Scan the EasySet software bar code label "Reset Factory Default" to restore all of your scanner's configurations to their factory defaults. When this command label is scanned, reinitialize the tethered scanner (such as disable the scanner port state, then enable it) on the 700 Computer. Otherwise, the online configuration and scanning on the 700 Computer are not functional. In general, scan this label only to initially reset the scanner.

Do not scan EasySet command labels to change the following settings:

- Symbologies code mark
- Code 128, EAN29 Identifier
- Preamble and Postamble
- Enable/Disable symbologies
- Symbology ID transmit option

In some cases, scanning EasySet Command labels cause the current setting on the user interface to be out of sync with the scanner settings. However, in some cases, scanning these labels does corrupt scanned data.

The "Open COMx error: 0x00000037" message appears if the COM port cannot open due to another application using the port. Disable that application to free up the COM1 port before you can enable the scanner. "x" is the COM port number, such as 1, 2, or 3.

Tethered Scanner Supported Symbologies

The user interface may allow configuration of PDF417, Micro PDF417, RSS, and Codablock bar code symbologies. However, these symbologies are dependant on what scanner models and firmware versions are in use. See the following table for a guideline and Appendix B, "*Bar Code Symbologies*" for more information on each supported symbology:

You can use a generic ASCII scanner with the 700 Computer. Pending on the scanner, linear symbologies such as Code39, should decode correctly. However, 2D symbologies such as PDF417 may not decode correctly.

Symbologies	1551E	1553
Code39	X	X
UPC/EAN	X	X
Code 128	X	X
Interleaved 2 of 5	X	X
Code 93	X	X
Codabar	X	X
Code 2 of 5	X	X
MSI	X	X
Plessey	X	X
Code 11	X	X
Matrix 2 of 5	X	X
Telepen	X	X
PDF417	Available in 1551 0808 PDF	
Micro PDF417	Available in 1551 0808 PDF, Sxxp217_ or later	
MaxiCode		
Data Matrix		
QR Code		
RSS 14	F/w version 2.15 or later	F/w version 2.15 or later
RSS Limited	F/w version 2.15 or later	F/w version 2.15 or later
RSS Expanded	F/w version 2.15 or later	F/w version 2.15 or later
Codablock A	Available in 1551 0808 PDF	
Codablock F	Available in 1551 0808 PDF	
UCC Composite		

7 Programming

The following programming information pertains to the 700 Series Color Mobile Computer:

- Creating CAB Files *(page 220)*
- Customization and Lockdown *(page 237)*
- FTP Server *(page 239)*
- Kernel I/O Control Functions *(page 247)*
- Network Selection APIs *(page 263)*
- Notifications *(page 286)*
- Reboot Functions *(page 288)*
- Remapping the Keypad *(page 289)*

Creating CAB Files

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

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

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

Creating Device-Specific CAB Files

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

1. Create an .INF file with Windows CE-specific modifications *(page 220)*.
2. *Optional* Create a SETUP.DLL file to provide custom control of the installation process *(page 232)*.
3. Use the CAB Wizard to create the .CAB file, using the .INF file, the optional SETUP.DLL file, and the device-specific application files as parameters *(page 235)*.

Creating an .INF File

An .INF file specifies information about an application for the CAB Wizard. Below are the sections of an .INF file:

[Version]

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

Required? Yes

- **Signature**: "*signature_name*"
  "$Windows NT$"
- **Provider**: "*INF_creator*"
  The company name of the application, such as "Microsoft."
- **CESignature**
  "$Windows CE$"

Example

```
[Version]
Signature = "$Windows NT$"
Provider = "Intermec"
CESignature = "$Windows CE$"
```

[CEStrings]

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

Required? Yes

- **AppName**: *app_name*
  Name of the application. Other instances of %AppName% in the .INF file are replaced with this string value, such as RP32.
- **InstallDir**: *default_install_dir*
  Default installation directory on the device. Other instances of %InstallDir% in the .INF file are replaced with this string value. Example: \SDMMC_Disk\%AppName%

Example

```
[CEStrings]
AppName="Game Pack"
InstallDir=%CE1%\%AppName%
```

[Strings]

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

Required? No

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

Example

```
[Strings]
reg_path = Software\Intermec\My Test App
```

[CEDevice]

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

Required? Yes

- **ProcessorType** : *processor_type*
  The value that is returned by **SYSTEMINFO**.dwProcessorType.For example, the value for the ARM CPU is 2577
- **UnsupportedPlatforms**: *platform_family_name*
  This lists known unsupported platform family names. If the name specified in the [**CEDevice.xxx**] section is different from that in the [**CEDevice**] section, both *platform_family_name* values are unsupported for the microprocessor specified by xxx. That is, the list of unsupported platform family names is appended to the previous list of unsupported names. Application Manager will not display the application for an unsupported platform. Also, a user will be warned during the setup process if the .CAB file is copied to an unsupported device.

Example

```
[CEDevice]
UnsupportedPlatforms = pltfrm1 ; pltfrm1 is unsupported
[CEDevice.SH3]
UnsupportedPlatforms = ; pltfrm1 is still unsupported
```

- **VersionMin**: *minor_version*
  Numeric value returned by **OSVERSIONINFO**.dwVersionMinor. The .CAB file is valid for the currently connected device if the version of this device is greater than or equal to **VersionMin**.
- **VersionMax**: *major_version*
  Numeric value returned by **OSVERSIONINFO**.dwVersionMajor. The .CAB file is valid for the currently connected device if the version of this device is less than or equal to **VersionMax**.
- **BuildMin**: *build_number*
  Numeric value returned by **OSVERSIONINFO**.dwBuildNumber. The .CAB file is valid for the currently connected device if the version of this device is greater than or equal to **BuildMin**.
- **BuildMax**: *build_number*
  Numeric value returned by **OSVERSIONINFO**.dwBuildNumber. The .CAB file is valid for the currently connected device if the version of this device is less than or equal to **BuildMax**.

Example

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

```
[CEDevice]                          ; A "template" for all platforms
UnsupportedPlatforms = pltfrm1      ; Does not support pltfrm1

; The following specifies version 1.0 devices only.
VersionMin = 1.0
VersionMax = 1.0

[CEDevice.ARM]                  ; Inherits all [CEDevice] settings
; This will create a .CAB file specific to ARM devices.
ProcessorType = 2577            ; ARM .cab file is valid for ARM microprocessors.
UnsupportedPlatforms =          ; pltfrm1 is still unsupported

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

[CEDevice.MIPS]                     ; Inherits all [CEDevice] settings
; This will create a .CAB file specific to "MIPS" devices.
ProcessorType = 4000            ; MIPS .CAB file is valid for MIPS
microprocessor.
UnsupportedPlatforms =pltfrm2 ; pltfrm1, pltfrm2 unsupported for MIPs .CAB
file.
```

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

[DefaultInstall]

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

Required? Yes

- **Copyfiles**: *copyfile_list_section*
  Maps to files defined later in the .INF file, such as Files.App, Files.Font, and Files.Bitmaps.
- **AddReg**: *add_registry_section*
  Example: RegSettings.All
- **CEShortcuts**: *shortcut_list_section*
  String that identifies one more section that defines shortcuts to a file, as defined in the [**CEShortcuts**] section.
- **CESetupDLL**: *setup_DLL*
  Optimal string that specifies a SETUP.DLL file. It is written by the Independent Software Vendor (ISV) and contains customized functions for operations during installation and removal of the application. The file must be specified in the [**SourceDisksFiles**] section.
- **CESelfRegister**: *self_reg_DLL_filename*
  String that identifies files that self-register by exporting the **DllRegisterServer** and **DllUnregisterServer** Component Object Model (COM) functions. Specify these files in the [**SourceDiskFiles**] section. During installation, if installation on the device fails to call the file's exported **DllRegisterServer** function, the file's exported **DllUnregisterServer** function will not be called during removal.

Example

```
[DefaultInstall]
AddReg = RegSettings.All
CEShortcuts = Shortcuts.All
```

[SourceDiskNames]

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

Required? Yes

- **disk_ordinal**: *disk_label,,path*
  1=,"App files" , C:\Appsoft\RP32\...
  2=,"Font files",,C:\RpTools\...
  3=,"CE Tools" ,,C:\windows ce tools...
- **CESignature**: "$Windows CE$"

Example

```
[SourceDisksNames]                          ; Required section
1 = ,"Common files",,C:\app\common          ; Using an absolute path
[SourceDisksNames.SH3]
2 = ,"SH3 files",,sh3                       ; Using a relative path
[SourceDisksNames.MIPS]
2 = ,"MIPS files",,mips                     ; Using a relative path
```

[SourceDiskFiles]

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

Required? Yes

- **filename**: *disk_number[,subdir]*
  RPM.EXE = 1,c:\appsoft\...
  WCESTART.INI = 1
  RPMCE212.INI = 1
  TAHOMA.TTF = 2

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

Example

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

[DestinationDirs]

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

Required? Yes

- **file_list_section**: *0,subdir*
  String that identifies the destination directory. The following list shows the string substitutions supported by Windows CE. Use these only for the beginning of the path. \
  %CE1% \Program Files
  %CE2% \Windows
  %CE3% \My Documents
  %CE4% \Windows\Startup
  %CE5% \My Documents
  %CE6% \Program Files\Accessories
  %CE7% \Program Files\Communication
  %CE8% \Program Files\Games
  %CE9% \Program Files\Pocket Outlook
  %CE10% \Program Files\Office
  %CE11% \Windows\Start Menu\Programs
  %CE12% \Windows\Start Menu\Programs\Accessories
  %CE13% \Windows\Start Menu\Programs\Communications
  %CE14% \Windows\Start Menu\Programs\Games
  %CE15% \Windows\Fonts
  %CE16% \Windows\Recent
  %CE17% \Windows\Start Menu
  %InstallDir%
  Contains the path to the target directory selected during installation. It is declared in the [**CEStrings**] section
  %AppName%
  Contains the application name defined in the [**CEStrings**] section.

Example

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

[CopyFiles]

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

Required? Yes

- **copyfile_list_section**: *destination_filename,[source_filename]*
  The *source_filename* parameter is optional if it is the same as *destination_filename*.
- **copyfile_list_section**: *flags*
  The numeric value that specifies an action to be done while copying files. The following table shows values supported by Windows CE.

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

Example

```
[DefaultInstall.SH3]
CopyFiles = Files.Common, Files.SH3
[DefaultInstall.MIPS]
CopyFiles = Files.Common, Files.MIPS
```

[AddReg]

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

Required? No

- **add_registry_section**: *registry_root_string*
  String that specifies the registry root location. The following list shows the values supported by Windows CE.
  - HKCR Same as HKEY_CLASSES_ROOT
  - HKCU Same as HKEY_CURRENT_USER
  - HKLM Same as HKEY_LOCAL_MACHINE
- **add_registry_section**: *value_name*
  Registry value name. If empty, the "default" registry value name is used.
- **add_registry_section**: *flags*
  Numeric value that specifies information about the registry key. The following table shows the values that are supported by Window CE.

Flag	Value	Description
FLG_ADDREG_NOCLOBBER	0x00000002	If the registry key exists, do not overwrite it. Can be used with any of the other flags in this table.
FLG_ADDREG_TYPE_SZ	0x00000000	REG_SZ registry data type.
FLG_ADDREG_TYPE_MULTI_SZ	0x00010000	REG_MULTI_SZ registry data type. Value field that follows can be a list of strings separated by commas.
FLG_ADDREG_TYPE_BINARY	0x00000001	REG_BINARY registry data type. Value field that follows must be a list of numeric values separated by commas, one byte per field, and must not use the 0x hexadecimal prefix.
FLG_ADDREG_TYPE_DWORD	0x00010001	REG_DWORD data type. The noncompatible format in the Win32 Setup .INF documentation is supported.

Example

```
AddReg = RegSettings.All

[RegSettings.All]
HKLM,%reg_path%,,0x00000000,alpha            ; <default> = "alpha"
HKLM,%reg_path%,test,0x00010001,3            ; Test = 3
HKLM,%reg_path%\new,another,0x00010001,6     ; New\another = 6
```

[CEShortCuts]

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

Required? No

- **shortcut_list_section**: *shortcut_filename*
  String that identifies the shortcut name. It does not require the .LNK extension.
- **shortcut_list_section**: *shortcut_type_flag*
  Numeric value. Zero or empty represents a shortcut to a file; any non-zero numeric value represents a shortcut to a folder.
- **shortcut_list_section**: *target_file_path*
  String value that specifies the destination location. Use the target file name for a file, such as MyApp.exe, that must be defined in a file copy list. For a path, use a *file_list_section* name defined in the [**DestinationDirs**] section, such as *DefaultDestDir*, or the *%InstallDir%* string.
- **shortcut_list_section**: *standard_destination_path*
  Optional string value. A standard *%CEx%* path or *%InstallDir%*. If no value is specified, the *shortcut_list_section* name of the current section or the *DefaultDestDir* value from the [**DestinationDirs**] section is used.

Example

```
CEShortcuts = Shortcuts.All
[Shortcuts.All]
Sample App,0,sample.exe          ; Uses the path in DestinationDirs. Sample
App,0,sample.exe,%InstallDir%    ; The path is explicitly specified.
```

Sample .INF File

```
[Version]           ; Required section
Signature = "$Windows NT$"
Provider = "Intermec Technologies Corporation"
CESignature = "$Windows CE$"

;[CEDevice]
;ProcessorType =

[DefaultInstall]    ; Required section
CopyFiles = Files.App, Files.Fonts, Files.BitMaps, Files.Intl,
Files.TelecomNcsCE, Files.Windows, Files.Import, Files.Export, Files.Work,
Files.Database, Files.WinCE AddReg = RegSettings.All ;CEShortcuts =
Shortcuts.All

[SourceDisksNames]  ; Required section
1 = ,"App files" ,,c:\appsoft\...
2 = ,"Font files" ,,c:\WinNT\Fonts
3 = ,"CE Tools"  ,,c:\windows ce tools\wce400\700ie\mfc\lib\x86

[SourceDisksFiles]  ; Required section
rpm.exe   = 1,C:\Appsoft\program\wce400\WCEX86Rel700
wcestart.ini = 1
```

```
rpmce212.ini = 1
intermec.bmp = 1
rpmlogo.bmp = 1
rpmname.bmp = 1
import.bmp  = 1
export.bmp  = 1
clock.bmp  = 1
printer.bmp = 1
filecopy.bmp = 1
readme.txt  = 1
lang_eng.bin = 1
rpmdata.dbd = 1,database\wce1
tahoma.ttf  = 2
mfcce212.dll = 3
olece212.dll = 3
olece211.dll = 1,c:\windows ce tools\wce400\NMSD61102.11\mfc\lib\x86
rdm45wce.dll = 1,c:\rptools\rdm45wce\4_50\lib\wce400\wcex86rel
picfmt.dll  = 1,c:\rptools\picfmt\1_00\wce400\wcex86rel6110
fmtctrl.dll = 1,c:\rptools\fmtctrl\1_00\wce400\wcex86rel6110
ugrid.dll  = 1,c:\rptools\ugrid\1_00\wce400\wcex86rel6110
simple.dll  = 1,c:\rptools\pspbm0c\1_00\wce400\wcex86rel
psink.dll = 1,c:\rptools\psink\1_00\wce400\WCEX86RelMinDependency
pslpwce.dll =1,c:\rptools\pslpm0c\1_00\wce400\WCEX86RelMinDependency
npcpport.dll = 1,c:\rptools\cedk\212_03\installable drivers\printer\npcp
;dexcom.dll  = 1,c:\rptools\psdxm0c\1_00\x86
ncsce.exe  = 1,c:\rptools\ncsce\1_04
nrinet.dll  = 1,c:\rptools\ncsce\1_04

[DestinationDirs] ; Required section
;Shortcuts.All = 0,%CE3%  ; \Windows\Desktop
Files.App         = 0,%InstallDir%
Files.DataBase      = 0,%InstallDir%\DataBase
Files.BitMaps     = 0,%InstallDir%\Bitmaps
Files.Fonts       = 0,%InstallDir%\Fonts
Files.Intl        = 0,%InstallDir%\Intl
Files.TelecomNcsCE  = 0,%InstallDir%\Telecom\NcsCE
Files.Windows     = 0,%InstallDir%\Windows
Files.Import      = 0,%InstallDir%\Import
Files.Export      = 0,%InstallDir%\Export
Files.Work        = 0,%InstallDir%\Work
Files.WinCE       = 0,\storage_card\wince

[CEStrings]       ; Required section
AppName = Rp32
InstallDir = \storage_card\%AppName%

[Strings]         ; Optional section
;[Shortcuts.All]
;Sample App,0,sample.exe               ; Uses the path in DestinationDirs.
;Sample App,0,sample.exe,%InstallDir%     ; The path is explicitly specified.

[Files.App]
rpm.exe,,,0
rpm.ini,rpmce212.ini,,0
mfcce212.dll,,,0
olece212.dll,,,0
olece211.dll,,,0
rdm45wce.dll,,,0
picfmt.dll,,,0
```

```
fmtctrl.dll,,,0
ugrid.dll,,,0
simple.dll,,,0
psink.dll,,,0
pslpwce.dll,,,0
npcpport.dll,,,0
;dexcom.dll,,,0

[Files.DataBase]
rpmdata.dbd,,,0

[Files.Fonts]
tahoma.ttf,,,0

[Files.BitMaps]
intermec.bmp,,,0
rpmlogo.bmp,,,0
rpmname.bmp,,,0
import.bmp,,,0
export.bmp,,,0
clock.bmp,,,0
printer.bmp,,,0
filecopy.bmp,,,0

[Files.Intl]
lang_eng.bin,,,0

[Files.TelecomNcsCE]
ncsce.exe,,,0
nrinet.dll,,,0

[Files.Windows]
readme.txt,,,0

[Files.Import]
readme.txt,,,0

[Files.Export]
readme.txt,,,0

[Files.Work]
readme.txt,,,0

[Files.WinCE]
wcestart.ini,,,0

[RegSettings.All]
HKLM,”SOFTWARE\Microsoft\Shell\AutoHide”,,0x00010001,1
; Autohide the taskbar HKLM,”SOFTWARE\Microsoft\Shell\OnTop”,,0x00010001,0
  ; Shell is not on top
HKLM,”SOFTWARE\Microsoft\Clock”,SHOW_CLOCK,0x00010001,0
  ; Clock is not on taskbar
```

Using Installation Functions in SETUP.DLL

SETUP.DLL is an optional file that enables you to perform custom operations during installation and removal of your application. The following list shows the functions that are exported by SETUP.DLL.

Install_Init	Called before installation begins. Use this function to check the application version when reinstalling an application and to determine if a dependent application is present.
Install_Exit	Called after installation is complete. Use this function to handle errors that occur during application installation.
Uninstall_Init	Called before the removal process begins. Use this function to close the application, if the application is running.
Uninstall_Exit	Called after the removal process is complete. Use this function to save database information to a file and delete the database and to tell the user where the user data files are stored and how to reinstall the application.

Note; Use [**DefaultInstall**] > **CESelfRegister** (page 224) in the .INF file to point to SETUP.DLL.

After the CAB File Extraction

Cab files that need to cause a warm reset after cab extraction will need to create the __RESETMEPLEASE__.TXT file in the "\Windows" directory. The preferred method to create this file is within the DllMain portion of the SETUP.DLL file. It looks like this:

```
#include <windows.h>
#include <Tlhelp32.h>
#include <winioctl.h>
#include <ce_setup.h>   // in the public SDK dir

#define IOCTL_TERMINAL_RESET CTL_CODE (FILE_DEVICE_UNKNOWN,FILE_ANY_ACCESS,
2050, METHOD_NEITHER)

BOOL APIENTRY DllMain( HANDLE h, DWORD reason, LPVOID lpReserved )
{
  return TRUE;
} // DllMain


//*********************************************************************
// $DOCBEGIN$
// BOOL IsProcessRunning( TCHAR * pname );
//
// Description: Get process table snapshot, look for pname running.
//
// Arguments: pname - pointer to name of program to look for.
// for example, app.exe.
//
// Returns: TRUE - process is running.
//          FALSE - process is not running.
// $DOCEND$
//*********************************************************************
BOOL IsProcessRunning( TCHAR * pname )
{
  HANDLE hProcList;
```

```
  PROCESSENTRY32 peProcess;
  DWORD thDeviceProcessID;
  TCHAR lpname[MAX_PATH];

  if ( !pname || !*pname ) return FALSE;

  _tcscpy( lpname, pname );
  _tcslwr( lpname );

  hProcList = CreateToolhelp32Snapshot( TH32CS_SNAPPROCESS, 0 );

  if ( hProcList == INVALID_HANDLE_VALUE ) {
    return FALSE;
  } // end if

  memset( &peProcess, 0, sizeof(peProcess) );
  peProcess.dwSize = sizeof(peProcess);

  if ( !Process32First( hProcList, &peProcess ) ) {
    CloseToolhelp32Snapshot( hProcList );
    return FALSE;
  } // end if

  thDeviceProcessID = 0;

  do {
    _tcslwr( peProcess.szExeFile );

    if ( _tcsstr( peProcess.szExeFile, lpname ) ) {
      thDeviceProcessID = peProcess.th32ProcessID;
      break;
    } // end if
  } while ( Process32Next( hProcList, &peProcess ) );

  if ( ( GetLastError() == ERROR_NO_MORE_FILES ) && ( thDeviceProcessID == 0
) ) {
    CloseToolhelp32Snapshot( hProcList );
    return FALSE;
  } // end if

  CloseToolhelp32Snapshot( hProcList );
  return TRUE;
} // IsProcessRunning

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

codeINSTALL_EXIT Install_Exit (
  HWND hwndParent,
  LPCTSTR pszInstallDir,
  WORD cFailedDirs,
  WORD cFailedFiles,
  WORD cFailedRegKeys,
```

```
  WORD cFailedRegVals,
  WORD cFailedShortcuts )
{
  HANDLE h;
  TCHAR srcfile[MAX_PATH];
  TCHAR dstfile[MAX_PATH];

  if (cFailedDirs || cFailedFiles || cFailedRegKeys ||
    cFailedRegVals || cFailedShortcuts)
    return codeINSTALL_EXIT_UNINSTALL;

  if ( IsProcessRunning( L"autocab.exe" ) )
  {
    h = CreateFile( L"\\Windows\\__resetmeplease__.txt",
      (GENERIC_READ | GENERIC_WRITE), 0, NULL, CREATE_ALWAYS,
      FILE_ATTRIBUTE_HIDDEN, NULL );

    if ( h != INVALID_HANDLE_VALUE )
      CloseHandle( h );
    else
    {
      // Couldn't create the file.  If it failed because the file already
exists, it is not fatal.
      // Otherwise, notify user of the inability to reset the device and they
will have to
      // perform it manually after all of the installations are complete.
    } // end if
  }
  else
  {
    DWORD dret;

    h = CreateFile( L"SYI1:",
      (GENERIC_WRITE | GENERIC_READ), 0, NULL, OPEN_EXISTING,
      FILE_ATTRIBUTE_NORMAL, NULL );

    // Force a warm start NOW.
    if ( h != INVALID_HANDLE_VALUE )
    {
      DeviceIoControl( h, IOCTL_TERMINAL_RESET, NULL, 0, NULL, 0, &dret,
NULL);

      // Won't return, but we'll show clean up anyway
      CloseHandle( h );
    }
    else
    {
      // Couldn't access SYSIO. Notify user.
    } // end if
  } // end if

  return codeINSTALL_EXIT_DONE;
}

codeUNINSTALL_INIT
Uninstall_Init(
  HWND hwndParent,
  LPCTSTR pszInstallDir ) {
```

```
  // TODO: Perform the reverse of INSTALL_INIT here
  return codeUNINSTALL_INIT_CONTINUE;
}

codeUNINSTALL_EXIT
Uninstall_Exit(HWND hwndParent) {

  // TODO: Perform the reverse of INSTALL_EXIT here
  return codeUNINSTALL_EXIT_DONE;
}
```

The system software looks for the following directory structure and files on the installed media card whether it be an SD card or CF card or embedded flash file system. No other folders need exist.

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

Creating CAB Files with CAB Wizard

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

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

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

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

"inf_file"	The SETUP.INF file path.
dest_directory	The destination directory for the .CAB files. If no directory is specified, the .CAB files are created in the "inf_file" directory.
error_file	The file name for a log file that contains all warnings and errors that are encountered when the .CAB files are compiled. If no file name is specified, errors are displayed in message boxes. If a file name is used, the CAB Wizard runs without the user interface (UI); this is useful for automated builds.
cpu_type	Creates a .CAB file for each specified microprocessor tag, which is a label used in the Win32 SETUP.INF file to differentiate between different microprocessor types. The */cpu* parameter, followed by multiple *cpu_type* values, must be the last qualifier in the command line.

Example

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

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

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

Troubleshooting the CAB Wizard

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

- Use %% for a percent sign (%) character when using this character in an .INF file string, as specified in Win32 documentation. This will not work under the [**Strings**] section.
- Do not use .INF or .CAB files created for Windows CE to install applications on Windows-based desktop platforms.
- Ensure the MAKECAB.EXE and CABWIZ.DDF files, included with Windows CE, are in the same directory as CABWIZ.EXE.
- Use the full path to call CABWIZ.EXE.
- Do not create a .CAB file with the MAKECAB.EXE file included with Windows CE. You must use CABWIZ.EXE, which uses MAKECAB.EXE to generate the .CAB files for Windows CE.
- Do *not* set the read-only attribute for .CAB files.

Customization and Lockdown

Pocket PC (Windows Mobile) is a hardware specification created by Microsoft Corporation. Devices that wish to carry the Pocket PC logo must meet the minimum hardware requirements set in the Pocket PC specification. Manufacturers are free to add extra hardware functionality.

Pocket PC devices also use a specialized version of the CE operating system. This OS is built from Windows CE 3.0 but contains customizations, most notably the lack of a desktop and the addition of the Today Screen.

To carry the Pocket PC logo, all devices must be tested at an Independent Test Laboratory. The ITL testing is done based on Microsoft requirements. The test lab then reports the findings back to Microsoft Corporation and Intermec Technologies. If the 700 Series Computer passed all tests, Intermec is allowed to ship the device with the Pocket PC logo. Each time the operating system is modified, Intermec must resubmit to ITL testing.

This means we cannot change the operating system much and still be a Pocket PC device. For example, if we remove Word from the Start menu, the device would fail ITL testing and we would not be able to ship devices with the Pocket PC logo.

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

- Delete items from the Start menu, and Programs folder. These items are just shortcuts in the file system so the application is not really being deleted. Cold booting the device will bring these items back so the application will need to be run on every cold boot.
- Use the RegFlushKey() API to save a copy of the registry to a storage device. See the 700 Color Management Tools portion of the *Intermec Developer's Library CD* for more information on how to do this. Saving a copy of the registry restores most system settings in a cold boot situation.
- Use the SHFullScreen() API in conjunction with other APIs to make the application take up the entire display and prevent the start menu from being available.
- Remap keys and disable keys on the keypad.
- Create a custom SIP.
- Make changes to the registry to configure the device.

Should you want your 700 Series Computer to display a full screen, keep in mind that your computer is Pocket-PC certified by Microsoft Corporation. Check out resources on programming for the Pocket PC, using the following links. These instructions give full instructions on how to display full screen.

- Instructions on how to create a full screen application for eVC++ applications using an SHFullScreen() API:
  http://support.microsoft.com/support/kb/articles/Q266/2/44.ASP
- Instructions on how to create a full screen application for eVB applications also using the SHFullScreen() API:
  http://support.microsoft.com/support/kb/articles/Q265/4/51.ASP

FTP Server

FTP support is provided through the FTP Server application FTPDCE.EXE (MS Windows CE Versions) which is provided as part the base system.

FTPDCE is the Internet File Transfer Protocol (FTP) server process. The server can be invoked from an application or command line. Besides servicing FTP client requests the FTP Server also send a "network announcement" to notify prospective clients of server availability.

Note: You should consult the RFC959 specification for proper use of some of these commands at the following URL:

- http://www.ietf.org/rfc/rfc959.txt for the text version, or
- http://www.w3.org/Protocols/rfc959/ for an html version

Do the following to send commands:

1. Start an FTP client and connect to the device FTP server.
2. Log in with "intermec" as the user name and "cr52401" for the password.
3. From the FTP client, send the command.
4. Wait for a response.

Synopsis

ftpdce [*options*]

Options

–Aaddr	(where *addr* is in the form of a.b.c.d) Sets the single target address to which to send the network announcement. *Default is broadcast.*
–Bbyte	Sets the FTP data block size. Smaller sizes may be useful over slower links. *Default is 65536.*
–Cname	Sets the device name. Used by Intermec management software.
–Fvalue	Disables the default Intermec account. A value of "0" disables the account. *Default is "1".* Note that disabling the default account without providing a working access control list on the server will result in a device that will not accept any FTP connections.
–Hsec	Sets the interval between network announcements in seconds.A value of "0" turns the network announcement off. *Default is 30 seconds.*
–Iaddr	(where *addr* is in the form of a.b.c.d) Sets the preferred 6920 Communications Server *(optional).*
–Llog	(where *log* is either "0" or "1") Sets the state of logging. *Default is 0 (disabled).*
–Nsec	Specifies the number of seconds to wait before initially starting FTP server services.
–Pport	Sets the UDP port on which the network announcement will be sent. *Default port is 52401.*
–Qport	Sets the port on which the FTP Server will listen for connections. *Default port is 21.*
–Rdir	Sets the FTP mount point to this directory. Default is the root folder of the object store.
–Tscrip	Sets the script name for the 6920 Communications Server to process.
–Uurl	Sets the default URL for this device.
–Z"parms"	Sets extended parameters to be included in the network announcement.

Configurable Parameters Via the Registry Editor

The following parameters receive default values during the installation of the Intermec FTP Server components. A few of the parameters are visible in the registry by default, but most must be created in order to modify the default behavior of the FTP server.

BlockSize

Setting this parameter configures the Intermec FTP Server to transmit and receive Ethernet packets using the specified data block size. By default, the FTP server transmits and receives data using a 64K data block size. Adjusting this value may be useful in certain wireless TCP/IP installations.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_DWORD - data block size, in bytes.
Valid Range	0x100-0x10000 (256-65536 decimal).
Default	65536

DeviceName

This parameter configures the Intermec FTP Server to include the specified device name in the Intermec Device Network Announcement (IDNA). Adjusting this value may be useful in assigning a symbolic name to this device for asset tracking.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_SZ
Valid Range	None.
Default	None.

DeviceURL

This parameter configures the Intermec FTP Server to transmit the specified URL in the IDNA. This can be used by Intermec management software for asset management.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_SZ
Valid Range	None.
Default	None.

IDNATarget

This parameter configures the Intermec FTP Server to transmit the IDNA to a specific destination instead of a general UDP broadcast. This parameter is useful on networks that do not allow UDP broadcasts to be routed between subnets. The use of this parameter will restrict the reception of the IDNA to the target destination only.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_SZ
Valid Range	None.
Default	None.

ManifestName

This parameter configures the Intermec FTP Server to transmit the specified manifest name in the IDNA. This parameter is used by the Intermec 6920 Communications Server for communication transactions. See the 6920 Communications Server documentation for proper use of this parameter.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_SZ
Valid Range	None.
Default	iftp.ini

PauseAtStartup

This parameter configures the Intermec FTP Server to sleep for the specified number of seconds before making the FTP service available on the device.

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_DWORD - stored in seconds.
Valid Range	None.
Default	0

Root

This parameter configures the Intermec FTP Server to set the root of the FTP mount point to the specified value. *Note that this must map to an existing directory or you will not be able to log into the FTP Server.*

Key	`HKLM\Software\Intermec\IFTP`
Value Type	REG_SZ
Valid Range	None.
Default	\

Transferring Files Over TCP/IP Networks

The File Transfer Protocol (FTP) server transfers files over TCP/IP networks. The FTPDCE.EXE program is a version that does not display a window, but can run in the background.

FTPDCE is the Internet File Transfer Protocol (FTP) server process. The server can be invoked from an application or command line. Besides servicing FTP client requests, the FTP Server also sends a "network announcement" to notify prospective clients of server availability.

Remarks

The FTP Server currently supports the following FTP requests:

CDUP	Changes to the parent directory of the current working directory.
CWD	Changes working directory.
DELE	Deletes a file.
HELP	Gives help information.
LIST	(This FTP request is the same as the ls -lgA command). Gives list files in a directory.
MKD	Makes a directory.
MODE	*(Always Uses Binary).* Specifies data transfer mode.
NLST	*(Not supported)* Gives a name list of files in directory (this FTP request is the same as the *ls* command).
NOOP	Does nothing.
PASS	Specifies a password.
PWD	Prints the current working directory.
QUIT	Terminates session.
RETR	Retrieves a file.
RMD	Removes a directory.
RNFR	Specifies rename-from file name.
RNTO	Specifies rename-to file name.
STOR	Stores a file.
SYST	Shows the operating system type of server system.
TYPE	*(Binary transfers only.)* Specifies the data transfer type with the Type parameter.
USER	Specifies user name.
XCUP	*(Not Normally Used)* Changes the parent directory of the current working directory.
XCWD	*(Not Normally Used)* Changes the current directory.
XMKD	*(Not Normally Used)* Creates a directory.
XPWD	*(Not Normally Used)* Prints the current working directory.
XRMD	*(Not Normally Used)* Removes a directory.

SITE	The following extended OEM commands are supported by the SITE request. For Microsoft FTP clients, you can send site commands by preceding the command with "quote" such as "quote site status."	
	ATTRIB	Gets or sets the attributes of a given file. (SITE ATTRIB) Usage **QUOTE SITE ATTRIB** [*+R* | *-R*] [*+A* | *-A*] [*+S* | *-S*] [*+H* | *-H*] [[*path*] *filename*] + Sets an attribute. – Clears an attribute. *R* Read-only file attribute. *A* Archive file attribute. *S* System file attribute. *H* Hidden file attribute. To retrieve the attributes of a file, only specify the file. The server response will be: *200-AD SHRCEIX filename* If the flag exists in its position shown above, it is set. Also, in addition to the values defined above, there is also defined: *C* Compressed file attribute. *E* Encrypted file attribute. *I* INROM file attribute. *X* XIP file attribute (execute in ROM, not shadowed in RAM).
	BOOT	Reboots the server OS. This will cause the system on which the server is executing to reboot. The FTP Server will shut down cleanly before reboot. All client connections will be terminated. Cold boot is default except for the PocketPC build in which the default is warm boot. (SITE BOOT) Usage: **QUOTE SITE BOOT** [*WARM* | *COLD*]
	COPY	Copies a file from one location to another. (SITE COPY) Usage: **QUOTE SITE COPY** [*source*] [*destination*] Example: `QUOTE SITE COPY '\Storage Card\one.dat' '\Storage Card\two.dat'`
	EXIT	Exits the FTP Server. This command will shut down the FTP Server thus terminating all client connections. (SITE EXIT) Usage: **QUOTE SITE EXIT**
	HELP	Gives site command help information. (SITE HELP) Usage: **QUOTE SITE HELP** [*command*]
	KILL	Terminates a running program. (SITE KILL) Usage: **QUOTE SITE KILL** [*program* | *pid*]
	LOG	Opens or closes the program log. (SITE LOG) Usage: **QUOTE SITE LOG** [*open* [*filename*]| *close*]
	PLIST	Lists the running processes (SITE PLIST) Usage: **QUOTE SITE PLIST**
	RUN	Starts a program running. If the program to run has spaces in path or filename, wrapping the name with single quotes is required. Usage: **QUOTE SITE RUN** [*program*] Example: `QUOTE SITE RUN '\Storage Card\app.exe'`

STATUS	Returns the current settings of the FTP Server. MAC, serial number, model, IP address, network announcement information as well as OS memory usage are returned. (SITE STATUS) Usage: **QUOTE SITE STATUS**
TIMEOUT	Toggles idle timeout between 120 to 1200 seconds (2 to 20 minutes). If this timer expires with no activity between the client and the server, the client connection will be disconnected. If the optional seconds argument is supplied, the server will set the connection timeout to the number of seconds specified. *Default is 120 seconds or 2 minutes.* (SITE TIMEOUT) Usage: **QUOTE SITE TIMEOUT** [*seconds*]
EKEY	Gives site command electronic key information. (SITE HELP) Usage: **QUOTE SITE EKEY** [*command*]
EVAL	Gives site command electronic value information. (SITE HELP) Usage: **QUOTE SITE EVAL** [*command*]
GVAL	Gives site command general value information. (SITE HELP) Usage: **QUOTE SITE GVAL** [*command*]
PVAL	Gives site command value information. (SITE HELP) Usage: **QUOTE SITE PVAL** [*command*]

The remaining FTP requests specified in RFC 959 are recognized, but not implemented.

The banner returned in the parenthetical portion of its greeting shows the version number of the FTP Server as well as the MAC address, serial number and OS of the machine hosting the server.

The FTP Server supports browsing from the latest Netscape and Microsoft web browsers. Drag-and-drop capability is available using this environment.

The FTPDCMDS subdirectory contains commands to use from the web browser.

- Click EXITME.BIN to execute a SITE EXIT command.
- Click REBOOTME.BIN to execute SITE BOOT command.
- Use the GET command on these files to have the FTP Server execute these commands.
  - **Security**:
    A customer configurable access control list may be installed on the 700 Series Computer. This list will allow customers to restrict access via the FTP Server to users they wish and is in addition to default Intermec accounts that are disabled using the *-F0* option at runtime.

    The access control list is named FTPDCE.TXT and is placed in the same directory on the 700 Series Computer as the FTPDCE.EXE server. The FTP Server will encrypt this file to keep the information safe from unauthorized users. This file is encrypted when the FTP Server is started so a file that is placed onto the 700 Series Computer after the FTP Server starts will require a restart of the FTP Server to take effect.

The format of the FTPDCE.TXT is as follows:

```
FTPDCE:user1!passwd1<cr><lf>user2!passwd2<cr><lf>user3
!passwd3<cr><lf>...
```

Note: The user accounts and passwords are case sensitive.
Once the access control list is encrypted on the 700 Series Computer, the FTP Server hides this file from users. Once an access control list is installed on the 700 Series Computer, a new one is not accepted by the FTP Server until the previous one is removed. Encrypted access control lists are not portable between 700 Series Computers.

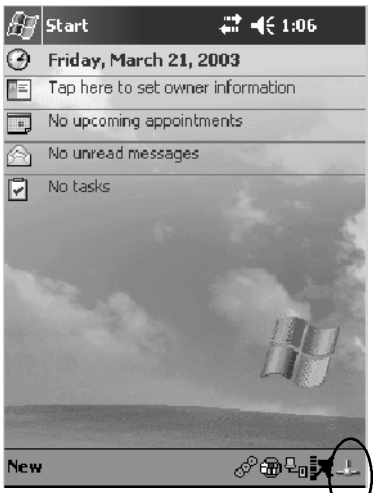
Stopping the FTP Server from Your Application

To allow application programmers the ability to programmatically shut down the FTP Server, the FTP Server periodically tests to see if a named event is signaled. The name for this event is "ITC_IFTP_STOP" (no quotes).

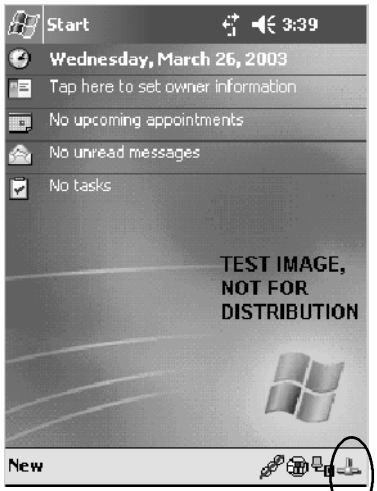
For examples on how to use events, consult the Microsoft Developer Network Library at http://www.msdn.com. The MSDN Library is an essential resource for developers using Microsoft tools, products, and technologies. It contains a bounty of technical programming information, including sample code, documentation, technical articles, and reference guides.

Autostart FTP

This automatically starts the FTP Server (FTPDCE.EXE) when the 700 Series Computer is powered on. This is provided with the NDISTRAY program (the Network Driver Interface Specification tray application), which displays the popup menu that currently allows you to load and unload the network drivers. Tap the antenna icon in the System Tray of the Today screen *(a sample antenna icon is circled below)* for this pop-up menu.



700 Color and 730 Screens



700CXL Screen

The default is to start the FTP Server at boot time, unless the following registry entry is defined and set to "0" which disables AutoFTP. "1" enables the AutoFTP. The entry can be set from the NDISTRAY pop-up menu by selecting either **AutoFTP On** or **AutoFTP Off**.

`HKEY_LOCAL_MACHINE\Software\Intermec\Ndistray\StartupIFTP`

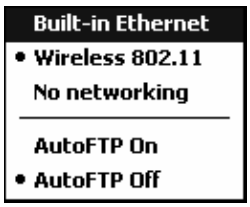
These new entries are located below the selections to load the network drivers. If the StartupIFTP registry key is not defined, the FTP Server is loaded by default, to provide "out-of-the-box" capability for customers who want to begin loading files to the 700 Series Computer without any prior configuration.

Note: If a network driver is unloaded using the NDISTRAY popup menu, and the FTP Server is running, the FTP Server is stopped.

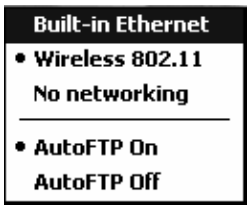
On a resume, if AutoFTP is enabled and the FTP Server is running, it is stopped and restarted. NDISTRAY uses a helper application named RESETIFTP to implement the restart on resume feature.

To do an AutoFTP Installation Check:

1. Ensure the FTP Server is running "out-of-the-box" the first time.
2. Tap **Start** > **Today** to access the Today screen, then tap the antenna icon in the System Tray to bring up the NDISTRAY pop-up menu. Select **AutoFTP Off** to disable AutoFTP. Do a warm boot and confirm the FTP Server is not running.



3. Tap **Start** > **Today** to access the Today screen, then tap the antenna icon in the System Tray to bring up the NDISTRAY pop-up menu. Select **AutoFTP On** to enable AutoFTP, reboot, confirm it is running.



4. Unload the network driver when the FTP Server is running and confirm that it is not running any more.
5. Load the FTP Server, establish a connection, then suspend and resume. The server should still run, but the FTP connection to the client should be dropped.

Kernel I/O Controls

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

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

IOCTL_HAL_GET_DEVICE_INFO

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

Syntax

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

Parameters

lpInBuf	Points to a DWORD containing either the SPI_GETPLATFORMTYPE or SPI_GETOEMINFO value.
lpInBufSize	Must be set to sizeof(DWORD).
lpOutBuf	Must point to a buffer large enough to hold the return data of the function. If SPI_GETPLATFORMTYPE is specified in *lpInBuf*, then the “PocketPC\0” Unicode string is returned. If SPI_GETOEMINFO is specified in *lpInBuf*, then the “Intermec 700\0” Unicode string is returned.
nOutBufSize	The size of *lpOutBuf* in bytes. Must be large enough to hold the string returned.
lpBytesReturned	The actual number of bytes returned by the function for the data requested.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_HAL_ITC_READ_PARM

Usage
#include "oemioctl.h"

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

Parameters

lpInBuf	Points to this structure. See "*ID Field Values*" below.
	`struct PARMS {`
	`  BYTE id;`
	`  BYTE ClassId;`
	`};`

nInBufSize	Must be set to the size of the PARMS structure.
lpOutBuf	Must point to a buffer large enough to hold the return data of the function. If this field is set to NULL and *nOutBufSize* is set to zero when the function is called the function will return the number bytes required by the buffer.
nOutBufSize	The size of *lpOutBuf* in bytes.
lpBytesReturned	Number of bytes returned by the function for the data requested.

Return Values
Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the error value. Either ERROR_INVALID_PARAMETER or ERROR_INSUFFICIENT_BUFFER may be returned when this function is used to get the error.

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

ID Field Values
ITC_NVPARM_ETHERNET_ID This IOCTL returns the Ethernet 802.11 MAC Address. Six bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_SERIAL_NUM This IOCTL returns the serial number of the device in BCD format. Six bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_MANF_DATE This IOCTL returns the device date of manufacture in the BCD YYYY/MM/DD format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_SERVICE_DATE This IOCTL returns the device's date of last service in BCD YYYY/MM/DD format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.

ID Field Values (continued)
ITC_NVPARM_DISPLAY_TYPE This IOCTL returns the device's display type. One byte is returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_EDG_IP This IOCTL returns the device Ethernet debug IP address. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_EDBG_SUBNET This IOCTL returns the device Ethernet debug subnet mask. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_ECN This IOCTL returns ECNs applied to the device in a bit array format. Four bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_CONTRAST This IOCTL returns the device default contrast setting. Two bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_MCODE This IOCTL returns the manufacturing configuration code for the device. Sixteen bytes are returned in the buffer pointed to by the *lpOutBuffer* parameter.
ITC_NVPARM_VERSION_NUMBER This IOCTL returns the firmware version for various system components. These values for the *ClassId* field of the PARMS structure are allowed when ITC_NVPARM_VERSION_NUMBER is used in the *id* field: • **VN_CLASS_KBD** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the keypad microprocessor version in the system. The format of the string is *x.xx* with a terminating null character. • **VN_CLASS_ASIC** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the version of the FPGA firmware in the system. The format of the string is *x.xx* with a terminating null character. • **VN_CLASS_BOOTSTRAP** Returns a five-byte string, including null terminator, that contains an ASCII value which represents the version of the Bootstrap Loader firmware in the system. The format of the string is *x.xx* with a terminating null character.
ITC_NVPARM_INTERMEC_SOFTWARE_CONTENT This IOCTL reads the manufacturing flag bits from the non-volatile data store that dictates certain software parameters. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer* that indicates if Intermec Content is enabled in the XIP regions. TRUE indicates that it is enabled. FALSE indicates that it is not enabled.
ITC_NVPARM_ANTENNA_DIVERSITY This IOCTL reads the state of the antenna diversity flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer* that indicates if there is a diversity antenna installed. TRUE indicates that it is installed. FALSE indicates that it is not installed.
ITC_NVPARM_WAN_RI This IOCTL reads the state of the WAN ring indicator flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer* that indicates the polarity of the WAN RI signal. TRUE indicates active high. FALSE indicates active low.

ID Field Values (continued)
ITC_NVPARM_RTC_RESTORE This IOCTL reads the state of the real-time clock restore flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the RTC is restored upon a cold boot. FALSE indicates that the RTC is not restored.
ITC_NVPARM_INTERMEC_DATACOLLECTION_SW This IOCTL reads the state of the data collection software enabled flag. A BOOLEAN DWORD is returned in the buffer pointer to by *lpOutBuffer* that indicates the data collection software is to install at boot time. FALSE indicates the data collection software should not install.
ITC_NVPARM_INTERMEC_DATACOLLECTION_HW This IOCTL reads the data collection hardware flags. A BYTE is returned in the buffer pointer to by *lpOutBuffer* that indicates the type of data collection hardware installed. The maximum possible value returned is ITC_DEVID_SCANHW_MAX. • **ITC_DEVID_SCANHW_NONE** No scanner hardware is installed. • **ITC_DEVID_OEM2D_IMAGER** OEM 2D imager is installed. • **ITC_DEVID_INTERMEC2D_IMAGER** Intermec 2D imager is installed. • **ITC_DEVID_SE900_LASER** SE900 laser is installed. • **ITC_DEVID_SE900HS_LASER** SE900HS laser is installed. • **ITC_DEVID_INTERMEC_EVIO** EVIO linear imager is installed. The high bit indicates whether the S6 scanning engine is installed. The bit mask for this is ITC_DEVID_S6ENGINE_MASK. A non-zero value indicates that the S6 scanning engine is installed.
ITC_NVPARM_WAN_INSTALLED This IOCTL reads the state of the WAN radio installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the WAN radio is installed. FALSE indicates that no WAN radio is installed.
ITC_NVPARM_WAN_FREQUENCY This IOCTL reads the state of the WAN radio frequency flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the WAN radio frequency is United States. FALSE indicates that the WAN radio frequency is European.
ITC_NVPARM_WAN_RADIOTYPE This IOCTL reads the WAN radio ID installed by manufacturing. A BYTE is returned in the buffer pointer to by *lpOutBuffer* which indicates the type of WAN radio hardware installed. The maximum possible value returned is ITC_DEVID_WANRADIO_MAX. The current definitions are: • **ITC_DEVID_WANRADIO_NONE** No WAN radio installed. • **ITC_DEVID_WANRADIO_SIERRA_SB555** CDMA Sierra Wireless radio. • **ITC_DEVID_WANRADIO_XIRCOM_GEM3503** GSM/GPRS Intel (Xircom) radio. • **ITC_DEVID_WANRADIO_SIEMENS_MC45** GSM/GPRS Siemens radio.
ITC_NVPARM_80211_INSTALLED This IOCTL reads the state of the 802.11b radio installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the 802.11b radio is installed. FALSE indicates that no 802.11b radio is installed.
ITC_NVPARM_80211_RADIOTYPE This IOCTL reads the 802.11b radio ID installed by manufacturing. A BYTE is returned in the buffer pointer to by *lpOutBuffer* that indicates the type of 802.11b radio hardware installed. The maximum possible value returned is ITC_DEVID_80211RADIO_MAX. The current definitions are: • **ITC_DEVID_80211RADIO_NONE** No 802.11b radio installed. • **ITC_DEVID_80211RADIO_INTEL_2011B** Intel 2011B radio installed.

ID Field Values (continued)
ITC_NVPARM_BLUETOOTH_INSTALLED This IOCTL reads the state of the Bluetooth radio installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the Bluetooth radio is installed. FALSE indicates that no Bluetooth radio is installed.
ITC_NVPARM_SERIAL2_INSTALLED This IOCTL reads the state of the serial 2 (COM2) device installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the serial 2 device is installed. FALSE indicates that no serial 2 device is installed.
ITC_NVPARM_VIBRATE_INSTALLED This IOCTL reads the state of the vibrate device installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the vibrate device is installed. FALSE indicates that no vibrate device is installed.
ITC_NVPARM_LAN9000_INSTALLED This IOCTL reads the state of the Ethernet device installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the Ethernet device is installed. FALSE indicates that no Ethernet device is installed.
ITC_NVPARM_SIM_PROTECT_HW_INSTALLED This IOCTL reads the state of the SIM card protection hardware installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection hardware is installed. FALSE indicates that no SIM card protection hardware is installed.
ITC_NVPARM_SIM_PROTECT_SW_INSTALLED This IOCTL reads the state of the SIM card protection software installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection software is installed. FALSE indicates that no SIM card protection software is installed.
ITC_NVPARM_SIM_PROTECT_SW_INSTALLED This IOCTL reads the state of the SIM card protection software installed flag. A BOOLEAN DWORD is returned in the buffer pointed to by *lpOutBuffer*. TRUE indicates that the SIM card protection software is installed. FALSE indicates that no SIM card protection software is installed.

IOCTL_HAL_ITC_WRITE_SYSPARM

Describes and enables the registry save location.

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	A single byte that may be one of the *id* values. See “*ID Field Values*” on the next page.
nInBufSize	Must be set to the size of the *lpInBuf* in bytes.
lpOutBuf	Must point to a buffer large enough to hold the data to be written to the non-volatile data store.
nOutBufSize	The size of *lpOutBuf* in bytes.
lpBytesReturned	The number of bytes returned by the function.

Return Values

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

ID Field Values

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

ID Field Values

ITC_REGISTRY_SAVE_ENABLE
This function enables or disables the save registry to non-volatile media feature of the RegFlushKey() function. *lpOutBuf* must be set to zero (FALSE) if the feature is to be disabled or one (TRUE) if the feature is to be enabled.

ITC_ DOCK_SWITCH
This IOCTL sets a position of the dock switch. The dock switch may be set to either "modem" or "serial" positions. *lpOutBuf* must point to a buffer that contains a byte value of either DOCK_MODEM or DOCK_SERIAL as defined in OEMIOCTL.H; the value specifies the position the switch is to be set. The call appears as follows:

```
// port = DOCK_MODEM or DOCK_SERIAL as defined in oemioctl.h
BOOL SetDockSwitch( BYTE port)
{
 DWORD cmd = ITC_DOCK_SWITCH;
 DWORD cbRet;

 return KernelIoControl(IOCTL_HAL_ITC_WRITE_SYSPARM,&cmd, sizeof(cmd),
&port,sizeof(port),&cbRet)
}
```

ITC_ WAKEUP_MASK
This IOCTL sets a bit mask that represents the mask for the five programmable wakeup keys. The I/O key is not a programmable wakeup key. By default it is always the system resume key and all other keys are set to disable key wakeup. A zero in a bit position masks the wakeup for that key. A one in a bit position enables wakeup for that key. *lpOutBuf* must point to a buffer that contains a byte value of a wakeup mask consisting of the OR'ed constants as defined in OEMIOCTL.H. Only the following keys are programmable as wakeup events.

```
#define  SCANNER_TRIGGER 1
#define  SCANNER_LEFT    2
#define  SCANNER_RIGHT   4
#define  GOLD_A1         8
#define  GOLD_A2         0x10
```

ITC_AMBIENT_KEYBOARD *(does not apply to the 730 Computer)*
This IOCTL sets the threshold for the keypad ambient sensor. This can be a value from 0 (always off) to 255 (always on). *lpOutBuf* must point to a buffer that contains a byte value of the desired setting.

ITC_AMBIENT_FRONTLIGHT *(does not apply to the 730 Computer)*
This IOCTL sets the threshold for the frontlight ambient sensor. This can be a value from 0 (always off) to 255. *lpOutBuf* must point to a buffer that contains a byte value of the desired setting.

IOCTL_HAL_GET_DEVICEID

This IOCTL returns the device ID. There are two types of device IDs supported, which are differentiated based on the size of the *output* buffer. The UUID is returned if the buffer size is set to *sizeof(UNIQUE_DEVICEID)*, otherwise the oldstyle device ID is returned.

Usage

#include “pkfuncs.h”
#include “deviceid.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL. STRICT_ID settings are not supported.
lpInBufSize	Should be set to zero.
lpOutBuf	Must point to a UNIQUE_DEVICEID structure as defined by DEVICEID.H if the UUID is to be returned
nOutBufSize	The size of the UNIQUE_DEVICEID in bytes if the UUID is to be returned. A DEVICE_ID as defined by PKFUNCS.H is returned if the size in bytes is greater than or equal to *sizeof(DEVICE_ID)*.
lpBytesReturned	The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_HAL_GET_OAL_VERINFO

Returns the HAL version information of the Pocket PC image.

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.
lpOutBuf	Must point to a VERSIONINFO structure as defined by OEMIOCTL.H. The fields should have these values: • `cboemverinfo` sizeof (tagOemVerInfo); • `verinfover` 1 • `sig;` “ITC\0” • `id;` ‘N’ • `tgtcustomer` “” • `tgtplat` SeaRay • `tgtplatversion` Current build version number • `tgtcputype[8];` “Intel\0” • `tgtcpu` “PXA255\0”; • `tgtcoreversion` “” • `date` Build time • `time` Build date
nOutBufSize	The size of VERSIONINFO in bytes.
lpBytesReturned	Returns *sizeof(PVERSIONINFO)*.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_HAL_GET_BOOTLOADER_VERINFO

Returns the HAL version information of the Pocket PC image.

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
nInBufSize	Should be set to zero.
lpOutBuf	Must point to a VERSIONINFO structure as defined by OEMIOCTL.H. The fields should have these values: • `cboemverinfo` Sizeof (tagOemVerInfo); • `verinfover` 1 • `sig;` “ITC\0” • `id;` ‘B’ • `tgtcustomer` “” • `tgtplat` SeaRay • `tgtplatversion` Current build version number of the bootstrap loader • `tgtcputype[8];` “Intel\0”; • `tgtcpu` “PXA255\0” • `tgtcoreversion` “” • `date` Build time • `time` Build date
nOutBufSize	The size of VERSIONINFO in bytes.
lpBytesReturned	The number of bytes returned to *lpOutBuf*.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_HAL_WARMBOOT

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

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.
lpOutBuf	Should be NULL.
nOutBufSize	Should be zero.

Return Values

None.

IOCTL_HAL_COLDBOOT

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

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.
lpOutBuf	Should be NULL.
nOutBufSize	Should be zero.

Return Values

None.

IOCTL_HAL_GET_RESET_INFO

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

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.
lpOutBuf	Must point to a HAL_RESET_INFO structure. See sample below.
nOutBufSize	The size of HAL_RESET_INFO in bytes.
lpBytesReturned	The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

Sample

```
typedef struct {
  DWORD ResetReason;                        // most recent reset type
  DWORD ObjectStoreState;                   // state of object store
} HAL_RESET_INFO, * PHAL_RESET_INFO;

// Reset reason types
#define HAL_RESET_TYPE_UNKNOWN            0
#define HAL_RESET_REASON_HARDWARE         1  // cold
#define HAL_RESET_REASON_SOFTWARE         2  // suspend
#define HAL_RESET_REASON_WATCHDOG         4
#define HAL_RESET_BATT_FAULT              8  // power fail
#define HAL_RESET_VDD_FAULT               16 // warm boot

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

IOCTL_HAL_GET_BOOT_DEVICE

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

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.

lpOutBuf	Must point to a buffer large enough to hold a DWORD (4 bytes) that contains the boot device. The following boot devices are supported:
	`#define HAL_BOOT_DEVICE_UNKNOWN 0`
	`#define HAL_BOOT_DEVICE_ROM_XIP 1`
	`#define HAL_BOOT_DEVICE_ROM 2`
	`#define HAL_BOOT_DEVICE_PCMCIA_ATA 3`
	`#define HAL_BOOT_DEVICE_PCMCIA_LINEAR 4`
	`#define HAL_BOOT_DEVICE_IDE_ATA 5`
	`#define HAL_BOOT_DEVICE_IDE_ATAPI 6`

nOutBufSize	The size of *lpOutBuf* in bytes (4).
lpBytesReturned	The number of bytes returned by the function.

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_HAL_REBOOT

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

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
lpInBufSize	Should be set to zero.
lpOutBuf	Should be NULL.
nOutBufSize	Should be zero.

Return Values

None.

IOCTL_PROCESSOR_INFORMATION

Returns processor information.

Usage

#include “pkfuncs.h”

Syntax

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

Parameters

lpInBuf	Should be set to NULL.
nInBufSize	Should be set to zero.
lpOutBuf	Should be a pointer to the PROCESSOR_INFO structure. The PROCESSOR_INFO structure stores information that describes the CPU more descriptively.

```
typedef __PROCESSOR_INFO {
WORD   wVersion;             // Set to value 1
WCHAR  szProcessorCore[40];  // “ARM\0”
WORD   wCoreRevision;        // 4
WCHAR  szProcessorName[40];  // “PXA255\0”
WORD   wProcessorRevision;   // 0
WCAHR  szCatalogNumber[100]; // 0
WCHAR  szVendor[100];        // “Intel Corporation\0”
DWORD  dwInstructionSet;     // 0
DWORD  dwClockSpeed;         // 400
}
```

nOutBufSize	Should be set to sizeof(PROCESSOR_INFO) in bytes.
lpBytesReturned	Returns sizeof(PROCESSOR_INFO);

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

IOCTL_GET_CPU_ID

Returns Xscale processor ID.

Usage

#include “oemioctl.h”

Syntax

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

Parameters

lpInBuf	Should point to a CPUIdInfo structure defined in OEMIOCTL.H.
lpInBufSize	Should be *sizeof(CPUIdInfo)*.
lpOutBuf	Should be NULL.
nOutBufSize	Should be set to 0.
lpBytesReturned	Returns *sizeof(PROCESSOR_INFO);*

Return Values

Returns TRUE if function succeeds. Returns FALSE if the function fails. GetLastError() may be used to get the extended error value.

Network Selection APIs

The Network Selection APIs change the network adapter configuration programmatically. Both drivers support the same IOCTL function numbers for loading and unloading the drivers.

Loading and unloading of the 802.11b driver is performed by the FWL1: device in the system by performing DeviceIOControl() calls to the driver.

Loading and unloading of the driver for the built-in Ethernet adapter is performed by the SYI1: device in the system by performing DeviceIOControl() calls to the driver.

- For loading an NDIS driver associated with an adapter, the IOCTL is IOCTL_LOAD_NDIS_MINIPORT.
- For unloading NDIS drivers associated with an adapter the IOCTL is IOCTL_UNLOAD_NDIS_MINIPORT.

Example

```
#include <winioctl.h>
#include "sysio.h"
void DoLoad(int nDevice) {
   LPTSTR devs[] = { _T("SYI1:"), _T("FWL1:") };
   HANDLE hLoaderDev;
   DWORD bytesReturned;
   hLoaderDev = CreateFile(devs[nDevice], GENERIC_READ|GENERIC_WRITE, 0,
   NULL, OPEN_EXISTING, 0, NULL);
   if (hLoaderDev != INVALID_HANDLE_VALUE) {
      if (!DeviceIoControl( hLoaderDev, IOCTL_LOAD_NDIS_MINIPORT, NULL, -1, NULL, 0,
      &bytesReturned, NULL)){
         MessageBox(NULL, TEXT("SYSIO IoControl Failed"), TEXT("Network
         loader"),MB_ICONHAND);
         if (hLoaderDev!=INVALID_HANDLE_VALUE) CloseHandle(hLoaderDev);
         hLoaderDev = INVALID_HANDLE_VALUE; // bad handle
      }else {
         CloseHandle(hLoaderDev);
      }
   }
}
void DoUnload(int nDevice) {
   LPTSTR devs[] = { _T("SYI1:"), _T("FWL1:") };
   HANDLE hLoaderDev;
   DWORD bytesReturned;
   hLoaderDev = CreateFile(devs[nDevice], GENERIC_READ|GENERIC_WRITE, 0,
   NULL, OPEN_EXISTING, 0, NULL);
   if (hLoaderDev != INVALID_HANDLE_VALUE) {
      if (!DeviceIoControl( hLoaderDev, IOCTL_UNLOAD_NDIS_MINIPORT, NULL, -1, NULL, 0,
      &bytesReturned, NULL)){
         MessageBox(NULL, TEXT("SYSIO IoControl Failed"),TEXT("Network
         loader"),MB_ICONHAND);
         if (hLoaderDev!=INVALID_HANDLE_VALUE) CloseHandle(hLoaderDev);
         hLoaderDev = INVALID_HANDLE_VALUE; // bad handle
      }else {
         CloseHandle(hLoaderDev);
      }
   }
}
```

The API provided by Intermec Technologies exposes a limited set of routines that allows a programmer to access and affect the 802.11b network interface card from within their application. The routines provided also reads/writes values to the CE registry that pertain to the 802.11b radio driver. By using the provided functions, a programmer can alter the 802.11b parameters of Network Name (SSID), WEP keys, infrastructure modes, radio channel, and power management modes. A programmer can also retrieve network connect status and signal strength indication from the RF network card.

The API is contained within the 80211API.DLL file that should be present in any load with the 802.11b networking installed.

NETWLAN.DLL PRISMNDS.DLL	This file is the 802.11b driver. It is present in all 700 CE loads that use the 802.11b network interface card.
80211API.DLL	This file is an Intermec authored file that provides the programmer with a set of API calls to configure or monitor status of the 802.11b network.
MOD80211.DLL	The CORE module for the 802.11b NIC. It provides the 802.11b status information displayed when the CORE application is running.
80211CONF.EXE	This is the "Control Panel" for configuring the 802.11b network parameters. Note that it is an EXE file and is actually called by CPL802.CPL (see below). It is also called by the CORE application when the "Configuration" button is pressed.
CPL802.CPL	A control panel application that does nothing but call 80211CONF.EXE.
80211SCAN.EXE	Internally manages the Scan List activity.
802PM.DLL	This handles profile management for radio configurable values.
URODDSVC.EXE	This handles radio configuration and security authentication based on a selected profile.

The Profile Manager supports up to four radio configuration profiles. These profiles are the same as those set by the Wireless Network control panel applet that runs on the Windows CE unit. You can configure different 802.11b profiles and switch between them using the 802.11 API. See the ConfigureProfile() function on page 280 for more information.

Basic Connect/Disconnect Functions

Below are functions available for the 700 Series Color Computer when enabled with the 802.11b radio module.

RadioConnect()

Connects to the available radio. Use this function if you plan on using a lot of API calls that talk directly to the radio. Note that the 802.11b radio must be enabled via NDISTRAY before you can connect to it.

Syntax	`UINT RadioConnect( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful, otherwise ERR_CONNECT_FAILED
Remarks	Call this function before you call any other function found within this API. It hunts out and connects to the 802.11b radio available on the system. Check extended error codes if it returns anything else for information.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_RadioConnect)();`
	`#else`
	`UINT RadioConnect();`
	`#endif`

RadioDisconnect()

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

Syntax	`UINT RadioDisconnect( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful, otherwise ERR_CONNECT_FAILED.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_RadioDisconnect)();`
	`#else`
	`UINT RadioDisconnect();`
	`#endif`

RadioDisassociate()

Call this function to have the 802.11b radio disassociate from the current service set. The radio then enters an "off" mode until it is woken again by setting the Service Set Identifier (SSID). Also, the NDIS driver generates an NDIS media disconnect event.

Syntax	`UINT RadioDisassociate( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful, otherwise ERR_CONNECT_FAILED.
Remarks	None.

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

Query Information Functions

GetAssociationStatus()

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

Syntax	`UINT GetAssociationStatus( ULONG & );`	
Parameters	NDIS_RADIO_ASSOCIATED	Indicates the radio is associated with an access point
	NDIS_RADIO_SCANNING	Indicates the radio is looking for an access point with which to associate
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	Data is only valid if the function returns ERROR_SUCCESS. Also, if ERROR_SUCCESS is returned, your ULONG reference is populated by one of the parameters listed above.	

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

GetAuthenticationMode()

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

Syntax	`UINT GetAuthenticationMode( ULONG & );`	
Parameters	NDIS_RADIO_AUTH_MODE_OPEN	802.11b Open Authentication. Indicates that the radio is using an open system.
	NDIS_RADIO_AUTH_MODE_SHARED	802.11b Shared Authentication. Indicates that the radio is using a shared key.
	NDIS_RADIO_AUTH_MODE_AUTO	Auto switch between Open/Shared. Indicates automatic detection is used when available.
	NDIS_RADIO_AUTH_MODE_ERROR	Defined as error value. Indicates the authentication mode was not determined at this time or is unknown.
	NDIS_RADIO_AUTH_MODE_WPA	WPA Authentication
	NDIS_RADIO_AUTH_MODE_WPA_PSK	WPA Preshared Key Authentication
	NDIS_RADIO_AUTH_MODE_WPA_NONE	WPA None
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	Data is only valid if ERROR_SUCCESS is returned. Also, if ERROR_SUCCESS is returned, your USHORT reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetAuthenticationMode)(ULONG &);`
	`#else`
	`UINT GetAuthenticationMode(ULONG &);`
	`#endif`	

GetBSSID()

Call this function to get the current MAC address (BSSID) of the service set. In ESS mode, this is the MAC address of the access point the radio is associated with. In IBSS mode, this is a randomly generated MAC address, and serves as the ID for the IBSS.

Syntax	`UINT GetBSSID( TCHAR * );`
Parameters	Pointer to a character array, which is populated with the current BSSID after a successful call.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If ERROR_SUCCESS is returned, your TCHAR array is populated with the BSSID of the current service set: `xx-xx-xx-xx-xx-xx`

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetBSSID)(TCHAR *);`
	`#else`
	`UINT GetBSSID(TCHAR *);`
	`#endif`

GetDiversity()

Call this function to get the current diversity setting of your 802.11b radio. This uses an optional NDIS5.1 OID to query the radio, of which a large number of 802.11b devices do not support. This may be inaccurate.

Syntax	`UINT GetDiversity(USHORT *);`	
Parameters	ANT_PRIMARY	The primary antenna is selected.
	ANT_SECONDARY	The secondary antenna is selected.
	ANT_DIVERSITY	The radio is in diversity mode, and uses both antennas
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your USHORT reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetDiversity)(USHORT *);`
	`#else`
	`UINT GetDiversity(USHORT *);`
	`#endif`	

GetLinkSpeed()

Call this function to get the current link speed of the 802.11b radio.

Syntax	`UINT GetLinkSpeed( int & );`
Parameters	This function accepts an int reference, and your int is populated with the current link speed, in Mbps, rounded to the nearest whole integer, for example: 1, 2, 5, 11, etc.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	Data returned is valid if ERROR_SUCCESS is returned.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetLinkSpeed)(int &);`
	`#else`
	`UINT GetLinkSpeed(int &);`
	`#endif`

GetMac()

Call this function to get the MAC address of the 802.11b radio.

Syntax	`UINT GetMac( TCHAR * );`
Parameters	Pointer to a character array, which is populated with the MAC address after a successful call.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If ERROR_SUCCESS is returned, your TCHAR array is populated with the formatted MAC address of the adapter, as follows: `xx-xx-xx-xx-xx-xx`

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetMac)(TCHAR *);`
	`#else`
	`UINT GetMac(TCHAR *);`
	`#endif`

Note: Be sure to call RadioConnect() *before* calling this function for this function to work properly.

GetNetworkMode()

Call this function to get the current Network Mode (SSID) for the 802.11b radio.

Syntax	`UINT GetNetworkMode( ULONG & );`	
Parameters	NDIS_NET_MODE_IBSS	802.11 Ad-Hoc Mode.
	NDIS_NET_MODE_ESS	802.11 Infrastructure Mode.
	NDIS_NET_MODE_UNKNOWN	Anything Else/Unknown Error
	NDIS_NET_AUTO_UNKNOWN	Automatic Selection. *Use of this option is not supported or recommended.*
	NDIS_NET_TYPE_OFDM_5G	5 Gigahertz 54 Mbps
	NDIS_NET_TYPE_OFDM_2_4G	802.11g 2.4 Gigahertz
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetNetworkMode)(ULONG &);`
	`#else`
	`UINT GetNetworkMode(ULONG &);`
	`#endif`	

GetNetworkType()

Call this function to get the current network type of the radio. Do not confuse this with GetNetworkMode().

Syntax	`UINT GetNetworkType( ULONG & );`	
Parameters	NDIS_NET_TYPE_FH	Indicates this is a frequency hopping radio.
	NDIS_NET_TYPE_DS	Indicates that this is a direct sequence radio.
	NDIS_NET_TYPE_UNDEFINED	Indicates this radio type is unknown or undefined.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetNetworkType)(ULONG &);`
	`#else`
	`UINT GetNetworkType(ULONG &);`
	`#endif`	

GetSSID()

Call this function to get the desired SSID of the 802.11b radio.

Syntax	`UINT GetSSID( TCHAR * );`
Parameters	Pointer to a character array, which is populated with the current SSID when successful.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If ERROR_SUCCESS is returned, your TCHAR array is populated with the desired SSID.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetSSID)(TCHAR *);`
	`#else`
	`UINT GetSSID(TCHAR *);`
	`#endif`

Note: Call RadioConnect() *before* this function for this function to work properly.

GetPowerMode()

Call this function to get the current power savings mode of the radio.

Syntax	`UINT GetPowerMode( ULONG & );`	
Parameters	NDIS_RADIO_POWER_MODE_CAM	Continuous Access Mode *(ie: always on)*.
	NDIS_RADIO_POWER_MODE_PSP	Power Saving Mode.
	NDIS_RADIO_POWER_UNKNOWN	Unknown power mode.
	NDIS_RADIO_POWER_AUTO	Auto. *(Available for 730 Mobile Computers)*
	NDIS_RADIO_POWER_MODE_FAST_PSP	Fast PSP, good savings, fast
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetPowerMode)(ULONG &);`
	`#else`
	`UINT GetPowerMode(ULONG &);`
	`#endif`	

Note: Do not use Automatic Switching mode at this time.

GetRSSI()

Call this function to get the current RSSI (Radio Signal Strength Indicator), in Dbm.

Syntax	`UINT GetRSSI( ULONG & );`
Parameters	References a ULONG that is populated with the current RSSI after a successful call.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If ERROR_SUCCESS is returned, your ULONG reference contains the RSSI. Valid RSSI range is from –100 Dbm to –30 Dbm.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetRSSI)(ULONG &);`
	`#else`
	`UINT GetRSSI(ULONG &);`
	`#endif`

GetTXPower()

Call this function to get the current transmit power of the radio.

Syntax	`UINT GetTXPower( ULONG & );`	
Parameters	NDIS_POWER_LEVEL_63	63 mW
	NDIS_POWER_LEVEL_30	30 mW
	NDIS_POWER_LEVEL_15	15 mW
	NDIS_POWER_LEVEL_5	5 mW
	NDIS_POWER_LEVEL_1	1 mW
	NDIS_POWER_LEVEL_UNKNOWN	Unknown Value or Error.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with the TX power in milliwatts (mW). Valid ranges are from 5 mW to 100 mW.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetTXPower)(ULONG &);`
	`#else`
	`UINT GetTXPower(ULONG &);`
	`#endif`	

GetWepStatus()

Call this function to get the current state of the radio's WEP and encryption levels.

Syntax	`UINT GetWepStatus( ULONG & );`	
Parameters	NDIS_ENCRYPTION_1_ENABLED	WEP is enabled; TKIP and AES are not enabled, and a transmit key may or may not be available. *(same as NDIS_RADIO_WEP_ENABLED)*
	NDIS_ENCRYPTION_DISABLED	Indicates that AES, TKIP, and WEP are disabled, and a transmit key is available. *(Same as NDIS_RADIO_WEP_DISABLED)*
	NDIS_ENCRYPTION_NOT_SUPPORTED	Indicates encryption (WEP, TKIP, AES) is not supported. *(Same as NDIS_RADIO_WEP_NOT_SUPPORTED)*
	NDIS_ENCRYPTION_1_KEY_ABSENT	Indicates that AES, TKIP, and WEP are disabled, and a transmit key is not available. *(Same as NDIS_RADIO_WEP_ABSENT)*
	NDIS_ENCRYPTION_2_ENABLED	Indicates that TKIP and WEP are enabled; AES is not enabled, and a transmit key is available.
	NDIS_ENCRYPTION_2_KEY_ABSENT	Indicates that there are no transmit keys available for use by TKIP or WEP, TKIP and WEP are enabled; and AES is not enabled.
	NDIS_ENCRYPTION_3_ENABLED	Indicates that AES, TKIP, and WEP are enabled, and a transmit key is available.
	NDIS_ENCRYPTION_3_KEY_ABSENT	Indicates that there are no transmit keys available for use by AES, TKIP, or WEP, and AES, TKIP, and WEP are enabled.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with one of the parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetWepStatus)(ULONG &);`
	`#else`
	`UINT GetWepStatus(ULONG &);`
	`#endif`	

GetRadioIpAddress()

Call this function to obtain a formatted string indicating whether DHCP is enabled, and what is the current adapters IP address.

Syntax	`UINT GetRadioIpAddress( TCHAR * );`
Parameters	Pointer to a character array that contains the formatted string of the IP address and static/DHCP information.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If ERROR_SUCCESS is returned, your TCHAR array contains a string formatted as follows: `IP: DHCP Enabled\nxxx.xxx.xxx.xxx\n` or `IP: DHCP Disabled\nxxx.xxx.xxx.xxx\n`

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetRadioIpAddress)(TCHAR *);`
	`#else`
	`UINT GetRadioIpAddress(TCHAR *);`
	`#endif`

GetCCXStatus()

Call this function to get information about the current CCX status of the adapter.

Syntax	`UINT GetCCXStatus( ULONG & );`	
Parameters	NDIS_NETWORK_EAP_MODE_OFF	Disable EAP mode.
	NDIS_NETWORK_EAP_MODE_ON	Enable EAP mode.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	If ERROR_SUCCESS is returned, your ULONG reference is populated with one of parameters listed above.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetCCXStatus)(ULONG &);`
	`#else`
	`UINT GetCCXStatus(ULONG &);`
	`#endif`	

Set Information Functions

AddWep()

Call this function to add a WEP key to the radio. Call this function multiple times when adding more than one WEP key. Save the "default" key for last. For example, when adding four keys, and the second key is the default transmit key, add keys 1, 3 and 4 *before* you add key 2.

Note: Add the default transmit key *last*.

Syntax	`UINT AddWep( ULONG, BOOL, TCHAR * );`	
Parameters	ULONG	Specifies the key index to be set. Valid values are 0–3.
	BOOL	When set to TRUE, specifies that this key is the default transmit key.
	TCHAR	Pointer to a character array that specifies the key data in either HEX (length of 10 or 26) or ASCII (length of 5 or 13). This string must be null-terminated.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	When adding WEP keys to the radio, turn off encryption before you add the keys, then turn encryption back on afterwards. Also, be sure to add the TRANSMIT KEY last.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_AddWep)(ULONG, BOOL, TCHAR *);`
	`#else`
	`UINT AddWep(ULONG, BOOL, TCHAR *);`
	`#endif`	

EnableWep()

Enables or disables WEP encryption on the radio (TRUE/FALSE).

Syntax	`UINT EnableWep( BOOL );`
Parameters	Set BOOL to TRUE to enable WEP encryption, or FALSE to disable WEP encryption.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.

Remarks	Call this function with TRUE as the parameter to enable WEP encryption. Call this function with the FALSE parameter to disable WEP encryption. This call is an alias for EncryptionStatus(). See the following:
	`EnableWEP(TRUE) = EncryptionStatus(NDIS_ENCRYPTION_1_ENABLED)`
	`EnableWEP(FALSE) = EncryptionStatus(NDIS_ENCRYPTION_DISABLED)`

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_EnableWep)(BOOL);`
	`#else`
	`UINT EnableWep(BOOL);`
	`#endif`

EncryptionStatus()

Call this function to set the desired encryption status.

Syntax	`UINT EncryptionStatus( UINT mode );`	
Parameters	NDIS_ENCRYPTION_1_ENABLED	WEP is enabled; TKIP and AES are not enabled, and a transmit key may or may not be available. *(same as NDIS_RADIO_WEP_ENABLED)*
	NDIS_ENCRYPTION_DISABLED	Indicates that AES, TKIP, and WEP are disabled, and a transmit key is available. *(Same as NDIS_RADIO_WEP_DISABLED)*
	NDIS_ENCRYPTION_NOT_SUPPORTED	Indicates that encryption (WEP, TKIP, and AES) is not supported. *(Same as NDIS_RADIO_WEP_NOT_SUPPORTED)*
	NDIS_ENCRYPTION_1_KEY_ABSENT	Indicates that AES, TKIP, and WEP are disabled, and a transmit key is not available. *(Same as NDIS_RADIO_WEP_ABSENT)*
	NDIS_ENCRYPTION_2_ENABLED	Indicates that TKIP and WEP are enabled; AES is not enabled, and a transmit key is available.
	NDIS_ENCRYPTION_2_KEY_ABSENT	Indicates that there are no transmit keys available for use by TKIP or WEP, TKIP and WEP are enabled; and AES is not enabled.
	NDIS_ENCRYPTION_3_ENABLED	Indicates that AES, TKIP, and WEP are enabled, and a transmit key is available.
	NDIS_ENCRYPTION_3_KEY_ABSENT	Indicates that there are no transmit keys available for use by AES, TKIP, or WEP, and AES, TKIP, and WEP are enabled.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_EncryptionStatus)(UINT mode);`
	`#else`
	`UINT EncryptionStatus(UINT mode);`
	`#endif`	

SetAuthenticationMode()

Call this function to set the desired authentication mode.

Syntax	`UINT SetAuthenticationMode( ULONG );`	
Parameters	NDIS_RADIO_AUTH_MODE_OPEN	802.11b Open Authentication. Indicates that the radio is using an open system.
	NDIS_RADIO_AUTH_MODE_SHARED	802.11b Shared Authentication. Indicates that the radio is using a shared key.
	NDIS_RADIO_AUTH_MODE_AUTO	Auto switch between Open/Shared. Indicates automatic detection is used when available.
	NDIS_RADIO_AUTH_MODE_ERROR	Defined as error value. Indicates the authentication mode was not determined at this time or is unknown.
	NDIS_RADIO_AUTH_MODE_WPA	WPA Authentication
	NDIS_RADIO_AUTH_MODE_WPA_PSK	WPA Preshared Key Authentication
	NDIS_RADIO_AUTH_MODE_WPA_NONE	WPA None
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetAuthenticationMode)(ULONG);`
	`#else`
	`UINT SetAuthenticationMode(ULONG);`
	`#endif`	

SetChannel()

This function is currently not implemented. Ad-hoc networks automatically select a channel or use the already existing channel.

Syntax	`UINT SetChannel( USHORT );`
Parameters	USHORT value that should populate with the desired channel (1–14).
Return Values	None.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetChannel)(USHORT);`
	`#else`
	`UINT SetChannel(USHORT);`
	`#endif`

SetNetworkMode()

Call this function to set the desired Network Mode.

Syntax	`UINT SetNetworkMode( ULONG );`	
Parameters	NDIS_NET_MODE_IBSS	802.11 Ad-Hoc Mode.
	NDIS_NET_MODE_ESS	802.11 Infrastructure Mode.
	NDIS_NET_MODE_UNKNOWN	Anything Else/Unknown Error
	NDIS_NET_AUTO_UNKNOWN	Automatic Selection. *Use of this option is not supported or recommended.*
	NDIS_NET_TYPE_OFDM_5G	5 Gigahertz 54 Mbps
	NDIS_NET_TYPE_OFDM_2_4G	802.11g 2.4 Gigahertz
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetNetworkMode)(ULONG);`
	`#else`
	`UINT SetNetworkMode(ULONG);`
	`#endif`	

SetPowerMode()

Call this function to set the desired power mode.

Syntax	`UINT SetPowerMode( ULONG mode );`	
Parameters	NDIS_RADIO_POWER_MODE_CAM	Continuous Access Mode *(ie: always on)*.
	NDIS_RADIO_POWER_MODE_PSP	Power Saving Mode.
	NDIS_RADIO_POWER_UNKNOWN	Unknown power mode.
	NDIS_RADIO_POWER_AUTO	Auto. *(Available for 730 Computers)*
	NDIS_RADIO_POWER_MODE_FAST_PSP	Fast PSP, good savings, fast
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetPowerMode)(ULONG mode);`
	`#else`
	`UINT SetPowerMode(ULONG mode);`
	`#endif`	

SetSSID()

Call this function with a pointer to a null-terminated TCHAR array containing the desired SSID to set the desired SSID of the adapter.

Syntax	`UINT SetSSID( TCHAR * );`
Parameters	Pointer to a character array that contains the desired SSID. This should be null-terminated.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	If an "ANY" network is desired, pass in _T("ANY").

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetSSID)(TCHAR *);`
	`#else`
	`UINT SetSSID(TCHAR *);`
	`#endif`

SetCCXStatus()

Call this function to set the desired CCX / Network EAP status.

Syntax	`UINT SetCCXStatus( ULONG );`	
Parameters	NDIS_NETWORK_EAP_MODE_OFF	Disable Network EAP / CCX
	NDIS_NETWORK_EAP_MODE_ON	Enable Network EAP / CCX
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetCCXStatus)(ULONG);`
	`#else`
	`UINT SetCCXStatus(ULONG);`
	`#endif`	

SetMixedCellMode()

Call this function to set the desired mixed cell mode.

Syntax	`UINT SetMixedCellMode( ULONG );`	
Parameters	NDIS_MIXED_CELL_OFF	Disable Mixed Cell
	NDIS_MIXED_CELL_ON	Enable Mixed Cell
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SetMixedCellMode)(ULONG);`
	`#else`
	`UINT SetMixedCellMode(ULONG);`
	`#endif`	

RemoveWep()

Call this function with a key index of 0–3 to remove the WEP key at that index.

Syntax	`UINT RemoveWep( ULONG );`
Parameters	ULONG value that specifies the key index to set. Valid values are 0–3.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	On disassociation with all BSSIDs of the current service set, WEP key is removed by the adapter.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_RemoveWEP)(ULONG);`
	`#else`
	`UINT RemoveWEP(ULONG);`
	`#endif`

Helper Functions

ConfigureProfile()

If using the Intermec 802.11b Profile Management system, you can program the API to configure the radio to a specific profile by passing the profile name.

Syntax	`UINT ConfigureProfile( TCHAR * );`
Parameters	Pointer to a character array that contains the profile name. This should be null-terminated.
Return Values	ERROR_SUCCESS when successful, ERR_QUERY_FAILED when the query failed, or ERR_CONNECT_FAILED if a connection with the radio failed.
Remarks	Call this function with a pointer to a null-terminated TCHAR array that contains the name of the profile you wish to configure. This function reads profile data from the profile manager, sets that profile as the default active profile, and configures the radio appropriately. If needed, the supplicant and any other related services are automatically started and stopped.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_ConfigureProfile)(TCHAR *);`
	`#else`
	`UINT ConfigureProfile(TCHAR *);`
	`#endif`

EnableZeroConfig()

This enables or disables the Wireless Zero Configuration Wizard from Microsoft. After calling this function, a warm-boot is required for the change to take effect.

Note: Enabling this function effectively disables all the SET commands in this API.

Syntax	`UINT EnableZeroConfig( USHORT );`
Parameters	TRUE Enable Wireless Zero Config FALSE Disable Wireless Zero Config
Return Values	ERROR_SUCCESS when successful, ERR_ZERO_CONFIG_CHANGE_FAILED when the query failed.
Remarks	Call this function to set the desired Zero Config status.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_EnableZeroConfig)(USHORT);`
	`#else`
	`UINT EnableZeroConfig(USHORT);`
	`#endif`

isZeroConfigEnabled()

Call this function to determine whether Zero Config is currently enabled.

Syntax	`UINT isZeroConfigEnabled( );`
Parameters	None.
Return Values	TRUE if ZeroConfig is enabled, and FALSE if it is disabled.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_isZeroConfigEnabled)();`
	`#else`
	`UINT isZeroConfigEnabled();`
	`#endif`

isOrinoco()

Call this function to determine whether the current radio is an ORiNOCO, Lucent, or WaveLAN radio.

Syntax	`UINT isOrinoco( );`
Parameters	None.
Return Values	TRUE if this is an ORiNOCO radio, and FALSE if it is not.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_isOrinoco)();`
	`#else`
	`UINT isOrinoco();`
	`#endif`

isSupplicantRunning()

Call this function to determine whether the security supplicant is running.

Syntax	`UINT isSupplicantRunning( );`
Parameters	None.
Return Values	TRUE if the security supplicant is running, FALSE if it is not running.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_isSupplicantRunning)();`
	`#else`
	`UINT isSupplicantRunning();`
	`#endif`

StartScanList()

If a scan list is configured on the system, this causes the API to begin the process of scanning for an available network. This call can take quite a while to process *(depending upon the length of the scan list and how long it takes to find a valid network)*, you may wish to call it from a separate thread.

Syntax	`UINT StartScanList( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful.
Remarks	Call this function to start the scan list functionality of the system.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_StartScanList)();`
	`#else`
	`UINT StartScanList();`
	`#endif`

StartSupplicant()

Call this function to start the supplicant service if it is installed on the system.

Syntax	`UINT StartSupplicant( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_StartSupplicant)();`
	`#else`
	`UINT StartSupplicant();`
	`#endif`

StopSupplicant()

Call this function to stop the supplicant service.

Syntax	`UINT StopSupplicant( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_StopSupplicant)();`
	`#else`
	`UINT StopSupplicant();`
	`#endif`

isDHCPEnabled()

Call this function to determine whether DHCP is enabled on the current adapter.

Syntax	`UINT isDHCPEnabled( );`
Parameters	None.
Return Values	TRUE if DHCP is enabled, FALSE if it is not.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_isDHCPEnabled)();`
	`#else`
	`UINT isDHCPEnabled();`
	`#endif`

RenewDHCP()

Call this function to force a DHCP renewal on the current network adapter.

Syntax	`UINT RenewDHCP( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful.
Remarks	You should not have to call this function on Microsoft PocketPC 2003 or Microsoft Windows CE 4.2 .NET and later devices.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_RenewDHCP)();`
	`#else`
	`UINT RenewDHCP();`
	`#endif`

GetCurrentDriverName()

Call this function to populate the TCHAR array with the driver name.

Syntax	`UINT GetCurrentDriverName( TCHAR * );`
Parameters	Pointer to a TCHAR array which contains the name of the driver when successful.
Return Values	ERROR_SUCCESS when successful.
Remarks	This function is called with a pointer to a TCHAR array that is large enough to hold the name of the driver PLUS the null terminator.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_GetCurrentDriverName)(TCHAR *);`
	`#else`
	`UINT GetCurrentDriverName(TCHAR *);`
	`#endif`

ResetRadioToSystemSave()

Call this function to force the radio to reset to the last desired active profile.

Syntax	`UINT ResetRadioToSystemSave( );`
Parameters	None.
Return Values	ERROR_SUCCESS when successful.
Remarks	None.

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_ResetRadioToSystemSave)();`
	`#else`
	`UINT ResetRadioToSystemSave();`
	`#endif`

EnableSuppLogging()

Call this function to set the desired supplicant logging mode.

Syntax	`UINT EnableSuppLogging( ULONG );`	
Parameters	NDIS_SUPP_LOGGING_ON	Supplicant Logging Enabled
	NDIS_SUPP_LOGGING_OFF	Supplicant Logging Disabled
Return Values	ERROR_SUCCESS when successful.	
Remarks	None.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_EnableSuppLogging)(ULONG);`
	`#else`
	`UINT EnableSuppLogging(ULONG);`
	`#endif`	

SwitchPacketDriver()

Call this function to switch between available packet drivers on the system.

Syntax	`UINT SwitchPacketDriver( USHORT );`	
Parameters	INTERMEC_PACKET_DRIVER	Intermec Packet Driver (ZNICZIO)
	NDISUIO_PACKET_DRIVER	Microsoft Packet Driver (NDISUIO)
Return Values	ERROR_SUCCESS when successful.	
Remarks	After switching to a new packet driver, perform a warm boot for changes to take effect.	

Definitions	`#ifdef DYNAMIC_LOADING`
	`typedef UINT (*PFN_SwitchPacketDriver)(USHORT);`
	`#else`
	`UINT SwitchPacketDriver(USHORT);`
	`#endif`	

Deprecated Functions

The following functions are deprecated. While these are not removed from the API, these are no longer supported. Their parameters are no longer applicable and the return value for all of these functions is: ERR_FUNCTION_DEPRECATED

Function	Syntax
GetRTSThreshold(Deprecated)	`UINT GetRTSThreshold( USHORT & );`
GetMedia(Deprecated)	`UINT GetMedia( ULONG & );`
GetMedium(Deprecated)	`UINT GetMedium( ULONG & );`
GetNicStats(Deprecated)	`UINT GetNicStats( NDIS_802_11_STATISTICS & );`
SetRTSThreshold(Deprecated)	`UINT SetRTSThreshold( USHORT & );`
SetTXRate(Deprecated)	`UINT SetTXRate( UCHAR );`
EncryptWepKeyForRegistry(Deprecated)	`UINT EncryptWepKeyForRegistry( TCHAR * szDest, TCHAR * szSource );`
SetDiversity(Deprecicated)	`UINT SetDiversity( USHORT );`

Notifications

Use the following information to programmatically control the vibrator, to write an application to turn on the vibrator when a message is received via the WLAN radio link, and turn it off when the user hits a key.

Vibrator support is implemented in the NLED driver as a false LED. The vibrator is LED 5 and is identified with an CycleAdjust of –1. The vibrate option is only available in the notifications panel when the vibrator is present in the system.

Regarding an applications interface to NLED.DLL, LEDs must be available for use by applications. This is possible via two functions exported by the COREDLL.DLL file. To use the LED functions, declare these as extern ”C” as follows:

```
extern ”C” BOOL WINAPI NLEDGetDeviceInfo(UINT nInfoId,
void *pOutput);
extern ”C” BOOL WINAPI NLEDSetDevice( UINT nDeviceId, void
*pInput);
```

The LEDs are enumerated for access through the data structures associated with these APIs:

- Notification LED 0
- Radio On LED 1 *(does not apply to the 730 Computer)*
- Alpha Lock LED 2
- Scanner LED 3
- Low Battery 4
- Vibrator 5 *(does not apply to the 730 Computer)*

NLEDGetDeviceInfo

Usage
#include “nled.h”

Syntax
```
BOOL NLEDGetDeviceInfo ( UINT nInfoId, void *pOutput );
```

Parameters

nInfoId	Integer specifying the information to return. These values are defined:	
	NLED_COUNT_INFO	Indicates the *pOutput* buffer specifies the number of LEDs on the device.
	NLED_SUPPORTS_INFO_ID	Indicates the *pOutput* buffer specifies information about the capabilities supported by the LED.
	NLED_SETTINGS_INFO_ID	Indicates the *pOutput* buffer contains information about the LED current settings.
pOutput	Pointer to the buffer to which the information is returned. The buffer points to various structure types defined in “nled.h”, depending on the value of *nId*, as detailed in the following table:	
	Value of *nID*	**Structure in *pOutput***
	LED_COUNT_INFO	NLED_COUNT_INFO
	NLED_SUPPORTS_INFO	NLED_SUPPORTS_INFO
	NLED_SETTINGS_INFO	NLED_SETTINGS_INFO

NLEDSetDevice

Usage
#include “nled.h”

Syntax
```
BOOL NLEDSetDevice ( UINT nDeviceId, void *pInput );
```

Parameters

nDeviceId	Integer specifying the device identification. The following is defined:	
	NLED_SETTINGS_INFO_ID	Contains information about the desired LED settings.
pInput	Pointer to the buffer that contains the NLED_SETTINGS_INFO structure.	

Reboot Functions

There are several methods, via Kernel I/O Control functions, that an application program can use to force the 700 Series Computer to reboot.

IOCTL_HAL_REBOOT

IOCTL_HAL_REBOOT performs a warm-boot. See page 260.

IOCTL_HAL_COLDBOOT

Invoking the KernelIOControl function with IOCTL_HAL_COLDBOOT forces a cold reboot. This resets the 700 Series Computer and reloads Windows CE as if a power-up had been performed. The contents of the Windows CE RAM-based object store are discarded. See page 257.

IOCTL_HAL_WARMBOOT

This function is supported on the 700 Series Computers. It performs a warm boot of the system, preserving the object store. See page 257.

Remapping the Keypad

Note; Use caution when remapping the keypad. Improper remapping may render the keypad unusable. Data within the 700 Series Computer could also be lost, should any problems occur.

Applications have the ability to remap keys on the 700 Color Numeric Keypad and 700 Color Alphanumeric Keypad. This will allow applications to enable keys that would otherwise not be available, such as the [F1] function key. Also, to disable keys that should not be available, such as the alpha key because no alpha entry is required. Care should be exercised when attempting to remap the keypad because improper remapping may cause the keypad to become unusable. This can be corrected by cold booting the device which will cause the default keymap to be loaded again.

Note that remapping the keys in this way affects the key mapping for the entire system, not just for the application that does the remapping.

There are three "planes" supported for the 700 Color Numeric Keypad and Alphanumeric Keypad. Keys that are to be used in more than one shift plane must be described in each plane.

Unshifted Plane

The unshifted plane contains values from the keypad when not pressed with other keys, such as the following:

Press the Keys		
Numeric Keypad	**Alphanumeric Keypad**	**To Enter This**
1 Caps Send	M1	1
5 JKL A3	T5	5
9 WXYZ	Y9	9

Gold Plane

The gold plane contains values from the keypad when a key is simultaneously pressed with the [**Gold**] key on the numeric keypad or the [**Gold/White**] key on the alphanumeric keypad, such as the following:

Press the Keys		
Numeric Keypad	**Alphanumeric Keypad**	**To Enter This**
[Gold] 1 Caps Send	[Gold/White] Esc Send	Send
[Gold] 5 JKL A3	[Gold/White] C A3	A3
[Gold] 9 WXYZ	[Gold/White] P PgDn	PgDn

Alpha (Blue) Plane

The alpha plane contains values from the keypad when the keypad has been placed in alpha mode by pressing the blue alpha key, such as the following:

Press the Keys		
Numeric Keypad	**Alphanumeric Keypad**	**To Enter This**
[Alpha] Alpha 1 Caps Send	[Alpha] Alpha Cap Lock	Caps
[Alpha] Alpha 5 JKL A3	[Alpha] Alpha J PgUp	j
[Alpha] Alpha 9 WXYZ	[Alpha] Alpha W7	w

Key Values

Key values for each plane are stored in the registry. All units ship with a default key mapping already loaded in the registry. Applications that wish to change the default mapping need to read the appropriate key from the registry into an array of Words, modify the values required and then write the updated values back into the registry. The registry access can be done with standard Microsoft API calls, such as RegOpenKeyEx(), RegQueryValueEx(), and RegSetValueEx().

Numeric Keypad

For the 700 Color Numeric Keypad, the following registry keys contain the plane mappings:

- The unshifted plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\Vkey`
- The gold plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\VkeyGold`
- The alpha plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\VkeyAlpha`

Alphanumeric Keypad

For the 700 Color Alphanumeric Keypad, the following registry keys contain the plane mappings:

- The unshifted plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\ALPHA\Vkey`
- The gold plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\ALPHA\VkeyGold`
- The alpha plane mapping can be found in the registry at:
  `HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD\ALPHA\VkeyAlpha`

How Key Values Are Stored in Registry

To know which fields to update in the registry, you must know what Scan Codes are assigned to each physical key (see the "*Keypad Scan Codes and Meanings"* table on the next page). The Scan Code is used at the lowest level of the system to let the keypad driver know which physical key has been pressed. The keypad driver takes that scan code and looks it up in a table (a copy of the one stored in the registry) to determine which values to pass on to the operating system.

Each registry key is just an array that describes to the keypad driver what value needs to be passed for each physical key. The key values are indexed by the scan code, this is a zero-based index. For example in the unshifted plane, the [4] key has a scan code of 0x06. This means that the seventh word under the "Vkey" registry key will have the value for the [4] key. Taking a sample of the "Vkey" registry key shows the following values:

```
00,00,0B,05,02,03,C1,07,04,03,BE,00,34,00,00,00,. . .
```

The value is 34,00. The values are in reverse byte order because that is the way the processor handles data. When writing an application, nothing needs to be done to swap the bytes, as this will happen automatically when the data is read into a byte value. This is something you just need to be aware of this when looking at the registry. Knowing this, we can see that the value that the keypad driver will pass to the system is a hex 34. Looking that up on an UNICODE character chart, we see that it maps to a "4". If you wanted the key, labeled "4", to output the letter "A" instead, you would need to change the seventh word to "41" (the hexadecimal representation of "A" from the UNICODE chart), then put the key back into the registry.

Note: Do not remap scan codes 0x01, 0x41, 0x42, 0x43, 0x44. Remapping these scan codes could render your 700 Series Computer unusable until a cold-boot is performed.

If you wish to disable a certain key, remap its scan code to 0x00.

Change Notification

Just changing the registry keys will not immediately change the key mappings. To notify the keypad driver that the registry has been updated, signal the "ITC_KEYBOARD_CHANGE" named event using the CreateEvent() API.

Advanced Keypad Remapping

It is also possible to map multiple key presses to one button and to map named system events to a button. The multiple key press option could be useful to cut down on the number of keys needed to press in a given situation or to remap which key behaves like the action key. Mapping events to a button could be useful to change which buttons will fire the scanner, control volume, and allow for suspending and resuming the device. If you need help performing one of these advanced topics please contact Intermec Technical Support.

Scan Codes

At the lowest driver level, the 700 Color Numeric Keypad and the 700 Color Alphanumeric Keypad identifies keys as scan codes. These scan codes are sent via the keypad microcontroller, and cannot be changed without modifying the keypad firmware.

Numeric Keypad

The following scan codes pertain to the 700 Color Numeric keypad:

Numeric Keypad Scan Codes and Meanings

Press this Key	Meaning	ScanCode
	Reserved	0x00
I/O	I/O button	0x01
	Scanner Handle Trigger	0x02
	Scanner Left	0x03
	Scanner Right	0x04
4 GHI A2	4/GHI/A2	0x06
	None	0x07
	Left arrow/Back Tab	0x08
	None	0x09
BkSp /	BkSp// (forward slash)	0x0A
	[Gold] key	0x0B
	None	0x0C
Esc –	Esc/– (minus sign)	0x0D
	Down arrow/Volume decrease	0x0E
1 Caps Send	1/Caps/Send	0x0F
7 PQRS PgUp	7/PQRS/PgUp	0x10
Alpha	[Alpha] key	0x11
	None	0x12
	Up arrow/Volume increase	0x13
	Right arrow/Tab	0x14
2 ABC End	2/ABC/End	0x15
8 TUV *	8/TUV/* (asterisk)	0x16
0 Win	0/Win	0x17
5 JKL A3	5/JKL/A3	0x18
	None	0x19
Action +	Action/+ (plus symbol)	0x1A
3 DEF	3/DEF/backlight	0x1B
9 WXYZ	9/WXYZ/PgDn	0x1C

Numeric Keypad Scan Codes and Meanings (continued)

Press this Key	Meaning	ScanCode
Enter @	Enter/@ (at symbol)	0x1D
6 MNO A4	6/MNO/A4	0x1E
	None	0x1F–0x40
	Charge Detect	0x41
	LCD frontlight	0x42
	Ambient light	0x42
	Threshold crossed	0x42
	Headset detected	0x43
	Keypad Backlight	0x44
	Ambient Light	0x44
	Threshold Crossed	0x44

Alphanumeric Keypad

The following scan codes pertain to the 700 Color Alphanumeric keypad:

Alphanumeric Keypad Scan Codes and Meanings

Press this Key	Meaning	ScanCode
	Reserved	0x00
I/O	I/O button	0x01
	Scanner Handle Trigger	0x02
	Scanner Left	0x03
	Scanner Right	0x04
A A1	A/A1 key	0x05
B A2	B/A2 key	0x06
Esc Send	Escape/Send	0x07
	Left arrow/Back Tab	0x08
	Up arrow/Volume increase	0x09
	Down arrow/Volume decrease	0x0A
	Right arrow/Tab	0x0B
Action End	Action/End	0x0C
E Win	E/Win	0x0D
F =	F/= (equal sign)	0x0E
G *	G/* (asterisk)	0x0F
C A3	C/A3	0x10
H /	H// (forward slash)	0x11
D A4	D/A4	0x12

Alphanumeric Keypad Scan Codes and Meanings (continued)

Press this Key	Meaning	ScanCode
J PgUp	J/PgUp	0x13
K @	K/@ (as symbol)	0x14
L -	L/– (minus sign)	0x15
M 1	M/1	0x16
N 2	N/2	0x17
I ☼	I/backlight	0x18
P PgDn	P/PgDn	0x19
Q ,	Q/, (comma)	0x1A
R +	R/+ (plus sign)	0x1B
S 4	S/4	0x1C
T 5	T/5	0x1D
O 3	O/3	0x1E
Cap Lock	Caps/Lock	0x1F
BkSp	BkSp	0x20
V .	V/. (period)	0x21
W 7	W/7	0x22
X 8	X/8	0x23
U 6	U/6	0x24
	Gold/White	0x25
	NumLock	0x26
Space	Space	0x27
Z 0	Z/0	0x28
Enter	Enter	0x29
Y 9	Y/9	0x2A
	None	0x2B–0x40
	Charge Detect	0x41
	LCD frontlight	0x42
	Ambient light	0x42
	Threshold crossed	0x42
	Headset detected	0x43
	Keypad Backlight	0x44
	Ambient Light	0x44
	Threshold Crossed	0x44

Sample View of Registry Keys

The following is a sample view of the current default key mapping for the 700 Color Numeric Keypad. See the registry on your device for the latest key mappings.

```
[HKEY_LOCAL_MACHINE\HARDWARE\DEVICEMAP\KEYBD]
"ResumeMask"=dword:7
"Vkey"=hex:00,00,0B,05,02,03,C1,07,04,03,BE,00,34,00,00,00,\
  25,00,00,00,08,00,03,02,00,00,1B,00,28,00,31,00,\
  37,00,01,02,00,00,26,00,27,00,32,00,38,00,30,00,\
  35,00,00,00,01,03,33,00,39,00,0D,00,36,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,07,05,01,05,03,05,02,05

"VkeyGold"=hex: 00,00,0B,05,02,03,C1,07,04,03,BE,00,34,00,00,00,\
  09,01,00,00,BF,00,03,02,00,00,BD,00,75,00,72,00,\
  21,00,01,02,00,00,76,00,09,00,73,00,38,01,5B,00,\
  35,00,00,00,BB,01,09,05,22,00,32,01,36,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,07,05,01,05,03,05,02,05

"VkeyAlpha"=hex:  00,00,0B,05,02,03,C1,07,04,03,BE,00,47,00,00,00,\
  25,00,00,00,08,00,03,02,00,00,1B,00,28,00,02,02,\
  50,00,01,02,00,00,26,00,27,00,41,00,54,00,20,00,\
  4A,00,00,00,01,03,44,00,57,00,0D,00,4D,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,00,\
  00,00,07,05,01,05,03,05,02,05
```

A Configurable Settings

This appendix contains information about the Data Collection, Intermec Settings, SNMP, Unit Information, Utilities, and Wireless Network control panel applets that may be on the 700 Series Color Mobile Computer.

SNMP, Intermec Settings, and Data Collection settings that can appear under **Settings** are dependent on what hardware configuration is done for each 700 Series Computer at the time of shipment. These settings will currently only appear if a scanner or an imager option is present.

Likewise, other control panel applets that are specifically related to the 802.11b radio module will appear when a 802.11b radio module is installed in a 700 Series Computer. Control panel applets that are specific for Wireless Printing, CDMA/1xRTT, and GSM/GPRS radio modules will only appear when each respective hardware configuration is done on the 700 Series Computer. *See Chapter 4, "Network Support," for more information about the radio modules or the wireless printing.*

Information about using reader commands and configuration bar codes to configure some of your settings is also in this appendix.

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

Configuration Parameters

A configuration parameter changes the way the 700 Series Color Mobile Computer operates, such as configuring a parameter to have the 700 Series Computer emit a very loud beep in a noisy environment. Use any of the following methods to execute configuration parameters:

- Change Data Collection and SNMP parameters via control panel applets later in this appendix.
- Send parameters from an SNMP management station. See "*SNMP Configuration on the 700 Series Computer*" starting on page 191.
- Scan EasySet bar codes. You can use the EasySet bar code creation software from Intermec Technologies Corporation to print configuration labels. Scan the labels to change the scanner configuration and data transfer settings.

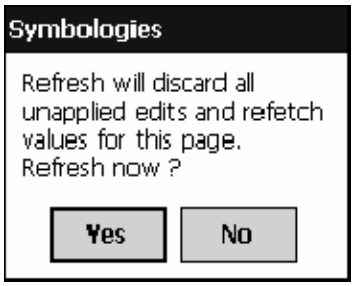
Changing a Parameter Setting

Menus of available parameters for each group are listed. Use the scroll bars to go through the list. Expand each menu (+) to view its parameter settings. Tap a parameter to select, or expand a parameter (+) to view its subparameters.

Note that each parameter or subparameter is shown with its default setting or current setting in (< >) brackets. Tap a parameter or subparameter to select that parameter, then do any of the following to change its setting: Tap **Apply** to apply any changes. *Note that these illustrations are from a Symbologies parameter.*

- Typing a new value in an entry field.
- Choosing a new value from the drop-down list.
- Selecting a different option. The selected option contains a bullet.
- Tap **Defaults**, then **Apply** to restore factory-default settings. Tap **Yes** when you are prompted to verify this action.

- Tap **Refresh** to discard changes and start again. Tap **Yes** when you are prompted to verify this action.



About Configuration Parameters

You can find this information about each configuration parameter:

- **Name and Purpose**:
  Describes the parameter and its function.
- **Action**:
  Describes what to do with a parameter once that parameter is selected.
- **SNMP OID**:
  Lists the SNMP OID for the parameter.
- **Syntax** or **Options**:
  Syntax lists the two-character code for the parameter, if the parameter is configurable by scanning a bar code or by sending parameters through a network. Both **Syntax** and **Options** list acceptable values for the parameter.

Data Collection Control Panel Applet

Note: This applet is not available in units with PSM Build 3.00 or newer. To determine your PSM Build version, tap **Start** > **Programs** > **File Explorer** > the **PSMinfo** text file.

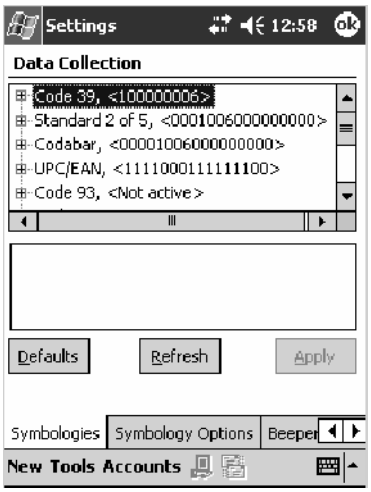
Intermec Settings

If your unit has PSM Build 3.00 or newer, then you may have the Intermec Settings control panel applet in place of the Data Collection applet. Information about the settings you can configure with the Intermec Settings applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com.

See "*Scanner Control and Data Transfer*" in the *Intermec Windows CE/ Pocket PC Software Developer's Kit (SDK) User's Manual* shipped with the Software Developer's Kit (SDK) for information about data collection functions. *Note that icons are shown to the left.*

Data Collection

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Data Collection** to access its control panel applet.



Use the left and right arrows to scroll through the tabs along the bottom of the control panel applet, then tap a tab to access its menus. These tabs represent the following groups of settings or parameters:

- **Symbologies** *(starting on page 301)*
- **Symbology Options** *(starting on page 322)*
- **Beeper/LED** *(starting on page 330)*
- **Imager** *(starting on page 336)*
- **Virtual Wedge** *(starting on page 341)*

Symbologies

You can change bar code symbology parameter settings in your 700 Series Computer via the **Data Collection** control panel applet. The following parameters are for bar code symbologies. Additional information about the more common bar code symbologies are in Appendix B, "*Bar Codes*." *Note that these parameters are listed in the order of their appearance within this tab.*

Most of these symbologies apply to both the imager and the laser scanner tools. However, when using an imager, the Macro PDF *(page 312)*, Micro PDF417 *(page 314)*, Matrix 2 of 5 *(page 316)*, Telepen *(page 317)*, and Code 11 *(page 318)* symbologies are not supported. Likewise, when using a laser scanner, the QR Code *(page 319)*, Data Matrix *(page 320)*, and MaxiCode *(page 321)* symbologies are not supported.

Note: The 730 Computer uses the EV10 APS linear imager which supports 1D symbologies.

The following table shows which bar code symbologies are supported by an imager, a laser scanner, or the EV10 APS Linear Imager

Bar Code Symbology	Imager	Laser Scanner	EV10 APS Linear Imager
Code 39	X	X	X
Interleaved 2 of 5	X	X	X
Standard 2 of 5	X	X	X
Matrix 2 of 5		X	X
Code 128	X	X	X
Code 93	X	X	X
Codabar	X	X	X
MSI		X	X
Plessey		X	X
UPC	X	X	X
EAN/EAN 128	X	X	X
Code 11		X	X
PDF417	X	X	X
Micro PDF417		X	X
Telepen		X	X
Data Matrix	X		
QR Code	X		
MaxiCode	X		

Code 39

Code 39 is a discrete, self-checking, variable length symbology. The character set is uppercase A–Z, 0–9, dollar sign ($), period (.), slash (/), percent (%), space ( ), plus (+), and minus (-).

Action

Tap (+) to expand the **Code 39** parameter, select the setting to be changed, then tap an option to change this setting or select an option from the drop-down list.

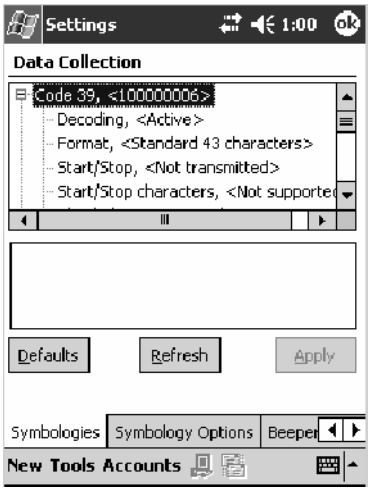
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.3.1

Options

Decoding	0 1	Not active Active (default)
Format	0 1	Standard 43 characters (default) Full ASCII
Start/Stop	0 1	Not transmitted (default) Transmitted
Start/Stop characters *(Not supported when using an imager)*	0 1 2	$ (dollar sign) only * (asterisk) only (default) $ and * (dollar sign and asterisk)
Check digit	0 1 2 3 4 5 6	Not used (default) Mod 43 transmitted Mod 43 not transmitted French CIP transmitted French CIP not transmitted Italian CPI transmitted Italian CPI not transmitted
Bar code length	0 1	Any length (default) Minimum length
Minimum length	001–254	Minimum length 1–254 (default is 6)

Note: If **Bar code length** = "1" then **Minimum length** is entered.



Standard 2 of 5

Standard 2 of 5 is a discrete and self-checking symbology that uses the bars to encode information and the spaces to separate the individual bars.

Action

Tap (+) to expand the **Standard 2 of 5** parameter, select the setting to be changed, then tap an option to change this setting or select an option from the drop-down list.

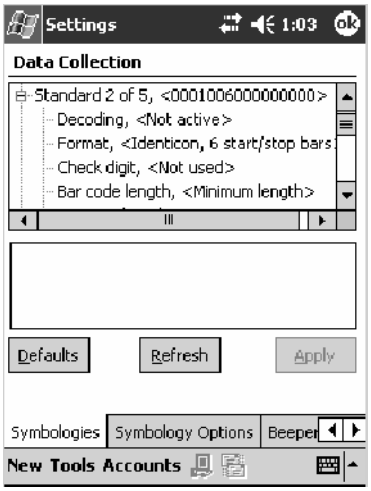
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.4.1

Options

Decoding	0 1	Not active (default) Active
Format	0 1	Identicon, 6 start/stop bars (default) Computer Identics, 4 start/stop bars
Check digit	0 1 2	Not used (default) Mod 10 transmitted Mod 10 not transmitted
Bar code length	0 1 2	Any length Minimum length (default) Fixed lengths
Minimum length	001–254	Minimum length 1–254 (default is 6)
Fixed length 1	000–254	Fixed bar code length 0–254 (default is 0)
Fixed length 2	000–254	Fixed bar code length 0–254 (default is 0)
Fixed length 3	000–254	Fixed bar code length 0–254 (default is 0)

Note: If **Bar code length** = "1" then **Minimum length** is entered. If **Bar code length** = "2" then **Fixed length 1**, **Fixed length 2**, or **Fixed length 3** is entered.



Codabar

Codabar is a self-checking, discrete symbology.

Action

Tap (+) to expand the **Codabar** parameter, select a setting to be changed, then select an option from the drop-down list to change this setting.

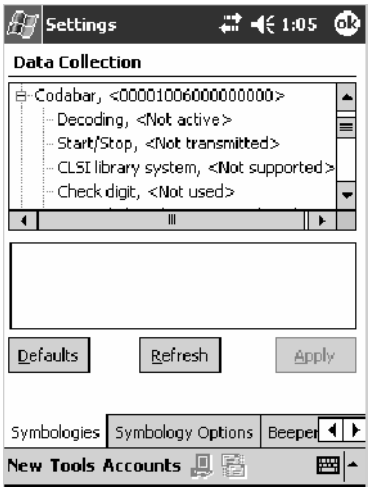
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.5.1

Options

Decoding	0 1	Not active (default) Active
Start/Stop	0 1 2 3 4	Not transmitted (default) abcd transmitted ABCD transmitted abcd/tn*e transmitted DC1–DC4 transmitted
CLSI library system *(Not supported when using an imager)*	0 1	Not active (default) Active
Check digit	0 1 2	Not used (default) Transmitted Not transmitted
Bar code length	0 1 2	Any length Minimum length (default) Fixed lengths
Minimum length	003–254	Minimum length 3–254 (default is 6)
Fixed length 1	000–254	Fixed bar code length 0–254 (default is 0)
Fixed length 2	000–254	Fixed bar code length 0–254 (default is 0)
Fixed length 3	000–254	Fixed bar code length 0–254 (default is 0)

Note: If **Bar code length** = "1" then **Minimum length** is entered. If **Bar code length** = "2" then **Fixed length 1**, **Fixed length 2**, or **Fixed length 3** is entered.



UPC/EAN

UPC/EAN are fixed-length, numeric, continuous symbologies that use four element widths.

Action

Tap (+) to expand the **UPC/EAN** parameter, select the setting to be changed, then select an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.6.1

Options

UPC A	0 1	Not Active Active (default)
UPC E	0 1	Not Active Active (default)
EAN 8	0 1	Not Active Active (default)
EAN 13	0 1	Not Active Active (default)
Add-on digits	0 1	Not required (default) Required
Add-on 2 digits	0 1	Not active (default) Active
Add-on 5 digits *(Not supported when using an imager)*	0 1	Not active (default) Active
UPC A check digit	0 1	Not transmitted Transmitted (default)
UPC E check digit	0 1	Not transmitted Transmitted (default)
EAN 8 check digit	0 1	Not transmitted Transmitted (default)
EAN 13 check digit	0 1	Not transmitted Transmitted (default)
UPC A number system	0 1	Not transmitted Transmitted (default)
UPC E number system	0 1	Not transmitted Transmitted (default)
UPC A re-encoding	0 1	UPC A transmitted as UPC A UPC A transmitted as EAN 13 (default)
UPC E re-encoding	0 1	UPC E transmitted as UPC E (default) UPC E transmitted as UPC A
EAN 8 re-encoding	0 1	EAN 8 transmitted as EAN 8 (default) EAN 8 transmitted as EAN 13

Code 93
Code 93 is a variable length, continuous symbology that uses four element widths.

Action
Tap the **Code 93** parameter, then select an option to change this parameter setting. Tap (+) to access the **Code 93 Lengths** parameter.

SNMP OID
1.3.6.1.4.1.1963.15.3.3.1.1.7.1

Options
0 Not active (default)
1 Active

Code 93 Length
Sets the Code 93 bar code length.

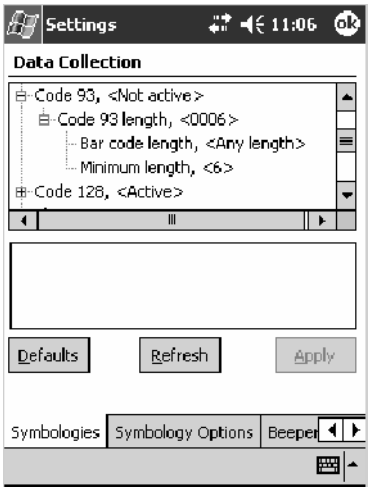
Action
Tap (+) to expand the **Code 93** parameter, then tap (+) to expand the **Code 93 Lengths** parameter. Tap the setting to be changed, then tap an option to change this setting.

SNMP OID
1.3.6.1.4.1.1963.15.3.3.1.1.19.1

Options

Bar code length	0 1	Any length Minimum length (default)
Minimum length	001–254	Minimum length 1–254 (default is 6)

Note: If **Bar code length** = "1" then **Minimum length** is entered.



Code 128

Code 128 is a variable-length, continuous, high-density, alphanumeric symbology that uses multiple element widths and supports the extended ASCII character set.

Action

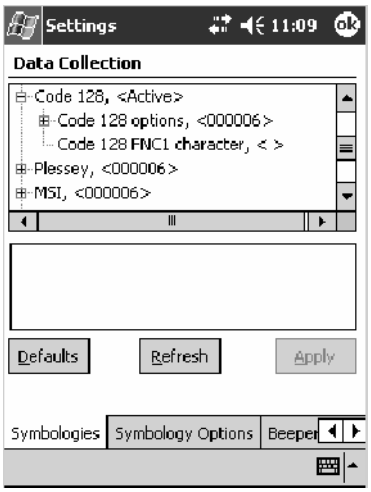
Tap the **Code 128** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.9.1

Options

0 Not active (default)
1 Active



This illustration is from a 700 Series Computer using a laser scanner.

Code 128 Options

Set the following for the Code 128 parameter. *Note that the **EAN 128]C1** and **CIP 128 French Pharmaceutical** options are not available when you use an imager with your 700 Series Computer.*

Action

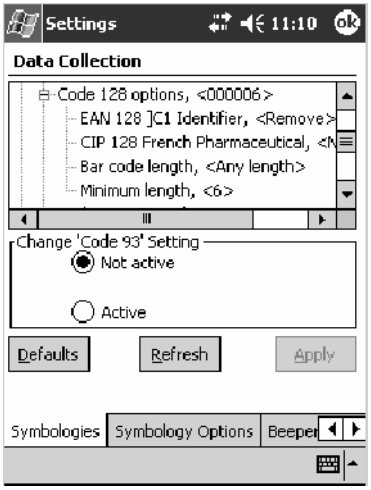
Tap (+) to expand the **Code 128 Options** parameter, select a setting, then select an option to change this setting.

SNMP OID

None.

Options

EAN 128]C1 Identifier *(Not supported when using an imager)*	0 1	Remove (default) Include
CIP 128 French Pharmaceutical *(Not supported when using an imager)*	0 1	Not active (default) Active
Bar code length	0 1	Any length (default) Minimum length
Minimum length	001–254	Minimum length 1–254 (default is 6)



This illustration is from a 700 Series Computer using a laser scanner.

Code 128 FNC1 Character

The Code 128 FNC1 character (EAN 128 norms) can be any ASCII character and is used as a separator when multiple identifiers and their fields are concatenated. *Note that this is not available when you use an imager with your 700 Series Computer.*

Non-printable ASCII characters can be entered using the following syntax where *HH* is the hexadecimal value of the character.

`\xHH`

For example, the GS character, whose hexadecimal value is 1D, would be entered as `\x1D`. In addition,the following characters have their own identifiers:

- BEL \a
- BS \b
- FF \f
- LF \n
- CR \r
- HT \t
- VT \v

Action

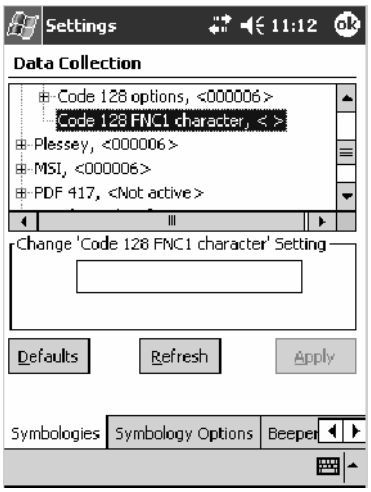
Tap (+) to expand the **Code 128** parameter, then type the ASCII characters to be set for the **Code 128 FNC1 character** parameter.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.21.1

Options

Any ASCII character (default is the GS function character — ID hex)



Plessey

Plessey is a pulse-width modulated symbology like most other bar codes. It includes a start character, data characters, an eight-bit cyclic check digit, and a termination bar. The code is continuous and not self-checking. You need to configure two parameters for Plessey code: Start Code and Check Digit. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

Tap (+) to expand the **Plessey** parameter, select the setting to be changed, then select an option to change this setting or select an option from the drop-down list.

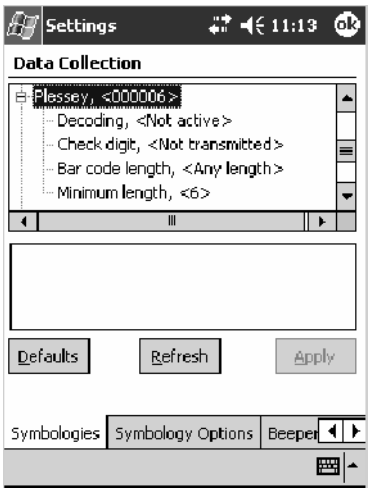
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.10.1

Options

Decoding	0 1	Not active (default) Active
Check digit	0 1	Not transmitted (default) Transmitted
Bar code length	0 1	Any length Minimum length (default)
Minimum length	001–254	Minimum length 1–254 (default is 6)

Note: If **Bar code length** = "1" then **Minimum length** is entered.



MSI

MSI is a symbology similar to Plessey code (page 310) that includes a start pattern, data characters, one or two check digits, and a stop pattern. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

Tap (+) to expand the **MSI** parameter, select the setting to be changed, then select an option to change this setting or select an option from the drop-down list.

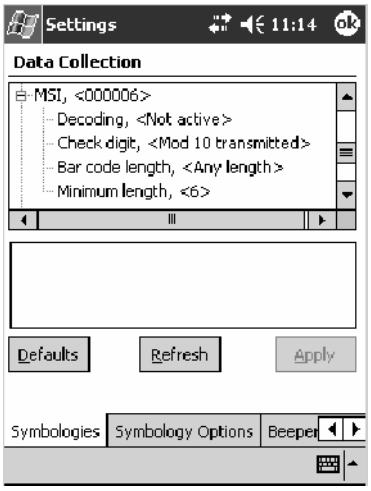
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.15.1

Options

Decoding	0 1	Not active (default) Active
Check digit	0 1 2 3	Mod 10 transmitted (default) Mod 10 not transmitted Double Mod 10 transmitted Double Mod 10 not transmitted
Bar code length	0 1	Any length Minimum length (default)
Minimum length	001–254	Minimum length 1–254 (default is 6)

Note: If **Bar code length** = "1" then **Minimum length** is entered.



PDF417

PDF417 is a stacked two-dimensional symbology that provides the ability to scan across rows of code. Each row consists of start/stop characters, row identifiers, and symbol characters, which consist of four bars and four spaces each and contain the actual data. This symbology uses error correction symbol characters appended at the end to recover loss of data.

Because the virtual wedge translates incoming data into keypad input, the size of the keypad buffer limits the effective length of the label to 128 characters. Longer labels may be truncated. For PDF417 labels of more than 128 characters, you can develop an application that bypasses the keypad buffer.

Action

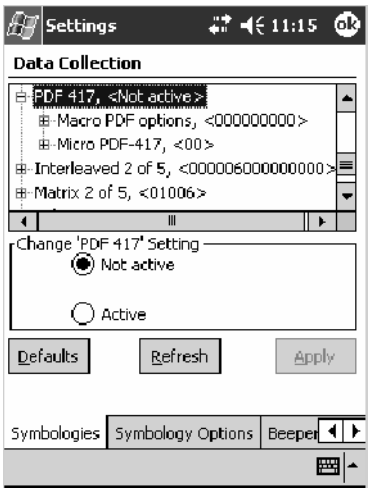
Tap the **PDF417** parameter, then select an option to change this parameter setting. Tap (+) to access either the **Macro PDF options** parameter or the **Micro PDF417** parameter.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.17.1

Options

0 Not active
1 Active (default)



This illustration is from a 700 Series Computer using a laser scanner.

Macro PDF options

Macro PDF is used when a long message requires more than one PDF417 label. *Note that this is not available when you use an imager with your 700 Series Computer.*

- Select **Buffered** to store a multi-label PDF417 message in the Sabre buffer, thus transmitting the entire message when all labels are read.

- Select **Unbuffered** for multi-label PDF417 messages that are too long for the Sabre buffer (memory overflow). Each part of the PDF417 label is transmitted separately, and the host application must then assemble the message using the macro PDF control header transmitted with each label. *Control Header is only present in macro PDF codes and is always transmitted with unbuffered option.*

Action

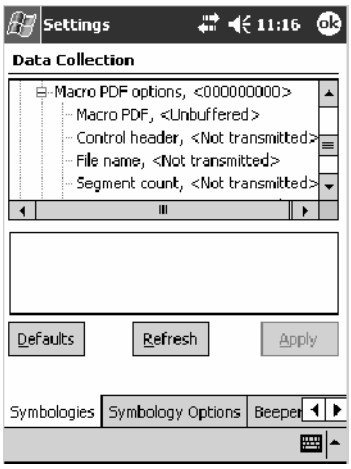
Tap (+) to expand the **PDF417** parameter, tap (+) to expand the **Macro PDF** parameter, select a setting to be changed, then select an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.22.1

Options

Macro PDF	0 1	Unbuffered Buffered (default)
Control header	0 1	Not transmitted (default) Transmitted
File name	0 1	Not transmitted (default) Transmitted
Segment count	0 1	Not transmitted (default) Transmitted
Time stamp	0 1	Not transmitted (default) Transmitted
Sender	0 1	Not transmitted (default) Transmitted
Addressee	0 1	Not transmitted (default) Transmitted
File size	0 1	Not transmitted (default) Transmitted
Checksum	0 1	Not transmitted (default) Transmitted



Micro PDF417

Micro PDF417 is a multi-row symbology derived from and closely based on PDF417 *(page 312)*. A limited set of symbology sizes is available, together with a fixed level of error correction for each symbology size. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

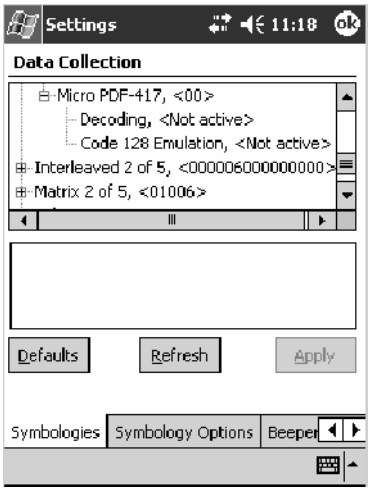
Tap (+) to expand the **PDF417** parameter, tap (+) to expand the **Micro PDF417** parameter, select a setting to be changed, then select an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.27.1

Options

Decoding	0	Not active (default)
	1	Active
Code 128 Emulation	0	Not active (default)
	1	Active



Interleaved 2 of 5

Interleaved 2 of 5 (I 2 of 5) is a high-density, self-checking, continuous, numeric symbology used mainly in inventory distribution and the automobile industry.

Note: An Interleaved 2 of 5 bar code label must be at least three characters long for the 700 Series Computer to scan and decode correctly.

Action

Tap (+) to expand the **Interleaved 2 of 5** parameter, select the setting to be changed, then tap an option to change this setting or select an option from the drop-down list.

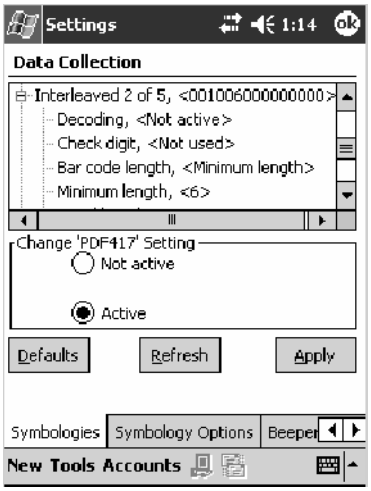
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.23.1

Options

Decoding	0 1	Not active (default) Active
Check digit	0 1 2 3 4	Not used (default) Mod 10 transmitted Mod 10 not transmitted French CIP transmitted French CIP not transmitted
Bar code length	0 1 2	Any length Minimum length (default) Fixed lengths
Minimum length	003–254	Minimum length 3–254 (default is 6)
Fixed length 1	003–254	Fixed bar code length 3–254 (default is 3)
Fixed length 2	003–254	Fixed bar code length 3–254 (default is 3)
Fixed length 3	003–254	Fixed bar code length 3–254 (default is 3)

Note: If **Bar code length** = "1" then **Minimum length** is entered. If **Bar code length** ="2" then **Fixed length 1**, **Fixed length 2**, or **Fixed length 3** is entered.



Matrix 2 of 5

Matrix 2 of 5 is a numerical symbology. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

Tap (+) to expand the **Matrix 2 of 5** parameter, select the setting to be changed, then tap an option to change this setting or select an option from the drop-down list.

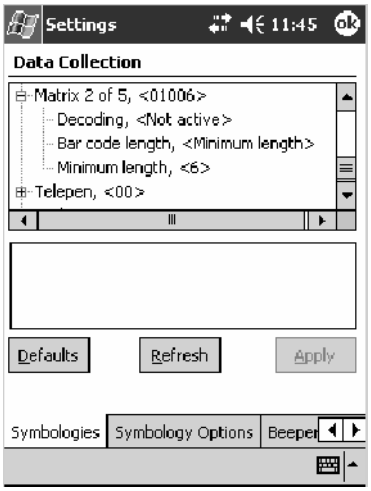
SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.24.1

Options

Decoding	0 1	Not active (default) Active
Bar code length	0 1	Any length Minimum length (default)
Minimum length	001–254	Minimum length 1–254 (default is 6)

Note: If **Bar code length** = "1" then **Minimum length** is entered.



Telepen

Telepen is an alphanumeric, case-sensitive, full ASCII symbology. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

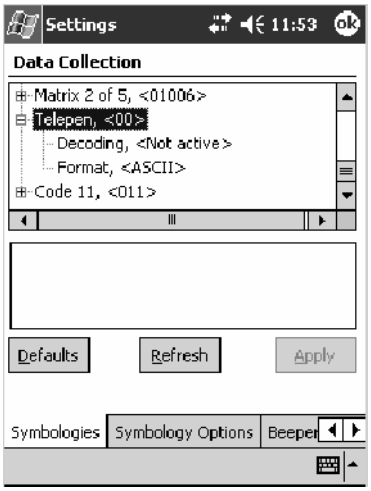
Tap (+) to expand the **Telepen** parameter, select the setting to be changed, then tap an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.25.1

Options

Decoding	0 1	Not active (default) Active
Format	0 1	ASCII (default) Numeric



Code 11

Code 11 is a high density, discrete numeric symbology that is extensively used in labeling telecommunications components and equipment. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

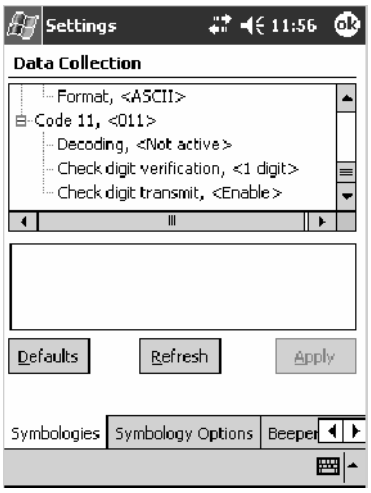
Tap (+) to expand the **Code 11** parameter, select the setting to be changed, then tap an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.26.1

Options

Decoding	0 1	Not active (default) Active
Check digit verification	1 2	1 digit (default) 2 digits
Check digit transmit	0 1	Disable Enable (default)



QR Code

QR Code (Quick Response Code) is a two-dimensional matrix symbology containing dark and light square data modules. It has position detection patterns on three of its four corners and features direct encodation of the Japanese Kana-Kanji character set. It can encode up to 2509 numeric or 1520 alphanumeric characters and offers three levels of error detection. *Note that this is not available when you use a laser scanner with your 700 Series Computer or if you are using a 730 Computer.*

Action

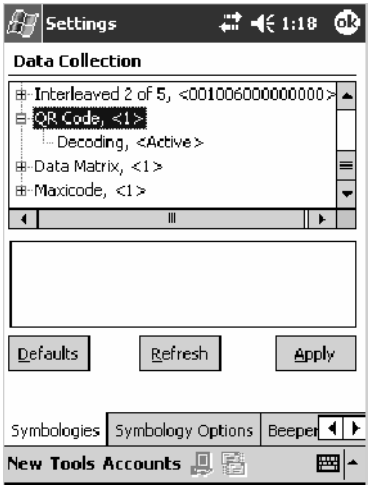
Tap (+) to expand the **QR Code** parameter, select the setting to be changed, then tap an option to change this setting or select an option from the drop-down list.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.35.1

Options

Decoding	0	Not active
	1	Active (default)



Data Matrix

A two-dimensional matrix symbology, which is made of square modules arranged within a perimeter finder pattern. The symbology utilizes Error Checking and Correcting (ECC) algorithm with selectable levels for data error recovery and Cyclic Redundancy Check algorithm to validate the data. The character set includes either 128 characters conforming to ISO 646 (ANSI X3.4 - 1986) or 256 extended character set. Maximum capacity of a symbol is 2335 alphanumeric characters, 1556 8-bit byte characters or 3116 numeric digits. *Note that this is not available when you use a laser scanner with your 700 Series Computer or if you are using a 730 Computer.*

Action

Tap (+) to expand the **Data Matrix** parameter, select the setting to be changed, then tap an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.34.1

Options

Decoding	0	Not active
	1	Active (default)

MaxiCode

MaxiCode is a fixed-size 2-D matrix symbology which is made up of offset rows of hexagonal elements arranged around a unique circular finder pattern. ASCII data is encoded in six-bit symbol characters. The symbol contains 33 rows which are alternately 30 and 29 elements wide. There are five different code sets. A single MaxiCode symbol can encode up to 93 characters of data. *Note that this is not available when you use a laser scanner with your 700 Series Computer or if you are using a 730 Computer.*

Action

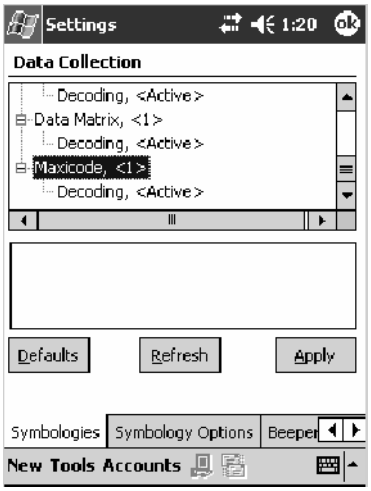
Tap (+) to expand the **MaxiCode** parameter, select the setting to be changed, then tap an option to change this setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.1.1.33.1

Options

Decoding	0	Not active
	1	Active (default)



Symbology Options

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Data Collection** icon to access its control panel applet.

Use the right and left arrows to scroll to the **Symbology Options** tab, then tap this tab to access its parameters. The following are parameters for bar code symbology options. *Note that these are listed in the order of their appearance within the Symbology Options tab.*

Symbology ID

Identifies the bar code symbology in which data is encoded by prepending a user-specified symbology identifier to the data. You can prepend one of these types of character strings to identify the symbology:

- **User-defined ASCII Character** *(Option 1)*:
  A user-defined symbology identifier is a single ASCII character. You can assign a custom identifier character to each bar code symbology. *Note that this is not available when you use an imager with your 700 Series Computer.*
- **AIM ISO/IEC Standard** *(Option 2 — Required to define symbology IDs)*:
  The AIM Standard has a three-character structure which indicates the symbology and optional features. See the *AIM ISO/IEC Standard* for information.

Action

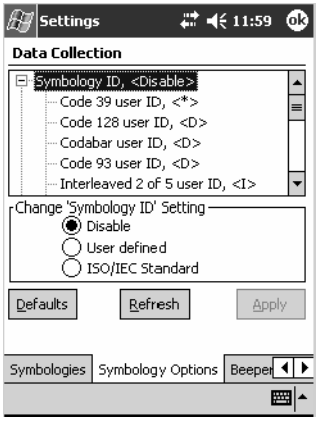
Select **Symbology ID**, then select an option to change this parameter setting. Tap (+) to expand the **Symbology ID** parameter, then select any of the user ID parameters listed. *See the top of the next page for a sample screen of the Code 39 user ID.*

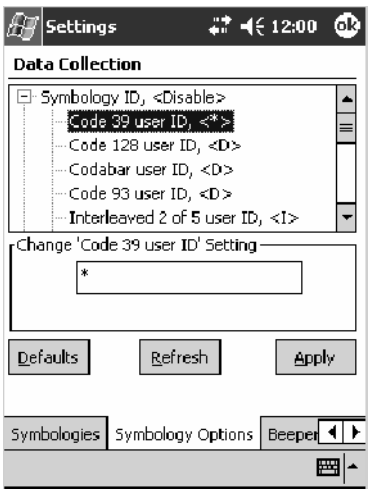
SNMP OID

1.3.6.1.4.1.1963.15.3.3.4.1.22.1

Options

0 Disable (default)
1 User defined *(disabled when using an imager)*
2 ISO/IEC Standard





Code 39 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Code 39 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Code 39 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.3.1

Options: *x* where *x* is a single ASCII character. Default is asterisk (*).

Code 128 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Code 128 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Code 128 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.5.1

Options: *x* where *x* is a single ASCII character. Default is asterisk (*).

Codabar User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Codabar bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Codabar user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.2.1

Options: *x* where *x* is a single ASCII character. Default is D.

Code 93 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Code 93 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Code 93 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.4.1

Options: *x* where *x* is a single ASCII character. Default is asterisk (*).

Interleaved 2 of 5 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Interleaved 2 of 5 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Interleaved 2 of 5 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.10.1

Options: *x* where *x* is a single ASCII character. Default is I (not lowercase L).

PDF417 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify PDF417 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **PDF417 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.12.1

Options: *x* where *x* is a single ASCII character. Default is an asterisk (*).

MSI User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify MSI bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **MSI user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.11.1

Options: *x* where *x* is a single ASCII character. Default is D.

Plessey User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Plessey bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Plessey user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.13.1

Options: *x* where *x* is a single ASCII character. Default is D.

Standard 2 of 5 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Standard 2 of 5 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Standard 2 of 5 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.23.1

Options: *x* where *x* is a single ASCII character. Default is D.

UPC A User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify UPC-A (Universal Product Code) bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **UPC A user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.6.1

Options: *x* where *x* is a single ASCII character. Default is A.

UPC E User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify UPC-E bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **UPC E user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.7.1

Options: *x* where *x* is a single ASCII character. Default is E.

EAN 8 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify EAN-8 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **EAN 8 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.8.1

Options: *x* where *x* is a single ASCII character. Default is \xFF.

EAN 13 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify EAN-13 (European Article Numbering) bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **EAN 13 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.9.1

Options: *x* where *x* is a single ASCII character. Default is F.

Matrix 2 of 5 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Matrix 2 of 5 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Matrix 2 of 5 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.24.1

Options: *x* where *x* is a single ASCII character. *Default is D.*

Telepen User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Telepen bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Telepen user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.25.1

Options: *x* where *x* is a single ASCII character. Default is an asterisk (*).

Code 11 User ID

If "1" was selected in the **Symbology ID** parameter, you can set your own ASCII character to identify Code 11 bar code data. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action: Tap (+) to expand the **Symbology ID** parameter, select the **Code 11 user ID** parameter, then enter a user ID value to change this parameter setting.

SNMP OID: 1.3.6.1.4.1.1963.15.3.3.4.1.16.1

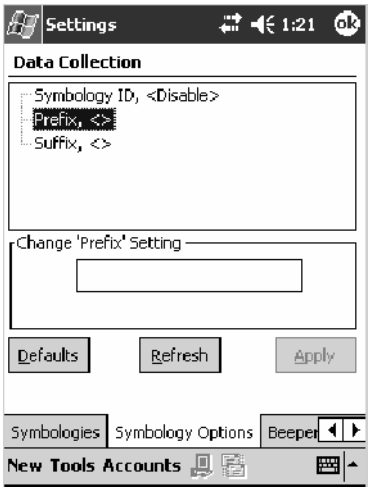
Options: *x* where *x* is a single ASCII character. Default is asterisk (*).

Prefix
Prepends a string of up to 20 ASCII characters to all scanned data.

Action
Tap the **Prefix** parameter, then enter a prefix value to change this parameter setting.

SNMP OID
1.3.6.1.4.1.1963.15.3.3.4.1.29.1

Options
Acceptable values are up to 20 ASCII characters. Embedded null (<NUL >) characters are not allowed. Default is no characters (disabled).

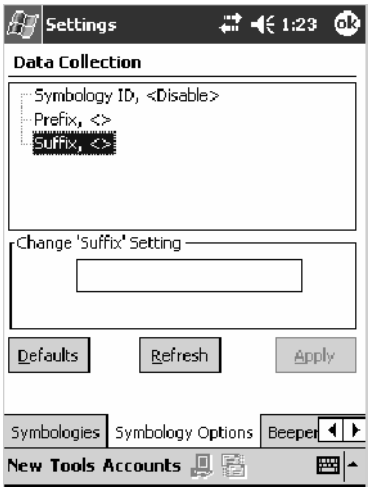


Suffix
Appends a string of up to 20 ASCII characters to all scanned data.

Action
Tap the **Suffix** parameter, then enter a suffix value to change this parameter setting.

SNMP OID
1.3.6.1.4.1.1963.15.3.3.4.1.30.1

Options
Acceptable values are up to 20 ASCII characters. Embedded null (<NUL >) characters are not allowed. Default is no characters (disabled).



Beeper/LED

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > the **Data Collection** icon to access its control panel applet.

Use the right and left arrows to scroll to the **Beeper/LED** tab, then tap this tab to access its parameters.

Most of these functions are not available when using an imager. The following table shows which functions are supported either by an imager or by a laser scanner.

Beeper Function	Imager	Laser Scanner
Beeper	X	
Beeper Volume		X
Beeper Frequency		X
Good Read Beeps		X
Good Read Beep Duration		X

The following are parameters for features on the 700 Series Computer. *Note that these are listed in the order of their appearance.*

Beeper

Sets the volume for the good read beep. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

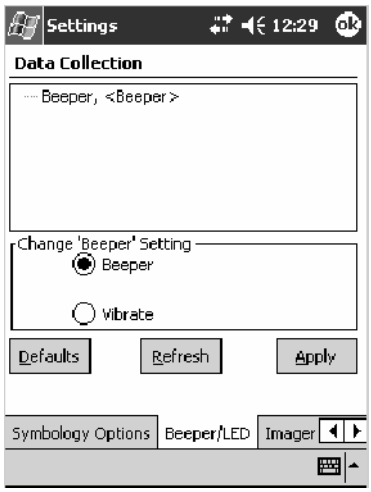
Tap the **Beeper** parameter, then select an option to change this parameter setting.

SNMP OID

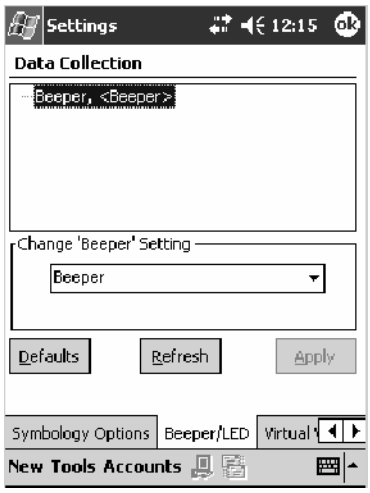
1.3.6.1.4.1.1963.15.3.1.4.1.6.1

Options

1 Beeper (default)
4 Vibrate *(not supported on 730 Computers)*



700 Color with Imager Screen



730 Screen

Beeper Volume

Sets the volume for the good read beep. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

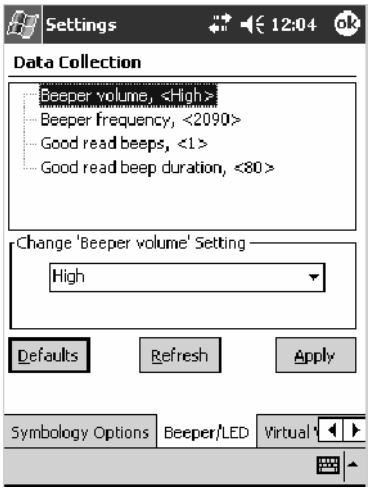
Tap the **Beeper volume** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.1.4.1.6.1

Options

0 Low
1 High (default)
2 Medium
3 Off
4 Vibrate



Disabling the Volume

To disable the beeper, tap **Start** > **Settings** > the **Personal** tab > **Sounds & Notifications** > the **Volume** tab, drag the **System volume** slider bar to the left "Silent" position, then tap **ok** to exit this applet. See Chapter 1, "*Introduction*" for more information.

Beeper Frequency

Sets the frequency for the good read beep. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

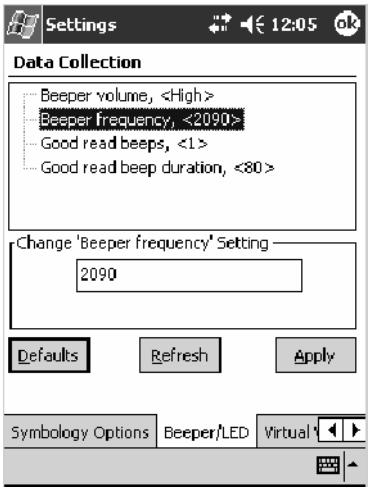
Tap the **Beeper frequency** parameter, then enter a frequency value to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.1.4.1.7.1

Options

1000–4095 (default is 2090)



Good Read Beeps

Sets the number of good read beeps. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

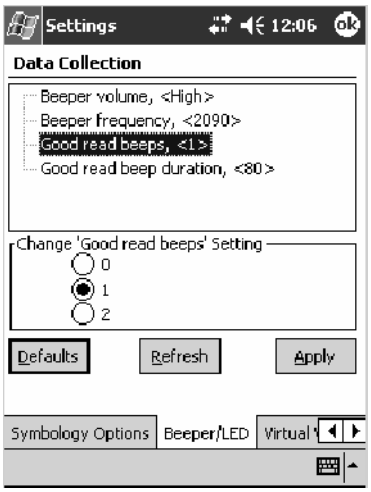
Tap the **Good read beeps** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.1.4.1.8.1

Options

0 No beeps
1 One beep (default)
2 Two beeps



Good Read Beep Duration

Sets the duration of the good read beep. *Note that this is not available when you use an imager with your 700 Series Computer.*

Action

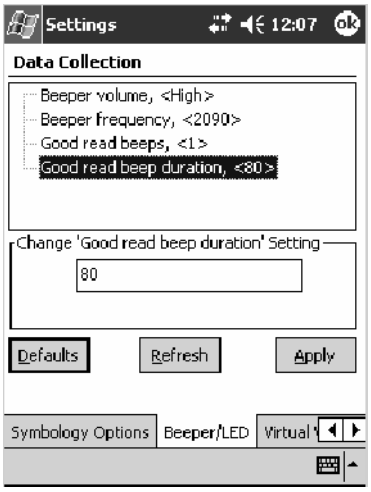
Tap the **Good read beep duration** parameter, then enter a duration value to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.1.4.1.9.1

Options

0–2550 Beep duration in milliseconds. (default is 80)



Imager

Note: These instructions do *not* apply to the 730 Computer.

Data Collection

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Data Collection** to access its control panel applet.

Use the right and left arrows to scroll to the **Imager** tab, then tap this tab to access its parameters.

The following are parameters for the imager. Note that these are listed in the order of their appearance within the Imager tab.

Aimer LED Duration

The Aimer LED Duration controls the time the Aimer LED is turned on when the scan button is pressed. After this time, images are captured for decoding. The purpose is to position the Aimer LED on the bar code symbol before attempting to decode the bar code. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

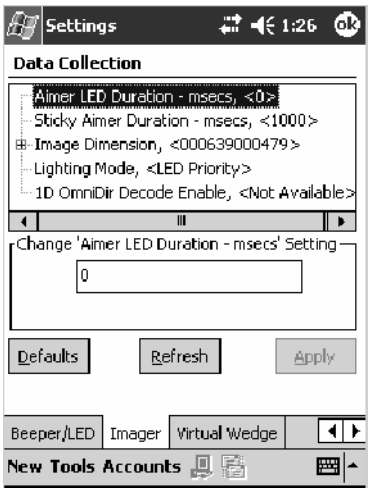
Tap the **Aimer LED Duration** parameter, then enter a value to change this setting. Note that values must be in 50 ms increments, such as 500, 650, or 32500. Values not entered in 50 ms increments are rounded down. For example, 2489 ms is rounded down to 2450 ms, 149 ms is rounded down to 100 ms, etc..

SNMP OID

1.3.6.1.4.1.1963.15.3.3.3.1.1.21.1

Options

0–65500 ms (Default is 0)



Sticky Aimer Duration

The Sticky Aimer Duration controls the time the Aimer LED stays on after the a bar code read completes or after the trigger button is released. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

Tap the **Sticky Aimer Duration** parameter, then enter a value to change this setting. Note that values must be in 50 ms increments, such as 500, 650, or 32500. Values not entered in 50 ms increments are rounded down. For example, 2489 ms is rounded down to 2450 ms, 149 ms is rounded down to 100 ms, etc..

SNMP OID

1.3.6.1.4.1.1963.15.3.3.3.1.1.24.1

Options

0–65535 ms (Default is 1000)

Image Dimension

The image dimensions control the vertical size of the image for decoding. This can restrict the image to one bar code when otherwise, there might be more than one bar code in the image to be decoded. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

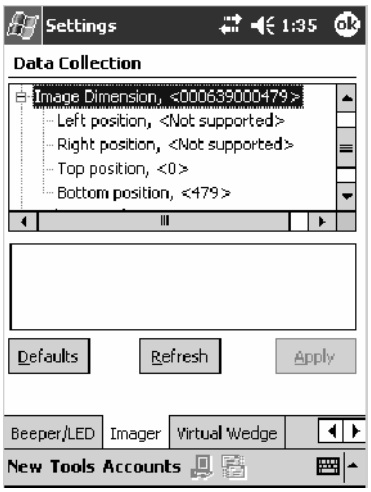
Tap the **Image dimension** parameter, select the position to be changed, then tap an option or enter a value to change this position.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.3.1.1.22.1

Options

Left position	0	Not supported
Right position	0	Not supported
Top position	0–478	Position in pixels (Default is 0)
Bottom position	0–479	Position in pixels (Default is 479)



Lighting Mode

The Lighting Mode sets the lighting mode of the imager. When set to "LED Priority," the imager depends more on ambient lighting to illuminate the bar code for reading. When set to "Aperture Priority," the imager uses its built-in LED to illuminate the bar code for reading. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

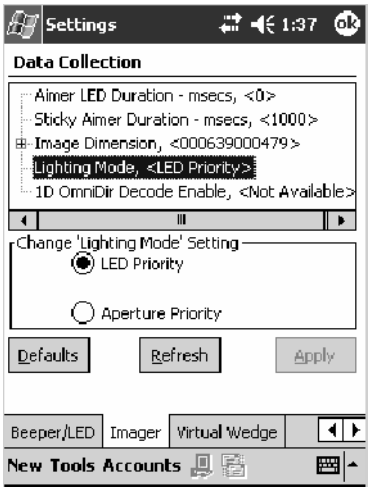
Tap the **Lighting Mode** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.3.1.1.23.1

Options

0 LED Priority (default)
1 Aperture Priority



1D OmniDir Decode Enable

The 1D OmniDir Decode Enable affects the scanning abilities of the IT4000 Imager. With 1D omni directional enabled, the imager is able to decode images and bar code labels regardless of the orientation of the label. With 1D omni directional disabled, the imager only decodes labels in the direction of the aimer LED. *Note that this is not available when you use a laser scanner with your 700 Series Computer.*

Action

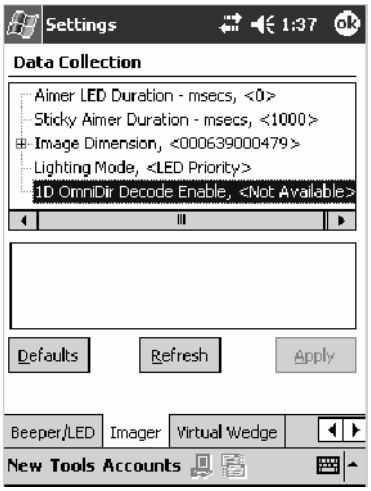
Tap the **1D OmniDir Decode Enable** parameter,then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.3.3.1.1.25.1

Options

0 Disabled
1 Enabled (default)



Virtual Wedge

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Data Collection** to access its control panel applet.

Use the right and left arrows to scroll to the **Virtual Wedge** tab, then tap this tab to access its parameters.

The following are parameters for the virtual wedge scanner. *Note that these are listed in the order of their appearance within the Virtual Wedge tab.*

Virtual Wedge

Enables or disables the virtual wedge for the internal scanner. The virtual wedge retrieves scanned Automatic Data Collection (ADC) data and sends it to the keypad driver so that the 700 Series Computer can receive and interpret the data as keypad input.

Because the virtual wedge translates incoming data into keypad input, the size of the keypad buffer limits the effective length of the label to 128 characters. Longer labels may be truncated. For labels of more than 128 characters, you need to develop an application that bypasses the keypad buffer.

Action

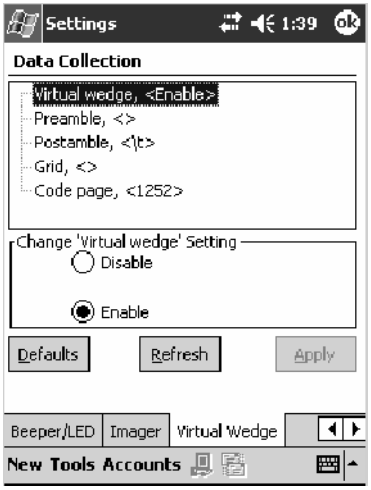
Tap the **Virtual Wedge** parameter, then tap an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.2.1.1.2.1

Options

0 Disable
1 Enable (default)



Preamble

Sets the preamble that precedes any data you scan with the 700 Series Computer. Common preambles include a data location number or an operator number.

Action

Tap the **Preamble** parameter, then enter a preamble value to change this parameter setting.

SNMP OID

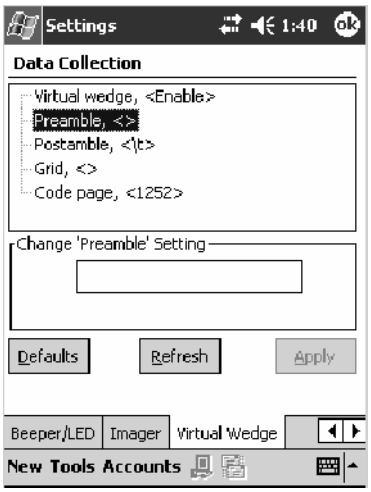
1.3.6.1.4.1.1963.15.3.2.1.1.3.1

Syntax

`ADdata`

where *data* is any acceptable values up to 31 ASCII characters. Embedded null (<NUL >) characters are not allowed. Below are the non-printing characters you can use for Virtual Wedge Preambles. *Default is blank.*

\a	Alert (bell)
\b	Backspace
\f	Form Feed
\n	New line/line feed
\r	Carriage return
\t	Horizontal tab
\v	Vertical tab
\xnnnn	*nnnn* is up to four HEX digits. Use leading zeros to fill out to four digits to ensure proper conversion. For example, to prepend the character M to scanned data, set the Preamble to either 1) M, or 2) x004D, where 4D is the HEX equivalent for an uppercase M.



Note: When you enter the AD command without data, the preamble is disabled. If you want to use quotation marks or the following combinations of characters as part of the appended data, separate those characters from the AD command with quotes. If you do not use quotes as described here, the 700 Series Computer will interpret the characters as another configuration command:
AD
AE
AF
KC
BV
EX
DF

Example

To use the two-character string BV as a preamble, scan this command (as a Code 39 label) or send this command through the network: `$+AD"BV"`

Postamble

Sets the postamble that is appended to any data you scan with the 700 Series Computer. Common postambles include cursor controls, such as tabs or carriage return line feeds.

Action

Tap the **Postamble** parameter, then enter a postamble value to change this parameter setting.

SNMP OID

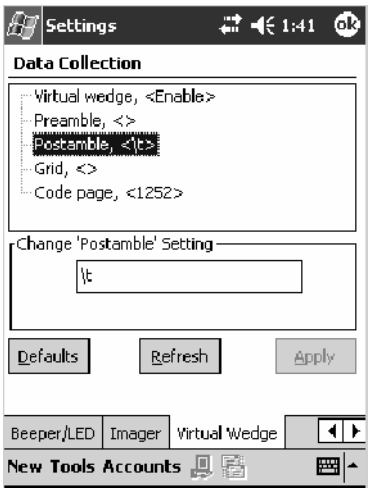
1.3.6.1.4.1.1963.15.3.2.1.1.4.1

Syntax

`AEdata`

where *data* is any acceptable values up to 31 ASCII characters. Embedded null (<NUL >) characters are not allowed. Below are the non-printing characters you can use for Virtual Wedge Postambles:

\a	Alert (bell)
\b	Backspace
\f	Form Feed
\n	New line/line feed
\r	Carriage return
\t	Horizontal tab (default)
\v	Vertical tab
\xnnnn	*nnnn* is up to four HEX digits. Use leading zeros to fill out to four digits to ensure proper conversion. For example, to prepend the character M to scanned data, set the Preamble to either 1) M, or 2) x004D, where 4D is the HEX equivalent for an uppercase M.



Note: When you enter the AE command without data, the postamble is disabled. If you want to use quotation marks or the following combinations of characters as part of the appended data, separate those characters from the AE command with quotes. If you do not use quotes as described here, the 700 Series Computer will interpret the characters as another configuration command.
AD
AE
AF
KC
BV
EX
DF

Example

To use the two-character string BV as a postamble, scan this command (as a Code 39 label) or send this command through the network: `$+AE"BV"`

Grid

Sets the virtual wedge grid, which filters the data coming from this 700 Series Computer. The data server supports data filtering, which allows you to selectively send scanned data. The virtual wedge grid is similar to the "format" argument of the C Runtime Library scan function.

Action

Tap the **Grid** parameter, then enter a grid value to change this parameter setting.

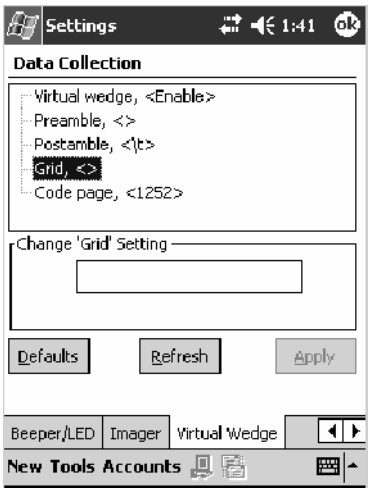
SNMP OID

1.3.6.1.4.1.1963.15.3.2.1.1.5.1

Syntax

`AF<symID> filter-expression= > editing-expression`
where:

- *<symID>*
  The AIM symbology ID *(optional)*.
- *filter-expression*
  Any character string that includes valid filter expression values. Go to the *SDK User's Manual* provided with your *Windows CE/PocketPC SDK* for a list of valid filter expression values.
- *editing-expression*
  Any character string that includes valid editing expression values. Go to the *SDK User's Manual* provided with your *Windows CE/PocketPC SDK* for a list of valid editing expression values.



Code Page

Sets the virtual wedge code page. The code page controls the translation from the character set of the raw collected data to Unicode, which is the character set expected by Windows CE applications. The default code page is 1252, which is the Windows Latin 1 (ANSI) character set.

Action

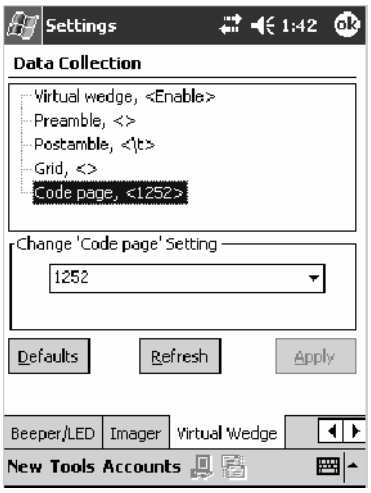
Tap the **Code Page** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.15.3.2.1.1.6.1

Options

The only acceptable value for the code page parameter is "*1252*," which is the default.



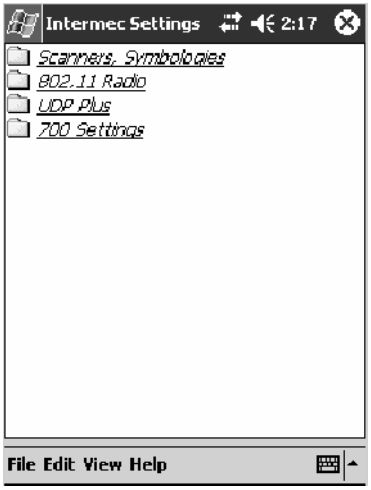
Intermec Settings Control Panel Applet

You may have the Intermec Settings control panel applet. Information about the settings you can configure with this applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com.

See "*Scanner Control and Data Transfer*" in the *Intermec Windows CE/ Pocket PC Software Developer's Kit (SDK) User's Manual* shipped with the Software Developer's Kit (SDK) for information about data collection functions.

Intermec Settings

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Intermec Settings** to access its control panel applet.



SNMP Control Panel Applet

Note: This applet is not available in units with PSM Build 3.00 or newer. To determine your PSM build version, tap **Start** > **Programs** > **File Explorer** > the **PSMinfo** text file.

Intermec Settings

If your unit has PSM Build 3.00 or newer, then you may have the Intermec Settings control panel applet in place of the SNMP applet. Information about the settings you can configure with the Intermec Settings applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com.

Simple Network Management Protocol (SNMP) parameters include identification information, security encryption, security community strings, and traps.

SNMP

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **SNMP** to access its control panel applet.

Tap a tab to access its menus. These tabs represent three groups of settings or parameters:

- **Security** *(starting on the next page)*
- **Traps** *(starting on page 355)*
- **Identification** *(starting on page 357)*

Security

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **SNMP** > the **Security** tab to access its parameters.

The following are parameters that affect encryption and community strings. *Note that these are listed in the order of their appearance within the Security tab.*

Read Only Community

Sets the read-only community string for this 700 Series Computer, which is required for processing of SNMP get and get next requests.

Action

Tap the **Read Only Community** parameter, then enter a community string to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.10.5.1.2.0

Options

The read-only community string can be up to 128 ASCII characters. Default is Public.

Read/Write Community

Sets the read/write community string, which is required for processing of SNMP set requests by this 700 Series Computer. An SNMP packet with this name as the community string will also process SNMP get and next requests.

Action

Tap the **Read/Write Community** parameter, then enter a community string to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.10.5.1.3.0

Options

The read/write community string can be up to 128 ASCII characters. Default is Private.

Read Encryption

Sets the packet-level mode of security for SNMP read-only requests. If you enable read encryption, all received SNMP get and get next packets have to be encrypted or the packet will not be authorized. If encryption is enabled, you can only use software provided by Intermec Technologies.

Note: To enable security encryption, you also need to set the Security Encryption Key (page 354).

Action

Tap the **Read Encryption** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.10.5.1.4.0

Options

1	On	SNMP get and get next packets must be encrypted
2	Off	SNMP packets do not have to be encrypted (default)

Write Encryption

Sets the packet-level mode of security for SNMP read/write requests. If you enable write encryption, all SNMP packets that are received with the read/write community string have to be encrypted or the packet will not be authorized. You need to use software from Intermec Technologies that supports encryption.

Note: To enable security encryption, you also need to set the Security Encryption Key (page 354).

Action

Tap the **Write Encryption** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.10.5.1.5.0

Options

1	On	SNMP packets must be encrypted
2	Off	SNMP packets do not have to be encrypted (default)

Encryption Key

Identifies the key that this 700 Series Computer uses to encrypt or decipher SNMP packets. Encryption is used only by software provided by Intermec Technologies. If encryption is enabled, SNMP management platforms will not be able to communicate with the 700 Series Computer. The encryption key is returned encrypted.

Action

Tap the **Encryption Key** parameter, then enter a security encryption key value to change this parameter setting.

Note: You also need to set either **Read Encryption** (page 352) or **Write Encryption** (page 353) or both.

SNMP OID

1.3.6.1.4.1.1963.10.5.1.6.0

Options

The encryption key can be from 4 to 20 ASCII characters. Default is NULL.

Traps

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **SNMP** > the **Traps** tab to access its parameters.

The following are authentication and threshold parameters for traps. *Note that these are listed in the order of their appearance within the Traps tab.*

Authentication

Determines whether to send authentication traps. When trap authentication is enabled, an authentication trap is sent if an SNMP packet is received by the master agent with an invalid community string.

Action

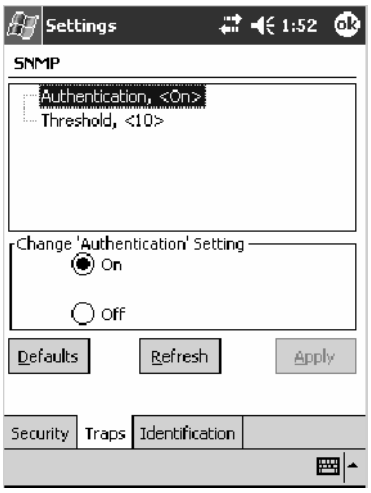
Tap the **Authentication** parameter, then select an option to change this parameter setting.

SNMP OID

1.3.6.1.4.1.1963.10.5.2.2.0

Options

1 On (default)
2 Off

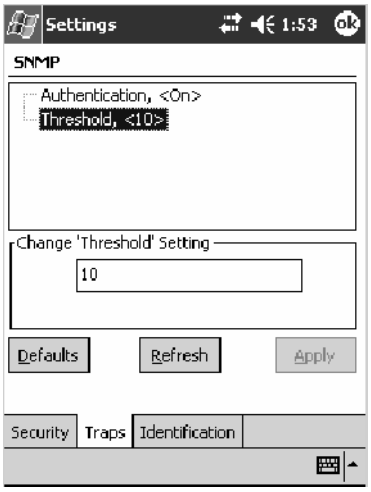


Threshold
Determines the maximum number of traps per second that the master agent generates. If the threshold is reached, the trap will not be sent.

Action
Tap the **Threshold** parameter, then enter a threshold value to change this parameter setting.

SNMP OID
1.3.6.1.4.1.1963.10.5.2.3.0

Options
Any positive integer value. Default is 10.



Identification

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **SNMP** > the **Identification** tab to access its parameters.

The following are parameters for contact, location, and name information for support purposes. *Note that these are listed in the order of their appearance within the Identification tab.*

Contact

Sets the contact information for the person responsible for this 700 Series Computer.

Action

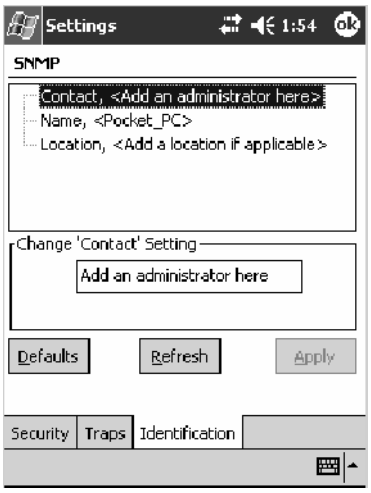
Tap the **Contact** parameter, then enter the name of your contact representative to change this parameter setting.

SNMP OID

1.3.6.1.2.1.1.4.0

Options

The identification contact may be up to 255 ASCII characters. Default is no characters or blank.



Name
Sets the assigned name for this 700 Series Computer.

Action
Tap the **Name** parameter, then enter the name of your 700 Series Computer to change this parameter setting.

SNMP OID
1.3.6.1.2.1.1.5.0

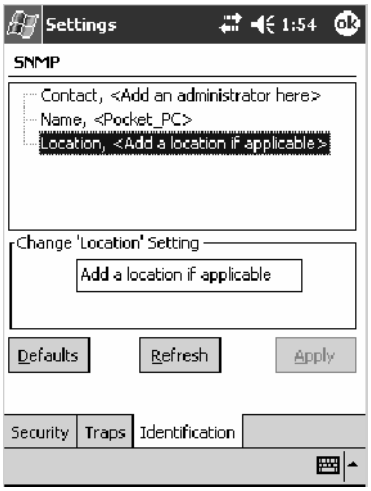
Options
The identification name may be up to 255 ASCII characters. Default is no characters or blank.

Location
Sets the identification location for this 700 Series Computer, such as "Shipping."

Action
Tap the **Location** parameter, then enter the location of where your 700 Series Computer to change this parameter setting.

SNMP OID
1.3.6.1.2.1.1.6.0

Options
The identification location may be up to 255 ASCII characters. Default is no characters or blank.



Unit Information Control Panel Applet

Note: This applet is not available in units with PSM Build 3.00 or newer. To determine your PSM build version, tap **Start** > **Programs** > **File Explorer** > the **PSMinfo** text file.

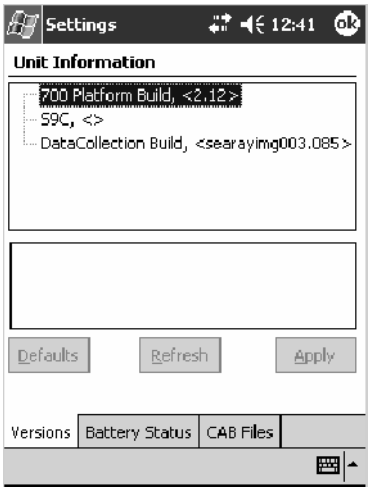
Intermec Settings

I*f your unit has PSM Build 3.00 or newer*, then you may have the Intermec Settings control panel applet in place of the Unit Information applet. Information about the settings you can configure with the Intermec Settings applet is described in the *Intermec Computer Command Reference Manual*. The online manual is available from the Intermec web site at www.intermec.com.

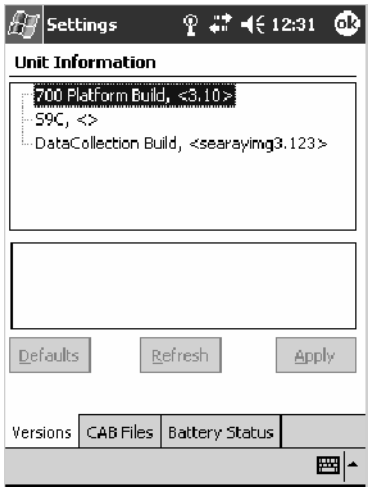
Unit Information is a read-only control panel applet that provides information about your 700 Series Computer, such as software version builds, available CAB files, and the internal battery status.

Unit Information

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Unit Information** to access its control panel applet.



700 Color Screen



730 Screen

Tap a tab to access its menus. These tabs represent three groups of settings or parameters:

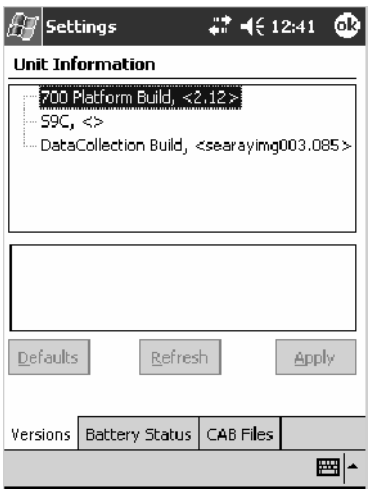
- **Versions** *(starting on the next page)*
- **Battery Status** *(starting on page 362)*
- **CAB Files** *(starting on page 363)*

Versions

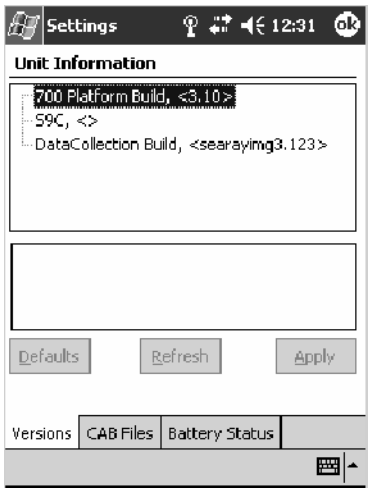
You can view the latest software build version on your 700 Series Computer by accessing the **Unit Information** control panel applet.

Unit Information

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Unit Information** > the **Versions** tab to view the latest software build version. Tap **ok** to exit this information.



700 Color Screen



730 Screen

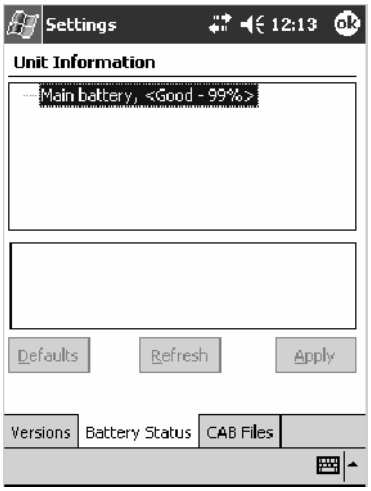
Below are some of the software applications you may find on this screen:

- **700 Platform Build**:
  Shows the latest development or released version of the software build for the 700 Series Computer.
- **S9C**:
  Provides the name and version of the scanner file built into this 700 Series Computer, along with the current CPU version.
- **DataCollection Build**:
  Shows the latest development or released version of the software build for the Data Collection control panel applet.

Battery Status

You can view the battery status for your 700 Series Computer by accessing the **Unit Information** control panel applet.

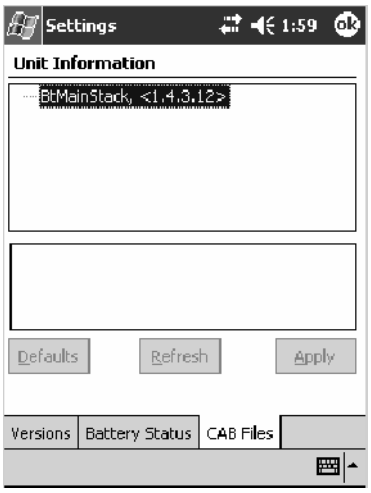
To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Unit Information** > the **Battery Status** tab to view the current status. Tap **ok** to exit this information.



CAB Files

You can view the latest developer or released version of each CAB file from Intermec Technologies Corporation that are installed in your 700 Series Computer via the **Unit Information** control panel applet. *Custom CAB files are not displayed in this applet.* See the *Software Tools User's Manual* for more information about these files.

To access the information from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Unit Information** > the **CAB Files** tab to view the current CAB file versions. Tap **ok** to exit this information.



When a CAB file is built, a registry entry is created with a build number for that file. This CAB Files control panel applet looks for a registry key for each CAB file installed. When the registry entry is found, the CAB file name and version number information are displayed. If a CAB file has not been installed, then its information is not displayed.

Below is a list of CAB files from Intermec Technologies that are available for your 700 Series Computer with their latest developer or released version of the software build. Should you need to add any of these to your 700 Series Computer, contact an Intermec representative.

- **BtMainStack**:
  Installation of the Main Bluetooth Stack is handled automatically as part of the operating system boot-up procedure. *See Chapter 4, "Network Support," for more information about Bluetooth wireless printing.*
- **Comm Port Wedge**:
  The software build for the Comm Port Wedge. *Note that the Comm Port Wedge CAB file is available on the Intermec Developer's Library CD.*
- **NPCPTest**:
  This installs a Norand® Portable Communications Protocol (NPCP) Printing test application which will print to an Intermec® 4815, 4820, or 6820 Printer. *See Chapter 5, "Printer Support," for more information.*

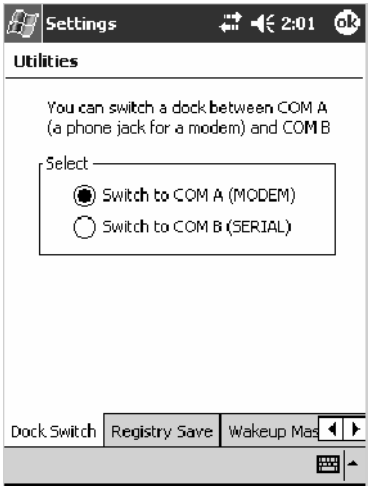
- **S9C Upgrade**:
  Installs the files needed to upgrade the S9C scanner firmware. *See the 700 Color Management Tools portion of the Intermec Developer's Library CD for more information about upgrading the firmware.*
- **SDK**:
  Installs the Intermec Software Developer's Kit (SDK). *See the SDK User's Manual for more information.*
- **WinCfg**:
  Configures the NRINET.INI file, launches the NRINet client, and loads and unloads the LAN and WLAN device drivers.
- **Wireless Printing Sample**:
  Installs a sample application that developers can use for reference when they are developing their own Wireless Printing applications. The source code for this application is included as part of the Wireless Printing SDK on the *Intermec Developer's Library CD*. *See the SDK User's Manual for more information.*
- **ActiveX Control Tools**:
  This lists some of the CAB files that may be available with which to install ActiveX Control Tools. *See the SDK Online Help for more information.*
  - **AXCommunication**:
    Communication controls that transmit or receive messages from input connections.
  - **AXFileTransfer**:
    File transfer controls that transmit and receive files using the Trivial File Transfer Protocol (TFTP).
  - **AXReaderCommand**:
    Reader command functions that modify and retrieve configuration information from your 700 Series Computer.
  - **AXVWedge**:
    The virtual wedge control that retrieves scanned ADC data and sends it to the keyboard driver to interpret data as keyboard input.

Utilities Control Panel Applet

The Utilities control panel applet examines and modifies settings and operational modes of specific hardware and software on the 700 Color Computer, including the dock switch, registry storage, wakeup mask, and application launch keys.

Utilities

To access the settings from the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Utilities** to access its control panel applet.



Use the left and right arrows to scroll through the tabs along the bottom of the control panel applet, then tap a tab to access its menus. These tabs represent the following groups of settings or parameters:

- **Dock Switch** *(next page)*
- **Registry Save** *(page 367)*
- **Wakeup Mask** *(page 368)*
- **App Launch** *(page 369)*

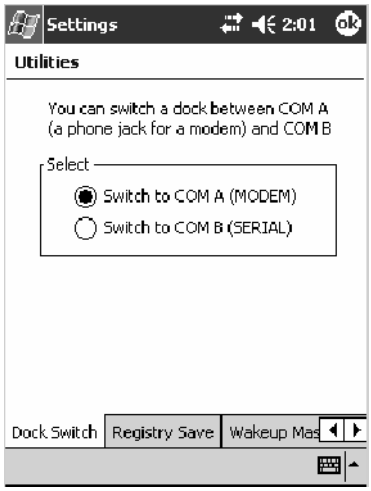
Dock Switch

From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Utilities** > the **Dock Switch** tab to access the Dock Switch control panel applet.

Use this applet to control the position of the dock switch. This can be set either to a COM A (phone jack for a modem) position or to a COM B (serial) position.

If switched to COM B and suspended the terminal will have the following behavior:

- If the 700 Series Computer is on charge, the dock switch will remain switched to COM B.
- If the 700 Series Computer is off charge, the dock switch will switch to COM A and remain in this position until the 700 Series Computer resumes charge.

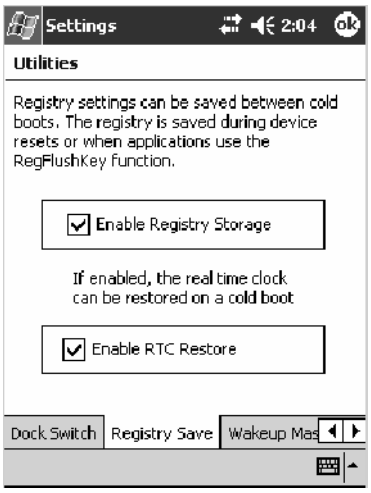


Registry Save

From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Utilities** > the **Registry Save** tab to access the Registry Save control panel applet.

For Windows Mobile 2003, the only medium available for saving the registry is the Flash File System (PSM). Registry data is stored in the "\Flash_File_Store\Registry" path. Check **Enable Registry Storage** to enable this function.

To ensure that the 700 Series Computer restores the real-time clock after a cold-boot, check the **Enable RTC Restore** option. *Note that this does not apply to the 730 Computer.*



700 Color or 700CXL Screen

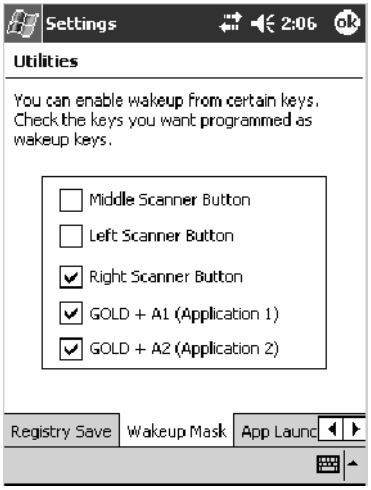
730 Screen

Wakeup Mask

From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Utilities** > the **Wakeup Mask** tab to access the Wakeup Mask control panel applet.

This applet programs three scanner buttons and the A1 and A2 application keys to be "wakeup" or resume keys. That is, to prompt the 700 Series Computer to "wake up" or resume activity after going to "sleep" as a result of being inactive after a length of time. This information will remain between warm and cold boots.

Check the appropriate box, then tap **ok** to apply your settings.



Based on your setting, do the following to "wake up" the 700 Series Computer.

If you select:	Then do this on Numeric Keyboard	Then do this on Alphanumeric Keyboard
Middle Scanner Button	Squeeze the button on the Scan Handle	Squeeze the button on the Scan Handle
Left Scanner Button	Squeeze the left scanner button	Squeeze the left scanner button
Right Scanner Button	Squeeze the right scanner button	Squeeze the right scanner button
GOLD + A1 (Application 1)	Press [**Gold**]	Press [**Gold/White**]
GOLD + A2 (Application 2)	Press [**Gold**]	Press [**Gold/White**]

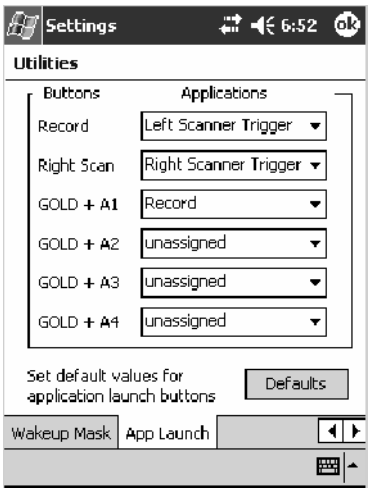
App Launch

From the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Utilities** , then scroll to the right to tap the **App Launch** tab to access the Application Launch control panel applet.

This applet programs or maps two scanner buttons and four application keys to start up to six applications. *Note that the left scanner button also acts as the record button.*

For 700 Series Computers with either a laser scanner or an imager, applications are as follows and default mappings are shown in the following illustration:

- Left Scanner Trigger
- Right Scanner Trigger
- Record *(see Note)*
- Calendar *(see Note)*
- Contacts *(see Note)*
- Tasks *(see Note)*



For 700 Series Computers without either a laser scanner or an imager, the default maps the Record, Calendar, Contacts, and Tasks applications the top four and the A3 and A4 buttons are ”unassigned” or available for two more applications.

Note: Record, Calendar, Contacts, and Tasks are Pocket PC applications. See Chapter 2, “*Windows Mobile 2003*,” for more information about these applications.

- To assign an application to a button, select an application from the applicable drop-down list box.
- To assign a new application, select the “Add new application” option, which brings up an Open File dialog and browse SD or CF storage cards for new applications.

- To disable or unmap a currently mapped application from a corresponding button, select "unassigned" from the applicable drop-down list.
- To restore these buttons to their defaults, tap **Defaults** in the lower right corner.

Note; You cannot map an application to more than one button. Should you assign the same application to two buttons, a verification prompt will appear after the second button to confirm whether you want to remap the application. If you tap **Yes**, the applet changes the first button to "unassigned" and map the application to the second button.

Note: All changes are activated immediately upon selection.

Wireless Network Control Panel Applet

Note: See Chapter 4, "*Network Support*," for information about the 802.11b radio module.

About the Wireless Network

Your wireless adapter (network interface card) connects to wireless networks of two types: access point networks and peer-to-peer networks.

- Access point networks get you onto your corporate network and the internet. Your 700 Series Computer establishes a wireless connection to an access point, which links you to the rest of the network. When you connect to a network via an access point, you are using the 802.1x infrastructure mode.
- Peer-to-peer networks are private networks shared between two or more people, even with no access point.

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

With multiple networks within range of each other, security is a necessity, to avoid outside eavesdropping. To make a network safe, the following are required:

- Authentication by both the network and the user
- Authentication is cryptographically protected
- Wireless connection is encrypted

There are two basic mechanisms for providing secure encryption over a wireless network: preconfigured secrets called WEP keys and authentication using the 802.1x protocol.

Terminology

Below are terms you may encounter as you configure your wireless network:

- **CKIP** (Cisco Key Integrity Protocol)
  This is a light version of the TKIP protocol developed by Cisco.
- **EAP** (Extensible Authentication Protocol)
  802.1x uses this protocol to perform authentication. This is not necessarily an authentication mechanism, but is a common framework for transporting actual authentication protocols. Intermec Technologies provides a number of EAP protocols for you to choose the best for your network.

- **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 fixing the flaws of WEP.

  This protocol provides stronger encryption than WEP, by dynamically updating the encryption keys every 10,000 packets. It eliminates attacks on WEP, which is based on a cryptographic algorithm called RC4, leaving WLANs open to various security attacks.

  TKIP is an interim addition to WEP that addresses some security concerns. It provides per-packet key mixing, a MIC (Message Integrity Check), and a rekeying mechanism designed to fix WEP flaws.

- **WEP** (Wired Equivalent Privacy) **encryption**
  With preconfigured WEP, both the client 700 Series Computer and access point are assigned the same key, which can encrypt all data between the two devices. WEP keys also authenticate the 700 Series Computer to the access point — unless the 700 Series Computer can prove it knows the WEP key, it is not allowed onto the network.

  WEP keys are only needed if they are expected by your clients. There are two types available: 64-bit (5-character strings, 12345) (default) and 128-bit (13-character strings, 1234567890123). Enter these as either ASCII (12345) or Hex (0x3132333435).

- **WPA** (Wi-Fi Protected Access)
  This is an enhanced version of WEP that does not rely on a static, shared key. It encompasses a number of security enhancements over WEP, including improved data encryption via TKIP and 802.1x authentication with EAP.

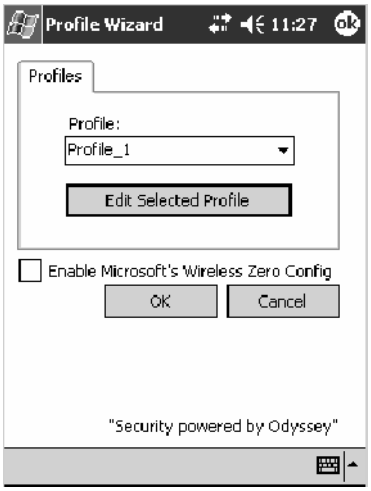
Configuring Your Wireless Network

To start 802.11b communications on the 700 Series Computer, tap **Start** > **Settings** > the **System** tab > **Wireless Network** to access the Profile Wizard for the 802.11b radio module.

A profile contains all the information necessary to authenticate you to the network, such as login name, password or certificate, and protocols by which you are authenticated.

You can have up to four profiles for different networks. For example, you may have different login names or passwords on different networks, or you may use a password on one network, and a certificate on another.

Use the Profiles page to select and configure between the networking environments assigned to this 802.11b radio.

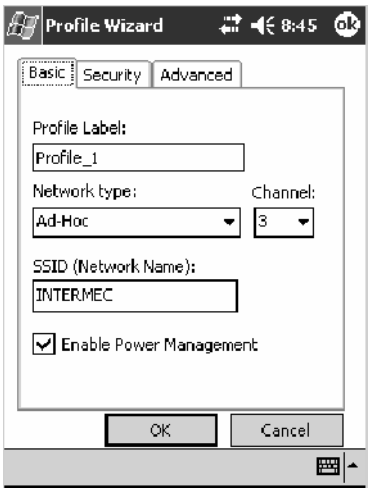


- **Profile**:
  Tap the drop-down list to choose between four different profiles assigned to this unit, then tap **Edit Select Profile**, make the changes needed for this profile *(starting on the next page)*, then tap **OK** to return to the Profiles page.
- **Enable Microsoft's Wireless Zero Config**
  Check this box to enable Microsoft's Wireless Zero Config application. This effectively disables the Intermec software solution for 802.11b, including configuration via the CORE application and the Wireless Network control panel applet.

Basic

Use the Basic page to set the network type, name, and manage battery power for this profile. Tap **ok** or **OK** to return to the Profiles page.

- **Profile Label**:
  Enter a unique name for your profile.
- **Network type**:
  Tap the drop-down list to select either "Infrastructure" if your network uses access points to provide connectivity to the corporate network or internet; or "Ad-Hoc" to set up a private network with one or more participants.
- **Channel**:
  If you selected "Ad-Hoc" for the network type, select the channel on which you are communicating with others in your network. There are up to 11 channels available.
- **SSID (Network Name)**:
  This assumes the profile name *unless another name is entered in this field*. If you want to connect to the next available network or are not familiar with the network name, enter "ANY" in this field. Consult your LAN administrator for network names.
- **Enable Power Management**:
  Check this box to conserve battery power (default), or clear this box to disable this feature.



Security

The following are available from the **8021x Security** drop-down list. *Note that the last four methods are available if you have purchased the security package. Contact your Intermec representative for information.*

- None *(next page)*
- PEAP *(page 379)*
- TLS *(page 383)*
- TTLS *(page 387)*
- LEAP *(page 390)*

None

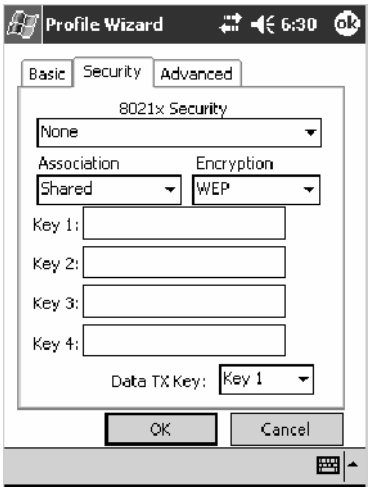
Use "None" to disable 802.1x Security and enable either WEP or WPA-PSK encryption.

To Disable 802.1x Security

1. Set **8021x Security** as "None."
2. Set **Association** to "Open."
3. Set **Encryption** to "None."

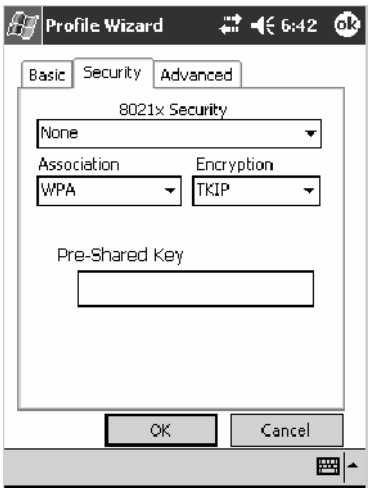
To Enable WEP Encryption

1. Set **8021x Security** as "None."
2. Set **Association** to either "Open" if WEP keys are not required; or "Shared" when WEP keys are required for association.
3. Set **Encryption** to "WEP." See page 372 for information about WEP encryption.
4. If you had set **Association** to "Shared," then select a data transmission key from the **Data TX Key** drop-down list near the bottom of this screen, then enter the encryption key for that data transmission in the appropriate **Key #** field.



To Enable WPA Encryption Using a Preshared Key

1. Set **8021x Security** as "None."
2. Set **Association** to "WPA." See page 372 for information about WPA encryption.
3. Skip **Encryption** as it is automatically set to "TKIP." See page 372 for more information about TKIP.
4. Enter the temporal key as ASCII (12345) in the **Pre-Shared Key** field.



PEAP (Protected EAP)

This protocol is suitable for performing secure authentication against Windows domains and directory services. It is comparable to EAP-TTLS (see page 387), both in its method of operation and its security, though not as flexible. This does not support the range of inside-the-tunnel authentication methods supported by EAP-TTLS. Microsoft and Cisco both support this protocol.

Use "PEAP" to configure the use of PEAP as an authentication protocol and to select "Open," "WPA," or "Network EAP" as an association mode.

To Enable PEAP with an Open Association

1. Set **8021x Security** as "PEAP."
2. Set **Association** to "Open."
3. Skip **Encryption** as it is automatically set to "WEP." See page 372 for information about WEP encryption.
4. Enter your unique user name and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol; or leave **Use following password** as selected to automatically use the protocol without entering a password.
5. Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 382 for more information.

To Enable PEAP with WPA Encryption

1. Set **8021x Security** as "PEAP."
2. Set **Association** to "WPA." See page 372 for information about WPA encryption.
3. Skip **Encryption** as it is automatically set to "TKIP." See page 372 for more information about TKIP.
4. Enter your unique user name and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.
5. Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 382 for more information.

To Enable PEAP with Network EAP

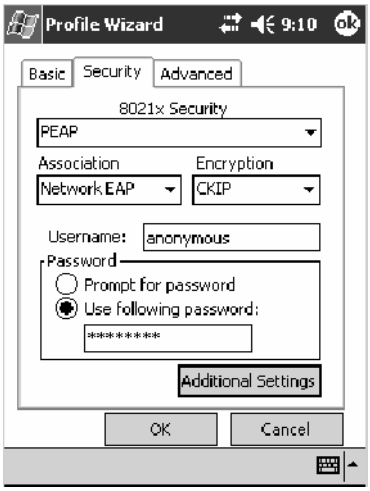
1 Set **8021x Security** as "PEAP."

2 Set **Association** to "Network EAP." See page 371 for information about EAP.

3 Set **Encryption** to either "WEP" or "CKIP." See page 371 for information about CKIP and page 372 for information about WEP encryption.

4 Enter your unique user name and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

5 Tap **Additional Settings** to assign an inner PEAP authentication and set options for server certificate validation and trust. See page 382 for more information.



Additional Settings

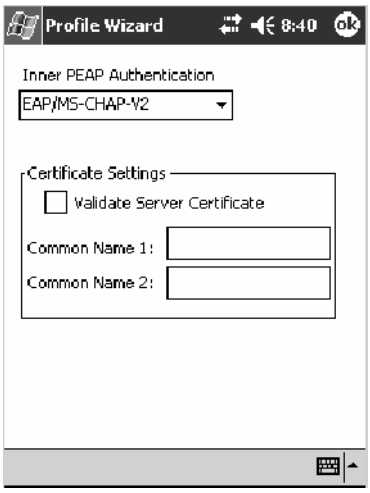
1 Select an authentication method from the **Inner PEAP Authentication** drop-down list.

EAP/MS-CHAP-V2	Authenticates against a Windows Domain Controller and other non-Windows user databases. This is Microsoft's implementation of PEAP.
EAP/Token Card	Use with token cards. The password value entered is never cached. This is Cisco's implementation of PEAP.
EAP/MD5-Challenge	Message Digest 5. A secure hashing authentication algorithm.

2 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TTLS, PEAP, and TLS.

3 Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*

4 Click **ok** to return to the Security page.



TLS (EAP-TLS)

EAP-TLS is a protocol that is based on the TLS (Transport Layer Security) protocol widely used to secure web sites. This requires both the user and authentication server have certificates for mutual authentication. While cryptically strong, this requires corporations that deploy this to maintain a certificate infrastructure for all their users.

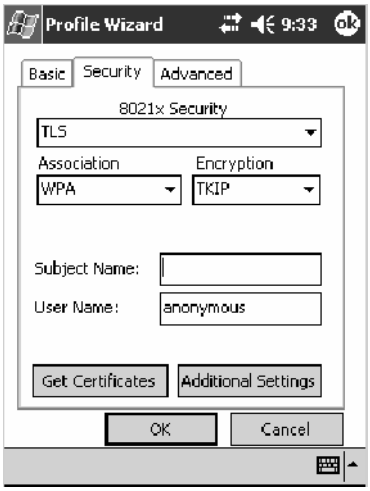
Use "TLS" to configure the use of EAP-TLS as an authentication protocol, and select either "Open" or "WPA" as an association mode.

To Enable TLS with an Open Association

1. Set **8021x Security** as "TLS."
2. Set **Association** to "Open."
3. Skip **Encryption** as it is automatically set to "WEP." See page 372 for information about WEP encryption.
4. Enter your unique **Subject Name** and **User Name** to use this protocol.
5. Tap **Get Certificates** to obtain or import server certificates. See page 385 for more information.
6. Tap **Additional Settings** to set options for server certificate validation and trust. See page 386 for more information.

To Enable TLS with WPA Encryption

1. Set **8021x Security** as "TLS."
2. Set **Association** to "WPA." See page 372 for information about WPA encryption.
3. Skip **Encryption** as it is automatically set to "TKIP."See page 372 for more information about TKIP.
4. Enter your unique **Subject Name** and **User Name** as credentials for this profile.
5. Tap **Get Certificates** to obtain or import server certificates. See page 385 for more information.
6. Tap **Additional Settings** to set options for server certificate validation and trust. See page 386 for more information.



To Get Certificates

Certificates are pieces of cryptographic data that guarantee a public key is associated with a private key. They contain a public key and the entity name that owns the key. Each certificate is issued by a certificate authority.

Use this page to import a certificate onto the 700 Series Computer.

Root Certificates

1 Tap the <<< button next to the **Import Root Certificate** field to select the root certificate (DER-encoded .CER file) to import.

2 Click **Import Root Cert** to install the selected certificate.

User Certificate

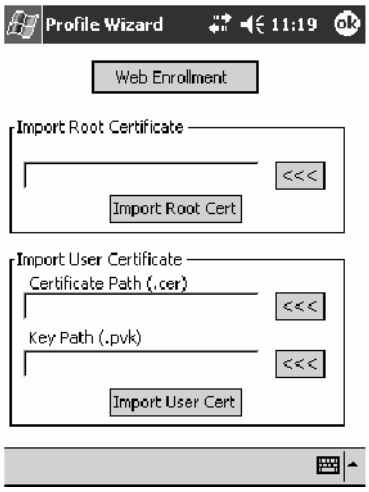
1 Tap the <<< button next to the **Certificate Path** field to select the user certificate (DER-encoded .CER file without the private key) to import.

2 Tap the <<< button next to the **Key Path** field to select the private key (.PVK file) which corresponds to the user certificate chosen in step 1.

3 Tap **Import User Cert** to install the selected certificate.

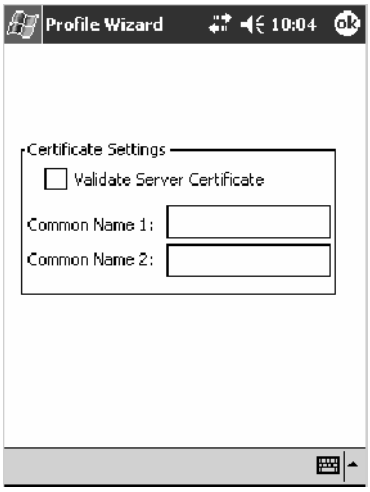
Web Enrollment

Tap **Web Enrollment** to obtain a user certificate over the network from an IAS Server. Tap **ok** to return to the Security page.



Additional Settings

1. Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TTLS, PEAP, and TLS.
2. Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*
3. Click **ok** to return to the Security page.



TTLS (EAP-Tunneled TLS)

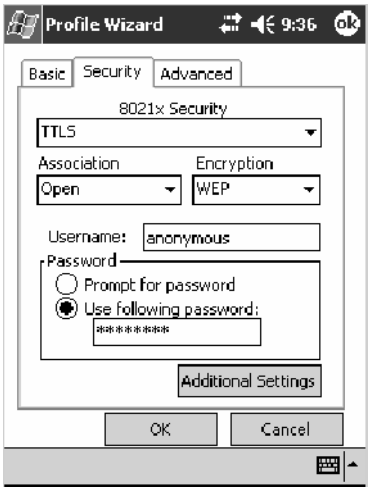
This protocol provides authentication like EAP-TLS (see page 383) but does not require certificates for every user. Instead, authentication servers are issued certificates. User authentication is done using a password or other credentials that are transported in a securely encrypted "tunnel" established using server certificates.

EAP-TTLS works by creating a secure, encrypted tunnel through which you present your credentials to the authentication server. Thus, inside EAP-TTLS there is another *inner authentication protocol* that you must configure via Additional Settings.

Use "TTLS" to configure the use of EAP-TTLS as an authentication protocol, and select either "Open" or "WPA" as an association mode.

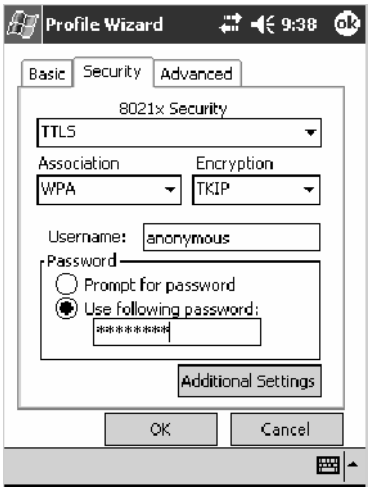
To Enable TTLS with an Open Association

1. Set **8021x Security** as "TTLS."
2. Set **Association** to "Open."
3. Skip **Encryption** as it is automatically set to "WEP." See page 372 for information about WEP encryption.
4. Enter your unique user name and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.
5. Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 389 for more information.



To Enable TTLS with WPA Encryption

1. Set **8021x Security** as "TTLS."
2. Set **Association** to "WPA." See page 372 for information about WPA encryption.
3. Skip **Encryption** as it is automatically set to "TKIP." See page 372 for more information about TKIP.
4. Enter your unique user name and password to use this protocol. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.
5. Tap **Additional Settings** to assign an inner TTLS authentication and an inner EAP, and set options for server certificate validation and trust. See page 389 for more information.



Additional Settings

1 Select an authentication protocol from the **Inner TTLS Authentication** drop-down list:

PAP	Password Authentication Protocol. A simple authentication protocol that sends security information in the clear.
CHAP	Challenge Handshake Authentication Protocol. Use of Radius to authenticate a terminal without sending security data in the clear. Authenticates against non-Windows user databases. *You cannot use this if authenticating against a Windows NT Domain or Active Directory.*
MS-CHAP; MS-CHAP-V2	Authenticates against a Windows Domain Controller and other non-Windows user databases.
PAP/Token Card	Use with token cards. The password value entered is never cached.
EAP	Extensible Authentication Protocol. See page 371 for information about EAP.

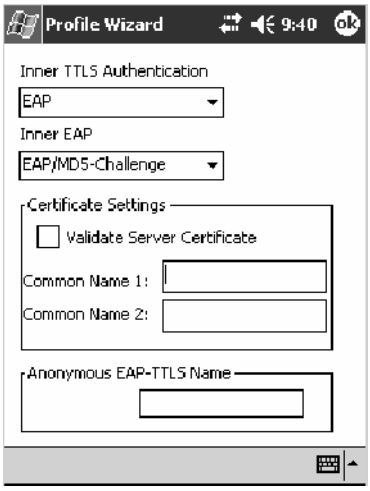
2 If you select "EAP" for the inner authentication protocol, then an inner EAP protocol from the **Inner EAP** drop-down list.

3 Enter the **Common Names** of trusted servers. *Note that if these fields are left blank, the server certificate trust validation is not performed or required.*

4 Check **Validate Server Certificate** to verify the identity of the authentication server based on its certificate when using TTLS, PEAP, and TLS.

5 Enter the **Anonymous EAP-TTLS Name** as assigned for public usage. Use of this outer identity protects your login name or identity.

6 Click **ok** to return to the Security page.



LEAP (Cisco Lightweight EAP)

LEAP is the Cisco Lightweight version of EAP. See page 371 for information about EAP.

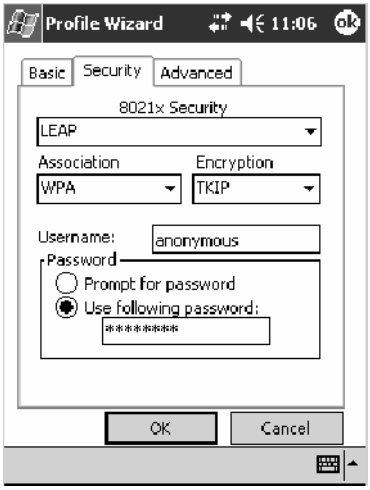
Use "LEAP" to configure the use of LEAP as an authentication protocol, select "Open," "WPA," or "Network EAP" as an association mode, or assign Network EAP. *Note that this defaults to the Network EAP.*

To Enable LEAP with an Open Association

1. Set **8021x Security** as "LEAP."
2. Set **Association** to "Open."
3. Skip **Encryption** as it is automatically set to "WEP." See page 372 for information about WEP encryption.
4. Enter your unique **User Name** to use this protocol.
5. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.

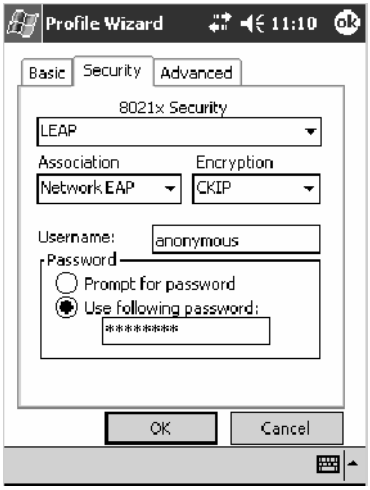
To Enable LEAP with WPA Encryption

1. Set **8021x Security** as "LEAP."
2. Set **Association** to "WPA." See page 372 for information about WPA encryption.
3. Skip **Encryption** as it is automatically set to "TKIP." See page 372 for more information about TKIP.
4. Enter your unique **User Name** to use this protocol.
5. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.



To Enable LEAP with Network EAP

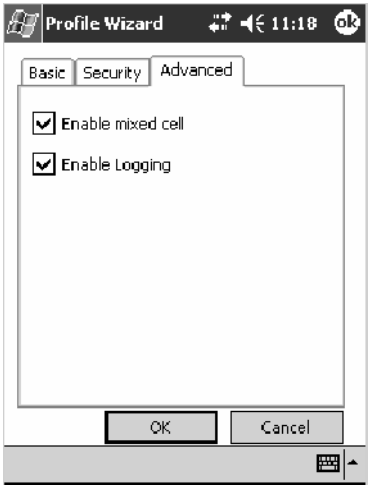
1. Set **8021x Security** as "LEAP."
2. Set **Association** to "Network EAP," an EAP protocol for the network. See page 371 for information about EAP.
3. Set **Encryption** to either "WEP" or "CKIP." See page 371 for information about CKIP and page 372 for information about WEP encryption.
4. Enter your unique **User Name** to use this protocol.
5. Select **Prompt for password** to have the user enter this password each time to access the protocol, or leave **Use following password** as selected to automatically use the protocol without entering a password.



Advanced

Use this page to configure additional settings for this profile. Tap **ok** or **OK** to return to the Profiles page.

- **Enable mixed cell**:
  Mixed cell is a profile-dependent setting. If enabled, you can connect to mixed cell without using WEP, then you can query the cell to determine whether you can use encryption.
- **Enable Logging**:
  Check this to log what activity incurs for this profile.



Other Configurable Parameters

The following parameters can be configured by sending reader commands through the network or from an application. See "*Using Reader Commands*" on page 396 for more information.

Audio Volume

Changes the volume of all audio signals.

SNMP OID
1.3.6.1.4.1.1963.15.3.1.3.0

Options (Syntax Data for Reader Commands)
0 Off
1 Very quiet
2 Quiet
3 Normal (default)
4 Loud
5 Very loud

Automatic Shutoff

Sets the length of time the 700 Series Computer remains on when there is no activity. When you turn on the 700 Computer, it either resumes exactly where it was when you turned it off or boots and restarts your application.

SNMP OID
1.3.6.1.4.1.1963.15.11.3.0

Options (Syntax Data for Reader Commands)
1 1 minute
2 2 minutes
3 3 minutes (default)
4 4 minutes
5 5 minutes

Backlight Timeout

Sets the length of time that the display backlight remains on. If you set a longer timeout value, you use the battery power at a faster rate.

SNMP OID

1.3.6.1.4.1.1963.15.13.1.0

Options (Syntax Data for Reader Commands)

10	10 seconds
30	30 seconds
60	1 minute (default)
120	2 minutes
180	3 minutes
240	4 minutes
300	5 minutes

Date/Time

Sets the current date and time.

SNMP OID

Date: 1.3.6.1.4.1.1963.15.501.2.1.0
Time: 1.3.6.1.4.1.1963.15.501.2.2.0

Options (Syntax Data for Reader Commands)

Date	Year	0000–9999 *(1999)*
	Month	1–12 *(6)*
	Day	1–31 *(1)*
Time	Hour	0–23 *(0)*
	Minute	0–59 *(00)*
	Second	0–59 *(00)*

Key Clicks

Enables or disables the keypad clicks. The 700 Series Computer emits a click each time you press a key or decode a row of a two-dimensional symbology.

SNMP OID

1.3.6.1.4.1.1963.15.12.1.0

Options (Syntax Data for Reader Commands)

0	Disable clicks
1	Enable soft key clicks
2	Enable loud key clicks (default)

Using Reader Commands

After the 700 Series Computer is connected to your network, you can send the 700 Series Computer a reader command from an application to perform a task, such as changing the time and date. Some reader commands temporarily override the configuration settings and some change the configuration settings.

Change Configuration

The Change Configuration command must precede any configuration command. If you enter a valid string, the 700 Series Computer configuration is modified and the computer emits a high beep. To send the Change Configuration command through the network, use the `$+ [command]` syntax where *command* is the two-letter command syntax for the configuration command followed by the value to be set for that command.

You can also make changes to several different commands by using the `$+ [command]...[command n]` syntax. There are seven configuration command settings that can be changed in this way. *See each command for information on respective acceptable "data" values.*

Command	Syntax
Audio Volume	BV*data*
Automatic Shutoff	EZ*data*
Backlight Timeout	DF*data*
Key Clicks	KC*data*
Virtual Wedge Grid	AF*data*
Virtual Wedge Postamble	AE*data*
Virtual Wedge Preamble	AD*data*

Note: See pages 342 and 344 for more information about the **Virtual Wedge Postamble** and **Virtual Wedge Preamble** commands.

Example 1

To change the Beep Volume to Off, you can send this string to the 700 Series Computer through the network: `$+BV0`

where:

`$+`	Indicates Change Configuration.
`BV`	Specifies the Audio Volume parameter.
`0`	Specifies a value of Off.

Example 2

To change the Beep Volume to Very Quiet and the Virtual Wedge Grid to 123: `$+BV1AF123`

where:

`$+`	Indicates Change Configuration
`BV1`	Specifies Audio Volume, set to Very Quiet (1)
`AF123`	Specifies Virtual Wedge Grid, set to a value of 123.

Set Time and Date

This command sets the date and time on the 700 Series Computer. The default date and time is *June 1, 1999 at 12:00 AM*.

From the network, send the following:

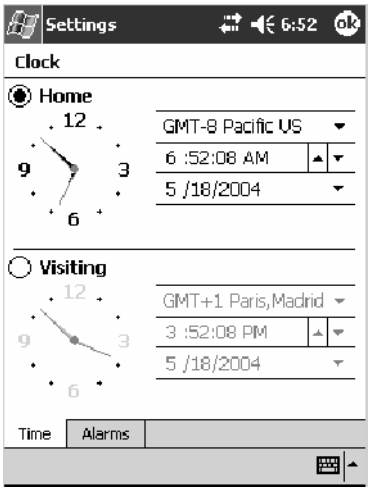
```
/+ yyyymmddhhmmss
```

where acceptable values for the date are:

`yyyy`	0000–9999	Year
`mm`	01–12	Month of the year
`dd`	01–31	Day of the month
`hh`	00–23	Hour
`mm`	00–59	Minutes
`ss`	00–59	Seconds

Clock

You can also set the time and date by using Configuration Management in Unit Manager, or by using the **Clock** control panel applet in the Settings menu. To access this control panel applet, tap **Start** > **Settings** > the **System** tab > the **Clock** icon to access its control panel applet.



Configuration Bar Codes

You can change some settings on your 700 Series Computer by scanning the following Code 39 bar code labels.

- You can use the Data Collection control panel to set the three Virtual Wedge parameters *(starting on page 341)*.

Note: When you use a bar code creation utility to make a scannable bar code label, the utility probably adds opening and closing asterisks automatically. Asterisks are included here for translation purposes.

Audio Volume

Note: The Audio Volume parameter information is on page 394.

Turn Audio Off

$+BV0

Set Audio Volume to very quiet

$+VB1

Set Audio Volume to quiet

$+BV2

Set Audio Volume to normal *(default)*

$+BV3

Set Audio Volume to loud

$+BV4

Set Audio Volume to very loud

$+BV5

Automatic Shutoff

Note: The Automatic Shutoff parameter information is on page 394.

Set Automatic Shutoff to 1 minute

$+EZ1

Set Automatic Shutoff to 2 minutes

$+EZ2

Set Automatic Shutoff to 3 minutes *(default)*

$+EZ3

Set Automatic Shutoff to 4 minutes

$+EZ4

Set Automatic Shutoff to 5 minutes

$+EZ5

Backlight Timeout

Note: The Backlight Timeout parameter information is on page 395.

Backlight Timeout 10 seconds

$+DF10

Backlight Timeout 30 seconds

$+DF30

Backlight Timeout 1 minute *(default)*

$+DF60

Backlight Timeout 2 minutes

$+DF120

Backlight Timeout 3 minutes

$+DF180

Backlight Timeout 4 minutes

$+DF240

Backlight Timeout 5 minutes

$+DF300

Key Clicks

Note: The Key Clicks parameter information is on page 395.

Disable key clicks

$+KC0

Enable soft key clicks

$+KC1

Enable loud key clicks *(default)*

$+KC2

Virtual Wedge Grid, Preamble, Postamble

The following parameters are user-configurable strings. Refer to a full ASCII chart for more information.

Grid

For Virtual Wedge Grid, the first part of the bar code would be the following, which can include a string of up to 240 characters. *Parameter information starts on page 346.*

*$+AF

Preamble

For Virtual Wedge Preamble, the first part of the bar code would be below, followed by a string of up to 31 characters *(no <NUL>)* and an asterisk. *Default is no characters. Parameter information is on page 342.*

*$+AD

Postamble

For Virtual Wedge Postamble, the first part of the bar code would be below, followed by a string of up to 31 characters *(no <NUL>)* and an asterisk. *Default is no characters. Parameter information is on page 344.*

*$+AE

B Bar Code Symbologies

This appendix contains a brief explanation of some of the bar code symbologies that the 700 Series Color Mobile Computer decodes and explains some of the general characteristics and uses of these bar code types.

The 700 Series Computer recognizes eleven of the most widely used bar code symbologies. With bar code symbologies, like languages, there are many different types. A bar code symbology provides the required flexibility for a particular inventory tracking system.

A symbology may be for particular industries, such as food and beverage, automotive, railroad, or aircraft. Some of these industries have established their own bar code symbology because other symbologies did not meet their needs.

Without going into great detail on the bar code structure, note that no two products use the same bar code. Each product gets a unique bar code.

Industries that use a particular type of bar code symbology have formed regulating committees or are members of national institutes that issue and keep track of bar codes. This ensures that each organization that contributes to a particular industry conforms to its standard. Without some form of governing body, bar coding would not work.

Codabar

Codabar was for retail price-labeling systems. Today it is widely accepted by libraries, medical industries, and photo finishing services.

Codabar is a discrete, self-checking code with each character represented by a stand-alone group of four bars and three intervening spaces.

Four different start or stop characters get defined and designated “a”, “b”, “c”, and “d”. These start and stop characters are constructed using one wide bar and two wide spaces. A complete Codabar symbol begins with one of the start or stop characters followed by some number of data characters and ending in one of the start or stop characters.

Any of the start or stop characters may be used on either end of the symbol. It is possible to use the 16 unique start or stop combinations to identify label type or other information.

Since Codabar is variable-length, discrete, and self-checking, it is a versatile symbology. The width of space between characters is not critical and may vary significantly within the same symbol. The character set consists of “0” through “9”, “-”, “$”, “:”, “/”, “.”, and “+”.

The specific dimensions for bars and spaces in Codabar optimize performance of certain early printing and reading equipment. Codabar has 18 different dimensions for bar and space widths. So many different dimensions often result in labels printed out of specification and cause Codabar printing equipment to be more expensive.

Code 11

Code 11 satisfies the requirements for a very high density, discrete numeric bar code. The name Code 11 derives from 11 different data characters that can be represented, in addition to a start or stop character.

The character set includes the 10 digits and the dash symbol. Each character is represented by a stand-alone group of three bars and two intervening spaces. Although Code 11 is discrete, it is not self-checking. A single printing defect can transpose one character into another valid character. One or two check digits obtain data security.

The specifications for Code 11 suggest that this code should have a narrow element width of 7.5 mils. This results in an information density of 15 characters per inch.

Code 39

Code 39 (C39) is the most widely used symbology among the industrial bar codes. Most major companies, trade associations, and the federal government find this code to fit their needs. The main feature of this symbology is the ability to encode messages using the full alphanumeric character set, seven special characters, and ASCII characters.

Programming for this symbology can be for any length that the application requires. The application program for the 751G Computer handles symbology at least one character but no more than 32 characters in length.

When programming the computer for Code 39, it is important to set the symbology limit as close as possible (minimum and maximum bar code lengths being scanned). Doing so keeps the computer bar code processing time to a minimum and conserves battery power.

Bar code readers can respond to Uniform Symbology Specification symbols in non-standard ways for particular applications. These methods are not for general applications, because of the extra programming required. Code 39 Full ASCII is one example of non-standard code.

Note: See page 398 to scan several Code 39 bar code labels available to change settings on your 751G Computer.

Encoded Code 39 (Concatenation)

If the first data character of a symbol is a space, the reader may be programmed to append the information contained in the remainder of the symbol to a storage buffer. This operation continues for all successive symbols that contain a leading space, with messages being added to the end of previously stored ones. When a message is read which does not contain a leading space, the contents are appended to the buffer, the entire buffer is transmitted, and the buffer is cleared.

Encoded Code 39 (Full ASCII)

If the bar code reader is programmed for the task, the entire ASCII character set (128 characters) could be coded using two character sequences: a symbol (“$”,“.”,“%”,“/”) followed by a letter of the alphabet.

Code 93

The introduction of Code 93 provided a higher density alphanumeric symbology designed to supplement Code 39. The set of data characters in Code 93 is identical with that offered with Code 39. Each character consists of nine modules arranged into three bars and three spaces.

Code 93 uses 48 of the 56 possible combinations. One of these characters, represented by a square, is reserved for a start or stop character, four are used for control characters, and the remaining 43 data characters coincide with the Code 39 character set. An additional single module termination bar after the stop character concludes the final space.

Code 93 is a variable length, continuous code that is not self-checking. Bar and spaces widths may be one, two, three, or four modules wide. Its structure uses edge-to-similar-edge decoding. This makes the bar code immune to uniform ink spread, which allows liberal bar width tolerances.

Code 93 uses two check characters. Its supporters believes this makes it the highest density alphanumeric bar code. The dual check digit scheme provides for high data integrity. All substitution errors in a single character are detected for any message length.

Code 128

Code 128 (C128) is one of the newest symbologies used by the retail and manufacturing industries. It responds to the need for a compact alphanumeric bar code symbol that could encode complex product identification.

The fundamental requirement called for a symbology capable of being printed by existing data processing printers (primarily dot-matrix printers) that produce daily, work-in-progress, job, and product traceability documents. The ability to print identification messages between 10 and 32 characters long, on existing forms and labels deemed an important requirement.

Code 128 uniquely addresses this need as the most compact, complete, alphanumeric symbology available.

Additionally, the Code 128 design with geometric features, improves scanner read performance, does self-checking, and provides data message management function codes.

Code 128 encodes the complete set of 128 ASCII characters without adding extra symbol elements. Code 128 contains a variable-length symbology and the ability to link one message to another for composite message transmission. Code 128, being a double-density field, provides two numeric values in a single character.

Code 128 follows the general bar code format of start zone, data, check digit, stop code, and quiet zone. An absolute minimum bar or space dimension of nine mils (0.010 inch minimum nominal ± 0.001 inch tolerance) must be maintained.

Characters in Code 128 consist of three bars and three spaces so that the total character set includes three different start characters and a stop character.

UCC/EAN-128 Shipping Container Labeling is a versatile tool that can ease movement of products and information. The Shipping Container Labeling bar code can take any form and usually has meaning only within the company or facility where applied.

Because this *random* data can get mistaken later for an industry standard code format, the UCC and EAN chose a symbology uniquely identified from these other bar codes. This standard is for maximum flexibility, to handle the diversity of distribution in global markets by cost efficiency.

The UCC/EAN-128 Container Labeling specification calls for a FUNC1 to immediately follow the bar code's start character. FUNC1 also follows any variable-length application field. The specification also calls for the computer to send "]C1" for the first FUNC1. The specification requires that the computer send a "<GS>" (hex 1D) for subsequent FUNC1 codes in the bar code.

Because "<GS>" is not compatible with computer emulation data streams, the Uniform Code Council has been asked to change the specification. This change is made to send the same three character sequence "]C1" to identify the embedded FUNC1 codes.

This implementation should provide for clean application coding by identifying the same sequences for the same scanned codes. If the communication of Norand bar code types is enabled, the Shipping Container Label codes precede with a "J". These strings will appear on the computer display. The application may have to allow for strings longer than 48 characters (maximum length indicated in the specification). Actual length variance depends on the number of variable-length data fields. Allowing for 60 characters should be sufficient. Within the Code 128 specification, the computer can link bar codes together. If this is to happen, allow for more characters (computer limit is 100 characters).

The Application Identifier Standard, that is part of the UCC/EAN Shipping Label concept, complements, rather than replaces, other UCC/EAN standards. Most UCC/EAN standards primarily identify products.

Several industries expressed the need to standardize more than product identification. The UCC/EAN Code 128 Application Identifier Standard supplies this tool. The standard adds versatility for inter-enterprise exchanges of perishability dating, lot and batch identification, units of use measure, location codes, and several other information attributes.

For more detailed information on Code 128 UCC/EAN Shipping Label bar code and Application Identifier Standard, refer to the UCC/EAN-128 Application Identifier Standard specification.

Data Matrix

Data Matrix is a high density 2D matrix code that can store a large amount of information. It has excellent error correction abilities and is mostly used for marking and tracking parts.

Data Matrix can store from 1 to about 2000 characters. The symbol is square and can range from 0.001 inch per side up to 14 inches per side. As an example of density, 500 numeric-only characters can encode in a 1-inch square using a 24-pin dot matrix printer.

Data Matrix is used to encode product and serial number information on electrical rating plates; to mark of surgical instruments in Japan; to identify lenses, circuit boards, and other items during manufacturing.

EAN (European Article Numbering)

EAN symbology is similar to UPC symbology, except that it contains 13 characters and uses the first two to identify countries.

The EAN symbology is used in the retail environment throughout most of Europe. Though similar to UPC symbology, these are not interchangeable.

I 2 of 5 (Interleaved)

I 2 of 5 (Interleaved 2 of 5 Code) is an all-numeric symbology, widely used for warehouse and heavy industrial applications. Its use has been particularly prevalent in the automobile industry. The I 2 of 5 symbology can be placed on smaller labels than what the standard UPC symbology requires.

I 2 of 5 also provides a little more flexibility on the type of material it can print on. Interleaved 2 of 5 Code has its name because of the way the bar code is configured.

I 2 of 5 bars and spaces both carry information. The bars represent the odd number position digits, while spaces represent the even number position digits. The two characters are interleaved as one. Messages encoded with this symbology have to use an even number of characters since two numeric characters always get interleaved together.

Matrix 2 of 5

Matrix 2 of 5 is a derivitive of Code 11 and is a linear bar code that is only read by linear imagers. It is limited to the ten digits and start/stop character. Discrete but not self-checking. Matrix 2 of 5 is used with a single Mmodulo 10 check digit. Compared with Code 11 (using two check digits) and the other industrial symbologies, Matrix 2 of 5 is somewhat more subject to substitution errors and offers no particular advantage.

MaxiCode

MaxiCode is a fixed-size code which holds up to 93 data characters. The symbol is composed of a central bulls-eye locator and offset rows of hexagonal elements; the overall dimensions of the symbol are approximately 1.11 x 1.054 inches. Each element measures 0.035 x 0.041 inches.

Created by United Parcel Service, the MaxiCode symbol was designed for quick automated scanning of packages on high-speed conveyor lines (special cameras can read a MaxiCode on a carton travelling at up to 500 feet per minute).

PDF417

The PDF417 symbology is a stacked 2D symbology that allows you to scan across rows of code. Each row consists of start/stop characters, row identifiers, and symbol characters, which consist of four bars and four spaces each and contain the actual data. This symbology uses error correction symbol characters appended at the end to recover loss of data.

PDF417 can store up to about 1800 printable ASCII characters or 1100 binary characters per symbol. The symbol is rectangular; the shape of the symbol can be adjusted to some extent by setting the width and allowing the height to grow with the data. It is also possible to break large amounts

of data into several PDF417 symbols which are logically linked. There is no theoretical limit on the amount of data that can store in a group of PDF417 symbols.

The capacity of PDF417 can be helpful in applications where the data must travel with the labeled item, where a host database is not always available for quick look-up. PDF417 is used for hazardous materials labeling; storing technical specifications, and calibration data on electronic instruments; encoding fingerprints and photographs on the backs of drivers' licenses.

The maximum data density is determined by the smallest elements which can be reliably printed and scanned. Using the smallest recommended element size of 0.0075 inch wide and 0.010 inch high, the maximum data density in the binary mode is 686 bytes per square inch (106.2 bytes per square centimeter). In the printable ASCII mode the density is 1144 characters per square inch (177.2 characters per square centimeter).

Micro PDF417

Micro PDF417 is derived from PDF417. The code has a limited set of symbol sizes and a fixed level of error correction for each symbol size. Module dimensions are user-specified so that the symbol may be printed with a variety of printers. The symbology allows up to 150 bytes, 250 alphanumeric characters, or 366 numeric digits to be stored. This is done by specifying one of three compaction modes: data, text or numeric. Text Compaction mode permits all printable ASCII characters to be encoded (values 32 to 126 inclusive) as well as selected control characters. Byte Compaction mode permits all 256 possible 8-bit byte values to be encoded. This includes all ASCII characters value 0 to 127 inclusive and provides for international character set support

Micro PDF417 is designed for applications where the symbol must be smaller than PDF417 will allow.

Plessey

Plessey finds its origin in the pulse width modulated (PWM) code developed in England. It is widely used for shelf markings in grocery stores. Pulse width modulated codes represent each bit of information by a bar and space pair. A zero bit consists of a narrow bar followed by a wide space, while a one bit consists of a wide bar followed by a narrow space. It is mainly a numeric symbology (0-9) with six extra characters available for assigning any symbol or letter desired.

Plessey codes employ a variety of check characters and a polynomial-based Cyclic Redundancy Check (CRC). For start and stop characters, Plessey employs a 1101 and previously used a 0101.

This symbology is very limited about what information can be encoded. It is not considered for new applications.

MSI Code (Variant of Plessey)

The MSI Plessey bar code is a variant of the Plessey bar code. It is a pulse-width modulated non-self checking code, and is used primarily in store shelf labeling. Each character consists of eight elements, four bars and four spaces. The character set includes the digits 0 through 9. A Modulo 10 checksum is appended to the end of the code. For start and stop checks, MSI employs a single bit pair of 1 as a start symbol and a single bit pair of 0 as a stop symbol. MSI reverses the 1-2-4-8 BCD pattern for bit pair weighting to 8-6-2-1.

QR Code (Quick Response Code)

QR Code is a 2D matrix symbology containing dark and light square data modules. It has position detection patterns on three of its for corners and features direct encodation of the Japanese Kana-Kanji character set. A 2D imaging device such as a CCD camera is necessary to scan the symbology. QR Code is designed with selectable levels of error correction. It supports industry standard escape sequences to define international code pages and special encodation schemes. QR Code is used for small item marking applications using a wide variety of printing and marking technologies. This document includes descriptions of the character encodation, symbol structure, reference decode algorithm, and symbol quality measurements for QR Code.

S 2 of 5 (Standard 2 of 5)

The code S 2 of 5 (Standard 2 of 5 Code) is designed primarily for:

- Warehouse inventory handling
- Identification of photo finishing envelopes
- Airline tickets
- Baggage and cargo handling

The code S 2 of 5 is simple and straightforward. All information is contained in the widths of the bars, with the spaces serving only to separate the individual bars.

Bars can either be wide or narrow, and the wide bars are usually three times the widths of the narrow bars. Spaces may be any reasonable width but are typically equal to the narrow bars. Narrow bars are identified as zero bits and wide bars as one bits.

Remember the code structure by associating the bar positions from left to right with weighting factors 1, 2, 4, 7, and parity. Exceptions to this rule are zero, start, and stop. This code is a discrete code, since the white spaces between the characters are not part of the code. Because the white spaces carry no information, their dimensions are not critical.

The S 2 of 5 code is self-checking, meaning a scanner passing through a printing void would detect the proper ratio of wide bars to total bars. When the scanner spots an error, a non-read will occur.

Telepen

Telepen was devised by George Sims, Managing Director of SB Electronic Systems Limited, in early 1972, this is the only symbology to directly represent the full ASCII character set without shift characters.Telepen carries the double-density numeric-only mode and is very compact. The Telepen symbol is up to 8 ASCII characters or16 digit per inch, and is easy to print. It has a fixed 3:1 ratio, with a tolerance at least 0.4x. This symbology is extremely secure, with negligible risk of misreading. It is supported by most leading manufacturers.

UPC (Universal Product Code)

The UPC (Universal Product Code) is the symbology used throughout the grocery and retail industries. This bar code symbology contains two pieces of numerical information encoded on the bar code, producer identification, and product identification information.

The UPC symbol is 12 characters long. The first character of the UPC symbol is a number system character, such as “0” for grocery items and “3” for drug- and health-related items.

The UPC symbology is for retail environments such as grocery stores, convenience stores, and general merchandise stores.

Some retail items are so small that a standard UPC bar code cannot fit on the packaging. When this occurs there is a permitted shorter version of the UPC symbology, referred to as UPC-E. UPC-E is six characters long (eight including number system and check digit), approximately half the size of a standard UPC bar code.

Index

The Classes and Functions Index covers classes and functions for the 700 Series Color Mobile Computer.

The General Index covers all topics. Those in italics are figures, those in bold are tables.

The Files Index is to assist you in locating descriptions for device drivers, applications, utilities, batch files, or other files within this publication.

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