CipherLab
Reference Manual

Windows Embedded Handheld 6.5

CP60 / CP60G

Version 1.00

PREFACE

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CONTACT

For product consultancy and technical support, please contact CIPHERLAB's sales representative in your local area. You may also visit CIPHERLAB web site for more information.

CIPHERLAB CO., LTD.
Website: http://www.cipherlab.com

FOR USA

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

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

This device complies with Part 15 of the FCC Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

SAFETY NOTICES

FOR HAND-HELD PRODUCTS WITH RF FUNCTIONS

CP60 serial handheld equipment uses wireless radios that have been designed and manufactured to meet safety requirements for limiting exposure to radio waves. When used in accordance with the instructions set forth in this manual, the equipment has been independently verified to not exceed the emission limits for safe exposure to radio frequency (RF) energy as specified by EN50360 of EEC.

These limits are part of comprehensive guidelines and establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by independent scientific organization through periodic and thorough evaluation of scientific studies. The standards include a substantial safety margin designed to assure the safety of all persons, regardless of age and health.

The exposure standard for all wireless devices employs a unit of measurement known as the Specific Absorption Rate, or SAR; the SAR limit set by CE is 2.0W/Kg.

For trunk, the SAR value of CP60 serial handheld is:

EEC: MAX 1.35 W/Kg (CP60G)

FOR PRODUCT WITH LASER

CAUTION

This laser component emits FDA / IEC Class 2 laser light at the exit port. Do not stare into beam.

SAFETY PRECAUTIONS

RISK OF EXPLOSION: IF BATTERY IS REPLACED BY AN INCORRECT TYPE. DISPOSE OF USED BATTERIES ACCORDING TO THE INSTRUCTIONS.

- The use of any batteries or charging devices, which are not originally sold or manufactured by CipherLab, will void your warranty and may cause damage to human body or the product itself.
- DO NOT disassemble, incinerate or short circuit the battery.
- DO NOT expose the scanner or the battery to any flammable sources.
- For green-environment issue, it's important that batteries should be recycled in a proper way.
- Under no circumstances, internal components are self-serviceable.
- The charging and communication cradle uses an AC power adapter. A socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the mobile computer or its peripherals to operate properly.

CARE & MAINTENANCE

- This mobile computer is intended for industrial use. The mobile computer is rated IP65, however, the mobile computer can get damaged when being exposed to extreme temperatures or soaked wet.
- When the enclosure of the mobile computer gets dirty, use a clean and wet cloth to wipe off the dust. DO NOT use/mix any bleach or cleaner. Always keep the LCD dry.
- For a liquid crystal display (LCD) or touchscreen, use a clean, non-abrasive, lint-free cloth to wipe dust off the screen. DO NOT contact the surface with any pointed or sharp object.
- If you want to put away the mobile computer for a period of time, download the collected data to a host computer, and then take out the battery pack. Store the mobile computer and battery pack separately.
- When the mobile computer resumes its work, it takes some time for the main and backup batteries to become fully charged.
- If you shall find the mobile computer malfunctioning, write down the specific scenario and consult the sales representative in your local area.

DECLARATION OF CONFORMITY

Declaration of Conformity

Manufacturer

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Type of Equipment

Mobile Computer

Model(s) Declared

CP60

Initial Year of Manufacture **2013**

Reference to the specification under which conformity is declared in accordance with Directive- 2004/108/EC, 95/5/EC

EN 301 489-1 V1.8.1:2011-09
EN 301 489-17 V2.2.1: 2012-09
EN 301 893 V1.6.1:2011
EN 300 440-2 V1.4.1:2010
EN 55024:2010
EN 61000-3-3:2008
EN 301 489-3 V1.4.1 2002-08
EN 300 328 V1.7.1:2006
EN 300 440-1 V1.6.1:2010
EN 55022:2010
EN 61000-3-2:2006

The manufacturer also declares the conformity of above mentioned product with the actual required safety standards in accordance with Directive 2006/95/EC

EN 60950-1:2006+A11:2009+A1:2010+A12:2011
Safety for information technology equipment including electrical business equipment

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

Manufactory Representative:

Signature Kan Chen

Full Name Kan Chen
Title Engineer

Declaration of Conformity

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Type of Equipment

Mobile Computer

Model(s) Declared

CP60G

Initial Year of Manufacture **2013**

Reference to the specification under which conformity is declared in accordance with Directive- 2004/108/EC, 95/5/EC

EN 301 489-1 V1.8.1:2011-09
EN 301 489-7 V1.3.1:2005-11
EN 301 489-24 V1.5.1:2010-10
EN 301 893 V1.6.1:2011
EN 300 440-2 V1.4.1:2010
EN 301 908-1 V4.2.1:2010
EN 55022:2010
EN 61000-3-2:2006
EN 62311:2008
EN 301 489-3 V1.4.1 2002-08
EN 301 489-17 V2.2.1: 2012-09
EN 300 328 V1.7.1:2006
EN 300 440-1 V1.6.1:2010
EN 301 908-2 V5.2.1
EN 301 511 V9.0.2:2003
EN 55024:2010
EN 61000-3-3:2008

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Manufactory Representative:

Signature Kan Chen

Full Name *Kan Chen*
Title *Engineer*

RELEASE NOTES

Version	Date	Notes
1.00	Feb 08, 2013	Initial release

CONTENTS

INTRODUCTION

Thank you for choosing CipherLab products. CipherLab welcomes another Windows Embedded by introducing CP60 Series Mobile Computer. Powered by Windows Embedded Handheld 6.5, the mobile computer delivers better user experience and promises enterprise mobile computing.

The mobile computer has transflective LCD to hold up the readability in a wide range of light conditions, courtesy of the supplementary backlight enabled by a built-in ambient light sensor. Also on board is a G-sensor to save power according to the mobile computer's motion and posture. G-sensor also enables screen orientation when the device is posed sideways or upright. Furthermore, the mobile computer has integrated a built-in e-compass and gyroscope, both of which provide useful functions in navigation.

The series sports satisfactory data connections by integrating a communication port for direct data exchange. For wireless data connections it hosts each Bluetooth and 802.11b/g module while a HSPA+ (3.8G) module is provided on option.

Dedicated to data capture, the mobile computer has essential 1D (laser) reader or 2D imager. A high-specced 5 mega-pixel camera also comes inside to take pictures and shoot videos to deliver better documentation for users.

Rated with IP65, the rugged CP60 is light-weighted and easy to cradle in your hand, and will be your good help on field works.

ABOUT THIS DOCUMENT

This guide distills the information about CP60 Series Mobile Computer. Subjects discussed include the mobile computer's physical features, platform basics, software and applications, and part of the accessories to boost the mobile computer's performance.

We recommend that you keep one copy of this manual at hand for the quick reference for necessary maintenance.

FEATURES

- Rugged yet smoothened outlined, with hand strap for secure hold
- IP65-rated tough form to survive drop, shock, heat, cold, and impervious to moisture/dust.
- Windows Embedded Handheld 6.5 OS, TI DM3730 1GHz CPU
- 512MB SDRAM to run application programs
- 4GB NAND flash to store OS, applications, settings and so on.
- Storage expansion: Up to 32GB MicroSDHC.
- Sunlight-readable screen to enhance the viewability of outdoor use.
- Ambient light sensor to enable supplementary backlight for LCD and keypad.
- G-sensor for power management and screen orientation.
- Gyroscope sensor and E-compass for direction sensing
- 2 symmetric side-triggers for ambidextrous scanning
- Total data solution — supporting Bluetooth, 802.11a/b/g/n and HSPA+
- Built-in GPS receiver to deliver location discovery
- 5 mega-pixel camera for taking pictures and shooting videos.
- C++ and .Net programming support

INSIDE THIS PACKAGE

The mobile computer ships with the following items. Save the box and packaging material in case of future need to store or deliver the mobile computer.

- Mobile Computer
- Rechargeable Li-ion battery pack (standard/high capacity)
- Stylus
- Screen protector
- Hand strap
- Product CD
- Quick Start Guide

ACCESSORIES

Optional accessories to enhance the mobile computer's performance:

- Pistol Grip
- Snap-on Charging and Communication Cable
- Charging & Communication Cradle
- Belt Holster

Chapter 1

USE MOBILE COMPUTER

Before the mobile computer takes part in your work, get to know it first. This chapter includes the basic features of the mobile computer including the power supply, memory, and the units that bridge users with the mobile computer. This chapter helps you set the mobile computer to work at the earliest.

1. IN THIS CHAPTER

1.1. TAKE A TOUR

This section shows the major components on the mobile computer and inside battery chamber. You will also learn how to power on/off the mobile computer and how the mobile computer gives information about its status.

1.1.1. OVERVIEW

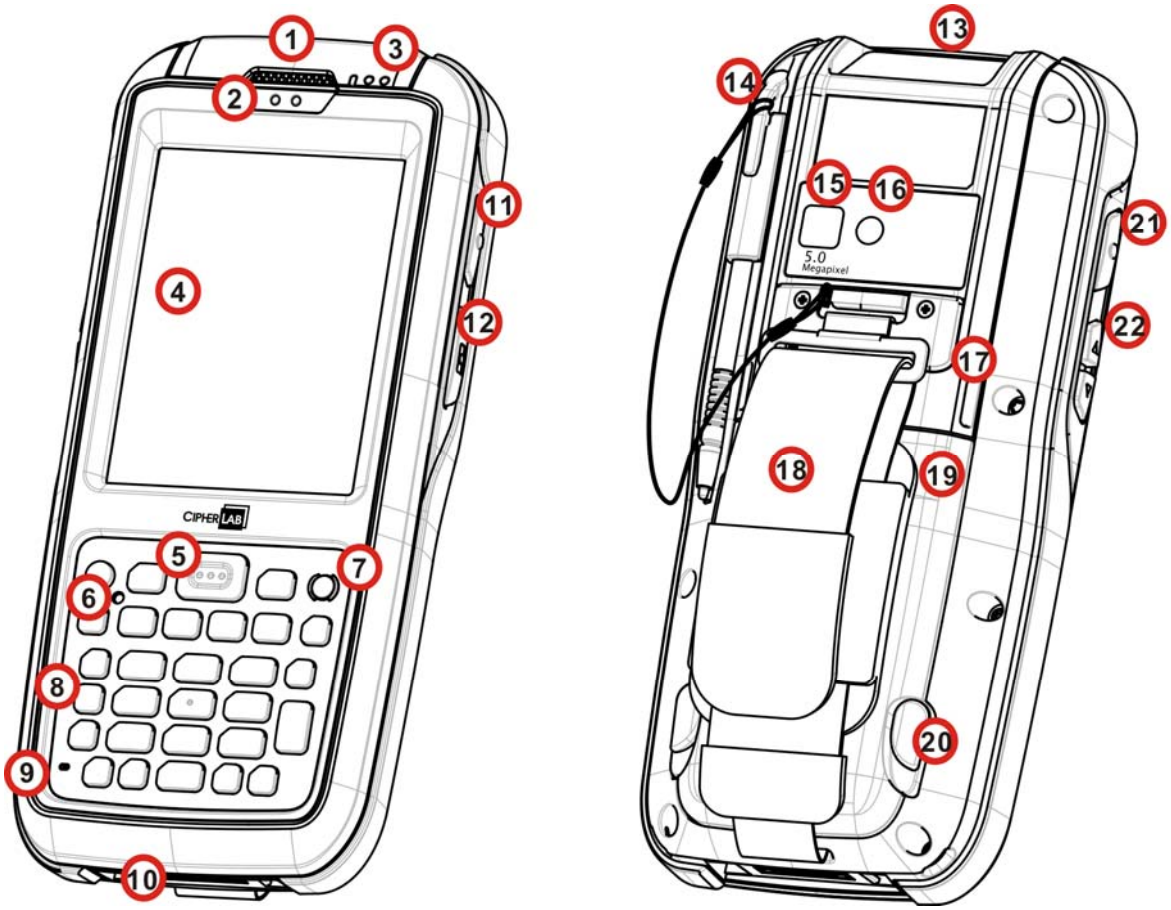


Figure 1: Overview

No.	Description	No.	Description
1	Receiver (reserved)	2	Sensors (proximity sensor & light sensor)
3	Status LEDs	4	Touchscreen
5	Scan key	6	Reset button (recessed in keypad)
7	Power button	8	Keypad
9	Microphone (reserved)	10	Charging and communication port
11	Side trigger (user-definable)	12	Application key
13	Scan window	14	Stylus (with attaching cord)
15	Camera	16	Camera flash
17	Speaker	18	Handstrap
19	Battery door	20	Battery door latch
21	Side trigger (user-definable)	22	Volume rocker

1.1.2. INSIDE BATTERY CHAMBER

Inside the battery chamber of the mobile computer are the sockets for SIM card and storage card. Each is equipped with a hinged cover.

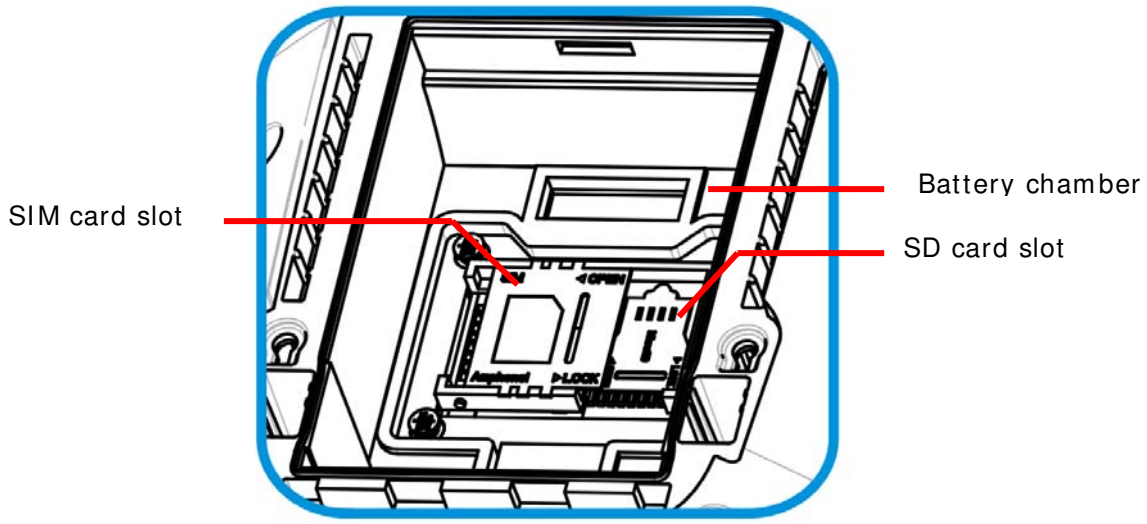


Figure 2: Inside Battery Chamber

1.1.3. BEFORE INITIAL USE

Prior to using the mobile computer for the first time, it is recommended to apply the protective film over the LCD. This will prevent scratching the touchscreen during daily usage, and also help enhance the durability of the touchscreen.

To apply the LCD protective film:

1) Upon delivery, the touchscreen of the mobile computer is covered with a thin transparent film. Peel off and discard this film.
2) Wipe the touchscreen with a clean, non-abrasive, lint-free cloth.
3) Carefully apply the LCD protective film to the touchscreen by aligning its edges with the edges of the touchscreen. Make sure the film adheres tightly to the surface.

The mobile computer is then ready for usage.

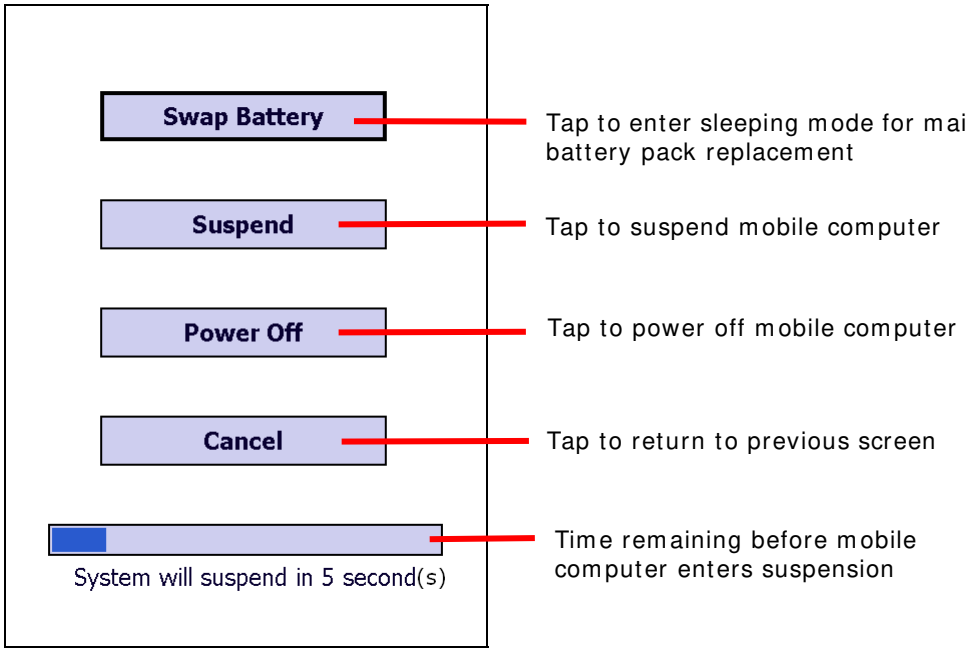
1.2. POWER ON

To power on the mobile computer, press the Power button sitting at the upper right of the keypad. The mobile computer powers on.

1.2.1. POWER MENU

The mobile computer features a power menu. This menu allows you to select whether you would like to power off the mobile computer, enter suspension, or enter sleeping mode for main battery replacement.

To enter this power menu, press the power button. A menu will open onscreen with a countdown bar at the bottom.



Menu options are as follows:

Action to take	Description
Swap battery	If you would like to replace the main battery pack on the mobile computer, select this option to let the mobile computer enter sleeping mode. After the main battery has been replaced, wake up the mobile computer by pressing the power button. All applications and tasks will remain active.
Suspend (default)	When the mobile computer is not under frequent use, select this option to let the mobile computer enter suspension and save power. This is the default function, and when no option is selected in the power menu, the mobile computer will automatically enter suspension after 5 seconds. When you need to use the mobile computer once more, resume it by pressing the power button. All applications and tasks will remain active. See also Suspend & Reset Mobile Computer.

Power off	Select this option if you would like to power off the mobile computer. This will close all applications and tasks currently running. To power on the mobile computer, press the power button.
Cancel	Selecting this option will close the menu and return to the previously active screen. All applications and tasks will remain active.

Note: If you wish to replace the main battery pack on the mobile computer, please make sure the following requirements are met. Otherwise, the mobile computer might need to be powered on again after the battery is put into place.

(1) Make sure the backup battery on the mobile computer is not drained out. Check Backup Battery Level before taking any actions.

(2) After selecting **Swap Battery** in the power menu, proceed to replacing the battery as soon as possible.

1.3. NOTIFICATIONS

The mobile computer features visible, audible, and tactile feedback to draw users' prompt awareness of the mobile computer's contiguous events such as barcode reading, wireless/mobile data connections, and battery charging.

STATUS LED

Three LED lights are located on the upper-right corner of the mobile computer. Their functions are:

Matter	LED Color	Action	Description
Battery Charging (Right)	Green, Orange, Red	Green, solid	Battery is nearly fully charged (battery level> 95%).
		Orange, solid	Battery is charging, and battery level is sufficient for the mobile computer to power on.
		Red, solid	Battery is charging, but battery level is too low for the mobile computer to power on.
		Red, fast blinking continuously	Charging error that may be caused by temperature dropping below 0°C or exceeding 35°C. See also Charge Batteries.
Radios (Middle)	Blue	Blinking	Wi-Fi, Bluetooth or mobile data in use.
Scanning Good Read (Left)	Green	On for less than 1 second, then off	Indicates good reading results of the scanned barcode. Enable/disable this notification with the CipherLab utility Reader Config.

LED light is also programmable. See the API library that is readied for your reference.

SPEAKER

The mobile computer has a speaker on the back for audio signaling and playback.

The speaker sounds for system events, application warnings, onscreen items selections and stroke on physical keypad. In noisy environment, the speaker remains efficacious with the help of a headset. To control sound volume, see Volume Control.

The speaker also sounds for good barcode reading, which can be enabled/disabled by CipherLab's Reader Config.

VIBRATOR

The mobile computer owes its tactile feedback to the vibrator built inside. Vibration delivered to the mobile computer alerts users of its currents status.

Working based on user's sense, the vibrator is particularly helpful when the mobile computer is serving in noisy environment.

Same as the speaker and LED light, the vibrator works for good barcode reading. CipherLab's utility Reader Config enables users to turn the vibration on/off and decides the duration.

The vibrator is also programmable. See the API library that is provided for your reference.

1.4. BATTERY

The mobile computer is fed by two batteries, main battery pack and backup battery. The main battery is removable and replaceable from the battery chamber while the backup battery is mounted on the main board inside the mobile computer.

When the mobile computer is shipped, the main battery is stored in a package separated from the mobile computer, which keeps it in good condition for future use.

MAIN BATTERY

The main battery is a Li-ion battery pack that comes in two sizes, a standard 3.7V/3600mAh pack and a high capacity 3.7V/4400mAh pack. The standard battery will take around 4 hours to charge to full, while the high capacity battery pack will require approximately 6 hours charging to reach full battery level. The working time of the mobile computer varies by its working states. See Operating Time for details on how long the mobile computer will operate under different conditions.

An icon on Title Bar helps monitor the main battery level. See Main Battery Level.

See also Main Battery Setup for the assembly.

BACKUP BATTERY

The backup battery is settled on the main board inside the mobile computer. It is a 15 mAh rechargeable Li-ion battery. When main battery is absent or depleted, backup battery takes over to feed the mobile computer. Without main battery, a fully charged backup battery retains the data in the DRAM and holds the system in suspension for 30 minutes (as long as wireless modules are inactive).

The backup battery is rechargeable by the external power (through power adapter) or main battery pack. It takes about 5 hours to charge it to full. An icon on the Title Bar makes it observant that backup battery gets low. See also Backup Battery Level.

Note: When removing the main battery pack, actual data retention time will depend on the backup battery level. Check backup battery level before replacing the main battery to ensure your data is retained.

1.4.1. MAIN BATTERY SETUP

To secure main battery in place, the battery door is equipped with two latches, one on each side.

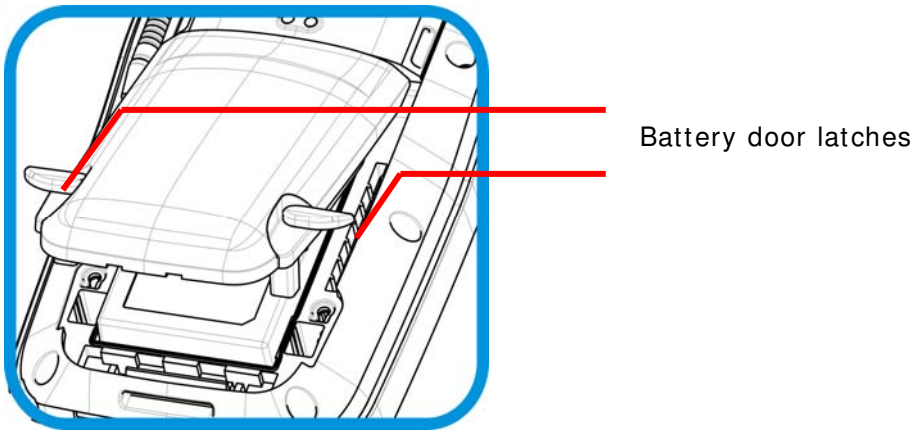


Figure 3: Battery Door Latches

To install main battery pack, follow through the steps below by referencing to the illustrations:

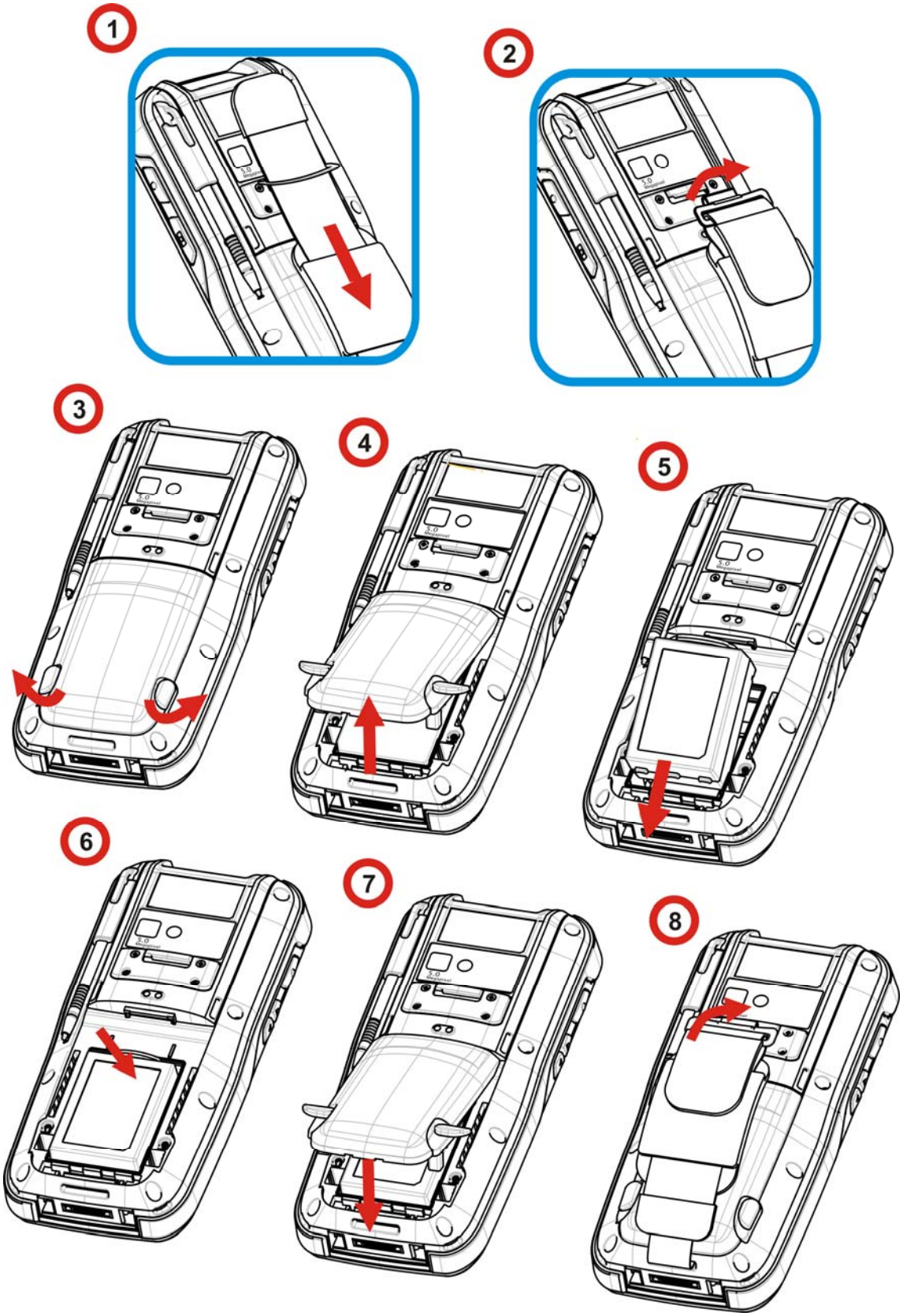


Figure 4: Main Battery Setup

1) Loosen the handstrap and pull it downwards so the metal hook is positioned at the lower edge of the Velcro band
2) Unhook the hand strap by pressing the square metal ring lightly in the middle and lifting it upwards in a single motion.
3) Note: The lower end of the handstrap can be left as is without detaching. After the main battery is installed, the handstrap can be hooked back into place.
4) On the outer sides of the battery door are two door latches. Pull them outwards to unlock battery door.
5) Lift up the lower end of the battery door to remove it.
6) Position the main battery pack into the battery chamber with the contact pins facing down. Fix the bottom edge first.
7) Press the upper end of the main battery inwards until the clip at the top “clicks” into place.
8) Replace the battery door. Fix the upper edge first and then press the lower edge in. Push the door latches back to their original position.
9) Secure the handstrap hook back into its groove.

Note: (1) When main battery level drops to low level, charge it ASAP or replace it with a charged one.
(2) Always press the power key and select **Swap Battery** in the power menu before replacing the main battery pack.
(3) The battery door must be secured in place for the mobile computer to operate.
(4) Any improper handling may reduce battery life.

1.4.2. CHARGE BATTERIES

Due to shipment, it is likely that the main battery and backup battery won't be fully charged when you receive the package. Before setting the mobile computer to work, charge the main battery to full by direct charging via a power adapter (with the help of a Snap-on Charging & Communication Cable or Charging & Communication Cradle).

Since the main battery is the only source backup battery taps power from, be sure to install main battery for the 1st charge so both main battery and backup battery get charged.

Some key facts about charging batteries:

Charging Time

- **Main battery:** It takes circa 4 hours to charge standard size main battery, and 6 hours to charge high capacity battery to full (via direct charging with power adapter). The battery charging LED above the touchscreen (the one to the right) lights red or orange during charging (depending on the battery level at the moment), and lights green when mobile computer is near 100% charged.
- **Backup battery:** The backup battery is rechargeable by both main battery and power adapter. It takes about 5 hours to charge it to full, however it does not need to be fully charged for the mobile computer to work.

Charging Temperature

- It is recommended that batteries be charged at room temperature (18°C~25°C) for optimal performance.
- Charging stops when temperature drops below 0°C or exceeds 35°C. In this case the battery charging LED will be continuously blinking in red.

Power Consumption

- When all radios (802.11 a/b/g/n, Bluetooth, mobile data (HSPA+), GPS) are active on battery power, main battery level drops substantially.
- In order to prevent the system from shutting down due to depleted main battery, we suggest that you keep a fully charged battery for replacement or have the mobile computer access the radios on external power.

The following guides how to charge batteries.

DIRECT CHARGING USING SNAP-ON CABLE

Direct charging of the mobile computer relies on the Snap-on Charging & Communication Cable (hereinafter "snap-on cable"). There is a power jack on the connector of this cable to connect external power.

Prior to charging, install main battery as described in Main Battery Setup. Then follow the steps below:

1) Attach the snap-on cable to the mobile computer.
2) Plug the head of the power adapter cord into the power jack located on snap-on cable's connector.
3) Connect the power adapter to a power outlet.

To output data to your PC or laptop, connect the snap-on cable (either USB or RS-232 format) to it. See Direct Data Communication for follow-ups.

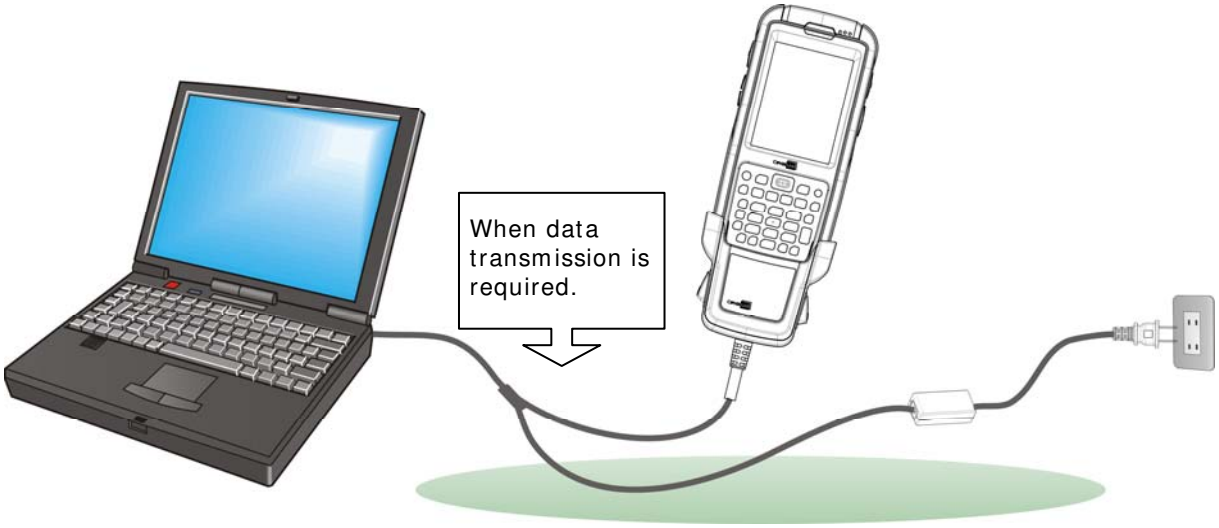


Figure 5: Direct Charging Using Snap-on Cable

DIRECT CHARGING USING CRADLE

Direct cradle charging makes use of a Charging & Communication Cradle (hereinafter "cradle"). The cradle is one of the accessories you can opt for.

Prior to charging, install main battery as described in Main Battery Setup. Then follow the steps below:

1) Seat the mobile computer into the cradle.
2) Connect the cradle to an external power source using the power adapter.

To output data to your PC or laptop, connect the mobile computer and your PC with a microUSB cable. See Direct Data Communication for follow-ups.

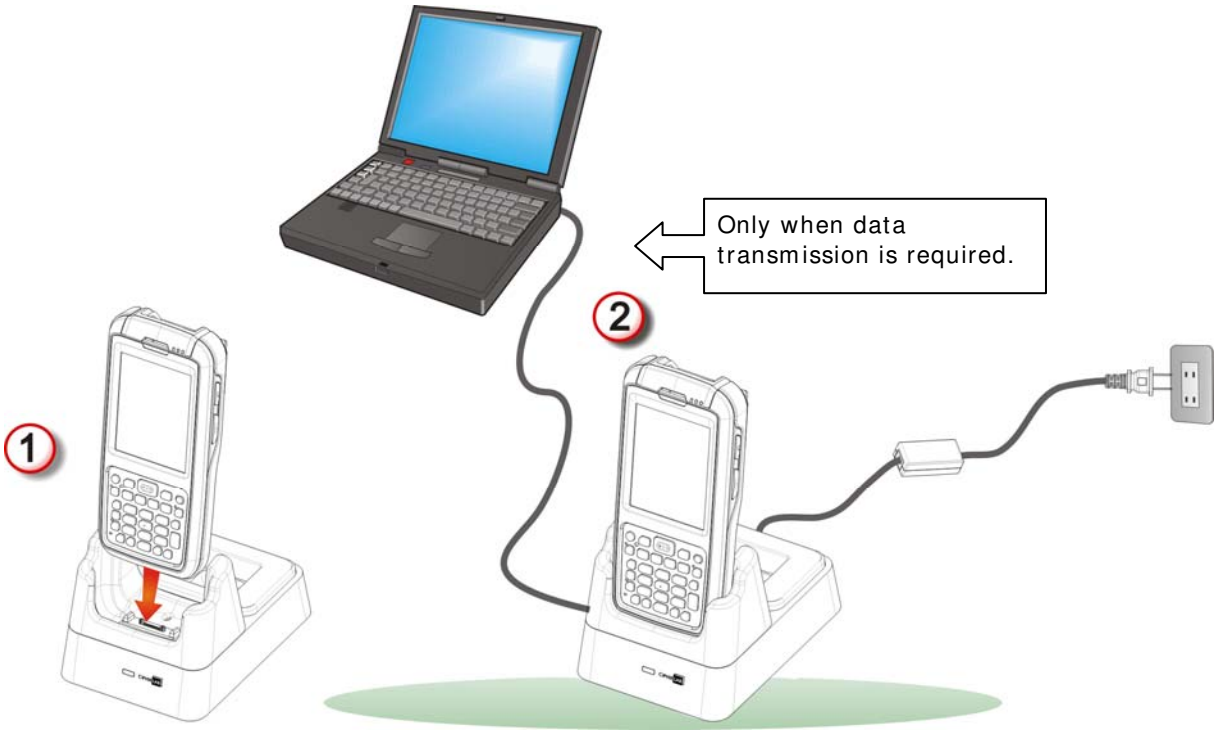


Figure 6: Direct Charging Using Cradle

REPLACE MAIN BATTERY PACK

The Cradle holds a separate charging compartment for the main battery pack. This allows the mobile computer and a separate main battery pack to be charged either individually or simultaneously. We advise you to keep a fully charged battery at hand at all times using the Cradle.

If the main battery level is running low and you decide to replace it with a fully charged one, follow the procedure denoted in Power Menu to swap batteries.

Note: If the process for swapping batteries is not followed, you might need to power on the mobile computer after inserting the main battery. In this case, all unsaved data will be lost.

1.4.3. MONITOR BATTERY LEVEL

Main battery is the only source that feeds the mobile computer to work. It also supplies the backup battery on main board to retain the data stored in DRAM. Hence when main battery level gets low, recharge it or change it as soon as possible. But foremost, back up the important data from time to time to protect your work.

MAIN BATTERY LEVEL

The OS features a few icons for user's immediate awareness of main battery level. These icons appear on the Title Bar, which is settled at the top of almost every screen.

STATUS ICONS

Main battery icons communicate the following statuses:

Icon	Battery Status
	Main battery is being charged from external power.
	Main battery level is 80% to full.
	Main battery level is partially drained between 60%-79%.
	Main battery level is between 40%-59%.
	Main battery level is between 20%-39%.
	Main battery has dropped between 1%-19% Battery needs charging immediately.

MORE CHARGING INFO

To know more about main battery level:

1) Tap Windows icon  on the softkey bar.

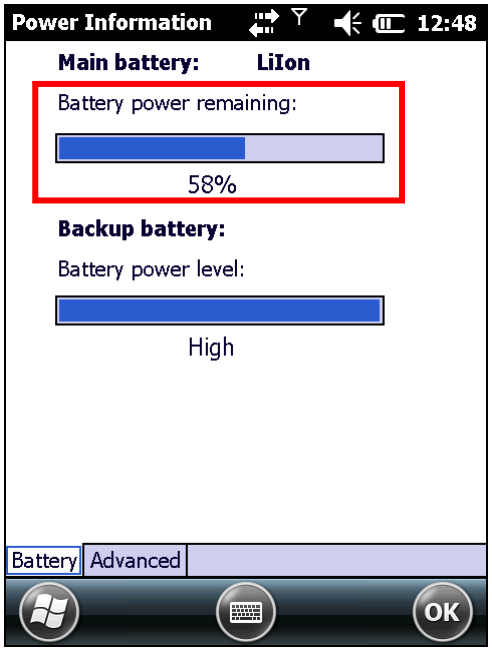
   Start screen opens.

2) Tap **Settings** | **System** | **Power Information**  .

   Power Information application opens showing **Battery** tabbed page. The page shows a horizontal bar to enable quick grasp of battery level at a glance. Battery level percentage is also shown under the horizontal bar.

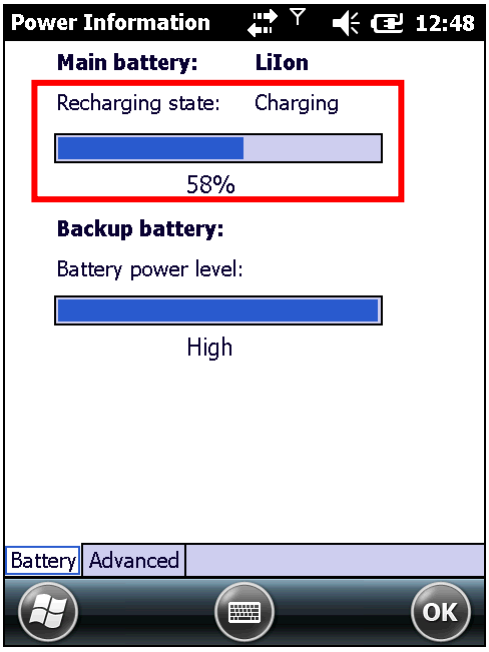
   When the main battery is being charged, battery percentage will be shown as remaining battery power. When the main battery is being charged, the page indicates that the battery is "under charging", with battery percentage available as well.

Main battery isn't being charged.



Power amount delivered in percentage enables more accuracy.

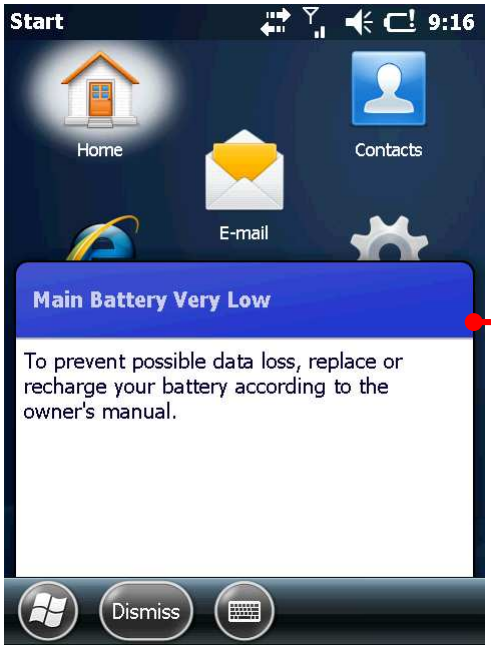
Main battery is being charged.



The horizontal graphic bar shows coarse power amount.

LOW BATTERY ALERTS

When main battery level drops below 40% , the mobile computer prompts "Main Battery Low" for a recharge. When further reduced to under 20%, the mobile computer prompts "Main Battery Very low" to solicit your immediate transaction.



Main Battery Very Low prompt

Low battery may incur shutdown to the mobile computer and cause DRAM data damage. Always save data before running short of power or keep a fully charged battery at hand for replacement.

Note: Constant usage of the mobile computer at low battery level can affect battery life. For maximum performance, recharge the battery periodically to avoid battery drain out and maintain good battery health.

When main battery drains out, the mobile computer shuts down automatically. Backup battery takes over to hold DRAM data for 30 minutes if it is fully charged. When this occurs, replace main battery pack immediately.

BACKUP BATTERY LEVEL

For user's immediate awareness of backup battery level, OS shows an icon on Title Bar when battery level drops low.

STATUS ICONS

Backup battery icon delivers the following statuses:

Icon	Battery Status
	Battery level has dropped low and needs charging.

MORE CHARGING INFO

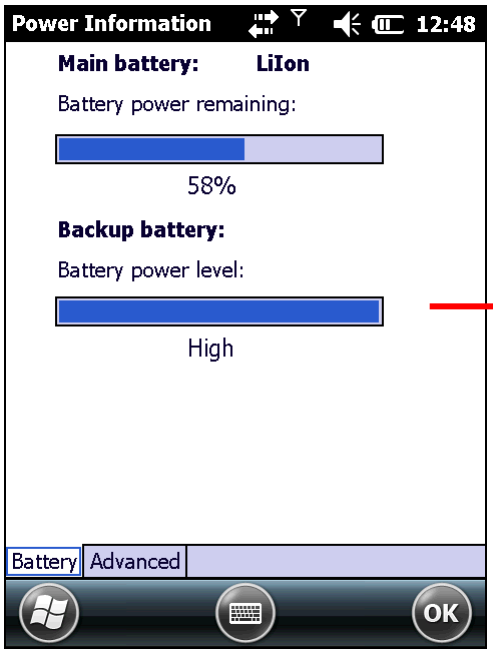
To learn more about backup battery level:

1) Tap Windows icon on the softkey bar.

   Start screen opens.

2) Tap **Settings** | **System** | **Power Information**.

Power Information application opens showing **Battery** tabbed page. Backup battery level displays in a horizontal bar beneath Main battery level, and is also summarized in text.



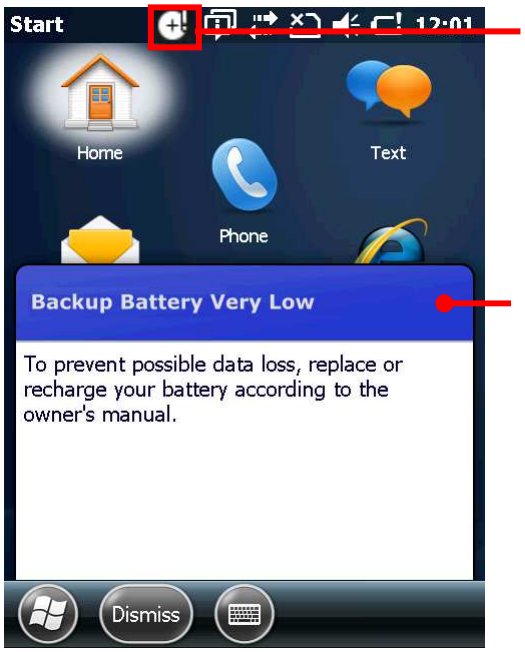
Available backup battery level descriptions are:

Description	Battery Status
High	Backup battery level is full
Low	Backup battery level is low. Charging is recommended.
Critical	Backup battery level is very low and needs to be charged immediately.
Unknown	Backup battery level is unknown.

LOW BATTERY ALERT

When backup battery drops low, the mobile computer prompts for recharge with a dialog. And Title Bar shows an icon.

Backup battery is rechargeable by external power (through power adapter) or main battery pack.



An alert icon shows on Title Bar

Backup Battery Very Low prompt

Low backup battery puts DRAM data in great danger. Always save data from time to time or keep a fully charged battery at hand for replacement.

Once backup battery drains out completely, the data in DRAM is gone. Any data yet to be saved is lost!

1.4.4. POWER MANAGEMENT

The mobile computer features "suspension", a "soft-off" state allowing the mobile computer to consume less power and quickly to wake up.

The mobile computer auto-enters "suspension" when one of the following happens:

- When placed face-down, which suggests the mobile computer isn't actively used.
- When battery door isn't in place.

It wakes up when following events occur:

- Power button or scan key is pressed
- WWAN wake-on-ring signal occurs
- USB cable is plugged-in
- AC is plugged in

Note the mobile computer is also manually suspensible through Power button. See Suspend Mobile Computer.

1.4.5. OPTIMIZE BATTERY LIFE

Power issues are critical for portable devices. Always turn off the features you don't need on the mobile computer in order to save power. To extend battery life as long as possible, always take the following actions:

- Suspend the mobile computer when it isn't actively used. (See Suspend Mobile Computer)
- Turn down LCD backlight brightness as described in Adjust Backlight, and set a shorter LCD timeout as described in Suspend & Reset Mobile Computer
- Auto Sync the mobile computer with your PC less frequently. See Direct Data Communication.
- If you are using any "push e-mail" or any automatic syncing service on the mobile computer, change the syncing schedule to manually check updates.
- When Wi-Fi, Bluetooth, mobile data (HSPA+), or GPS isn't used, turn it off. See Radios.

1.5. TEXT INPUT

The mobile computer has a physical keypad and a touchscreen to receive user's input. Among the two, the touchscreen provides more intuitiveness than the physical keypad to interact with the device.

This section shows how to input text using physical keypad and onscreen keyboard. To know how to touch-control the mobile computer, see Touch Control.

1.5.1. PHYSICAL KEYPAD

The physical keypad sitting front the mobile computer is quite an advanced one with much resemblance to laptop or PC keyboards. It supports multi-key operation, which normally requires two keys hit simultaneously, one of which a modifier key.

The physical keypad is either a numeric type or a QWERTY one. Each wedges a set of "enhanced keys" along the top and a set of character keys at the lower half.

As for entering text, the numeric and QWERTY keypad are equally capable of entering numbers, letters, symbols and punctuations. Both also receive supplementary backlight as the screen does.

Figure 7: Numeric Keypad

Figure 8: QWERTY Keypad

ENHANCED KEYS

Enhanced keys are arranged along the top of physical keypad and separated from character keys. Use these "enhanced keys" to launch actions from the mobile computer and OS, cause the active application to work, or switch physical keypad between input modes. Navigation keys are included also to move the caret in a text input field, and to select between applications on the Start screen.

Figure 9: Enhanced Keys

Enhanced keys can be categorized to five groups and are explicated as follows:

<table>
<tr><th>Key Group</th><th>Description</th></tr>
<tr><td>ACTION KEYS</td><td>“Action keys” are Scan key and Backlight key. They cause the mobile computer to deliver functions as below:
<table>
<tr><th>Key</th><th>Press</th></tr>
<tr><td>Scan Key</td><td>Reads barcodes</td></tr>
<tr><td>Backlight Key</td><td>Turns on/off screen backlight.</td></tr>
</table></td></tr>
<tr><td>OS KEYS</td><td>The following tabulates OS keys and their functions. Some of them are engraved in orange, which means Function key needs to be pressed beforehand in order to function.
<table>
<tr><th>Key</th><th>Press</th></tr>
<tr><td>Windows</td><td>Opens Start Screen. (Requires Function Key pressed beforehand.)</td></tr>
<tr><td>OK</td><td>▸ Confirms input in an input field. (Requires Function Key pressed beforehand.)
▸ Delivers the same function as the “OK” command on the softkey bar does. (Requires Function Key pressed beforehand.)
See Today Screen and Start Screen for more details about Softkey bar.</td></tr>
<tr><td>Send</td><td>Key available for function assignment via CipherLab utility Button Assignment.</td></tr>
<tr><td>End</td><td>Key available for function assignment via CipherLab utility Button Assignment.</td></tr>
<tr><td>Esc</td><td>▸ Opens the previous screen worked on.
▸ Closes a menu of an application, or an opened dialog.</td></tr>
<tr><td>Tab</td><td>▸ Navigates among the highlight items in some applications.
▸ Enters Tab character, which means it moves the caret to the next tab stop.</td></tr>
</table></td></tr>
<tr><td>NAVIGATION KEYS</td><td>The buttons right below Scan key are the up/down/right/left navigation keys:
They move the caret in an input field. In certain applications, they navigate vertically or horizontally among highlighted items.</td></tr>
<tr><td>FUNCTION KEY</td><td>Function key applies its function when used in conjunction with other keys. Together they make the OS take actions or produce functions F1 through F12</td></tr>
</table>

and more.

Function key comes with an LED indicator beside it which behaves as follows:

- When Fn key is pressed once, the LED indicator lights up in orange, and the function engraved in orange on the keypad is delivered to the next pressed key. The LED goes off once another key is pressed.
- When Fn key is pressed twice, the LED indicator stays lit, and the function engraved in orange on the keypad is delivered to all pressed keys. This mode will continue until Fn key is pressed again.

In addition to the LED light, the icons  on the Title Bar will display once Function mode is triggered.

Mode	Description
	Function is delivered to the next pressed key.
	Function is delivered to all pressed keys.

The Fn key is also effective by pressing and holding it and then pressing the desired key.

When other text input modes are activated at the moment, pressing and holding Fn key will alter the icon on the Title Bar. See Numeric Keypadand QWERTY Keypad for details on other text input modes.

[ALPHA] KEY

[Alpha] key  changes keypad input mode. When [Alpha] key is pressed once, [alpha] mode is activated temporarily, and the LED indicator next to the physical key lights up in blue accordingly. This mode will end after a single key has been pressed. Upon pressing any key, keypad input mode will resume back to default, and the LED indicator will turn off.

When [Alpha] key is pressed twice, [alpha] mode is activated permenantly, and the LED indicator next to the physical key stays lit. Press the key again to quit this mode and return to default.

With combined use of the Shift key  , the [alpha] key delivers a maximum of six input modes to the physical keypad. Mode availability however depends on keypad type, numeric or QWERTY. On a numeric keypad, 6 text input modes are provided, while on a QWERTY keypad, 2 modes are available.

The icons  on the Title Bar signify current input state.

- Numeric keypad input modes triggered by [Alpha] key:

Mode	Description
	Physical keypad enters an alphabetic character for the first key pressed.
	Physical keypad enters alphabetic characters for all keys pressed.

- QWERTY keypad input modes triggered by [Alpha] key:

Mode	Description
	Physical keypad enters a number or symbol for the first key pressed.
	Physical keypad enters numbers or symbols for all keys pressed.

NUMERIC KEYPAD

Numeric keypad wedges a set of character keys at the lower half. They are laid out analogously to a telephone keypad, and additionally featured are an **Esc** key, Tab key ⇆, Enter key ↵, Backspace key ←, and Shift key ↑ that enable more sophisticated text input.

Numeric keypad enters numbers 0 through 9 by default. Symbols * through) and alphabetic characters can be entered by combined use of the [Alpha] key and Shift key ↑. See Keypad Modes for more details.

Key	Description
Esc	▸ Opens the previous screen worked on. ▸ Closes a menu of an application, or an opened dialog.
Tab ⇆	▸ Navigates among the highlight items in some applications. ▸ Enters Tab character, which means it moves the caret to the next tab stop.
Enter ↵	Executes a command or confirms input. For text input, it inserts a break between paragraphs.
Backspace ←	Erases the characters to the left of caret.
Space ␣	Inserts a blank space where caret is.
Shift ↑	Shift key ↑ changes keypad input mode of keys 0-9. When ↑ is pressed once, [Shift] mode is activated temporarily, and the LED indicator next to the physical key lights up in green accordingly. This mode will end after a single key has been pressed. Upon pressing any key, keypad input mode will resume back to default, and the LED indicator will turn off. When ↑ key is pressed twice, [Shift] mode is activated permenantly, and the LED indicator next to the physical key stays lit. Press the key again to quit this mode and return to default.

KEYPAD MODES

With combined use of the [Alpha] key  key and Shift key  , enables eight input modes for keys 0-9 on the physical keypad. The icons  on Title Bar signify current input state.

- Numeric keypad input modes:

Mode	Description (Keys 0-9)	Trigger and Withdrawal
No icon	Keypad enters numbers only.	Default mode.
		This mode remains until  or  is pressed.
	Keypad enters the first typed key as a symbol.	Press  once to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters all typed keys as symbols.	Press  twice to enter this mode.
		Input mode returns to default by pressing  again.
Mode	**Description (Keys 2-9)**	**Trigger and Withdrawal**
	Keypad enters the first typed key as an alphabetic letter.	Press [Alpha] key  once to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters the first typed key as a capitalized alphabetic letter.	Press  and  once to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters the first typed key as a capitalized alphabetic letter.	Press  once and  twice to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters all typed keys as alphabetic letters.	Press  twice to enter this mode.
		Input mode returns to default by pressing  again.
	Keypad enters all typed keys as alphabetic	Press  twice and once to enter this mode.

	letters and capitalizes the first one.	Input mode returns to default by pressing again. **OR** Jumps to mode after a single key is pressed.
■	Keypad enters all typed keys as capitalized alphabetic letters.	Press both and twice to enter this mode.
		Input mode returns to default by pressing again.

Note:

(1) For details about key, see [Alpha] Key.

(2) Only keys 2-9 are used for alphabetic input. The remaining keys "0" and "1" are used for entering symbols and/or spaces only. Refer to the blue writing engraved on the keypad to check the characters these two keys input under various [Alpha] modes.

TEXT INPUT

To enter text by numeric keypad:

- Numeric Input

  The numeric keypad enters numbers 0-9 by default when neither key nor Shift key is pressed.

- Literal Input

  1) To enter a single letter, press key once so ■ appears on the Title Bar. To enter the letter in uppercase, press Shift key additionally to trigger mode.

     To enter multiple letters, press key twice so appears on the Title Bar. Additionally, press Shift key once to activate mode and enter the first letter in uppercase, or press it twice to activate ■ mode in which all letters are entered in uppercase.

  2) Continuously press a key engraved with blue writing until the character you desire is entered.

- Symbols Input

  1) To enter a single symbol, press Shift key once so is seen on the Title Bar.

     To enter multiple symbols, press Shift key twice to activate mode.

  2) Press one or more text input keys until the desired symbol is entered.

Note there are cases when a typed letter is capitalized automatically:

- The letter follows a period mark and a blank space (because it is seen as the start of a new sentence).
- The letter is typed after a paragraph break (because it is seen as the start of a new paragraph).

QWERTY KEYPAD

QWERTY keypad also arranges its character keys in the lower half and features them in a compact "QWERTY" layout as its name suggests.

QWERTY keypad is a pared down version of an average laptop's keyboard that bears also an Esc key, Tab key ⇤⇥, Enter key ↵, Backspace key ←, Shift key ⇧, and space key ␣. QWERTY keypad enters alphabetic characters by default. To enter numbers and some symbols, press [Alpha] key. See [Alpha] Key for more details.

Key	Description
Backspace ←	Erases the characters to the left of caret.
Enter ↵	Executes a command or confirms input. For text input, it inserts a break between paragraphs.
Space ␣	Inserts a blank space where the caret is.
Esc	• Opens the previous screen worked on. • Closes a menu of an application, or an opened dialog.
Tab ⇤⇥	• Navigates among the highlight items in some applications. • Enters Tab character, which means it moves the caret to the next tab stop.
Shift ⇧	Shift key ⇧ changes keypad input mode. When ⇧ is pressed once, [Shift] mode is activated temporarily, and the LED indicator next to the physical key lights up accordingly. This mode will end after a single key has been pressed. Upon pressing any key, keypad input mode will resume back to default, and the LED indicator will turn off. When ⇧ key is pressed twice, [Shift] mode is activated permenantly, and the LED indicator next to the physical key stays lit. Press the key again to quit this mode and return to default.

KEYPAD MODES

With combined use of the key, Shift key enables four input modes for the physical keypad. The icons on Title Bar signify current input state.

- QWERTY keypad input modes:

Mode	Description	Trigger and Withdrawal
No icon	Keypad enters lowercase letters.	Default mode.
		This mode remains until or is pressed.
	Keypad enters the first typed key as an uppercase letter.	Press once to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters all typed keys as uppercase letters.	Press twice to enter this mode.
		Input mode returns to default by pressing again.
	Keypad enters the first typed key as a number/symbol.	Press once to enter this mode.
		Input mode returns to default once a key is pressed.
	Keypad enters all typed keys as numbers/symbols.	Press twice to enter this mode.
		Input mode returns to default by pressing again.

Note:

(1) For details about key, see [Alpha] Key

(2) The following input modes are also available on the QWERTY keypad, however their functions overlap with those denoted above:

Mode	Description
	Same input as mode.
	Same input as mode.
	Jumps to mode after a single key is pressed.
	Same input as mode.

TEXT INPUT

To enter text using QWERTY keypad:

- Literal Input

  1) The QWERTY keypad enters lowercase letters a-z by default when neither key nor Shift key is pressed.

     To enter a letter in uppercase, press Shift key so appears on the Title Bar.
     To continuously type in uppercase, press Shift key twice to trigger mode.

  2) Press keys to enter text as desired.

- Numeric or symbols Input

  1) To enter a single number/symbol, press key once so appears on the Title Bar.

     To enter multiple numbers/symbols, press Shift key twice to trigger mode.

  2) Press a key engraved with blue-color character to enter number(s) and symbol(s) as desired.

Note there are cases when a typed letter is capitalized automatically:

- The letter follows a period mark and a blank space (because it is seen as the start of a new sentence).
- The letter is typed after a paragraph break (because it is seen as the start of a new paragraph).

CHANGE INPUT TEXT SIZE

Set the size to show typed text:

3) On Start screen, tap **Settings** | **System** | **Screen** | **Text Size**.
4) Tap **Text Size** tab.
5) Adjust the text size by moving the slider.
6) Tap the “OK” command on the softkey bar to apply the change and quit setting.

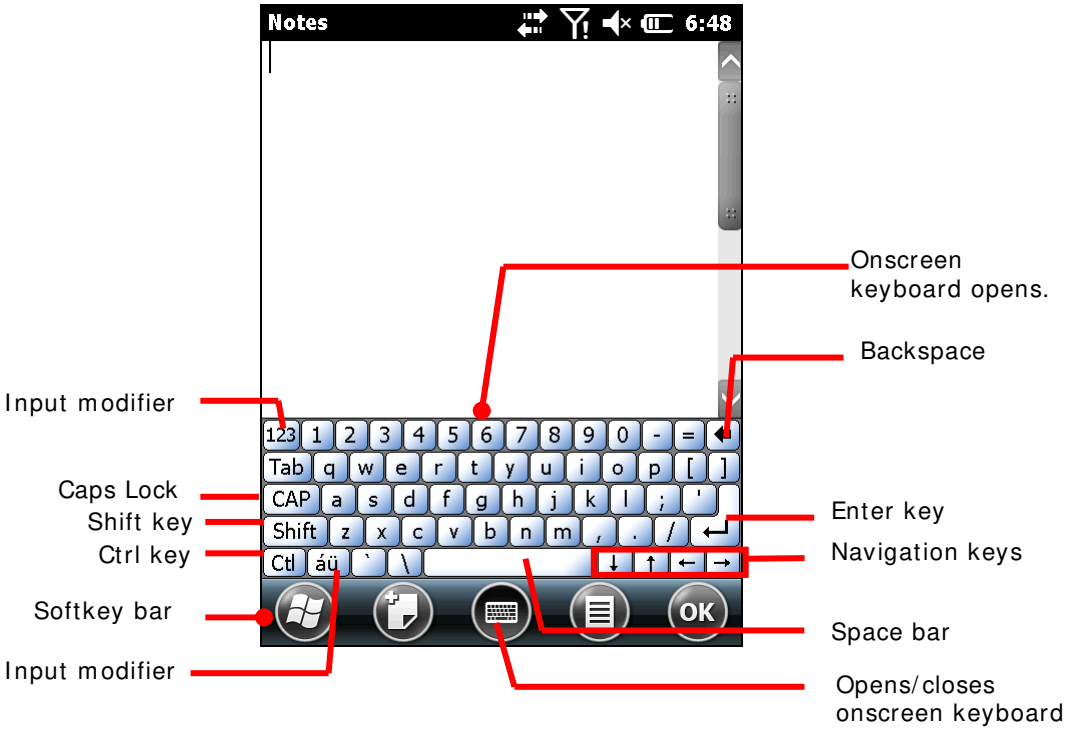
1.5.2. ONSCREEN KEYBOARD

The OS provides users with an onscreen keyboard. Compared to physical keypads, the onscreen keyboard bears more likeness to a conventional laptop's keyboard by all the modifiers keys arranged on the left edge and the "QWERTY" layout. The onscreen keyboard isn't overshadowed by physical keypads at all but outdoing them by being able to enter a series of diacritics for European languages.

Onscreen keyboard auto-opens in some applications while in others it doesn't unless you tap on a field that accepts input.

In case the onscreen keyboard doesn't open automatically, tap the keyboard icon on the softkey bar to open it.

Onscreen keyboard opens and readies to enter lowercase letters, numbers, and a few frequently used symbols.



MODIFIER KEYS

Although the touchscreen is a resistive single-touch type, use of modifier keys, which normally involves hitting two keys, are still available on onscreen keyboard.

On onscreen keyboard there are five modifier keys. They all sit at the left edge. This is how they basically work:

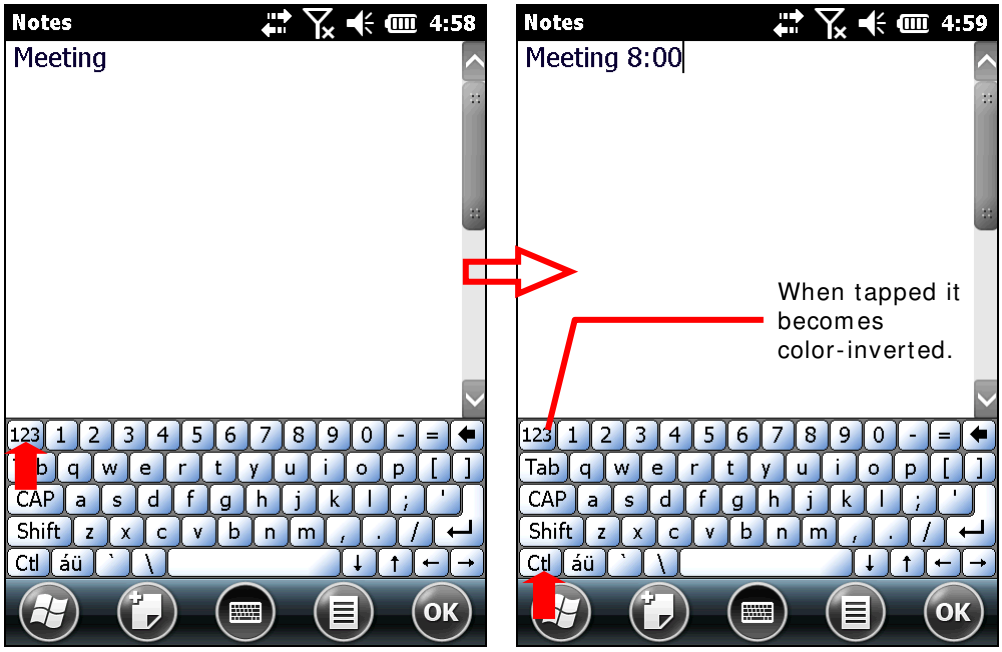
7) Press a modifier key on onscreen keyboard.

   The onscreen keyboard enters modifier state.

8) Press the second key.

   The desired performance will be produced to the active application or screen at the moment.

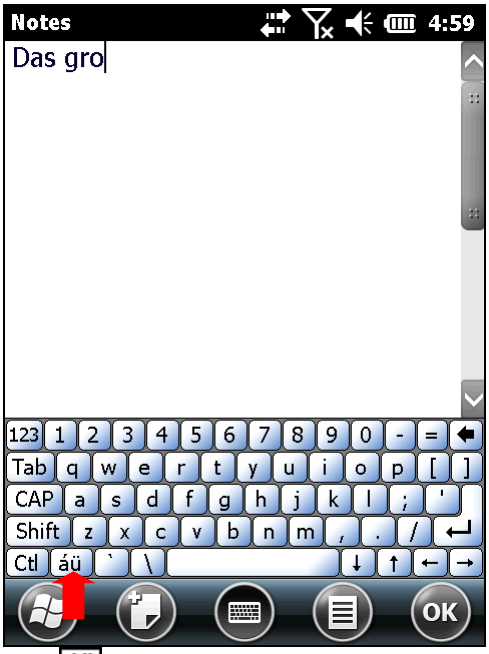
Modifier keys are explicated as following

Key	Description
Ctrl key Ctl	Once tapped, it becomes color-inverted Ctl and causes a special action from OS or the active application when a character key is tapped. It quits once the said action is triggered or when it is tapped again. For example: Tap Ctl key and then tap key "A" to produce Ctrl+A function, which in Windows environment usually selects all content on the active screen. Once "A" is tapped, the onscreen keyboard quits Ctrl state.
Shift key Shift	Once tapped, it becomes color-inverted Shift and capitalizes the (one) letter typed. It quits once a character key is tapped or it is tapped again. To enter all caps, use Caps Lock CAP.
Caps Lock CAP	Once tapped, it becomes color-inverted CAP and capitalizes all the alphabetic characters typed. It doesn't quit until it is tapped again. This key does not affect numbers, punctuation marks, or symbols.
Input modifier 123	Once tapped, it becomes color-inverted 123 and presents more symbols and a set of digits and enters them. It won't quit until it is tapped again.  Tap input modifier 123. And have more symbols with a set of digits.

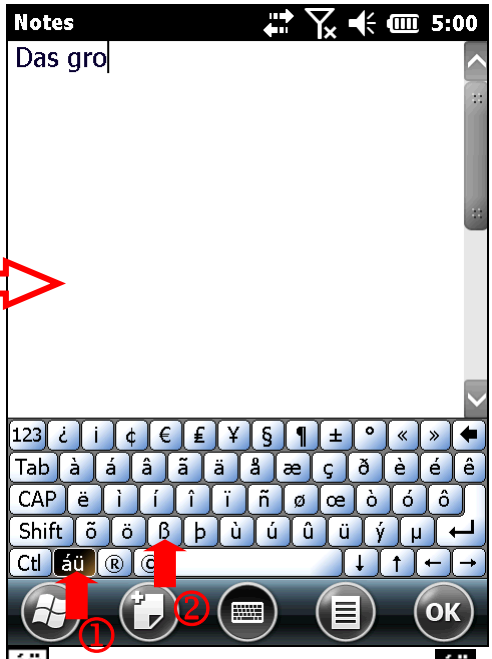
.

Input modifier áü

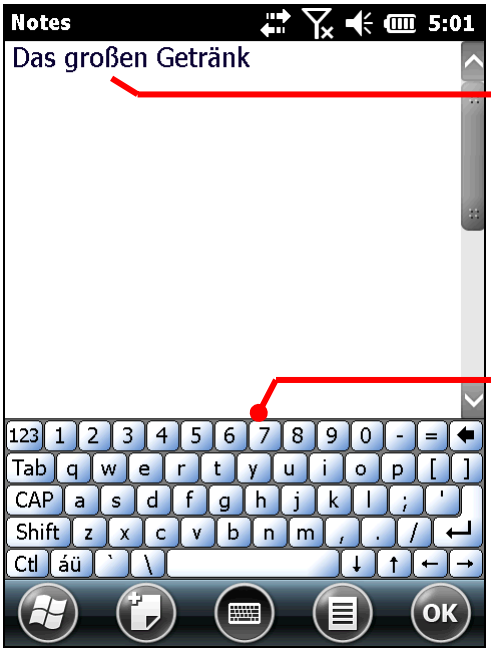
Once tapped, it becomes color-inverted áü and presents a series of accented vowels such as ä, æ, ë, ï, ö, ú or letter variants such as ß and ç which are needed for European languages. It quits once a character key is tapped.



Tap áü key on onscreen keyboard.



áü key becomes color-inverted áü. Then tap a character key.



Letter variant “ß” is entered.

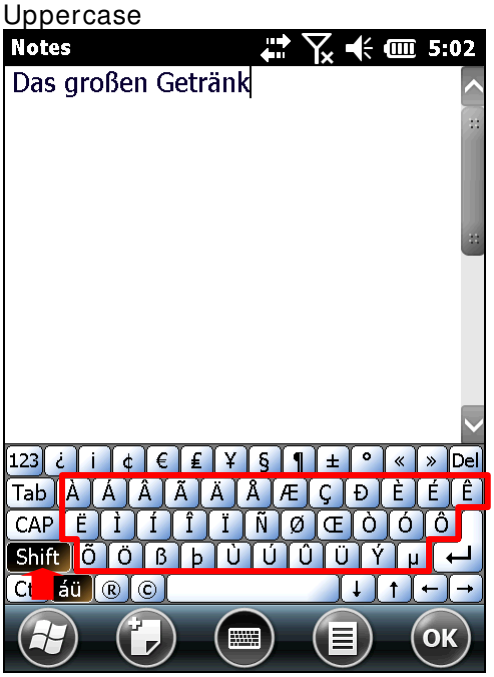
Once an accented vowel or letter variant is entered, the onscreen keyboard restores to English keyboard.

After the letter variant “ß” is entered, the onscreen keyboard restores to normal English alphanumeric layout.

Diacritical letters and letter variants are presented bother lowercase and uppercase.

Lowercase

Uppercase



OTHER KEYS

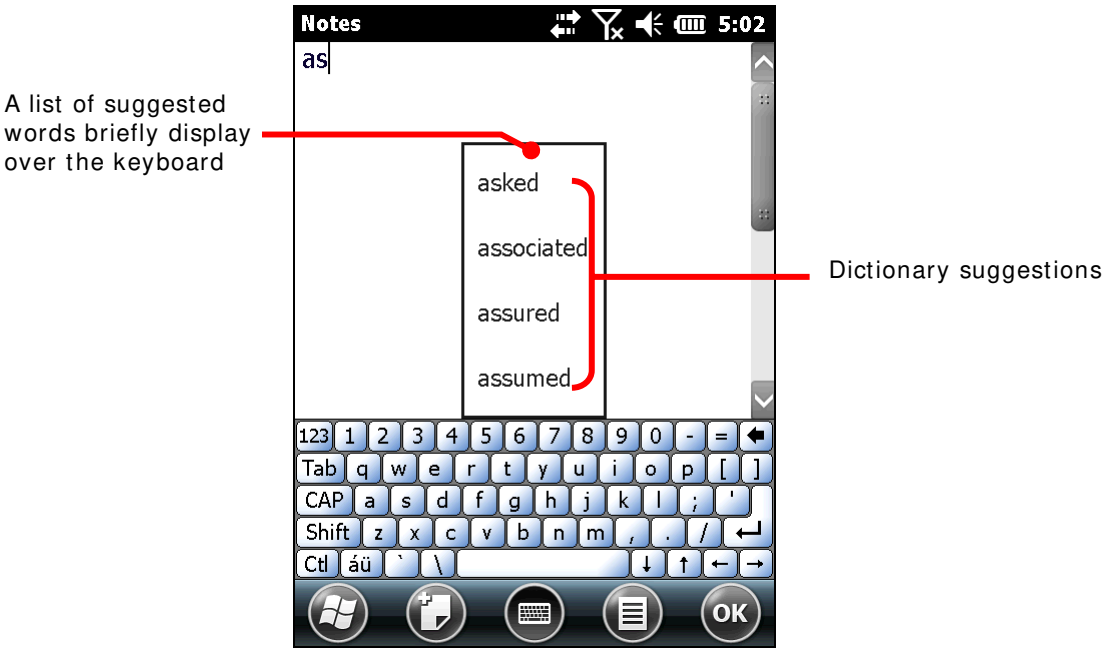
Key	Description
Tab key Tab	Navigates among the highlight items in some applications. For text input, it inserts Tab character, which means it moves caret to the next tab stop.
Backspace	Erases the characters to the left of caret.
Enter key	Executes a command or confirms input. When text input, it inserts a break between paragraphs.
Nav	Move caret in an input field. In certain applications, they navigate vertically or horizontally among highlight items.
Spacebar	Inserts a blank space where caret is.

DICTIONARY

Onscreen keyboard comes with an English dictionary. When onscreen keyboard is opened, the dictionary is enabled and will display a list of suggested words as you type to allow quick selection.

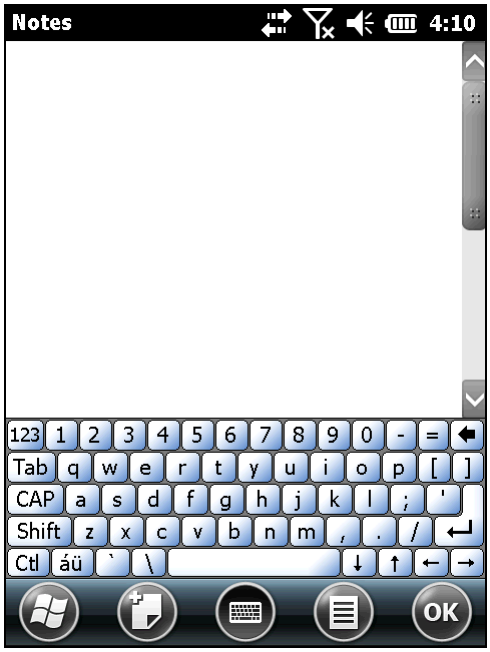
When you tap a letter key on the onscreen keyboard, a list of suggested words displays shortly over the keyboard. Tap a suggested word from the list to enter it. When you have entered a word that is not in the dictionary, it is added to the dictionary and becomes a suggestible word next time.

The screenshot below shows an example when “L” is entered on onscreen keyboard:



CHANGE KEYBOARD ORIENTATION

The mobile computer is built-in with a G-sensor and supports screen orientation, which is enabled by default. So when the mobile computer turns sideways or upright, the screen changes its orientation, and onscreen keyboard readjusts itself to the new orientation.



Upright (Portrait Mode)

Sideways (Landscape Mode)

To disable **Automatic screen rotation**, see Screen Orientation.

CHANGE TEXT INPUT SIZE

- See Change Input Text Size.

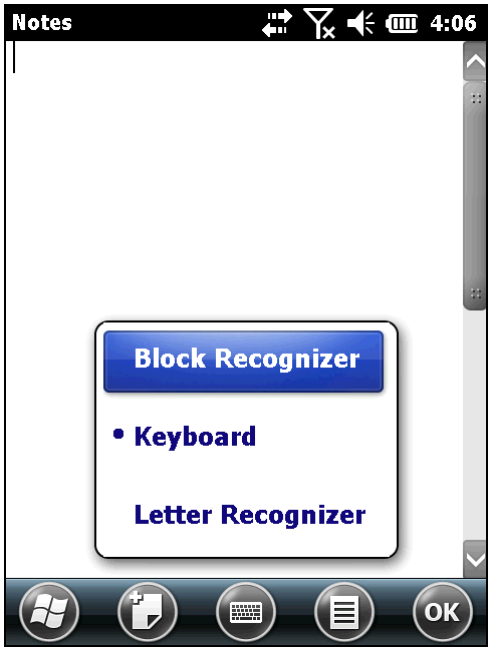
1.5.3. HANDWRITING RECOGNITION

Onscreen text input doesn't necessarily rely on onscreen keyboard. "Handwriting Recognition" can also get the job done. "Handwriting Recognition" is an input method that interprets and converts user's handwriting received through touchscreen to text.

A few handwriting "input methods" are bundled with the OS To launch them:

1) Tap and hold the keyboard icon  on the softkey bar

   A context menu pops up.



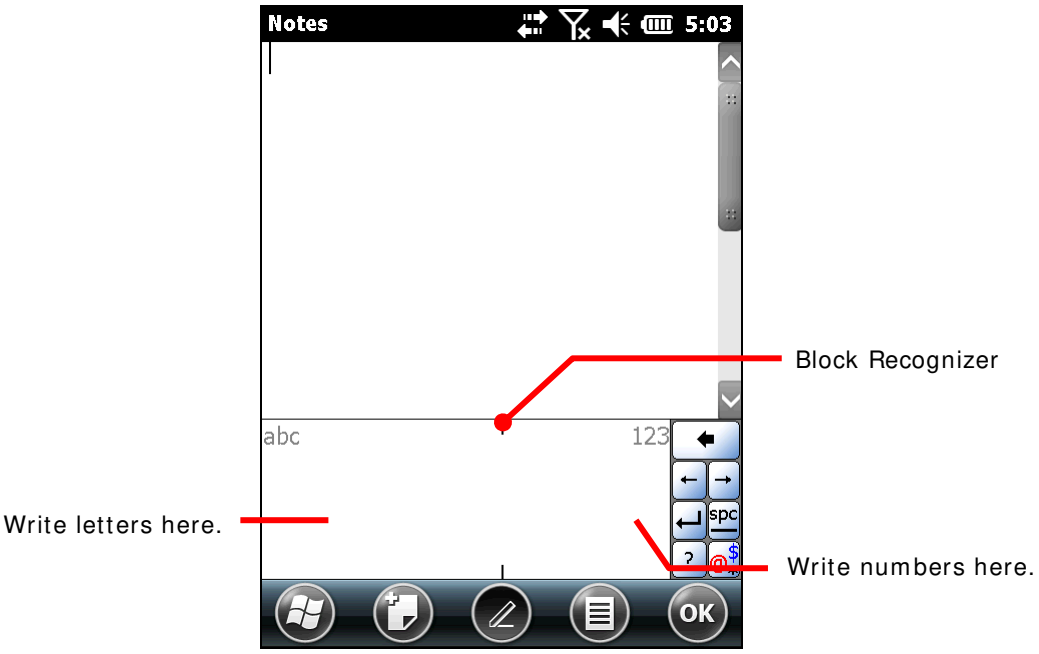
2) Select between **Block Recognizer** and **Letter Recognizer** for handwriting recognition.

BLOCK RECOGNIZER

This handwriting system recognizes handwriting by the particular “neography” that relies on user drawing an uppercase letter with a single stroke. The name comes from the feature of its drawing area divided to two blocks to admit each letters-drawing and numbers-drawing.

To enter text:

Write any letter, number, and punctuation with a single stroke. Block Recognizer then converts it into typed text.

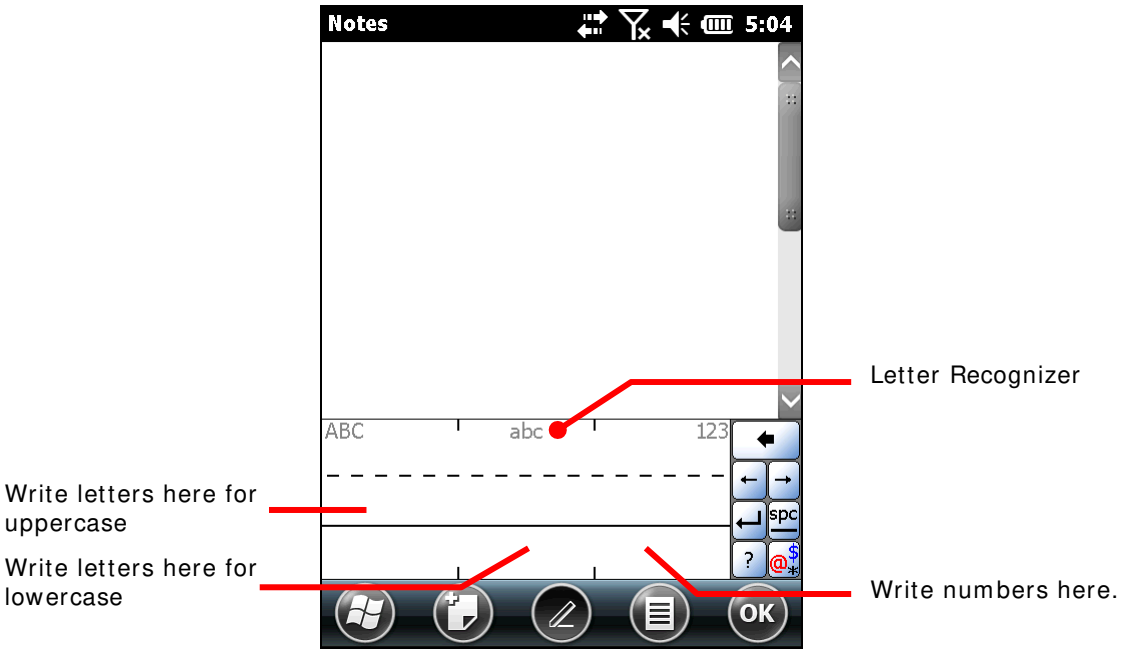


LETTER RECOGNIZER

"Letter Recognizer" presents a writing pad divided in three areas. Each respectively detects uppercase letters, lowercase letters, and numbers/symbols/punctuations.

To enter text:

Write letters, numbers, and numbers/symbols in their respective areas as desired. Letter Recognizer then converts them to typed text.



CHANGE TEXT INPUT SIZE

See Change Input Text Size.

Note there are cases when a typed letter is capitalized automatically:

- The letter follows a period mark and a blank space (because it is seen as the start of a new sentence).
- The letter is typed after a paragraph break (because it is seen as the start of a new paragraph).

1.5.4. EDIT TEXT

On the mobile computer, cut, copy, and paste text within an application or across applications by the menu commands. Some applications don't support editing some or all of the text they display while others may offer their own way to edit text.

EDIT TEXT IN INPUT FIELDS

To edit text in a text input field:

1) Tap where you want to edit text.

   Caret moves there and manifests itself as a vertical bar that blinks to indicate where the typed or pasted text will be inserted.

2) Type, paste or delete text.

To paste text, see Paste Text.

SELECT TEXT

When you see some text on a page you want to copy, select it first. Selecting texts varies from application to application. But primarily it requires you to Tap and hold somewhere on the text to open a context menu or open the applications' option menu which provide commands to select a text.

To select a text:

1) Tap and hold somewhere on the text.

   A context menu comes up.

2) Tap the command that makes selection.
3) Select the desired text.

   It relies on defining the start and end to make selection of a text. Some applications support tapping and dragging along the text to select it while others require you to mark the start and end of the desired text with the onscreen facility featured by the application.

CUT OR COPY TEXT

After a text is selected, system then presents Copy/Cut commands on Softkey bar or a context menu shows up featuring Copy/Cut commands. Tap them to copy/cut the selected text.

PASTE TEXT

Within the OS, texts can be copied to and from different applications.

To paste a text:

1) Tap and hold the text field where you want to paste the text.

   Context menu opens.

2) Tap the "Paste" command from the context menu.

   The copied/cut text is pasted.

1.6. TOUCH CONTROL

The mobile computer's LCD is overlaid by a resistive touch panel and thus forms a resistive touchscreen. Since a resistive touchscreen locates the user's touch by the force applied on it, by operating with the stylus one can apply minimum force to trigger actions from the touchscreen.

Touch control is one of the main ways to interact with the mobile computer. Users are able to manipulate icons, buttons, menu commands, the onscreen keyboard, or any onscreen items with touch control.

1.6.1. USE TOUCHSCREEN

The mobile computer comes with a stylus. Touch-operate the mobile computer with the stylus. Apply the gestures below to work on the touchscreen:

- **Tap** – Touch any item on the screen such as an application icon or a setting icon to work on them, or touch any key on the onscreen keyboard to type it.
- **Tap and hold** – Touch an item on the screen and do not release until an action occurs.
- **Drag** – Touch and hold an item for a moment and then, without release, move the item onscreen until you reach the target.
- **Flick** – Quickly move your finger or stylus across the surface of the screen. Note when the stylus contacts the screen, do not pause so you don't drag an item instead. Flick is helpful, for example, for scrolling up or down a list.
- **Double-tap** – Touch quickly twice on a webpage or other screen to zoom. For example, double-tap a section of a webpage in a web browser to zoom that section to fit the width of the screen. Some applications such as map-info applications support picture zooming with double-tap.
- **Rotate screen** – On most screens, the screen rotates as the mobile computer changes its orientations between upright and sideways.

1.6.2. SCREEN ORIENTATION

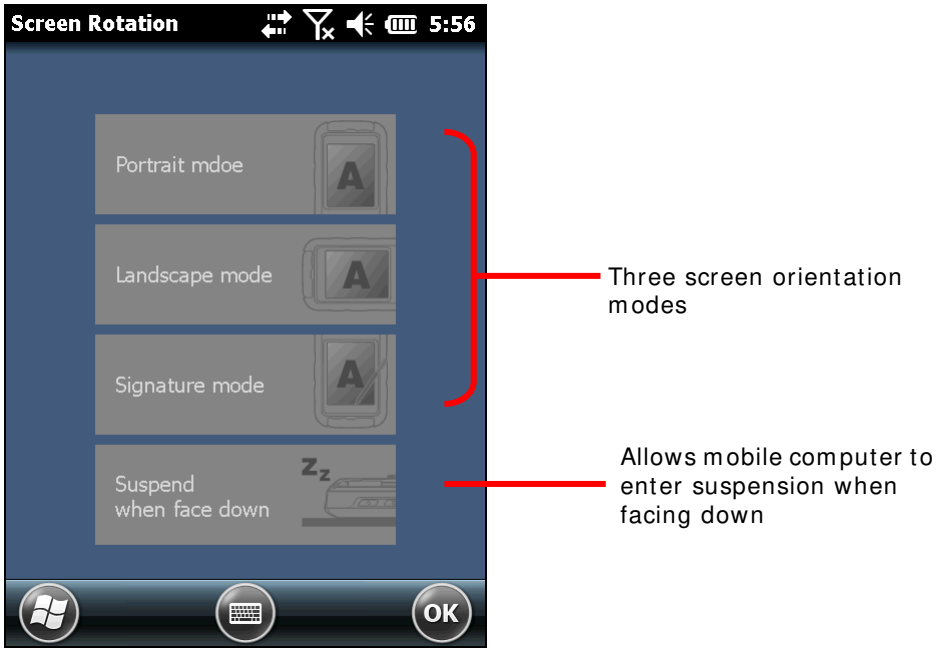
The mobile computer has a built-in G-sensor for screen orientation. In order to enable automatic screen orientation :

1) Tap Windows icon  on the softkey bar.

   Start screen opens.

2) Tap **Settings** | **System** | Screen Rotation  .

Rotation setting opens with three orientation modes to select from and an option to suspend the mobile computer when the screen is facing down.



3) Tap the modes that you wish to enable. The tapped item will light up to indicate it is currently enabled.

4) Tap "OK" on the softkey bar to apply the changes.

The mobile computer will then automatically switch between the enabled modes according to its physical orientation. For instance, if **Portrait** and **Landscape** modes are enabled, the touchscreen will switch between upright and sideways view according to the user's holding position. However, if only **Portrait** (upright) mode is enabled, the touchscreen will not switch to sideways view regardless of the mobile computer's orientation.

SIGNATURE MODE

The signature mode is for combined usage with the CipherLab application **Signature**. With this mode enabled, the screen will immediately rotate vertically when it is tilted outwards, which is convenient for signing upon receipt of goods.

Note: If no modes are selected, the mobile computer's touchscreen will be fixed at the current setting under **Start Screen** | **Settings** | **System** | **Screen**.

1.6.3. ADJUST BACKLIGHT

Screen backlight can be adjusted through two ways, manually and automatically. Upon shipping the mobile computer is set to automatic adjustment, which helps saves power. Alternatively you can set the backlight manually according to your preferences.

MANUAL BACKLIGHT ADJUSTMENT

To adjust screen backlight:

1) Tap Windows icon  on the softkey bar.

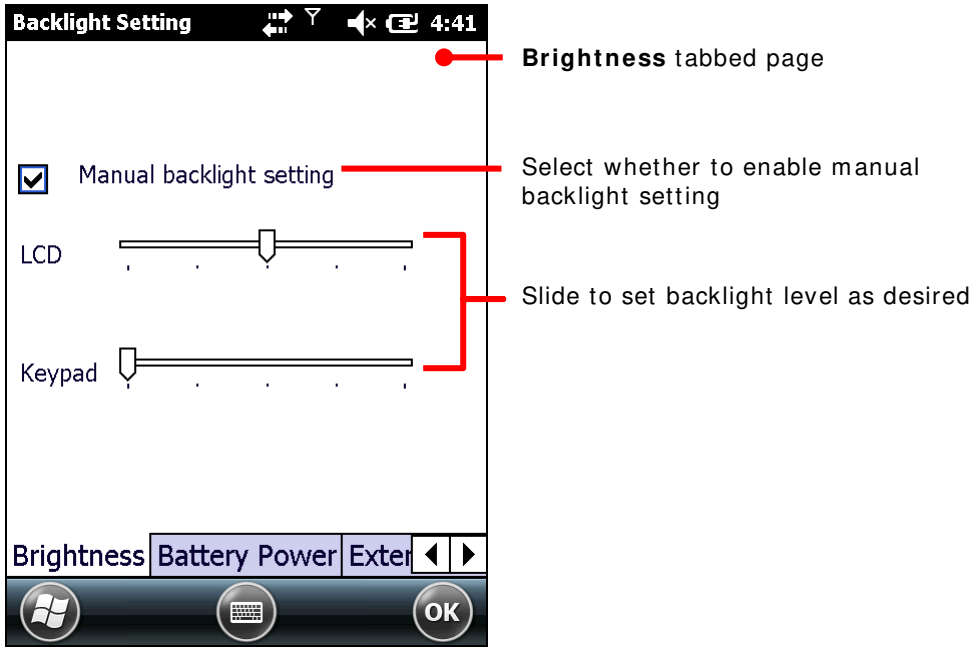
   Start screen opens.

2) Tap **Settings** | **System** | **Backlight**  .

Brightness tabbed page opens with a checkbox to enable manual backlight setting, and slidebars for setting screen and keypad backlight levels

By default, **Manual backlight setting** is unchecked. The light sensor embedded on the front of the mobile computer will detect current lighting environments, and screen and keypad backlights will adjust automatically according to the backlight profiles set under the **Profile** tabbed page.

When **Manual backlight setting** is checked, screen and keypad backlights will stay at the set level and will not adjust automatically.



3) Tap **OK** on the softkey bar to apply the settings.

AUTOMATIC BACKLIGHT PROFILES

The mobile computer stores three backlight profiles to represent backlight level under different environments. These can be configured according to user's likings.

To set backlight profiles:

1) Tap Windows icon on the softkey bar.

   Start screen opens.

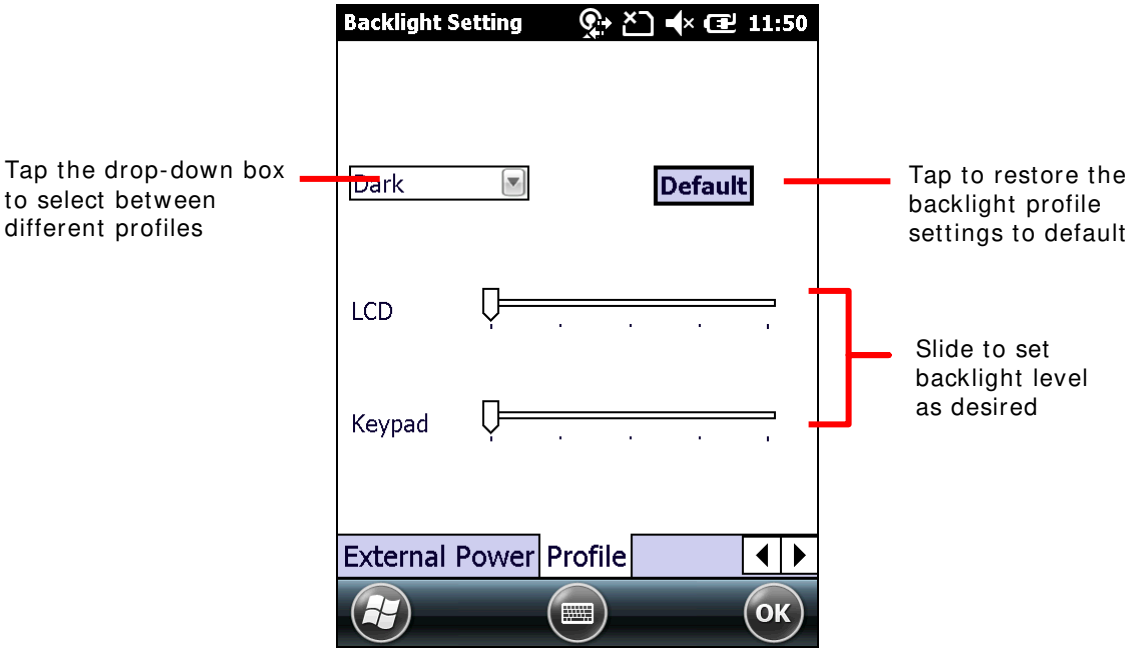
2) Tap **Settings** | **System** | **Backlight** .

   Brightness tabbed page opens.

3) Uncheck **Manual backlight setting** to enable profile function.
4) Switch to the **Profile** tabbed page.

Three profiles, **Dark**, **Bright**, and **Brightest** are available in the drop-down box. Select the profile you would like to modify and use the slidebars below to set the backlight levels to your preferences. The screen backlight will change temporarily to indicate the effect.

To restore profile settings to default, tap the **Default** button at the top right corner.



5) Tap **OK** on the softkey bar to apply the settings.

1.6.4. CALIBRATION

A resistive touchscreen needs calibration to work accurately after serving for a period of time. Calibration aligns the coordinates of touch panel and the LCD underneath to improve touch accuracy.

To calibrate touchscreen:

1) Tap Windows icon on the softkey bar.

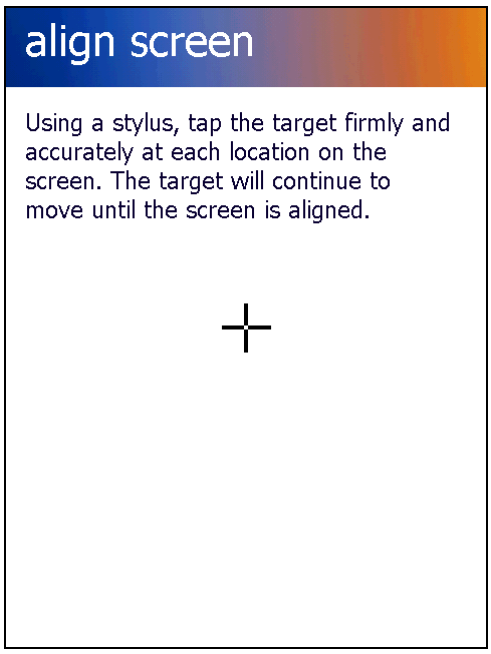
   Start screen opens.

2) Tap **Settings** | **System** | **Screen** .

   Screen settings open showing **General** tabbed page.

3) Tap Align Screen button.

Screen alignment application opens.



4) Tap firmly at the center of the cross that appears onscreen. Five crosses will appear in sequence.

When calibration is completed, **General** tabbed page under Screen settings will re-appear.

1.7. MEMORY

The mobile computer packs the following memory units to retain data and instructions from users:

- Random-access Memory (RAM)

  512 MB SDRAM for temporary storage and fast access of active applications. When the main battery pack is absent, SDRAM is fed by backup battery to retain data.

- Internal Storage

  4GB flash memory to store OS (Windows Embedded Handheld 6.5), application files, settings, and other data used by applications.

- External Storage

  Insert a storage card to increase the mobile computer's storage capacity. Supported are MicroSDHC cards up to 32GB.

1.7.1. DATA LOSS CAUTION

When main battery is absent or used up, backup battery on the main board takes over to supply power to the mobile computer. A fully charged backup battery retains SDRAM data and suspends the mobile computer for 30 minutes.

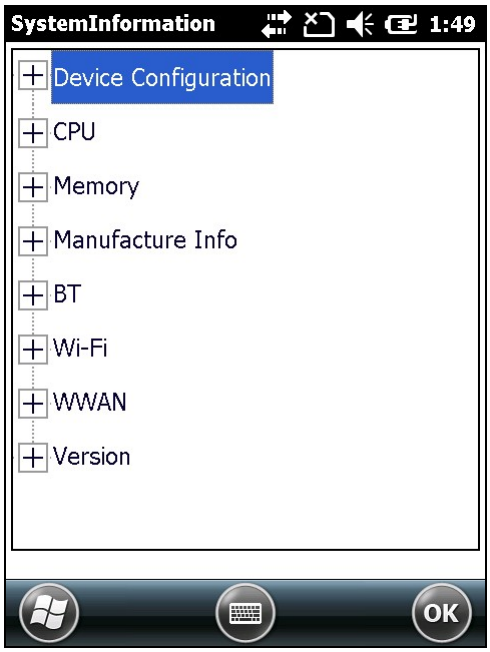
Note if you are leaving the mobile computer to sit for a couple of days, data loss is to occur when both main and backup batteries drain out. Consider backing up data before putting away the mobile computer.

1.7.2. CHECK STORAGE

RAM SIZE

To check RAM size:

From start screen, tap **Settings** | **System** | **System Information** to open Device Information application. It opens retrieving the information about the mobile computer, including device manufacturer, device ID, memory size, and firmware/software version. RAM size will be listed among this info.



System Information page

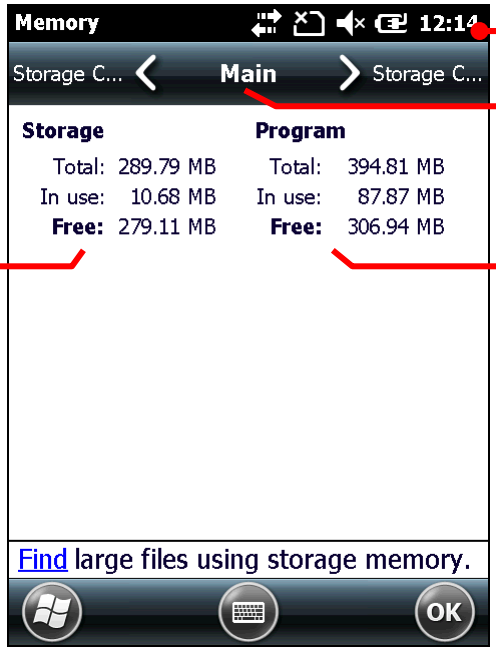
Tap to view information on memory size

INTERNAL STORAGE

On Start screen, tap **Settings** | **System** | **Memory**. Memory screen opens showing **Main** tabbed page. This page gives the information about the mobile computer's use of RAM and internal storage.

Main tabbed page delivers two labels – **Storage** and **Program**:

- **Storage** - Internal memory for files storage, such as OS, applications and the files needed for applications.
- **Program** - RAM usage for running applications.



Memory settings

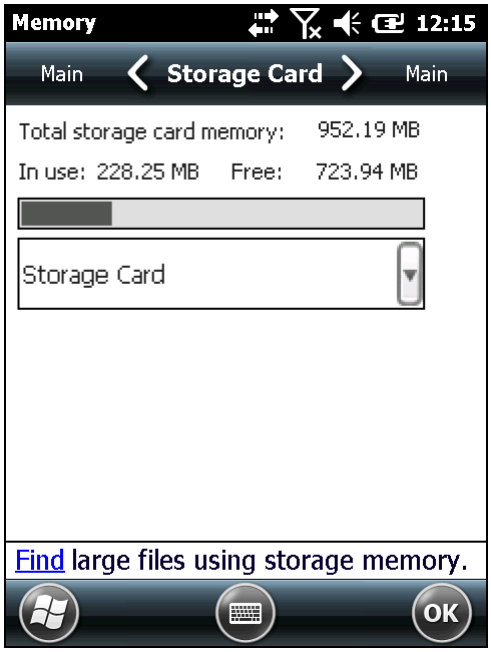
Main tabbed page

Internal storage

RAM usage for running applications

EXTERNAL STORAGE

When Memory screen opens, tap **Storage Card** tab. **Storage Card** tabbed page then opens and shows the info about external storage (when a storage card is inserted).



1.7.3. INSERT SD CARD

Day-to-day use of the mobile computer might cause the available internal storage to run short. Equip the mobile computer with an external memory unit to expand storage capacity.

Follow the steps below to install a SD card:

1) Power off the mobile computer.
2) Place the mobile computer face-down on a flat and soft surface.
3) Remove the battery door and main battery pack as described in Main Battery Setup.

   Battery chamber is opened.
4) Using a screwdriver, remove the battery chamber back cover.
5) Locate the SD card socket inside battery chamber. (See Inside Battery Chamber.) The SD card socket is equipped with a hinged cover.

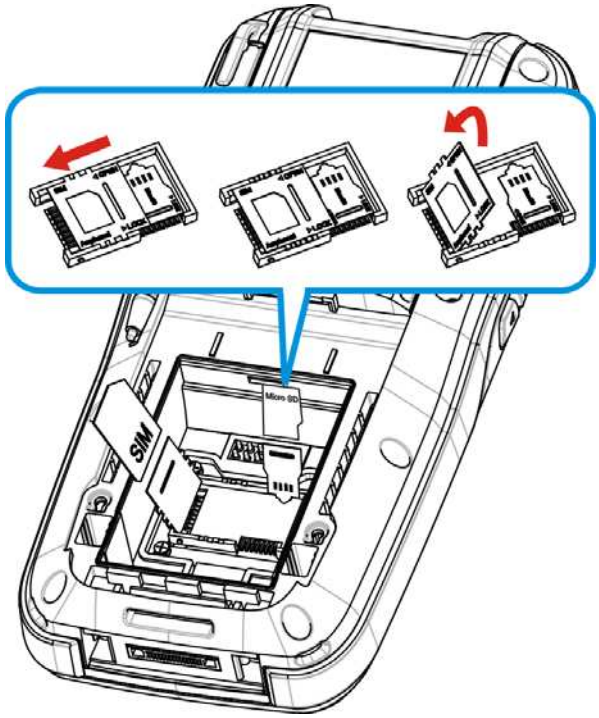


Figure 10: Inserting SD Card

6) Push the hinged cover to the open position.
7) The hinged cover unlocks.
8) Swivel up the cover.
9) Insert SD card into the cover slot in the direction indicated . The metal contact pins should face down
10) Put down the hinged cover and lock it into place.
11) Restore the battery chamber back cover, main battery pack and the battery door.

1.8. DIRECT DATA COMMUNICATION

"Direct" data connection means "hardwired" data connection between the mobile computer and a Windows-based PC as opposed to wireless connection. Direct data connection relies on a RS-232 cable or a USB cable (sometimes plus an auxiliary cradle) between the two mentioned devices. Once the mobile computer and PC are "directly" connected with each other by a RS-232 or USB-cable, they can sync data with each other.

1.8.1. USE CABLE

Direct data communication using a cable:

1) Connect the mobile computer to your PC with a USB or RS-232 type Snap-on Charging and Communication Cable. Fix the cable to both sides.

   ActiveSync will automatically detect connection between the two and prompt for data synchronization.

   See Syncing Tools and subsequent sections to know how to use ActiveSync.

Figure 11: Direct Data Comminucation Using Cable

1.8.2. USE CRADLE

Direct data communication using a cradle:

1) Seat the mobile computer in a Charging and Communication Cradle (hereinafter "cradle").
2) Connect the cradle to your PC with a USB cable. Fix the cable to both sides.

   ActiveSync will automatically detect connection between the two and prompt for data synchronization.

   See Syncing Tools and subsequent sections to know how to use ActiveSync.

Figure 12: Direct Data Communication Using Cradle

1.8.3. SYNCING TOOLS

Microsoft's syncing tools enables users to update or back up the data on their handheld computers to desktop computers.

Two syncing tools are featured by Microsoft - ActiveSync and Windows Mobile Device Center (hereinafter "WMDC"). Which tool to use depends on which OS is running on your PC. See the rule below:

OS	Syncing Program
Windows Vista or Windows 7	WMDC 
Windows XP SP3 and earlier	ActiveSync 

ActiveSync and WMDC can be downloaded from Microsoft's website. Download and install the right one on your PC.

Hereafter in this manual, we will focus on ActiveSync only. For WMDC usage, see its documentation or help file.

1.8.4. SYNC PARTNERSHIP

Once a direct connection is established between the mobile computer and your PC as described in Use Cable or Use Cradle, they are able to form the following ties:

Sync Partnership	Services
Synchronization Relationship	▸ Allows the mobile computer and PC to sync Microsoft Office Outlook data with each other. ▸ Allows PC to add and remove programs to/from the mobile computer. ▸ Allows PC to browse files on the mobile computer. ▸ Alllows PC to copy files to/from the mobile computer. ▸ Allows PC to back up the files on the mobile computer.
Temporary Relationship (Mobile computer works as a "guest" to PC)	▸ Allows PC to add and remove programs to/from the mobile computer. ▸ Allows PC to browse files on the mobile computer. ▸ Allows PC to copy files to/from the mobile computer. ▸ Allows PC to back up the files on the mobile computer.

Note that data stored on external storage (the SD card) cannot be synchronized.

See ActiveSync Actions to Take that details each mentioned service.

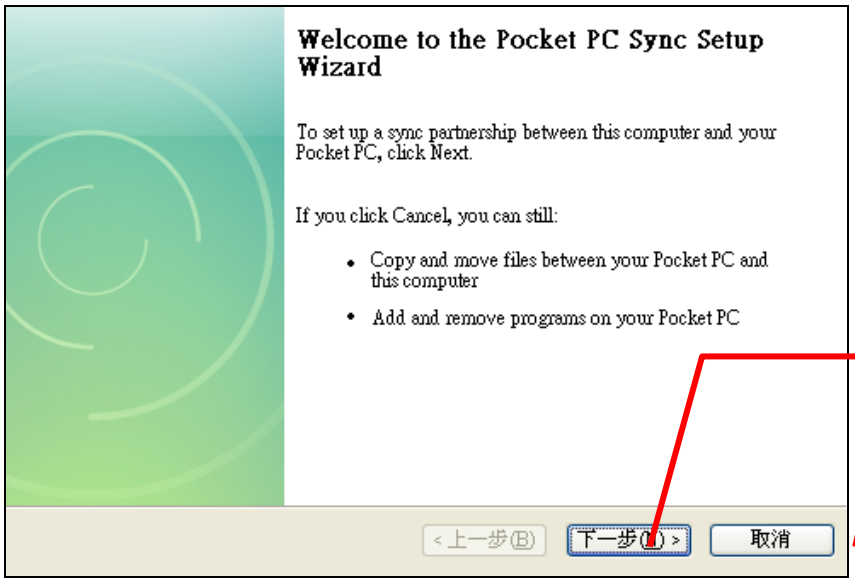
1.8.5. 1ST USB SYNC

This section will guide you through USB syncing. For Bluetooth syncing, see Bluetooth ActiveSync.

To connect ActiveSync using USB:

1) Download the right syncing tool as described in Syncing Tools and install it on your PC.
2) Connect the mobile computer and your PC as described in Use Cable or Use Cradle.
3) On your PC, run the syncing program.

   ActiveSync should detect the mobile computer. **Sync Setup Wizard** launches and prompts to set up Sync Partnership between two computers



ActiveSync **Sync Setup Wizard** opens.

Press **Next** to set up "Synchronization Relationship".

Press **Cancel** to create "Temporary Relationship" by which the mobile computer works as a "guest" to the PC.

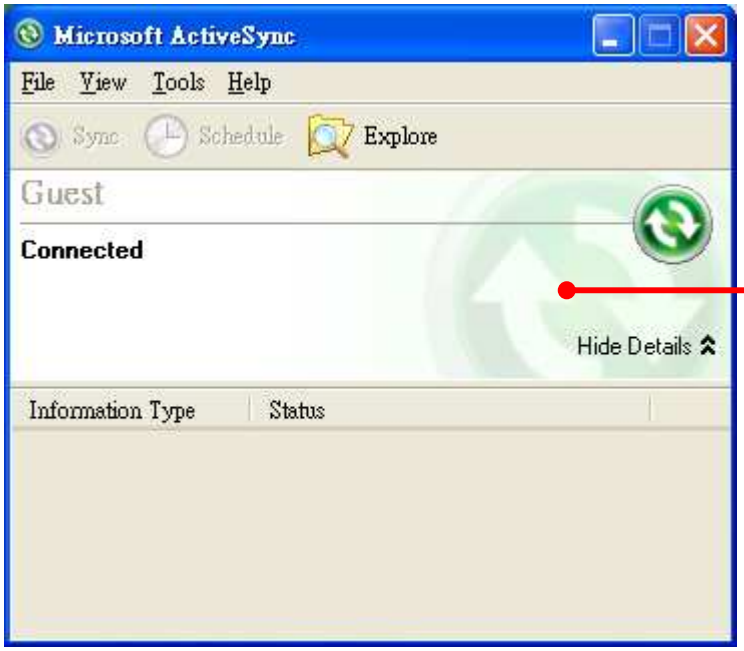
4) Press **Next** for "Synchronization Relationship", or press **Cancel** for "Temporary Relationship" if you don't plan to connect to the PC on a regular basis.

If you have pressed **Next**, follow the onscreen instructions and select the data categories you would like to synchronize. Once confirmed, synchronization will begin shortly, and when the process is finished, ActiveSync window will show "Synchronized" to indicate that the data on the mobile computer and PC are identical.

A "Synchronization Relationship" is established between the mobile computer and the PC

OR

If you have pressed **Cancel**, Microsoft ActiveSync opens showing "Guest" and "Connected". The mobile computer and the PC are connected but the data is not synchronized.



A "Temporary Relationship" is established between the mobile computer and the PC

1.8.6. DISCONNECT USB ACTIVESYNC

To disconnect USB ActiveSync:

1) On your PC, open ActiveSync by double-clicking its icon  in the notification area.

   ActiveSync opens.

2) From the menu bar, click **File** | **Connection Settings**.

   [Connection Settings] window opens.

3) Deselect **Allow USB connections**.

4) Press the **OK** button to apply the change and quit setting.

   This way when you plug your mobile computer the next time, it still gets charged but ActiveSync won't attempt to synchronize with it.

To disconnect Bluetooth syncing, see Disconnect Bluetooth ActiveSync.

1.8.7. ACTIVESYNC ACTIONS TO TAKE

Once "Synchronization Relationship" or "Temporary Relationship" is established between two computers, a variety of actions can be taken to enhance resource sharing between them as previously mentioned in Sync Partnership.

In summary, "Synchronization Relationship" outshines "Temporary Relationship" by being capable of syncing Microsoft Office Outlook data. However "Temporary Relationship" provides satisfactory file sharing if you don't want to synchronize information.

See the following to know what actions to take with ActiveSync:

CHANGE MICROSOFT OFFICE OUTLOOK DATA TO SYNCHRONIZE

Note this is for "Synchronization Relationship" only.

In default state, "Synchronization Relationship" doesn't synchronize all Microsoft Office Outlook data but only a limited amount between two computers in order to save storage on the mobile computer. You can change the amount of information to synchronize:

1) On your PC, from the menu bar of ActiveSync, select **Tool** | **Options**.

   ActiveSync's [**Settings**] window opens showing Options tabbed page.

2) Select an information type to synchronize, and deselect an information type to stop synchronizing.
3) Press OK button to save the change and quit setting.

Note you can also change the information to synchronize on the mobile computer by disconnecting ActiveSync first as mentioned in Disconnect USB ActiveSync or Disconnect Bluetooth ActiveSync and then tap ActiveSync's "Menu" command on the softkey bar and tap **Options**.

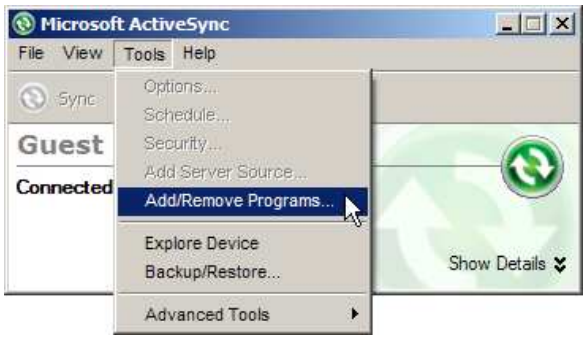
ADD/REMOVE PROGRAMS

Note basically the applications to be installed to the mobile computer need to be installed on your PC first. So download the application programs to your PC first and install them on your PC so they can be installed onto the mobile computer later.

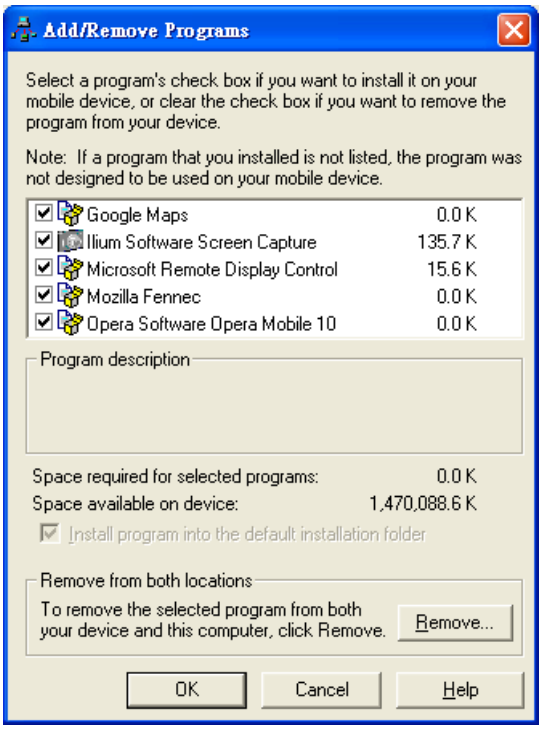
Many application programs are installed in different ways. Read their installation guides or documentation to know how they are installed. If you are installing an application that cannot be installed on your PC first, try to install it right from the mobile computer, see Download & Install Applications for more details.

To install an application on the mobile computer:

1) Connect two computers as described in Use Cable or Use Cradle.
2) Sync two computers as described in 1st USB Sync.
3) On the PC, from the menu bar of ActiveSync, select **Tools** | **Add/ Remove Programs**.



ActiveSync starts to search for the application programs installed on your PC and opens its [**Add/ Remove Programs**] dialog which lists those found. Each entry comes with a check box on the left. An unchecked box means the program is yet to install to the mobile computer while a checked one means an installed program.



4) Select the application program(s) to install to the mobile computer, and deselect the application program(s) to uninstall from the mobile computer.
5) Press the **OK** button.

   ActiveSync proceeds to install programs and/or remove programs to/from the mobile computer.

6) Follow the onscreen instructions on both your PC and the mobile computer to proceed.

Noteworthy facts:

- Normally the application program(s) downloaded from external resources are installed to the mobile computer's directory at **Mobile Device\ Program Files**. However sometimes there are exceptions and it depends on the application.
- You can uninstall application(s) right by the mobile computer rather than on the PC. See Uninstall Applications for more details.
- If you would like to uninstall a program isn't listedin the [**Add/ Remove Programs**] dialog, browse to it on the mobile computer using File Explorer . Tap and hold it, and select **Delete** from the context menu that pops up.

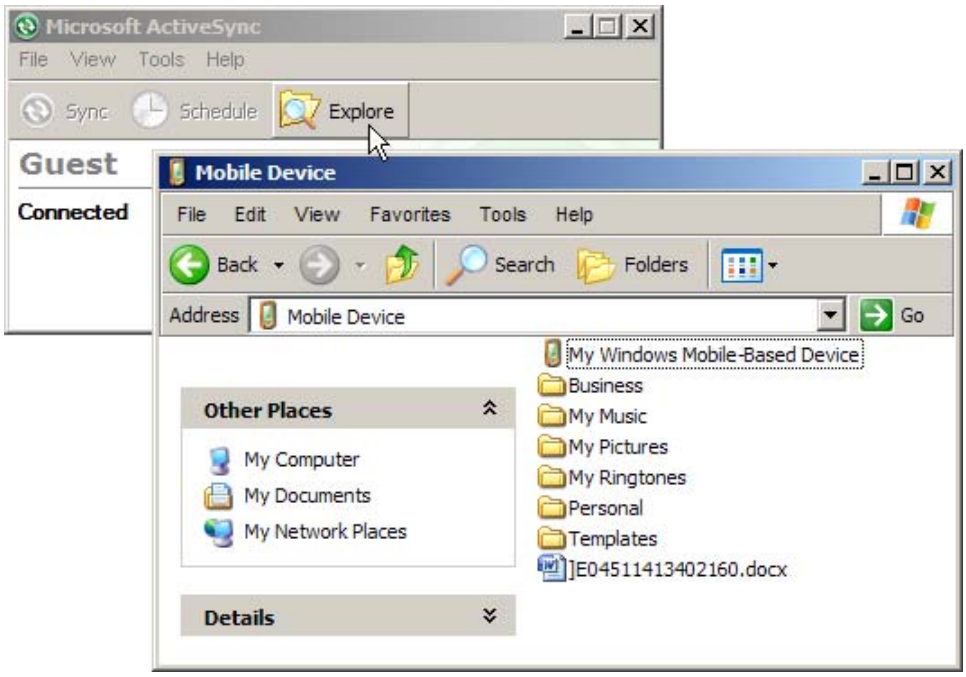
ADD APPLICATION SHORTCUTS TO START SCREEN

ActiveSync features "Explore" to add an application shortcut to Start screen where it is easier to launch the application.

To add an application shortcut to Start screen:

1) Connect two computers as described in Use Cable or Use Cradle.
2) Sync two computers as described in 1st USB Sync.
3) On the PC, from ActiveSync's menu bar, select **Tools** | **Explore Pocket PC**, or from its toolbar, press **Explore** button.

   The mobile computer's internal storage's root directory "**Mobile Device**" opens presenting a few folders (and files).



4) Double-click **My Windows Mobile-Based Device** .

   My Windows Mobile-Based Device opens.

5) Double-click **Program Files**.

   Program Files folder opens. This is where the downloaded applications are normally installed on the mobile computer's local storage.

   In the folder, each sub-folder stores an application.

6) Open the folder of the application to create shortcut for.
7) Find the executable file of that application. Right-click on it and select **Copy** from the context menu that comes up.

   The executable file is copied.

8) Browse to **My Windows Mobile-Based Device\Windows\Start Menu\Programs**.

   Programs folder opens.

9) Right-click any vacant spot in the folder and select **Paste shortcut** from the context menu that comes up.

   A shortcut to the application is added to Start screen.

Note: You can also copy & paste by the sequence **Create Shortcut** -> **Cut** -> **Paste**.

You can also add an application shortcut to Start screen right by the mobile computer. See Add Items to Start Screen for more details.

ADD FILE SHORTCUTS TO START SCREEN

ActiveSync features "Explore" to add to Start screen a shortcut to some local file so it is accessible more easily.

To add a file shortcut to Start screen:

1) Connect two computers as described in Use Cable or Use Cradle.
2) Sync two computers as described in 1st USB Sync
3) On the PC, from ActiveSync menu bar, select **Tools** | **Explore Pocket PC**, or from its toolbar, press **Explore** button.

   The mobile computer's internal storage root directory "**Mobile Device**" opens presenting a few folders.

4) Browser for the file to create shortcut for.
5) Right-click on the file and select **Copy** from the context menu that comes up.
6) Browse to **My Windows Mobile-Based Device\ Windows\ Start Menu\ Programs**.

   Programs folder opens.

7) Right-click any vacant spot in the folder and select **Paste shortcut** from the context menu that comes up.

   A shortcut to the file is added to Start screen.

Note: You can also copy & paste by the sequence **Create Shortcut** -> **Cut** -> **Paste**.

You can also add a file shortcut to Start screen right by the mobile computer. See Add Items to Start Screen or more details.

REMOVE SHORTCUTS FROM START SCREEN

Note the inherent shortcuts aren't removable. Only the added shortcuts are removable.

To remove an added shortcut from Start screen, simply use ActiveSync's **Explore** to delete the shortcut from **My Windows Mobile-Based Device\ Windows\ Start Menu\ Programs** folder.

You can also remove an added shortcut from Start screen right by the mobile computer. See Remove Items from Start Screen for more details.

CREATE NEW FOLDERS

To create a new folder on the mobile computer:

1) Connect two computers as described in Use Cable or Use Cradle.
2) Sync two computers as described in 1st USB Sync.

   On the PC, from ActiveSync menu bar, select **Tools** | **Explore Pocket PC**, or from its toolbar, press **Explore** button.

   The mobile computer's internal storage root directory "**Mobile Device**" opens presenting a few folders (and some files).
3) Browse where you want to create a folder.
4) Right-click any vacant spot there.

   Context menu opens
5) Select **New Folder**.

   A new folder is created.

BACKUP DATA

To best protect your work, back up regularly the data on your mobile computer. Manually back up using ActiveSync by either "Synchronization Relationship" or "Temporary Relationship" with simple copy & paste to back up files to your PC.

USB PASS-THROUGH NETWORKING

ActiveSync supports "Pass-Through Networking" whereby the mobile computer networks using your PC's data connection.

For security, disable the network bridging on the PC, especially the bridging to a Remote NDIS adapter. For more information on network bridging, see Windows Help on the PC.

After sync partnership is up between the mobile computer and your PC:

1) On your PC, from the menu bar of ActiveSync, select **File** | **Connection Settings**.

   [Connection Settings] window opens.
2) For **This computer is connected to**, select a network which your PC should connect to when passing through ActiveSync. Options are:

Option	Description
Automatic	Auto-detects proxy ▸ This option detects if a proxy should be used when passing connections through the PC. If yes, configure the proxy on the mobile computer. ▸ This option best suits connecting to a PC (laptop) that may be used at home (with no proxy), as well as to a corporate network (with proxy).
Work Network	Always uses proxy ▸ This option assumes a proxy should be used when passing connections through the PC, and uses whatever proxy is already configured on the mobile computer. ▸ This option best suits connecting to a PC that is always on corporate network.
The Internet	Never uses proxy ▸ This option assumes no proxy is necessary when passing connections through the PC. ▸ This option best suits connecting to a PC connected directly to the Internet through ISP (at home)

3) Select **Open ActiveSync when my device connects**.
4) Press **OK** button to apply the change and quit setting.

To pass-through network using Bluetooth, see Bluetooth Pass-through Networking.

Also compare with USB Internet Sharing.

1.9. AUDIO PLAYBACK

Use a headset for audio playback and hands-free telephone communication. Bluetooth headsets are supported to deliver better mobility. See Use Bluetooth

1.9.1. VOLUME CONTROL

The mobile computer has two volume control facilities – the physical volume rocker perched on the waist of the mobile computer and the onscreen volume gauges featured by the OS

Both the physical rocker and the onscreen gauge can be used to control the system volume (media playback and event/notification sounds). When the system volume is enabled, the OS shows an icon on Title Bar; otherwise it shows ..

PHYSICAL VOLUME ROCKER

Use physical volume rocker to turn up and down system volume.

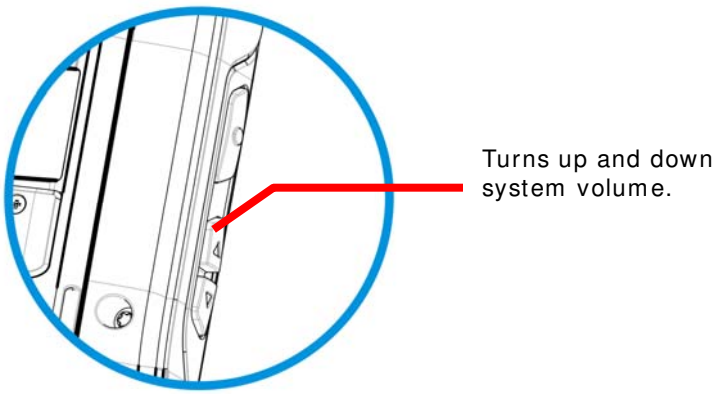


Figure 13: Physical Volume Rocker

ONSCREEN VOLUME GAUGES

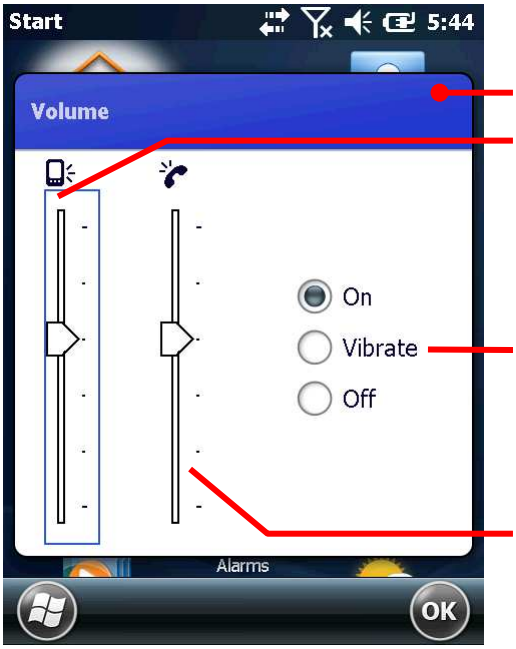
The onscreen volume gauge can also be used to adjust system volume:

1) Tap Title Bar at the top of the screen.

   A horizontal drop-down bar opens.

2) Tap the volume icon .

[Volume] dialog opens presenting the gauges for system volume and phone ringer volume. Two radio buttons [On] and [Off] are featured on the right. Select [On] or [Off] to enable or mute both volumes.



Onscreen volume facility

Adjusts system volume

[On] and [Off] enables or mutes system volume
[Vibrate] mutes system volume while enabling vibration.

Adjusts phone ringer volume (reserved)

3) Adjust the settings to meet your needs.

Chapter 2

DATA CAPTURE

Although highly converged, the mobile comptuer is also a dedicated barcode reader. The mobile computer is shipped with either a (laser) 1D reader or 2D imager. A number of symbologies are supported and data about them can be decoded and collected.

Done with data collection, the mobile computer outputs the collected data to the host computer so data storage, advanced data analysis and more special services can be performed.

This chapter describes how to collect data with reader modules

2. IN THIS CHAPTER

2.1. CONFIGURE READER

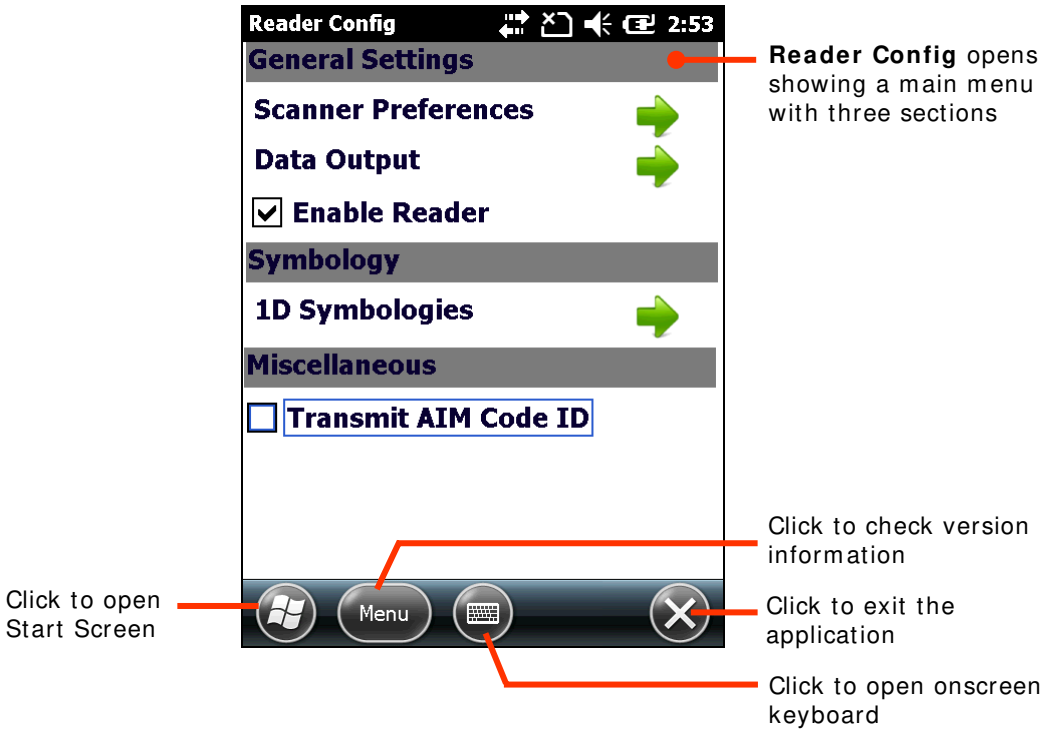
The mobile computer is capable of reading printed barcodes. The reader modules can be a either a (laser) 1D reader or a 2D imager. The mobile computer is installed with a CipherLab utility **Reader Config** to configure the scan engine built inside. Use it to create a profile of settings that best suits your needs.

2.1.1. LAUNCH READER CONFIG

To launch Reader Config:

1) On Start screen, tap Settings | System | **Reader Configuration** .

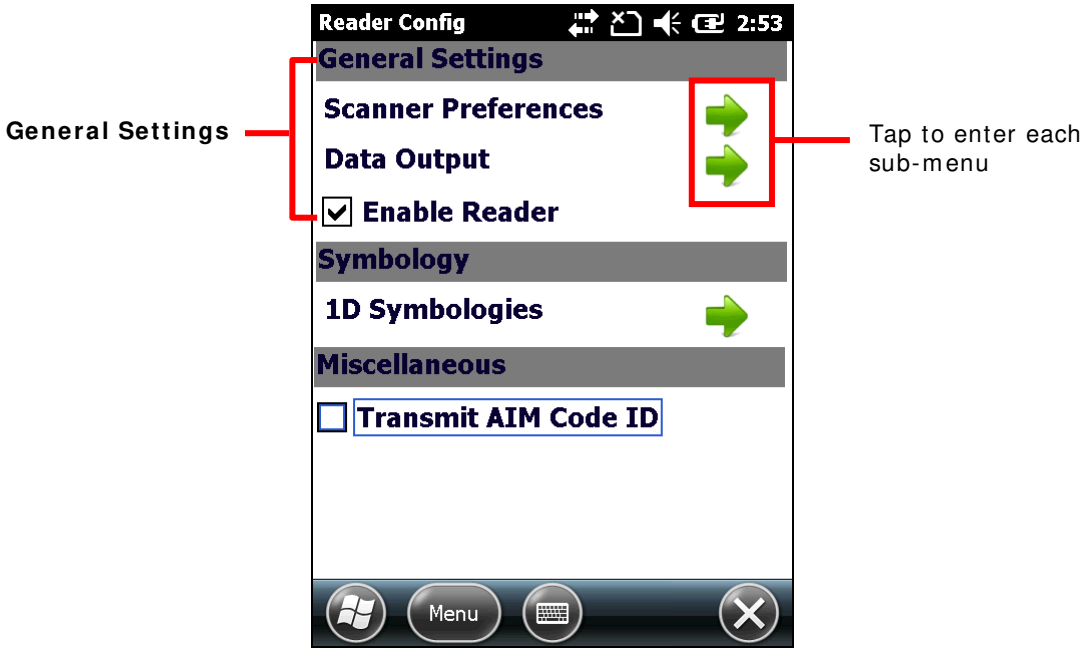
   Reader Config launches in context with the reader module(s) on board the mobile computer. The software opens showing a main settings page with three sections: **General Settings**, **Symbology** and **Miscellaneous**.



The following will guide to settings provided in each of the three sections.

2.1.2. GENERAL SETTINGS

General Settings is where all reader settings are accessed from except for symbologies settings. Tap the green arrow next to each item to enter the sub-menu for that given item.



The facilities under **General Settings** include:

- Scanner Preferences
- Data Output
- Enable Reader - enabled by default

SCANNER PREFERENCES

Scanner Preferences page can be entered by tapping the given item on the **Reader Config** main settings page. The options provided in this page differ according to the type of scan engine (either 1D or 2D) built within the mobile computer.

To open **Scanner Preferences** page:

1) Open **Reader Config** as described in Launch Reader Config.

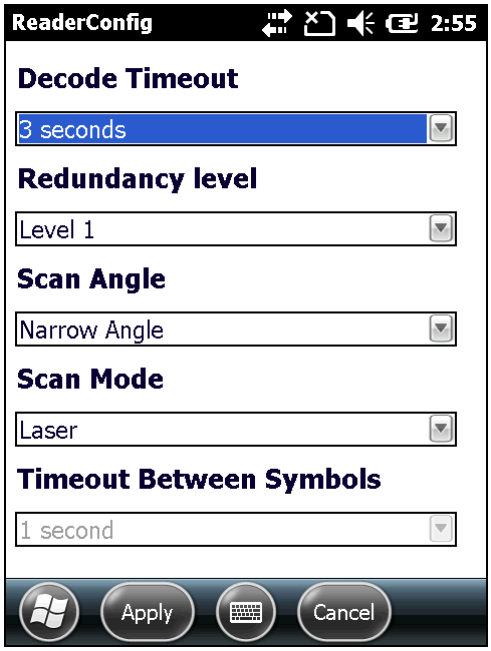
   Reader Config settings page opens.

2) Tap the arrow next to **Scanner Preferences**.

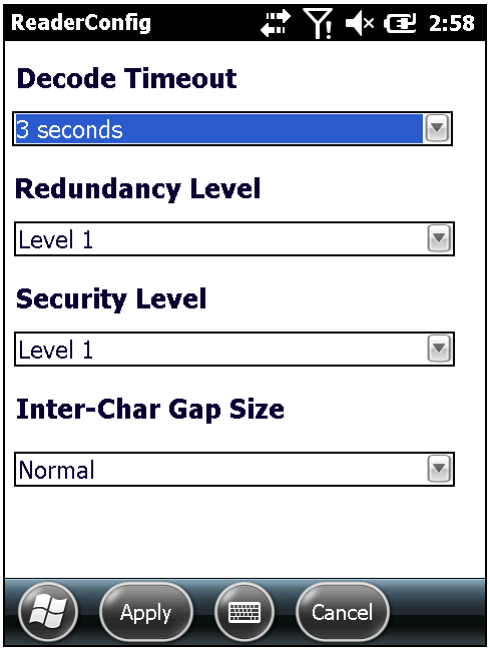
   Scanner Preferences settings page opens.

   Featured settings are different for 1D (laser) reader and 2D imager:

1D (laser) reader settings



2D imager settings



1D (LASER) READER SETTINGS

Setting	Description	Default
Decode Timeout	Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.	3 seconds
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.	Level 1
Scan Angle	Sets the scan angle for laser scan engine. Options to choose between are **Wide Angle** and **Narrow Angle**.	Narrow Angle
Scan Mode	Sets the reader's scanning behaviour. Options available are **Continuous** and **Laser** modes.	Laser

Timeout Between Symbols	Sets the time for the barcode reader to resurrect its ability to once more decode a barcode it just decoded. ▸ Only applied in **Continuous** mode.	1 sec

2D IMAGER SETTINGS

Setting	Description	Default
Decode Timeout	Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.	3 sec.
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.	Level 1
Security Level	Sets the security level to ensure decoding accuracy considering the printed quality of barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are: **Level** / **Description** 0 – With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes. 1 – Select this level if misdecodes have occurred. It fixes most misdecodes. 2 – Select this level if Level 2 should fail to eliminate misdecodes. 3 – Select this level if Security Level 3 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of the decoder, a safer solution would be to improve the quality of the bar codes to read.	Level 0
Inter-Char Gap Size	Sets the intercharacter gap size for Code 39 and Codabar. Switch between **Normal** and **Large**.	Normal

DATA OUTPUT

Data Output allows users to set the way to output decoded data

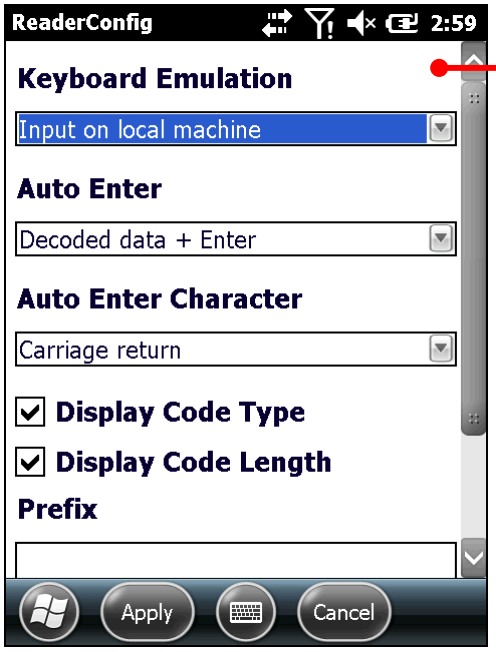
To open **Data Output** settings page:

1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main menu opens.

2) Tap the arrow next to **Data Output**.

Data Output settings page opens.



WHERE TO OUTPUT

Keyboard Emulation setting controls where the decoded data is to be output.

Setting	Descriptions	Default
Keyboard Emulation	Treats decoded data as typed text and outputs it to the active application locally on the mobile computer or remotely on a computer. Options are: ▸ Disable – Disables **Keyboard emulation** whereby decoded data won't be output. ▸ Input on local machine – Passes decoded data locally to the active application on the mobile computer. Simply run an application such as Wordpad to collect decoded data. ▸ Input on remote PC – Passes decoded data to the active application on the remote computer connected. Set up a remote PC connection to collect data. (Note this option is unable to pass double-byte characters such as Big-5 or Unicode characters.)	Disable

HOW TO OUTPUT

After the output destination is set, configure how to output decoded data, i.e. the "format" to present decoded data.

Setting	Description	Default
Auto Enter	Adds an ENTER character before or after each scanning act. This function saves the trouble pressing [Enter] key to confirm each scan. Options are: ▸ Disable ▸ Decoded data + Enter ▸ Enter + Decoded data	Disable
Auto Enter character	Adds a key code before or after the decoded data. This setting is available only when [Auto Enter] is enabled. Options are: ▸ None ▸ Carriage Return ▸ Tab ▸ Space ▸ Comma ▸ Semicolon	Carriage Return
Display Code Type	Prefixes the output data with code type information.	Deselected (Disabled)
Show Code Length	Suffixes the output data with code length information.	Deselected (Disabled)
Prefix	Affixes 0 to 10 characters to the left of the output data.	--
Suffix	Affixes 0 to 10 characters to the right of the output data.	--

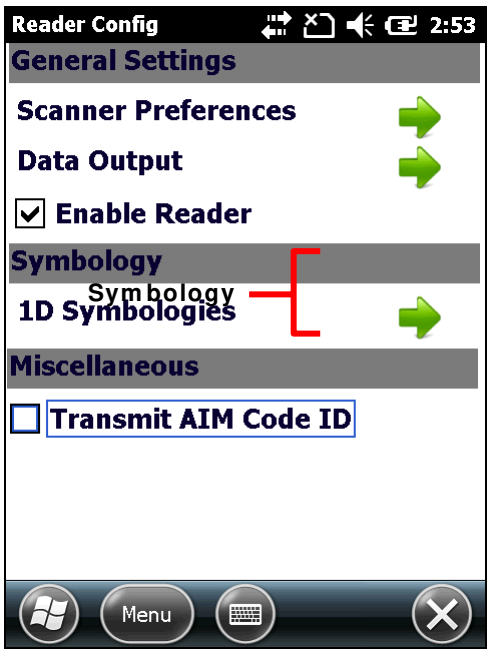
ENABLE READER

Features a checkbox to enable or disable reader scanning ability. When enabled, laser beam will be sent out each time the trigger is pressed.

2.1.3. SYMBOLOGY

Symbology section sets the symbologies to read, and enables/disables some feature(s) for a symbology to read such as:

- Customize and transmit start/stop characters
- Verify/transmit check digits,
- Enable/disable addon digits
- Convert to another symbology
- Transmit symbology ID
-



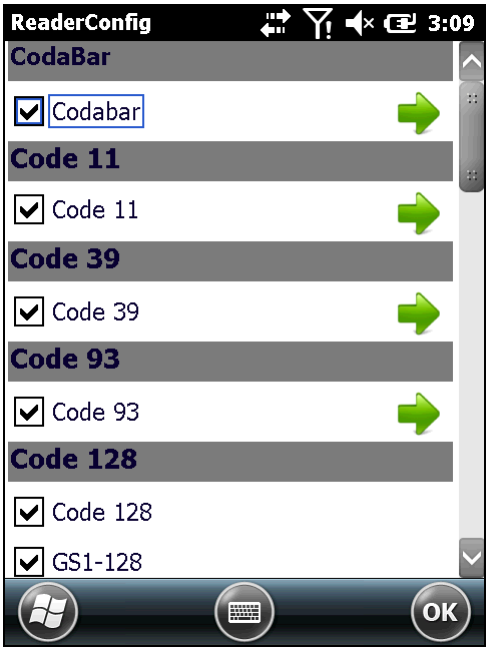
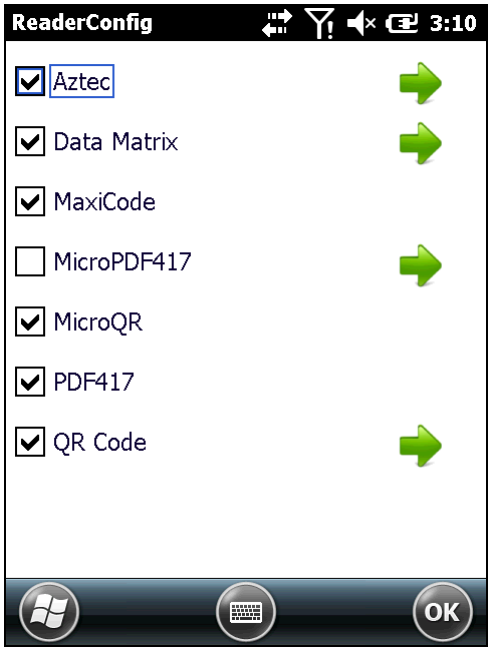
To open **Symbology** settings page:

1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main menu opens.

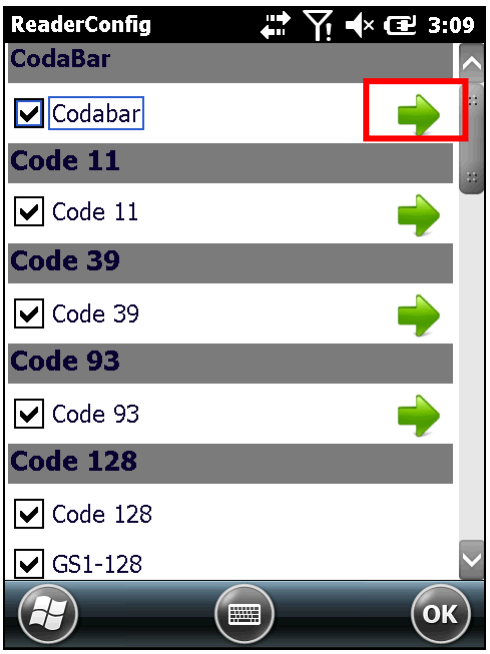
2) Tap **1D Symbologies** (or 2D Symbologies in the case of a 2D imager) tab.

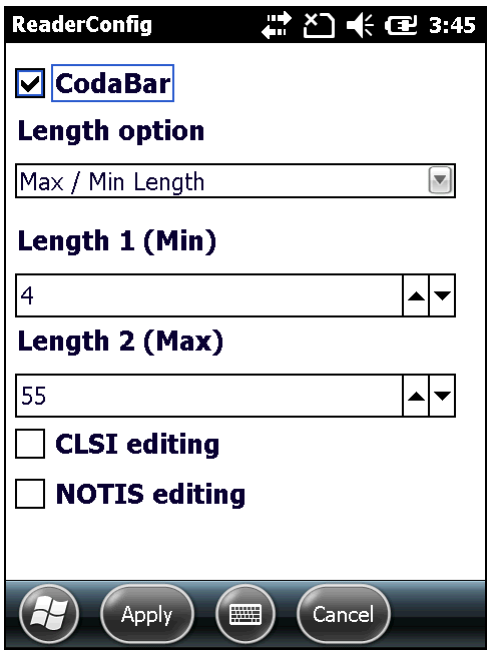
Symbology settings page opens listing all symbologies which can be decoded.

1D Symbologies	2D Symbologies
	

SYMBOLOGY SETTINGS

Tap the arrow next to each symbology checkbox to access detailed settings for that symbology.

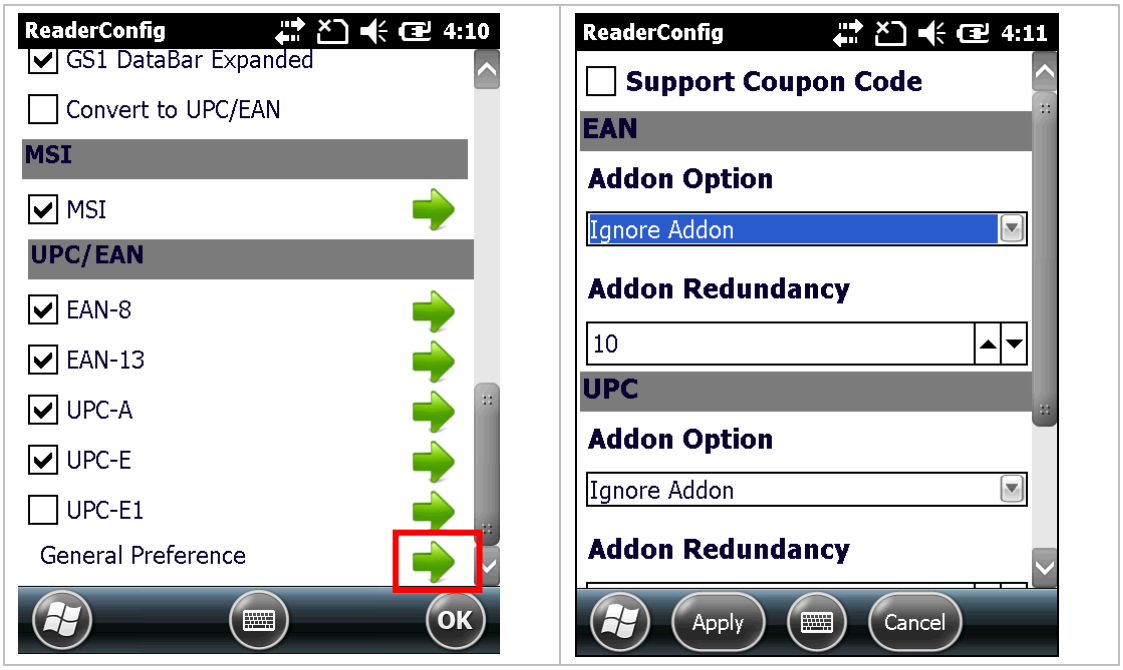




GENERAL PREFERENCES

For certain symbologies, common settings will be grouped together and displayed in a detailed settings page for that barcode family. To open the general settings page for a set of symbologies, tap the arrow next to General Preference.

General settings are provided for Composite Code, Postal Code, and UPC/EAN families.

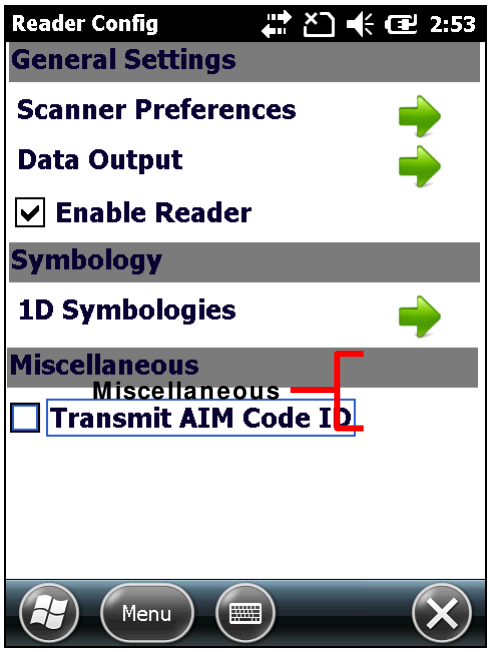


For details about the featured settings:

- See Appendix II: 1D Laser Symbology Settings.
- See Appendix III: 2D Imager Symbology Settings.

2.1.4. MISCELLANEOUS

This section allows setting of whether to include AIM code ID character in the decoded data.



To include/exclude AIM Code ID:

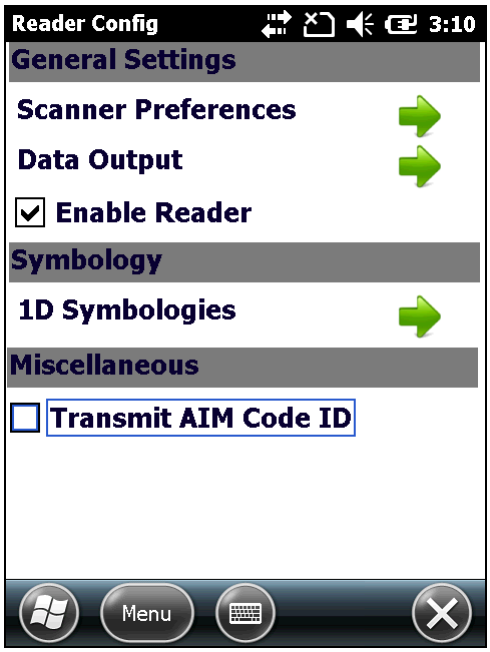
1) Launch **Reader Config** as described in Configure Reader.

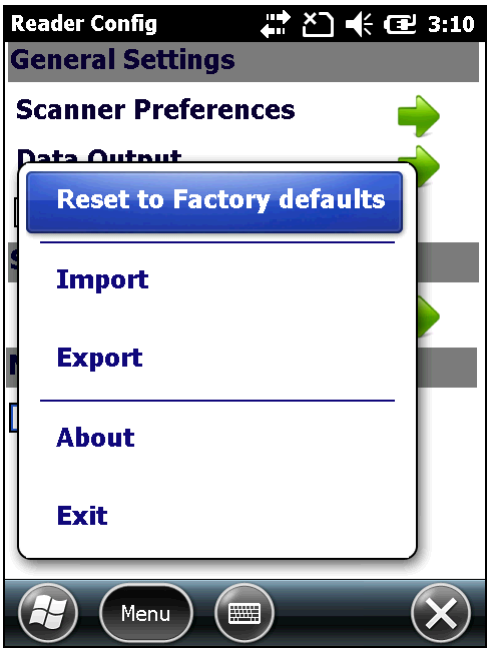
   The software launches.

2) Check/uncheck the checkbox under **Miscellaneous** section to enable/disable AIM Code ID transmission.

2.1.5. READER CONFIG OPTION MENU

Reader Config provides an option menu which is accessible on the main settings page and provides options to import/export all settings in a resusable format, reset all settings back to factory default, view copyright and version information, and exit the application.





RESET TO FACTORY DEFAULTS

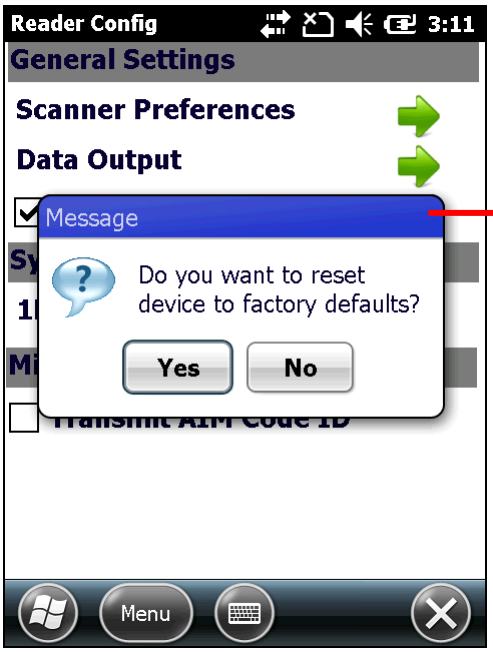
This function restores all settings in the **Reader Config** application to default.

To enable Factory Reset:

1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main menu opens.

2) Tap **Menu** button on the softkey bar to open the option menu.
3) Tap Reset to Factory defaults.
4) A warning dialog appears confirming whether to restore all application settings back to default. Tap **Yes** to reset and **No** to close the dialog.



A warning dialog pops up to confirm if reset should be performed

IMPORT AND EXPORT

The application supports saving the settings and exporting them as an .xml file.

Previously exported symbology and scanner settings can be imported again on the mobile computer. This can also be used to implement identical settings on two or more devices.

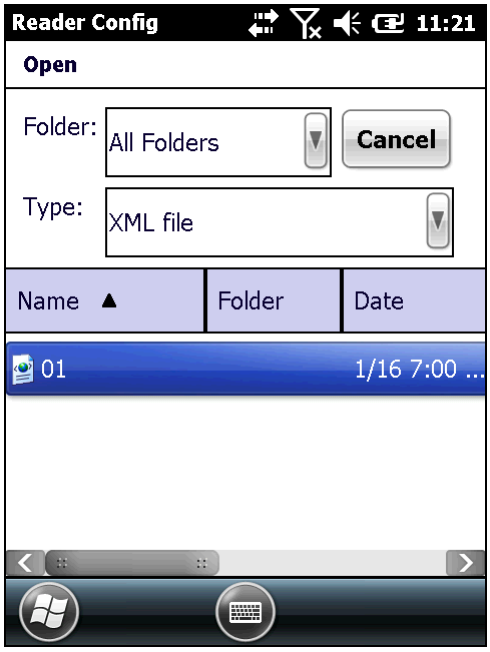
To import settings:

1) Open **Reader Config** as described in Launch Reader Config.

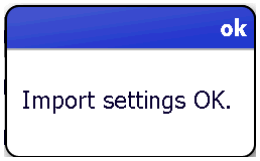
   Reader Config main menu opens.

2) Tap **Menu** button on the softkey bar to open the option menu.
3) Tap **Import** in the option menu.

A page opens allowing you to select a previously saved profile.



4) Tap on the profile you would like to apply. In a few seconds a prompt will appear on the mobile computer to indicate settings have been imported successfully.



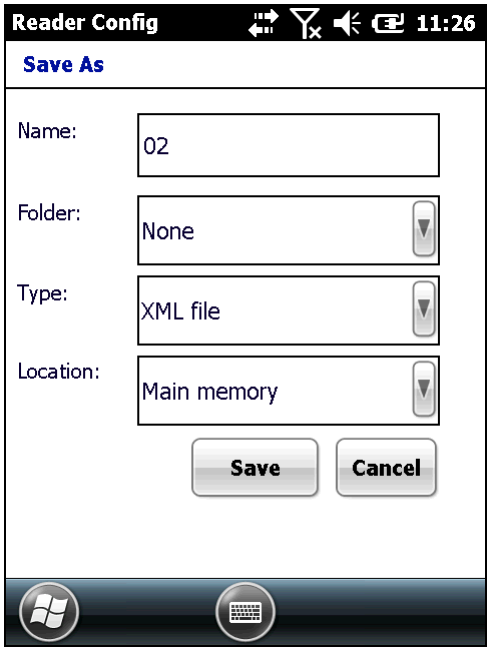
To export settings

5) Open **Reader Config** as described in Launch Reader Config.

Reader Config main menu opens.

6) Tap **Menu** button on the softkey bar to open the option menu.
7) Tap **Export**.

An export page opens allowing you to select information about the file to be saved.



8) Enter file name, storage folder and location. Tap **Save** to export. A prompt will appear onscreen to notify that settings have been exported.

Note: The **All Folders** directory refers to all folders under My Device\My Documents. If a subfolder is not selected upon exporting, the exported file will also be stored under this directory.

ABOUT

This item in the Reader Config option menu delivers software version and copyright information.

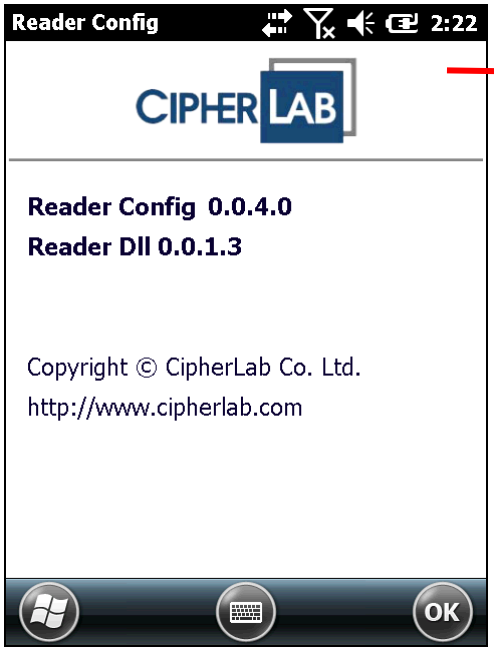
To view information about the software:

1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main menu opens.

2) Tap **Menu** button on the softkey bar to open the option menu.
3) Tap **About**.

Information about the software will be displayed onscreen.



2.2. LAUNCH READER MODULE

Barcode reading can be performed through the CipherLab utility **Reader Demo**, installed on the mobile computer upon shipment.

To launch the reader module:

1) Configure scan engine properties as described in Configure Reader.

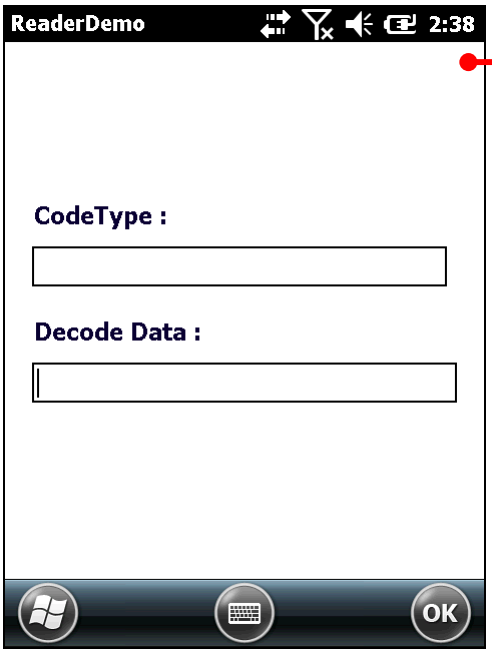
2) Open Start screen, tap **CipherLabUtilities**  .

   CipherLabUtilities opens.

3) Tap **Reader Demo**  .

   ReaderDemo opens displaying two fields to show the decoded data.

   The mobile computer is now readied to read printed barcodes.



ReaderDemo opens.

4) Proceed to collect data as described in Read Printed Barcodes.

OR

If you want to, configure the reader module(s) first as described in Configure Reader before starting to collect data.

2.3. READ PRINTED BARCODES

Before you start collecting data, configure the reader module(s) using **Reader Config** as described in Configure Reader or skip the configuration and go straight to collect data.

To collect data:

1) Use **Reader Config** to configure the reader module to meet your needs.
2) Launch the reader module **Reader Demo** as described in Launch Reader Module.

   The provided application **Reader Demo** displays the barcode which was last decoded. If you would like to collect more or all of the decoded data for further use, run a text editor on the mobile computer or connect the mobile computer to a remote computer so there is somewhere to admit the decoded data. See Data Output for related settings.
3) Locate the scanning window on the top of the mobile computer. Point it at the printed barcode to read while holding the mobile computer steady a few inches from the barcode.
4) Press the scan key (or either side trigger) on the mobile computer.

   The scanning light beams to read the printed barcodes.

   The scanning light goes off once data is decoded, or decoding timeout is reached.

Figure 14: Read printed barcodes

5) The decoded data and barcode type will display in their respective fields.

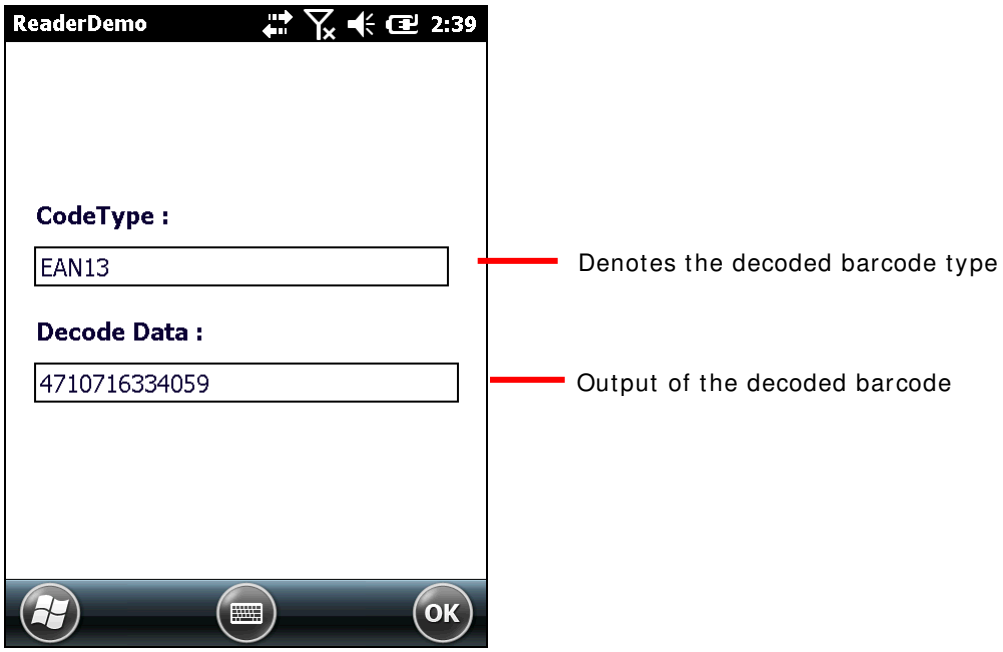


Figure 15: Reading Printed Barcodes

Chapter 3

CAMERA

The mobile computer is adorned with a 5.0 mega-pixel camera that can also serve as a video recorder. The OS provides a camera/video recorder application, which launches the camera, takes pictures, shoots videos and stores the works on the mobile computer's storage where they can be viewed, edited and output.

The camera/video recorder application provides users with satisfactory customization that is helpful for users' image capture for better documentation.

This chapter will guide you to use the camera.

3. IN THIS CHAPTER

3.1. LAUNCH CAMERA

To launch the camera:

1) On Start screen, tap **Pictures and Videos** .

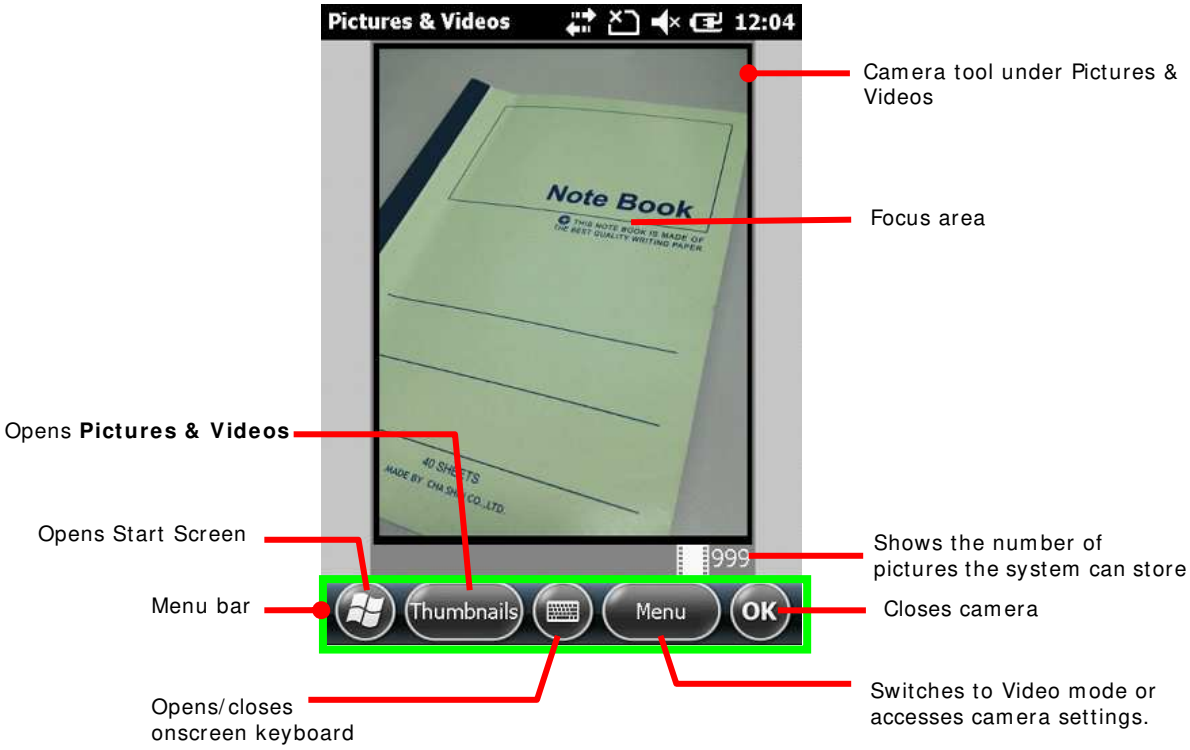
   Pictures and Videos application opens.

2) Tap **Camera** icon located at the upper left of the window.

   Camera opens in portrait mode and readies to take pictures.

3.1.1. CAMERA SCREEN

Camera opens showing subject area on the screen with related information displayed in the lower right corner. A menu bar sitting on the bottom allows users to switch to thumbnail display under **Pictures & Videos**, adjust camera settings, switch to video shooting mode, exit the camera tool and more.



3.2. TAKE PICTURES

By default, pictures are taken in JPEG format and are saved to the mobile computer's internal storage under **My Device\ My Documents\ My Pictures**. To change the default storage path, see Camera Settings.

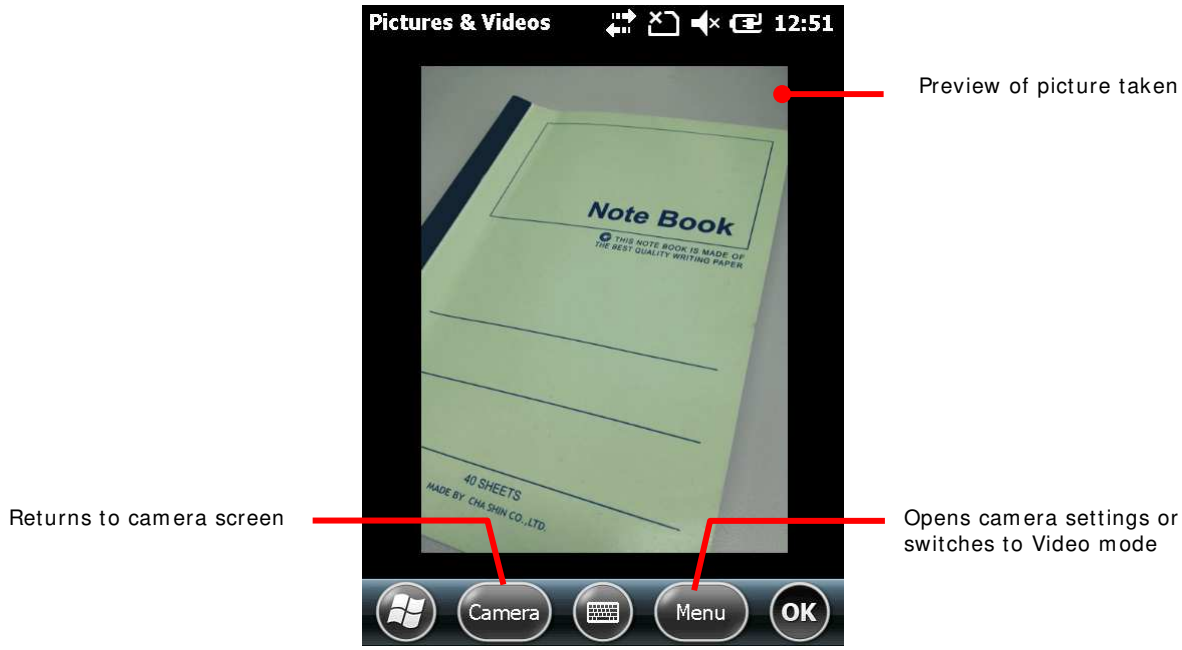
To take a picture:

1) Open camera as described in Launch Camera.

   Camera opens in portrait mode and readies to take pictures.

2) Adjust picture quality and any other settings according to your preferences. See Camera Settings.
3) Frame your object on the screen.
4) Press the Enter button on the keypad to take the picture.

   After the picture is taken, a preview of it will appear briefly on the screen.



By default, pictures taken will be stored under \ **My Device\ My Documents\ My Pictures** in imgxxx.jpg format.

3.2.1. CAMERA SETTINGS

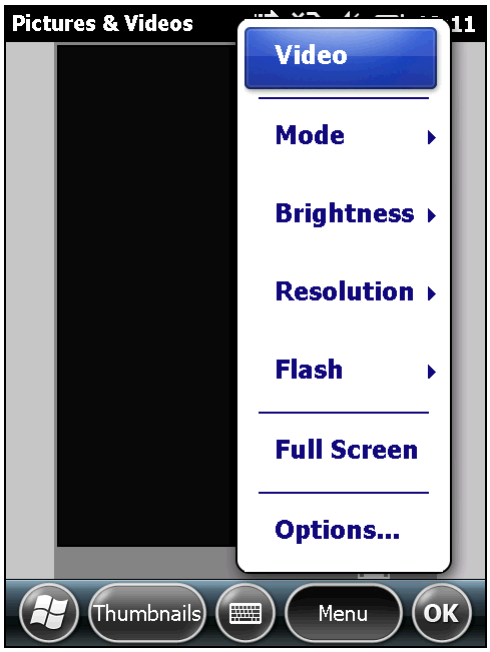
The camera supports changing shooting mode, brightness, resolution, and camera zoom. Users can also enable full screen shooting mode which leaves the screen clean of option buttons and picture information.

To access camera settings:

1) Open camera as described in Launch Camera..
2) Tap **Menu** command on the softkey bar

   A pop-up option menu appears onscreen showing various option settings.

3) Note: The **Menu** command and pop-up option menu are also available in the picture preview screen.



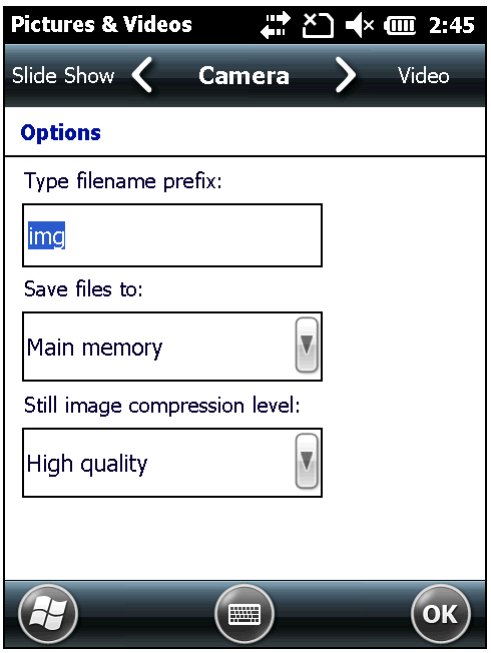
Available menu items are detailed as below:

Item	Description
Video	Switch to video camera.
Mode	Sets camera mode between Normal, Burst or Timer.
Brightness	Sets the brightness between -3 to +3 in increments of 1.
Resolution	The mobile computer supports the following resolutions: 320x240, 640x480, 1280x960, 1600x1200, 2048x1536, 2592x1944.
Flash	Switch flash on or off.
Full Screen	Switches to full screen mode (all menu buttons will be hidden). Tap screen to quit this mode.

Options...	Opens **Pictures & Videos** settings page showing four tabbed pages: **Camera**, **Video**, **General**, and **Slide Show**.

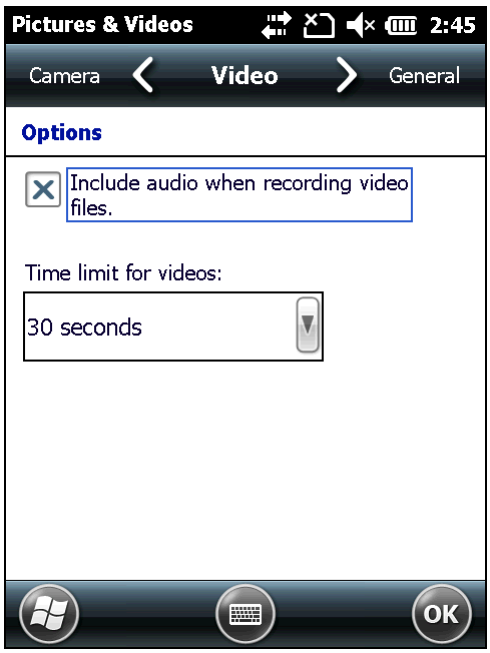
Camera tabbed page:

Sets the file prefix, storage destination and compression level of the stored image.



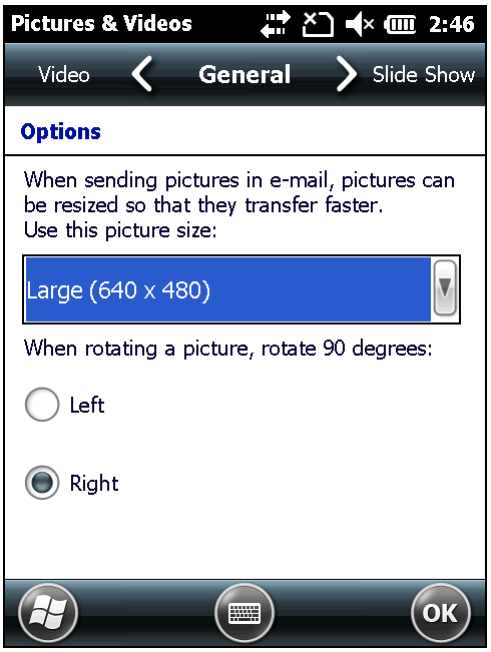
Video tabbed page:

Selects whether to include audio data when recording videos, and the time limit for recording.



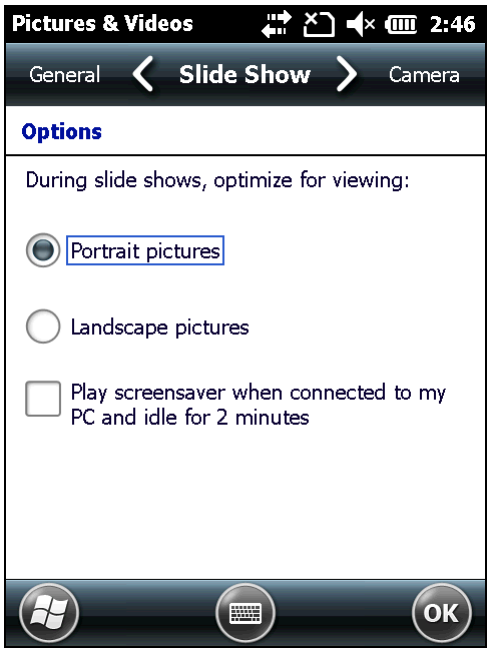
General tabbed page:

Select between the size of the image file to send via e-mail, and the direction to rotate pictures.



Slide Show tabbed page:

Select how to display pictures during slideshow, and whether to play PC's screensaver on mobile computer after certain idle time (mobile computer must be connected to PC).



3.3. LAUNCH VIDEO CAMERA

1) To launch the video camera:
2) Launch camera as described in Launch Camera.
3) Tap **Menu** command on the softkey bar

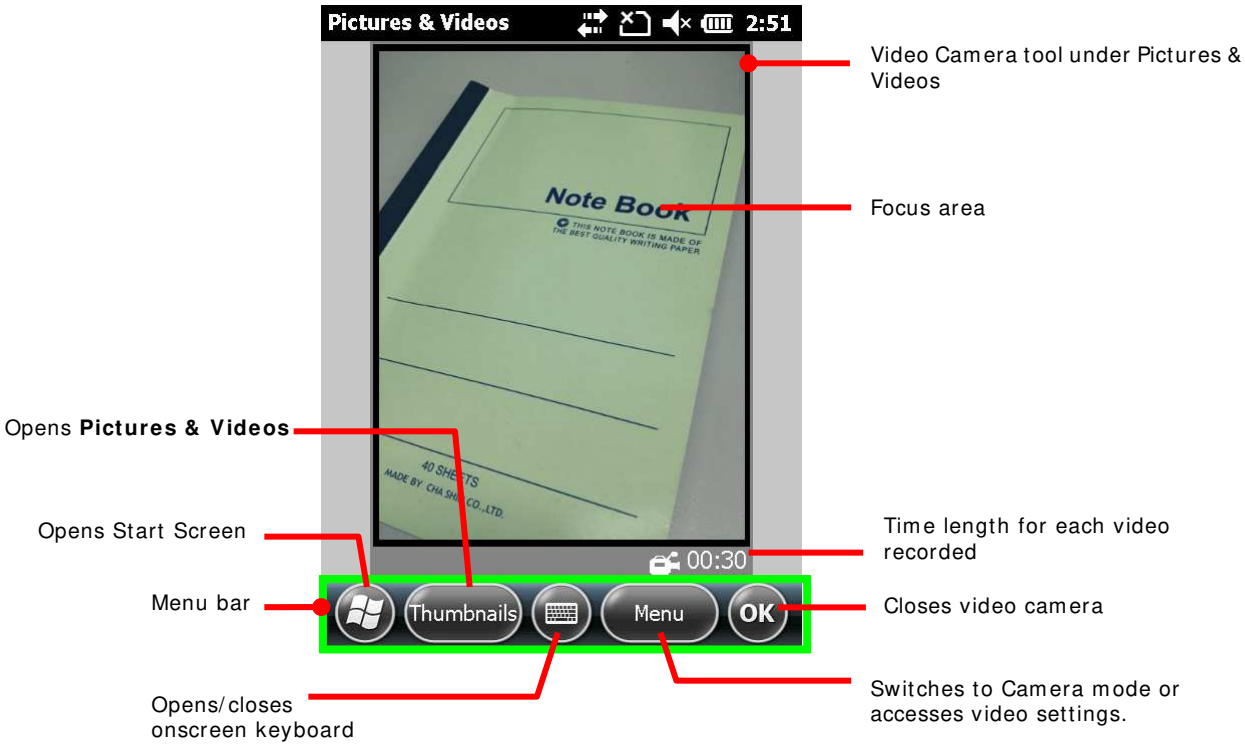
   A pop-up option menu appears onscreen showing various option settings.

4) Tap **Video** in the option menu.

   Video camera is readied to begin shooting.

3.3.1. VIDEO CAMERA SCREEN

Video camera launches showing subject area onscreen with the remaining recording time displayed in the lower right corner. A menu bar sitting on the bottom allows users to switch to thumbnail display under **Pictures & Videos**, adjust camera settings, switch to picture taking mode, exit the camera tool and more.



3.4. SHOOT VIDEOS

By default, videos are shot in WMV format and are saved to the mobile computer's internal storage under **My Device\ My Documents\ My Pictures**. To change the default storage path, see Camera Settings.

To shoot a video:

1) Open video camera as described in Launch Camera.

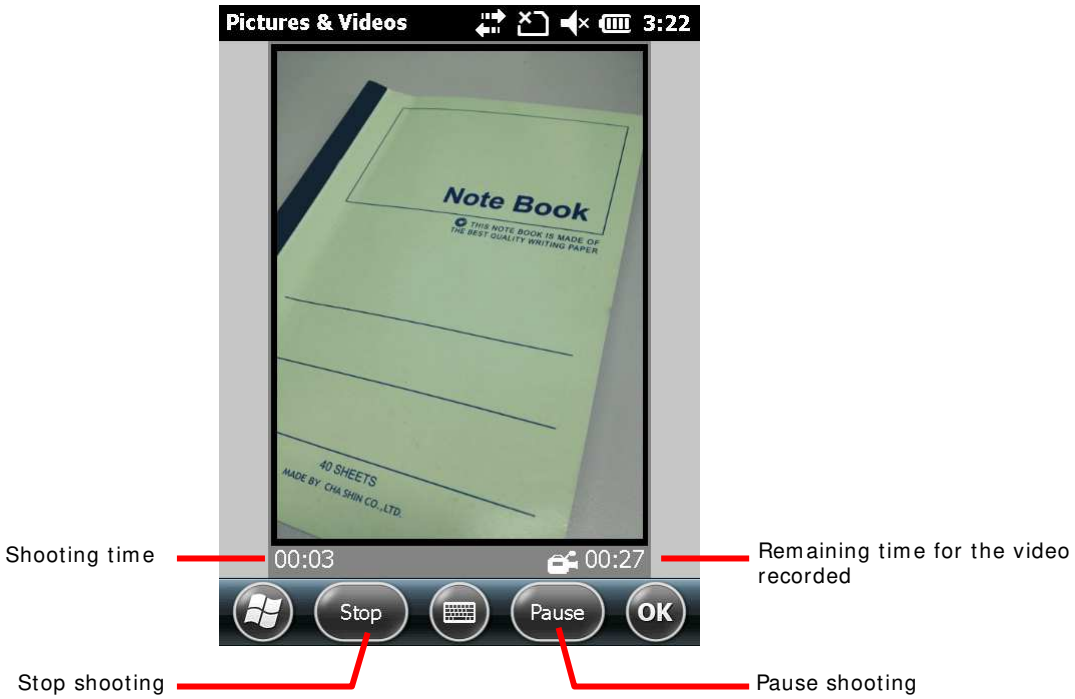
   Video camera opens in portrait mode and readies to shoot.

2) Adjust brightness and other settings according to your preferences. See Camera Settings.
3) Frame your object on the screen.
4) Press the Enter button on the keypad

   The video then starts shooting, and two time meters located respectively on the lower left and right will show the shooting time and the remaining time allowed for shooting the video.

   Press the Enter button once more to end shooting.

   Note: The allowed video shooting length can be adjusted in **Video** tabbed page under **Pictures & Video** settings. See Camera Settings for more details.



By default, videos shot will be stored under **Mobile Device\ My Documents\ My Pictures** in xxx.wmv format.

3.4.1. VIDEO CAMERA SETTINGS

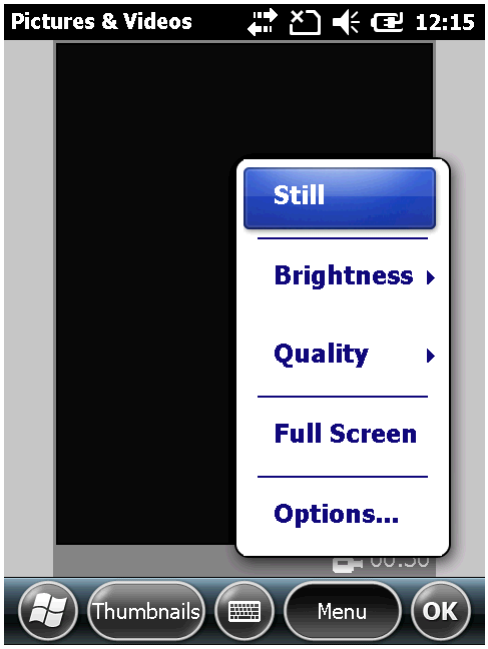
The video camera supports changing brightness and quality. Users can also enable full screen shooting mode which leaves the screen clean of option buttons and picture information.

To access camera settings:

1) Open video camera as described in Launch Camera.
2) Tap **Menu** command on the softkey bar

   A pop-up option menu appears onscreen showing various option settings.

3) Note: The **Menu** command and pop-up option menu are also available in the video preview screen.



4) Available menu items are detailed as below:

Item	Description
Still	Switch to camera.
Brightness	Sets the brightness between -3 to +3 in increments of 1.
Quality	The mobile computer supports 240x320 resolution for video recording
Full Screen	Switches to full screen mode (all menu buttons will be hidden). Tap screen to quit this mode.
Options...	Opens **Pictures & Videos** settings page showing four tabbed pages: **Video**, **General**, **Slide Show** and **Camera**. These are the same as denoted in Camera Settings.

3.5. PICTURES & VIDEOS

Pictures & Videos is an application that views and edits the pictures taken and videos shoot, or those copied or downloaded. It also sets background for Today Screen and Start Screen, and sets avatars for your contacts. It can also be used to email pictures and videos.

LAUNCH PICTURES & VIDEOS

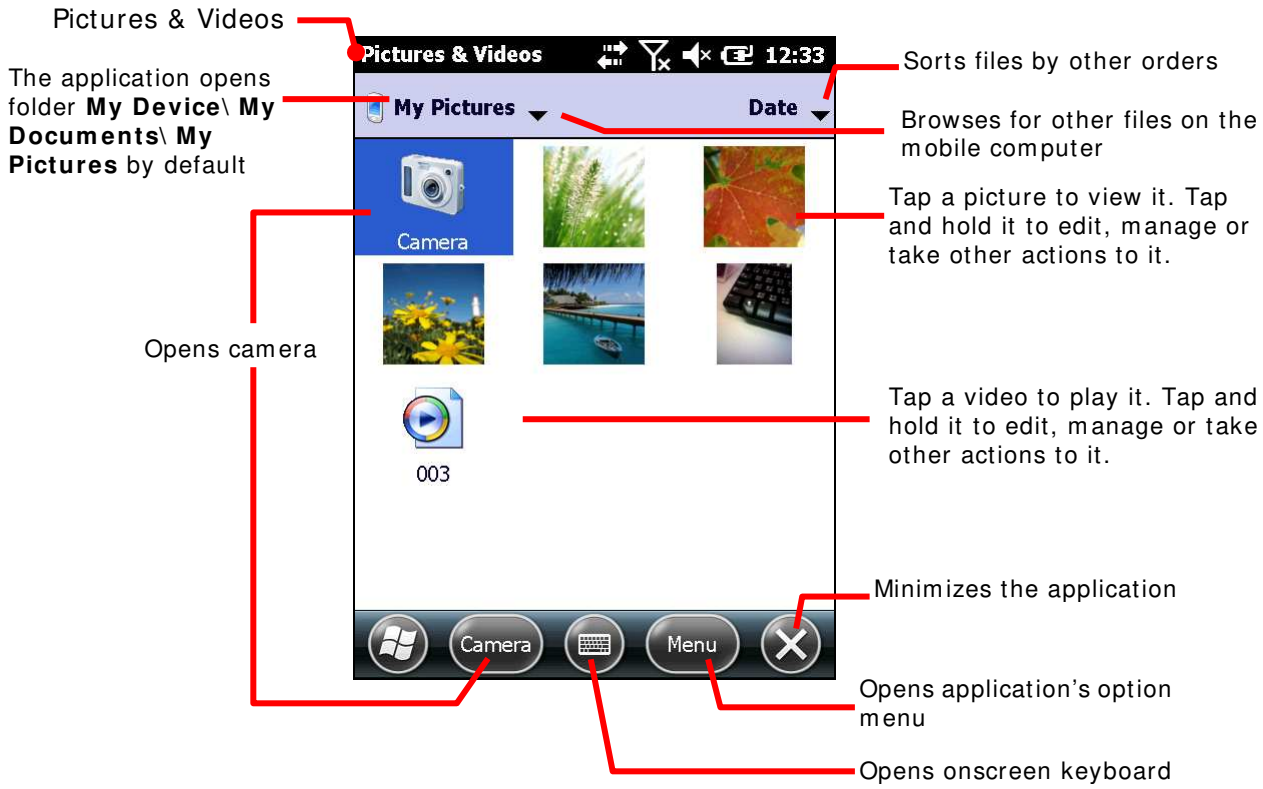
To launch Pictures & Videos:

1) On Start screen, tap **Pictures & Videos** icon .

OR

Tap **Thumbnails** command on camera or video recorder menu bar if it is active at the moment.

Pictures & Videos opens unfolding **My Device\ My Documents\ My Pictures**, the default folder that stores the pictures and videos copied/downloaded from external resources or taken/recorded on the mobile computer.



VIEW A PICTURE OR VIDEO

To view a picture or video:

1) Open Pictures & Video as described in Launch Pictures & Videos.

   Pictures & Videos opens.

2) Tap the thumbnail of the picture or video to view.

The picture displays or the video starts to play onscreen.

TAKE OTHER ACTIONS TO A VIDEO OR PICTURE

To edit, manage or take other actions to a video or picture:

1) Open Pictures & Video as described in Launch Pictures & Videos.

   Pictures & Videos opens.

2) Tap and hold the thumbnail of the picture or video to edit, manage or take other actions to it.

   A context menu comes up.

3) Tap a menu item to perform the desired action.

OR

4) Tap the thumbnail of the prospective picture or video.

   It becomes selected with highlight.

   Tap the command button that comes up on the softkey bar.

Chapter 4

OPERATING SYSTEM

The mobile computer is powered by Windows Embedded Handheld 6.5, a member of Windows Embedded family branded for full compatibility with Windows Mobile 6.5.

Windows Embedded Handheld 6.5 features a prettier UI and a series of fresh new looks unseen in the predecessor Windows CE. The most important enhancement of all is those touch-friendlier UI elements such as the inertial scrolling of lists and redesigned context menus. These elements are offered throughout the platform and are particularly helpful for mobile computing. Users rely only on a few basic gestures such as Tap or Flick to navigate within the OS

Windows Embedded Handheld 6.5 also features a Today Screen. The Start Screen on ther other hand lays out application icons in a staggered manner to maximize the space available to touch each icon and increase icons allowed onscreen.

This chapter goes through the basics of the OS and guides to Today Screen and Start Screen where all features on the mobile computer are accessible from.

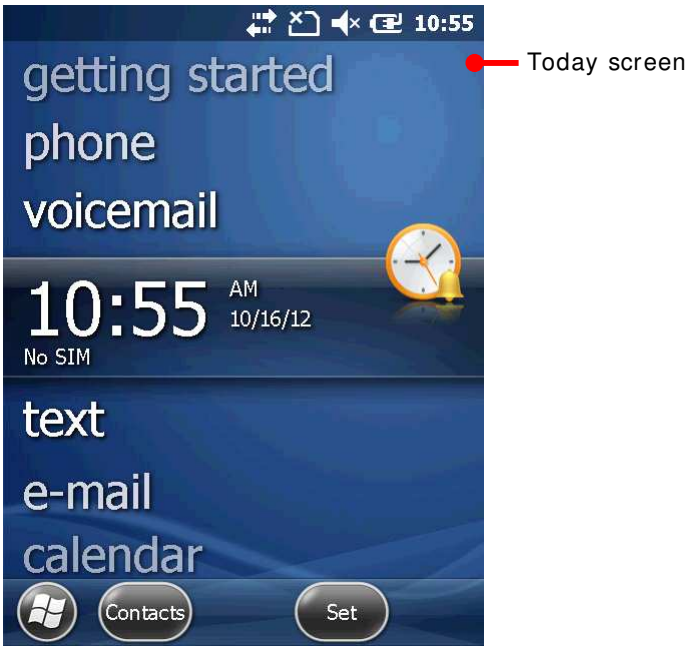
4. IN THIS CHAPTER

4.1. 1ST STARTUP

Finished with the setup as described in Main Battery Setup and Insert SD Card, proceed to power on the mobile computer as described in Power on.

Without a SIM card installed, the mobile computer is still able to connect to an available Wi-Fi hotspot for data. To learn more, see Use Wi-Fi.

When the mobile computer first powers on, the OS boots into Today Screen:

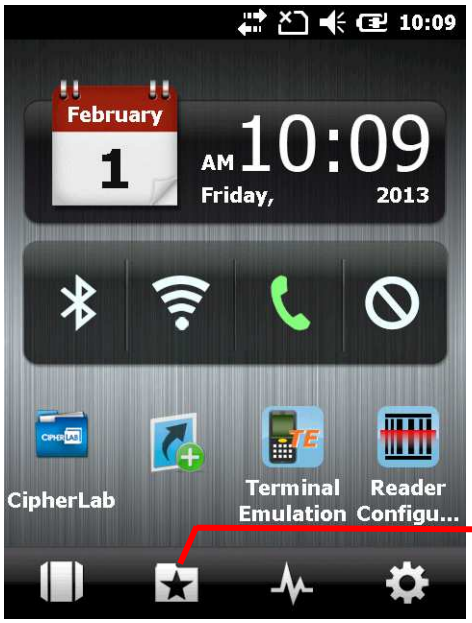


4.1.1. EXIT CIPHERLAB SMART SHELL

SPB Mobile Shell is optional software which is integrated on the mobile computer as per shipping orders. If the mobile computer has Smart Shell software installed on it, the system will enter Smart Shell right after power on or system reset.
Within Smart Shell, users can switch between carousel view and tiles view, and easily launch programs and navigate the mobile computer in a flexible and intuitional manner. While Smart Shell provides smooth and easy operation, you can also exit the software and return to OS's original interface.

To exit Smart Shell:

1) Tap the "favorites" icon on the Smart Shell homepage.



2) Tap the **Settings** icon to open System Settings

3) Tap **Sbp Mobile Shell** to open Smart Shell settings.

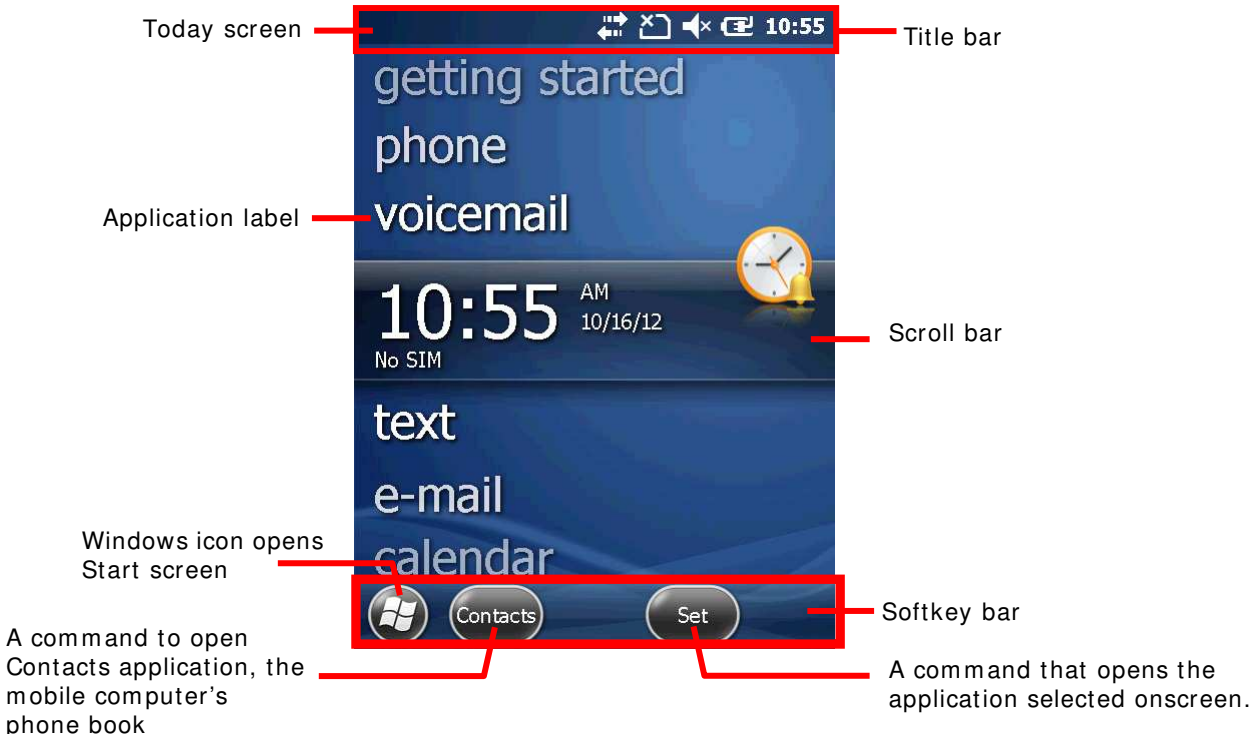
4) Tap the Settings icon seated on the lower right corner of the screen.

Tap **Exit Shell** to exit the Smart Shell and show the OS's Today screen.

4.2. TODAY SCREEN

It is Today screen that first shows oncscreen when the mobile computer powers on or is unlocked. Today screen shows a scrollable list of applications such as pictures, music, clock & time and so on, and the application in the center is always the active one.

When an application is active, today sceen displays additional information, and command buttons appear on the softkey bar to take actions to the application. Tap an active application to open it.



Facility	Description
Notification area	▸ Shows the mobile computer's statues such as time, radio signal strength, battery level and so on. ▸ Displays the notifications issued by OS
Scroll bar	Scrolls up and down the screen to select among the applications.
Application label	▸ Delivers application name. ▸ Delivers application status when selected by scroll bar. ▸ Opens the application when selected (by scroll bar) and tapped.
Softkey bar	A horizontal rectangle bar presented at the bottom of almost every screen within the OS It bears the commands to cause the currently active application/screen to take actions.
Command	Launch actions from the current screen or currently active application. Commands are available in context with the application selected onscreen.
Windows icon	Opens Start screen.

4.2.1. CUSTOMIZE TODAY SCREEN

Customize Today screen to change its appearance and items presented.

To customize Today screen:

1) Tap Windows icon on the softkey bar.
2) Tap **Settings** | **Home**.

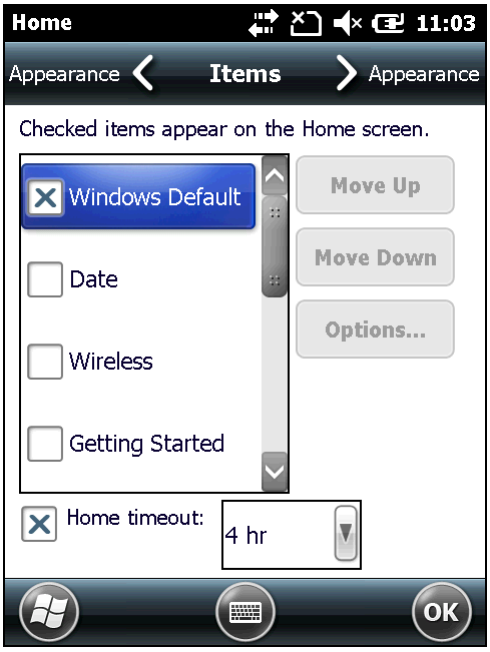
   Home settings open.

3) Select between **Appearance** and **Items** tabs.

   Appearance tabbed page changes the background for Today screen while **Items** tabbed page changes the items to present.

Home Settings
- Appearance tabbed page
Changes the background for Today screen

Home Settings
- Items tabbed page
Changes the items to present on Today screen



4.2.2. RETURN TO TODAY SCREEN

Tap the Home icon on the Start screen to re-open the today screen..

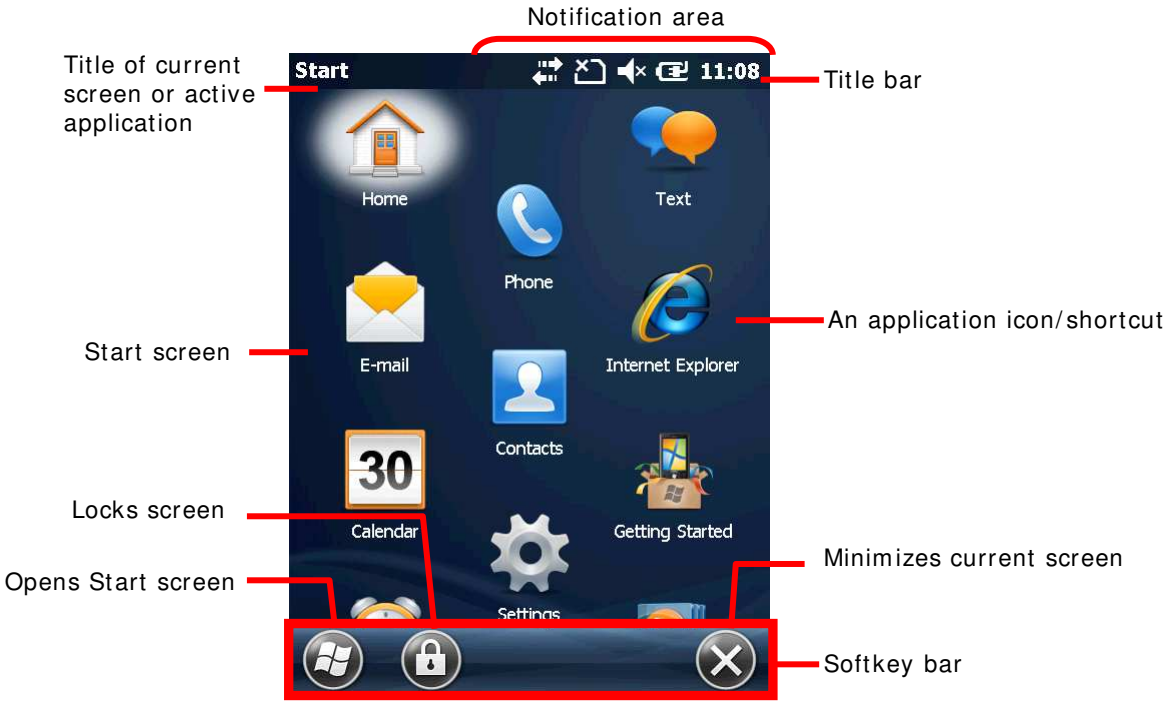
4.3. START SCREEN

Start screen is where all features on the mobile computer are accessed from. This screen lays out the application icons, shortcuts and so on in a staggered manner so icons are more touchable and the number of icons allowed onscreen are increased.

Basic operations on Start screen:

- If you see the icon of the application you want to open, tap it.
- Flick the screen to scroll down and bring more application icons into view. (See also Use Touchscreen.)
- Customize Start screen by changing background and the items to display. See Customize Start Screen for more details.

Take a look around Start screen:



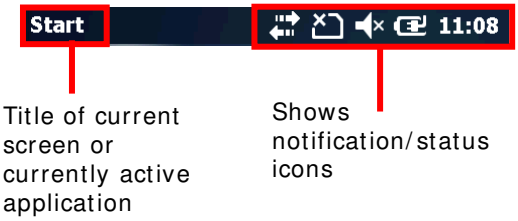
Facility	Description
Start screen	Accesses all applications and settings.
Notification area	Shows the time, radio signal strength, battery status, and other information. It also displays notification icons and status icons.
Minimize button	Minimizes the active application or current screen.
Windows icon	Opens Start screen.
Lock icon	Locks screen.

4.3.1. RETURN TO START SCREEN

Tap Windows icon on the softkey bar or press the physical Windows key to return to Start screen. See

4.3.2. TITLE BAR

At the top of almost every screen is Title bar. It shows a title on the left and a notification area on the right. The title delivers the name of the current screen or currently active application while notification area shows a sequence of graphic icons delivering system statuses or notifications issued to users.



Status icons assert mobile computer's contiguous statues such as time, radio signal strength, battery level and so on. Notification icons report the arrival of a new message, alarm, and some ongoing events. When a notification is issued, an icon comes up in notification area, and the mobile computer produces a sound or vibrates.

A general view of the status/notification icons on the mobile computer:

STATUS & NOTIFICATION ICONS

The OS presents the following icons for users. Note there may be application-particular icons not included here.

External power connected

Battery level (See Monitor Battery Level for details.)

Numeric keypad enters symbols;QWERTY keypad enters uppercase letters.

Numeric keypad enters alphabetic letters; QWERTY keypad enters numbers/symbols.

Keypad Function mode is on.

System sound enabled

System sound muted

Vibrator on

No SIM card installed

3G+ network available

3G+ network connected

3G network available

3G network connected

 HSDPA network available

 HSDPA connected

 EDGE network available

 EDGE connected

 GPRS network available

 GPRS connected

 Phone off

 SIM card locked. PIN code required to turn on phone

 Phone on with signal strength

 Connection is active

 Connection is inactive

 Wi-Fi on but not connected

 WiFi available

 WiFi connected

 Bluetooth in use

 Bluetooth headset in use

 Alarm on

 More notifications to be viewed. Tap Title bar or tap the “Notification” command on the softkey bar to view them all.

 Email received

 Text message received

 Syncing data with a Windows-based PC

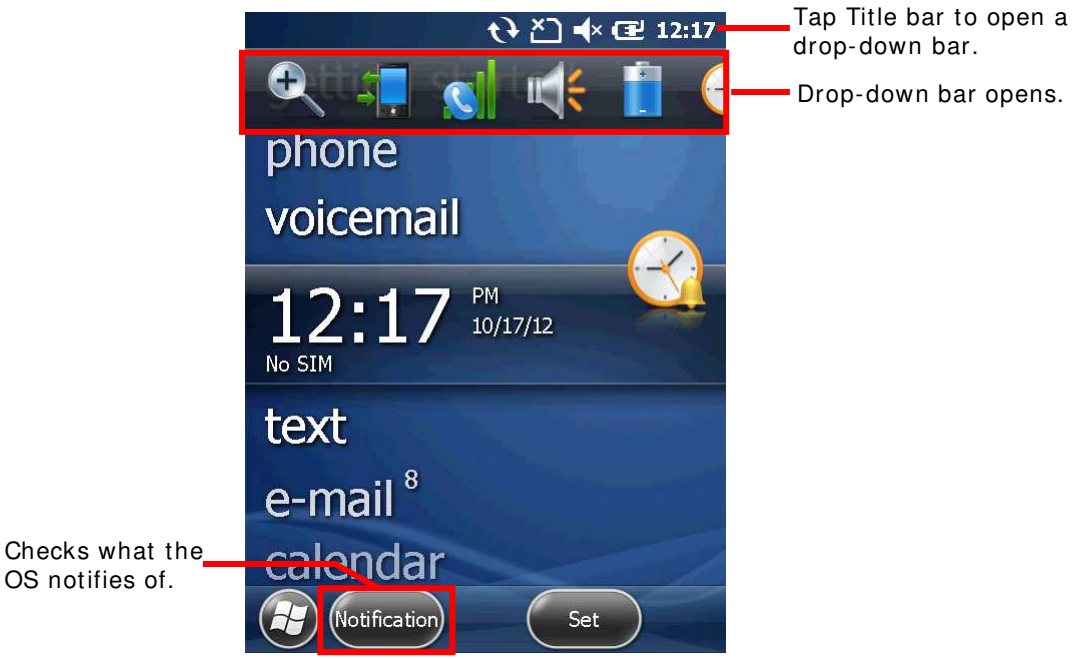
 Roaming

 Microsoft’s appeal for customer feedback to help improve Windows Embedded Handheld software.

To learn more status icons of mobile/wireless data connections, see Radios.

4.3.3. MANAGE NOTOFICATIONS

Status/notification icons are relatively small, however by tapping the Title bar, a drop-down bar will appear to provide larger icons for managing notifications.



Note there are commands that come up on the softkey bar to manage a notification.

A general view of bigger notification/status icons on Drop-down bar:

Icon	Description
	Zooms in/out of current screen.
	Leads to **Wireless Manager** and **Connections** (Manager) where your current mobile data can be viewed and configured.
	Leads to **Wireless Manager** and phone setting where phone status can be viewed and phone can be configured.
	This icon signifies Wi-Fi network(s) are available. Tap it to show available Wi-Fi hotspots and opens **Wireless Manager** to connect.
	Delivers current system/ringer volume and opens volume settings. See Onscreen Volume Gauges for more details.
	Opens power settings where battery level and charging status can be viewed. See More Charging Info.
	Opens Clock & Alarms settings.
	Reports customer feedback to Microsoft for improving Windows Embedded Handheld software.

	Opens the reminder for an alarm or appointment.
	Bluetooth A2DP profile in use. Tap it to access Bluetooth devices list.
	Checks a new e-mail.
	Opens Text application.
	Roaming on

RESPOND TO NOTIFICATIONS

1) Tap Title bar to open Drop-down bar.

   Drop-down bar opens.

2) Tap the status/notification icon to manage.

   Drop-down bar closes and you are taken to the application in question.

CLEAR NOTIFICATIONS

A notification won't be cleared until it is managed. Upon receiving a notification, tap Title bar to open Drop-down bar to manage it, or tap the action command which appears on the softkey bar.

4.3.4. CUSTOMIZE START SCREEN

Customize Start screen by changing the background, application shortcuts, and so on. Rearrange the application shortcuts to make the applications that you use most often easiest to access.

CHANGE BACKGROUND

Craft your Start screen and Today screen with any of your own pictures or a number of designer themes bundled with the OS

APPLY ONE OF YOUR OWN PICTURES

1) On Start screen, tap **Pictures & Videos**  .

   Pictures & Videos opens.

2) Tap a picture. The picture opens. Tap the "Menu" command on the softkey bar.

OR

   Tap and hold a picture.

   Context menu shows up directly.

3) Tap **Set as Home background**.

   The picture is set as background

APPLY ONE OF THE DESIGNER THEMES:

1) On Start screen, tab **Settings** | **Home**.

   Appearance tabbed page opens.

2) Tab a theme from the list.
3) Tap the "OK" command on the softkey bar.

   Change is applied to Today & Start screens.

MOVE APPLICATION SHORTCUTS ON START SCREEN

On Start screen, you can re-tile the application shortcuts (icons) as you like. For example, move your favorite applications atop others:

1) Tap and hold an application icon until it is hoisted by a white border.
2) Drag the application icon and do not release until it reaches the desired position.

ADD ITEMS TO START SCREEN

A variety of shortcuts can be added to Start screen to quick-open some files or bookmarked webpages or applications.

The mobile computer relies on File Explorer  , one of the OS featured applications, to add application shortcuts to Start screen:

ADD APPLICATION SHORTCUTS

1) On Start menu, tap File Explorer  .

   File Explorer opens.

2) Browse to the executable file of the application to add shortcut for.

3) Tap and hold the executable file.

   A context menu comes up.

4) Tap **Copy**.
5) Browse to **My Device**\ **Windows**\ **Start Menu**\ **Programs**.

   Programs folder opens.

6) Tap and hold any vacant spot onscreen.

   Context menu comes up

7) Tap **Paste Shortcut**.

   The application shortcut is added to Start screen.

ADD BOOKMARKED WEBPAGE SHORTCUTS

1) On Start screen, tap File Explorer  .

   File Explorer opens.

2) Browse to **My Device**\ **Windows**\ **Favorites**.
3) Tap and hold the bookmark to create shortcut for.

   Context menu comes up.

4) Tap **Copy**.
5) Browse to **My Device**\ **Windows**\ **Start Menu**\ **Programs**.

   Programs folder opens.

6) Tap and hold any vacant spot onscreen.

   Context menu comes up

7) Tap **Paste Shortcut**.

   Shortcut to the bookmarked page is added to Start screen.

ADD FILE SHORTCUTS

1) On Start screen, tap File Explorer  .

   File Explorer opens.

2) Browse to the file to create shortcut for.
3) Tap and hold it.

   Context menu comes up.

4) Tap **Copy**
5) Browse to **My Device**\ **Windows**\ **Start Menu**\ **Programs**.

   Programs folder opens.

6) Tap and hold any vacant spot onscreen.

   Context menu comes up.

7) Tap **Paste Shortcut**.

Shortcut to the file is added to Start screen.

REMOVE ITEMS FROM START SCREEN

The mobile computer relies on File Explorer  to remove an application shortcut from Start screen:

1) On Start screen, tap File Explorer  .

   File Explorer opens.

2) Browse to **My Device\ Windows\ StartMenu\ Programs**.

   Programs folder opens. This is where all applications/bookmarks/file shortcuts are.

3) Tap and hold the shortcut to remove.

   Context menu comes up.

4) Tap **Delete**.

   The shortcut is removed from Start screen.

4.3.5. START SCREEN ICONS

Start screen presents a number of icons in a staggered pattern that makes them easily touchable. Each icon opens an application, folder or a group of settings when it is tapped. This section will give an overview of these icons.

Icon	Name	Description
	Home (Today)	Opens Today screen. See Today Screen.
	Phone	Launches the mobile computer's phone. (Not available)
	Text	Sends SMS text messages.
	E-mail	Pens and sends emails.
	Contacts	Integrates all of your contacts, including e-mail and instant messenger contacts. This application is similar to the phone book on a cell phone.
	Internet Explorer	Browses world wide web.
	Calendar	Creates and manages events, meetings, and appointments.
	Settings	Accesses system settings. See System Settings for details.
	Getting Started	Opens Getting Started application to set up some OS basic features.
	Alarms	Opens Clock & Alarms application to: ▸ Set date, time, time zone for your locale. ▸ Set and manage alarms.
	Pictures & Videos	Views pictures and plays videos downloaded, copied or taken/shot with the built-in camera. See Pictures & Videos.
	Internet Sharing	Shares the mobile computer's mobile data connection with another computer through a USB or serial cable. See USB Internet Sharing & Bluetooth Internet Sharing for details.
	Search Phone	Searches contacts, files and other data on the mobile computer.

	Office Mobile 2000	Opens Microsoft Office suite applications including Excel Mobile, SharePoint WorkSpace Mobile, OneNote Mobile, Word Mobile, and PowerPoint Mobile.
	Windows Media	Plays audio/video files.
	MSN Weather	Checks the weather of your locale and other parts of the world.
	Windows Live	Accesses Windows Live services (such as Hotmail) or searches world wide web.
	MSN Money	Checks stocks.
	Calculator	Performs mathematical calculations.
	Notes	Creates notes by typing on the physical keypad or text entering on the onscreen keypad.
	Tasks	Creates, tracks, and manages tasks.
	File Explorer	Browses and manages the files on local storage.
	ActiveSync	Synchronizes Microsoft Office Outlook data between the mobile computer and another Windows-based computer such as your PC. See Syncing Tools and subsequent sections for more details
	Task Manager	Monitors the active applications and CPU/memory usage on the mobile computer. See Task Manager.
	Help	Accesses OS online help.
	Remote Desktop Mobile	Connects to a remote computer.
	SimTkUI	Accesses the WAP/XML services provided by your mobile carrier.

4.4. SUSPEND & RESET MOBILE COMPUTER

To save from repeatedly charging and replacing batteries, suspend the mobile computer when you are not actively using it. “Suspension” is a state to hold the device from running without turning off power. It is a “soft-off” state whicih enables less power consumption, and also a state from which a device can quickly awake since there is no need to restart the software (applications).

4.4.1. SUSPEND MOBILE COMPUTER

The mobile computer is suspensible both manually and automatically. See also Wake Up Mobile Computer.

MANUAL SUSPENSION

1) Press the power button without holding it.

   Power menu opens.

2) Tap **Suspend** in the power menu.

   The mobile computer enters suspension.

OR

Press the power button and let the mobile computer enter suspension automatically after the five-second countdown.

AUTO-SUSPENSION

Set up a power plan to suspend the mobile computer in an apt timing.

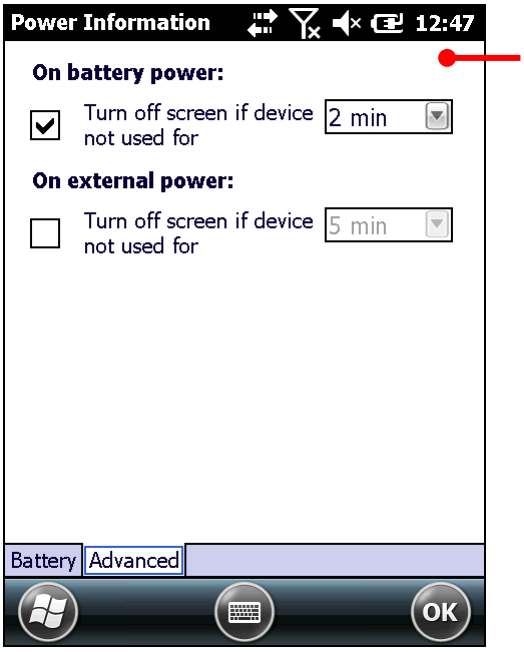
To set up a power plan:

1) On Start screen, tap **Settings** | **Systems** | **Power Information**  .

   Power setting opens showing Battery tabbed page.

2) Tap **Advanced** tab.

Advanced tabbed page opens.



Power Information's **Advanced** tabbed page

3) Set a time to turn off LCD and suspend the mobile computer.

Note the following cases also suspend the mobile computer:

- Battery door isn't in place.
- Battery fails.
- When the touchscreen of the mobile computer is facing down

To get the most from the battery power, see Optimize Battery Life.

4.4.2. WAKE UP MOBILE COMPUTER

"Waking up" refers to restoring the suspended device to its previous working state. The mobile computer can be awoken both manually and automatically.

MANUAL AWAKENING

Press (without holding) the power button or central scan key to wake up the mobile computer.

AUTO-AWAKENING

The mobile computer wakes up by itself when either of the following happens:

- USB or serial cable is plugged in
- AC power cord is plugged in
- WWAN ringing signal occurs
- RTC alarm occurs

Note: There are certain cases when the mobile computer cannot be awoken:
(1) When battery door isn't installed in place.
(2) Imperfect contact exists between main battery and battery chamber contact pins.

4.4.3. RESET MOBILE COMPTUER

The mobile computer features two reset mechanisms, warm boot and cold boot. Performing these two resetting acts helps resolve certain problems within the OS and applications. These two actions can be performed by combined use of the power button and the reset toggle located on the mobile computer's keypad.

[1] Power button

[2] Reset toggle

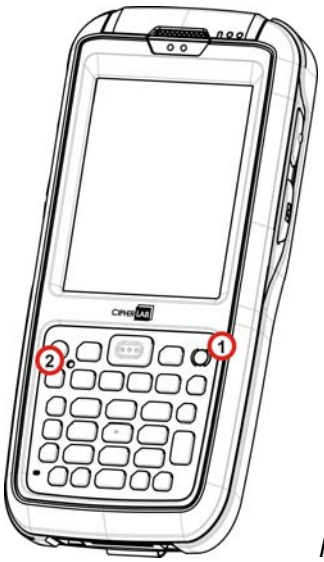


Figure 16: Reset

WARM BOOT (SOFT RESET)

"Warm boot" is also known as "soft reset". When the mobile computer runs slower than normal or when one or more active applications crash, perform warm boot to close all active applications and restart the mobile computer without turning off power supply to hardware.

After warm boot, all flash memory, system settings and clock/calendar time are kept, and all saved data are preserved. However unsaved data is gone after warm boot if the warm boot is performed when the application in question is still running.

To perform "warm boot":

- Poke the reset toggle using the stylus.

COLD BOOT (HARD RESET)

"Cold boot" is also known as "hard reset". In case one or more applications are misbehaving and the mobile computer doesn't cooperate, perform cold boot as the final act.

"Cold boot" restarts the mobile computer by turning power off and then powering on again. As "Cold boot" initializes DRAM, all data cached in DRAM is gone after cold boot. However all flash memory, system settings and clock/calendar time are preserved.

To perform "cold boot":

- Press and hold the physical Power button and poke the reset toggle.

  Note Power button should be held down and not released until the mobile computer powers on again.

4.5. SET SCREEN LOCK

For the sake of security, you may want to restrict the access to the mobile computer by a self-set password. The OS supports setting up a password to recover the access to the mobile computer.

To set up an unlock password:

1) On Start screen, tap **Settings** | **Lock**.

   Password setting opens.

2) Configure how much time the mobile computer should be left unused before locking out the screen. Set up a unique password to unlock the screen.
3) Tap the "OK" command on the softkey bar to apply the change and quit setting.

4.5.1. UNLOCK SCREEN

Once a screen lock is set, the screen locks out all access after the mobile computer is left idled for the defined time. To recover access to the mobile computer:

1) On the locked screen, tap and drag the lock icon  to the right or left.

   An onscreen keypad appears resembling an average phone keypad.

2) Enter either the password that unlocks the screen or an emergency call number.

Enter the password to unlock screen.

If an emergency call number is entered, the buttons to place and end calls display.

3) Follow onscreen instructions to proceed.

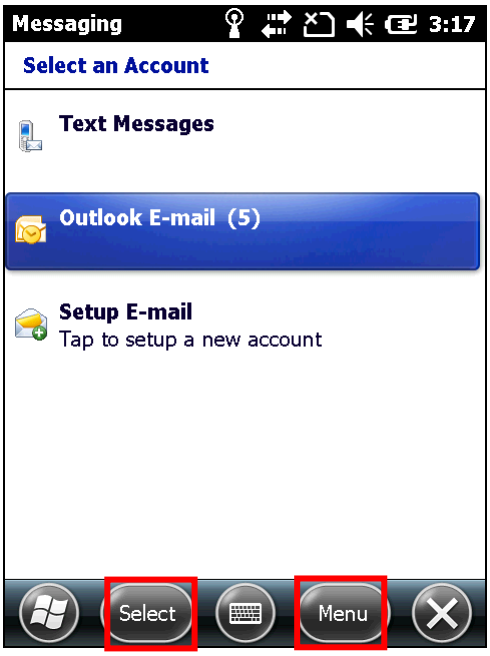
4.6. WORK WITH MENUS

The OS presents two kinds of menus: option menus and context menus. By these menus, users are able to operate onscreen and use applications.

4.6.1. OPTION MENUS

Normally a screen or an active application features a "Menu" command  on the softkey bar to launch an "option menu", which causes actions to be taken by the screen or the active application. Examples are:

Internet Explorer features a menu bar along the bottom that includes a "Menu" command to open a option menu.



E-mail application features two commands on the softkey bar. Tap a command to produce actions taken by the application.

Note some screens/applications may not have an option menu.

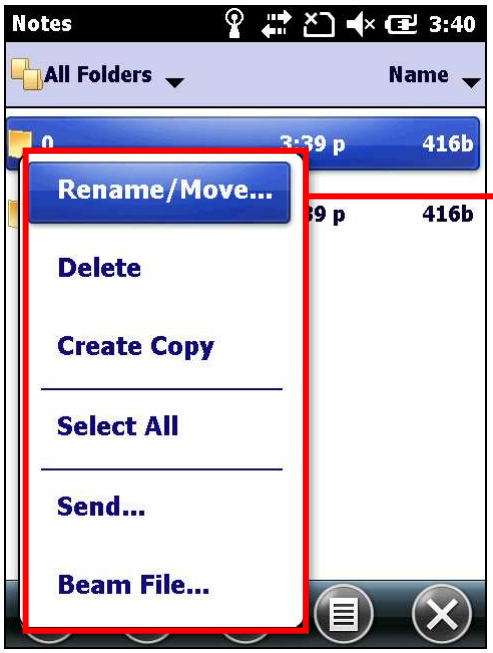
A screen that doesn't feature a "Menu" command on the softkey bar.

An example of Start screen.

4.6.2. CONTEXT MENUS

The context menu on the other hand contains the actions to be performed on a specific item selected onscreen. Tap and hold an onscreen item to open the context menu.

Not all items have context menus. Nothing happens if you tap and hold such an item.



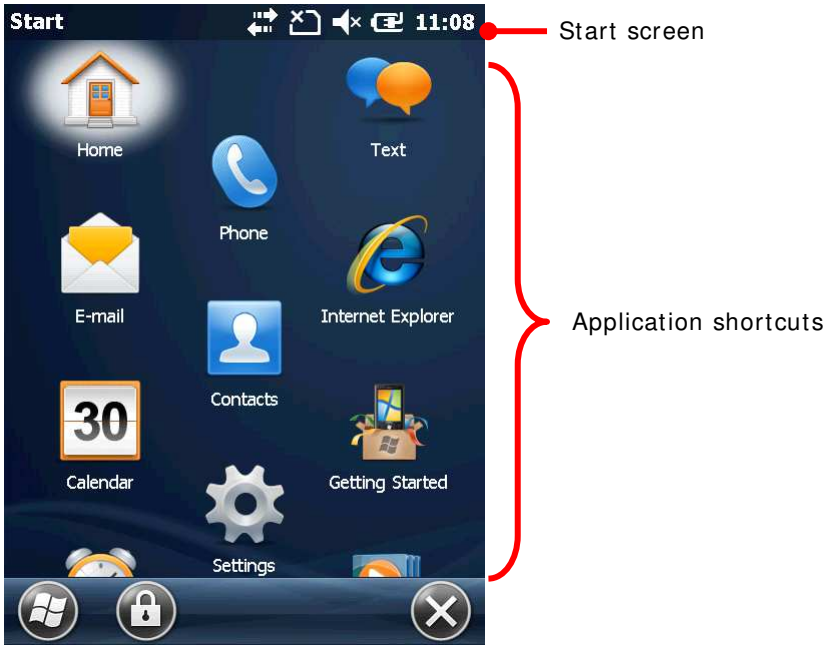
A context menu launches for a selected item.

An example of Notes application.

4.7. MANAGE APPLICATIONS

On Windows Embedded Handheld 6.5, Start screen is where all inherent applications of the OS are accessed from.

In the OS, when you run an application, the other applications that have been running don't shut down but keep on running whether it is music that is being played or a webpage that is being browsed.



4.7.1. TASK MANAGER

The OS featured Task Manager is a tool to monitor the memory and CPU resources consumed by each running application and cached process. Task Manager also provides an interface for users to close applications and switch between the opened applications.

LAUNCH TASK MANAGER

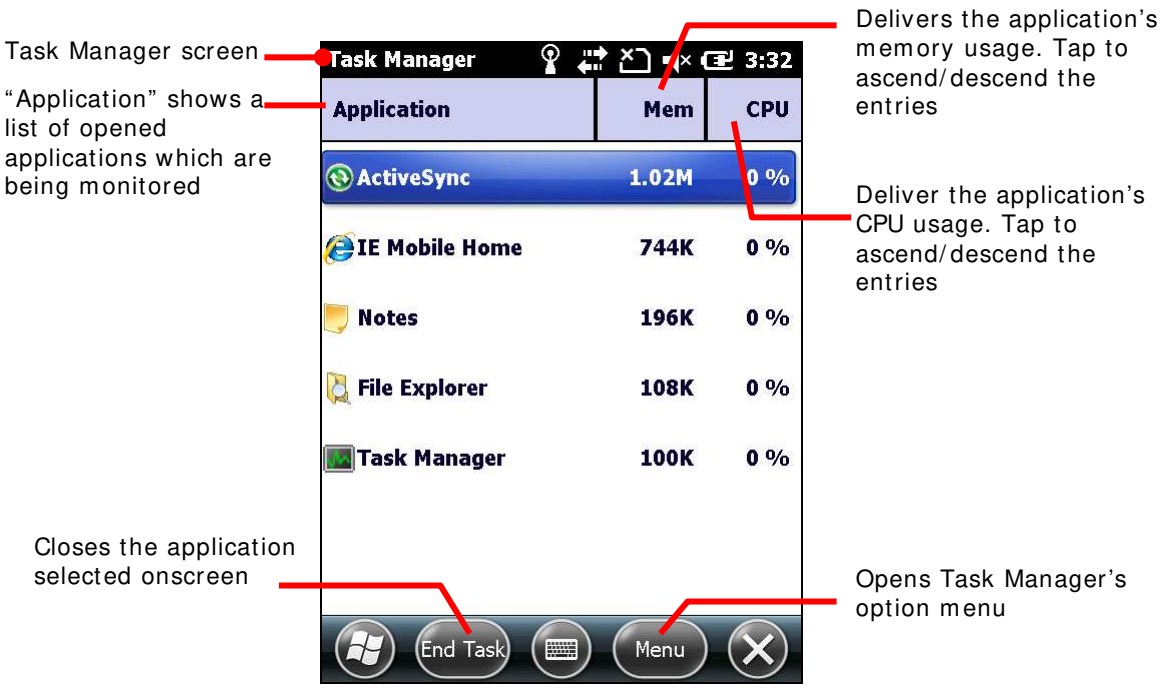
To launch Task Manager:

1) On Start screen, tap Task Manager icon .

   Task Manager opens showing monitored applications.

MONITOR OPENED APPLICATIONS

Upon launch, Task Manager shows a list of all opened applications which are under monitor:



To monitor cached processes, see Monitor Cached Processes.

CLOSE APPLICATIONS

Close an application when it isn't used, or when it is misbehaving. Check for any misbehaving applications by looking up its usage of memory and CPU.

In the OS, how to close an application varies. Some applications have inherent facilities to close themselves such as a GUI button or a menu command while others don't. When it is the latter case, Task Manager closes them for you.

To close an application by Task Manager:

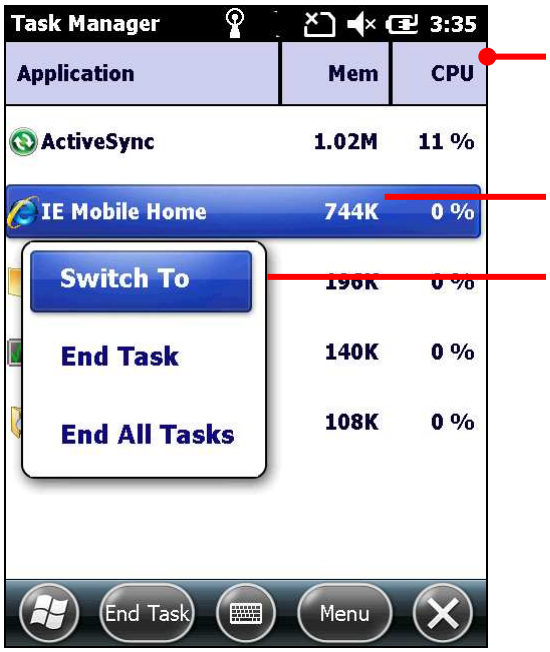
1) Launch Task Manager as described in Launch Task Manager.

   Task Manager opens monitoring opened applications.

2) Tap and hold the application to close. From the context menu that comes up, tap **End Task**.

OR

Tap the application to close. The application is then highlighted onscreen. Tap the "End Task" command on the softkey bar.



SWITCH TO ANOTHER OPENED APPLICATION

To switch to another opened application:

1) Launch Task Manager as described in Launch Task Manager.

   Task Manager opens monitoring opened applications.

2) Tap and hold the application to switch to.

   Context menu shows up.

3) Tap **Switch to**.

   The desired application opens onscreen.

MONITOR CACHED PROCESSES

Task Manager  also monitors how much RAM and CPU is being consumed by a cached processes.

To monitor cached processes:

1) Launch Task Manager as described in Launch Task Manager.

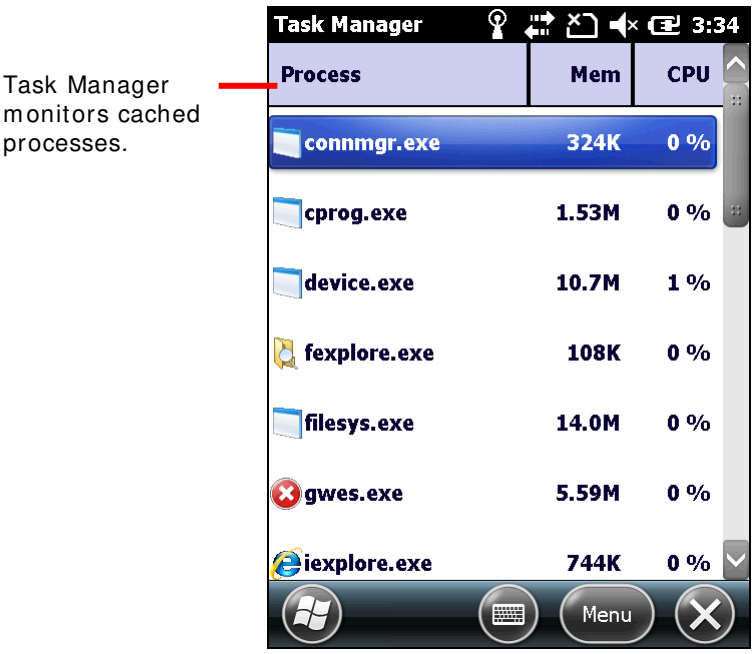
   Task Manager opens monitoring opened applications.

2) Tap the “Menu” command on the softkey bar.

   Option menu opens.

3) Tap **View** | **Processes**.

Task Manager shifts to monitor processes.



Note: Stopping an application or process or service may interrupt one or more dependant functions on the mobile computer. You may need to restart the mobile computer to recover full functionality.

DOWNLOAD & INSTALL APPLICATIONS

A rich resource of applications is downloadable from the Internet to run on the OS The executable files for installing on Windows Embedded Handheld 6.5 devices are named with the suffix ".cab", short for "cabinet". Download a ".cab" file that supports Windows Embedded Handheld 6.5.

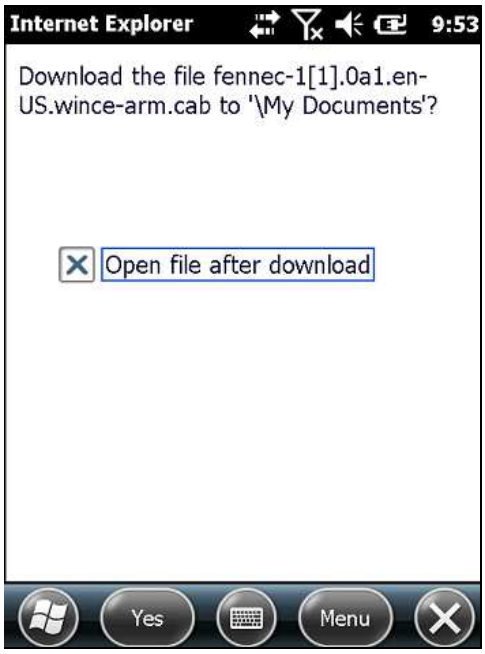
Warning: To protect your mobile computer and personal data, always download applications from trusted sources.

As mentioned in Add/Remove Programs, you can download and install an application on your PC first and offload it to the mobile computer later using Microsoft's ActiveSync.

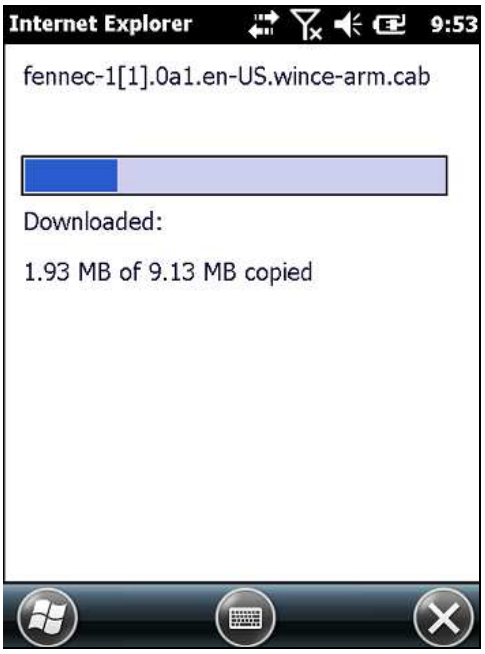
Alternatively, the OS allows you to download and install an application right from the mobile computer.

To download an application, the mobile computer needs to connect to Internet first. See Radios or USB Pass-through Networking or Bluetooth Pass-through Networking to get data connections for the mobile computer.

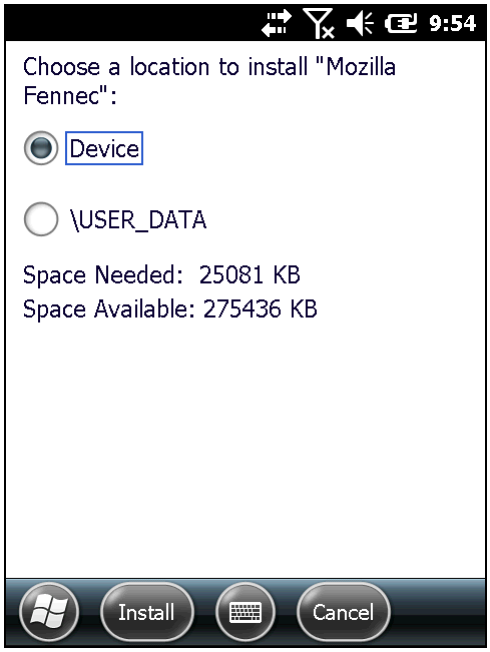
After download finishes, use File Explorer to browse to the application program in the local storage. Tap the program file to run the installation.



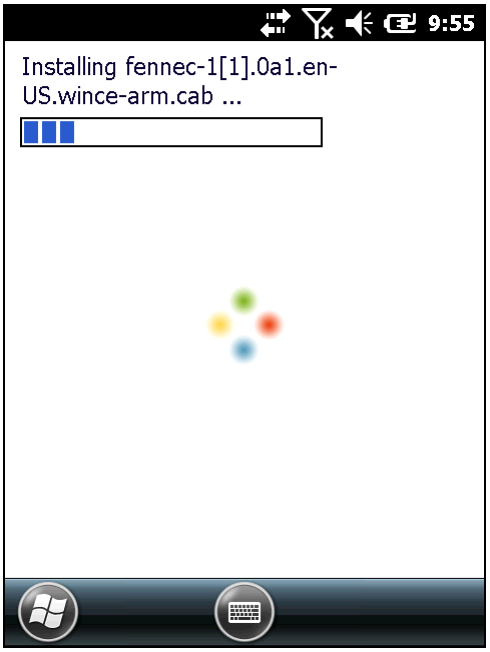
This screenshot shows downloading an application program to the mobile computer. When asked to confirm the download, tap the "Yes" command on the softkey bar.



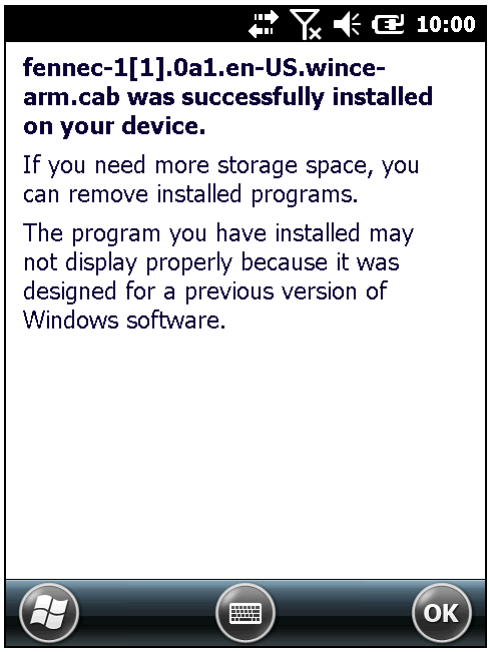
Download starts and proceeds.



If the mobile computer is equipped with an SD card, you will be provided the option to install the application either on external or internal storage. If an SD card is not present on the mobile computer, only internal storage directories will show.



Installation begins.



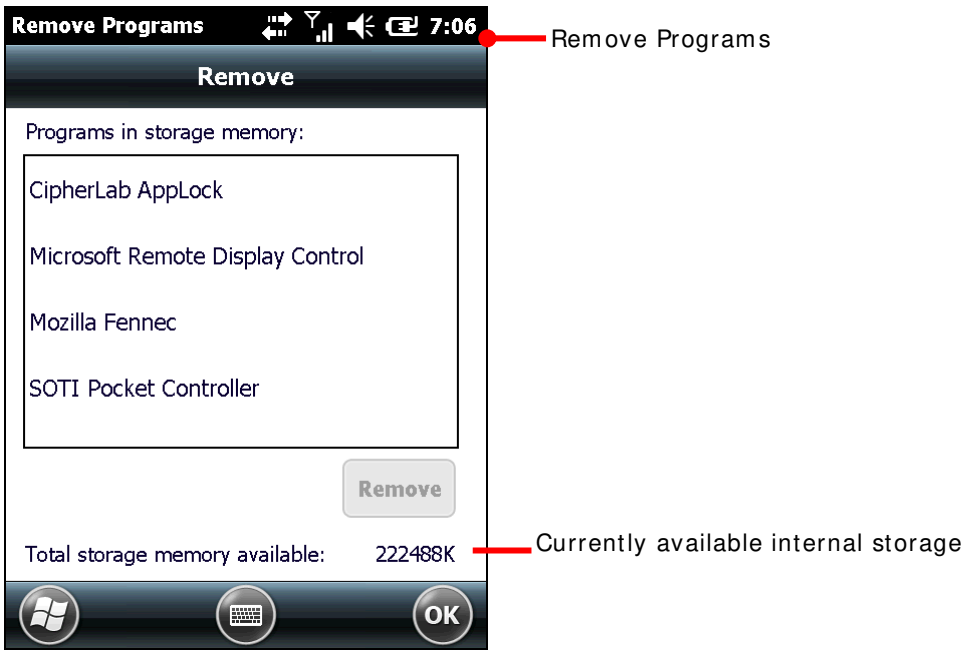
Installation is complete. Tap "OK" command to finish and quit installation.

UNINSTALL APPLICATIONS

On the mobile computer, the acquired (non-inherent) applications are subject to your manual uninstallation. To uninstall an application:

1) On Start screen, tap **Settings** | **System** | **Remove Programs** .

   Remove Programs opens showing the applications downloaded and installed from external sources.



2) Tap the application to remove.

The lower-right “Remove” button becomes available.

3) Tap the “Remove” button to uninstall the application.
4) Follow onscreen instruction to complete through the uninstallation.

Chapter 5

RADIOS

The mobile computer is a versatile networker. It integrates Wi-Fi and Bluetooth for wireless data, and optionally a HSPA+ (3.8G) module for mobile data. It also includes a GPS receiver which can detect your locations on earth with street-level accuracy. With the help of these radios, the mobile computer keeps users online all the time.

In this chapter, you will learn how these radios can work for you.

5. IN THIS CHAPTER

5.1. ACCESS CELLULAR WAN

When you insert a SIM card in the mobile computer and power on the phone module, the mobile computer will connect to your mobile carrier's cellular wide area networks for data.

Different locations may have different mobile networks available. The mobile computer auto-connects to the fastest mobile network available for data.

To access the Internet, set the mobile computer to use either Wi-Fi or SIM-enabled cellular data. See also Use Wi-Fi.

5.1.1. STATUS ICONS

The title bar features the following icons to deliver the mobile (WWAN) network connected to, with signal strength.

Icon	Description
	3G+ network available
	3G+ network connected
	3G network available
	3G network connected
	HSDPA network available
	HSDPA connected
	EDGE network available
	EDGE connected
	GPRS network available
	GPRS connected
	HSDPA/EDGE/GPRS in use
	Data limited to 2G only

5.1.2. CHECK NETWORK IN USE

To check what network you're using now:

1) On Start screen, tap **Settings** | **Connections** | **Wireless Manager**  .

   Wireless Manager opens.

2) Tap the "Menu" command on the softkey bar.

   Option menu shows.

3) Tap **Phone Settings**.

   Phone settings open showing **Sound** tabbed page.

4) Tap continuously on the tabs to bring **Network** tab into view.
5) Tap **Network** tab.

Network tabbed page opens showing the network currently connected to at the top.

5.1.3. ENABLE/DISABLE MOBILE DATA

To turn on/off the mobile computer's mobile data (HSPA+):

1) On Start screen, tap **Settings** | **Connections** | **Wireless Manager** .

   Wireless Manager opens.

2) Tap the "Menu" command on the softkey bar.

   Option menu opens.

3) Tap **Disconnect Cellular Data**.

   Mobile data is disabled.

5.1.4. USE ONLY 2G NETWORKS

Limit mobile data to 2G networks (GPRS or EDGE) to extend battery life or when you are not intensively transmitting data.

To limit mobile data to only 2G:

1) On Start screen, tap **Settings** | **Connections** | **Wireless Manager** .

   Wireless Manager opens.

2) Tap the "Menu" command on the softkey bar.

   Option menu opens.

3) Tap **Phone Settings**.

   Phone settings open.

4) Tap continuously on the tabs to bring **GSM**/ **UMTS** tab into view.
5) Tap **GSM**/ **UMTS** tab.

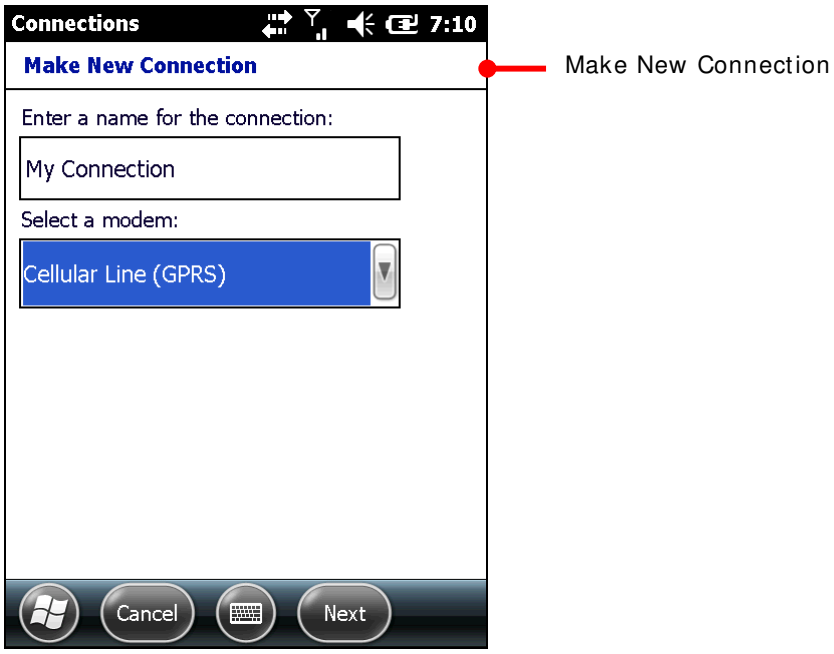
GSM/UMTS tabbed page opens.

6) Tap **GSM (2G Only)** from the drop-down bar.
7) Tap **Apply** to apply the change.
8) Tap the "OK" command on the softkey bar to quit setting.

5.1.5. CELLULAR DATA SETUP

To set up mobile data (GPRS/EDGE/UMTS/HSPA):

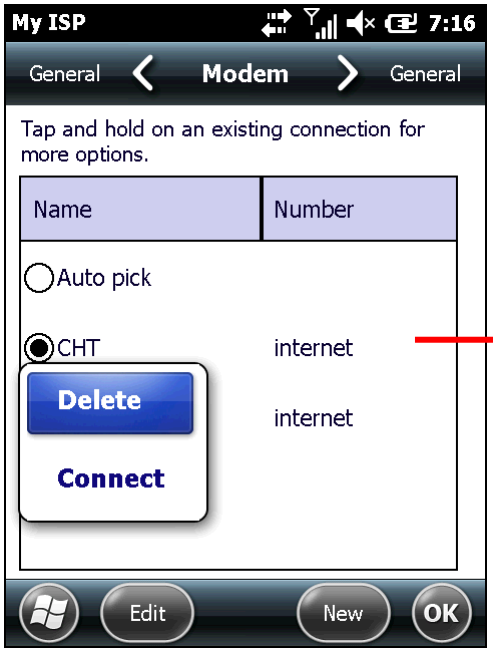
1) On Start screen, tap **Settings** | **Connections** | **Connections** (Manager)  .
Connections setting opens showing **Tasks** tabbed page.
2) Tap **Add a new modem connection** under **My ISP**.
Make New Connection page opens.
3) Name the connection.
4) From **Select a modem** drop-down menu, tap **Cellular Line** (**GPRS**).



5) Tap **Next** to proceed.
6) Enter the Access Point Name (APN) of the connection. Consult your mobile carrier for such APN (for instance, "Internet").
7) Enter the username, password, and domain if your connection needs them. And tap the **Advanced...** button if your connection needs TCP/IP and specific server address.
8) Tap **Finish** on the softkey bar to apply the settings.

The mobile computer tries to connect to your mobile service. Once connected, you can check for connection as described in Check Network in Use.

If you have two or more different networks set up, tapping and holding an item provides options for you to either delete or connect to the selected network.



Tap and hold the selected item. Context menu pops up.

Note to turn off Wi-Fi to access mobile data because Wi-Fi supersedes mobile data.

5.1.6. EDIT & ADD ACCESS POINTS

If it is agreed between you and your mobile carrier that the current Access Point Name (APN) should be changed or a new access point needs to be created, consult your mobile carrier for the APN and detailed settings in order to have it edited.

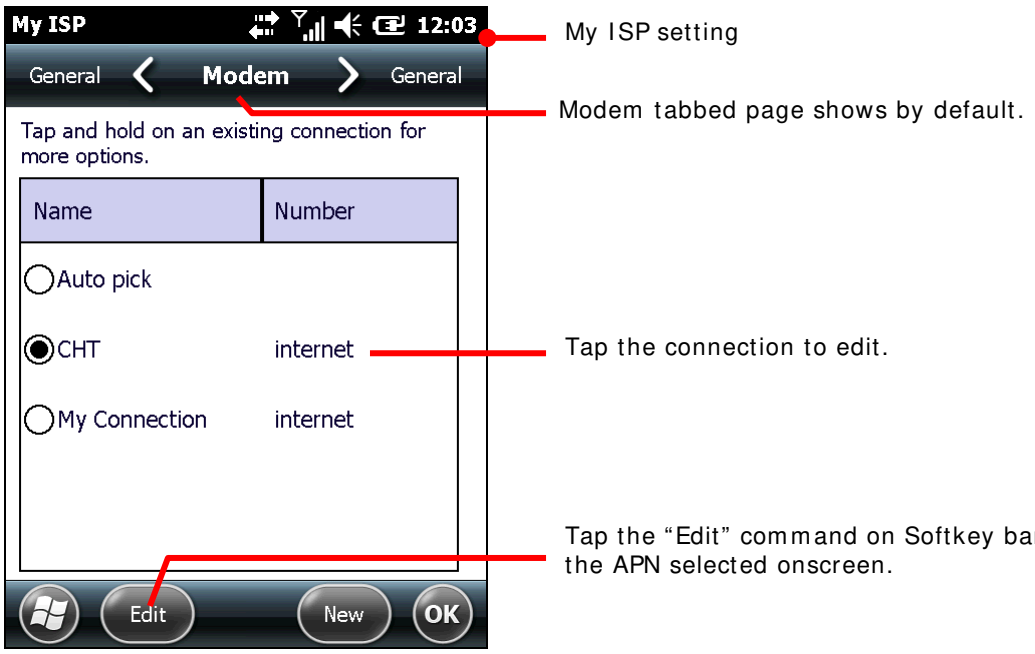
To edit an existing APN:

1) On Start screen, tap **Settings** | **Connections** | **Connections** (Manager)  .

   Connections setting opens showing **Task** tabbed page.

2) Under **My ISP** label, tap **Manage existing connections** link.

My ISP settings opens showing Modem tabbed page.



3) Tap the APN to edit.

   The APN to edit is selected onscreen, and the "Edit" command becomes available on the softkey bar.

4) Tap the "Edit" command on the softkey bar.

5) Follow onscreen instructions to finish editing.

5.1.7. USB INTERNET SHARING

"Internet Sharing" or "Internet Tethering" enables your Windows-based PC to connect to Internet using the mobile computer's mobile data (or dial-up data). The mobile computer functions as a Wi-Fi "hotspot" (a.k.a "access point") that your PC connects to.

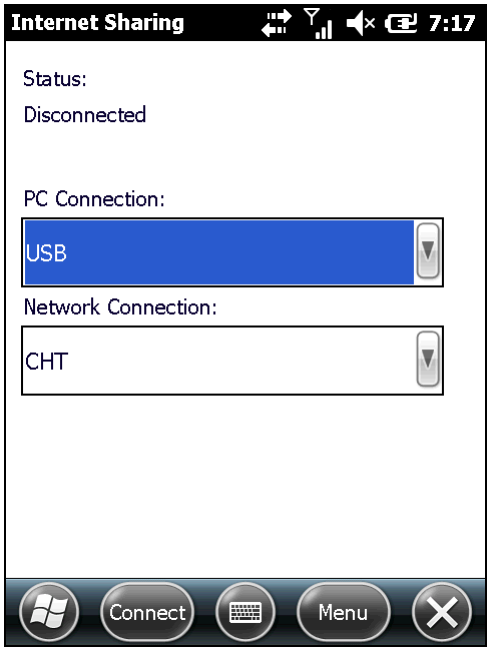
By "Internet Sharing" , the mobile computer uses USB or Bluetooth to tether your PC to to Internet. For Bluetooth-based internet tethering, see Bluetooth Internet Sharing.

To USB-tether your PC to Internet:

1) Connect the mobile computer and your PC with a USB cable that came with your purchase as described in Direct Data Communication.

2) On the mobile computer, tap **Internet Sharing** from Start screen.

Internet Sharing opens.



Internet Sharing

3) Select **USB** for **PC Connection**, and select your mobile service for **Network Connection**.
4) Tap the "Connect" command on the softkey bar to start Internet tethering.

   The mobile computer prompts "Connected" in a few seconds when the PC connects to Internet.

   Tap the "**Discon...**" command on the mobile computer to disconnect.

   In case of problems, open Start screen | **Settings** | **Connections** | **USB to PC**, and make sure **Enable advanced network functionality** is selected.

5.2. USE WI-FI

The mobile computer is capable of Wi-Fi, a wireless networking technology making use of an access point, also known as "hotspot", to connect to a wireless local area network.

To use Wi-Fi, the mobile computer has to connect to a hotspot. Some hotspots are open for connection while others request a key to authenticate access. If this is the case, the authentication key must be included in the mobile computer's Wi-Fi settings.

For authentications based on secure certificates, see Install Secure Certificates.

Wi-Fi settings can be modified using Summit Client Utility. However, Windows Zero Configuration also plays a part in controlling Wi-Fi power status.

Turn off Wi-Fi when it isn't used to extend battery life. See Turn on Wi-Fi Power.

Profile settings are radio and security settings that are stored in the registry as part of a configuration profile. When a profile is selected as the active profile, the settings for the profile become active. You may create, rename, edit, and delete profiles, as well as alter global settings that apply to every profile or to Summit Client Utility (SCU) itself. For more details on profile settings, please go to the following websites:
http://www.summitdata.com/documentation.html
http://www.summitdata.com/Documents/summit_users_guide_3_03.html
http://www.summitdata.com/Documents/summit_quick_start_v3_03.html

5.2.1. TURN ON WI-FI POWER

Before setting Wi-Fi connection, power to the Wi-Fi module must be turned on. This can be done through the Windows Zero Configuration.

To turn on Wi-Fi power:

1) On Start screen, tap **Settings** | **Connections** | **Wireless Manager**  .

   Wireless Manager opens.

2) Make sure the Wi-Fi bar is set as open. If not, tap the bar to turn it on.

Note: If the Wi-Fi- power is not turned on at Windows Zero Configuration, the Summit Client Utility will display "Externally Disabled" under "Status".

5.2.2. LAUNCH SCU

Wi-Fi settings can be adjusted with Summit Client Utility. Within this application are five tabbed pages which allow users to select the access point for connection, create profiles for better management, perform diagnostics on connectivity, and fine-tune property settings to meet their individual requirements.

To launch SCU:

1) On Start screen, tap **Settings** | **System** | **SCU**  .

   SCU opens showing five tabbed pages: **Main**, **Profile**, **Status**, **Diags**, **Global**.

The following sections explicate in detail the settings on each of these pages.

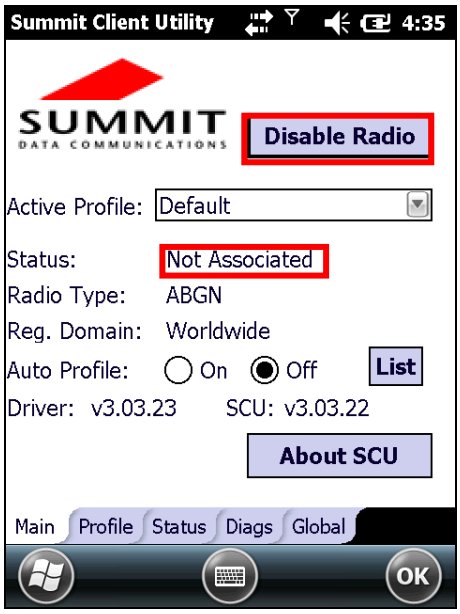
5.2.3. MAIN SETTINGS

Main settings provides basic information of the connection.

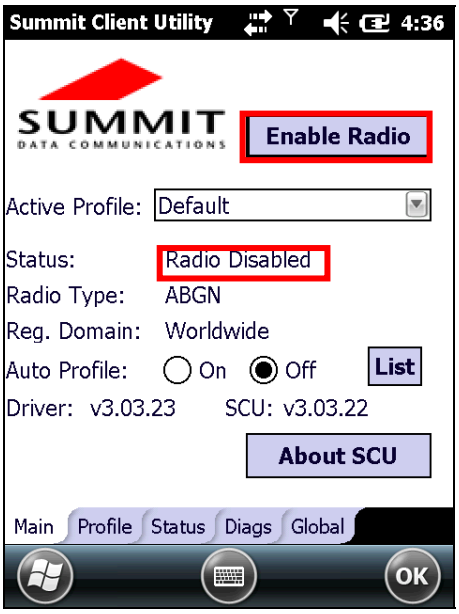
Item	Description
Disable/Enable Radio	Switches the radio off/on.
Active Profile	Options are "Default", "ThirdPartyConfig", and custom profiles, which can be created and managed under **Profile** tab. ▸ After a new profile is created, it must be selected under the "Active Profile" drop-down box in order for the radio to associate to it.
Status	Potential values are ▸ Down: not recognized ▸ Radio Disabled ▸ Not Associated ▸ Associated ▸ (EAP type) Authenticated ▸ Externally Disabled (Power on Wi-Fi as mentioned in Wireless Manager)
Radio Type	"ABGN" indicates the radio supports 802.11a/b/g/n.
Regulatory Domain	It indicates the regulatory domain or domains for which the radio is configured by default. "Worldwide" means that the radio can be used in any domain.
Auto Profile	Activate or deactivate automatic profile selection. Tap List and select a created profile in the dialog box that appears.
Driver and SCU	Indicates version information of the device driver and Summit Client Utility.
About SCU	Delivers copyright information of the Summit Client Utility.

DISABLE/ENABLE RADIO

The radio is on by default. Toggle the Disable/Enable button to switch the radio off/on.



Radio is enabled (but not yet associated). Tap **Disable Radio** to disable it.

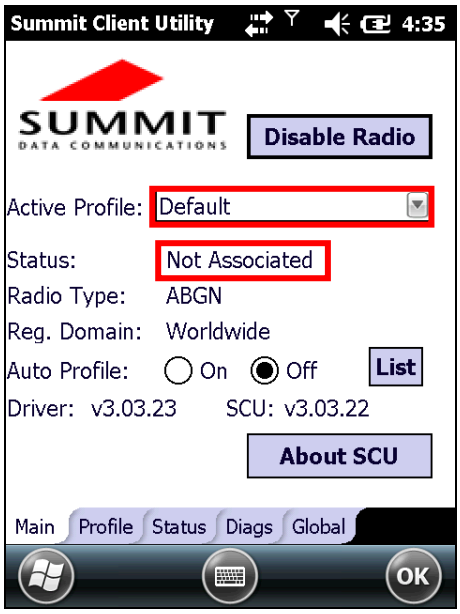


Radio is disabled. Tap **Enable Radio** to enable it.

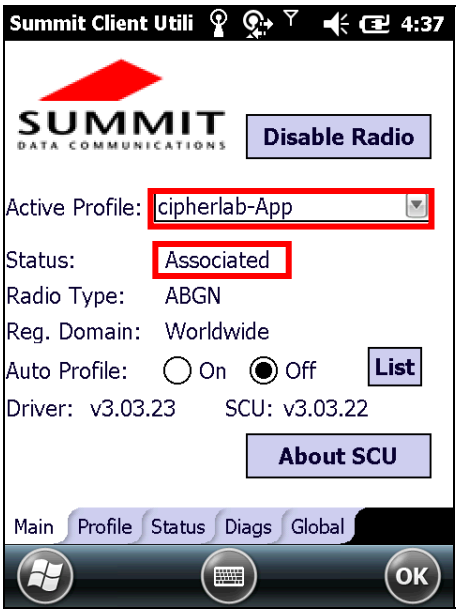
When the radio is enabled, the system will attempt to connect or maintain its connection with an access point. When the radio is disabled, Wi-Fi power is off.

ACTIVE PROFILE

A profile is a set of parameters that define the manner in which a device associates to a wireless LAN (WLAN) infrastructure. A profile contains information including the System Set Identifier (SSID, the "name" of the WLAN infrastructure), means of data encryption, authentication type, and security credentials.



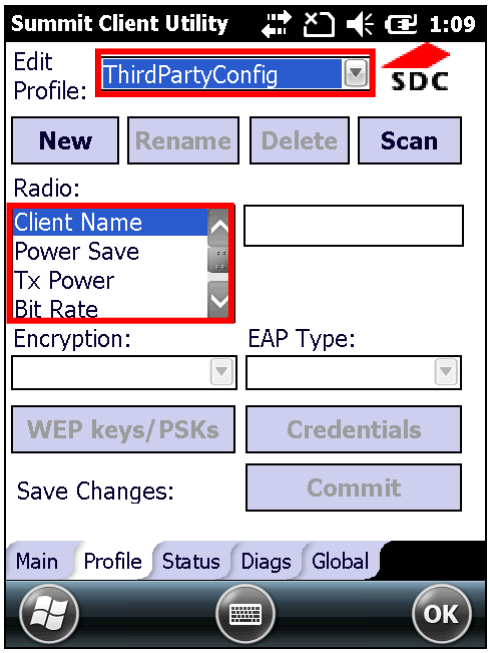
No active profile is selected.



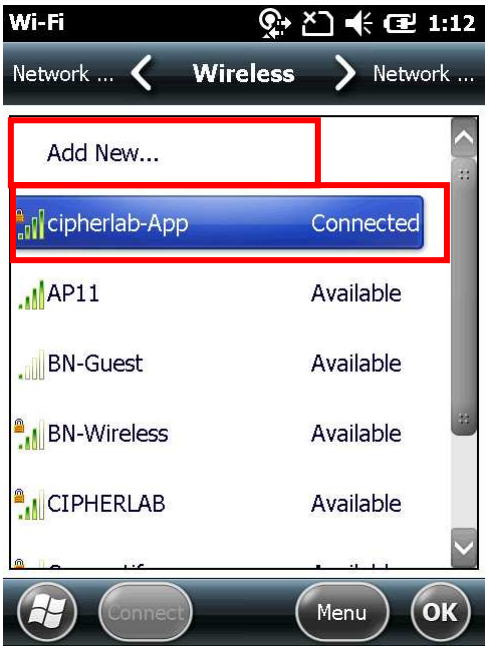
A profile is selected as the active profile.

SWITCH TO THIRD PARTY CONFIGURATION

When "ThirdPartyConfig" is selected for the Active Profile, the mobile computer must go through a power cycle (reset) in order to reload the driver and activate settings. After system reset, Windows Zero Configuration will take over radio and security settings including SSID, Auth Type, EAP Type and Encryption. The Summit Client Utility can only be used to define the Client Name, Power Save, Tx Power, Bit Rate, Radio Mode settings, as well as the global settings.



When "ThirdPartyConfig" is selected for the active profile, radio settings on the Profile tabbed page become limited.



After switching to Windows Zero Configuration, Wi-Fi settings and connection status can be accessed under **Start Screen** | **Settings** | **Connection** | **Network Card** | **Wireless** tabbed page.

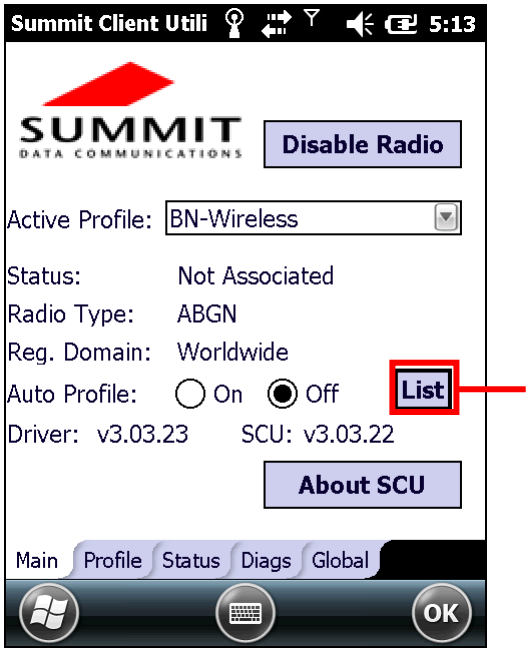
AUTO PROFILE & LIST

When Auto Profile is activated, the Summit radio will attempt to associate to an access point after a device startup or resume, and it will try out each profile in order until the radio associates to an access point. The successful profile becomes the active profile and remains active until one of the following occurs:

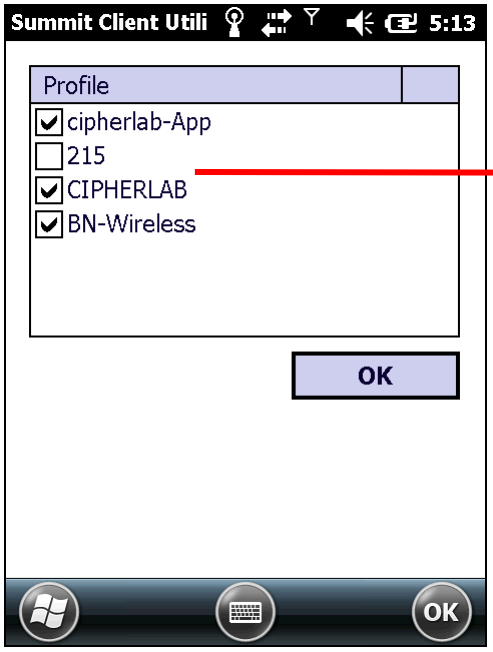
- The device goes through suspension and resume, power-cycling, or restart, which causes the radio to go through the automatic profile selection process once more.
- Auto Profile is turned off and an active profile is manually selected on the SCU Main window.

The automatic profile selection facility makes use of a list of profiles you created. When enabling this function for the first time, tap **List** to select the profiles in use. After the list is defined, as long as the facility is active and the radio is not associated to an access point, SCU will run through the list and try out each profile one by one until the radio associates to an access point. The profile becomes the Active Profile and remains so until the radio disassociates or disconnects from the network.

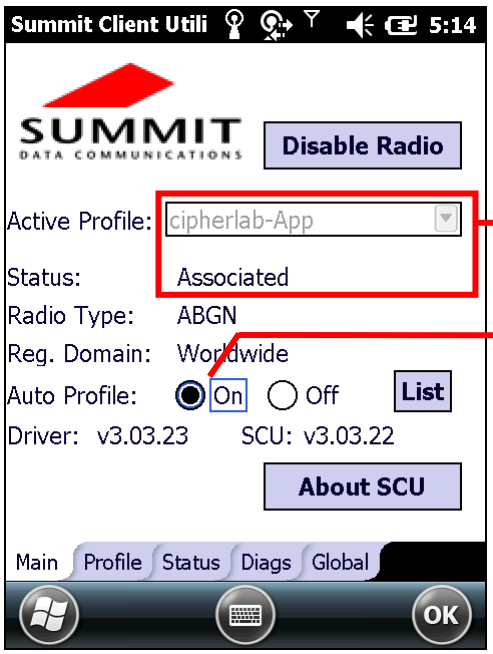
Note: The SCU allows setting up a maximum of 19 profiles in the Auto Profile list.



Tap **List** to open a list of existing profiles to select.



Check the profiles for the SCU to auto-select from, then tap the **OK** button to save settings.

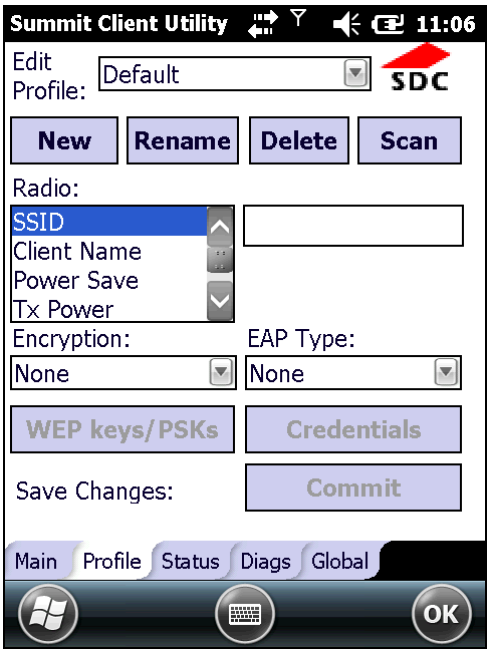


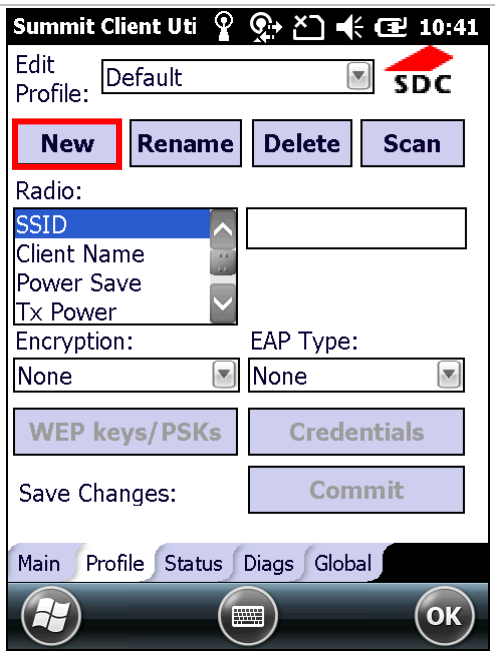
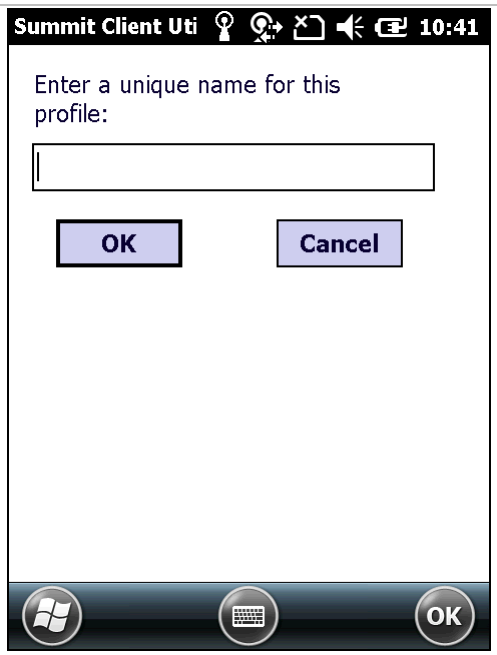
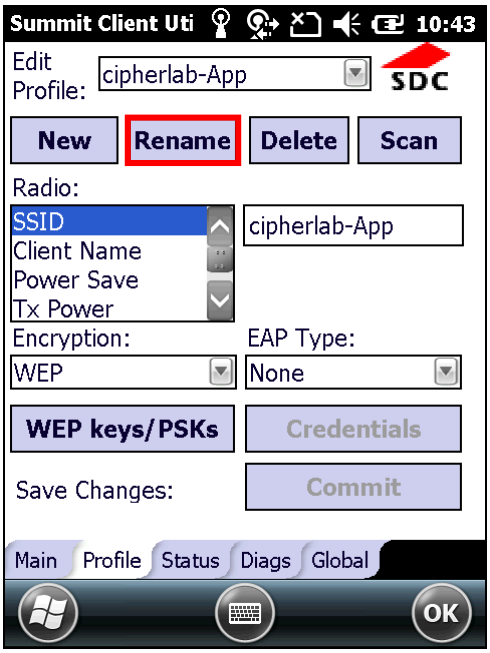
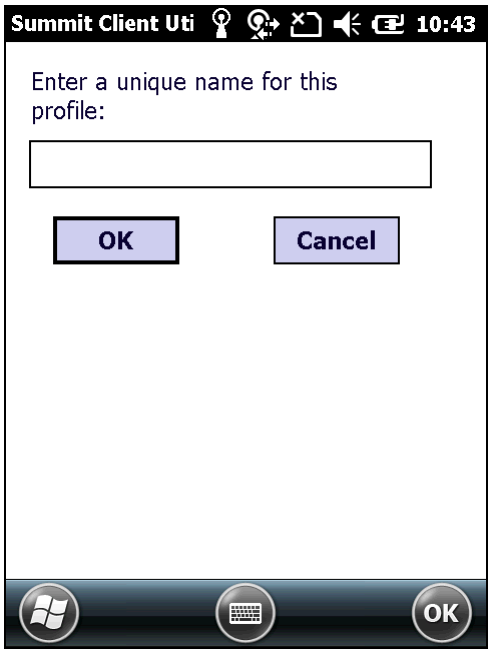
Switch **Auto Profile** to **On**. The mobile computer will one by one attempt to connect to each of the selected access points. When it succeeds, the active profile and status will display which access point it is connected to.

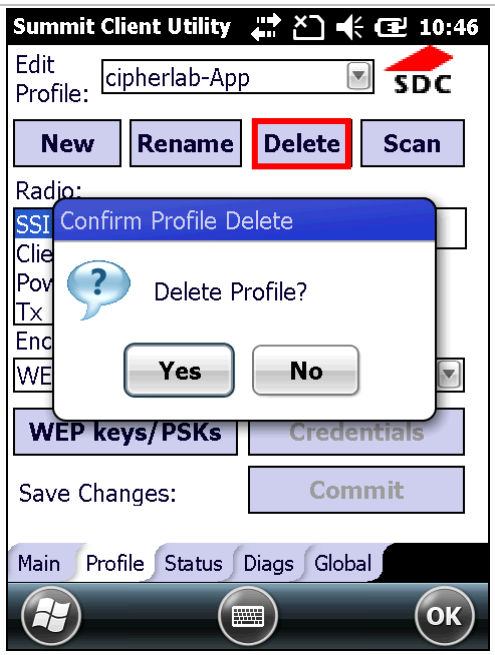
5.2.4. PROFILE MANAGING

Profile settings are radio and security settings that are stored in the registry and which define how the radio associates to a wireless LAN infrastructure. Profiles can be added, deleted and edited in the Profile tabbed page.

Note: Any changes made to a profile will be saved only by tapping **Commit** button in the lower right corner.

Item	Description
Edit Profile	When SCU is first entered, "Default" is displayed as the active profile. Unless it is modified, this profile does not specify an SSID, EAP type or encryption method. Select a profile from the drop-down menu and configure the Radio settings, Encryption, EAP Type, and so on. If you would like to add a new profile, tap **New** or **Scan** and proceed with the prompted settings. 
New	Tap **New** and enter a unique name for the new profile. Up to 32 characters are allowed. Configure the Radio settings, Encryption, EAP Type, and other settings for this new profile. ▸ Define up to 20 profiles, not including the special profile "ThirdPartyConfig".

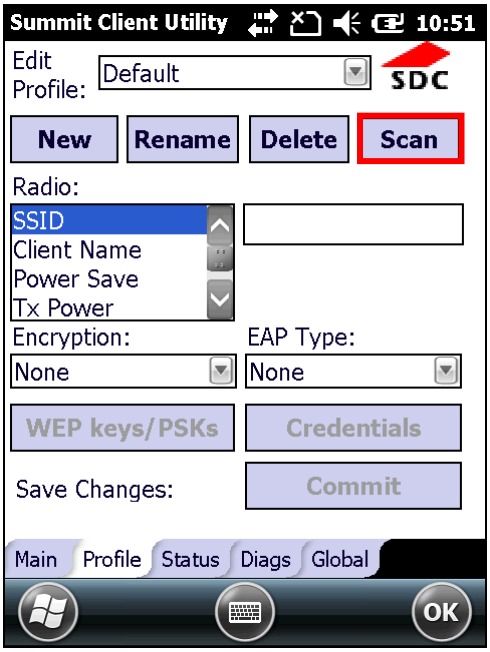
	 
Rename	Select a profile from the drop-down menu and tap **Rename**. Enter a unique name for this profile. Up to 32 characters are allowed.  
Delete	Select a profile from the drop-down menu and tap **Delete**. ▸ You cannot delete the Active Profile.

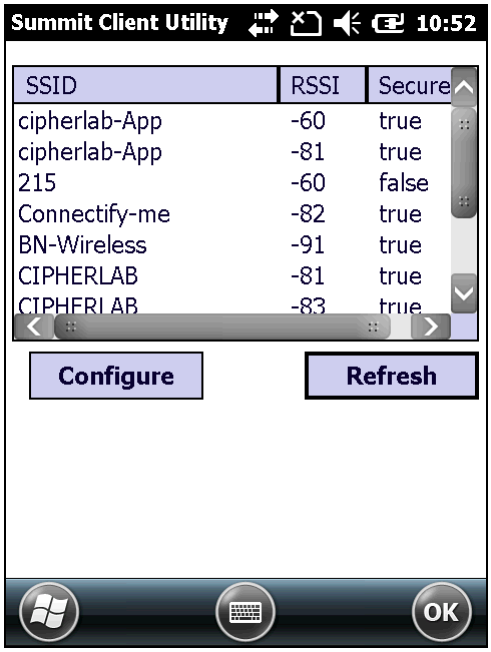


Scan

Tap **Scan** to view a list of access points that are broadcasting their SSIDs. You may sort the list by tapping the column headers.

Item	Description
SSID	Service Set Identifier (SSID)
RSSI	Received Signal Strength Indication (RSSI)
Secure	It indicates whether data encryption is in use: true or false





Select one of the access points, and tap **Configure** to create a new profile for it (you may be prompted to enter security information for the selected profile). Tap **Refresh** to update the list of available access points. Tap **OK** to return to the Profile tabbed page.

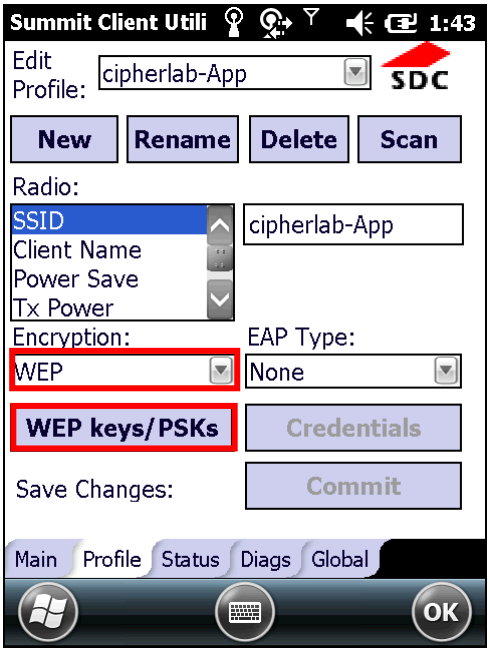
Radio

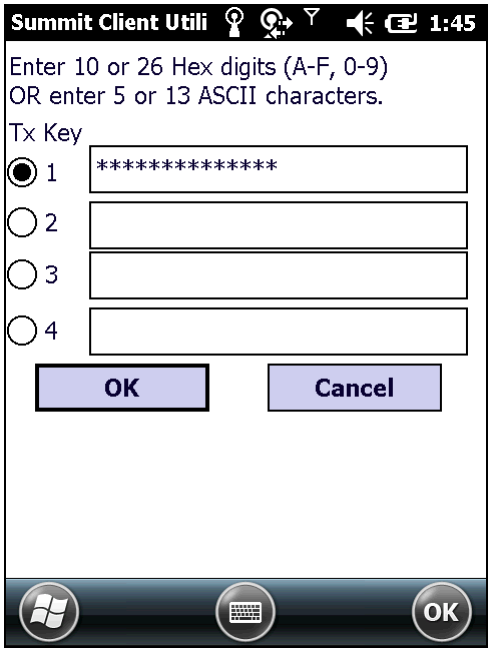
After selecting a profile in the Edit Profile drop-down bar, configure radio settings

<table>
<tr><td>Settings</td><td>including SSID and power save settings in the Radio scrollbar menu

<table>
<tr><th>Item</th><th>Description</th></tr>
<tr><td>SSID</td><td>Service Set Identifier (SSID) for the WLAN infrastructure to which the radio will connect. If no SSID is specified, the radio will only associate to an access point that broadcasts its SSID.
▸ Value: A string of up to 32 characters
▸ Default: None</td></tr>
<tr><td>Client Name</td><td>Name assigned to the mobile computer with Summit radio installed.
▸ Value: A string of up to 16 characters
▸ Default: None</td></tr>
<tr><td>Power Save</td><td>Power save mode for radio. Set the radio to its optimum power-consumption setting.
▸ Value:
<table>
<tr><td>CAM</td><td>Constantly Awake Mode (CAM) keeps the radio powered up continuously so there is minimal lag in message response time. This mode consumes the most power but offers the highest throughput. It is recommended when AC power is in use.</td></tr>
<tr><td>Maximum</td><td>In Max Power Savings (Max PSP) mode, the access point buffers incoming messages for the radio, which wakes up periodically and connects to the access point to see if any buffered messages are waiting. The radio requests buffered messages and then goes back to sleep. It conserves the most power but offers the lowest throughput. It is recommended when battery power is in use.</td></tr>
<tr><td>Fast</td><td>Power Save Mode (Fast PSP) switches between the two modes described above, depending on network traffic. This mode switches to CAM when retrieving a large number of packets and switches back to PSP (= Power Save Polling) after the packets have been retrieved. It is recommended when power consumption is a concern but you need greater throughput than that allowed by Max PSP.</td></tr>
</table>
▸ Default: Fast</td></tr>
<tr><td>Tx Power</td><td>The power of the radio in milliwats (mW). In certain cases this value will be overwritten by the access point, which will dictate to the radio which power to use.
▸ Value: Maximum (Maximum power defined for the current regulatory domain) or a specified percentage 75%, 50%, 25%, 10%)
▸ Default: Maximum</td></tr>
<tr><td>Bit Rate</td><td>Bit rate used by the radio when interacting with AP; however, if a specified bit rate is selected, the radio will not connect to an AP unless the specified SSID is configured for only the selected</td></tr>
</table>
</td></tr>
</table>

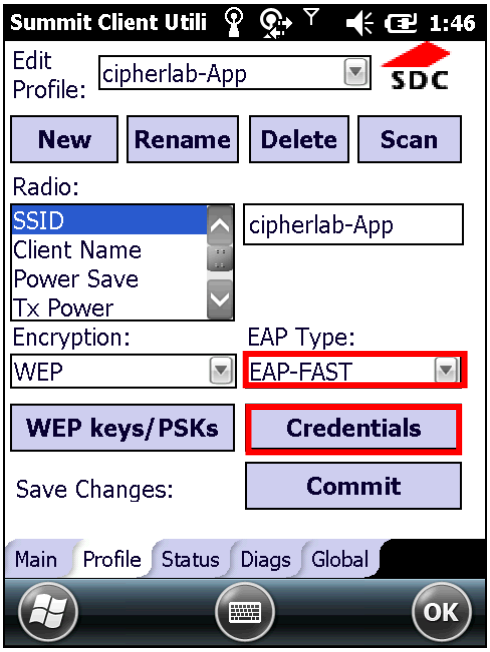
		bit rate. ▸ Value: Auto (rate negotiated automatically with AP) or the specified value in megabits per second (1, 2, 5.5, 6, 9, 11, 12, 18, 24, 36, 48, 54) ▸ Default: Auto
	Radio Mode	Use of 802.11a/b/g/n when interacting with an AP. ▸ Value: B rates only, BG rates full, G rates only, A rates only, ABG rates full, BGA rates full, Ad Hoc ▸ Default: BG rates full
	Auth Type	802.11 authentication type used when associating to an AP. ▸ Value: Open, Shared (shared-key), LEAP (Network-EAP) ▸ Default: Open ▸ It is recommended that the default setting Open is selected.
Encryption	This specifies the type of key used to encrypt and decrypt transmitted data, and how that key is specified or derived. Select **Encryption** type in the drop-down box, then tap **WEP keys/ PSKs** to open a dialog box to define relevant information.	

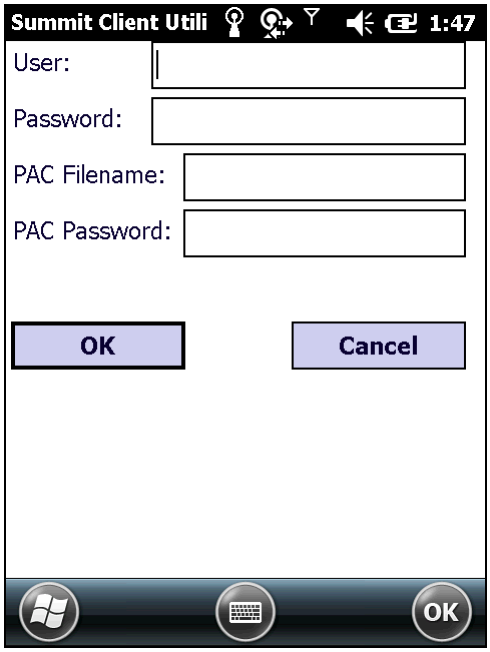




Item	Description
None	No encryption
WEP	WEP with up to four static keys, 40-bit or 128-bit in ASCII or hex
WEP EAP	WEP with key generated during EAP authentication
WPA-PSK	TKIP with PSK, ASCII passphrase or hex PSK
WPA TKIP	TKIP with key generated during EAP authentication
WPA CCKM	TKIP with key generated during EAP authentication and with Cisco key management protocol for fast re-authentication
WPA2-PSK	AES with PSK, ASCII passphrase or hex PSK
WPA2 AES	AES with key generated during EAP authentication
WPA2 CCKM	AES with key generated during EAP authentication and with Cisco

	key management protocol for fast re-authentication
	▸ Default: None
EAP Type	This is the protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2. Select **EAP type** in the drop-down box, then tap **Credentials** to enter detailed information for each type.

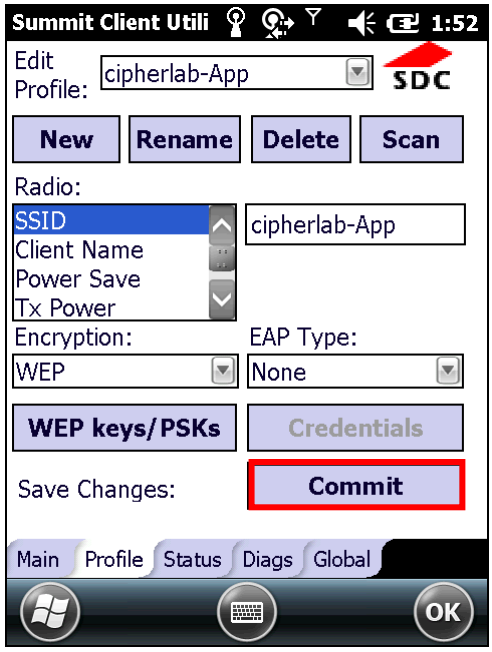




The EAP types supported by SCU are:

Item	Description
None	N/A
LEAP	Credentials values for LEAP: ▸ User: Username or Domain/Username (up to 64 characters) ▸ Password (up to 32 characters)
EAP-FAST	Credentials values for EAP-FAST ▸ User: Username or Domain/Username (up to 64 characters) ▸ Password (up to 32 characters) ▸ PAC Filename (up to 32 characters) ▸ PAC Password (up to 32 characters)
PEAP-MSCHAP PEAP-GTC EAP-TTLS	Credentials values for PEAP-MSCHAP, PEAP-GTC, EAP-TTLS: ▸ User: Username or Domain/Username (up to 64 characters) ▸ Password (up to 32 characters) ▸ CA Cert: Filename of root certificate authority (CA) digital certificate (up to 32 characters); leave blank if the "Use MS store" checkbox is selected. ▸ "Validate server" checkbox: Select this if using a CA certificate to validate an authentication server. When selected, enter a certificate filename in the CA Cert field or select the "Use MS store" checkbox. ▸ "Use MS store" checkbox: Select this if the Microsoft certificate store should be used for a CA certificate. This is applicable only when "Validate server" is in use.

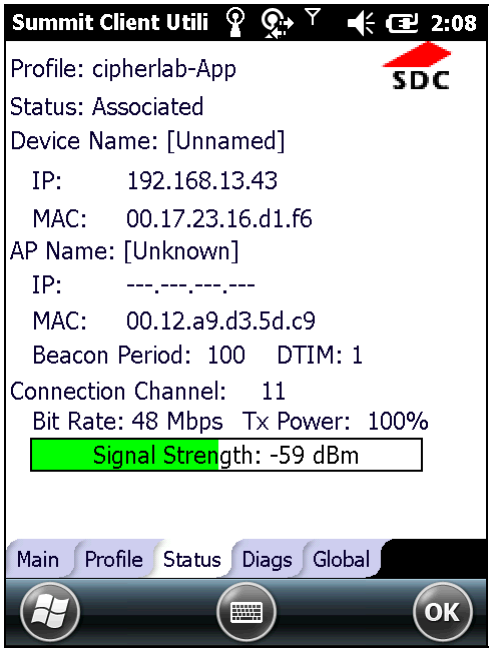
<table>
<tr>
<td></td>
<td>
<table>
<tr><td>EAP-TLS

PEAP-TLS</td><td>Credentials values for EAP-TLS and PEAP-TLS:
▸ User: Username or Domain/Username (up to 64 characters)
▸ User Cert: Tap the [..] button to select a user (or client) certificate from the Microsoft certificate store. You may not enter a filename because the user certificate must reside in the Microsoft certificate store. When you browse for a certificate, the pop-up box shows two fields, “Issued By” and “Issued to”.
▸ CA Cert: Filename of root certificate authority (CA) digital certificate (up to 32 characters); leave blank if the “Use MS store” checkbox is selected.
▸ “Validate server” checkbox: Select this if using a CA certificate to validate an authenticate server. When selected, enter a certificate filename in the CA Cert field or select the “Use MS store” checkbox.
▸ “Use MS store” checkbox: Select this if the Microsoft certificate store should be used for a CA certificate. This is applicable only when “Validate server” is in use.</td></tr>
</table>
▸ Default: None
</td>
</tr>
<tr>
<td>Commit</td>
<td>After making any changes on the Profile tabbed page, the Commit button must be tapped in order for the settings to be stored.


</td>
</tr>
</table>

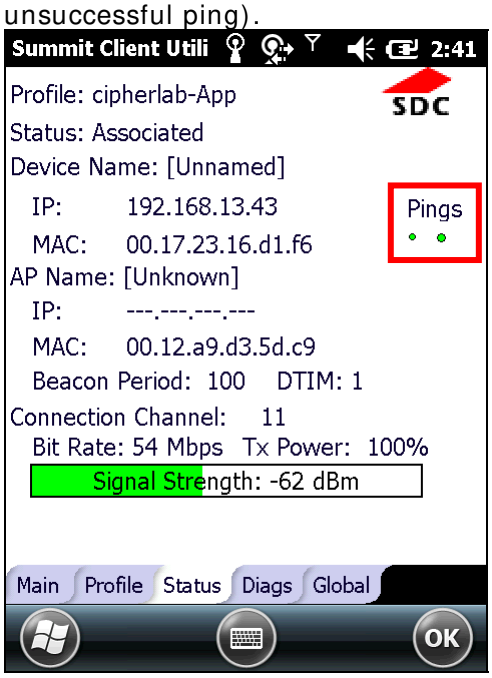
5.2.5. CONNECTION STATUS

View status of the current wireless network connection, information on the access point and the connection established between the two.



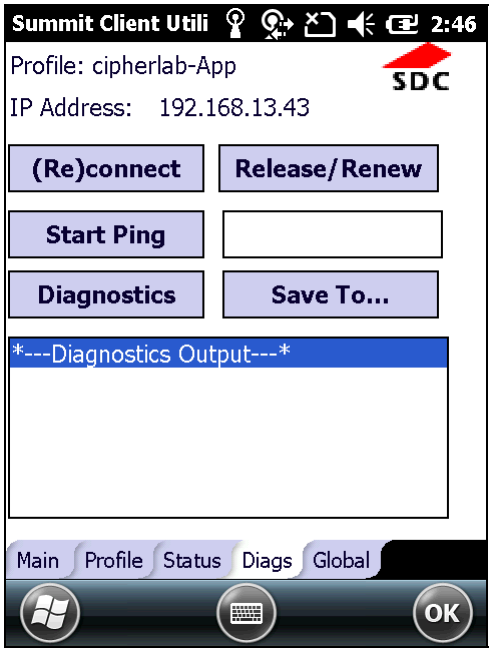
Item	Description
Profile	Name of Active Profile
Status	Potential values are: ▸ Down: not recognized ▸ Disabled ▸ Not Associated ▸ Associated (EAP type) ▸ Authenticated
Device Name, IP, MAC	▸ Information on the mobile computer ▸ Device Name is displayed only when Client Name is specified by editing a profile
AP Name, IP, MAC, Beacon Period	Information on the access point to which the radio is associated ▸ AP Name and IP may not be displayed if not supported by the AP ▸ Beacon Period: Amount of time between periodic packets that are sent out. Counted in kilomicroseconds, where one Kμsec equals 1024 microseconds. ▸ DTIM: A multiple of the beacon period that specifies how often the beacon contains a delivery traffic indication map (DTIM), which tells power-save client devices that a packet is waiting for them (e.g. a DTIM interval of 3 means that every third beacon contains a DTIM).
Connection Channel, Bit Rate, Tx Power, Signal Strength	Information on the wireless connection between the radio and access point, including graphic indication of signal strength

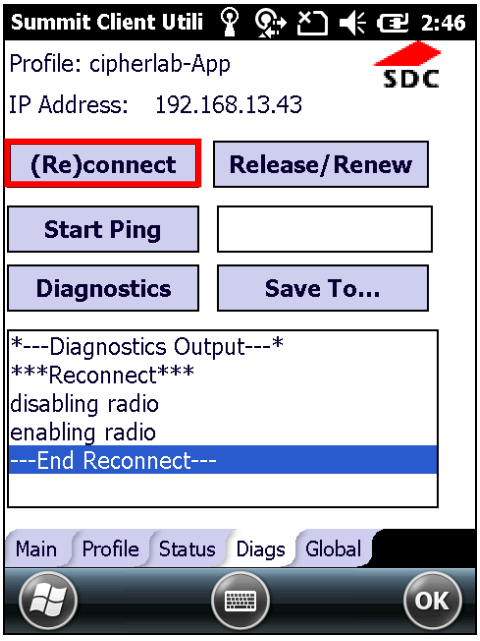
When a ping initiated from the Diags window is active, the Status window displays a ping indicator consisting of two lights that either flash green (for a successful ping) or red (for an unsuccessful ping).

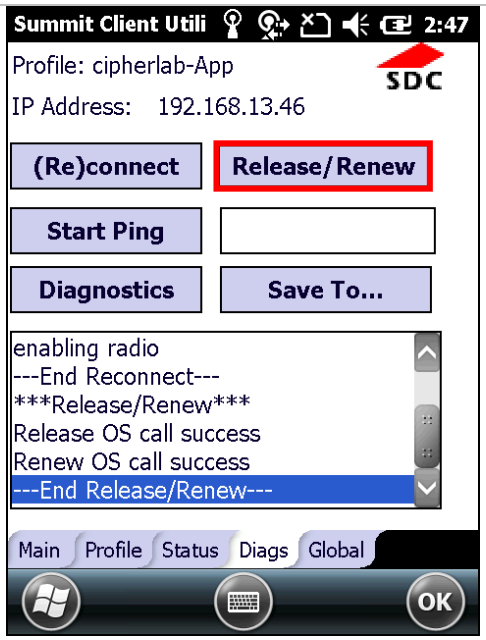
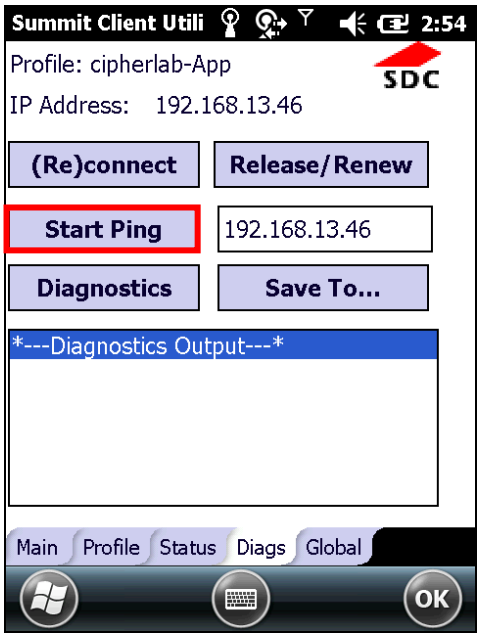
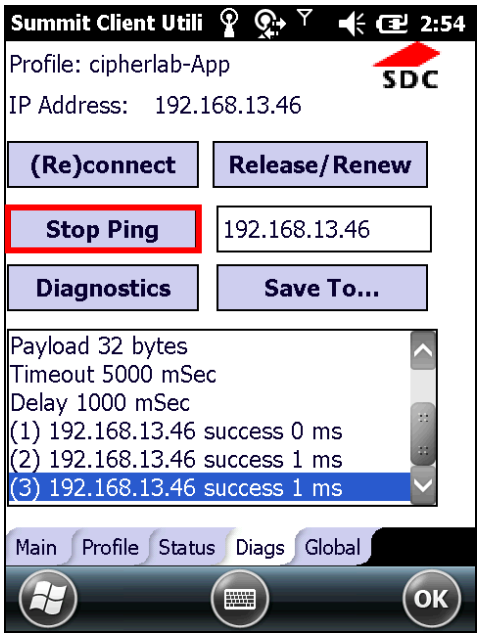


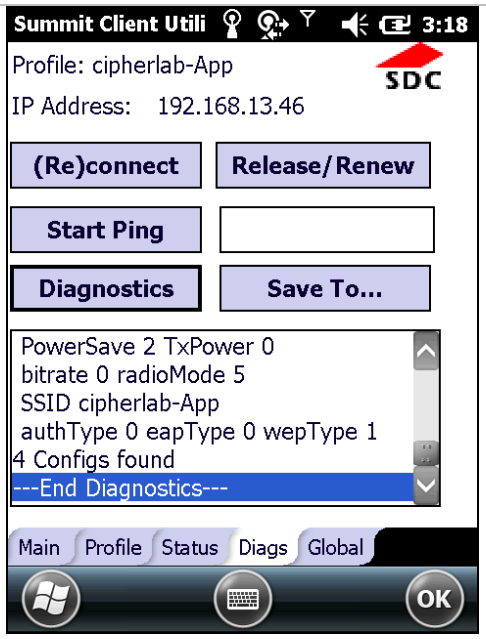
5.2.6. DIAGNOSTICS

Perform troubleshooting and diagnostic tests if necessary.



Item	Description
(Re)connect	Disable and enable the radio, apply or re-apply the current profile, attempt to associate and authenticate to the wireless network, and log all activity in the output area at the bottom. 
Release/Renew	Obtain a new IP address through DHCP release/renew, and log all activity in the output area at the bottom.

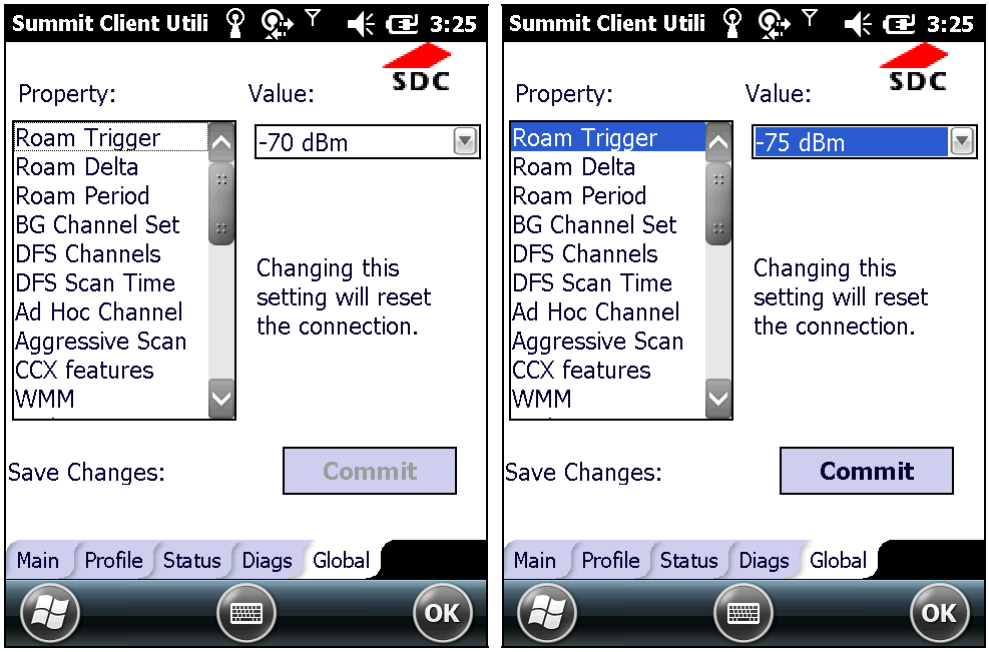
	
Start Ping	Enter the address to ping to in the edit box next to the button and tap **Start Ping**. A continuous ping will begin until the following happens: **Stop Ping** is tapped, the screen is switched to a tab other than Diags or Status, the application is exited or the radio is removed. Activity status will be logged in the output box below.   When an active ping is initiated on the Diags tabbed page, the Status tab displays a ping indicator consisting of two “lights” that take turns to show green (for a successful ping) or red (for an unsuccessful ping).
Diagnostics	Attempt to (re)connect to an access point, and provide a more detailed set of data than that obtained via (Re)connect. This data includes radio state, profile settings, global settings, and a BSSID list of access points in the area.

	
Save To	Tap this button to save the diagnostics output to a file. ▶ By default, the file name is "sdc_diags.txt". Specify a storage location, folder, and file type for this diagnostics file.

5.2.7. GLOBAL SETTINGS

Global settings include radio and security settings that apply to all profiles and settings that apply to SCU itself.

- These settings are for administrator use only.



Property	Value
Roam Trigger	When the moving average RSSI from the current AP is weaker than Roam Trigger, radio does a roam scan where it probes for an AP with a signal that is at least Roam Delta dBm stronger. ▸ Value (dBm): -50, -55, -60, -65, -70, -75, -80, -85, -90, Custom ▸ Default: -70 dBm
Roam Delta	When Roam Trigger is met, a second AP's signal strength (RSSI) must be Roam Delta dBm stronger than the moving average RSSI for the current AP before radio will attempt to roam to the second AP. ▸ Value (dBm): 5, 10, 15, 20, 25, 30, 35 ▸ Default: 10 dBm
Roam Period	After association or roam scan (with no roam), radio will collect RSSI scan data from Roam Period seconds before considering roaming. ▸ Value (sec): 5, 10, 15, 20, 25, 30, 35, 40, 45, 50, 55, 60, Custom ▸ Default: 10 (seconds)
BG Channel Set	Defines the 2.4 GHz channels to be scanned when the radio is contemplating a roam and needs to determine what APs are available.

Item	Description
Full	All channels
1, 6, 11	The most commonly used 2.4 GHz channels
1, 7, 13	For ETSI and TELEC radios only

	Custom	Indicates the system registry has been edited to include a value other than those available in the drop-down value
	▸ Default: Full	
DFS Channels	Indicates whether to support 5 GHz (802.11a) channels where dynamic frequency selection (DFS) is required. ▸ Value: Off, On, Optimized ▸ Default: Off ▸ When Optimized is selected, the radio scans for all active channels and available DFS channels, and creates a list of up to three detected DFS channels. In subsequent scans, the radio will scan the DFS channels listed from the first scan.	
DFS Scan Time	Enables determining the dwell (listen) time when passively scanning on a DFS channel. ▸ Valid range of 20-500 ms configurable ▸ Default: 120 ▸ When the DFS Scan Time is changed to a value lower than default, it is recommended that the beacon period in the WLAN infrastructure is changed as well. Ideally, the dwell time should be 1.5 times than that of the beacon period.	
Ad Hoc Channel	The channel to be used for an ad hoc connection if the active profile has a Radio Mode value of “Ad Hoc”. ▸ Value:	
	1~14	One of the 2.4 GHz channels
	36, 40, 44, 48	UNII-1 channels
	▸ Default: 1 ▸ If a channel that is not supported is selected, then SCU will automatically apply the default channel setting (1).	
Aggressive Scan	Aggressive scanning complements and works in conjunction with the standard scanning that is configured through the Roam Trigger, Roam Delta, and Roam Period settings. It is recommended that aggressive scanning is enabled unless there is significant co-channel interference because of overlapping coverage from APs that are on the same channel. ▸ Value: On, Off ▸ Default: On	
CCX features	Whether to allow the use of Cisco information element (IE) and CCX version number to authorize support for CCX features. ▸ Value: Optimized, Full, Off Full mode enables support for all CCX features. Optimized mode enables support for all CCX features exepct AP-assisted roaming, AP-specified maximum transmit power, and radio management. Off mode disables all support for Cisco IE and CCX version number. ▸ Default: Optimized	
WMM	Whether to allow the use of Wi-Fi Multimedia Extensions (WME) or not. ▸ Default: On ▸ This is a fixed setting; WME is allowed at all times.	
Auth Server	Type of authentication server being used for EAP authentication. ▸ Value:	
	Type 1	Cisco Secure ACS or another server that uses PEAPv1 for PEAP with EAP-MSCHAPV2

<table>
<tr><td></td><td>
<table>
<tr><td></td><td>(PEAP-MSCHAP)</td></tr>
<tr><td>Type 2</td><td>A different authentication server, such as Juniper Networks Steel Belted RADIUS, that uses PEAPv0 for PEAP-MSCHAP</td></tr>
</table>
Default: Type 1
</td></tr>
<tr><td>TTLS Inner Method</td><td>Authentication method used within secure tunnel created by EAP-TTLS.
Value:
<table>
<tr><td>Auto-EAP</td><td>Any available EAP method</td></tr>
<tr><td>MSCHAPV2</td><td></td></tr>
<tr><td>MSCHAP</td><td></td></tr>
<tr><td>PAP</td><td></td></tr>
<tr><td>CHAP</td><td></td></tr>
<tr><td>EAP-MSCHAPV2</td><td></td></tr>
</table>
Default: Auto-EAP
</td></tr>
<tr><td>PMK Caching</td><td>The type of Pairwise Master Key (PMK) caching to use with a WPA2 encryption type (alternative to WPA2 CCKM).
Value: Standard or OPMK (opportunistic PMK)
Default: Standard
</td></tr>
<tr><td>WAPI</td><td>WAPI is the National Standard for Wireless LAN in China. Select whether to switch to WAPI mode.
Value: Off, On
Default: On
</td></tr>
<tr><td>TX Diversity</td><td>How to handle antenna diversity when transmitting data to AP.
Value:
<table>
<tr><td>Main Only</td><td>Use main antenna only</td></tr>
<tr><td>Aux Only</td><td>Use auxiliary antenna only</td></tr>
<tr><td>On</td><td>Use diversity</td></tr>
</table>
Default: On
</td></tr>
<tr><td>RX Diversity</td><td>How to handle antenna diversity when receiving data from AP.
Value:
<table>
<tr><td>Main Only</td><td>Use main antenna only</td></tr>
<tr><td>Aux Only</td><td>Use auxiliary antenna only</td></tr>
<tr><td>On-start on Main</td><td>On startup, use main antenna</td></tr>
<tr><td>On-start on Aux</td><td>On startup, use auxiliary antenna</td></tr>
</table>
Default: On-start on Main
</td></tr>
<tr><td>Frag Thresh</td><td>When packet size exceeds the set threshold, it becomes fragmented.
Value: 256 ~ 2346
Default: 2346 (bytes)
</td></tr>
<tr><td>RTS Thresh</td><td>When packet size exceeds the set threshold, RTS/CTS is required on link.
Value: 0 ~ 2347
Default: 2347 (bytes)
</td></tr>
<tr><td>LED</td><td>Indicates whether or not an LED is used.</td></tr>
</table>

	▸ Value: Off, On ▸ Default: On
Tray Icon	Whether to enable the system tray icon or not. ▸ Value: On, Off ▸ Default: On
Admin Password	N/A
Auth Timeout (s)	Specifies how long it will wait for an EAP authentication request to succeed or fail. If authentication credentials are specified in the active profile and the authentication times out, then association will fail. If authentication credentials are not specified in the active profile and the authentication times out, then the user will be required to enter credentials again. ▸ Value: 3 ~ 60 ▸ Default: 8 (seconds)
Certs path	File path where the certificate for EAP authentication is stored. ▸ Value: A valid directory path of up to 64 characters ▸ Default: Depends on device
Ping Payload	The amount of data to be transmitted on a ping. ▸ Value: 32, 64, 128, 256, 512, 1024 ▸ Default: 32 (bytes)
Ping Timeout (ms)	The amount of time that elapses without a response before ping request is considered a failure. ▸ Value: 0 ~ 30000 ▸ Default: 5000 (milliseconds)
Ping Delay (ms)	The amount of time that elapses between successive ping requests . ▸ Value: 0 ~ 7200000 ▸ Default: 1000 (milliseconds)

Note: SCU stores values in the registry. The purpose of the option “Custom” is to prevent SCU from overriding a change to the registry that was made manually. Selecting “Custom” has no real effect.
(1) If SCU displays a value of “Custom” for a global setting, it indicates the operating system registry has been edited to include a value that is not available for selection on the Global tabbed page.
(2) If SCU displays a value other than “Custom” and you select the value of “Custom” and tap **Commit**, then SCU reverts to the value that was displayed before you selected “Custom”.

5.3. USE BLUETOOTH

The mobile computer is Bluetooth-enabled to synchronize data with other devices such as PCs, car hands-free kits, headsets, printers, PDAs, and cell phones.

Class II Bluetooth devices enable wireless connections over a short distance of around 10 meters. It is specified in IEEE 802.15.1 as a "wireless personal area network" (WPAN).

To connect a Bluetooth device for the first time, the mobile computer needs to "pair" with it. Such "pairing" involves authentication between two devices to justify their accesses to each other. After this initial pairing, the two devices can connect to each other without a second pairing procedure.

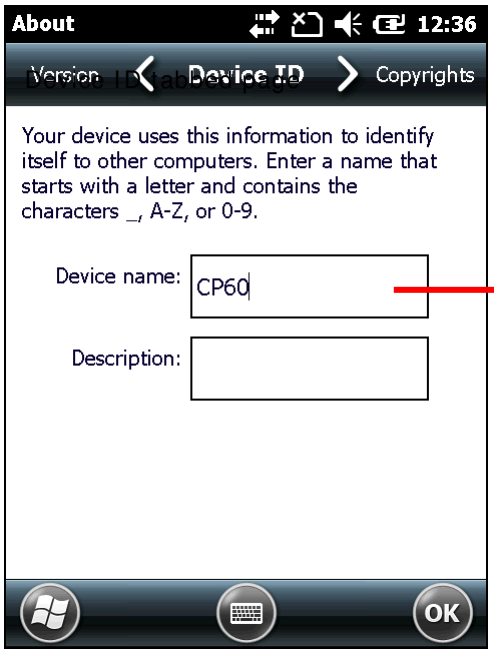
5.3.1. STATUS ICONS

According to the Bluetooth connection status, the following status icons will appear on the title bar:

Status Icon	Description
	Bluetooth in use (data transmission ongoing)
	Bluetooth headset in use

5.3.2. CHANGE BLUTOOTH NAME

By default, the mobile computer uses the device name for its Bluetooth name. Change the device name to make it more recognizable.



Change device name to make the mobile computer more recognizable.

To change the mobile computer's device name:

1) On Start screen, tap **Settings** | **System** | **About** .

   About screen opens showing Version tabbed page.

2) Tap **Device ID** tab.

Device ID tabbed page opens.

3) Enter a name following the prompted rule.
4) Tap the "OK" command on the softkey bar to apply the change.

5.3.3. TURN ON/OFF BLUETOOTH

To turn on/off Bluetooth power:

1) On Start screen, tap **Settings** | **Connections** | **Wireless Manager**  .

   Wireless Manager opens.

2) Tap the **Bluetooth** entry.

   Bluetooth power is switched on.

   To turn off Bluetooth power, simply tap the **Bluetooth** entry again.

OR

1) On Start screen, tap **Settings** | **Bluetooth**  .

   Bluetooth settings opens showing **Devices** tabbed page.

2) Tap **Mode** tab.

   Mode tabbed page opens.

3) Select **Turn on Bluetooth**.
4) Tap the **OK** command on the softkey bar.

   Bluetooth powers on.

   To turn off Bluetooth power, simply deselect **Turn on Bluetooth** and tap **OK** to apply the change.

5.3.4. EXPOSE MOBILE COMPUTER

In default state, the mobile computer is hidden from other Bluetooth devices. To allow other devices to be able to find mobile computer, set the mobile computer as follows:

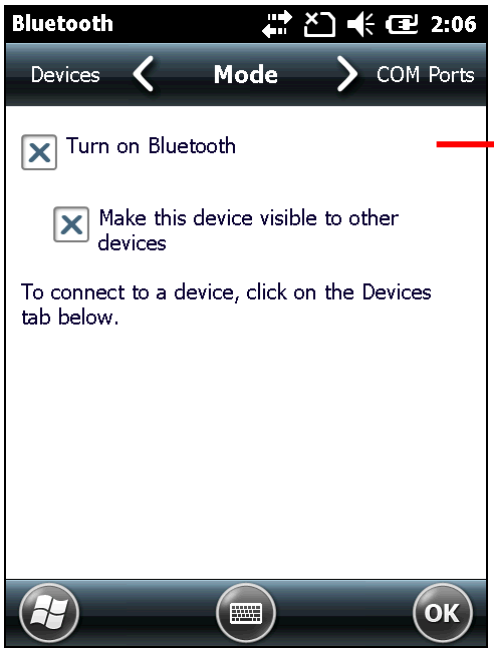
1) On Start screen, tap **Settings** | **Bluetooth**  .

   Bluetooth settings open showing **Devices** tabbed page.

2) Tap **Mode** tab.

   Mode tabbed page opens.

3) Check Turn on Bluetooth and **Make this device visible to other devices**.



Select **Turn on Bluetooth** and **Make this device visible to other devices**.

4) Tap the **OK** command on the softkey bar.

Once set, the mobile computer becomes discoverable by other Bluetooth devices.

When **Settings** | **Connections** | **Wireless Manager** is opened, a "Visible" label appears under Bluetooth entry.

Bluetooth entry shows a "Visible" label on Wireless Manager screen.

5.3.5. PAIR & CONNECT BLUETOOTH DEVICES

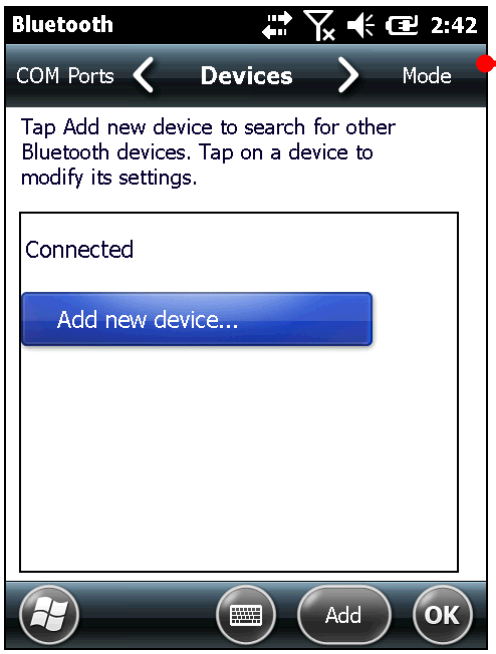
Prior to connecting to another Bluetooth device, the mobile computer needs to pair with that device. Once they are paired, the two devices will stay paired unless they are unpaired.

To pair with and connect to a Bluetooth device:

1) On the mobile computer, turn on Bluetooth as described in Turn On/Off Bluetooth.

2) On Start screen, tap **Settings** | **Bluetooth** .

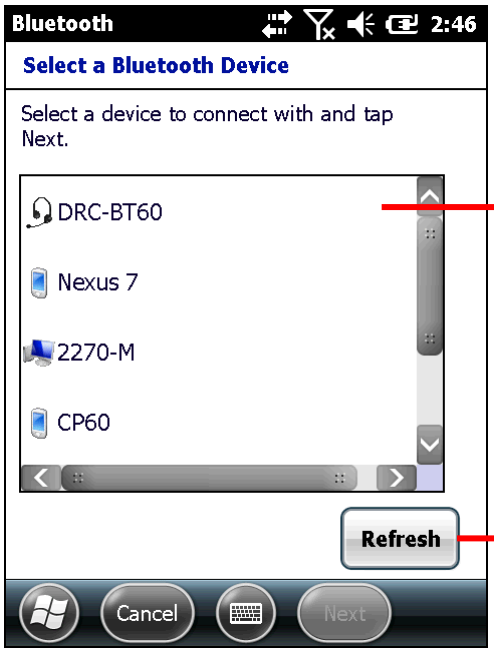
   Bluetooth settings open showing **Devices** tabbed page.



Devices tabbed page under Bluetooth settings

3) Tap **Add new device...**

   The mobile computer scans and displays the names of all Bluetooth devices found within reach.



If the device to pair with is not displayed, make sure it is currently set as discoverable. If the mobile computer stops scanning before that device becomes discoverable, tap **Refresh** to repeat the scan

4) Tap the name of the found device that you wish to connect. Tap **Next**.

The two devices pair with each other. You may be asked for a passcode for a secure connection. Try entering "0000" or '1234" (the most common passcodes). On some occasions you may need to refer to the documentation of the Bluetooth device to obtain this code.

Once the device is paired (and connected), you are prompted by a dialog indicating that the connection is established.

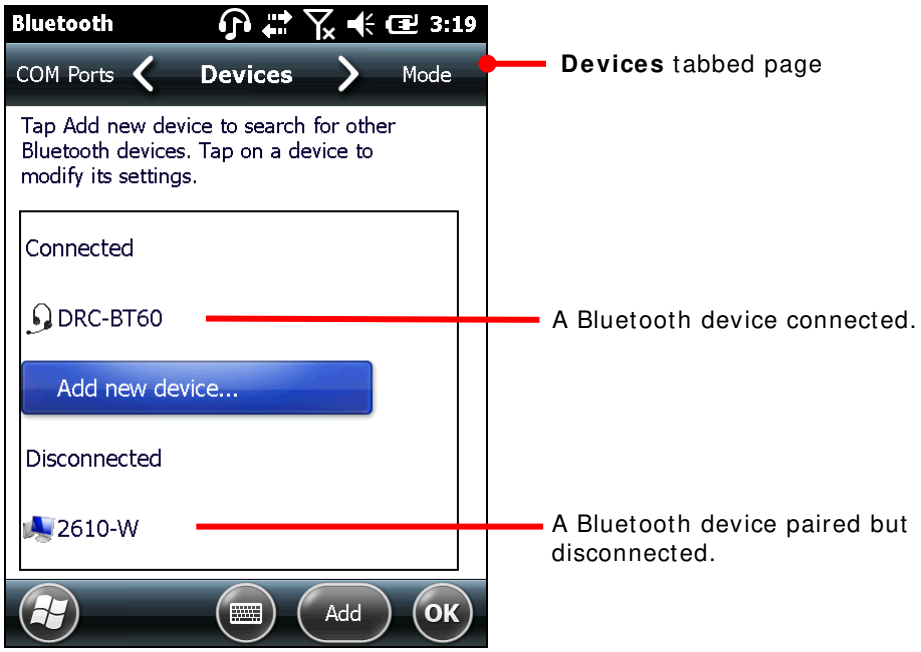
5) Tap **Done** on the softkey bar.

OR

Tap the **Advanced** command on the softkey bar to configure the Bluetooth features to use with that device. Then tap **Save**.

Devices tabbed page re-opens listing the newly connected Bluetooth device among others.

A connected device is listed under **Connected** label. A paired but unconnected device is listed under **Disconnected** label.



6) Tap and hold a connected device to edit its Bluetooth features to use, disconnect it or delete (unpair) it.

OR

Tap and hold a disconnected device to edit its Bluetooth features to use, reconnect it, or delete (unpair) it.

5.3.6. DISCONNECT BLUETOOTH DEVICES

To disconnect the mobile computer from a Bluetooth device, there are two approaches:

Simply turn off the Bluetooth as described in Turn On/Off Bluetooth. The mobile computer is disconnected from all connected Bluetooth devices.

OR

1) Open Bluetooth settings by tapping Start screen | **Settings** | **Bluetooth**, or Start screen | **Settings** | **Connections** | **Wireless Manager** | Menu on softkey bar | **Bluetooth Settings**.

   Bluetooth settings open showing **Devices** tabbed page.

2) Tap and hold the device to disconnect from.

   Context menu opens.

3) Tap **Disconnect**.

   The mobile computer is disconnected from the Bluetooth device.

5.3.7. UNPAIR BLUETOOTH DEVICES

To unpair a Bluetooth device:

1) Open Bluetooth settings by tapping **Start screen** | **Settings** | **Bluetooth**.

   Bluetooth settings open showing **Devices** tabbed page.

2) Tap and hold the device to unpair from.

   Context menu opens.

3) Tap **Delete**.

   The Bluetooth device is unpaired. The mobile computer needs to pair with it again to reconnect to it.

5.3.8. RECONNECT BLUETOOTH DEVICES

Before the mobile computer reconnects to a Bluetooth device, make sure the two devices are paired and placed within each other's wireless reach.

To reconnect to a Bluetooth device:

1) Open Bluetooth settings by tapping **Start screen** | **Settings** | **Bluetooth**.

   Bluetooth settings open showing **Devices** tabbed page.

2) Tap and hold the device to reconnect (normally it will be under **Disconnected** label).

   Context menu opens.

3) Tap **Connect**.

The Bluetooth device is reconnected and its name displays under **Connected** label.

5.3.9. EDIT BLUETOOTH FEATURES TO USE

A Bluetooth profile defines the features and communications supported by a Bluetooth device. For two Bluetooth devices to share files with each other, they need to both support the due profiles. Some Bluetooth devices have multiple profiles. Profiles can cover the ability to play music in stereo, to transfer files or other data and more. The mobile computer enables configuring the profiles you want to use on the mobile computer.

1) Open Bluetooth settings. (Start screen | **Settings** | **Bluetooth**.)

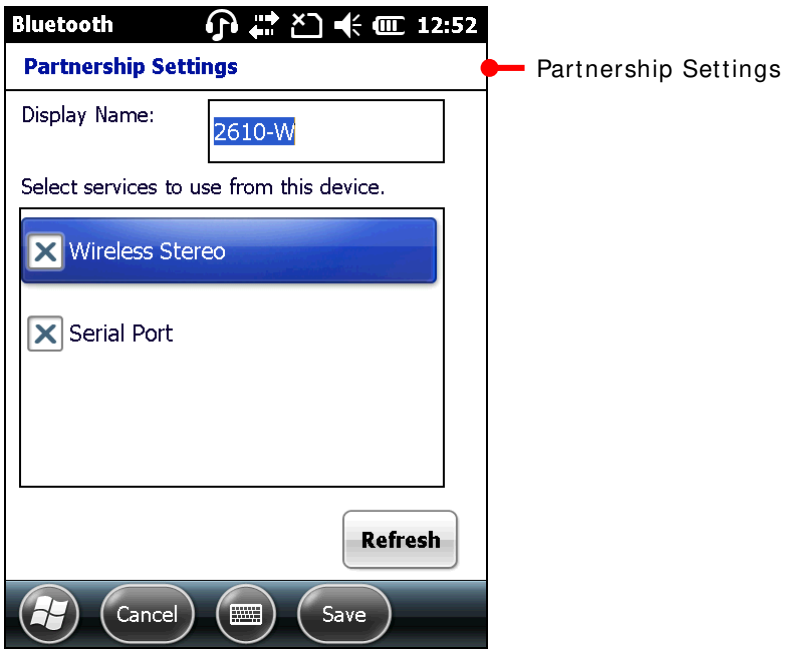
   Bluetooth settings open showing **Devices** tabbed page.

2) Tap and hold the device to configure.

   Context menu opens.

3) Tap **Edit**.

   Partnership Settings opens listing the device's available profiles.



4) Select or deselect a profile to use it or not.

5.3.10. BLUETOOTH FILE EXCHANGE

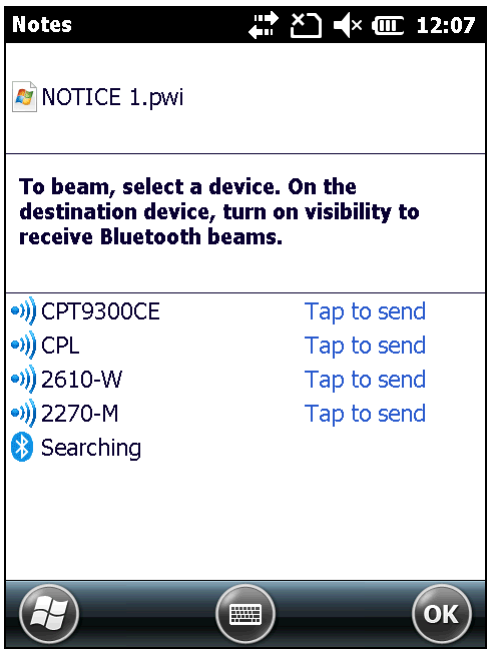
Once connected with other devices using Bluetooth, the mobile computer can offload or download files to/from them. Basically it relies on File Explorer to get it done.

OFFLOAD FILES

1) On the mobile computer, turn on Bluetooth as described in Turn On/Off Bluetooth if you haven't.
2) Open File Explorer .
3) Browse to the file to offload.
4) Tap and hold the file to offload.

   Context menu comes up.
5) Tap **Beam File...**

   The Bluetooth application generates a list of Bluetooth devices found.



6) Select the device to offload the file to.

   The device will receive a notification asking for confirmation to accept the file.
7) Confirm accept.

   The device proceeds to receive it inbound.

DOWNLOAD FILES

For the mobile computer to download files from other devices using Bluetooth, "Beam mode" must be enabled first:

To enable Beam mode:

1) On Start screen, tap **Settings** | **Connections** | **Beam** .
2) Select **Receive all incoming beams**.

To download files from other devices using Bluetooth:

3) Enable the mobile computer's "Beam" as mentioned above.
4) Turn on Bluetooth as described in Turn On/Off Bluetooth if you haven't.
5) Make the mobile computer discoverable as mentioned in Expose Mobile Computer.

   The mobile computer readies to receive an inbound file with Bluetooth. The mobile computer asks if you what to accept the file when it is coming in.

6) Confirm **Yes** or **No**.

   The file is saved to the mobile computer or rejected.

5.3.11. BLUETOOTH ACTIVESYNC

The advantage of Bluetooth ActiveSync is to save the trouble perpetually switching between multiple devices by changing cables or adapters.

Note to disable network bridging on your PC (specifically bridging to a Remote NDIS adapter) before connecting Bluetooth ActiveSync. For more information on network bridging, see Windows Help on the PC.

To use ActiveSync using Bluetooth:

1) Note the virtual Bluetooth COM port on your PC. If your PC doesn't have any, add one.
2) Run ActiveSync on your PC. From the menu bar, click **File** | **Connection Settings**.
3) Deselect **Allow USB connection** and select **Allow connections to one of the following**.
4) Select the COM port you noted in step 1.
5) Press OK button to apply change and quit setting.
6) On the mobile computer, tap **ActiveSync**  from Start screen.

   ActiveSync opens. If this is your first time opening it, it shows some guidelines to set up sync. Proceed as described in the following.

7) Tap the "Menu" command on the softkey bar.

   Option menu opens.

8) Tap **Connect via Bluetooth**.

   For 1st setup, you are prompted to set up Bluetooth partnership with your PC.

9) Tap **Yes** in the popup dialog inquiring if a partnership should be set up.

   You are taken to Bluetooth's Mode tabbed page.

10) Turn on Bluetooth if you haven't.
11) Tap **Device** tab.

    Bluetooth's Device tabbed page open.

12) For the 1st setup, tap **Add new device** and complete through pairing and connection as described in Pair & Connect Bluetooth Devices.

OR

Select the name of your PC if it is connected before.

Once paired and/or connected, you are taken back to Device tabbed page.

13) Reopen **ActiveSync**  on the mobile computer.

14) Tap the "Menu" command on the softkey bar on the softkey bar.

Option menu opens.

15) Tap **Connect via Bluetooth**.

Bluetooth connection is established within a few seconds. ActiveSync on your PC opens its **Sync Setup Wizard**.

16) Set up the sync partnership you desire. See 1st USB Sync for the setting.

DISCONNECT BLUETOOTH ACTIVESYNC

To disconnect Bluetooth ActiveSync:

1) On the mobile computer, tap **ActiveSync**  from Start screen.

ActiveSync opens.

2) Tap the "Menu" command on the softkey bar.

Option menu opens.

3) Tap **Disconnect**.

Bluetooth ActiveSync is disconnected.

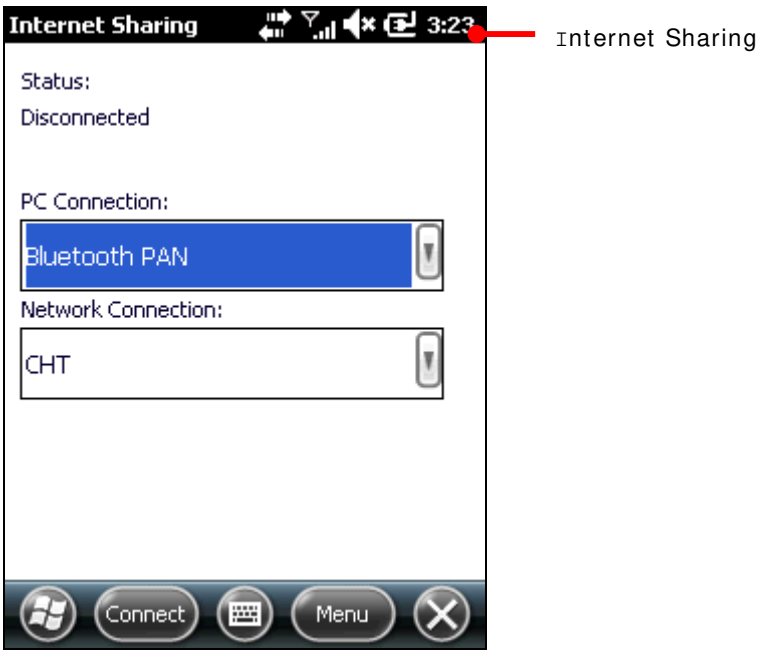
5.3.12. BLUETOOTH INTERNET SHARING

As mentioned in USB Internet Sharing, "Internet Sharing" or "Internet Tethering" enables a Windows-based PC to connect to Internet using the mobile computer's mobile data (or other dial-up). Well "Internet Sharing" is supported by Bluetooth too. To tether to Internet using Bluetooth, make the follow setting:

1) Set up Bluetooth connection between the mobile computer and your PC as described in Pair & Connect Bluetooth Devices.

2) On the mobile computer, tap **Internet Sharing**  from Start screen.

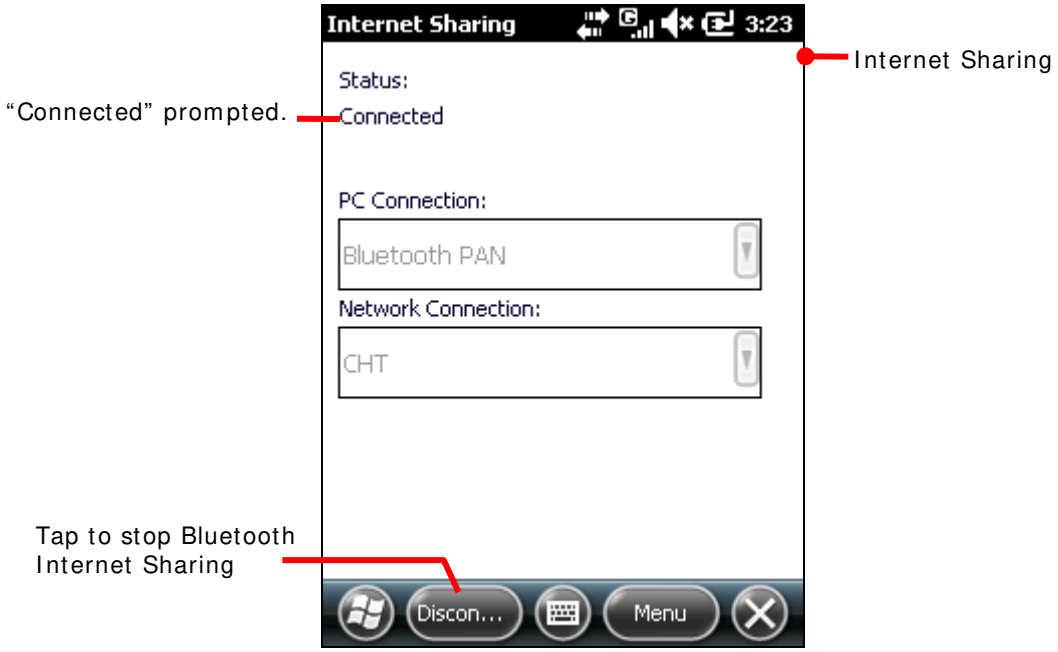
Internet Sharing opens.



3) Select **Bluetooth PAN** for **PC Connection**, and select your wireless service for **Network Connection**.
4) Tap the "Connect" command on the softkey bar.
5) On your PC, set up a **Bluetooth Personal Area Network** with the mobile computer.

   Setting up a Bluetooth PAN varies between different Bluetooth utilities. Consult the documentation of your Bluetooth utility or Windows Help on your PC to know about the setup.

In a few seconds Internet Sharing prompts "Connected" on the mobile computer. Your PC connects to Internet.



Tap the "Discon..." command on the softkey bar to stop.

For the internet sharing using USB, see USB Internet Sharing.

Compare Bluetooth Pass-through Networking & USB Pass-through Networking.

5.3.13. BLUETOOTH PASS-THROUGH NETWORKING

"Pass-Through Networking" enables the mobile computer to network using your PC's data connection, courtesy that two computers are synced, whether by a hardwired USB approach or wirelessly by Bluetooth.

1) Establish sync partnership between the mobile computer and your PC using Bluetooth as described in Bluetooth ActiveSync.
2) On your PC, from the menu bar of ActiveSync, select **File** | **Connection Settings**.

   Connection Settings open.
3) For **This computer is connected to**, select a connection to which your PC should connect when passing through ActiveSync.
4) Select **Open ActiveSync when my device connects**.
5) Press **OK** button to apply the change and quit settings.

   You can proceed to network connection on the mobile computer.

   For the pass-through networking with USB, see USB Pass-through Networking.

   Compare Bluetooth Internet Sharing & USB Internet Sharing.

5.4. CONNECT TO VIRTUAL PRIVATE NETWORK

Virtual Private Networks (VPN) are a group of individual networks on a public network (such as the Internet) that connect to each other by private lines and communicate among themselves by encryption technology so their data are kept safe from unauthorized access. The mobile computer supports VPN connection to access the resources inside a secured network from the outside.

There are a variety of security protocols for VPN. Some of them work based on secure certificates while others require passwords to permit access. To access a VPN with secure certificates, see Install Secure Certificates.

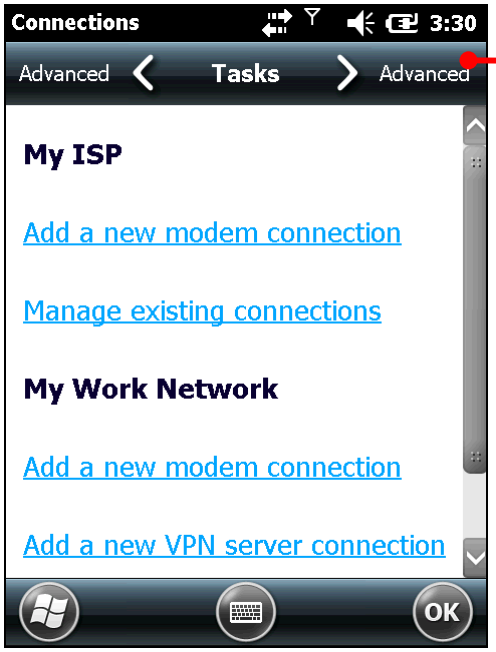
To be able to set up a VPN connection on the mobile computer, obtain the necessary credentials from your network administrator, and also note VPN is always accessed via mobile data connection, i.e. the mobile computer's HSPA+ data transfer.

5.4.1. VPN CONNECTION SETUP

To add a VPN connection to the mobile computer:

1) On Start screen, tap **Settings** | **Connections** | **Connections** (Manager)  .

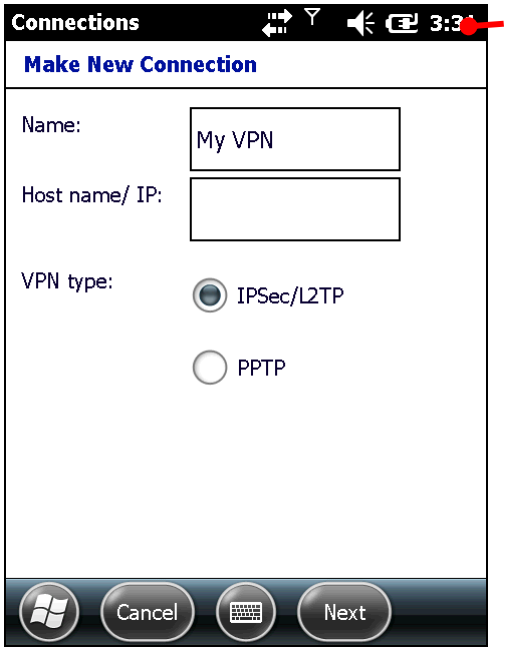
   Connections (Manager) opens showing Tasks tabbed page.



Connections (Manager) opens showing Tasks tabbed page.

2) Under **My Work Network** label, tap **Add a new VPN server connection**.

"Make New Connection" page opens.



"Make New Connection" page

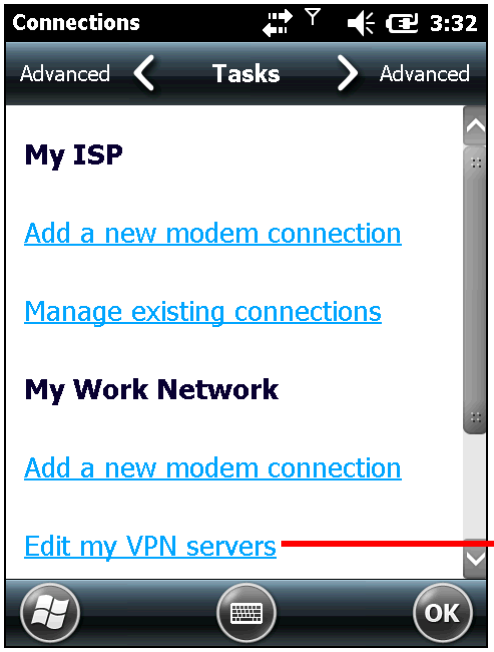
3) Complete the VPN settings. Consult your network administrator for the protocol employed on the VPN and other requested credentials.
4) Follow onscreen instructions to proceed.

Once a VPN connection is set up, a link **Edit my VPN servers** shows up under **My Work Network** label.

Proceed to connect to your VPN as described in Connect To VPN.

5.4.2. CONNECT TO VPN

After a VPN connection is set up as described in VPN Connection Setup, a link **Edit my VPN servers** shows up under **My Work Network**. Move on to connect to the prospective VPN.

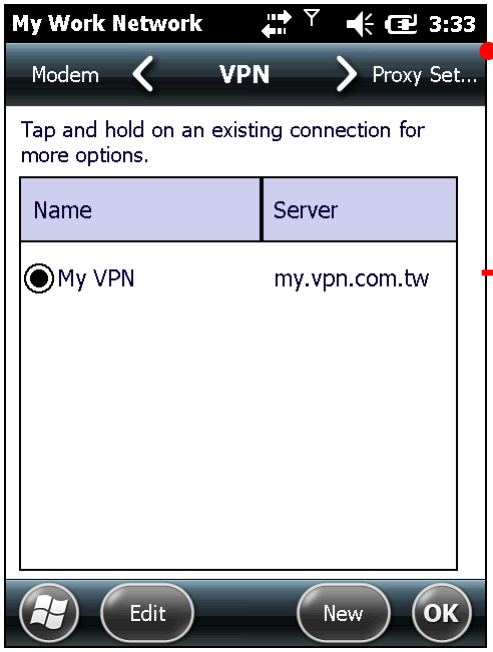


A link **Edit my VPN servers** shows up.

To connect via VPN:

1) Tap **Edit my VPN servers** link.

   My Work Network opens showing VPN tabbed page.



My Work Network's VPN tabbed page

Tap and hold to pop up context menu.

2) Tap and hold the VPN to connect.

   Context menu shows up.

3) Tap **Connect**.

A dialog briefly displays noticing the attempt to connect. VPN is connected shortly. Once connected, the mobile computer makes a sound as per settings in Sounds & Notifications.

5.4.3. EDIT VPN

To edit a VPN:

1) On Start screen, tap **Settings** | **Connections** | **Connections** (Manager)  .

   Connections (Manager) opens showing Tasks tabbed page.

2) Tap **Edit my VPN servers** link.

   My Work Network's VPN tabbed page opens.

3) Select the VPN to edit.
4) Tap the "Edit" command on the softkey bar.
5) Follow onscreen instructions to follow through editing.

5.4.4. DELETE VPN

To delete a VPN:

1) On Start screen, tap **Settings** | **Connections** | **Connections** (Manager)  .

   Connections (Manager)'s Tasks tabbed page opens.

2) Tap **Edit my VPN servers** link.

   My Work Network's VPN tabbed page opens.

3) Tap and hold the VPN to edit.

   Context menu shows up.

4) Tap **Delete**.

   The VPN is deleted.

5.5. INSTALL SECURE CERTIFICATES

To connect to a VPN or Wi-Fi network that deploys secure certificates, the mobile computer must possess these certificates. Where the mobile computer stores these secure certificates is called a "certificate store".

Windows Embedded Handheld 6.5 has three "certificate stores" – the Personal, Intermediate and Root certificate stores. A certificate store usually has numerous certificates, possibly issued from a number of different certification authorities. To view the certificates stored on the mobile computer, see View Secure Certificates.

5.5.1. SUPPORTED CERTIFICATE FORMATS

Windows Embedded Handheld 6.5 supports installing the following certificate formats:

- .PFX/.P12 – Public-Key Cryptography Standards # 12 (PKCS # 12): This file format includes personal certificates with private keys. They install into the intermediate and root certificate stores.
- CER – Base64-encoded or DER-encoded X.509 certificates that install into the intermediate and root certificate stores.
- P7B - Public-Key Cryptography Standards # 7 (PKCS # 7) format files that install multiple certificates to any certificate store on the device.

Certificates with their features:

File Type	Private Key Support	Installs a certificate chain	Installs only one certificate	Installs multiple certificates (can include chains)
.PFX/.P12	Yes	Optional	Optional	Yes
.CER	No	No	Yes	No
.P7B	No	Optional	Optional	Optional

Note: If you are referred to download a certificate from a website, you will be asked to set a password for the credential storage when you download it.

5.5.2. VIEW SECURE CERTIFICATES

Certificates  is the OS' featured tool to view to the "certificate stores" on the mobile computer.

To view the secure certificates:

On Start screen, tap **Settings** | **System** | **Certificates**  .

Certificates open showing Personal certificate store.

5.5.3. INSTALL SECURE CERTIFICATES

It is recommended that you install a certificate issued by a trusted authority. To install a secure certificate:

1) Copy the certificate file to the mobile computer first.
2) Browse to the file using File Explorer.
3) Tap the certificate file to install.

Certificate installer starts to install the file.

4) Follow the onscreen instructions to proceed.

Once the installation completes, it can be viewed in Certificates  .

5.6. LOCATION DISCOVERY

Adorned with a GPS module, the mobile computer is capable of finding your location on earth. GPS relies on the satellites covering the sky around the world to pinpoint your whereabouts.

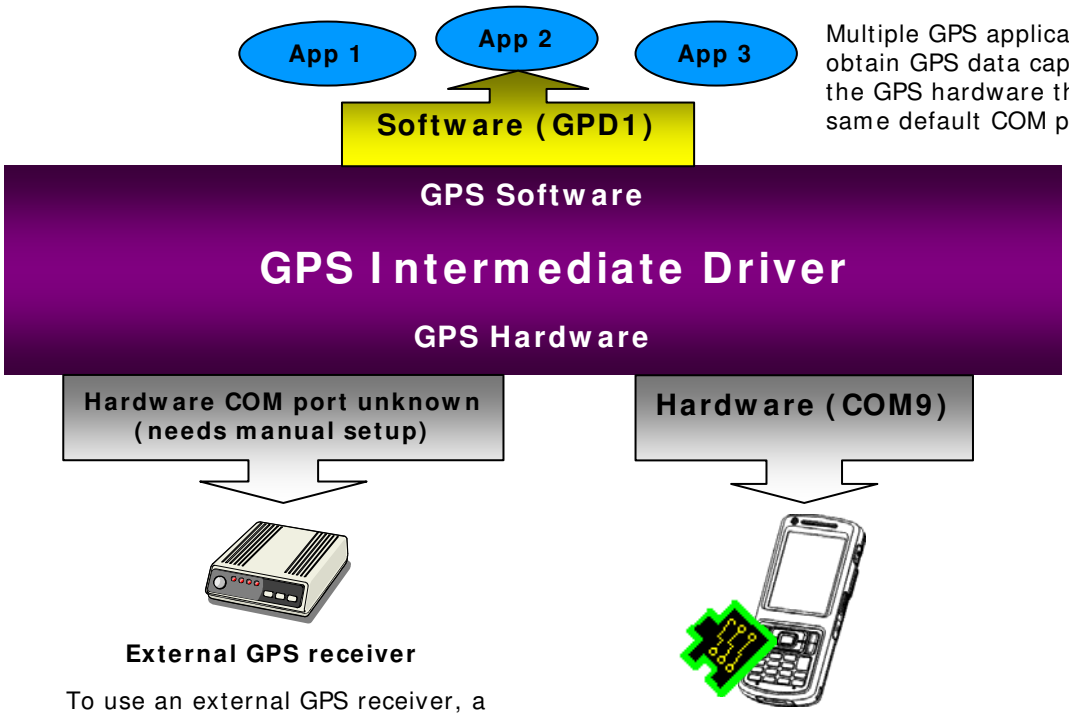
A location-aware application is necessary, such as CipherLab's GPS Viewer for NMEA-based location discovery. There are other applications downloadable from Internet. Download ".cab"-suffixed programs that confirm the compatibility with Windows Embedded Handheld 6.5. Note always download programs from trusted sources.

As GPS is a big power consumer, close GPS application when you are not using it.

5.6.1. LAUNCH GPS

The OS doesn't feature any facility to turn on/off GPS module but a GPS intermediate driver (hereinafter "GPSID"), a software layer between GPS hardware and GPS software to stream GPS data from hardware to software without parsing NMEA syntax and in the meanwhile enable multiple applications to simultaneously access GPS data.

Hence the approach to turn on GPS module is to launch a GPS software or a location-aware application on the mobile computer because the software COM port for GPS is turned on then. In case of any difficulty launching GPS, open **Start screen** | **Settings** | **System** | **External GPS** | **Access** tabbed page to check if **Manage GPS automatically** is selected.



Multiple GPS applications can obtain GPS data captured by the GPS hardware through the same default COM port.

External GPS receiver

To use an external GPS receiver, a hardware COM port must be set up for it.

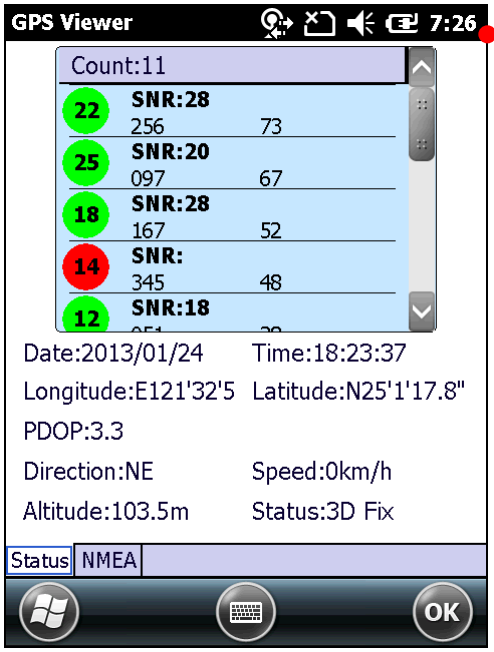
Built-in GPS receiver

COM 9 is the default COM port for the built-in GPS receiver.

5.6.2. USE GPS

To discover locations by GPS:

1) Launch GPS as described in Launch GPS.
2) Launch a GPS software or location-aware application (for instance, CipherLab provided GPS Viewer).



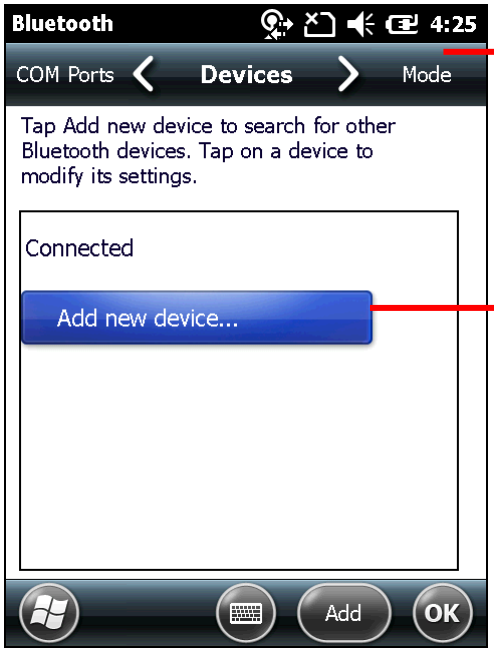
CipherLab GPS Viewer

5.6.3. USE EXTERNAL GPS RECEIVER WITH BLUETOOTH

To use an external GPS receiver via Bluetooth connection involves two-phase setup. The first phase is to set up a Bluetooth connection between your mobile computer and the external GPS receiver. The second phase is to set a hardware COM port for the external GPS receiver, as denoted in Launch GPS. Follow the steps below to complete the two-phase setup.

1) Power on the external GPS receiver.
2) Power on Bluetooth and make it discoverable as described in Turn On/Off Bluetooth and Expose Mobile Computer.
3) Open Bluetooth settings by tapping **Start screen** | **Settings** | **Bluetooth**  .
4) Tap **Add new device...** on the **Devices** tabbed page.

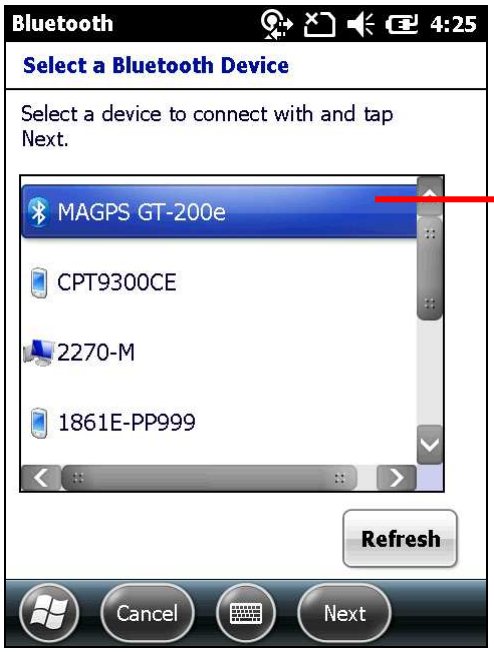
The application will search for and list the discoverable Bluetooth devices within wireless coverage.



Devices tabbed page under **Bluetooth**

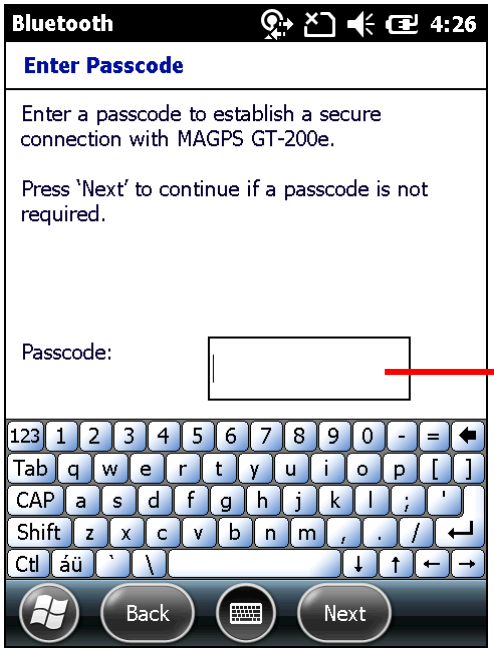
Tap **Add new device...** to search for discoverable Bluetooth devices within wireless coverage

5) Select the GPS receiver and tap **Next** on the softkey bar. The mobile computer then attempts to pair with the selected Bluetooth device.



Tap the Bluetooth device you would like to pair with

Your Bluetooth device may request a passcode to create a secure connection. Check the documentation provided by the device manufacturer for more details on the passcode.



Enter the passcode to complete Bluetooth pairing

Once two devices are connected, you are prompted shortly with a dialog.

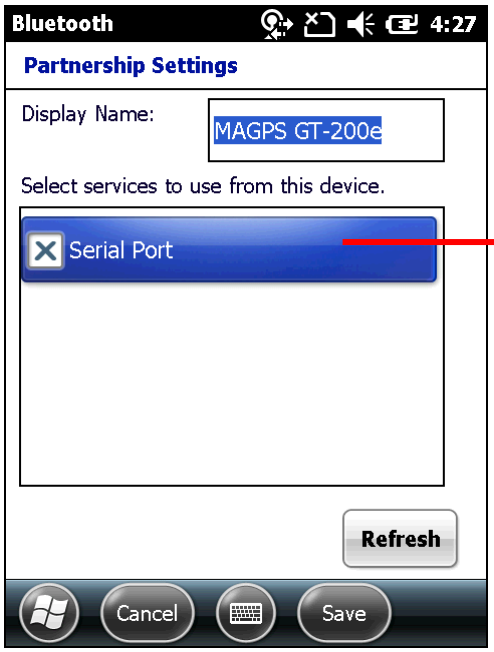
The mobile compuer is paired with the Bluetooth device

6) **Devices** tabbed page opens once more with your GPS receiver added in the paired device list. If the device is paired and connected, it is listed under **Connected** label. If it is paired but unconnected, it is listed under **Disconnected** label. Connection status depends on the Bluetooth feature(s) enabled for the device at the moment.

A paired but currently disconnected device is listed under **Disconnected** label

7) Tap your GPS receiver to open **Partnership Settings**. Services available for that device will be listed on this page.

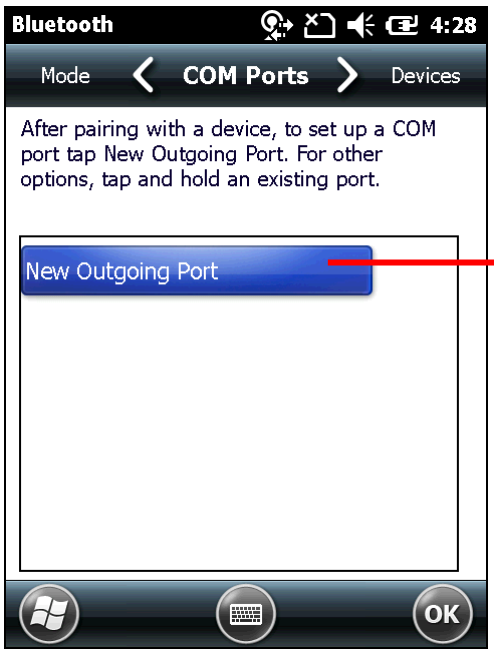
   Select **Serial Port** and tap **Save** on the softkey bar. A Bluetooth SPP connection will be established between the mobile computer and the GPS receiver.



Select Serial Port to establish an SPP connection

8) Devices tabbed page opens once more.
9) Tap **COM Ports** tab to open **COM Ports** tabbed page.

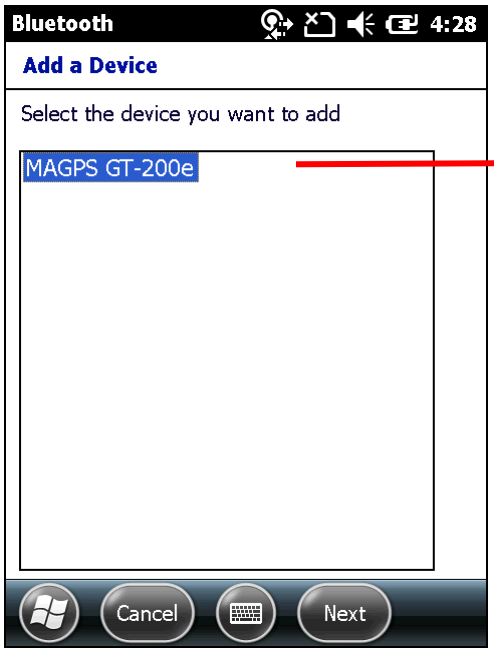
Tap **New Outgoing Port**, then tap **OK** on the softkey bar.



Tap to add an outgoing port for the paired Bluetooth device.

10) **Add a Device** page opens.

Select the GPS receiver and tap **Next** on the softkey bar.

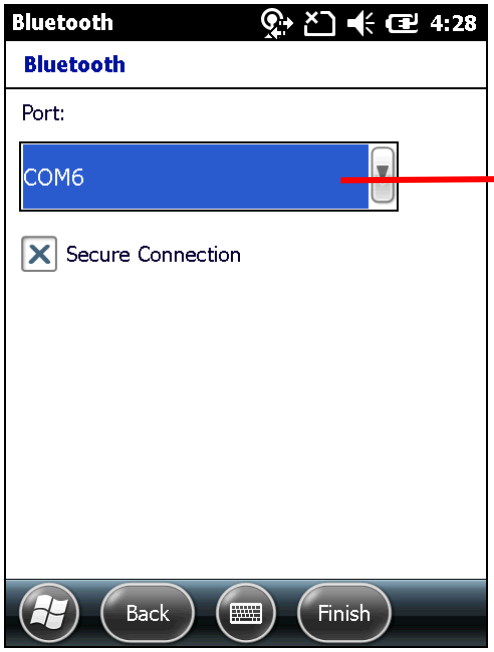


Select the Bluetooth device

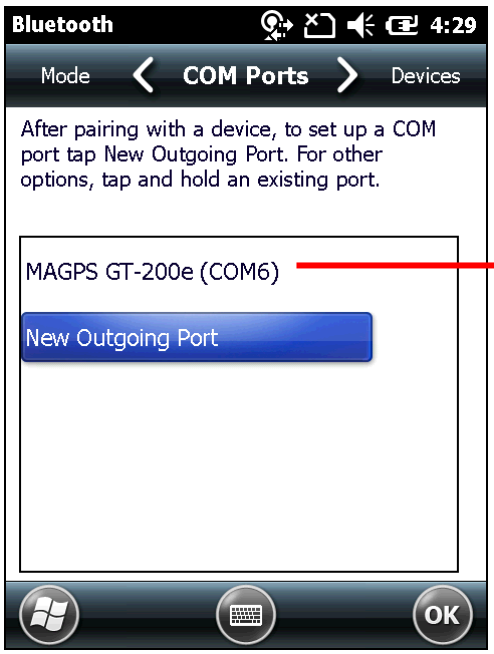
11) Bluetooth A page opens showing a drop-down list for port selection and a checkbox to set secure connection.

Select a port number. You can check the available ports on your mobile computer by tapping **Start screen** | **Settings** | **System** | **COM Port Mapping**. See COM Port Mapping for details.

Remember the port that you choose.



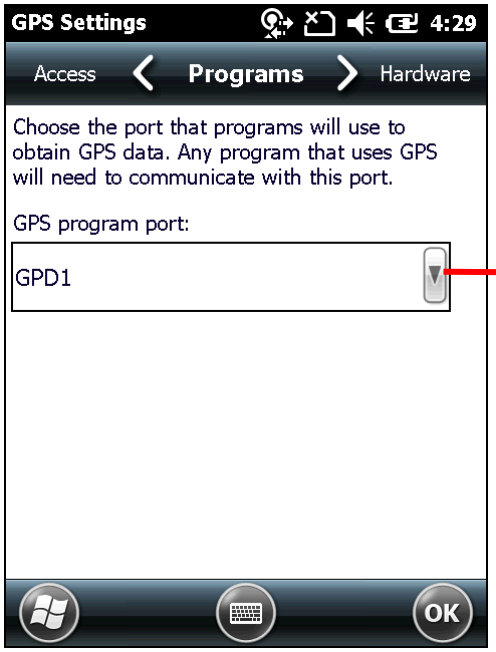
12) Tap **Finish** on the softkey bar to re-open **COM Ports** tabbed page. Your GPS receiver and its designated COM port are listed. Tap and hold the GPS receiver to edit the COM port setting.



13) On Start screen, tap **Settngs** | **System** | **External GPS**  .

GPS Settings opens to show **Programs** tabbed page.

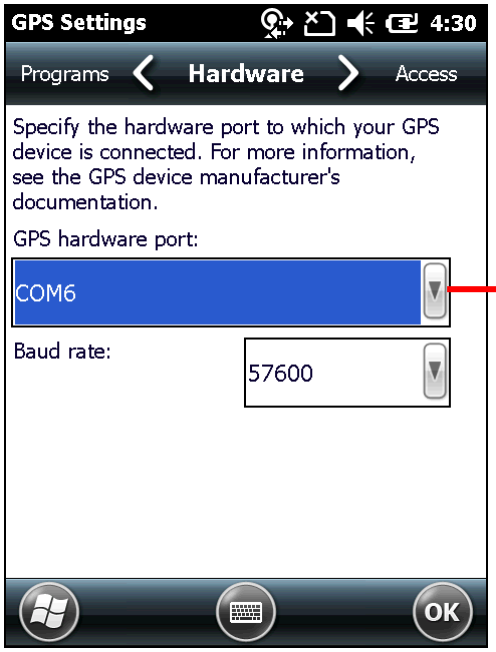
This page shows the default COM port through which GPS data obtained by GPS hardware is streamed to location discovery applications on the mobile computer. Do not change the settings on this page.



The default COM port the mobile computer uses to stream GPS data to applications

14) Tap **Hardware** tab.

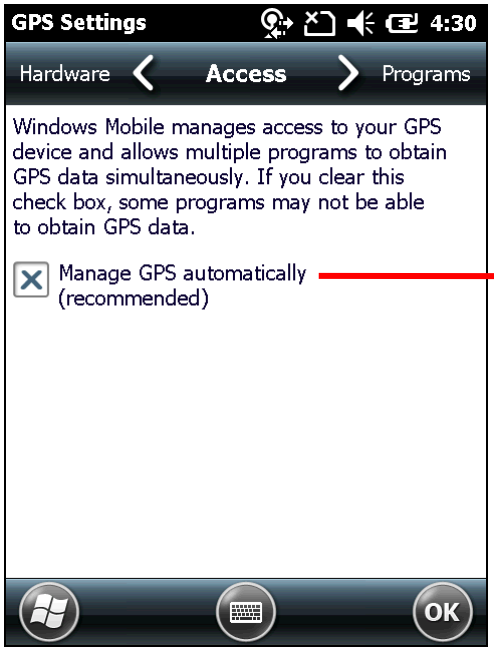
Hardware tabbed page opens showing GPS hardware port. The default GPS hardware port on the mobile computer is COM 9. Change this port to the port number you selected in step 10. The mobile computer will use this port to capture GPS data using the external GPS receiver.



Change GPS hardware port to the port added for the external GPS receiver

15) Tap **Access** tab.

Make sure Manage GPS automatically is selected. Tap **OK** to confirm settings.



Manage GPS automatically should be selected

16) Run your GPS software or location aware application.

GPS data is streamed to the software to assist location finding.

Chapter 6

PHONE

With a SIM card inserted, the mobile computer is capable of data transmission through WWAN.

This chapter depicts SIM card installation and status icons associated with phone status. For the phone's data usage, see Access Cellular WAN.

Note: Phone calling and receiving functions are reserved on CP60. Related settings such as phone volume, phone ring tone, voice mail and so on are reserved as well.

6. IN THIS CHAPTER

6.1. ABOUT PHONE

The mobile computer supports the following type of cellular technology:

- GSM
- UMTS

6.2. SIM CARD

To use the mobile computer's phone, first obtain a SIM card from your mobile carrier. Activate the SIM card and assemble it to the mobile computer. The phone is enabled by default and connects to your wireless network when the mobile computer powers on.

The mobile computer may ask you for a PIN to unlock the SIM card when it powers on. Contact your mobile carrier for their default PIN.

6.2.1. ASSEMBLE SIM CARD

To assemble a SIM card, follow the steps below:

1) Power off the mobile computer. Unhook the hand strap and remove thes battery door and main battery.
2) Using a screwdriver, remove the back cover located at the bottom of the battery chamber.
3) Locate the SIM card socket inside the battery chamber. (See also Inside Battery Chamber.)
   SIM card socket has a hinged cover.
4) Push back the hinged cover to unlock it.
5) Swivel up the hinged cover.
6) Insert SIM card into the cover slot in the direction indicated . The metal contact pins should face down.
7) Put down the hinged cover.
8) Lock the hinged cover into place.
9) Restore the battery chamber back cover, battery, battery door, and hand strap.

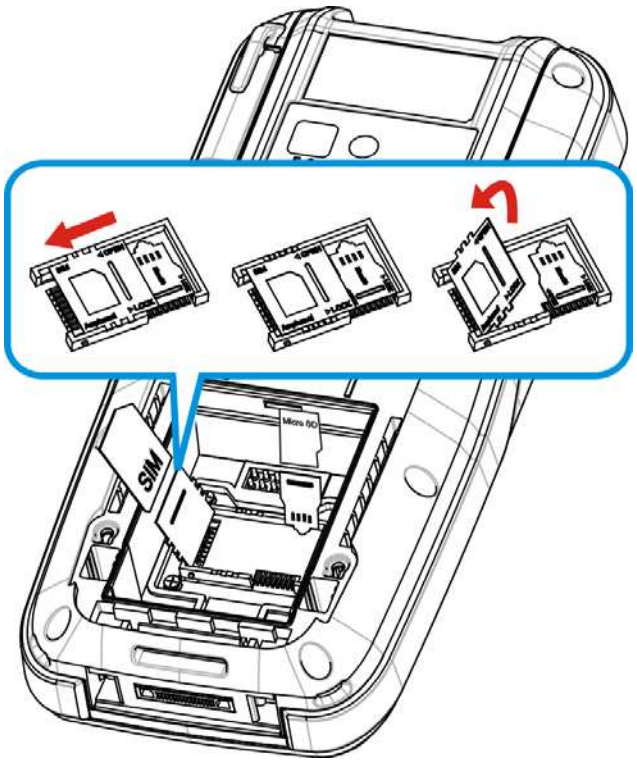


Figure 17: Inserting SIM Card

6.3. STATUS ICONS

Status icons for phone status:

Status Icon	Description
	No SIM card installed
	Phone off
	SIM card locked. PIN code required to turn on phone.
	Phone on with signal strength. The more bars lit, the stronger the signal.
	Connected to another mobile carrier's network (roaming)

Chapter 7

MORE APPLICATIONS

Aside from the dedicated *ReaderConfigMobile.exe* which empowers the mobile computer's with a specialty in data capture as mentioned in Data Capture, more manufacturer-developed applications are preinstalled to strengthen user's system management and make the mobile computer more eligible.

A group of said applications are accessibleon the mobile computer. This chapter will comb through the details about them.

These applications include:

Applications	Description
Button Assignment	Assigns new functions to some physical keys.
GPS Viewer	Discovers locations.
Signature Utility	Captures, views, edits signatures.

7. IN THIS CHAPTER

7.1. BUTTON ASSIGNMENT

Button Assignment can re-define the functions of physical keys so that they trigger different actions. Settings made to one or more keys can be saved as a profile, allowing users to switch conveniently in between different sets of settings. Key functions under Function Mode (which can be entered by pressing the Function Key) can also be re-defined.

7.1.1. LAUNCH BUTTON ASSIGNMENT

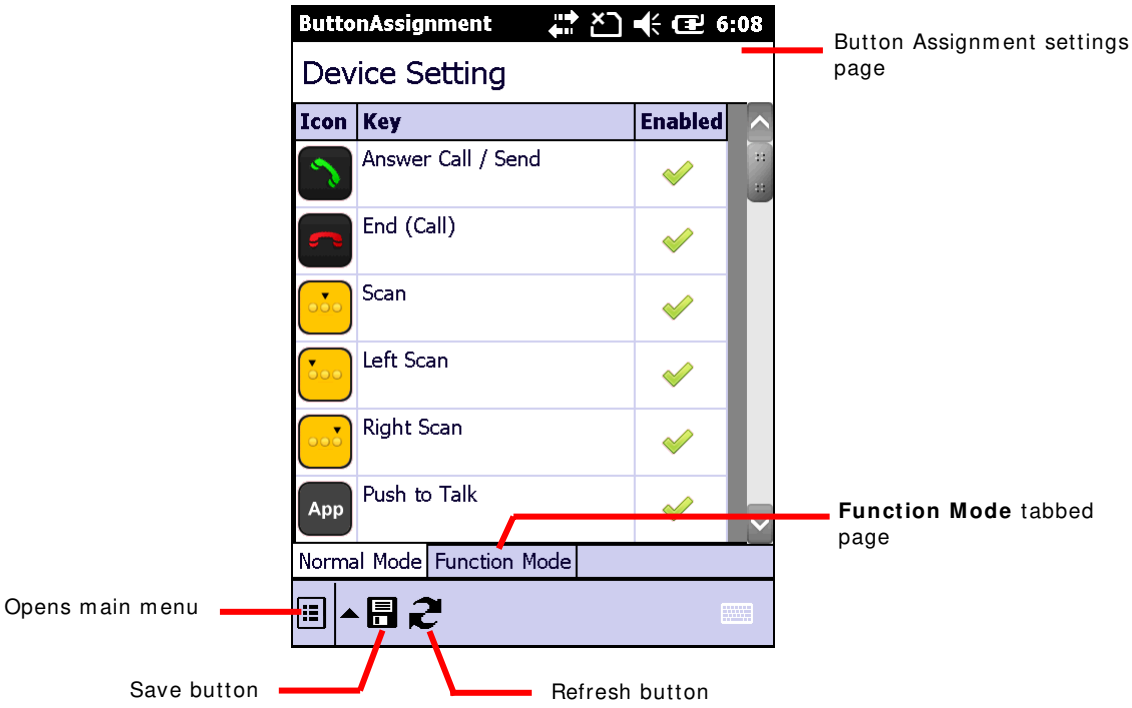
To launch button assignment:

1) On Start screen, tap **Settings** | **System** | **Button Assignment**  .

   Button Assignment opens showing **Normal Mode** tabbed page with an additional **Function mode** tabbed page.

   The Normal Mode tabbed page consists of a table listing three columns: **Icon** column displaying the buttons available for reassignment, **Key** column showing the assigned function of each button, and **Enabled** column to enable or disable the indicated buttons in a single tap.

   At the bottom of the screen is a taskbar that can be used to open additional settings, save a profile or refresh settings to the stored profile.



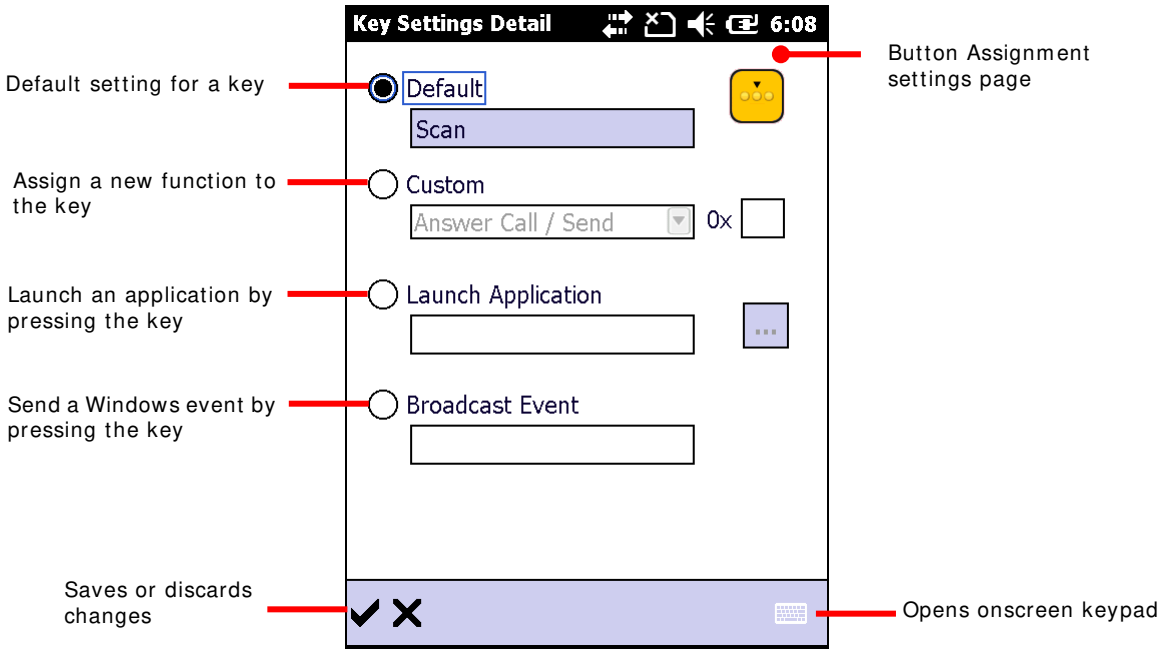
TOOLBAR

Toolbar icon	Description
	Opens Button Assignment main menu which can be used to manage profiles, reset settings to default, obtain version information, or exit the application.
	Saves current settings as a new profile, or saves changes made to the profile currently opened.
	Refreshes the screen to profile settings as stored.
	Opens onscreen keypad.

7.1.2. REDEFINE KEYS

To assign a new function for a re-definable key:

1) Launch Button Assignment as described in Launch Button Assignment.
2) Scroll to the button you would like to re-define, and tap twice on the icon or text.
3) Settings page for that button will open showing four options to set button function.



Item	Value
Default	Sets the key function back to factory default.
Custom	Provides a drop-down list to select the preferred function for the specific key. (Options available differ with the key.) Either select a pre-defined function, or select “”User define” and enter a valid ASCII key code (0x00~0xFF) in the text box.
Launch Application	Opens an application by pressing the specific key. Browse to the .exe file of the desired application.
Broadcast Event	Input a Windows message event which will be triggered each time the button is pressed.

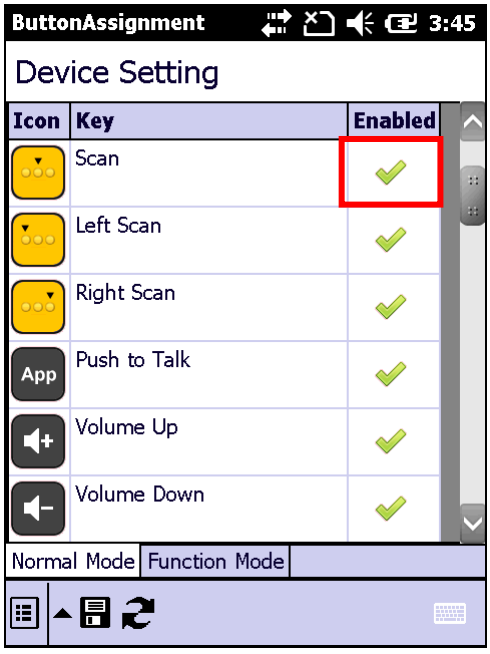
4) Re-assign the button as desired, and tap ✔ to save, or ✖ to cancel.

5) Then open the Button Assignment menu and tap **Write to device** to apply changes.

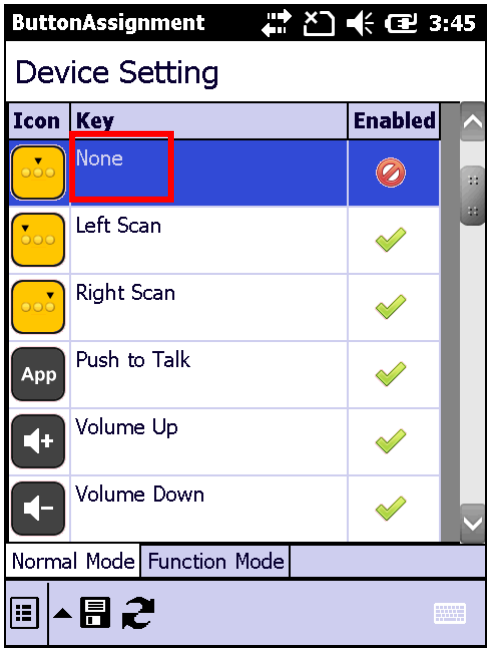
DISABLE/ENABLE KEY FUNCTION

The last column in the Device Setting list gives an overview of key status. Users can disable or enable a key by giving a single tap on this column. By disabling keys, keys are “locked” as no actual function will take place when they are pressed.

Enabled items will display as ✔ while disabled items will appear as ⊘.



Tap the “Enabled” column to enable or disable the indicated function.



Once keys are disabled, the icon changes and the function for that key will appear as “None”.

Note:

(1) To access the settings page for a key, its status needs to be set as “Enabled”.

(2) When a key is disabled and then enabled, its function will return to default settings.

7.1.3. MAIN MENU

When the main menu button  is tapped, an option menu opens providing the following functions:

Item	Description
User Profile	Displays the existing profiles (not including default settings), and a toolbar to manage profiles:  **Toolbar icon** / **Description** ✔ Applies the selected profile. ✘ Returns to the previous page. Deletes the selected profile. Imports a previously exported profile. Exports the selected profile as an .xml file.
Read from device	Reads and displays the current settings on the mobile computer. This should be done: ▸ Before creating a new profile ▸ To check the current environment on the mobile computer.
Write to device	Applies the currently displayed settings to the mobile computer. Button functions on the device will not alter until **Write to device** is tapped. This should be done: ▸ After creating a new profile ▸ After changing an existing profile ▸ After settings are reset to default ▸ After the active profile has been deleted, and the user wishes to replace previous settings on the device. Only by tapping this option will the displayed settings come into action.
Reset to default	Resets the displayed settings to default. For default settings to take effect on the mobile computer, **Write to device** must be tapped.
About	Displays copyright and version information.
Exit	Exits the application.

MANAGE PROFILES

CREATE PROFILE

To create a new profile:

1) Load factory default settings, or read current settings from device first.
2) Modify the settings directly according to your needs, then tap  to open a page where you can enter a name for the new profile.

3) Tap ✔ to save, or ✖ to cancel.

EDIT PROFILE

1) To edit an existing profile:
2) Tap the main menu button and tap **User Profile** in the option menu.
3) Select the profile you wish to edit, then tap ✔.

The selected profile opens.

4) Modify the profile according to your needs, then tap .
5) In the dialog box that appears, tap **Yes** to proceed, or **No** to cancel.

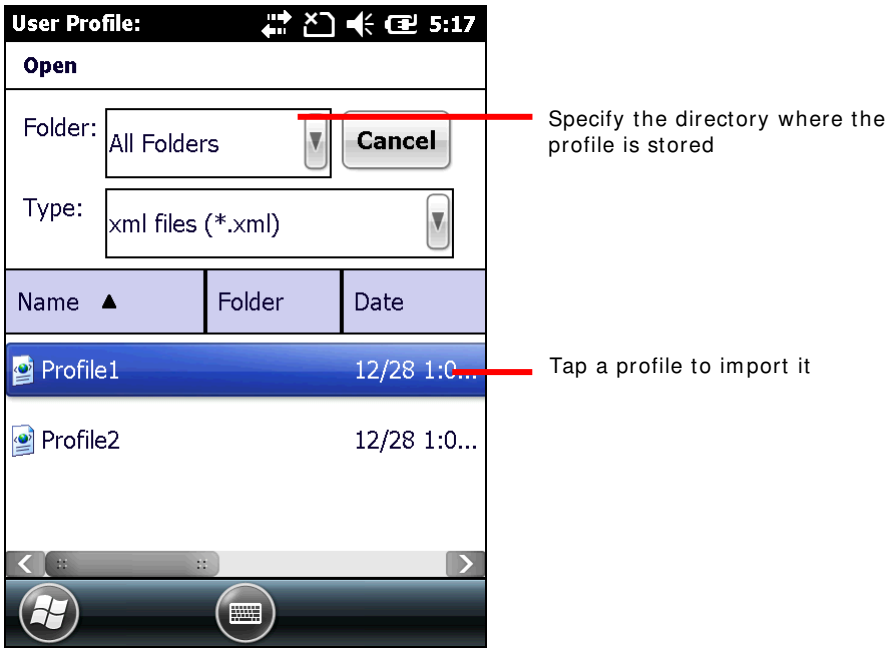
DELETE PROFILE

1) To delete an existing profile:
2) Tap the main menu button and tap **User Profile** in the option menu.
3) Select the profile you wish to delete, then tap .
4) In the dialog box that appears, tap **Yes** to proceed, or **No** to cancel.

IMPORT/EXPORT PROFILE

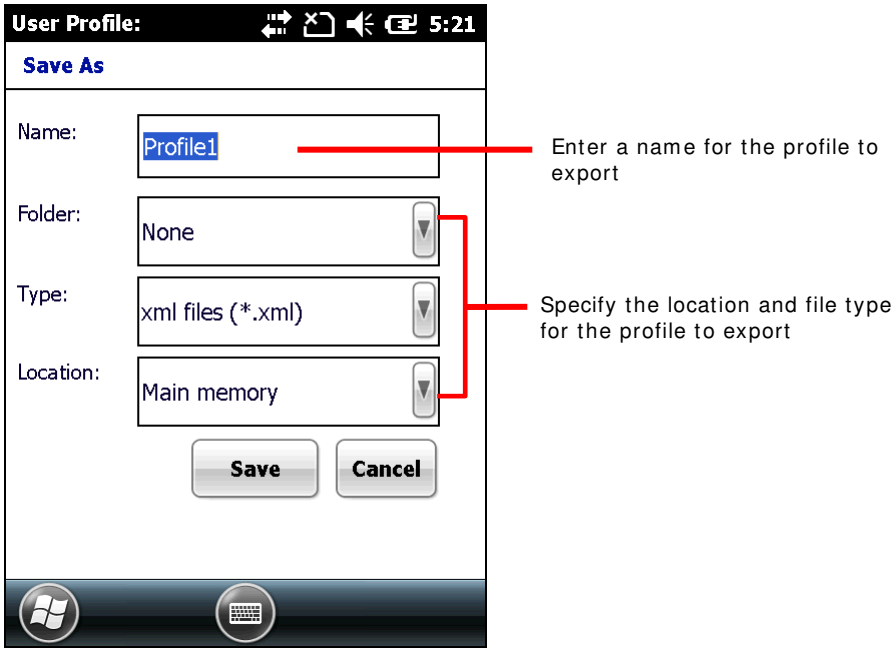
Profile settings can be exported as an independent .xml file, which may be transferred to other devices so they can share identical button assignment settings.

1) Open the main menu button and tap **User Profile** in the option menu.
2) Tap to import a previously exported profile.



OR

Select the profile you wish to export, then tap to enter export settings.



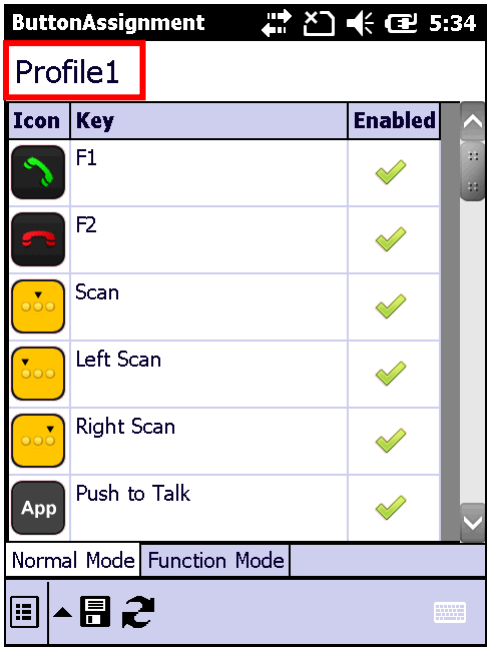
Note: The **All Folders** directory refers to all folders under My Device\My Documents. If a folder is not selected upon exporting, the exported file will also be stored under this directory.

3) In the dialog box that appears, tap **Yes** to proceed, or **No** to cancel.

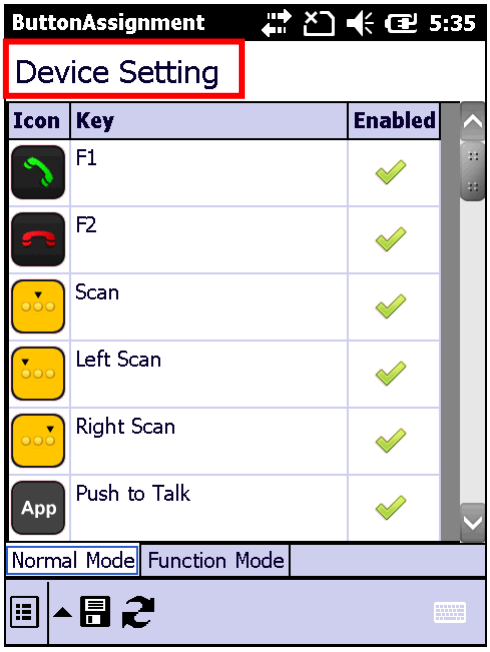
READ/WRITE SETTINGS

Use **Read from device** and **Write to device** to read the current settings on the device, or write the newly changed settings to the device in order for them to take effect. See Main Menu for when to use these options.

When Button Assignment application is launched, tapping **Read from device** will get the settings currently active on the device, which may be either default settings, a saved profile, or settings previously written to the device. Regardless of where the active settings derive from, they will be presented as "Device Setting" as denoted at the top of the page.



When a new profile is created and saved, the profile name will appear at the top left of the page.



After the profile is written to the device, the profile name will be replaced with "Device Setting" the next time the application is opened, or when **Read from device** is tapped.

RESET TO DEFAULT

Tapping **Reset to default** in the option menu will display default settings. This can be followed by the steps below.

- To apply default settings to the mobile computer, tap **Write to device** in the option menu.
- To create a new profile from default settings, make changes directly and tap the save button .

7.1.4. KEYPAD MODES

Both the numeric and QWERTY keypad provide two different modes, normal mode and function mode. To enable the function mode, simply press the Function key  . For behaviors of the Function key, see Function Key.

NUMERIC KEYPAD

Button	Normal mode	Function mode	General options	Special options
	Answer Call / Send	Start Screen	Answer Call / Send End (Call)	
	End (Call)	OK	Start Screen OK	
	Scan	N/A	Home End	Camera Scan + User define
	Left Scan	N/A	Left Right	Camera Scan + User define
	Right Scan	N/A	Up Down	Camera Scan + User define
	N/A	N/A	Page Up Page Down	Camera
	Volume Up	N/A	Volume Down Volume Up	
	Volume Down	N/A	Increase Backlight Brightness	
	Left	Home	Decrease Backlight Brightness	
	Right	End	Backspace Enter	
	Up	Page Up	Esc Tab	
	Down	Page Down	- .	
	Backspace	Lock	* #	
	Enter	Enter	! @	
	Esc	Esc	$ %	
	Tab	Tab	^ &	
	[*] Asterisk key	Increase Backlight Brightness	( )	
	[-] Hyphen key	--	1, 2, 3....9, 0 F1-24	

	[.] Period key	--	User Define	
	[#] Number key	Decrease Backlight Brightness		
	Keys 1, 2, 3....9, 0	--		
	--	F1-12		

Note:

(1) Direct keys (scan key, side trigger keys, volume up/down keys, Application key) on the mobile computer are only available for re-assigning under normal mode.

(2) Several of the direct keys provide special functions under normal mode. These include Camera and Scan + User Define.

QWERTY KEYPAD

Button	Normal mode	Function mode	General options	Special options
	Answer Call / Send	Start Screen	Answer Call / Send	
	End (Call)	OK	End (Call)	
	Scan	N/A	Start Screen	
	Left Scan	N/A	OK	
	Right Scan	N/A	Home	Camera
	N/A	N/A	End	Scan + User define
	Volume Up	N/A	Left	Camera
	Volume Down	N/A	Right	Scan + User define
	Left	Home	Up	Camera
	Right	End	Down	Scan + User define
	Up	Page Up	Page Up	Camera
	Down	Page Down	Page Down	
	Backspace	Lock	Volume Down	
	Enter	Enter	Volume Up	
	Esc	Esc	Increase Backlight Brightness	
	Tab	Tab	Decrease Backlight Brightness	
	Space	Space	Backspace	
	[&] Ampersand key		Enter	
	[.] Period key	Increase Backlight Brightness	Esc	
	[,] Comma key	Decrease Backlight Brightness	Tab	
			-	
			.	
			*	
			#	
			!	
			@	
			$	
			%	
			^	
			&	
			(	
			)	
			1, 2, 3....9, 0	
			F1-24	
			User Define	

	
Keys A-Z	--
	
--	F1-24

Note:

(1) Direct keys (scan key, side trigger keys, volume up/down keys, Application key) on the mobile computer are only available for re-assigning under normal mode.

(2) Several of the direct keys provide special functions under normal mode. These include Camera and Scan + User Define.

7.2. GPS VIEWER

The mobile computer includes a GPS module (GPS hardware). This module communicates with the Global Positioning System and discovers your location on earth if it has a piece of GPS software to work with. As previously mentioned in Launch GPS, the GPS module turns on automatically once GPS software launches on the mobile computer.

The preinstalled GPS Viewer is such GPS software. It streams NMEA-based data from the GPS hardware through GPSID.

As per Launch GPS, any GPS software on the mobile computer receives data from GPS hardware through COM port GPD1. Therfore, when GPS viewer is launched, GPD1 opens and readies to stream data on the mobile computer.

7.2.1. LAUNCH GPS VIEWER

To launch GPS Viewer:

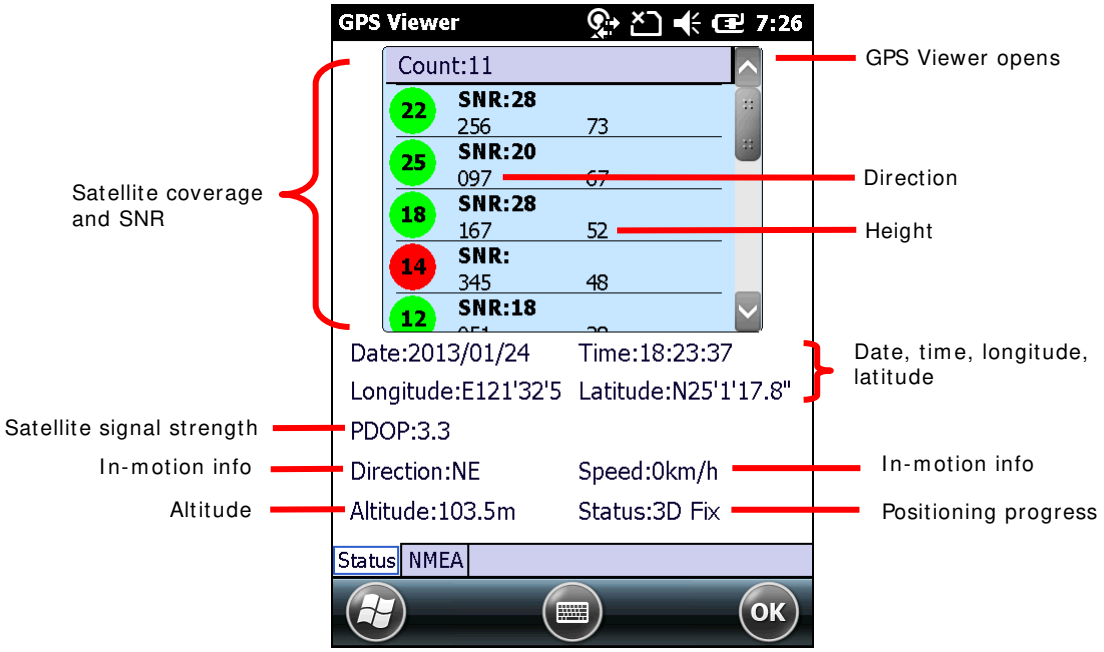
1) On Start screen, tap **CipherLabUtilities**  .

   CipherLabUtilities opens.

2) Tap GPS Viewer icon  .

   GPS Viewer opens showing **Status** tabbed page. GPS module and turns on.

   If there is clear view of the sky, the built-in GPS module auto-searches for available satellites and gets the mobile computer's current location. When finished, time, location, signal-to-noise ratio (SNR) and other positioning information then display onscreen.



- Red for no signal (< 9 dB)
- Green for fair signal strength (10 ~ 29 dB)
- Blue for strong signal strength (30 ~ 50 dB)

Item	Description
Date, Time	Current date and time
Longitude, Latitude, Altitude	Together they deliver the user's location on earth
PDOP	Positional (3D) Dilution of Precision, an indicator about the relationship between the error in user position and the error in satellite position. ▸ Small PDOP value indicates good positioning. Values greater than 7 are considered poor
Direction	Direction when user is in motion
Speed	Relative speed when user is in motion
Status	Delivers positioning progress. ▸ Depending on the number of visible satellites, the status changes from "Tracking" to "2D Fix" to "3D Fix". Under 3D Fix, latitude, longitude and altitude information are all obtained.

Note: (1) To use an external GPS receiver with GPS Viewer, see Use External GPS Receiver With Bluetooth.
(2) To speed up initial startup, download the ephemeris. See GPS Manager for details.

7.2.2. VIEW NMEA-BASED DATA

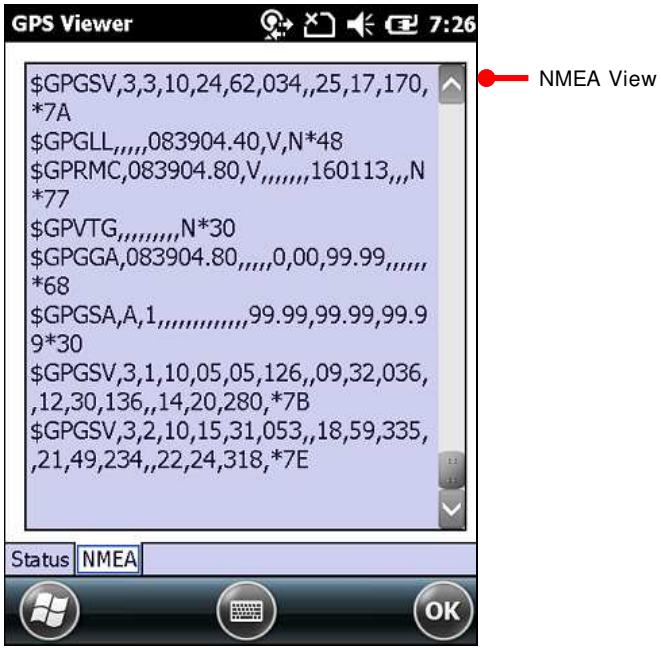
The data standard for GPS communication is NMEA. NMEA uses a simple serial protocol to define data syntax. GPS Viewer enables viewing such NMEA data streamed from GPS hardware to software (the application layer). To view NMEA data:

1) Launch GPS Viewer as described in Launch GPS Viewer.

   GPS Viewer opens showing **Status** tabbed page.

2) Tap **NMEA View** tab.

NMEA View tabbed page opens.



7.3. SIGNATURE UTILITY

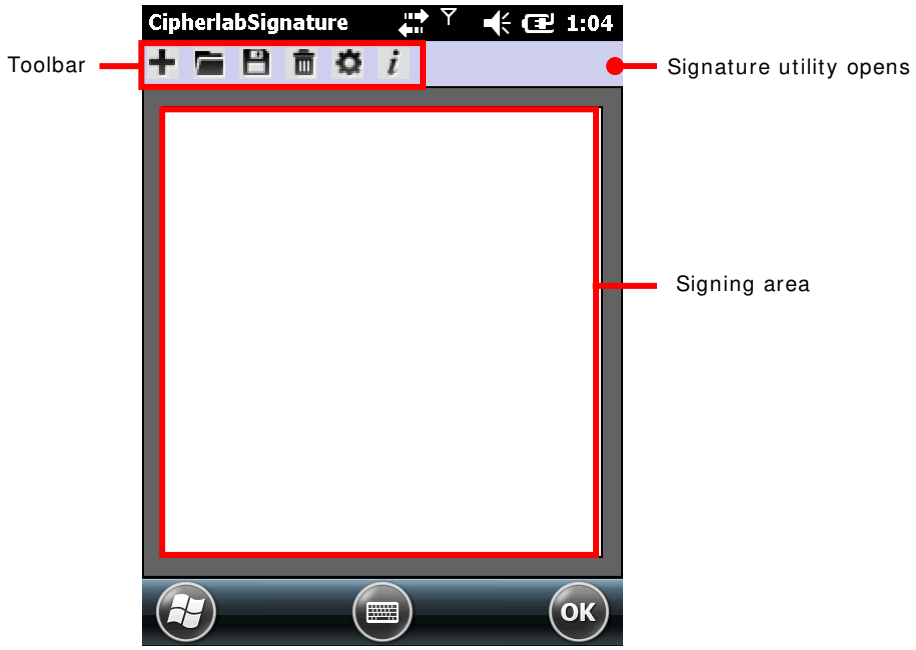
Signature utility captures, views and edits signature files.

7.3.1. LAUNCH SIGNATURE UTILITY

To launch Signature utility:

1) On Start screen, tap **Signature**  .

   Signature utility opens showing a toolbar along the top and a signing area within its window.



TOOLBAR & SIGNING AREA

Toolbar features a few icons to launch actions from the utility while signing area receives user's signature.

Toolbar icon	Description
+	Creates a new file.
	Loads a signature image.
	Saves the affixed signature to an image file (BMP, JPG or Locus format).
	Clears signing area.
	Opens preferences settings.
i	Views utility info including developer and software version.

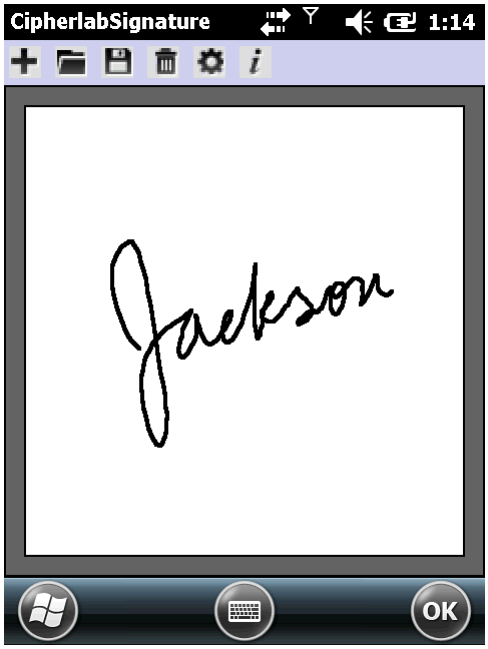
7.3.2. CAPTURE SIGNATURE

To capture signature:

1) Launch Signature utility as described in Launch Signature Utility.

   Signature utility launches.

2) Use the stylus to sign a name in the signing area.



3) Tap icon to save the signature as an image in BMP, JPG or Locus format.

OR

   Tap icon to discard the signature and sign again.

4) Tap the "OK" command on the softkey bar to quit Signature utility.

7.3.3. VIEW OR EDIT EXISTING SIGNATURES

To view the existing signature(s) on the storage of the mobile computer:

1) Launch Signature utility as described in Launch Signature Utility.

   Signature utility launches.

2) Tap icon on toolbar.

   The utility opens a screen allowing users to select the location and file type of the signature to view.

3) Browse to the folder where the signature is stored, and select which file type of signature to view.

   All signature files meeting the requirements are listed.

4) Tap the signature file to view.

   The file opens onscreen overlaid by a dialog asking if you want to modify the opened signature file.

5) Confirm **Yes** if you want to change the opened signature.

OR

Confirm **No** if you only want to view it.

Note: Signature utility loads images of maximum 640 x 480 pixels. If it tries to load an image beyond this limit, an error message will prompt and the image cannot be opened.

7.3.4. PREFERENCES

The utility supports preferences settings which change the utility's behaviours when it is used. Users are able to change the size and color of the signing pen stroke, and customize the background color of the signing area.

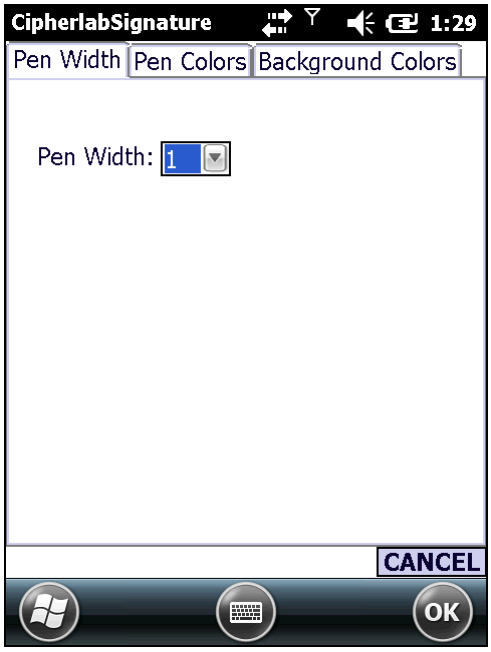
To access the utility's preferences settings:

1) Launch Signature utility as described in Launch Signature Utility.

   Signature utility launches.

2) Tap icon on toolbar.

Preferences settings open showing **Pen Width** tabbed page.



3) Select between **Pen Width**, **Pen Colors** and **Background Colors** tabs to customize signing preferences.

4) Tap the "OK" command to save changes, or tap **CANCEL** label to quit settings without saving changes.

Chapter 8

MANAGE MOBILE COMPUTER

This chapter guides you to the system settings featured by the OS Access these settings to define how the mobile computer looks, sounds, stores/secures your data, manages the applications, or exchanges data with your networks or other devices.

This chapter also includes a section detailing the mechanism you follow suit to update OS image.

8. IN THIS CHAPTER

8.1. UPDATE OS IMAGE

OS image upgrade helps optimize the mobile computer's performance and functionality. The upgrade relies on CipherLab's **OS Update Tool**, a utility to run on your PC to get the job done. This utility brings the upgrades of OS image and splash (booting logo) to the mobile computer. Contact Cipherlab's sales representative in your local area for the utility and update releases.

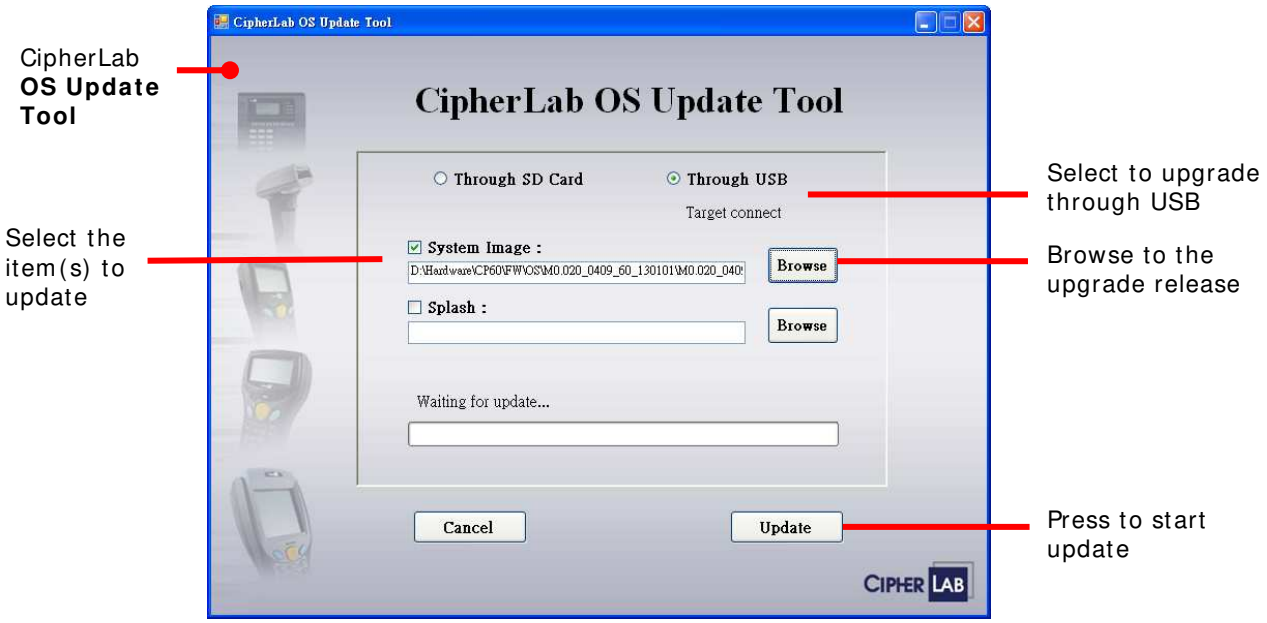
There are three approaches to upgrade OS image – USB update, SD card auto & manual updates. Follow through the steps below to carry out the update procedure.

8.1.1. USB UPDATE

To upgrade the OS image:

1) Connect the mobile computer and your PC as mentioned in Sync Partnership.
2) Run CipherLab **OS Update Tool** on your PC.

   CipherLab **OS Update Tool** opens.

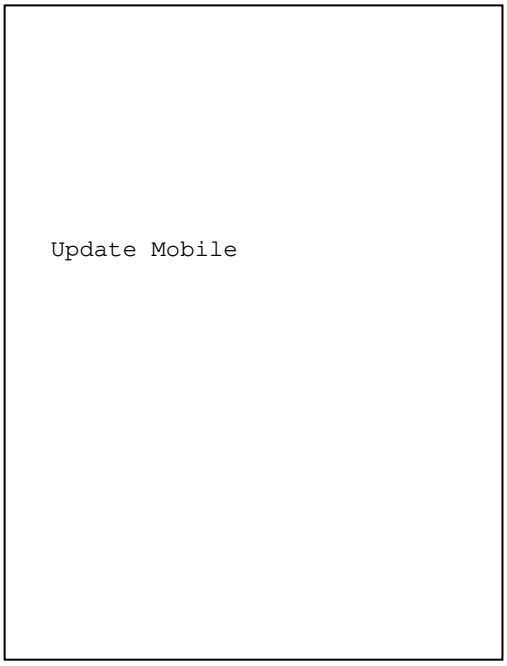


3) Select **Through USB**. Click **Browse** and select the OS image to udpate.
4) Press **Update**.

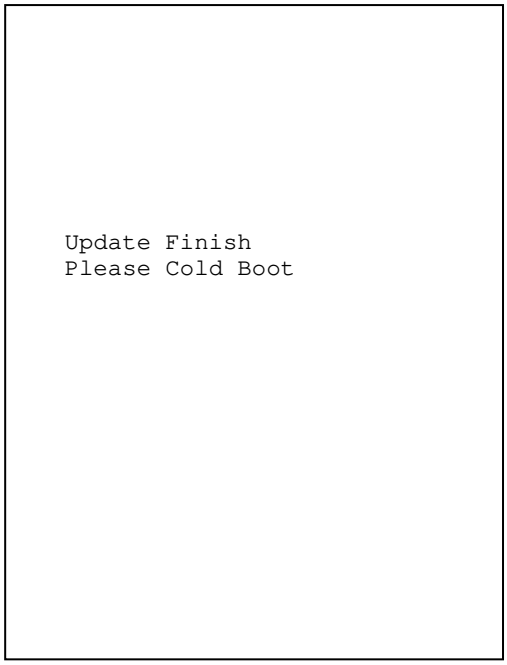
   The selected OS image is copied to the mobile computer.

5) The mobile computer will restart directly and proceed to install the updated OS.

The following notification will appear onscreen to indicate the system is updating.



6) When the update process is finished, a prompt will appear onscreen asking to cold boot the mobile computer. Cold boot the mobile computer once more by holding down the power button and pressing the reset button.



7) After the mobile computer powers on, it will enter calibration directly. Follow onscreen instructions to calibrate the touchscreen as described in Calibration.

After calibration, the mobile computer will proceed to auto-installation of system applications. When installation is completed, users can then check the OS version by tapping **Settings** | **System** | **System Information** | **Version** subcategory.

8.2. SYSTEM SETTINGS

This section guides to Windows Embedded Handheld 6.5 system settings. Access these settings to define how the mobile computer looks, sounds, stores/secures data, manages applications, or exchanges data with networks or other devices.

To access system settings:

Open Start screen, tap **Settings** icon . System settings open:

System settings

	Bluetooth Configures Bluetooth data connection. See Use Bluetooth.
	Clock & Alarms Sets clock, calendar, time zone, and up to three alarms which can serve as reminders.
	Home (Today) Customizes the background and items displayed on Today screen. See also Customize Today Screen.
	Lock Sets up a screen lock mechanism to limit access to the mobile computer. See also Set Screen Lock.
	Connections Folder Leads to the settings for radios, connection status and others. See also Connections Folder.
	Personal Accesses phone settings and assigns a program to a button. Users can also record information about the owner of the mobile computer.

System
Leads to System Folder, where the hardware and software on the mobile computer can be configured and their info can be viewed.

Sounds & Notifications

Configures the mobile computer's sound upon tapping onscreen commands or physical buttons, how a notification or system event is received, how an alarm sounds, and related settings.

Note Sounds & Notifications doesn't turn on/off the audio from music, videos, and other media. This audio broadcast should be silenced in the applications that run them.

Sounds & Notifications features two tabbed pages, **Sounds** and **Notifications**:

Tabbed page	Description
Sounds	Mutes/unmutes the sounds for system events, programs, screen taps, and physical key pressing.
Notofications	Configures the ring type for a number of system events such as established or disconnected connections and so on.

8.2.1. CONNECTIONS FOLDER

This section guides to applications available in **Connections Folder** under System Settings.

Open Start screen, tap **Settings** | **Connections** .

Connections folder opens:

Connections folder

BEAM

For Windows Mobile and Windows Embedded Handheld, “beam” is typically known as data sharing between handheld devices through an infrared wireless connection.

Open **Beam** application and select **Receive all incoming beams** to enable Bluetooth-based data exchange with other devices.

DOMAIN ENROLL

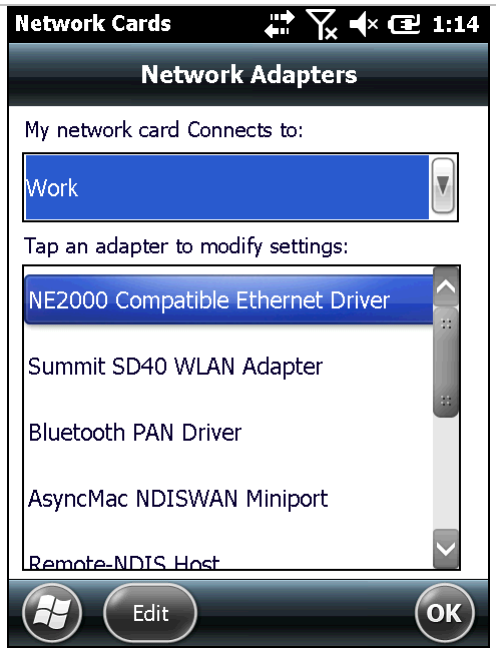
Connects to a SCMDM (System Center Mobile Device Manager) server with an enrollment ID and password. SCMDM enables the management of multiple mobile computers.

NETWORK CARDS

By default, it opens Network Cards settings that features Network Adapters tabbed page.

Network Adapters tabbed page

Modifies network card settings such as static IP connection, and configures where the network cards connect to, Internet or your work network.



Wireless tabbed page

By default, the mobile computer uses the Summit Client Utility to manage Wi-Fi connection. Alternatively, users can also access settings via Wireless Manager (which is known as Windows Zero Configuration). See Switch To Third Party Configuration for how to switch to Windows Zero Congfiguration.

Once switched, the Wireless tabbed page under Wi-Fi Settings can be accessed. This page searches for Wi-Fi networks, selects the network to connect, and adds networks that don't broadcast its SSID or fall out of reach.

Wi-Fi Advanced Settings

On the Wireless tabbed page, tap the "Menu" command on the softkey bar, then tap **Advanced** to access the following:

- Turn on/off notifications of available networks.

- Define the time to turn off Wi-Fi if the connection keeps failing.
- Define the network to access, only hotspots or only computer to computer (ad-hoc) or both.

WIRELESS MANAGER

Enables/disables the radios of Wi-Fi, Bluetooth, phone, and mobile data. It also limits mobile data to 2G only. See Use Only 2G Networks.

Wireless Manager opens showing a few entries:

- **All**: Turns on/off all the radios on the mobile computer except GPS. (GPS is turned off by losing GPS-dependent applications).
- **Wi-Fi**: Turns on/off Wi-Fi.
- **Bluetooth**: Turns on/off Bluetooth.
- **Phone**: Turns on/off phone and mobile data.

Tap the "Menu" command on the softkey bar to disconnect cellular data or access Wi-Fi Settings, Bluetooth Settings, and Phone Settings.

Setting	Description
Disconnect Cellular Data	Turns off mobile data without turning off phone.
Wi-Fi Settings	Opens Wi-Fi settings. See Network Cards.
Bluetooth Settings	Bluetooth settings feature three tabs – **Devices**, **Mode** and **COM Ports**. **Devices** tabbed page: - Searches for devices and selects devices to connect. - Edits, disconnects from, and unpairs from connected devices. - Edits, reconnects to, and unpairs from disconnected devices. **Mode** tabbed page: - Turns on/off Bluetooth. - Hides/reveals the mobile computer from/to other Bluetooth devices. **COM Ports** tabbed page: - Sets up COM ports for a paired device. - Edits an existing port.
Phone Settings	Phone settings are only available when a SIM card is assembled and the phone is turned on. Phone settings features four tabs – **Sounds**, **Security**, **Services**, **Network**. **Sounds** tabbed page **(Reserved)** - Configures phone ring type. - Configures phone ring tone. - Configures keypad tones. **Security** tabbed page - Enables/disables PIN code(s) for the inserted SIM

		- card. Edits the existing PIN code(s) of the inserted SIM card. **Services** tabbed page **(Reserved)** - **Call Barring**: Blocks certain types of incoming and outgoing calls. - **Caller ID:** Sets if your phone number is displayed to whom you call. - **Call Forwarding**: Configures how to forward your calls when you're on a phone already, you didn't answer and so on. - **Call Waiting**: Configures whether to be noticed of any incoming call during a call. - **Voice Mail & Text Messages**: Sets the phone number that accesses voicemails. As long as a number is set here, you are able to quickly access voicemail box by Phone application's Speed Dial. - **Fixed Dialing**: When your mobile carrier supports fixed dialing, phone can be set to place calls only to the fixed dialing numbers (FDN) saved on SIM card. Enable/disable FDN by selecting/deselecting **Enable fixed dialing**. **Network** tabbed page - **Current network**: Delivers the mobile network currently connected to. - **Network selection**: Configures how to select network, automatic or manual. - **Find Network**: Registers other mobile networks. - **Set Networks**: Selects preferred networks and orders them to your preference.

CONNECTIONS (MANAGER)

Sets mobile data connection with two tabbed pages – **Tasks** and **Advanced**.

Page	Description
Task tabbed page	Sets where mobile data connects to, to Internet (**My ISP**), or to an internal network (intranet) or a VPN (**My Work Netowrk**). **Setting** / **Description** My ISP: Sets up mobile data connection to the Internet. It provides two links – **Add a new modem connection** and **Manage existing connection**. The latter is only available after a connection is set up. See also Edit & Add Access Points. ▸ Add a new modem connection Creates a mobile data connection to Internet. Request your mobile carriers for the information needed. See also Cellular Data Setup. ▸ Manage existing connections

		Edits existing mobile data connection to Internet.
	My Work Network	Creates mobile data connection to an internal network (intranet) or a VPN. For enterprise network to access Internet, proxy server setting which is usually required is supported. ▸ Add a new modem connection Creates a mobile data connection to internal network (intranet) or VPN. Request network administrator for the information needed. ▸ Add a new VPN server connection Sets up a VPN connection. Request your VPN administrator for the details required. After a VPN is set up, **Add a new VPN server connection** changes to **Edit my VPN servers**. ▸ Set up my proxy server Sets up the proxy server by which an enterprise network connects to Internet. After a proxy server is set up, **Set up my proxy server** changes to **Edit my proxy server**. ▸ Manage existing connections Edits existing mobile data connection to internal network (intranet) or VPN. Request your network administrator for the related information.

Advanced tabbed page	Featured settings are:

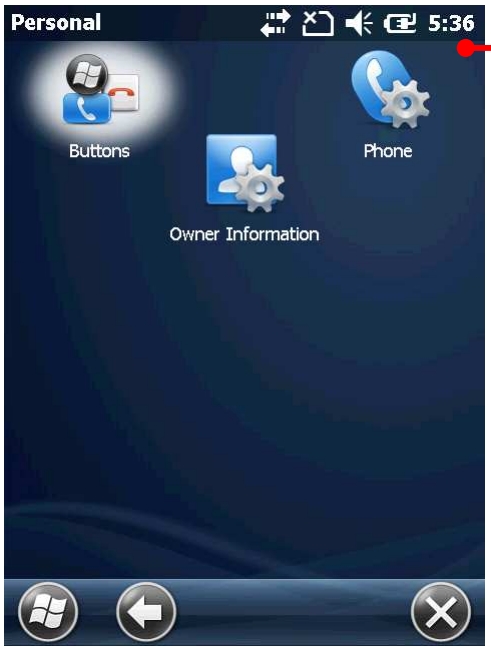
Setting	Destription
Select Networks	Sets which network to auto use when accessing Internet or a private network.
Dialing Rules...	Sets where you are dialing from so you don't have to create a new connection on a different location.
Exceptions...	Enters the address of the intranet to access in case it includes a period.

8.2.2. PERSONAL FOLDER

This section guides to **Personal Folder** .

Open Start screen, tap **Settings** | **Personal**.

Personal folder opens:



Personal folder opens

OWNER INFORMATION

Creates contact info about the owner of the mobile computer and also some notes.

PHONE

Accesses phone settings. See Phone Settings.

BUTTONS

Provides two tabs – **Program Buttons** and **Up/Down Control**.

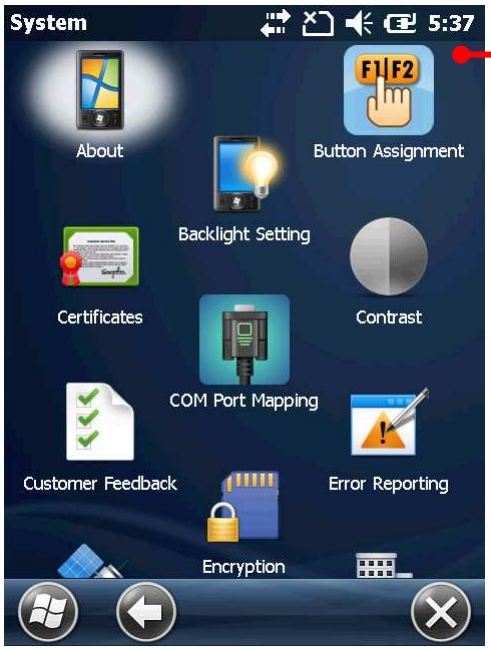
Tabbed Page	Description
Program Buttons	Assigns a button to quick launch an application.
Up/Down Control	An up-down control is a pair of arrow buttons that users tap to increase or decrease a value such as a scroll position or a number displayed in a companion control (called a buddy window). Use this page to customize the delay before repeat and the repeat rate for up/down controls.

8.2.3. SYSTEM FOLDER

This section guides to **System Folder**.

Open Start screen, tap **Settings** | **System**.

System folder opens:



System folder opens

ABOUT

Views OS information. It features three tabs – **Version**, **Device ID** and **Copyright**.

Tabbed Page	Description
Version	Displays OS version details, and shows brief descriptions of major hardware units.
Device ID	Sets a name and description for the mobile computer, making it easy for other devices to identify it. Change this information if you need to discriminate between different devices of the same model type.
Copyright	Displays legal information of the OS.

BACKLIGHT SETTING

Sets screen and keypad timeout and brightness. Four tabs are featured – **Brightness**, **Battery Power**, **External Power**, and **Profile**.

Tabbed Page	Description
Brightness	Selects whether to allow manual adjustment of the screen and keypad backlights. ▸ Adjust the screen to the dimmest comfortable brightness to save power. See also Adjust Backlight.
Battery Power	Sets the screen backlight timeout on battery power and whether to trigger screen/keypad light-up upon pressing a key. **Option** **Default Settings**

	Turn off LCD backlight if device is not used for:	Checked; 2 min
	Turn off keypad backlight if device is not used for:	Checked; 10 sec
	Turn on LCD backlight when a button is pressed or the screen is tapped	Checked
	Turn on keypad backlight when a button is pressed	Checked
External Power	Sets the screen backlight timeout on external power and whether to trigger screen/keypad light up upon pressing a key.	

Option	Default Settings
Turn off LCD backlight if device is not used for:	Checked; 2 min
Turn off keypad backlight if device is not used for:	Unchecked
Turn on LCD backlight when a button is pressed or the screen is tapped	Checked
Turn on keypad backlight when a button is pressed	Checked

Profile	Sets backlight profiles or restores them back to default.

BUTTON ASSIGNMENT

Redefines key functions under keypad's normal and function mode. See Button Assignment for more details.

CERTIFICATES

Views or deletes the digital certificates used by some applications to access some secured networks. See also Install Secure Certificates.

COM PORT MAPPING

Changes the function each COM port serves. COM ports 1 through 9 are re-assignable. Default settings are as follows:

COM port	Default Settings
COM1	Scan engine (Laser or 2D)
COM2	Bluetooth hardware port
COM3~8	N/A
COM9	GPS hardware port

- **Default** button restores all COM port settings back to factory default.
- Upon system reboot, the mobile computer checks whether there is a registry entry for Bluetooth Serial Port Profile (SPP) or Dial-up Profile (DUN). These profiles (if existent) are assigned to fixed ports and cannot be re-assigned.
- Check if any COM ports are occupied by Bluetooth SPP before editing COM port function.
- After editing COM port settings, tap **OK** command on the softkey bar. A prompt will appear warning that the system needs to reboot in order to apply settings. Tap **OK** to reboot, or **Cancel** to discard changes.

- If two ports are assigned the same function, a pop up dialog appears when **OK** is tapped to warn that one of these ports must be changed. .

CONTRAST

Provides a slidebar to set the contrast for the screen display.

- Along with Backlight Setting, make adjustments to the screen to achieve a most comfortable display mode.

CUSTOMER FEEDBACK

Submits feedback about Windows Embedded Handheld 6.5 to help Microsoft improve the software for this platform.

ENCRYPTION

Encrypts the files placed on the storage card so the encrypted files are only readable on that specific mobile computer.

ERROR REPORTING

Enables/disables the mobile computer to auto-collect and report errors to Microsoft to help them improve products.

EXTERNAL GPS

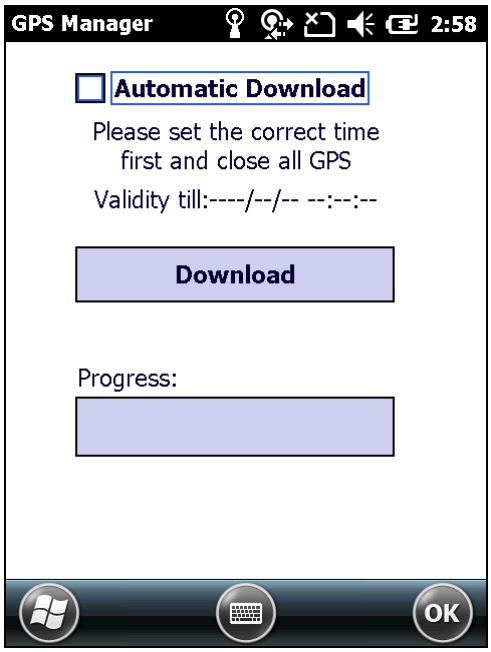
Configures external GPS receiver in use by the mobile computer. Three tabs are featured – **Access**, **Programs** and **Hardware**.

Tabbed Page	Description
Access	Enables/disables the system's access to the external GPS device.
Programs	Sets the software port for GPS software and location-aware applications to stream GPS data.
Hardware	Sets the hardware COM port and Baud rate for the external GPS receiver.

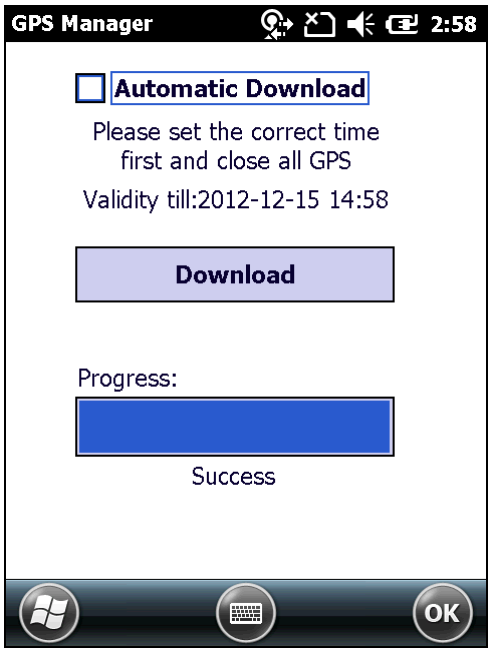
GPS MANAGER

Downloads or updates ephemeris data, which is valid for 14 days according to system date and time.

- The download page shows validity information and a progress bar to indicate download status.
- Correct time must be set before downloading the ephemeris to ensure data is accurate.
- The system willl check every 24 hours for validity of the ephemeris.



When first opened, click **Download** to store the current version of ephemeris in the system.



After a successful download, the validity of the current version of ephemeris will be displayed.

MANAGED PROGRAMS

Views the applications remotely installed by your domain's system administrator.

MEMORY

Delivers how the internal/external memories are used. See also Check Storage.

POWER INFORMATION

Displays battery level and sets up power plans. Two tabs are featured – **Battery** and **Advanced**.

Tabbed Page	Description
Battery	Delivers main battery type and remaining power of both main & backup batteries.
Advanced	Sets the screen power off time when on battery power and external power. See also Monitor Battery Level.

Option	Default Settings
(On battery power) Turn off screen if device is not used for	Checked; 2 min
(On external power) Turn off screen if device is not used for	Unchecked

READER CONFIGURATION

Allows users to set scanner preferences, data output format and destination, and symbologie settings.

A separate utility is provided for barcode reading. See Launch Reader Module for

details.

REGIONAL SETTINGS

Controls how to display numbers, currency, date, time, etc on the mobile computer. Featured tabs are – **Region**, **Number**, **Currency**, **Time** and **Date**.

Tabbed Page	Description
Region	Sets the region of your locale to display numbers, amount of money, time/date and other info.
Number	Sets how to display numbers.
Currency	Sets how to display currency symbols and amount of money.
Time	Sets how to display time.
Date	Sets how to display date.

REMOVE PROGRAMS

Views and removes the acquired (non-inherent) applications. See also Uninstall Applications.

SCREEN

Delivers three tabs to set how content is to be displayed on the screen.

Tabbed Page	Description
General	Switches the mobile computer between portrain and landscape mode. Also calibrates the touchscreen
ClearType	Smoothens the edge of screen fonts.
Text size	Adjusts text size.

SCREEN ROTATION

Selects the modes to enable for screen orientation, and whether to suspend the mobile computer when it is facing down.

Tap each of the following labels to enable/disable the given screen rotation mode.

- Portriat mode
- Landscape mode
- Signature mode

Tap the following label to enable/disable suspension of the mobile computer when it is turned over and the screen is facing downwards.

- Suspend when face down

SENSOR CALIBRATION

Calibrates the G-sensor, E-compass and Gyroscope.

Tabbed Page	Description
G-Sensor	Shows a round ball which fixes at the center of a set of circles when the mobile computer is on a level surface, and dislocates when the mobile computer is tilted. The round ball changes from grey to blue once calibration is finished.

	▸ The mobile computer must be placed on a flat surface before calibration.
E-Compass	Performs calibration of the mobile computer in three directions. Rotate the mobile computer around the three axises as prompted to complete calibration.
Gyroscope	Shows a round ball inside a series of circles which expand from inside out during calibration. The round ball changes from grey to blue once calibration is finished. ▸ The mobile computer must be placed on a flat surface before calibration.

STORAGE INFORMATION

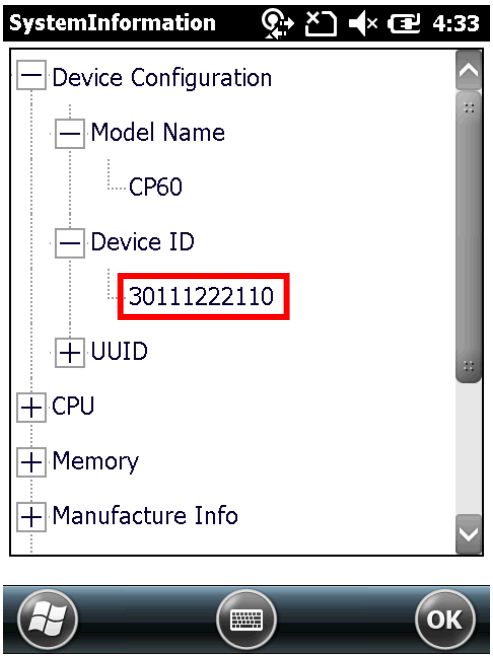
Provides storage status of the internal storage (which is divided into System files and User data) and external storage on the mobile computer.

Label	Description
System	Shows total size and available size of storage under the System directory.
USER_DATA	Shows total size and available size of storage under the USER_DATA directory.
Storage Card	Shows total size and available size of storage under the Storage Card directory.

SYSTEM INFORMATION

Displays some of the mobile computer's info such as manufacturer, firmware version, MAC address, memory capacity and so on. Tap each node to expand the tree structure list and view data about the given items.

This page also displays the mobile computer's **Device Config**, a sequence of digits that deliver information about the hardware integrated on the mobile computer. Coding rule is tabulated as below:



Digit Pair	Hardware	Code
1st	Barcode Reader	0: None 1: Laser – Class 1 2: Laser – Class 2 3: 2D 4: Long range laser
2nd	RFID Reader	0: None 1: RFID
3rd	Bluetooth	0: None 1: Bluetooth
4th	Wi-Fi	0: None 1:Wi-Fi
5th	Camera	0: None 1: Camera
6th	Keypad	0: None 1: 29 Keys 2: QWERTY
7th	LCD	0: None 1: QVGA 2: VGA
8th	WWAN	0: None 1: WWAN module 2: WWAN module
9th	GPS	0: None 1: GPS
10th	Touch panel	0: None 1: 3.5" Touch panel
11th	Others	0: None (ExtUART) 1: IrDA 2: CIR 3: FIR

TASK MANAGER

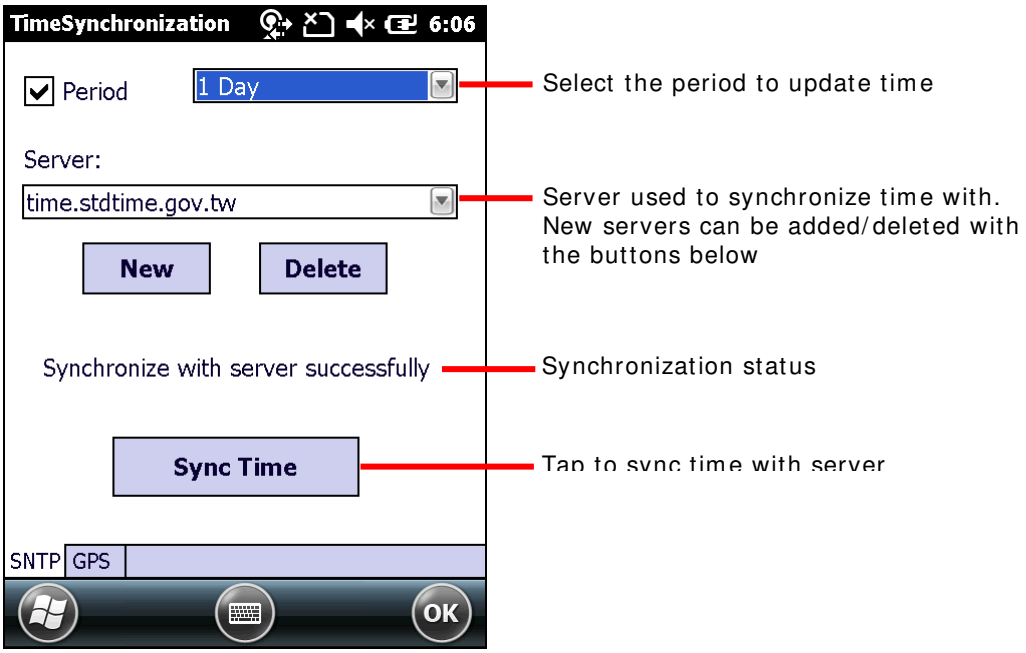
Monitors the memory and CPU resources consumed by each running application and cached process. It also closes applications and switches the screen between opened applications. See also Task Manager.

TIME SYNCHRONIZATION

Provides two tabs, **SNTP** and **GPS**.

SNTP tabbed page

Synchronizes the mobile computer's time with an NTP server, either automatically or manually. Users can also select the time period for auto-sychronization. Synchronized time will be written to RTC and system time will be updated.

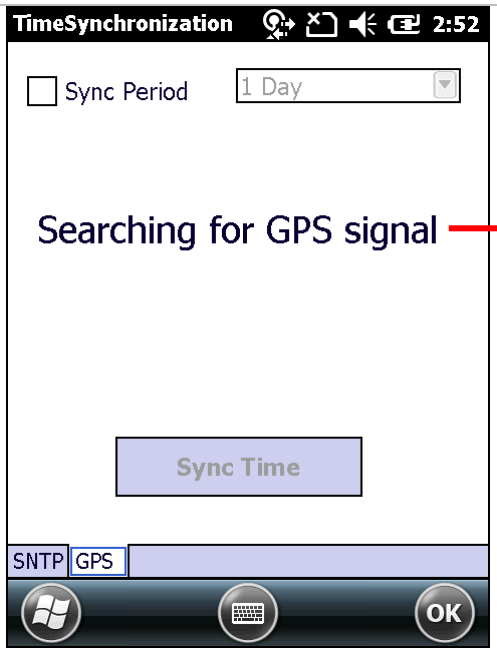


Check Internet connection status if the following synchronization status shows: "Cannot get time information through SNTP".

Note: For auto-synchronization to function properly, Time Synchronization application should be shut down. Close the application when you are finished adjusting the settings.

GPS tabbed page

Gets time information through GPS data packet.



USB TO PC

Enables/disables RNDIS (Remote Network Driver Interface Specification). Open **USB to PC** and deselect **Enable advanced network functionality** to disable RNDIS and enable PPP.

Note deselecting **Enable advanced network functionality** will disable USB Internet Sharing.

VERSION VIEWER

Lists version information of the applications and drivers installed on the mobile computer.

WI-FI

Summit Client Utility (SCU) that allows changing radio type, access point, encryption and more. Settings are displayed among five tabs:

Tabbed Page	Description
Main	Disables/Enables radio and switches between the active profile. Information about the selected profile and SCU version are also displayed.
Profile	Manages profiles and adjusts settings.
Status	Displays device and AP information, connection status and signal strength.
Diags	Peforms diagnositic tests to check connection.
Global	Adjusts settings made to profiles and the SCU itself.

SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

OS Version	Microsoft Windows Embedded Handheld 6.5
CPU	TI DM3730 1GHz Processor

Memory

RAM	512MB DDR SDRAM
Flash	4GB Flash ROM
Expansion Slot	One MicroSDHC card slot, supports up to 32GB

COMMUNICATIONS & DATA CAPTURE

Communications

USB Host/Client	USB 1.1 / USB 2.0
WPAN	Built-in module for Bluetooth version 2.1 + EDR Class II connectivity
WLAN	Built-in module for 802.11 a/b/g/n networking
WWAN	Ordering Option - built-in module for GSM/HSPA+
GPS	Built in GPS module

Data & Image Capture

Digital Camera	5 mega-pixel with auto focus and photoflash
Barcode Reader	Ordering options include ▸ Laser (Symbol SE955) ▸ Long Range Laser (Symbol SE-965HP) ▸ 2D (Symbol SE4500)

ELECTRICAL CHARACTERISTICS

Batteries

Main Battery Pack	Standard: 3.7V, 3600 mAh High Capacity: 3.7V, 4400 mAh Rechargeable Li-ion battery Charging time: approximately 4 hours for Standard battery and 6 hours for High Capacity battery
Backup Battery	3.6V, 15 mAh Rechargeable Li-ion battery Data retention for 30 minutes Charging time: 5 hours

Power Adapter

Power Supply Cord for Snap-on Cable	Input	AC 100~240V, 50/60 Hz
	Output	DC 5 V, 4A
Power Supply Cord for Charging & Comm. Cradle	Input	AC 100~240V, 50/60 Hz
	Output	DC 12V, 3.3A

Operating Time

Standard Battery (1 scan per 20 seconds; 50% backlight, 25°C)		
Laser	Wi-Fi mode	Approximately 16 hours
	3G mode	Approximately 9.5 hours
	3G+ GPS	Approximately 6 hours
HP Laser	Wi-Fi mode	Approximately 15 hours
	3G mode	Approximately 8 hours
2D	Wi-Fi mode	Approximately 15 hours
	3G mode	Approximately 11 hours
High Capacity Battery (1 scan per 20 seconds; 50% backlight, 25°C)		
Laser	Wi-Fi mode	Approximately 18.5 hours
	3G mode	Approximately 10.5 hours
	3G+ GPS	Approximately 8 hours
HP Laser	Wi-Fi mode	Approximately 17 hours
	3G mode	Approximately 10 hours
2D	Wi-Fi mode	Approximately 18 hours
	3G mode	Approximately 12 hours

PHYSICAL CHARACTERISTICS

Color Tap Screen Display

Display	3.5” Transflective TFT-LCD, 65K colors, sunlight readable
Resolution	QVGA 240 (W) x 320 (H)/VGA 480 (W) x 640 (H)

Keypad

Layout	Numeric or QWERTY keypad
Backlight	White LED backlight for display and keypad

Notifications

Status LED	Three LEDs for showing scanning good read, battery charging and radio connection status
Audio	▸ Integrated with speaker ▸ Bluetooth headset supported

Sensors

Built-in Sensors	G-sensor, E-compass, Gyroscope, Light Sensor, Proximity Sensor

Enclosures

Materials	Plastic & metal
Dimensions	182 mm (L) x 83 mm (W) x 44 mm (H) with standard battery 182 mm (L) x 83 mm (W) x 47 mm (H) with high capacity battery
Weight	516g (with standard battery) / 535g (with high capacity battery)

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating[Note]	-20 °C to 50 °C / -4°F to 122°F
Storage	-30 °C to 70 °C / 32°F to 95°F (without battery)
Charging	0 °C to 35 °C / -22°F to 158°F (without battery)

Humidity

Operating	5% to 95%, non-condensing
Storage	20% to 95%, non-condensing

Resistance

Impact Resistance	1.8m drops onto concrete 30 times
Tumble Test	900 tumbles (1,800 drops) at 1 m per applicable IEC tumble spec.
Splash/Dust Resistance	IP 65 per applicable IEC 60529 sealing spec.
Electrostatic Discharge	± 15 kV air discharge, ± 8 kV direct contact discharge, ± 8 kV

Note: CipherLab will not be held responsible for the mobile computer's malfunction incurred by the operation outside operating temperature range.

PROGRAMMING SUPPORT

Development Environment & Tools

Integrated Development Environment	Visual Studio 2008 Visual Studio 2005
Software Development Kit	Microsoft SDK System API (DLL) for system configuration Reader API (DLL) for reader configuration

Software & Utilities

Cipherlab software package	▸ Reader Configuration ▸ Button Assignment ▸ App-Lock ▸ Signature Capture ▸ SPB SmartShell (optional) ▸ GPS Viewer ▸ MIRROR Browser for web application (product CD) ▸ Terminal Emulation
Third-party software	▸ SOTI MobiControl for remote device control (downloadable from CSS) ▸ Naurtech CETerm – Terminal emulator (3270, 5250, VT) and industrial web browser (product CD) ▸ SYSDEV Kalipso (product CD)

ACESSORIES

Accessory Options

- Detachable Pistol Grip
- Belt Holster (with or without shoulder strap)
- Charging & Communication Cradle
- Snap-on Charging and Communication Cable (USB & RS-232)

Appendix I

SCAN ENGINE SETTINGS

The CipherLab developed utility **Reader Configuration** configures the following reader types:

- 1D Laser (SE955)
- 2D Imager (SE4500DL)

The reader integrated on the mobile computer is either a 1D or 2D scan engine. When the physical scan key or side trigger is pressed, the mobile computer will read a printed barcode in position. See Read Printed Barcodes for information on capturing the decoded data.

Note: (1) 1D and 2D scan engines don't coexist on the mobile computer because they are both barcode readers and the mobile computer allows one barcode reader only.

(2) Run only one reader-controlling utility or application at a time. For example, while running Reader Configuration (*ReaderConfigMobile.exe*), avoid running MIRROR Browser, Terminal Emulation, or any other application that uses ReaderDLL.

IN THIS CHAPTER

SYMBOLOGIES SUPPORTED

Depending on the scan engine integrated on the mobile computer, supported symbologies will differ as listed below. For details on configuring associated settings, refer to Appendix II and III.

		Laser	2D
Codabar		✓	✓
Code 11		✓	✓
Code 39	Code 39	✓	✓
	Trioptic Code 39	✓	✓
	Italian Pharmacode (Code 32)	✓	✓
Code 93		✓	✓
Code 128	Code 128	✓	✓
	GS1-128 (EAN-128)	✓	✓
	ISBT 128	✓	✓
Code 2 of 5	Chinese 25	✓	✓
	Industrial 25 (Discrete 25)	✓	✓
	Interleaved 25	✓	✓
	Convert Interleaved 25 to EAN-13	✓	✓
	Matrix 25	✗	✓
Composite Code	Composite CC-A/B	✗	✓
	Composite CC-C	✗	✓
	Compostie TLC 39	✗	✓
GS1 DataBar (RSS)	GS1 DataBar-14 (RSS-14)	✓	✓
	GS1 DataBar Limited (RSS Limited)	✓	✓
	GS1 DataBar Expanded (RSS Expanded)	✓	✓
	Convert to UPC/EAN	✓	✓
Inverse	Inverse 1D barcodes	✗	✓
Korean 3 of 5		✗	✓
MSI		✓	✓
Postal Codes	Australian Postal	✗	✓
	Japan Postal	✗	✓
	Netherlands KIX Code	✗	✓
	US Postnet	✗	✓

	US Planet	✘	✓
	UK Postal	✘	✓
EAN/ UPC	EAN-8	✓	✓
	EAN-8 Extend	✓	✓
	EAN-13	✓	✓
	Bookland EAN (ISBN)	✓	✓
	ISSN EAN	✘	✓
	UPC-A	✓	✓
	UPC-E	✓	✓
	Convert to UPC-A	✓	✓
	UPC-E1	✓	✓
	Convert to UPC-A	✓	✓
2D Symbologies	Aztec	✘	✓
	Data Matrix	✘	✓
	Maxicode	✘	✓
	MicroPDF417	✘	✓
	MicroQR	✘	✓
	PDF417	✘	✓
	QR Code	✘	✓

Appendix II

LASER (SE955)

The tables below list the symbologies settings for 1D laser scan engine (SE955).

SYMBOLOGY SETTINGS

Symbology	Description	Default
CODABAR		
CodaBar		
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)
CLSI	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	Disable
NOTIS	Sets whether to include start/stop characters in the transmitted data. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 11		
Code 11		
Code 11	Checkbox to enable Code 11 decoding.	Enable
Check Digit Option	Sets whether to verify check digits according to the selected option. If the check digits are incorrect, the barcode will not be accepted. ▸ Disable ▸ One Check Digit ▸ Two Check Digits	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. ▸ Check Digit Option" must be enabled.	Disable
Length option	Sets the length of the Code 11 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 39		
Code 39		

Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. ▸ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Convert to Code 32	Selects whether to convert decoded data to Italian Pharmacode.	Disable
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. ▸ "Convert to Code 32" must be enabled for this to function properly.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. ▸ "Verify Check Digit" must be enabled.	Disable
Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set.	Disable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 93		
Code 93		
Enable Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 128		
Code 128		
Enable Code 128	Checkbox to enable Code 128 decoding.	Enable
ISBT 128		
Enable ISBT 128	Checkbox to enable ISBT 128 decoding.	Enable
GS1-128		
Enable GS1-128	Checkbox to enable GS1-128 decoding.	Enable
CODE 2 OF 5		
Chinese 25		
Enable Chinese 25	Checkbox to enable Chinese 25 decoding.	Enable
Discrete 25		
Discrete 25	Checkbox to enable Discrete 25 decoding.	Enable

Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Interleaved 25		
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Verify Check Digit	▸ Disable ▸ USS Check Digit ▸ OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Convert To EAN-13	Convert a 14-character Interleaved 25 barcode into EAN-13 if the following requirements are met: The barcode must have a leading 0 and a valid EAN-13 check digit.	Disable
GS1 DATABAR		
GS1 DataBar-14		
Enable GS1 DataBar-14	Checkbox to enable GS1 DataBar-14 decoding.	Enable
GS1 DataBar Limited		
Enable GS1 DataBar Limited	Checkbox to enable GS1 DataBar Limited decoding.	Enable
GS1 DataBar Expanded		
Enable GS1 DataBar Expanded	Checkbox to enable GS1 DataBar Expanded decoding.	Enable
Convert to UPC/ EAN		
Convert to UPC/EAN	This only applies to GS1 DataBar-14 and GS1 DataBar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strips the leading “010” from barcodes. ▸ The barcode must be composed of a leading “01” as the application identifier (AI) and a first digit of zero. **Convert to UPC-A** Strips the leading “0100” from barcodes. ▸ The barcode must be composed of a leading “01” as the application identifier (AI) and two or more zeros (but not six zeros).	Disable

MSI		
MSI		
MSI	Checkbox to enable MSI decoding.	Enable
Length option	Sets the length of the MSI symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. ▸ One Check Digit ▸ Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Algorithm	▸ When two check digits are set for verification, two choices are available for the pair of check digits. ▸ Modulo10 / Modulo11 ▸ Double Modulo 10	Double Modulo 10
UPC/EAN		
EAN-8		
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Enable
Bookland ISBN Format	Decodes Bookland data starting with 978 in 10-digit format along with the Bookland check digit, or Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
UPC-A		
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		
UPC-E	Checkbox to enable UPC-E decoding.	Enable

Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E1		
UPC-E1	Checkbox to enable UPC-E1 decoding.	Disable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
General Preference		
Support Coupon Code	Reads UPC-A barcodes starting with “5”, EAN-13 barcodes starting with “99”, and UPC-A/EAN-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.	Disable
EAN Addon Option	Decide whether to decode EAN-8, EAN-13 with addons (including Addon 2 and 5). ▸ Ignore Addon ▸ Decode only with addons ▸ Auto-discriminate	Ignore Addon
EAN Addon Redundancy	When “Auto-discriminate” is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10
UPC Addon Option	Decide whether to decode UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addon ▸ Decode only with addons ▸ Auto-discriminate	Ignore Addon

<table>
<tr><td>UPC Addon Redundancy</td><td>When “Auto-discriminate” is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.</td><td>10</td></tr>
<tr><td>UPC Security Level</td><td>Sets the security level to ensure decoding accuracy considering the printed quality of the barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are:<table><tr><th>Level</th><th>Description</th></tr><tr><td>0</td><td>With this default, the scan engine is aggressive enough to decode most “in-spec” barcodes.</td></tr><tr><td>1</td><td>Select this level if misdecodes have occurred. It fixes most misdecodes.</td></tr><tr><td>2</td><td>Select this level if Level 1 should fail to eliminate misdecodes.</td></tr><tr><td>3</td><td>Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of scan engine, it’d be better to improve the barcode’s print quality if this level should be needed.</td></tr></table></td><td>Level 2</td></tr>
</table>

MISCELLANEOUS

Laser Engine	Description	Default
Miscellaneous Options		
AIM Code ID character	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string “**]cm**”: ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	Disable

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar (RSS)
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
L	PDF417, Macro PDF417, Micro PDF417

M	MSI
Q	QR Code, MicroQR
S	Industrial 25 (Discrete 25), IATA 2 of 5
U	Maxicode
X	Code 39 Trioptic, Bookland EAN, Matrix 25, US Postnet, US Planet, UK Postal, Japan Postal, Australian Postal, Dutch Postal
z	Aztec

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.
	5	Result of option values 4 and 1.
	7	Result of option values 4 and 3.
Code 128	0	Standard data packet. No Function Code 1“FNC1” in the first character position.
	1	Function Code 1“FNC1” in the first character position.
	2	Function Code 1“FNC1” in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	3	Standard data packet with two-digit or five-digit addons.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 18-character string, **]E3**001234567890510.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.
Code 11	0	Single check digit (has been verified.)
	1	Two check digits (has been verified.)

	3	Check digit has been verified but not transmitted.
GS1 DataBar (RSS)	0	Always transmit 0.
	RSS-14 and RSS Limited will be transmitted with an Application Identifier "01". For example, an RSS-14 barcode, 10012345678902, is transmitted as **]e0**0110012345678902.	

Note: In EAN-128 emulation mode, RSS is transmitted using Code 128 rules (= "]C1").

EAN.UCC Composites (RSS, EAN-128, 2D portion of UPC composite)	Native mode transmission	
	0	Standard data packet
	1	Data packet containing the data following an encoded symbol separator character.
	2	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	3	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.
	EAN-128 emulation	
	1	Data packet is a EAN-128 barcode (= data is preceded with "]JC1").

Note: UPC portion of composite is transmitted using UPC rules.

PDF417, Micro PDF417	0	Scan engine is set to conform to protocol defined in 1994 PDF417 symbology specifications. ▸ When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92_{DEC} has been doubled in transmission.
	1	Scan engine is set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92_{DEC} are doubled.
	2	Scan engine is set for Basic Channel operation (no escape character transmission protocol). Data characters 92_{DEC} are not doubled. ▸ When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The barcode contains a EAN-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a EAN-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a EAN-128 symbol, and the first codeword is in the range 910-911.
	A PDF417 barcode, ABCD, with no transmission protocol enabled, is transmitted as]L2ABCD.	
Data Matrix	0	ECC 000-140, not supported.

	1	ECC 200.
	2	ECC 200, FNC1 in first or fifth position.
	3	ECC 200, FNC1 in second or sixth position.
	4	ECC 200, ECI protocol implemented.
	5	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	6	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
Maxicode	0	Mode 4 or 5
	1	Mode 2 or 3
	2	Mode 4 or 5, ECI protocol implemented.
	3	Mode 2 or 3, ECI protocol implemented in secondary message.
QR Code	0	Model 1
	1	Model 2 / MicroQR ECI protocol not implemented.
	2	Model 2, ECI protocol implemented.
	3	Model 2, ECI protocol not implemented, FNC1 implied in first position.
	4	Model 2, ECI protocol implemented, FNC1 implied in first position.
	5	Model 2, ECI protocol not implemented, FNC1 implied in second position.
	6	Model 2, ECI protocol implemented, FNC1 implied in second position
Aztec	0	Aztec symbol.
	C	Aztec Rune symbol.

Note: For JPEG files, these BPP settings are ignored for it always uses 8 bits per pixel!

Appendix III

2D IMAGER (SE4500DL)

The tables below list the symbology settings for 2D imager (SE4500).

SYMBOLOGY SETTINGS

1D SYMBOLOGIES

Symbology	Description	Default
CODABAR		
CodaBar		
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)
CLSI	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	Disable
NOTIS	Sets whether to include start/stop characters in the transmitted data. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 11		
Code 11		
Code 11	Checkbox to enable Code 11 decoding.	Enable
Check Digit Option	Sets whether to verify check digits according to the selected option. If the check digits are incorrect, the barcode will not be accepted. ▸ Disable ▸ One Check Digit ▸ Two Check Digits	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. ▸ Check Digit Option" must be enabled.	Disable
Length option	Sets the length of the Code 11 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)

CODE 39		
Code 39		
Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. ▸ Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Convert to Code 32	Selects whether to convert decoded data to Italian Pharmacode.	Disable
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. ▸ "Convert to Code 32" must be enabled for this to function properly.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. ▸ "Verify Check Digit" must be enabled.	Disable
Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set.	Disable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 93		
Code 93		
Enable Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 128		
Code 128		
Enable Code 128	Checkbox to enable Code 128 decoding.	Enable
GS1-128		
Enable GS1-128	Checkbox to enable GS1-128 decoding.	Enable
ISBT-128		
ISBT 128	Checkbox to enable ISBT 128 decoding.	Enable

Concatenation	▸ Sets whether to enable decoding ISBT-128 by performing concatenation of ISBT data ▸ Disable: Does not perform concatenation ▸ Enable: Performs concatenation on all ISBT-128 barcodes. ▸ Auto-discriminate: Auto-discriminates between the ISBT-128 barcodes which require concatenation and those which do not need concatenation.	Disable
Redundancy	Sets redundancy between 2-20.	10
CODE 2 OF 5		
Chinese 25		
Enable Chinese 25	Checkbox to enable Chinese 25 decoding.	Enable
Discrete 25		
Discrete 25	Checkbox to enable Discrete 25 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Interleaved 25		
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Verify Check Digit	▸ Disable ▸ USS Check Digit ▸ OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Convert To EAN-13	Convert a 14-character Interleaved 25 barcode into EAN-13 if the following requirements are met: The barcode must have a leading 0 and a valid EAN-13 check digit.	Disable
Matrix 25		
Matrix 25	Checkbox to enable Matrix 2 of 5 decoding.	Enable
Length option	Sets the length of the Code 39 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-255; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Redundancy	▸ Sets read redundancy	Disable
Verify Check Digit	▸ Select whether to verify the check digit, which is the last character of the barcode. If the check digit is incorrect, the barcode will not be accepted.	Disable

Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
COMPOSITE		
Composite CC-A/ B		
Enable Composite CC-A/B	Checkbox to enable Composite CC-A/B decoding.	Disable
Composite CC-C		
Enable Composite CC-C	Checkbox to enable Composite CC-C decoding.	Enable
Composite TLC 39		
Enable Code 128	Checkbox to enable Code 128 decoding.	Disable
General Preference		
UPC Composite Mode	UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode. **UPC Never Linked** Transmit UPC barcodes regardless of whether a 2D barcode is detected. **UPC Always Linked** Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted. ▸ CC-A/B or CC-C must be enabled. **Auto-discriminate** Transmit UPC barcodes as well as the 2D portion if present.	UPC Always Linked
GS1-128 Emulation Mode	Sets GS1-128 emulation mode for UCC/EAN Composite Codes.	Disable
GS1 DATABAR		
GS1 DataBar-14		
Enable GS1 DataBar-14	Checkbox to enable GS1 DataBar-14 decoding.	Enable
GS1 DataBar Limited		
Enable GS1 DataBar-Limited	Checkbox to enable GS1 DataBar-Limited decoding.	Enable
GS1 DataBar Expanded		
Enable GS1 DataBar-Expanded	Checkbox to enable GS1 DataBar-Expanded decoding.	Enable
Convert to UPC/ EAN		

Convert to UPC/EAN	This only applies to GS1 DataBar-14 and GS1 DataBar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strips the leading "010" from barcodes. ▸ The barcode must be composed of a leading "01" as the application identifier (AI) and a first digit of zero. **Convert to UPC-A** Strips the leading "0100" from barcodes. ▸ The barcode must be composed of a leading "01" as the application identifier (AI) and two or more zeros (but not six zeros).	Disable
INVERSE		
Inverse		
Enable Inverse	Checkbox to enable Inverse 1D decoding.	Disable
KOREAN 3 OF 5		
Korean 3 of 5		
Enable Korean 3 of 5	Checkbox to enable Korean 3 of 5 decoding.	Disable
MSI		
MSI		
MSI	Checkbox to enable MSI decoding.	Enable
Length option	Sets the length of the MSI symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1> Length 2) ▸ Max / Min Length (range: 0-255; Length 1< Length 2) ▸ Any Length	Max / Min Length (4-55)
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. ▸ One Check Digit ▸ Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Algorithm	▸ When two check digits are set for verification, two choices are available for the pair of check digits. ▸ Modulo10 / Modulo11 ▸ Double Modulo 10	Double Modulo 10
POSTAL CODE		
Australian Postal		
Enable Australian Postal	Checkbox to enable Australian Postal decoding.	Enable
Japan Postal		
Enable Japan Postal	Checkbox to enable Japan Postal decoding.	Enable

Netherlands KIX Code		
Enable Netherlands KIX Code	Checkbox to enable Netherlands KIX Code decoding.	Enable
US Postnet		
Enable US Postnet	Checkbox to enable US Postnet decoding.	Enable
US Planet		
Enable US Planet	Checkbox to enable US Planet decoding.	Enable
UK Postal		
Enable UK Postal	Checkbox to enable UK Postal decoding.	Enable
General Preference		
US Postal Check Digit	Decide whether to transmit check digit for US Postnet or US Planet.	Enable
UK Postal Check Digit	Decide whether to transmit check digit for UK Postal.	Enable
UPC/EAN		
EAN-8		
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Enable
Bookland ISBN Format	Decodes Bookland data starting with 978 in 10-digit format along with the Bookland check digit, or Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
ISSN EAN	Checkbox to enable ISSN EAN decoding.	Disable
UPC-A		
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		
UPC-E	Checkbox to enable UPC-E decoding.	Enable

Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E1		
UPC-E1	Checkbox to enable UPC-E1 decoding.	Disable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. ▸ No transmit: transmits none of the above ▸ Transmit System Character: transmits system number only ▸ Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
General Preference		
Support Coupon Code	Reads UPC-A barcodes starting with “5”, EAN-13 barcodes starting with “99”, and UPC-A/EAN-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.	Disable
EAN Addon Option	Decide whether to decode EAN-8, EAN-13 with addons (including Addon 2 and 5). ▸ Ignore Addon ▸ Decode only with addons ▸ Auto-discriminate	Ignore Addon
EAN Addon Redundancy	When “Auto-discriminate” is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10
UPC Addon Option	Decide whether to decode UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addon ▸ Decode only with addons ▸ Auto-discriminate	Ignore Addon

UPC Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10

2D SYMBOLOGIES

Symbology	Description	Default
Aztec		
Aztec	Selects whether to enable Aztec decoding.	Enable
Aztec Inverse	Decide whether to decode Aztec Inverse. **Regular only** Decode regular Aztec barcodes only. **Inverse only** Decode inverse Aztec barcodes only. **Inverse Auto-detect** Decode both regular and inverse Aztec barcodes.	Regular only
Data Matrix		
Data Matrix	Selects whether to enable Data Matrix decoding.	Enable
Data Matrix Inverse	Decide whether to decode Data Matrix Inverse. **Regular Only** Decode regular Data Matrix barcodes only. **Inverse Only** Decode inverse Data Matrix barcodes only. **Auto Detect** Decode both regular and inverse Data Matrix barcodes.	Regular Only
Decode Mirror Images	Selects whether to enable PDF 417 decoding. **Never** Does not decode Data Matrix barcodes that are mirror images. **Always** Decodes Data Matrix barcodes that are mirror images. **Auto** Decodes both mirrored and unmirrored Data Matrix barcodes.	Never
Maxicode		

MicroPDF417		
MicroPDF417	Selects whether to enable Maxicode decoding.	Disable
Code 128 Emulation	Transmit data from certain Micro PDF 417 barcodes as if it was encoded in Code 128 barcodes. ▸ Transmit AIM code ID character in **Miscellaneous** options must be enabled first. When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-905:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
MicroQR		
PDF417		
QR Code		
QR Code	Selects whether to enable QR Code decoding.	Enable
QR Code Inverse	Decide whether to decode QR Code Inverse. **Regular Only** Decodes regular QR Code only. **Inverse Only** Decodes inverse QR Code only. **Inverse Auto-detect** Decodes both regular and inverse QR Codes.	Regular Only

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		
AIM Code ID character	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "**]cm**": ▸] = Flag Character (ASCII 93) ▸ c = Code Character ▸ m = Modifier Character ▸ Refer to AIM Code ID – Code Characters.	Disable

Appendix V

PHYSICAL KEYPAD REFERENCE TABLE

NUMERIC KEYPAD

Numeric keypad layout:

USING ALPHA, SHIFT & FN KEYS

Key	Normal Mode			Alpha Mode (Lowercase)				Alpha Mode (Uppercase)			
	Key only	Fn+ Key	Shift+ Key	1st press	2nd press	3rd press	4th press	1st press	2nd press	3rd press	4th press
1	1	F1	Shift+1	@	;	:		@	;	:	
2	2	F2	Shift+2	a	b	c		A	B	C	
3	3	F3	Shift+3	d	e	f		D	E	F	
4	4	F4	Shift+4	g	h	i		G	H	I	
5	5	F5	Shift+5	j	k	l		J	K	L	
6	6	F6	Shift+6	m	n	o		M	N	O	
7	7	F7	Shift+7	p	q	r	s	P	Q	R	S
8	8	F8	Shift+8	t	u	v		T	U	V	
9	9	F9	Shift+9	w	x	y	z	W	X	Y	Z
0	0	F11	Shift+0	Space				Space			
*	*	Back Light +	*	/	-			/	-		
#	#	Back Light -	#	%	,			%	,		
Up	Up	Page Up	Up	Up				Up			
Down	Down	Page Down	Down	Down				Down			
Left	Left	Home	Left	Left				Left			
Right	Right	End	Right	Right				Right			
Enter	Enter	Enter	Enter	Enter				Enter			

Tab	Tab	Tab	Tab	Tab				Tab			
Back Space	Back Space	Keypad Lock	Back Space	Back Space				Back Space			
Back Light	Back Light	Back Light	Back Light	Back Light				Back Light			
Send	Send	Start	Send	Send				Send			
End	End	OK	End	End				End			
ESC	ESC	ESC	ESC	ESC				ESC			
-	-	F10	-	+	$						
.	.	F12	.	.							

QWERTY KEYPAD

QWERTY keypad layout:

USING ALPHA, SHIFT & FN KEYS

Key	Normal	Shift + Key	Fn (Orange) + Key	Alpha (Blue) + Key
Q	q	Q	F1	#
W	w	W	F2	1
E	e	E	F3	2
R	r	R	F4	3
T	t	T	F5	(
Y	y	Y	F6	)
U	u	U	F7	/
I	i	I	F8	*
O	o	O	F9	-
P	p	P	F10	+
A	a	A	F11	!
S	s	S	F12	4
D	d	D	F13	5
F	f	F	F14	6
G	g	G	F15	<
H	h	H	F16	>
J	j	J	F17	\
K	k	K	F18	^
L	l	L	F19	%
Z	z	Z	F20	7
X	x	X	F21	8
C	c	C	F22	9
V	v	V	F23	?
B	b	B	F24	:
N	n	N	N/A	;
M	m	M	N/A	=
@	@	@	N/A	“
Backspace	Backspace	Backspace	Keypad Lock	Backspace

&	&	&	N/A	&
Space	Space	Space	Space	Space
Enter	Enter	Enter	Enter	Enter
Tab	Tab	Tab	Tab	Tab
Up	Up	HilightUp	Page Up	Up
Down	Down	HilightDown	Page Down	Down
Left	Left	HilightLeft	Home	Left
Right	Right	HilightRight	End	Right
Backlight	Backlight	Backlight	Backlight	Backlight
Send	Send	Send	Start	Send
End	End	End	OK	End
ESC	ESC	ESC	ESC	ESC
.	.	.	Backlight+	.
,	,	,	Backlight -	_