CipherLab

Reference Manual

Windows Embedded Handheld 6.5

CP55 Mobile Computer

(WEH)

Version 1.03

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

SAFETY NOTICES

FOR HAND-HELD PRODUCT WITH RF FUNCTIONS

CP55/CP55 G 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 CP55/CP55 G serial handheld is:

EEC: MAX 0.335W/Kg (CP55 G), 0.013 (CP55)

FOR UNITED STATES

THESE PRODUCT MODELS HAVE BEEN CERTIFIED IN COMPLIANCE WITH THE GOVERNMENT'S REQUIREMENTS FOR EXPOSURE TO RADIO WAVES.

The CP55 series mobile computer has been designed to comply with applicable safety requirements for exposure to radio waves. Your mobile computer is a radio transmitter and receiver. It is designed to not exceed the limits* of exposure to radio frequency (RF) energy set by governmental authorities. These limits establish permitted levels of RF energy for the general population. The guidelines are based on standards that were developed by international scientific organizations through periodic and thorough evaluation of scientific studies. The standards include a safety margin designed to assure the safety of all individuals, regardless of age and health.

The radio wave exposure guidelines employ a unit of measurement known as the Specific Absorption Rate (SAR). Tests for SAR are conducted using standardized methods with the product transmitting at its highest certified power level in all used frequency bands. While there may be differences between the SAR levels of various product models, they are all designed to meet the relevant guidelines for exposure to radio waves.

The highest reported SAR values for body-worn accessory and simultaneous transmission are 0.76W/kg, and 1.27W/kg respectively for CP55G. The highest reported SAR values for body-worn operation are 1.03W/Kg for CP55. For body-worn operation, the product has been tested when positioned a minimum of 15 mm from the body without any metal parts in the vicinity of the product.

Before a WWAN model is available for sale to the public in the US, it must be tested and certified by the Federal Communications Commission (FCC) that it does not exceed the limit established by the government-adopted requirement for safe exposure*. The tests are performed in positions and locations (i.e., by the ear and worn on the body) as required by the FCC for each model. The FCC has granted an Equipment Authorization for this phone model with all reported SAR levels evaluated as in compliance with the FCC RF exposure guidelines. While there may be differences between the SAR levels of various phones, all mobile phones granted an FCC equipment authorization meet the government requirement for safe exposure. SAR information on this phone model is on file at the FCC and can be found under the Display Grant section of http://www.fcc.gov/oet/fccid after searching on FCC ID Q3N-CP55G. Additional information on SAR can be found on the Cellular Telecommunications & Internet Association (CTIA) website at http://www.phonefacts.net.

** In the United States and Canada, the SAR limit for mobile phones used by the public is 1.6 watts/kilogram (W/kg) averaged over one gram of tissue. The standard incorporates a margin of safety to give additional protection for the public and to account for any variations in measurements.*

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.
- Keep the mobile computer away from any magnets and magnetic fields to prevent the laser engine from malfunctioning.

EUROPE – EU DECLARATION OF CONFORMITY

This device complies with the essential requirements of the R&TTE Directive 1999/5/EC. The following test methods have been applied in order to prove presumption of conformity with the essential requirements of the R&TTE Directive 1999/5/EC:

- EN 60950-1: 2001
- EN 60950-1/A1: 2010
- EN 60950-1/A11: 2009
- EN 60950-1/A12: 2011

  Safety of Information Technology Equipment
- EN 62479:2010

  Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
- EN 62311: 2008 / Article 3(1)(a) and Article 2 2006/95/EC)

  Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz-300 GHz) (IEC 62311:2007 (Modified))
- EN 50360: 2001+A1: 2012

  Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 3 GHz)
- EN 62209-1: 2006

  Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –

  Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close 13 proximity to the ear (frequency range of 300 MHz to 3 GHz).
- EN 62209-2: 2010

  Human exposure to radio frequency fields from handheld and bodymounted wireless communication devices — Human models, instrumentation, and procedures
- EN 300 330-2 V1.5.1: 2006

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods.
- EN 300 330-1 V1.7.1: 2010

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods.
- EN 300 440-1 V1.6.1: 2010

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part1: Technical characteristics and test methods.

- EN 300 440-2 V1.4.1: 2010

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part 2: Harmonized EN under article 3.2 of the R&TTE Directive.

- EN 300 328 V1.7.1: 2006

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Wideband Transmission systems; Data transmission equipment operating in the 2,4 GHz ISM band and using spread spectrum modulation techniques; Harmonized EN covering essential requirements under article 3.2 of the R&TTE Directive.

- EN 301 893 V1.6.1: 2011

  Broadband Radio Access Networks (BRAN); 5 GHz high performance RLAN; Harmonized EN covering essential requirements of article 3.2 of the R&TTE Directive.

- EN 301 908-1 V5.2.1: 2011

  Electromagnetic compatibility and Radio spectrum Matters (ERM); Base Stations (BS), Repeaters and User Equipment (UE) for IMT-2000 Third-Generation cellular networks; Part 1: Harmonized EN for IMT-2000, introduction and common requirements, covering essential requirements of article 3.2 of the R&TTE Directive.

- EN 301 511 V9.0.2: 2003

  Global System for Mobile communications (GSM); Harmonized standard for mobile stations in the GSM 900 and DCS 1800 bands covering essential requirements under article 3.2 of the R&TTE directive (1999/5/EC).

- EN 301 489-1 V1.9.2: 2008

  Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 1: Common technical requirements.

- EN 301 489-3 V1.4.1 2002

  Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 3: Specific conditions for Short-Range Devices (SRD) operating on frequencies between 9 kHz and 40 GHz.

- EN 301 489-7 V1.3.1: 2005

  ElectroMagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment ad services; Part 7: Specific conditions for mobile and portable radio and ancillary equipment of digital cellular radio telecommunications systems (GSM and DCS).

- EN 301 489-17 V2.2.1: 2012

  Electromagnetic compatibility and Radio spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 17: Specific conditions for 2,4 GHz wideband transmission systems and 5 GHz high performance RLAN equipment.

- EN 301 489-24 V1.5.1: 2010

  Electromagnetic compatibility and Radio Spectrum Matters (ERM); ElectroMagnetic Compatibility (EMC) standard for radio equipment and services; Part 24: Specific conditions for IMT-2000 CDMA Direct Spread (UTRA) for Mobile and portable (UE) radio and ancillary equipment.

CE 0700

cs Česky [Czech]	*[Jméno výrobce]* tímto prohlašuje, že tento *[typ zařízení]* je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
da Dansk [Danish]	Undertegnede *[fabrikantens navn]* erklærer herved, at følgende udstyr *[udstyrets typebetegnelse]* overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
de Deutsch [German]	Hiermit erklärt *[Name des Herstellers]*, dass sich das Gerät *[Gerätetyp]* in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
et Eesti [Estonian]	Käesolevaga kinnitab *[tootja nimi = name of manufacturer]* seadme *[seadme tüüp = type of equipment]* vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
en English	Hereby, *[name of manufacturer]*, declares that this *[type of equipment]* is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
es Español [Spanish]	Por medio de la presente *[nombre del fabricante]* declara que el *[clase de equipo]* cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
el Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ *[name of manufacturer]* ΔΗΛΩΝΕΙ ΟΤΙ *[type of equipment]* ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
fr Français [French]	Par la présente *[nom du fabricant]* déclare que l'appareil *[type d'appareil]* est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
it Italiano [Italian]	Con la presente *[nome del costruttore]* dichiara che questo *[tipo di apparecchio]* è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo *[name of manufacturer / izgatavotāja nosaukums]* deklarē, ka *[type of equipment / iekārtas tips]* atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo *[manufacturer name]* deklaruoja, kad šis *[equipment type]* atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
nl Nederlands [Dutch]	Hierbij verklaart *[naam van de fabrikant]* dat het toestel *[type van toestel]* in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
mt Malti [Maltese]	Hawnhekk, *[isem tal-manifattur]*, jiddikjara li dan *[il-mudel tal-prodott]* jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn relevanti li hemm fid-Dirrettiva 1999/5/EC.
hu Magyar [Hungarian]	Alulírott, *[gyártó neve]* nyilatkozom, hogy a *[... típus]* megfelel a vonatkozó alapvetõ követelményeknek és az 1999/5/EC irányelv egyéb elõírásainak.
pl Polski [Polish]	Niniejszym *[nazwa producenta]* oświadcza, że *[nazwa wyrobu]* jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
pt Português [Portuguese]	*[Nome do fabricante]* declara que este *[tipo de equipamento]* está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
sl Slovensko [Slovenian]	*[Ime proizvajalca]* izjavlja, da je ta *[tip opreme]* v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	*[Meno výrobcu]* týmto vyhlasuje, že *[typ zariadenia]* spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
fi Suomi [Finnish]	*[Valmistaja = manufacturer]* vakuuttaa täten että *[type of equipment = laitteen tyyppimerkintä]* tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
sv Svenska [Swedish]	Härmed intygar *[företag]* att denna *[utrustningstyp]* står I överensstämmelse med de väsentliga egenskapskrav och övriga relevanta bestämmelser som framgår av direktiv 1999/5/EG.

DECLARATION OF CONFORMITY

Declaration of Conformity

Manufacturer

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Type of Equipment

Mobile Computer

Model(s) Declared

CP55 / CP55G

Initial Year of Manufacture **2014**

Reference to the specification under which conformity is declared in accordance with Directive-2004/108/EC, 99/5/EC

EN 301 489-3 V1.6.1 (2013-08)
EN 300 328 V1.7.1:2006
EN 301 908-2 V5.4.1
EN 301 908-1 V6.2.1(2013-04)
EN 302 291-1,-2 V1.1.1 2005
EN 301 489-1 V1.9.2(2011-09)
EN 301 489-7 V1.3.1(2005-11)
EN 301 893 V1.6.1 (2011-11)
EN 61000-3-3:2008
EN 55022:2010
EN 50360 A1 : 2012
EN 50566 : 2013
EN300 330-1 V1.7.1(2010-02)

EN 301 489-17 V2.2.1(2012-09)
EN 300 440-1 V1.6.1:2010
EN 301 511 V9.0.2:2003
EN 62311:2008
EN 62479 :2010
EN 62311 :2008
EN 301 489-24 V1.5.1(2010-10)
EN 300 440-2 V1.4.1 (2010)
EN 61000-3-2:2006
EN 55024:2010
EN 62209-1 :2006
EN 62209-2 : 2010
EN300 330-2 V1.5.1(2010-02)

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)

Manufactory Representative:

Signature

Full Name *Herbie Jiang*
Title *Manager*

ON 2014/April/1 Taipei, Taiwan

RELEASE NOTES

Version	Date	Notes
1.03	June 8, 2018	Modify 4.7 Update OS Image
1.02	Sep. 4, 2017	Modify humidity to Specifications.
1.01	Jul 15, 2015	Add a step relating to microSD card to 4.7.2. Delete description relating to CD Add Related Documentation to Introduction Add download information to 7.3.1.
1.00	Nov 7, 2014	Initial release

CONTENTS

INTRODUCTION

Thank you for choosing CipherLab products. CipherLab welcomes another Windows Embedded by introducing CP55 Series Mobile Computer. Powered by Windows Embedded Handheld 6.5, the mobile computer delivers better user experience and advances 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 (3.75G) module is provided on option.

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

Rated with IP65, the rugged CP55 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 CP55 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 OMAP4430 1GHz CPU
- 512MB SDRAM to run application programs
- 4GB NAND flash to store OS, applications, settings and so on
- Storage expansion: Up to 4GB MicroSD or 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
- 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 information
- 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
- Quick Start Guide

ACCESSORIES

Optional accessories to enhance the mobile computer's performance are:

- Snap-on Charging and Communication Cable (USB or RS-232)
- Charging & Communication Cradle
- Pistol Grip
- Snap-On Car Charger

RELATED DOCUMENTATION

Log in to GoBetween to access related documentation about the CP55 mobile computer from the CipherLab Central Service (CCS) platform. Download the GoBetween desktop or mobile device application, or launch the GoBetween Lite web application from the following site: http://ccs.cipherlab.com/.

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.

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

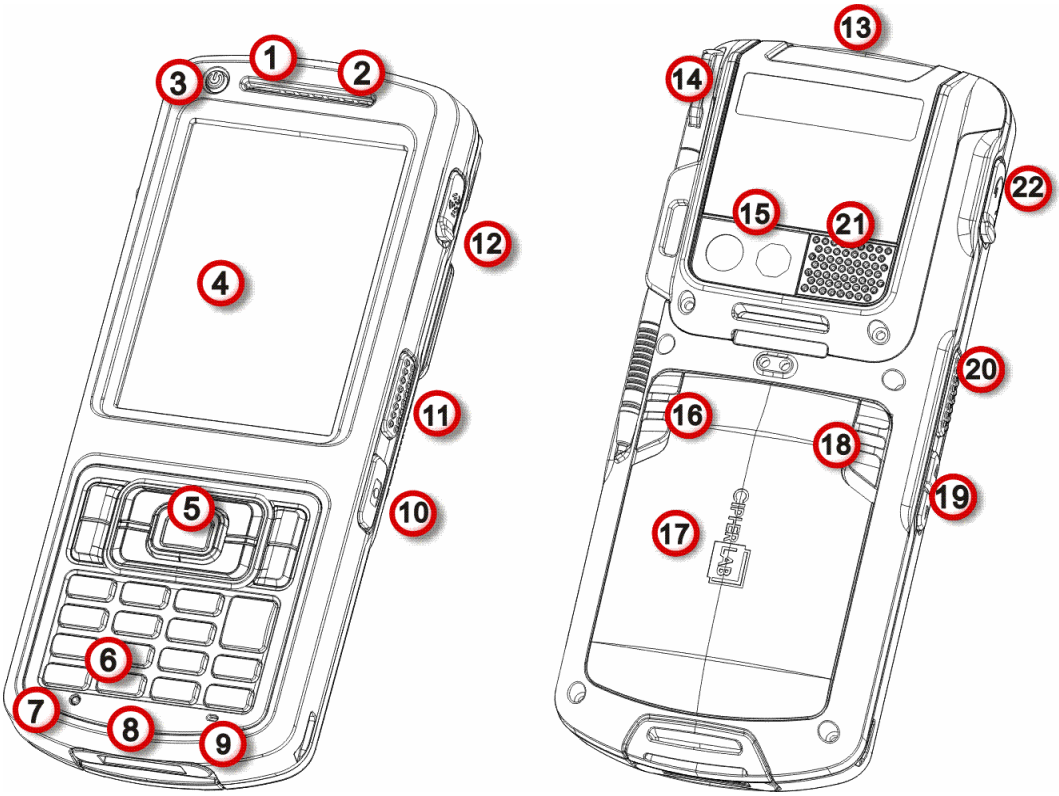


Figure 1: Overview

No.	Description	No.	Description
1	Status LED	2	Receiver (Reserved)
3	Power key	4	Touchscreen (QVGA)
5	Scan key	6	Keypad
7	Reset toggle (recessed in keypad)	8	Direct charging- & communication-port
9	Microphone (Reserved)	10	Camera shutter button
11	Side-trigger (user definable)	12	External GPS antenna MMCX connector (sealed with hinged rubber)
13	Scan window	14	Stylus (with attaching cord)
15	Camera and flash	16	Battery lock
17	Battery door	18	Battery release (spring loaded)
19	Volume rocker	20	Side-trigger (user definable)
21	Speaker	22	Headset jack (sealed with hinged rubber)

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.

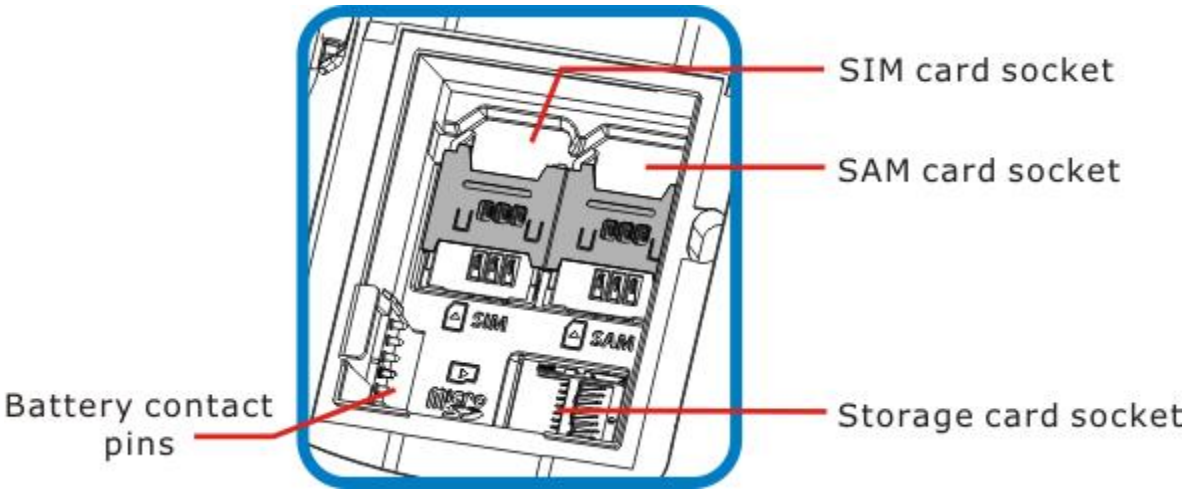


Figure 2: Inside Battery Chamber

1.1.3. BEFORE INITIAL USE

Prior to using the mobile computer for the first time, we recommend applying 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/OFF MOBILE COMPUTER

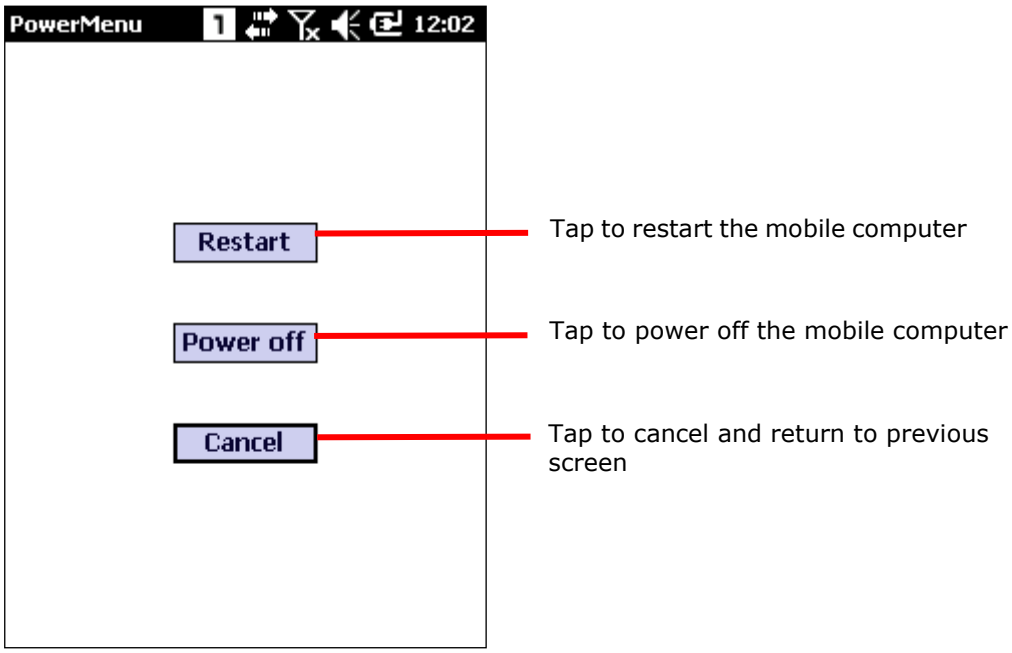
POWER ON

To power on the mobile computer, press the Power button on the upper left corner. The mobile computer powers on.

Note: For the mobile computer to power on, the battery cover must be secured in place.

POWER OFF (VIA POWER MENU)

To power off the mobile computer, press and hold the power button for more than three seconds. A power menu appears with two options for selection between restart and power off. Make sure all user data and tasks have been stored before tapping **Power off**.



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
Scanning Good Read (Left)	Green	Green, flashes once	Indicates good reading of the scanned barcode. Enable/Disable this LED light on the Reader Config Notification Settings page. To set the good read LED via API deployment, see the CP55 Programming Guide for details.
Battery Charging (Middle)	Green, Red	Green, solid	Battery is fully charged.
		Red, solid	Battery is charging.
		Red, fast blinking continuously	Charging error, such as abnormally high/low charging temperature, or A/C adaptor plugged in but battery absent.
Radios (Right)	Blue	Blinking	Wi-Fi, Bluetooth or mobile data in use.

SPEAKER

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

The speaker sounds for system events, application warnings, on-screen item selection and physical keypad stroke. In noisy environments, the speaker remains efficacious with the help of a Bluetooth headset. To control sound volume, see Volume Control.

The speaker also sounds for successful barcode reading, which can be controlled on the Reader Config Notification Settings page.

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 a noisy environment.

Same as the speaker and LED light, the vibrator also works for good barcode reading. Enable/disable vibration and set its duration on the Reader Config Notification Settings page. Alternatively, program the vibrator through API deployment to have it vibrate when a successful reading occurs. See the CP55 Programming Guide for details.

1.4. BATTERY

The CP55 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 3.7V, 3300mAh battery pack, which takes around 4 hours to charge to full. The working time of the mobile computer varies by its working states. A battery icon seated on the taskbar will show the remaining Main Battery Level.

See also

Main Battery Setup for installing the main battery.

BACKUP BATTERY

The backup battery is settled on the main board inside the mobile computer. It is a 15 mAh rechargeable Lithium battery. When the main battery is absent or depleted, the backup battery takes over to feed the mobile computer. Without the 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 a power adapter) or main battery pack. It takes about 8 hours to charge it to full. See 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 the main battery in place, the battery door is equipped with two latches, one for battery lock and one for battery release. Battery lock door latch has to be manually closed, while the battery release door latch is spring-loaded and closes automatically.

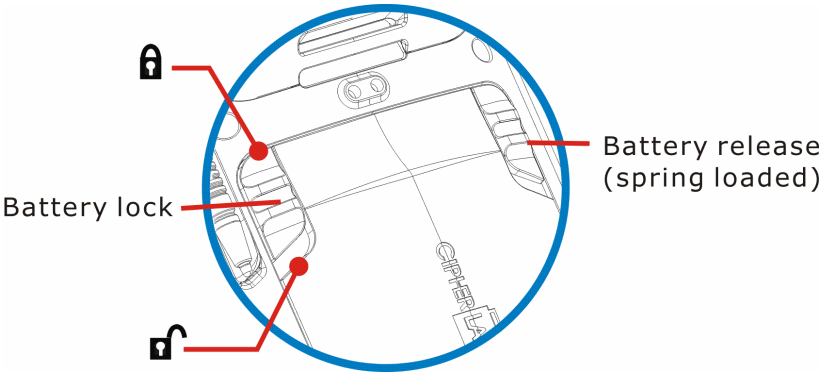


Figure 3: Battery Door Latches

To install the main battery pack, follow through the steps below:

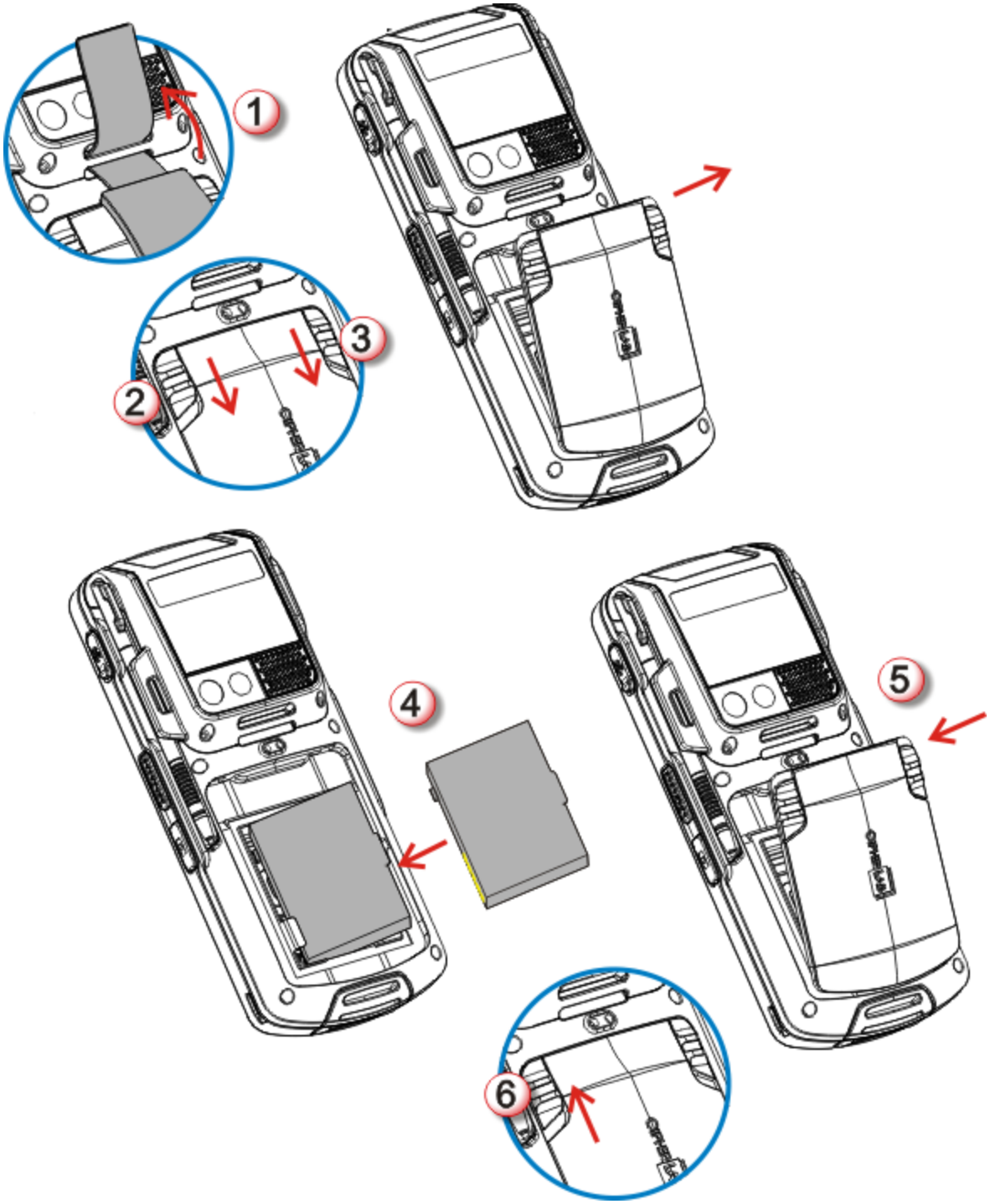


Figure 4: Main Battery Setup

1) Remove the handstrap.
2) Push the battery door lock (left) to "unlock" position.
3) Push back the battery release button (right). The battery door opens automatically. Detach the battery door to reveal the battery chamber.
4) Insert the main battery pack into the battery chamber by meeting the connecting points on the edge with the battery contact pins inside the chamber.

5) Replace the battery door by fixing the lower edge first, and pushing the release button.

6) Push the battery lock back to "lock" position.

Note: (1) When main battery level drops to low level, charge it ASAP or replace it with a charged battery.
(2) Always turn off the mobile computer to replace 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).

Some key facts about charging batteries:

Charging Time

- **Main battery:** It takes approximately 4 hours to charge the main battery. The battery charging LED above the touchscreen lights red during charging, and lights green when the mobile computer is completely charged.
- **Backup battery:** The backup battery is rechargeable by both the main battery and power adapter. It takes about 8 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 40°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 depletion of the 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 the 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 through USB or RS-232 connection) to it. See Direct Data Communication for follow-ups.

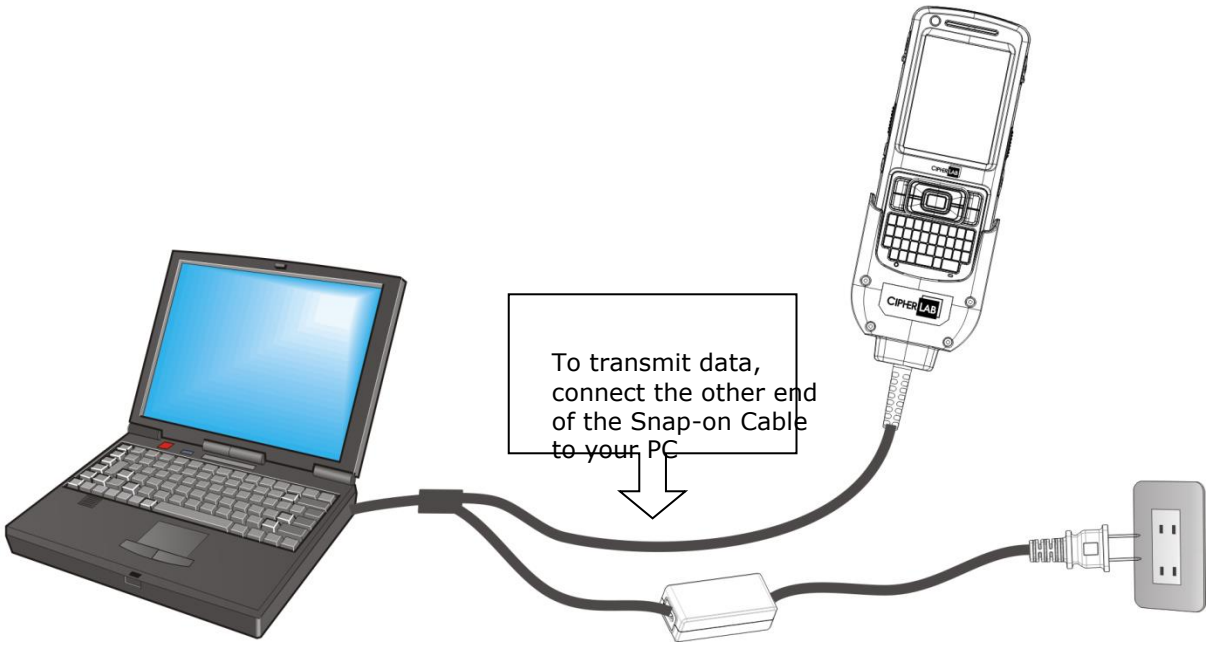


Figure 5: Direct Charging Using Snap-on Cable

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.

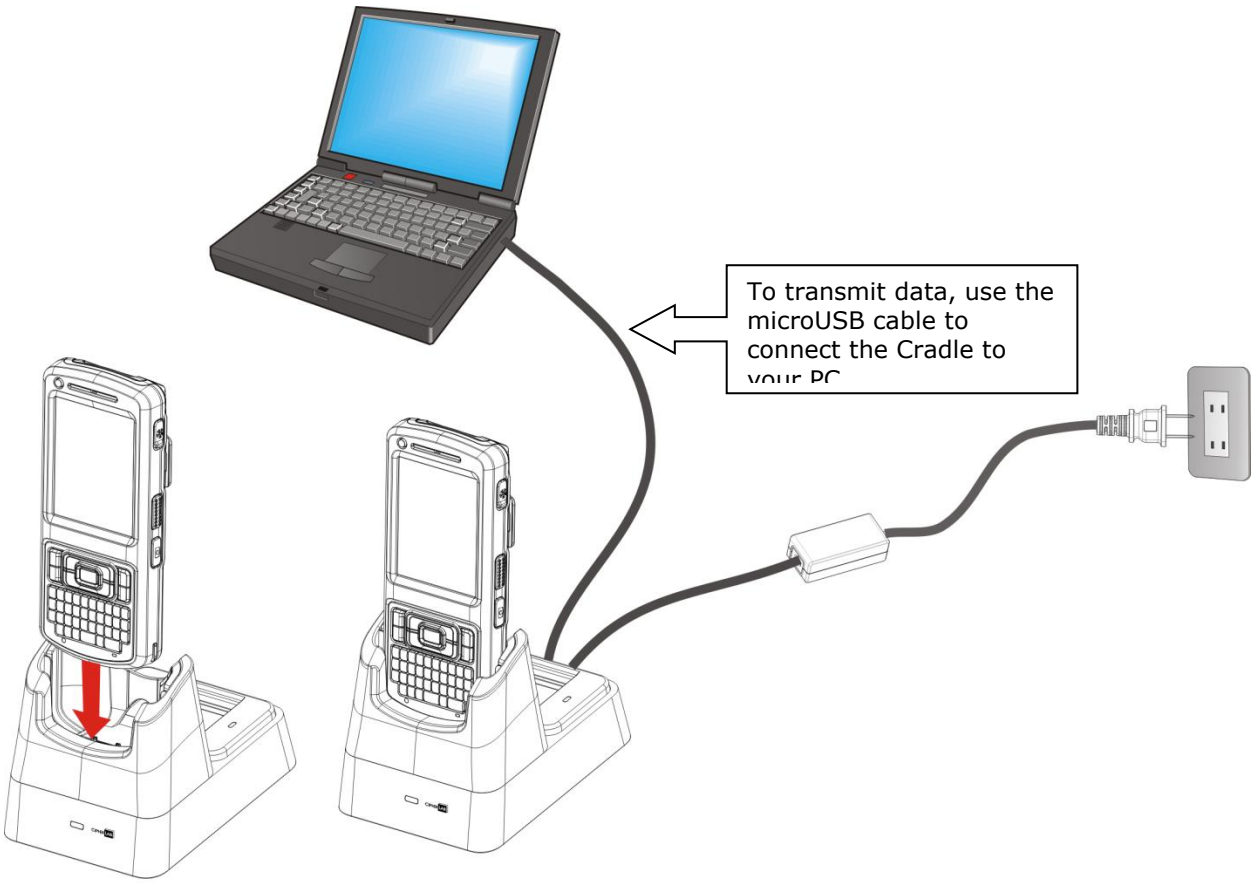


Figure 6: Direct Charging Using Cradle

REPLACE MAIN BATTERY PACK

The Charging and Communication 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.

Before replacing the main battery pack, turn off the mobile computer. Insert a charged main battery pack as shown in

Main Battery Setup and power on the mobile computer.

1.4.3. MONITOR BATTERY LEVEL

The 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. Most critically, back up the important data from time to time to protect your work.

MAIN BATTERY LEVEL

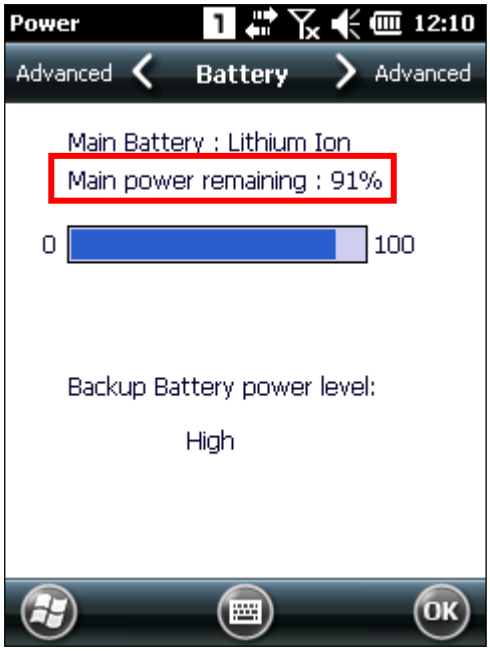
To check the main battery level:

1) Tap **Start** | **Settings** | **Power**  .

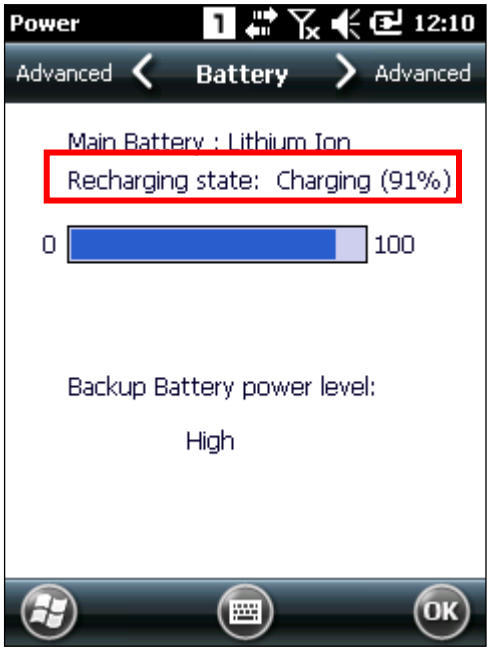
   Power Properties window opens showing **Battery** tab page. Precise battery level is shown in percentage under the **Main battery** label.

   Depending on whether the main battery is being charged, charging status will show "Main power remaining", meaning the mobile computer is on battery power, or "Recharging state: Charging", meaning that external power is connected.

Main battery isn't being charged.

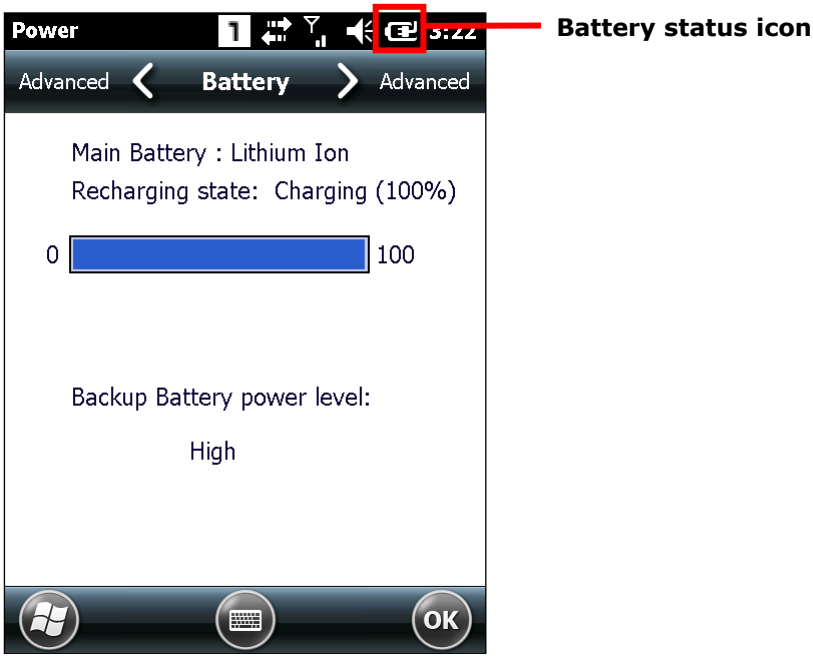


Main battery is being charged.



BATTERY STATUS ICONS

The OS features a couple of icons that deliver main battery status. These icons can be found on the Title Bar.

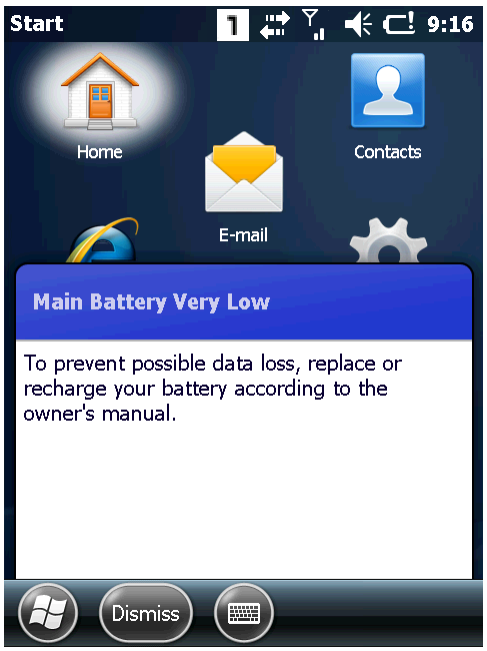


Battery level is illustrated by the following icons:

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.

LOW BATTERY ALERT

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 action.



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.

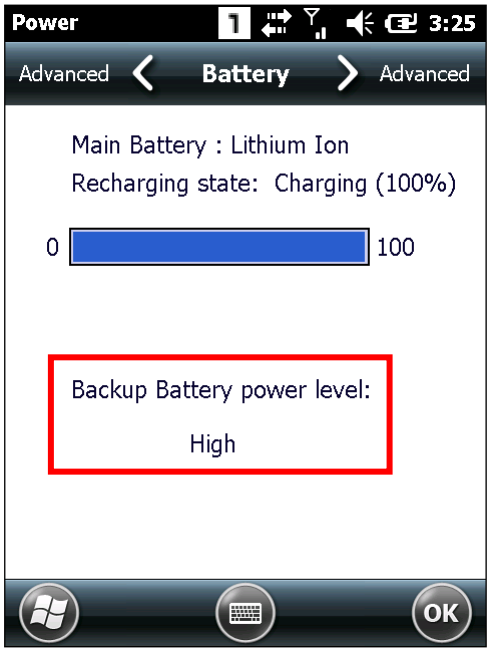
Note: Constant usage of the mobile computer at low battery level can affect battery life. For maximum performance, recharge the battery periodically to avoid battery drain out and maintain good battery health.

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 to avoid data loss.

BACKUP BATTERY LEVEL

1) To check backup battery level, tap **Start** | **Settings** | **Power** .

On **Battery** tab page of **Power Properties** window, backup battery level is summarized as "High", "Low" or "Critical" under the **Power** label.

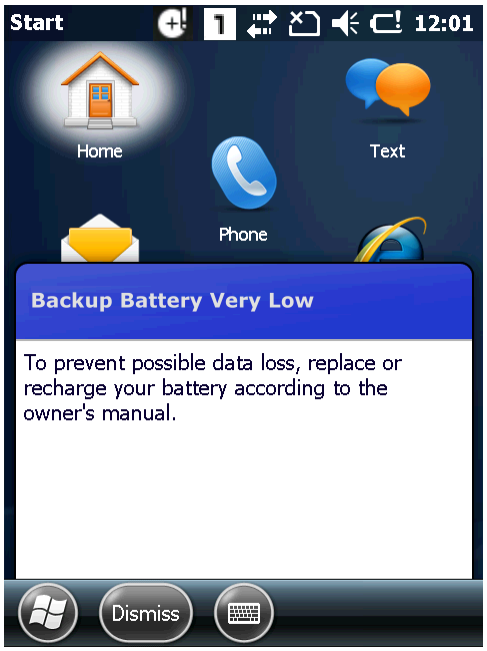


Backup battery level descriptions are as follows:

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

LOW BATTERY ALERT

When backup battery level drops to "Very Low", the mobile computer prompts a "Backup Battery Very Low" warning to alert users that backup battery level is almost drained out.



Backup battery is rechargeable by the main battery pack or the power adapter. Low backup battery puts DRAM data in great danger. Remember to 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 that has not been saved will be lost!

1.4.4. POWER MANAGEMENT

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 in use. See Suspend Mobile Computer
- Turn down LCD backlight brightness as described in Adjust Backlight, and set a shorter LCD timeout as described in Suspend 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 in use, turn it off. See Radios

1.5. KEYPAD

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

This section shows how to input text using physical keypad and on-screen keyboard. To know how to operate the mobile computer using the touchscreen, see Touch Control.

1.5.1. PHYSICAL KEYPAD

The physical keypad on the front of the mobile computer bears much resemblance to laptop or PC keyboards. It is either a numeric type or a QWERTY one, each wedging a set of "enhanced keys" along the top and a set of character keys at the lower half. Both keypads support multi-key operation, which normally requires two keys hit simultaneously, one of which is a modifier key.

As for entering text, the numeric and QWERTY keypad are equally capable of entering numbers, letters, symbols and punctuation marks. Both also receive supplementary backlight along with the screen.

Figure 7: Numeric Keypad

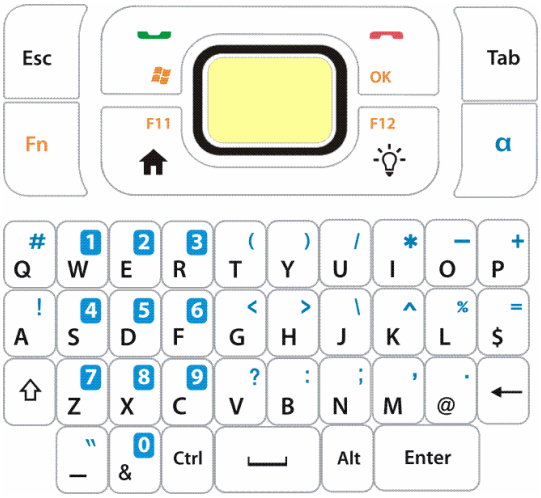


Figure 8: QWERTY Keypad

ENHANCED KEYS

Enhanced keys are arranged along the top of the physical keypad, separate from the character keys. Use these "enhanced keys" to launch actions on the mobile computer and OS, operate the active application, or switch the 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 desktop.

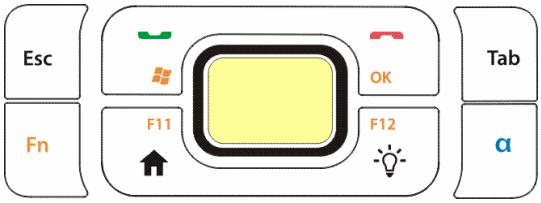


Figure 9: Enhanced Keys

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

<table>
<tr><th>Key Group</th><th>Description</th></tr>
<tr><td>ACTION KEYS</td><td>The Scan key is an action key which delivers the function below:
<table>
<tr><th>Key</th><th>Press</th></tr>
<tr><td>Scan Key  </td><td>Reads barcodes</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 for the keys to function properly.
<table>
<tr><th>Key</th><th>Press</th></tr>
<tr><td>Windows  </td><td>Opens . (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” button on the title bar of the active window. (Requires Function Key pressed beforehand.)</td></tr>
<tr><td>Send </td><td>Key available for function assignment in CipherLab utility Button Assignment.</td></tr>
<tr><td>End </td><td>Key available for function assignment in 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 encircling the 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
Fn</td><td>Function key Fn applies its action when used in conjunction with other keys. Together they make the OS take actions or produce functions F1 through F12 and more.
When other text input modes are activated at the moment, pressing the Fn key will alter the input mode and the icon on the taskbar. See Function Key.</td></tr>
<tr><td>[ALPHA] KEY
α</td><td>[Alpha] key α switches the keypad input mode between numeric mode and alphabetic mode.</td></tr>
</table>

NUMERIC KEYPAD

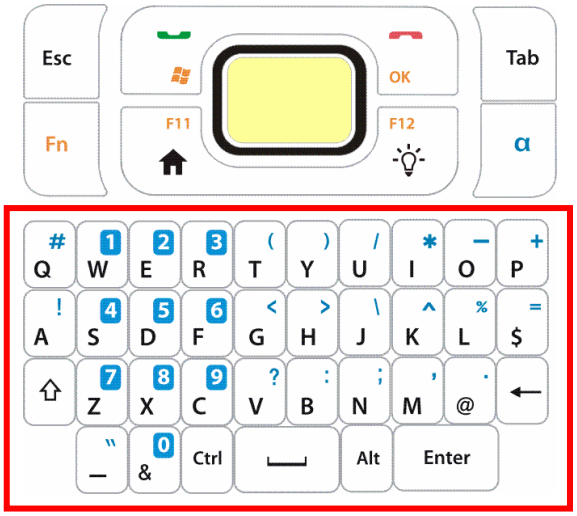
Numeric keypad wedges a set of character keys at the lower half. They are laid out similar to a telephone keypad, and additionally featured are an Esc key, Tab key, Enter key, Backspace key, and Shift key that enable more sophisticated text input.

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.

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.



ALPHA KEY

By default, the numeric keypad is set to numeric mode, and the QWERTY keypad is set to alpha (lowercase alphabetic) mode. The Alpha key [α] serves as a switch key between numeric and alphabetic input modes.

The status icon on the taskbar delivers the current input mode:

Status Icon	Alpha Key	Input Mode
1	On QWERTY keypad, press [α] once	Numbers
a	On numeric keypad, press [α] once	Lowercase alphabetic characters

Note:

(1) The Alpha key [α] can be used to switch between alpha a and numeric 1 input modes

(2) If you are using the on-screen keyboard, tap CAP (Caps Lock) to switch between uppercase and lowercase alphabetic modes.

SHIFT KEY

The Shift key induces the following changes to input mode:

Status Icon	Shift Key	Input Mode
1 → 1	Press [⇧] once	The Shift key [⇧] modifies the next key pressed depending on the input mode. (1) In numeric mode (1), it will act on the next key pressed. However, the actual content input is not affected. (2) In alpha (lowercase alphabetic) mode (a), it will show a single uppercase character after pressing Shift key [⇧] one time. For example, input "ABC", and it will show "Abc.
a → A		
1 → 1	Press [⇧] twice (enter Shift Lock Mode)	Pressing Shift key [⇧] two times will lock the present input mode. (1) In numeric mode (1), it will lock numeric mode. However, the actual content input is not affected. (2) In alpha (lowercase alphabetic) mode (a), it will lock uppercase alphabetic mode (= Caps Lock). For example, input "ABC", and it will show "ABC".
a → A		

Note: There is no need to long press the Shift key [⇧].

FUNCTION KEY

The Function key [Fn] serves as a specified key, and the functionality of each key combination is application-dependent.

1) To enable this special key, press [Fn] on the keypad. Its icon Fn will appear on the status bar.
2) Now press another key to get the value of key combination (say, press [1] to get the value of F1).
3) To get the value of another key combination specified by the function key, repeat step 2.
4) To disable the special key function, press [Fn] again, and the icon Fn will go off.

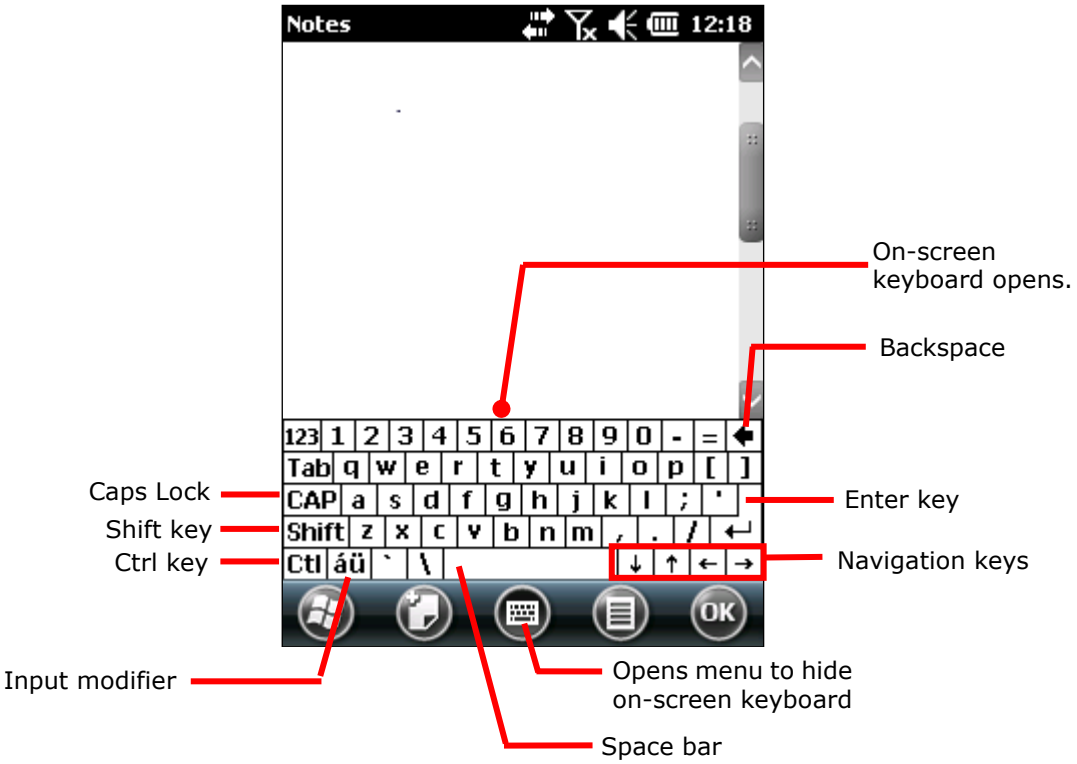
Note: There is no need to long press the [Fn] key.

1.5.2. ON-SCREEN KEYBOARD

The OS provides users with an on-screen keyboard. Compared to a physical keypad, the on-screen keyboard bears likeness to a laptop keyboard as it has modifiers keys arranged on the left edge and features a "QWERTY" layout. The on-screen keyboard supports entering a series of diacritics for European languages by tapping a modifier key.

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

In case the on-screen keyboard doesn't open automatically, tap the keyboard icon on the softkey bar. When opened, the on-screen keypad is ready 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 the on-screen keyboard.

On the on-screen keyboard there are four modifier keys, which are seated at the left edge. These keys work as follows:

1) Press a modifier key on on-screen keyboard.

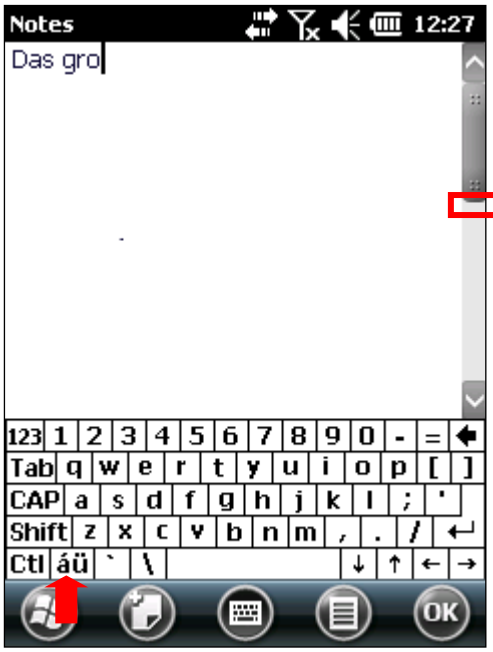
   The on-screen keyboard enters modifier state.

2) Press the second key.

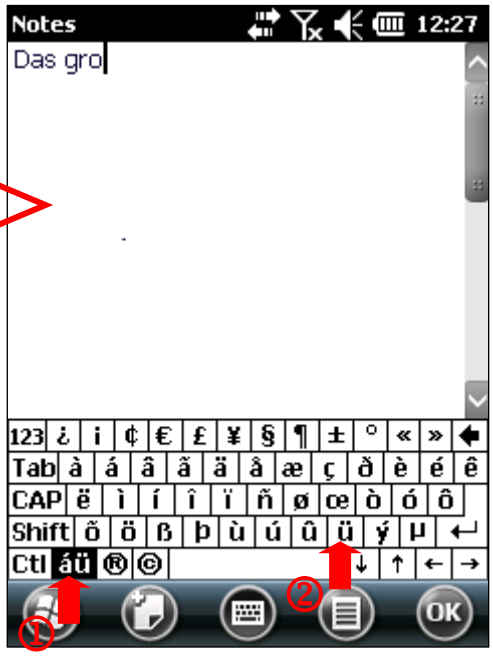
   The desired performance will be produced to the active application or screen at the moment.

Modifier keys are explicated as following

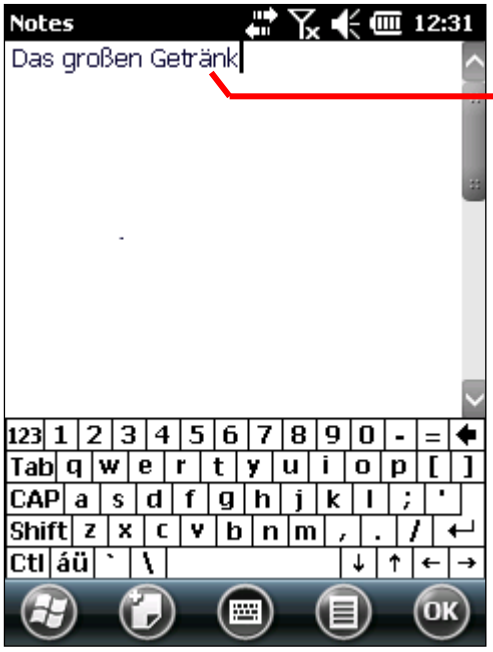
Key	Description
Ctrl key Ctl	Once tapped, it becomes color-inverted Ctl and causes a special action from OS or the active application when a character key is tapped. It quits once the said action is triggered or when it is tapped again. For example: Tap Ctl key and then tap key "A" to produce Ctrl+A function, which in Windows environment usually selects all content on the active screen. Once "A" is tapped, the on-screen 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 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 on-screen keyboard.



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

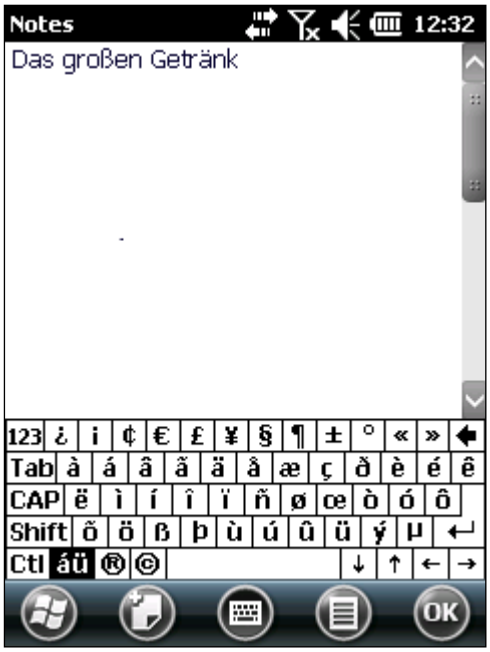


Letter variant "ü" is entered

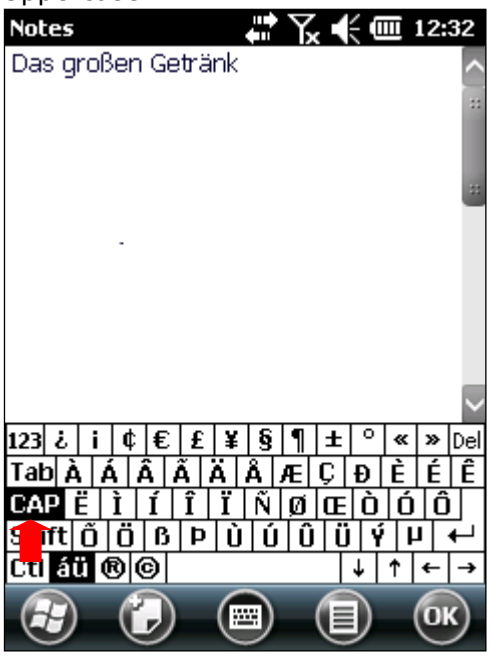
After the letter variant "ü" is entered, the on-screen keyboard restores to normal English alphanumeric layout.

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

Lowercase



Uppercase

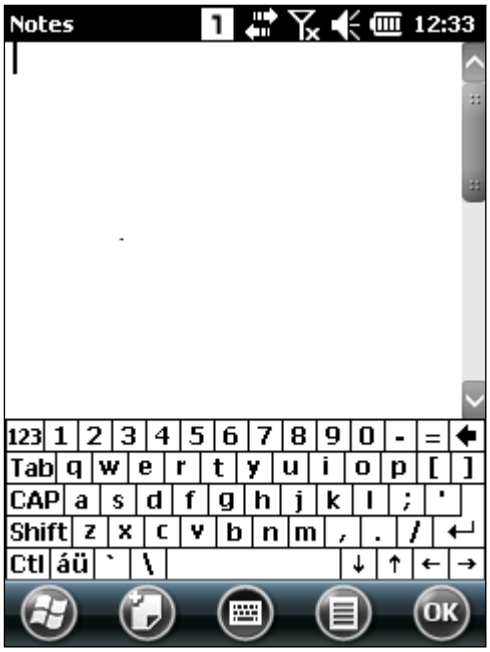


OTHER KEYS

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.
Navigation keys ↓ ↑ ← →	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.

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 on-screen keyboard also readjusts itself to the new orientation.



Upright (Portrait Mode)

Sideways (Landscape Mode)

To disable automatic screen rotation, see Screen Orientation.

1.5.3. 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 to the desired place 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 by tapping and dragging the caret so the desired text is highlighted.

CUT OR COPY TEXT

After a text is selected, tap the **Edit** menu on the title bar of the active window to open an option menu that includes **Copy**/**Cut** commands. Tap them to copy/cut the selected text.

PASTE TEXT

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

To paste text:

1) Tap the text field where you want to paste the text.
2) Tap the **Edit** menu on the title bar of the active window and select the **Paste** command.

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. It provides the ability to manipulate icons, buttons, menu commands, the on-screen keyboard, or any on-screen items.

1.6.1. USE TOUCHSCREEN

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

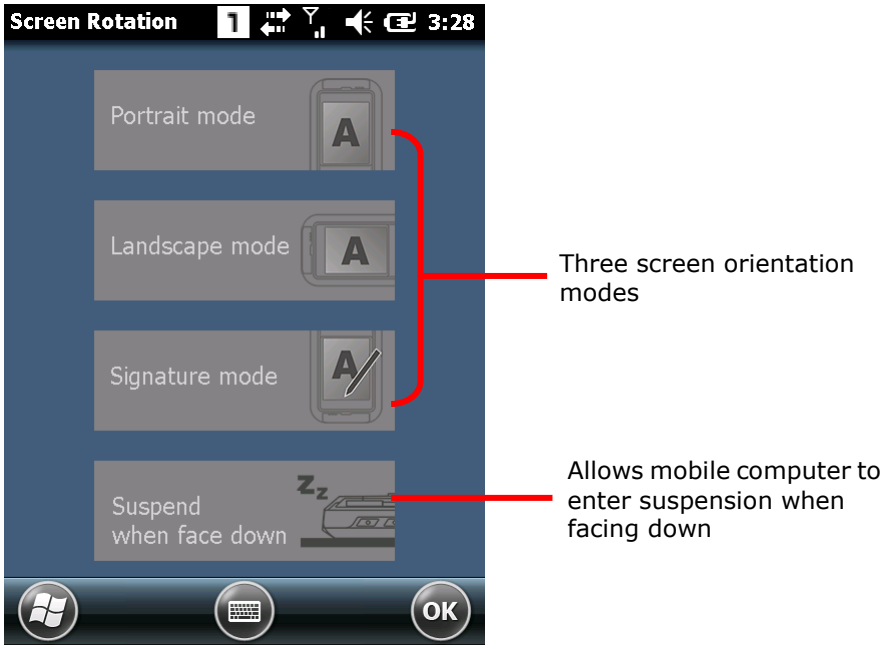
- **Tap** – Touch any item on the screen such as an application icon or a setting icon to work on it, or touch any key on the on-screen keyboard to type it.
- **Tap and hold** – Touch an item on the screen and do not release until an action occurs.
- **Drag** – Touch and hold an item for a moment and then, without release, move the item on-screen until you reach the target.
- **Double-tap** – Touch quickly twice on certain screens to zoom. For example, double-tap a section of a webpage in a web browser to zoom that section so it fits 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

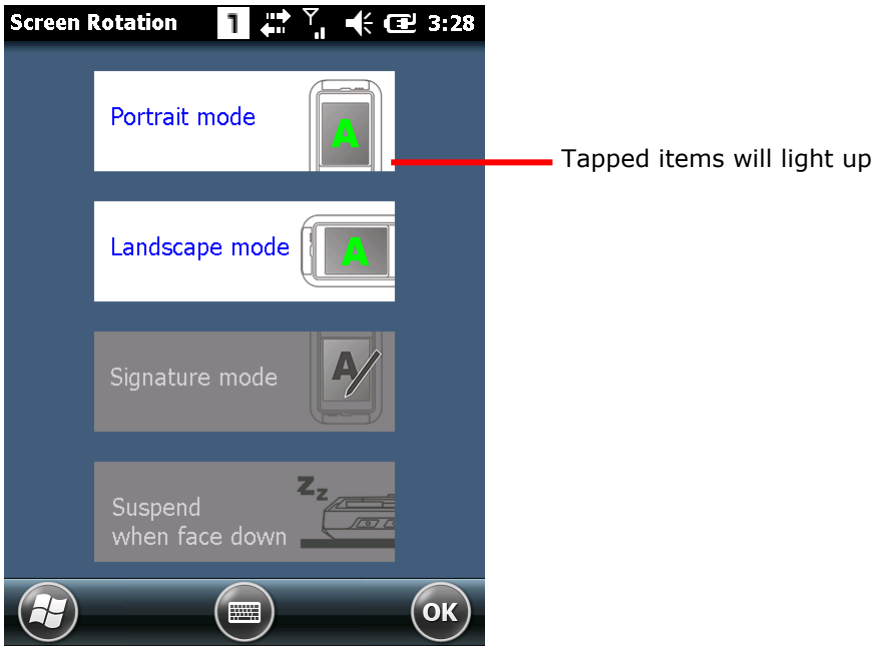
The mobile computer has a built-in G-sensor for screen orientation. In order to enable automatic screen orientation:

1) Tap **Start** | **Settings** | **System** | **Screen Rotation**  .

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



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



3) Tap **OK** on the title 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 stay in upright mode 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 180° when the front of the mobile computer is tilted outwards, which is convenient for signing by a second party.

Note: If no modes are selected in **Screen Rotation**, the mobile computer's touchscreen will be fixed in portrait mode.

1.6.3. ADJUST BACKLIGHT

Screen backlight can be adjusted manually or 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.

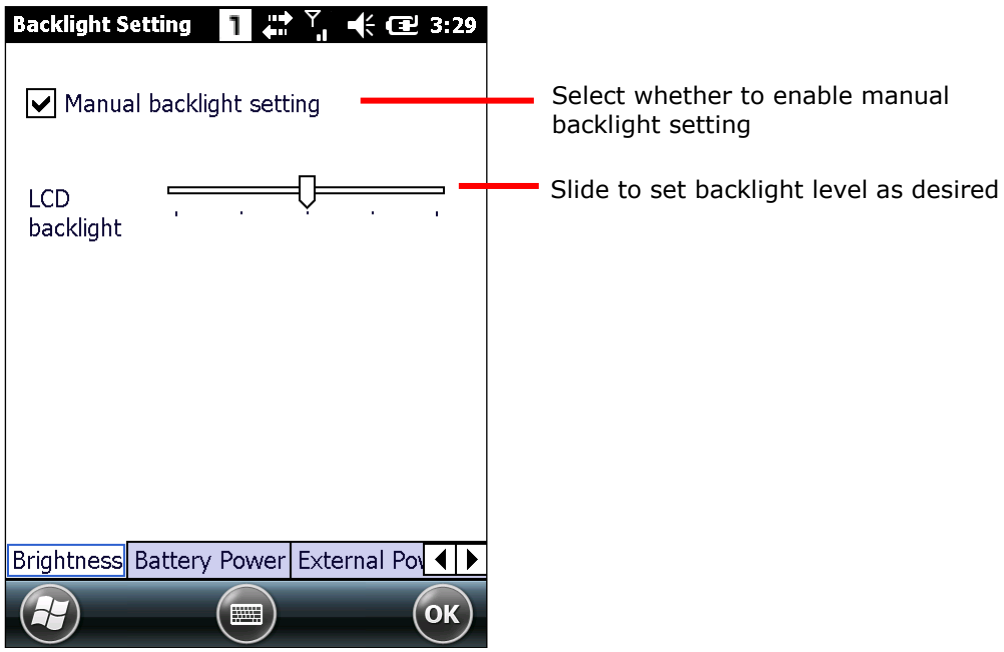
MANUAL BACKLIGHT ADJUSTMENT

To adjust screen backlight:

1) Tap **Start** | **Settings** | **System** | **Backlight**  .

   Brightness tab page opens with a checkbox to enable manual backlight setting, and a slider bar for setting screen backlight level.

   By default, **Manual backlight setting** is checked, and LCD backlight will stay at the set level and will not adjust automatically. When **Manual backlight setting** is unchecked, the light sensor embedded on the front of the mobile computer will detect current lighting environments, and LCD backlight will adjust automatically according to the backlight profiles set under the **Profile** tab page.



2) Tap **OK** to apply the settings.

AUTOMATIC BACKLIGHT PROFILES

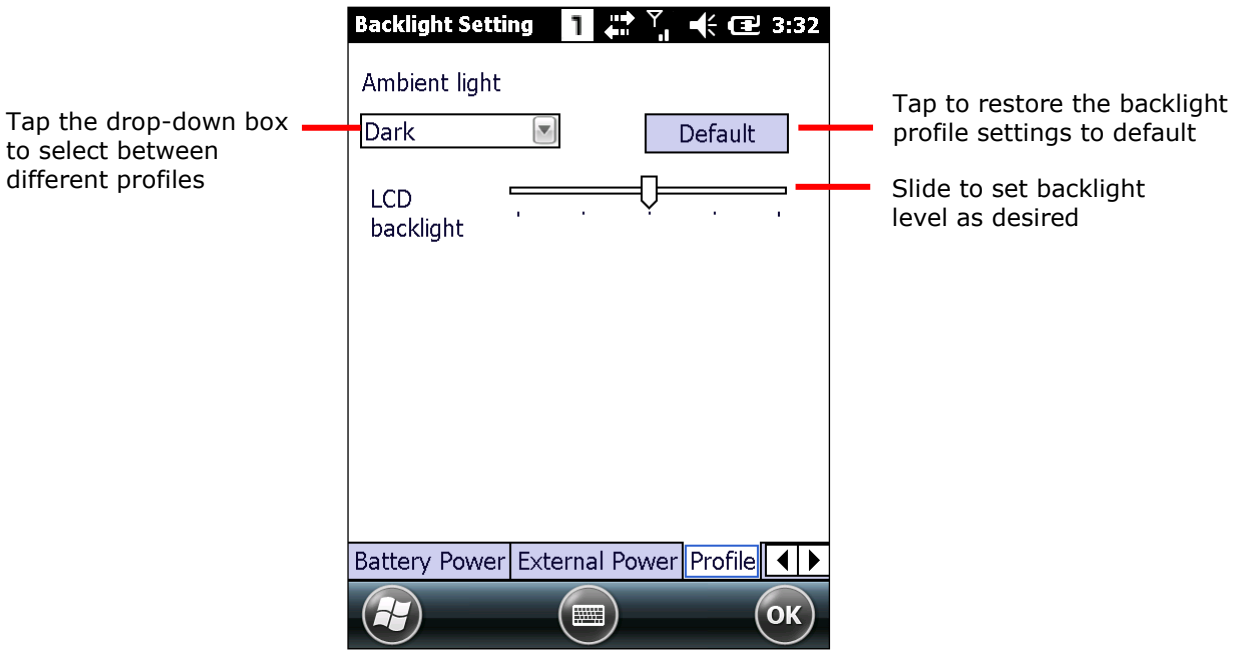
The mobile computer stores three backlight profiles to represent backlight level under different environments. These can be configured according to user's likings.

To set backlight profiles:

1) Tap **Start** | **Settings** | **System** | **Backlight** .
2) Uncheck **Manual backlight setting** to enable profile function.
3) Switch to the **Profile** tab 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 slider bar below to set the backlight levels to your preferences. The screen backlight will change temporarily to show the effect.

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



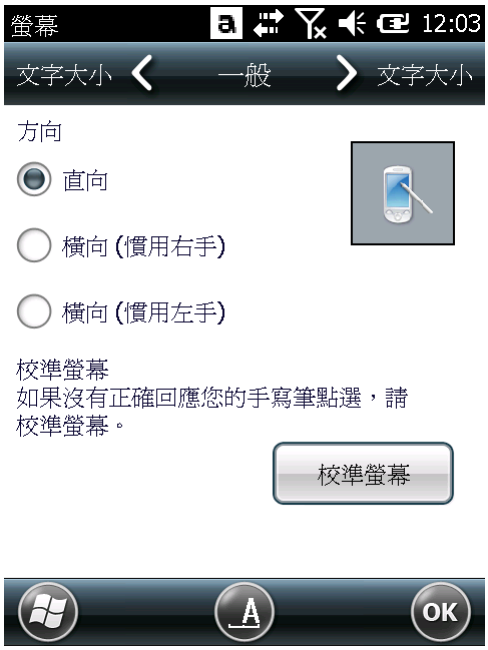
4) Tap **OK** to apply the settings.

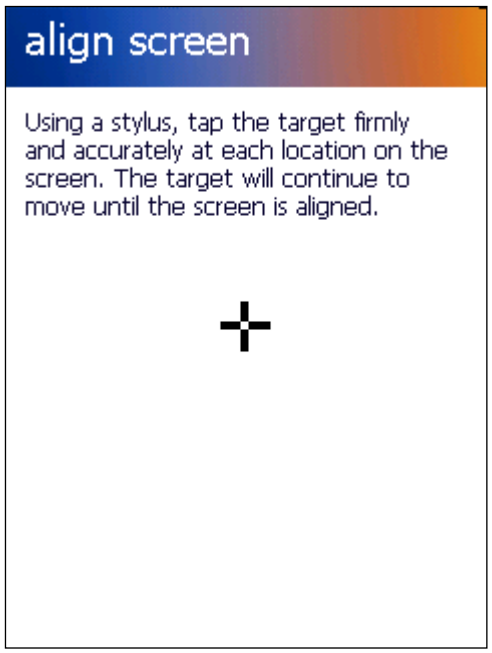
1.6.4. CALIBRATION

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

To calibrate the touchscreen:

1) Tap **Start** | **Settings** | **System** | **Screen**  .
2) Tap **General** tab page. Tap **Align Screen** button to open the calibration screen.





3) Using the stylus, tap firmly at the center of the cross that appears on-screen. Five crosses will appear in sequence.

   Follow the on-screen instructions to save the new calibration settings or restore the old settings. Once completed, the screen returns to **General** tab page.

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 the 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 MicroSD cards from 256MB to 4GB, or MicroSDHC cards from 4GB 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.

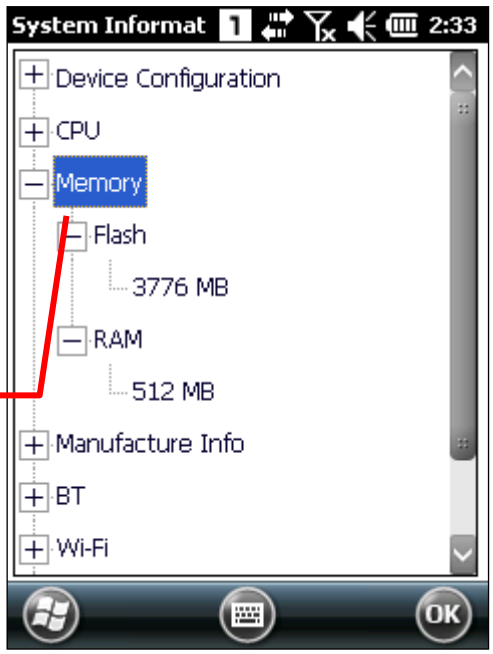
Note if you are leaving the mobile computer to sit for a couple of days, data loss will occur when both main and backup batteries drain out. Consider backing up data before putting away the mobile computer.

1.7.2. CHECK STORAGE

INTERNAL STORAGE

To check internal storage size:

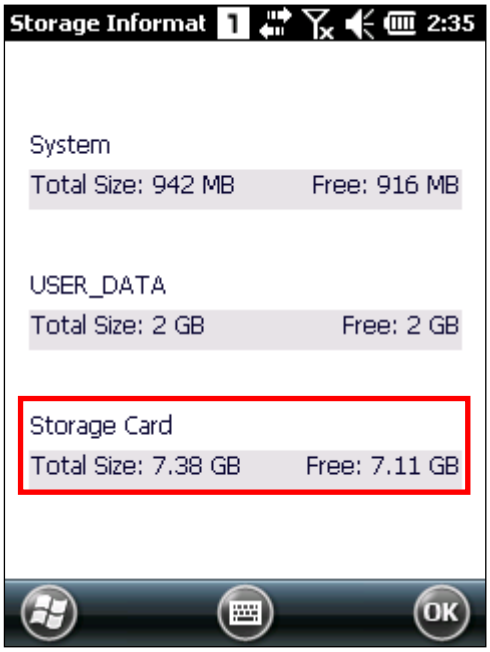
1) Tap **Start** | **Settings** | **System** | **System Information**  . The application opens revealing information about the mobile computer's assemblage and hardware/firmware components, including device manufacturer, device ID, memory size, and firmware/software version. RAM and Flash size are also listed among this info.



Expand to view information on memory size

EXTERNAL STORAGE

Tap **Start** | **Settings** | **System** | **Storage Information**  . The **Storage Card** label shows the available space on the storage card (if no storage card is installed on the mobile computer, the available size will be displayed as 0).

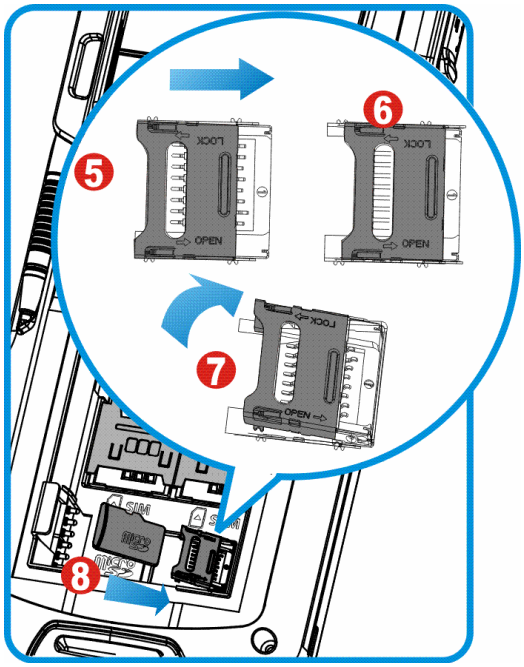


1.7.3. INSERT SD CARD

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
4)
5)
6)
7)
8) Main Battery Setup.
9) Locate the SD card socket inside the battery chamber. (See Inside Battery Chamber.) The SD card socket is equipped with a hinged cover.



10) Push the hinged cover to the "open" position.
11) The hinged cover is unlocked.
12) Swivel up the hinged cover.
13) Insert the SD card into the cover slot in the direction indicated . The metal contact pins should face down.
14) Put down the hinged cover and push it back to the "lock" position.
15) Restore the main battery pack and battery door.

Figure 10: Inserting SD Card

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 SNAP-ON CABLE

Direct data communication using a cable:

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

2) On the mobile computer, tap **Start** | **Settings** | **System** | **USB Connection**  .

3) To connect the mobile computer and PC via ActiveSync, select **ActiveSync Serial Mode**.

   To treat the mobile computer as an external storage device, select **Mass Storage – SD Card**.

4) Tap **OK** on the title bar to apply the settings.

   If one of the first two options are selected, 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.

Note: The CP55 mobile computer uses COM9 for serial transmission via RS-232.

Figure 11: Direct Data Communication Using Snap-on Cable

1.8.2. USE 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. Connect one end of the USB cable to the Cradle and the other end to the PC.
2) To charge the mobile computer, connect the cradle to an external power source using the power adapter.
3) Tap **Start** | **Settings** | **System** | **USB Connection**  .
4) To connect to the PC via ActiveSync, chose **ActiveSync Serial Mode**.

   To treat the mobile computer as an external storage device, chose **Mass Storage – SD Card**. Note that **Mass Storage** is only supported when as SD card is installed on the mobile computer.
5) Tap **OK** on the title bar to apply the settings.

If **ActiveSync Serial Mode** is selected, see Syncing Tools and subsequent sections to know how to use ActiveSync.

Note: The cradle supports USB Host Mode via a USB OTG cable.

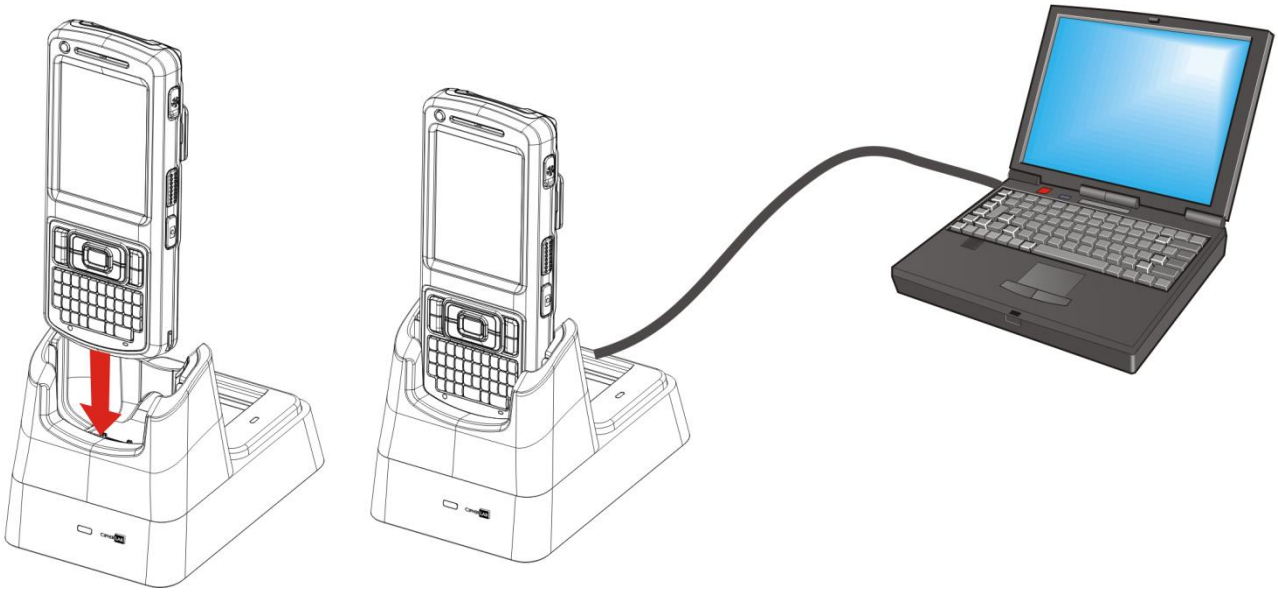


Figure 12: Direct Data Communication Using Cradle

1.8.3. SYNCING TOOLS

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

Two syncing tools are featured by Microsoft - ActiveSync and Windows Mobile Device Center ("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 Snap-on Cable, they are able to form the following ties:

Sync Partnership	Services
Synchronization Relationship	▸ Allows the mobile computer and PC to sync 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. ▸ Allows 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 for details about the mentioned services.

1.12.1.1ST USB SYNC

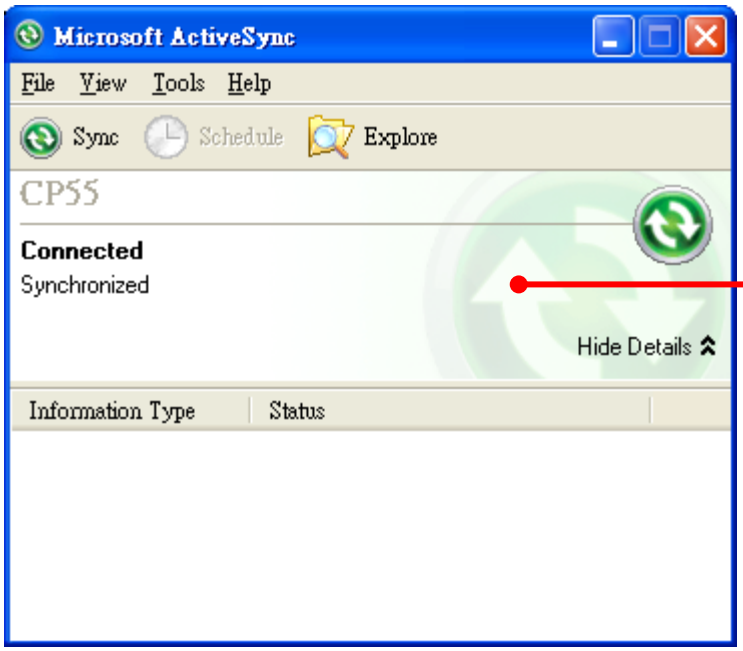
This section will guide you through USB syncing. To connect ActiveSync using USB:

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
3)
4)
5)
6)
7) Use Snap-on Cable.
8) 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.

9) 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.

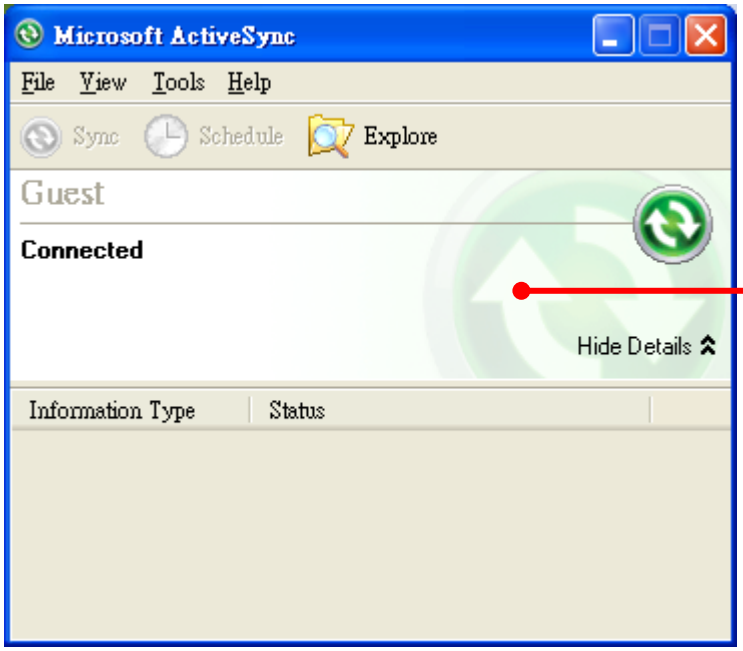
   If you have pressed **Next**, follow the on-screen instructions and select the data categories you would like to synchronize. Once confirmed, synchronization will begin shortly, and when the process is finished, ActiveSync window will show "Synchronized" to indicate that the data on the mobile computer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



Note: If you encounter trouble during USB ActiveSync connection, tap **Start** | **Settings** | **System** | **USB Connection** and make sure "**ActiveSync Serial Mode"** is selected.

1.16.1. 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, ActiveSync won't attempt to connect to it.

1.16.2. 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:

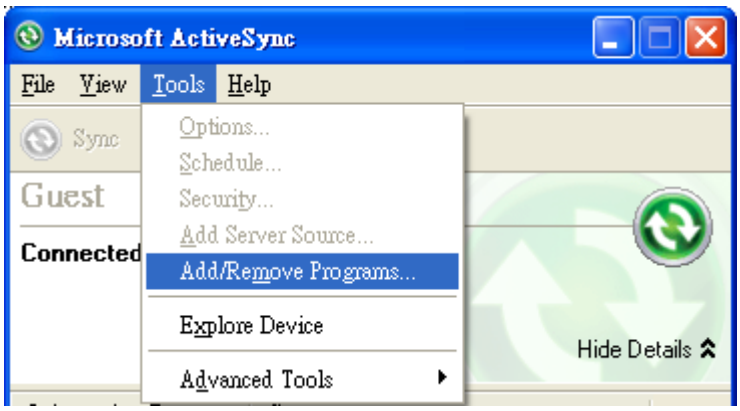
ADD/REMOVE PROGRAMS

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.

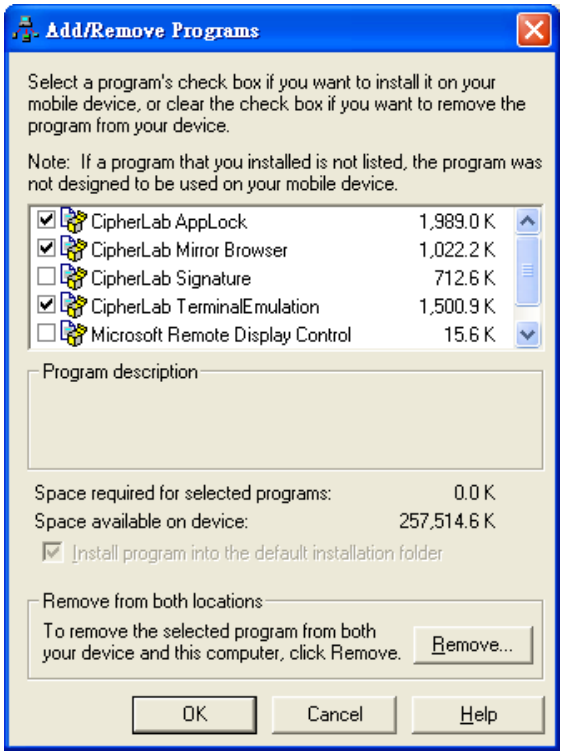
Many application programs are installed in different ways. Read their installation guides or documentation to know how they are installed. If you are installing an application that cannot be installed on your PC first, try to install it right from the mobile computer. See Download & Install Applications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

To install an application on the mobile computer:

1) Connect two computers as described in
2)
3)
4)
5)
6) Use Snap-on Cable.
7) Sync two computers as described in 1st USB Sync.
8) 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.



9) Select the application program(s) to install to the mobile computer, and deselect the application program(s) to uninstall from the mobile computer.

10) Press the **OK** button.

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

11) Follow the on-screen 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 **My Device\Program Files**. However sometimes there are exceptions and the actual situation depends on the application.
- You can also uninstall applications directly on the mobile computer rather than on the PC. See Uninstall Applications for more details.
- If you would like to uninstall a program that isn't listed in the [**Add/Remove Programs**] dialog, browse to it on the mobile computer by tapping **My Device** on the desktop. Tap and hold it, and select **Delete** from the context menu that pops up.

ADD APPLICATION SHORTCUTS TO START SCREEN

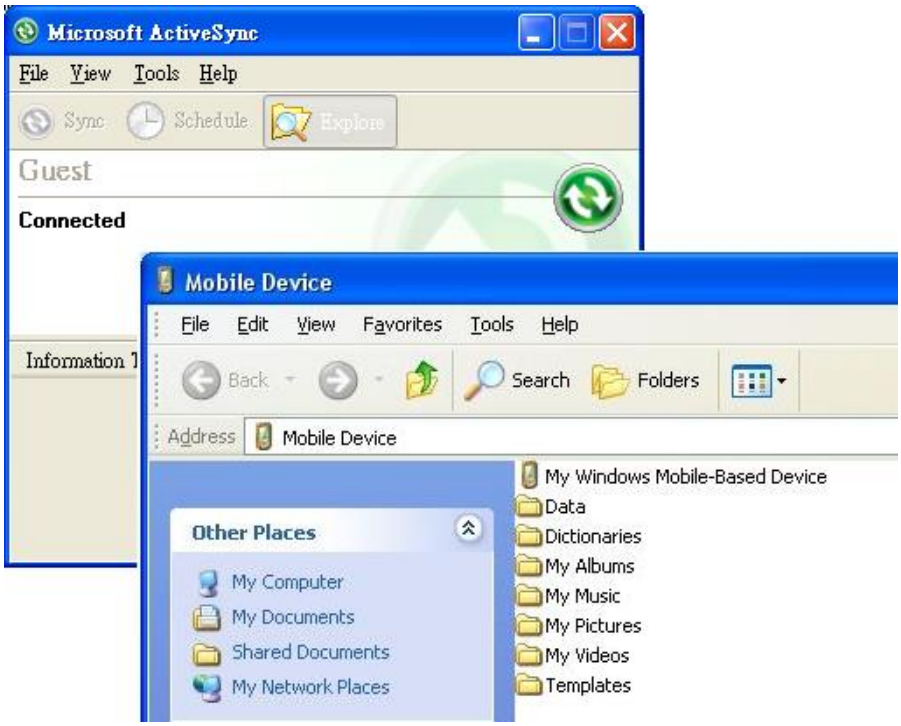
ActiveSync features "Explore" to add an application shortcut to Start screen where it is easier to launch the application.

To add an application shortcut to Start screen:

1) Connect two computers as described in
2)
3)
4) Use Snap-on Cable.

5) Sync two computers as described in 1st USB Sync.
6) On the PC, from ActiveSync's menu bar, select **Tools** | **Explore Device**, 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).



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

   My Windows Mobile-Based Device opens.

8) 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.

9) Open the folder of the application to create shortcut for.
10) 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.

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

    Programs folder opens.

12) 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 directly on the mobile computer. See Add Items to Start Screen for more details.

ADD FILE SHORTCUTS TO START SCREEN

To add a file shortcut to Start screen:

1) Connect two computers as described in
2)
3)
4) Use Snap-on Cable.
5) Sync two computers as described in 1st USB Sync
6) 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.
7) Browse to the file to create shortcut for.
8) Right-click on the file and select **Copy** from the context menu that comes up.
9) Browse to **My Windows Mobile-Based Device\Windows\Start Menu\Programs**.

   Programs folder opens.
10) 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 directly on 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 directly on 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
2)
3)
4)
5)
6) Use Snap-on Cable.
7) 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 "**My Device**" opens presenting a few folders (and some files).

8) Browse where you want to create a folder.

9) Right-click any vacant spot there.

Context menu opens

10) Select **New Folder**.

A new folder is created.

BACKUP DATA

To best protect your work, back up the data on your mobile computer regularly. You may choose to manually back up using ActiveSync to copy & paste the 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 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 set 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 settings.

1.9. VOLUME AND AUDIO

1.9.1. AUDIO PLAYBACK

Use a headset for audio playback and hands-free telephone communication.

The headset jack (3.5 mm DIA) is built up on one side of the mobile computer and sealed with a hinged rubber. Open the rubber to reveal the headset jack. Plug the connector of your headset to the jack.

Bluetooth headsets are also supported to deliver better mobility. See Use Bluetooth.

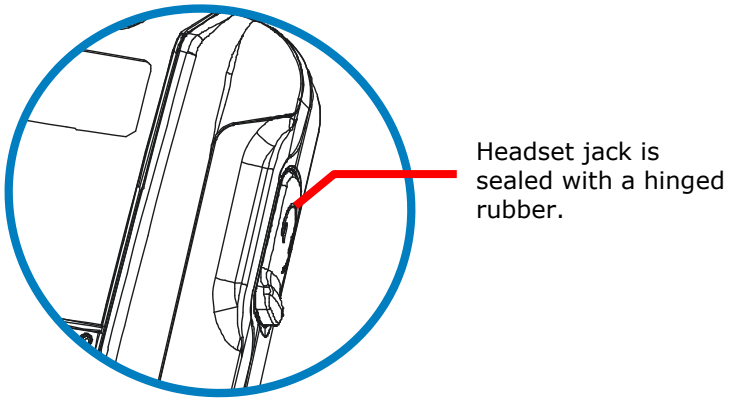


Figure 13: *Audio Playback*

1.9.2. VOLUME CONTROL

The mobile computer has two volume control facilities – the physical volume rocker perched on the left side of the mobile computer and the on-screen volume gauge featured by the OS.

Both the physical rocker and the on-screen gauge can be used to control the system volume, including event sounds, notifications and media playback.

PHYSICAL VOLUME ROCKER

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

Volume changes made with the physical volume rocker will also be reflected on the On-screen Volume Gauge.

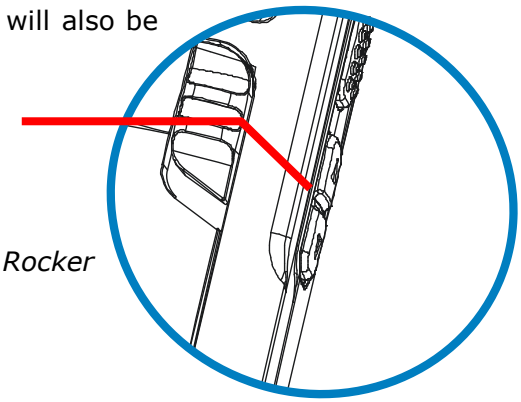


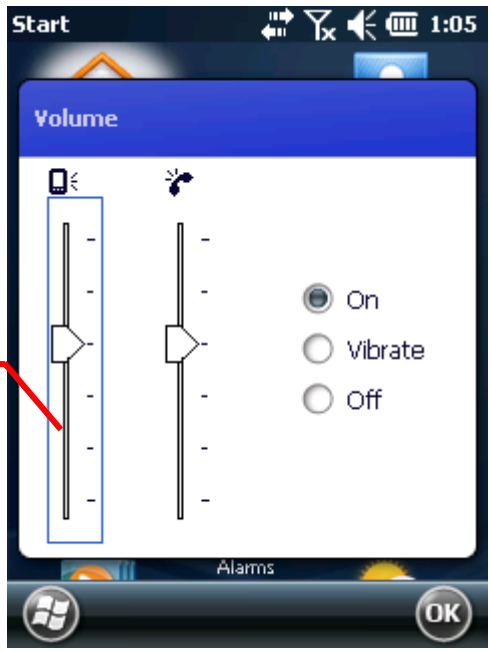
Figure 14:
Physical Volume Rocker

ON-SCREEN VOLUME GAUGE

The mobile computer features an on-screen volume gauge to control the system volume, including event sounds, notifications and media playback.

1) Tap the volume notification icon on the title bar.
2) In the drop-down bar that opens, tap the volume icon .

   Volume window opens showing a slider to adjust system volume and radio buttons to switch on or off the system volume, or set to vibrate.



Slider bar and buttons to adjust system volume

3) Adjust the settings to meet your needs.

   When finished, tap **OK** to apply the settings.

Chapter 2

DATA CAPTURE

Although highly converged, the mobile computer is a dedicated barcode/RFID reader. The mobile computer ships with either a CCD reader, laser 1D reader or 2D imager, and sometimes plus an RFID reader. A number of symbologies and RFID tags are supported and data about them can be decoded and collected.

A high-spec 5.0 mega-pixel camera is also recessed on the rear of the mobile computer to capture images to better meet your field applications.

Done with the 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.

You will learn how to collect data with reader modules in this chapter, while collecting images with camera is detailed in the following chapter.

IN THIS CHAPTER

2.1. USE READER CONFIG

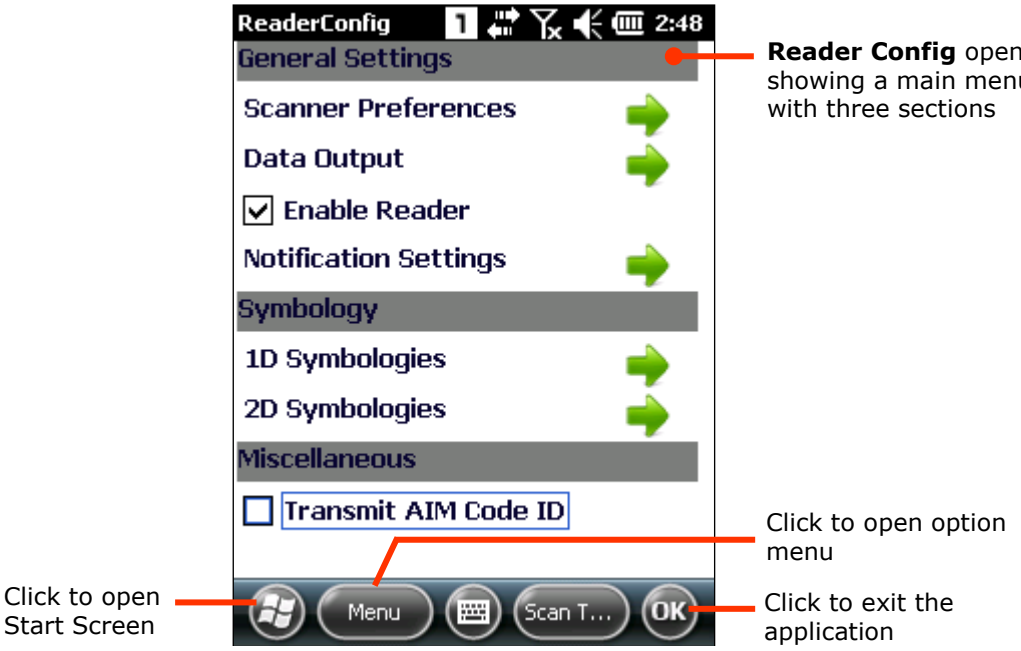
The mobile computer is capable of reading printed barcodes. The reader module can be a either a (laser) 1D reader or a 2D imager. The mobile computer is installed with a CipherLab utility **Reader Config** to configure the scan engine built inside. Use it to create a profile of settings that best suits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

2.1.1. LAUNCH READER CONFIG

To launch Reader Config:

1) Tap **Start** | **Settings** | **System** | **Reader Configuration** .

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

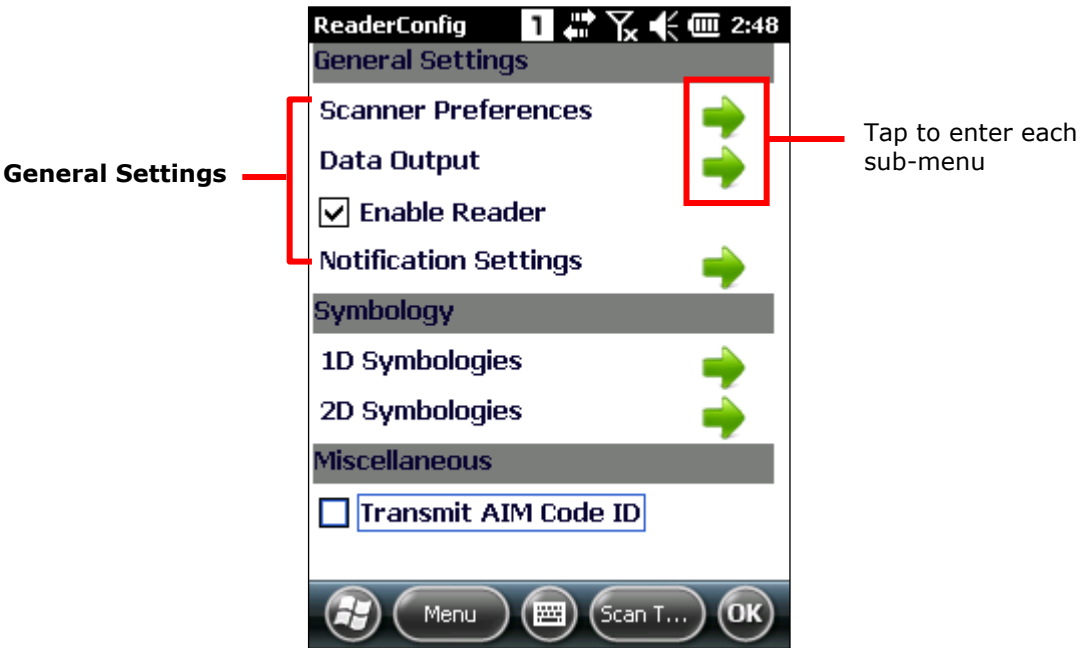


Note: Reader Config will automatically detect the type of reader module integrated on the mobile computer and adjust its settings accordingly.

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 functions under **General Settings** include:

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

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.

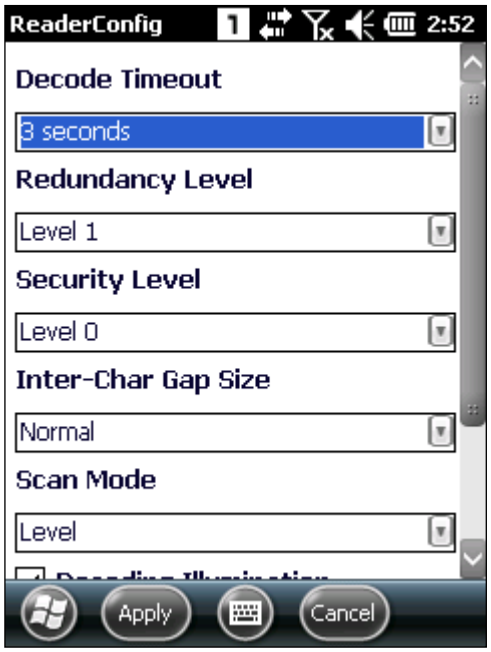
To open **Scanner Preferences** page:

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 each type of reader:

CCD READER SETTINGS

Setting	Description	Default
Decode Timeout	Sets the maximum time (configurable from 1 to 9 sec) for the decoding process during a scan attempt.	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. The readings needed for each level are as follows: **Level** / **Description** 1 – The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25. 2 – All barcodes must be successfully read twice before being decoded. 3 – All barcodes must be successfully read twice before being decoded, except for the following which must be read three times: MSI, Industrial 25 (Discrete 25), Interleaved 25. 4 – All barcodes must be successfully read three times before being decoded.	Level 1
Scan Mode	Sets the reader's scanning behavior. ▸ "Continuous" to decode the same barcode repeatedly or decode different barcodes in a continuous motion. ▸ "Level" for scanning by pressing the scan trigger.	Level

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

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 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. The readings needed for each level are as follows: **Level** / **Description** 1 – The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25. 2 – All barcodes must be successfully read twice before being decoded. 3 – All barcodes must be successfully read twice before being decoded, except for the following which must be read three times: MSI, Industrial 25 (Discrete 25), Interleaved 25. 4 – All barcodes must be successfully read three times before being decoded.	Level 1
Scan Angle	Sets the scan angle for laser scan engine. Options to choose between are **Wide Angle** (angle = 47°) and **Narrow Angle** (angle = 35°).	Wide Angle
Scan Mode	Sets the reader's scanning behavior. ▸ Continuous: Decode the same barcode repeatedly or decode different barcodes in a continuous motion. ▸ Level: Scanning by pressing the scan trigger.	Level
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

<table>
<tr><th>Setting</th><th>Description</th><th>Default</th></tr>
<tr><td>Decode Timeout</td><td>Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.</td><td>3 sec.</td></tr>
<tr><td>Redundancy Level</td><td>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.</td><td>Level 1</td></tr>
<tr><td>Security Level</td><td>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:
<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 the decoder, a safer solution would be to improve the quality of the bar codes to read.</td></tr>
</table></td><td>Level 0</td></tr>
<tr><td>Inter-Char Gap Size</td><td>Sets the intercharacter gap size for Code 39 and Codabar. Switch between Normal and Large.</td><td>Normal</td></tr>
<tr><td>Scan Mode</td><td>Sets the reader’s scanning behavior. Options available are Level, Presentation Mode and Auto Aim.
Level: Decoding process is activated by trigger event and continues until trigger event ends, a valid decode happens or decode session time-out is reached.
Presentation Mode: The imager engine attempts to decode when an object appears in its field of view. Sleeping state is not entered when this mode is activated.
Auto Aim: Red aiming pattern is turned on when the imager engine detects motion. A trigger event will then activate decoding. If 2 seconds go by without any activity, the aiming pattern goes off.</td><td>Level</td></tr>
<tr><td>Decoding Illumination</td><td>Enables an LED light beam to aid barcode reading.</td><td>Selected (Enabled)</td></tr>
<tr><td>Decode Aiming Pattern</td><td>Projects a crosshair at the center of the laser light beam to facilitate barcode reading.</td><td>Selected (Enabled)</td></tr>
<tr><td>Picklist Mode</td><td>When selected, only barcodes aligned at the crosshair of the laser light beam will be decoded.</td><td>Deselected (Disabled)</td></tr>
<tr><td>Display Mode</td><td>Enable improved performance for reading barcodes on electronic displays and mobile phones.</td><td>Deselected (Disabled)</td></tr>
</table>

DATA OUTPUT

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

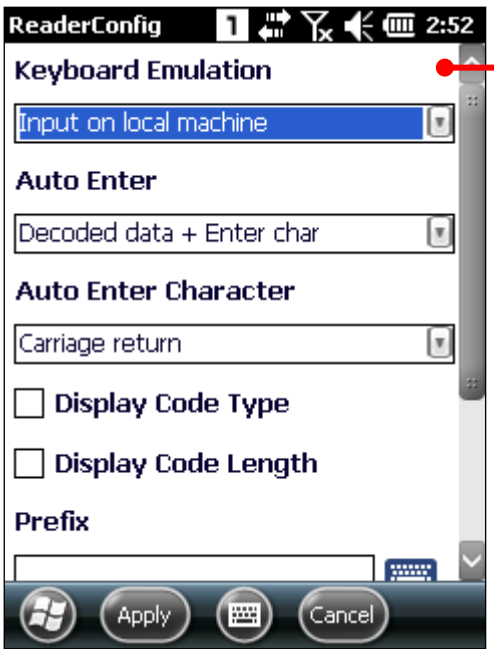
To open **Data Output** settings page:

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.)	Input on local machine

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	Decoded data + Enter
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. Tap the keyboard icon next to the input field to open a character table for entering the prefix. ▸ Prefixes containing invisible characters are supported.	--
Suffix	Affixes 0 to 10 characters to the right of the output data. Tap the keyboard icon next to the input field to open a character table for entering the suffix. ▸ Suffixes containing invisible characters are supported.	--
Field delimiter	Sets the delimiter to separate the output barcode data to the following pieces: code type, decoded barcode data, and code length (if applicable). Options are: ▸ Comma ▸ Semicolon ▸ Full stop	Comma

ENABLE READER

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

NOTIFICATION SETTINGS

Notification Settings enables audible, visible and tactile feedback for scanning good read, which helps notify the user of a successful decoding.

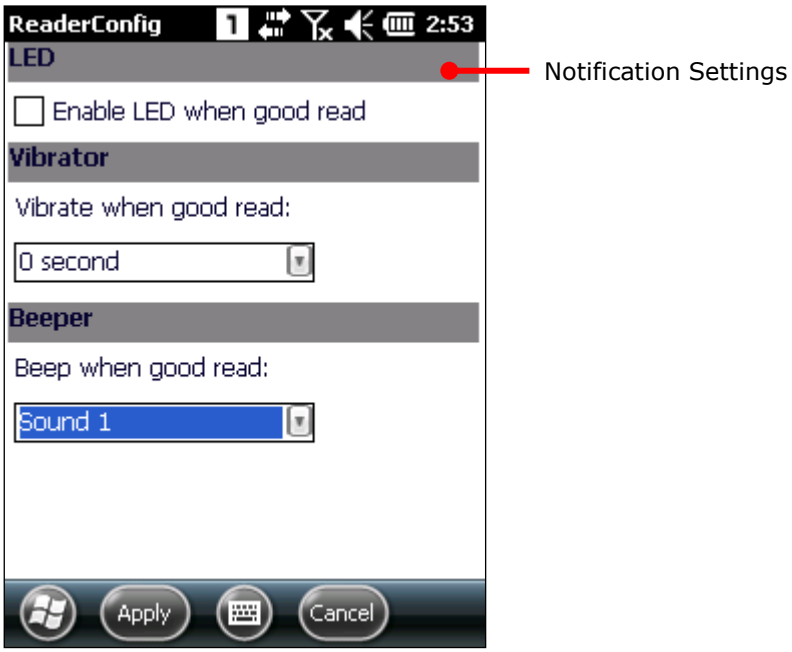
To open **Notification Settings** page:

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

   Reader Config main menu opens.

2) Tap the arrow next to **Notification Settings**.

   Notification Settings page opens.

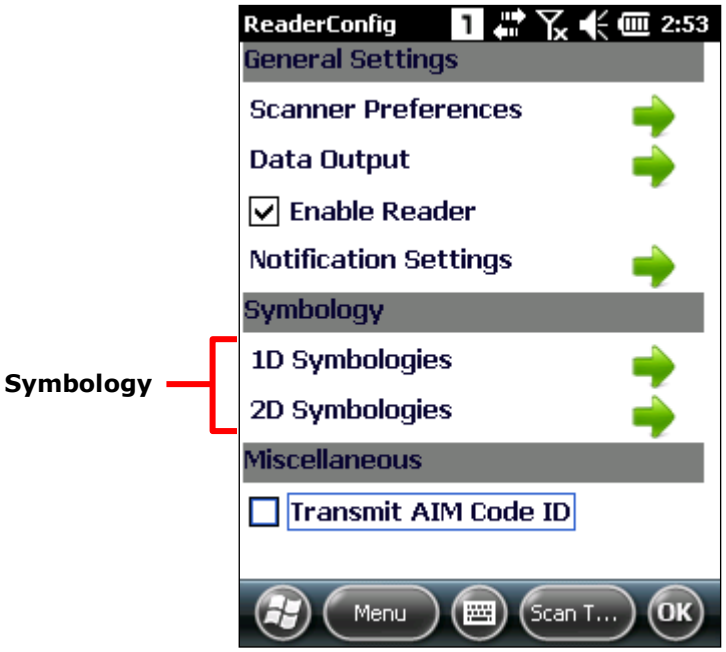


Setting		Description	Default
LED	Enable LED when good read	Selects to enable/disable LED light (left) for scanning good read. See Status LED for details.	Deselected (Disabled)
Vibrator	Vibrator when good read	Enables/disables tactile feedback (vibration) for good read and sets the vibration duration.	0 second
Beeper	Beep when good read	Sets the beeper sound for scanning good read. Users can choose to mute the beeper sound, or configure the beeper between sounds 1 to 9.	Sound 1

2.1.3. SYMBOLOGY

Symbology section sets the symbologies to read, and also 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:

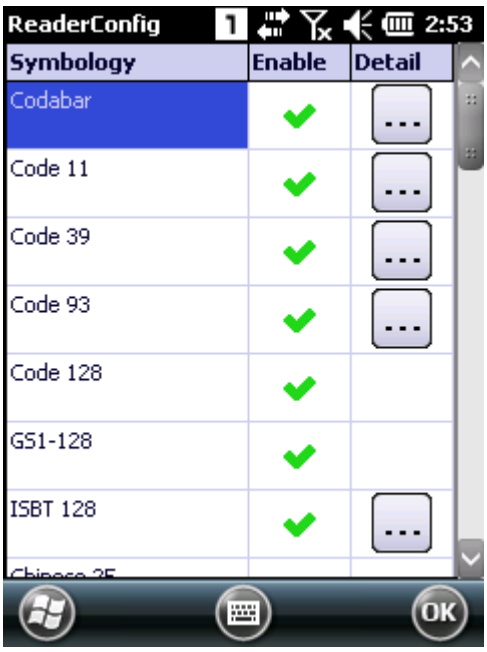
1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main menu opens.

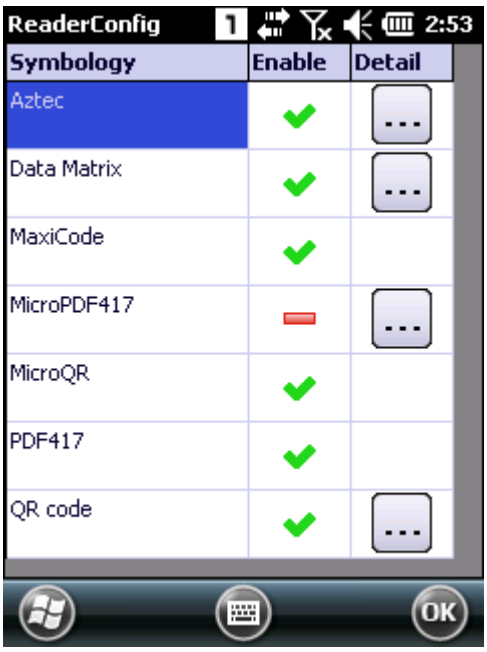
2) Tap the arrow next to **1D Symbologies** (or **2D Symbologies** in the case of a 2D imager).

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

1D Symbologies



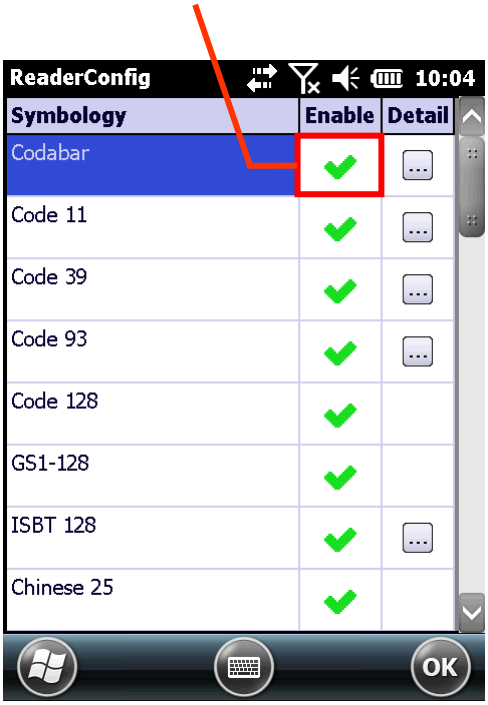
2D Symbologies



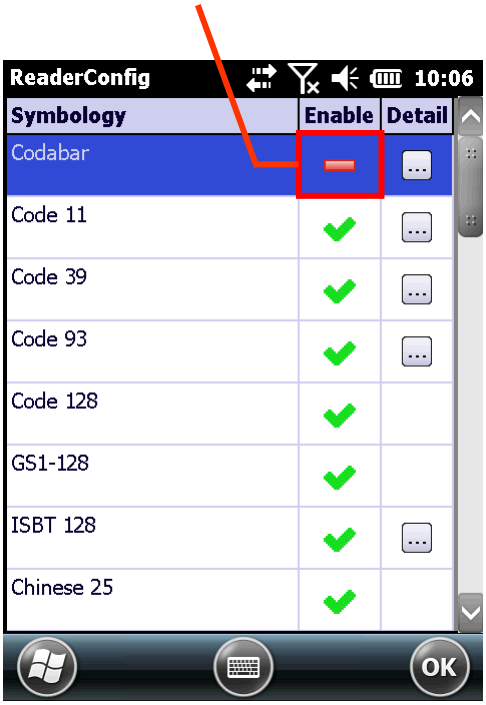
ENABLE/DISABLE SYMBOLOGY

The icon in the **Enable** column indicates whether the specific symbology is enabled. A check ✔ indicates that decoding of the symbology is enabled, while a short bar ▬ indicates decoding of the symbology is disabled. Tap the icon to switch between enable/disable modes.

Tap to disable symbology

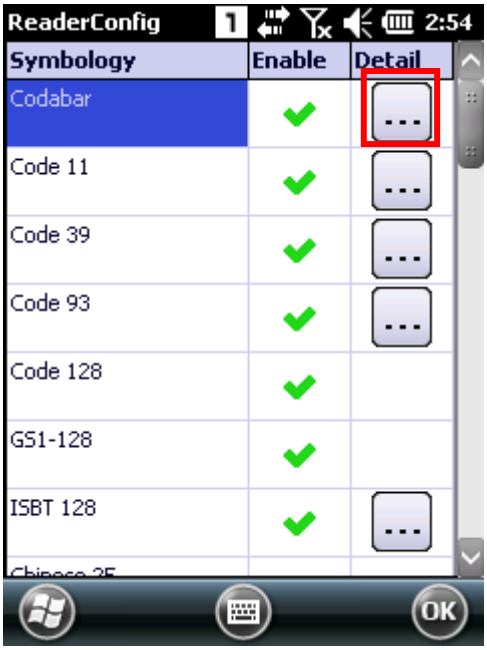


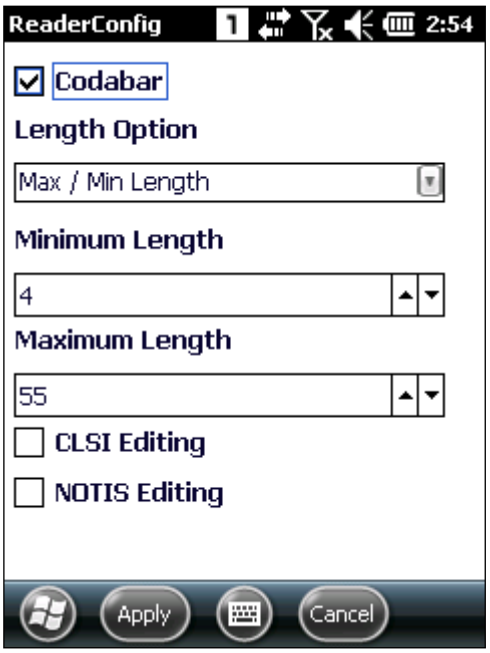
Tap to enable symbology



SYMBOLOGY SETTINGS

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

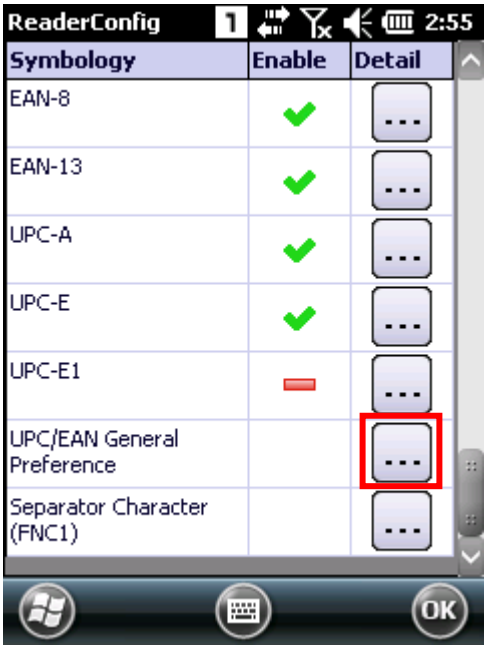


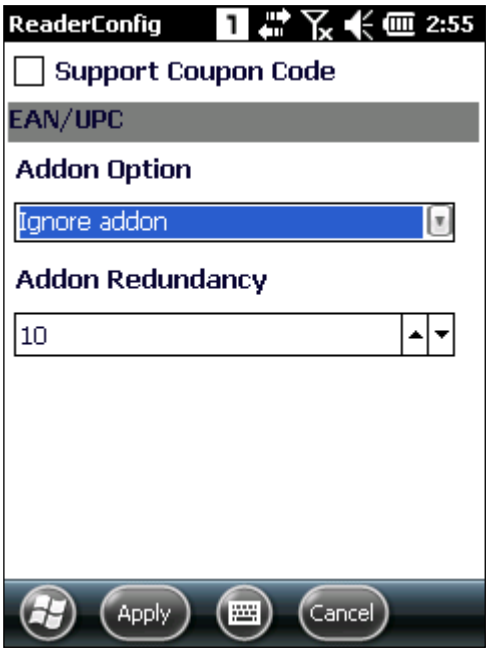


GENERAL PREFERENCES

For certain symbologies, common settings are 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.



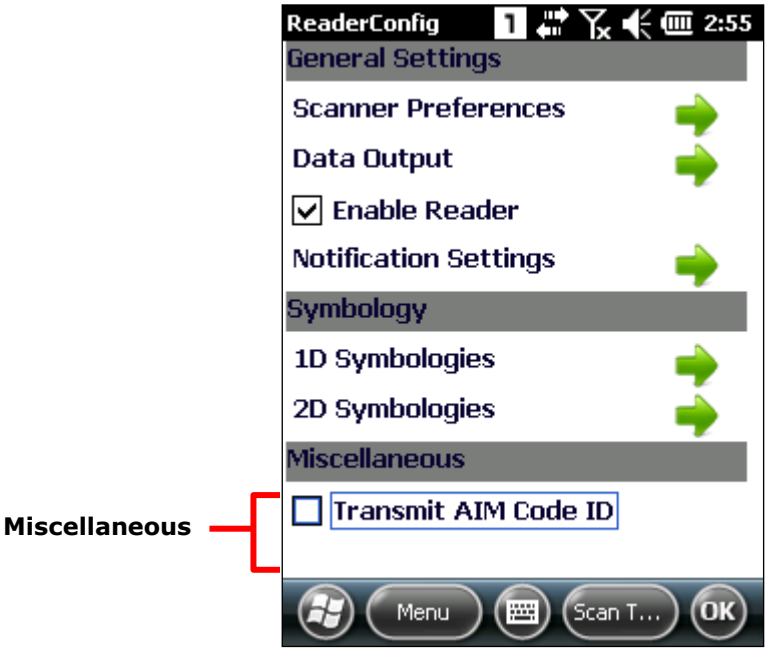


For details about the featured settings:

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

2.1.4. MISCELLANEOUS

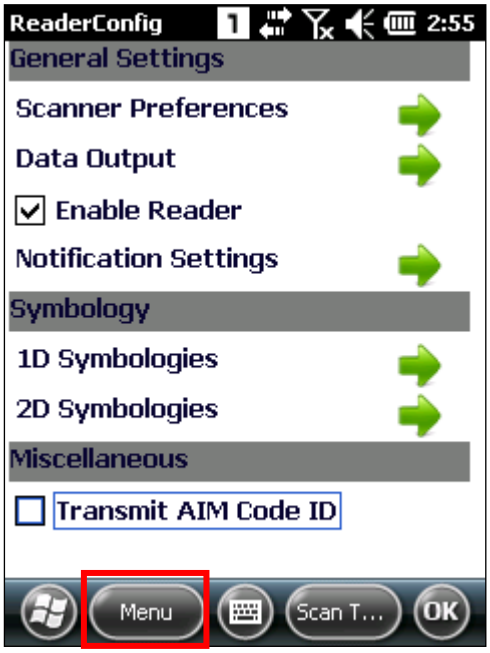
This section allows enabling code ID transmission for easy identification of the scanned barcode.

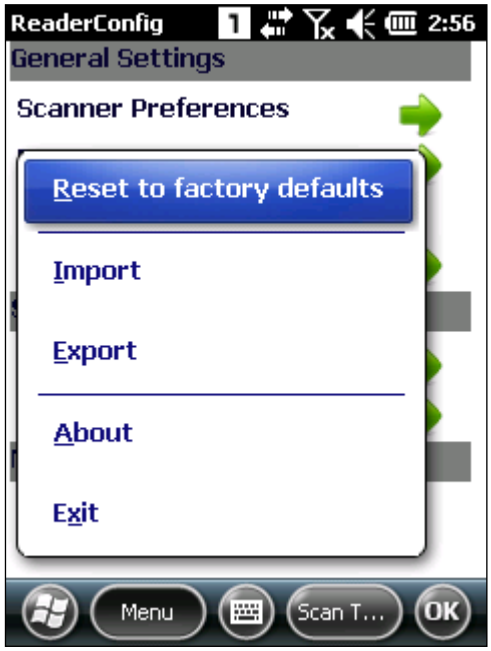


Setting	Description	Default
Transmit AIM Code ID	Sets whether to include AIM code ID character in the decoded data. For AIM code ID, see the following: ▸ Appendix II: CCD Symbology Settings ▸ Appendix III: 1D Laser Symbology Settings ▸ Appendix III: 2D Imager Symbology Settings	Deselected (Disabled)

2.1.5. READER CONFIG OPTION MENU

Reader Config provides an option menu which is accessible on the menu bar of the main settings page. This menu allows you to import/export all settings in a re-usable format, reset all settings back to factory default, view copyright and version information, and exit the application.





RESET TO FACTORY DEFAULT

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

To enable Factory Reset:

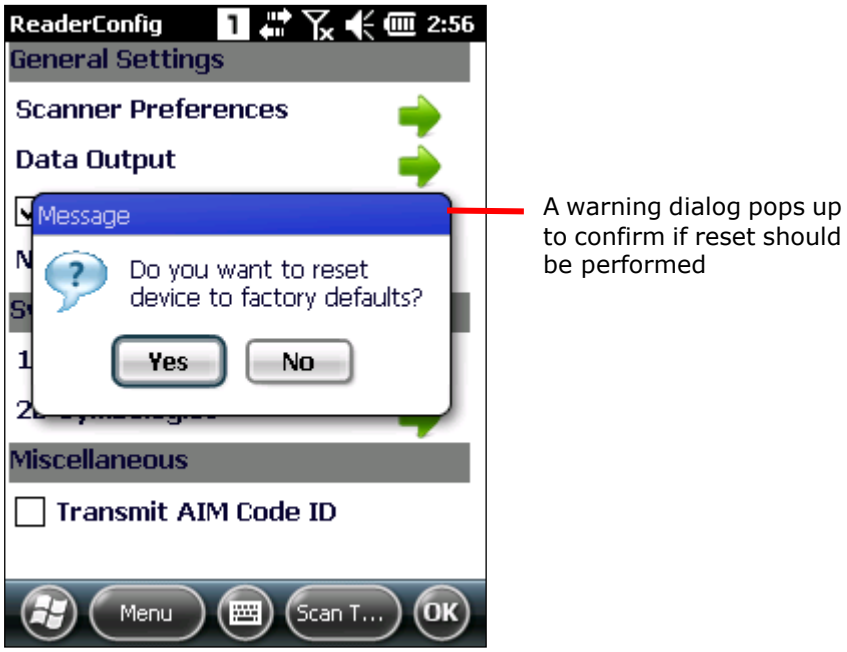
1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main view opens.

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

3) Tap **Reset to Factory default**.

4) A warning dialog appears confirming whether to restore all application settings back to default. Tap **Yes** to reset or **No** to close the dialog.



IMPORT AND EXPORT

Reader Config 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 Reader Config settings on two or more devices.

To import settings:

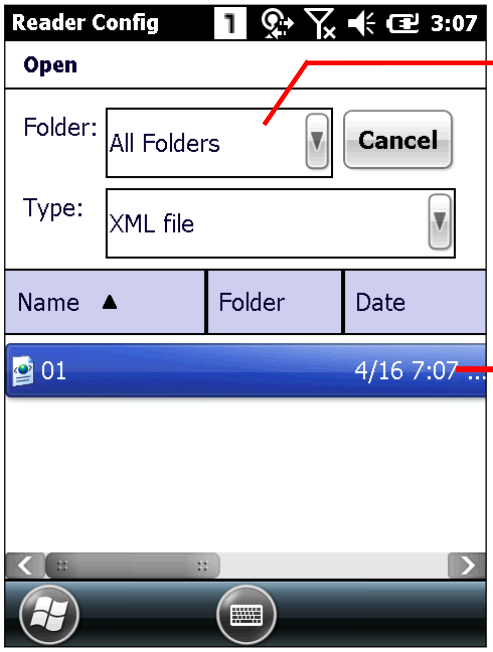
1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main view opens.

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

3) Tap **Import** in the option menu.

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



"All Folders" refers to all folders under **My Device\My Documents** directory

Select a previously exported profile

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

To export settings:

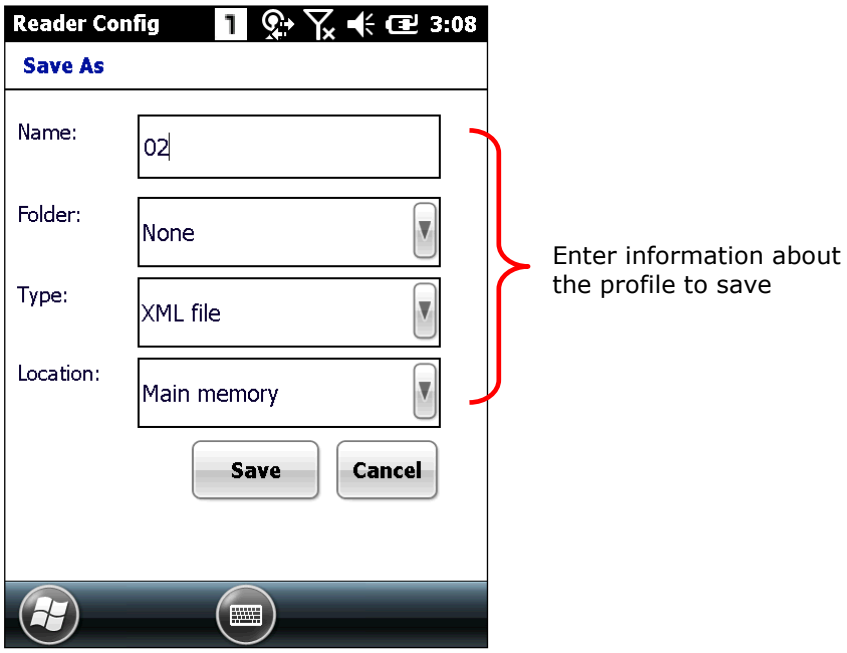
1) Open **Reader Config** as described in Launch Reader Config.

   Reader Config main view opens.

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

3) Tap **Export**.

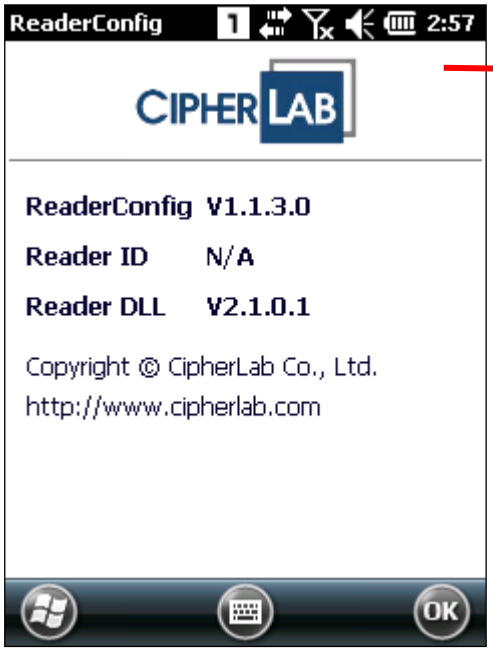
   An export page opens allowing you to enter and select information about the profile to be saved.



4) Enter file name, storage folder and location. Tap **OK** to export. A prompt will appear on-screen to notify that settings have been exported.

ABOUT

Tap **About** in the Reader Config option menu to display software version and copyright information.



Information about the software

2.1.6. READ PRINTED BARCODES

Aside from output to destinations as per Keyboard Emulation settings, Reader Config provides a **Scan Test** feature for quick viewing of decoded data.

To perform test scanning of barcodes:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap **Scan Test** on the menu bar.

   A Test Scan Form opens for displaying the scanned data.

3) Aim the scanning window at the printed barcode to read and press the scan key (or any of the two side triggers).

   The scanning light beams to read the printed barcodes.

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

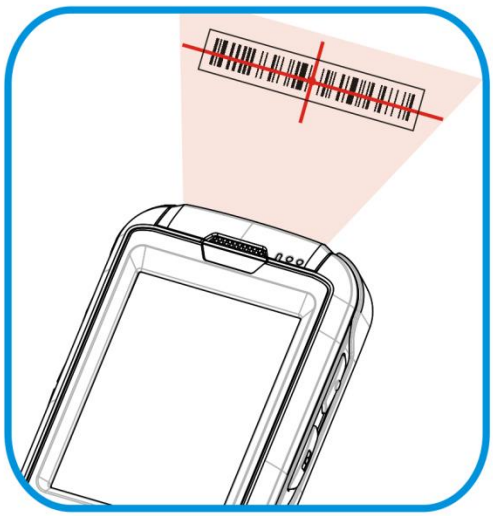
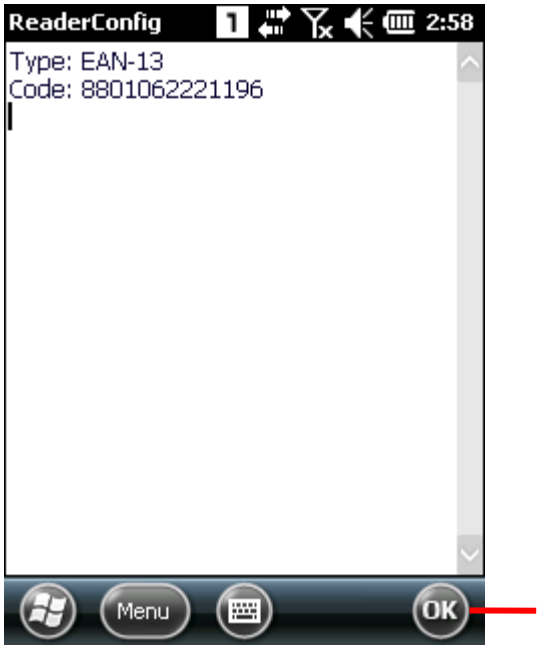


Figure 15: Read printed barcodes

The decoded data will appear on the page. When finished viewing, tap **OK** on the softkey bar to leave the test scan page.

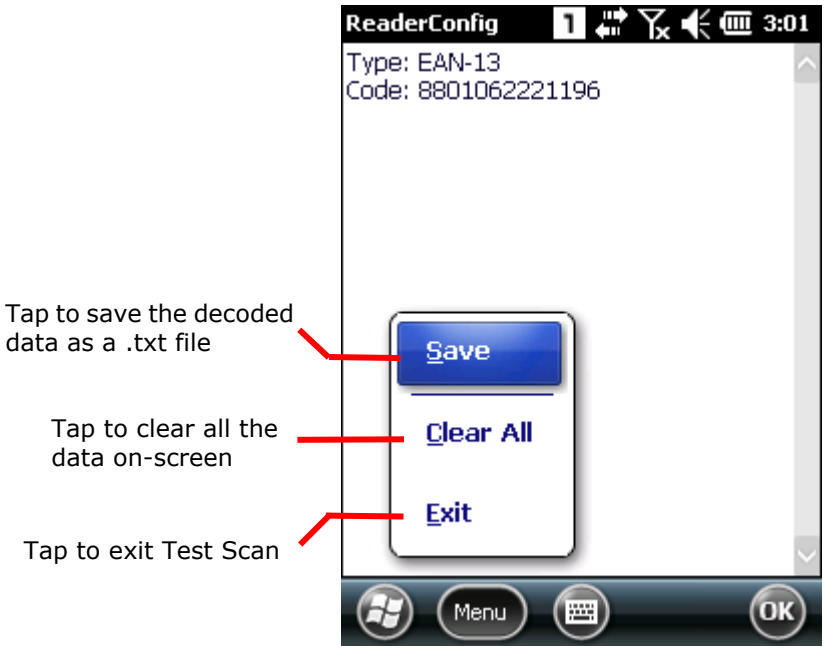


To display more information such as barcode type and length, configure the reader as in Data Output.

You may also configure the reader module before starting to collect data.

TEST SCAN MENU

Tap the **Menu** button to save the decoded data as a .txt file, clear all data shown on the screen, or exit the Test Scan page.



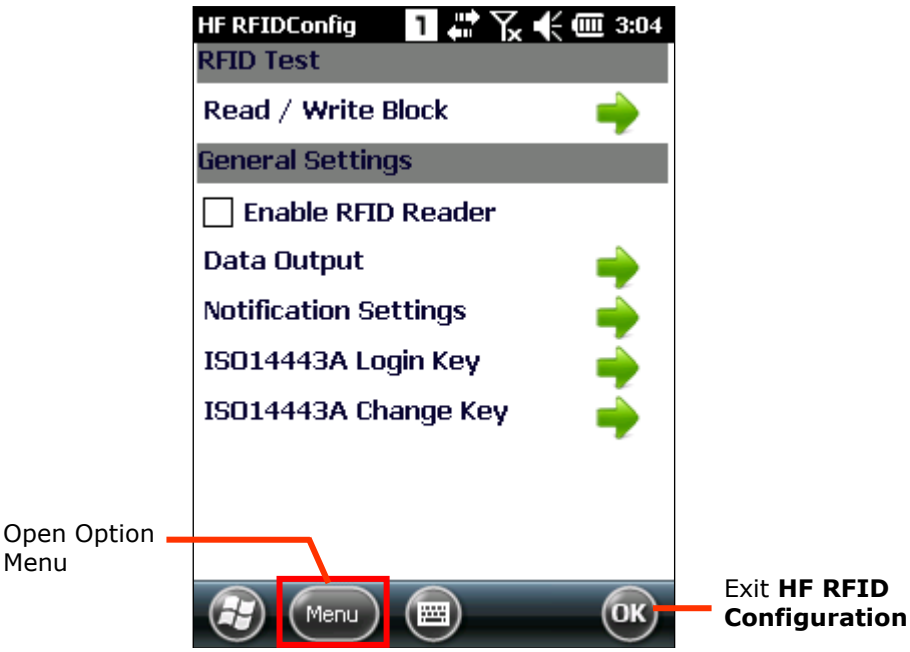
2.2. USE HF RFID CONFIGURATION

2.2.1. LAUNCH HF RFID CONFIGURATION

If the mobile computer is equipped with an RFID reader, you may use **HF RFID Configuration** to configure the RFID reader and test scan RFID tags.

I) Tap **Start** | **Settings** | **System** | **HF RFID Configuration**.  .

HF RFID Configuration main view opens showing two sections, **RFID Test** and **General Settings**.



2.2.2. GENERAL SETTINGS

General Settings can set the data output format, notification of successful reading/writing of RFID tags, and check or change ISO14443A Key A and Key B values. The following items are available.

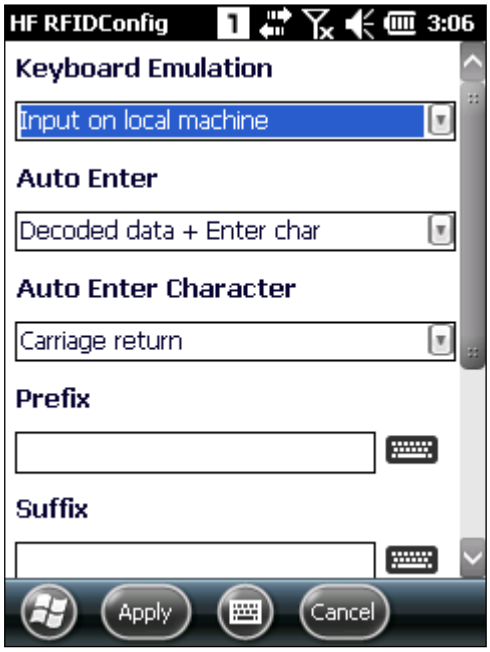
- Enable RFID Reader (Enabled by default)
- Data Output
- Notification Settings
- ISO14443A Login Key
- ISO14443A Change Key

DATA OUTPUT

Data Output chooses a location to export the decoded data, and the output format.

To open **Data Output** settings page:

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap the green arrow next to **Data Output**.



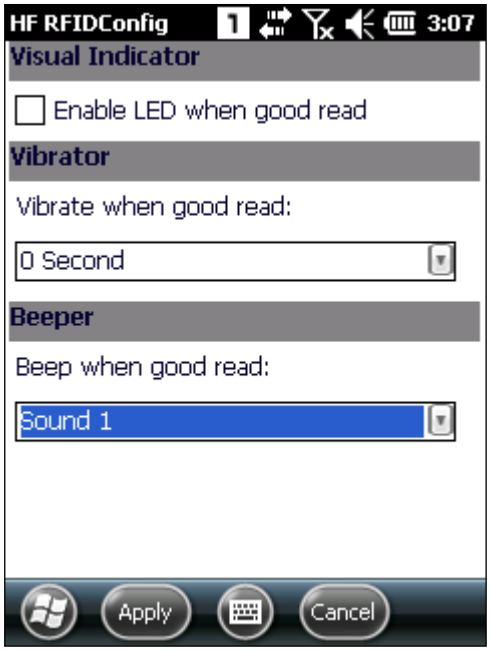
Setting	Description	Default
Keyboard Emulation	Treats decoded data as typed text and outputs it to the active application locally on the mobile computer or remotely on a connected computer. Options are: ▸ None: Disables **Keyboard emulation** whereby decoded data won't be output. ▸ Input on local machine: Passes decoded data to the active application on the mobile computer (for instance, Wordpad). ▸ Input on remote PC: Passes decoded data to the active application on the remote computer connected. (Note this option is unable to pass double-byte characters such as Big-5 or Unicode characters.)	Input on local machine
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	Scan + Enter Char
Auto Enter Char	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
Prefix String	Affixes 0 to 10 characters to the left of the output data. Tap the keypad icon to open a table for entering invisible characters.	NULL
Suffix String	Affixes 0 to 10 characters to the right of the output data. Tap the keypad icon to open a table for entering invisible characters.	NULL
Display the UID	Outputs the UID of the RFID tag to read.	Selected (Enabled)
Display the user data	Outputs the user data of the RFID tag to read.	Deselected (Disabled)
Start byte	Defines the position to start reading/writing data. Available for setting between -1 to 64. See Appendix V: RFID Tag Default .	-1 (default block, byte 0)
Data length	Sets how many bytes of data to collect. Available for setting between 1 to 128.	10
Field delimiter	Sets the delimiter to separate the output RFID data to the following pieces: UID and user data (if applicable). Options are: ▸ Comma ▸ Semicolon ▸ Full stop	Comma

NOTIFICATION SETTINGS

Notification Settings control if a successful decoding is made recognizable through audible, visible and/or tactile feedback.

To open **Notification Settings** page:

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap the green arrow next to **Notification Settings**.

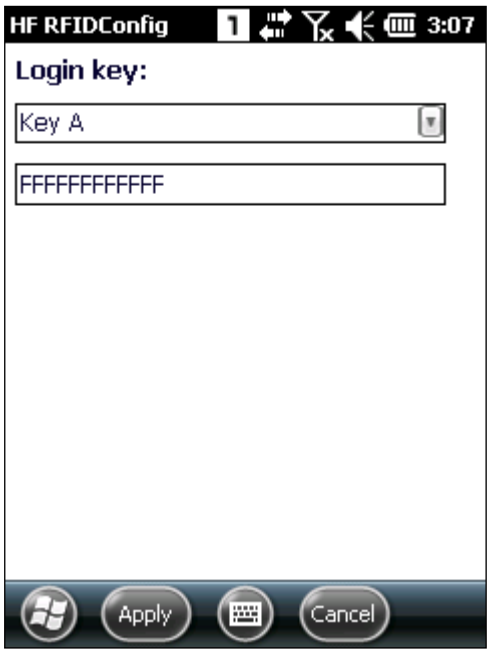


Setting		Description	Default
Visual Indicator	Enable LED when good read	Enables/disables the speaker to sound for good read. Sounds 1 to 9 are configurable.	Deselected (= disabled)
Vibrator	Vibrate when good read:	Enables/disables tactile feedback (vibration) for good read and sets its duration. Configurable duration is 0 to 9 seconds.	0 (= disabled)
Beeper	Beep when good read:	Enables/disables speaker to sound for good read. Either set the beeper to mute, or configure between sounds 1 to 9.	Sound 1

ISO14443A LOGIN KEY

Some RFID tags support authentication for security concerns, such as Mifare Standard 1K/4K and SLE66R35 tags. The security keys, Keys A and Key B, are two keys that enable the RFID reader to access (read or write) data blocks on a Mifare tag. Enter the keys before proceeding to Read and Write RFID Tags.

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap the green arrow next to **ISO14443A Login Key**.
3) Select Key A or Key B in the drop-down box. The field below displays the key value.

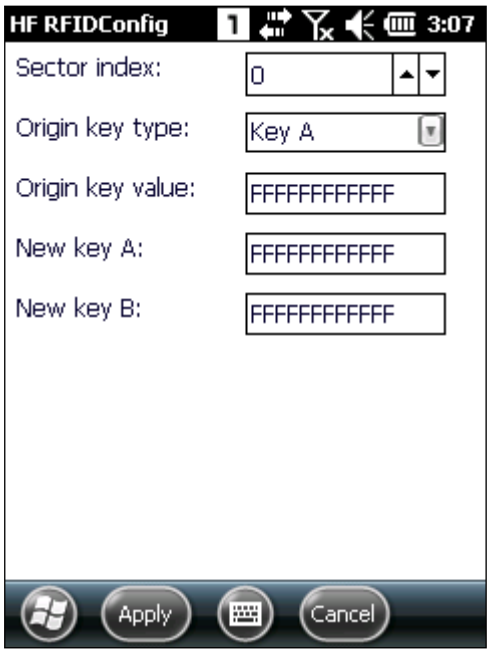


Setting	Description	Default
Login Key	Use the **Login key** drop-down box to select Key A or Key B, and enter its current value in the field below. ▸ Keys A and B are what the RFID reader module relies on to access (read or write) an RFID tag. By default, both keys are a sequence of twelve "F" characters, which is the factory default for Mifare tags. If the login key has been changed, enter its new value in the field below. ▸ If necessary, modify the key values under ISO14443A Change Key.	Key A and FFFFFFFFFFFF

ISO14443A CHANGE KEY

You may change the Keys A and/or B used to access an RFID tag. To change the value of key A or key B:

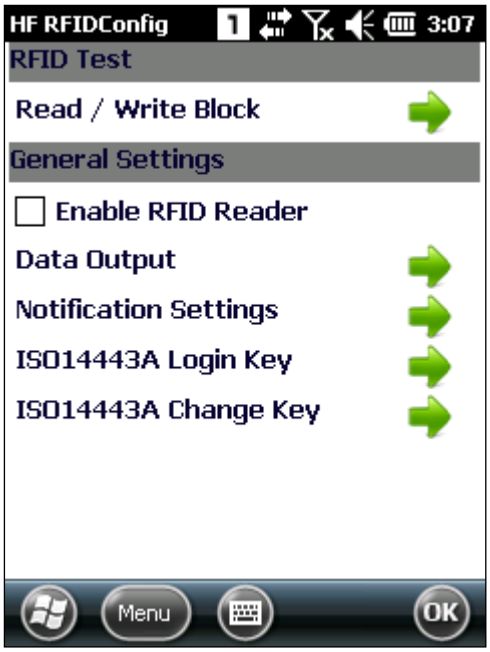
1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap the green arrow next to **ISO14443A Change Key**.
3) Enter the original value of key A or key B, the new assigned value, and the sector to implement the change.
4) Place the RFID tag in proximity to the mobile computer's back cover, where the RFID reader module is installed.
5) Tap **Apply** in the upper left corner to implement the change.



Setting	Description	Default
Sector index	Sets the sector to apply the change.	0
Origin key type	Select to change either key A or key B.	Key A
Origin key value	Enter the original value of the key.	FFFFFFFFFFFF
New key A	Assign the new value of key A, which must be a hex string of 12 bytes. The value of key A must be filled whether or not you would like to change its value.	FFFFFFFFFFFF
New key B	Assign the new value of key B, which must be a hex string of 12 bytes. The value of key B must be filled whether or not you would like to change its value.	FFFFFFFFFFFF

2.2.3. HF RFIDCONFIG OPTION MENU

On the **HF RFIDConfig** main view is a menu button which allows you to import and export the settings, reset all settings back to default, check software version and developer information, or exit the application.



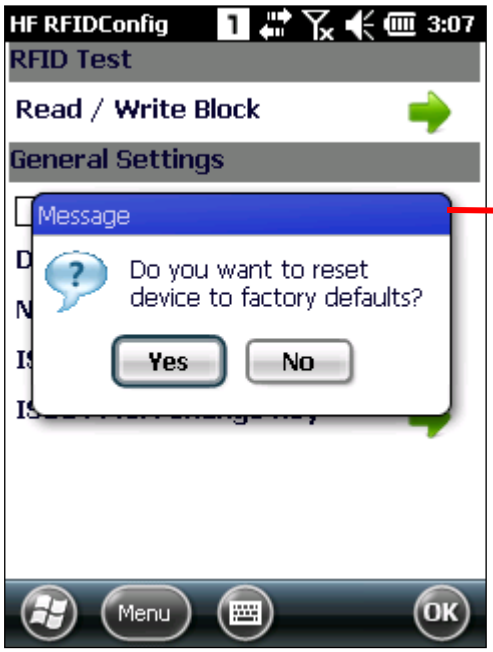
RESET TO FACTORY DEFAULT

This function restores all settings in **HF RFIDConfiguration** to default.

To reset the settings to default:

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap **Menu** button on the menu bar to open the option menu.
3) Tap **Reset to Factory default**.

   A warning dialog appears confirming whether to restore all application settings back to default. Tap **Yes** to reset or **No** to close the dialog.



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

IMPORT AND EXPORT

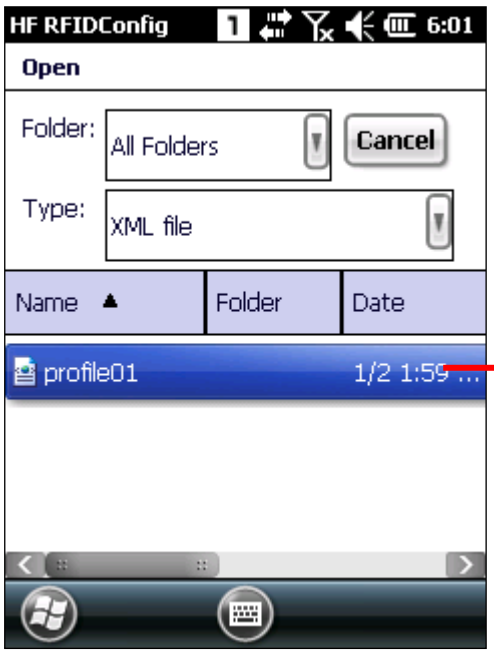
HF RFID Configuration supports saving the settings and exporting them as an .xml file.

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

To import settings:

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap **Menu** button on the menu bar to open the option menu.
3) Tap **Import** in the option menu.

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

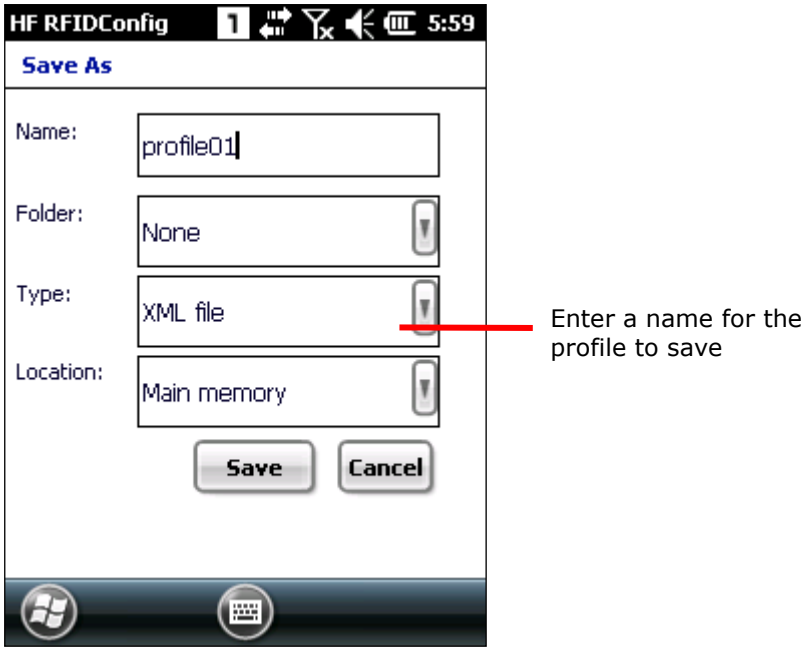


4) Select the profile you would like to apply and tap **OK**. An alert sound will play to indicate the settings have been imported successfully.

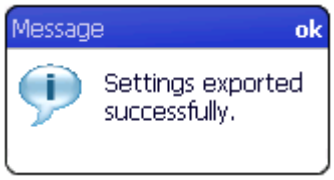
To export settings:

1) Launch the RFID reader as described in Launch HF RFID Configuration.
2) Tap **Menu** button on the menu bar to open the option menu.
3) Tap **Export**.

   An export page opens allowing you to enter and select information about the profile to be saved.

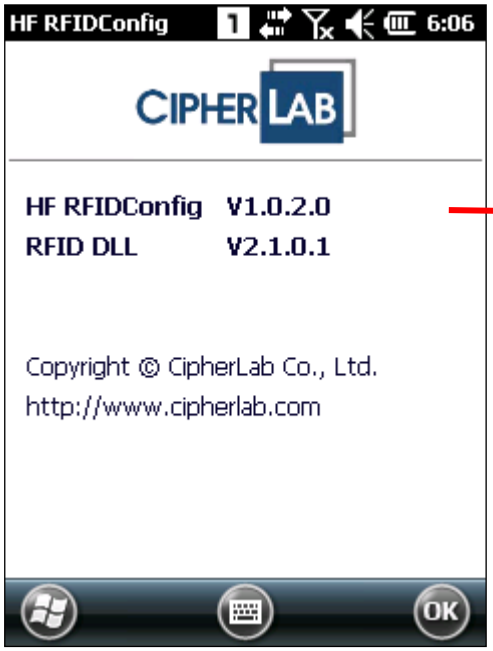


4) Enter file name, storage folder and location. Tap **OK** to export. A prompt will appear on-screen to notify that settings have been exported.



ABOUT

Tap **About** in the HF RFID Configuration option menu to display software version and copyright information.



Information about the software

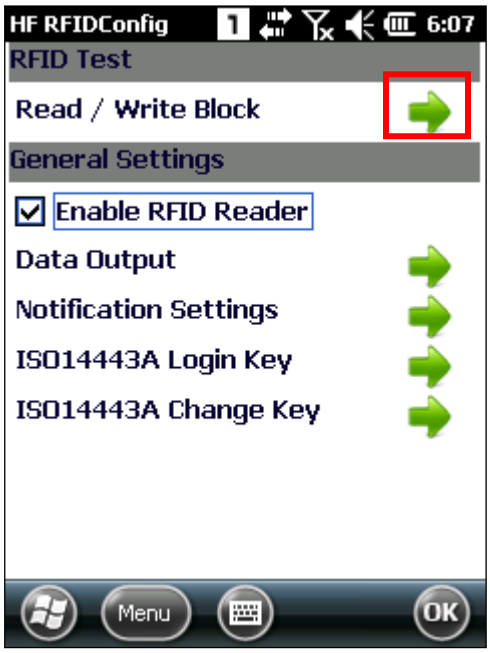
2.2.4. READ AND WRITE RFID TAGS

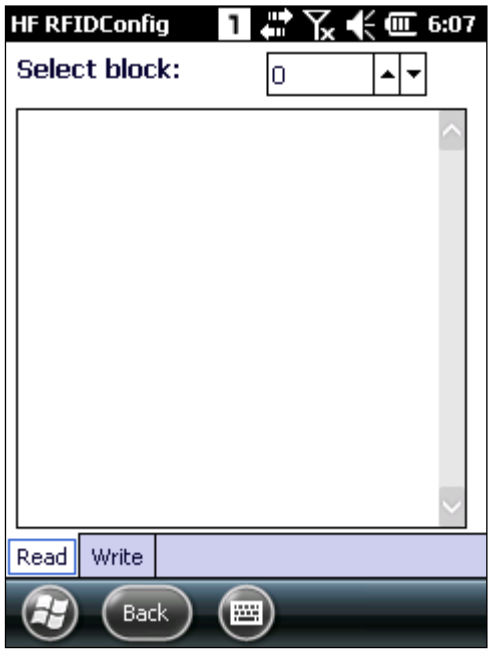
To read an RFID tag:

1) Adjust the RFID reader settings first. For instance, specify how many bytes you would like to read from the tag, the start position to collect data, where and how to output data in Data Output. If security keys are needed to access the data on the RFID tag, specify Key A and/or Key B in ISO14443A Login Key.

2) Tap the green arrow next to **Read / Write Block**.

   Read tab page opens with a blank test scan page to display the decoded data.

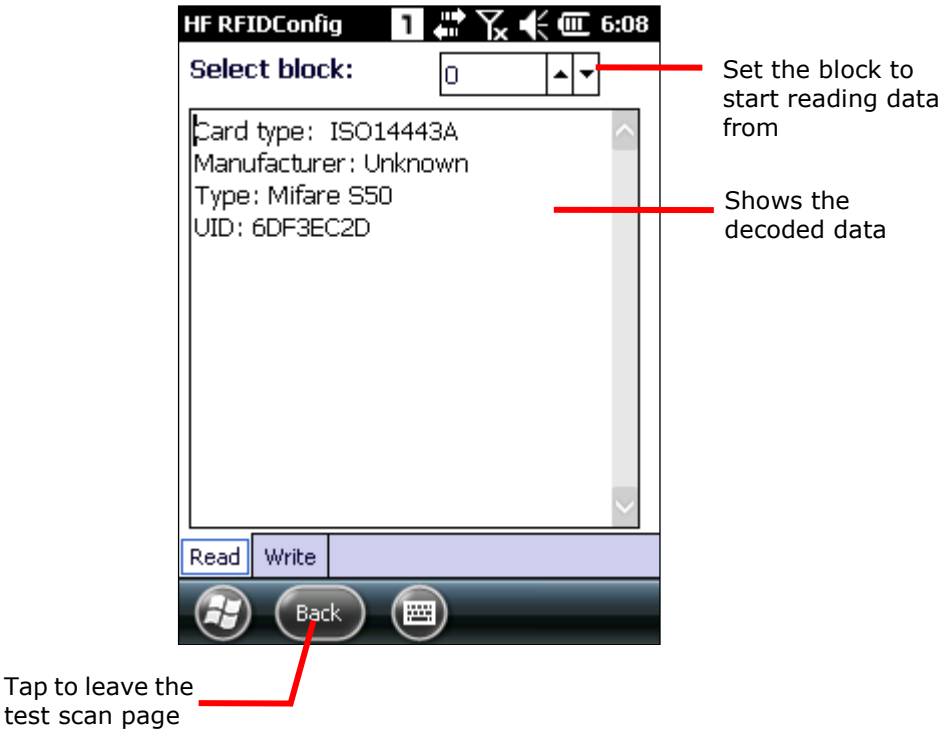




3) Place the RFID tag in proximity to the mobile computer's back cover, where the RFID reader module is installed.

4) Press the scan key (or side trigger) on the mobile computer. The RFID reader will scan for RFID tags within reading range.

The decoded data will display in the test scan field below. Tap **Back** in the upper left corner to leave the test scan page.

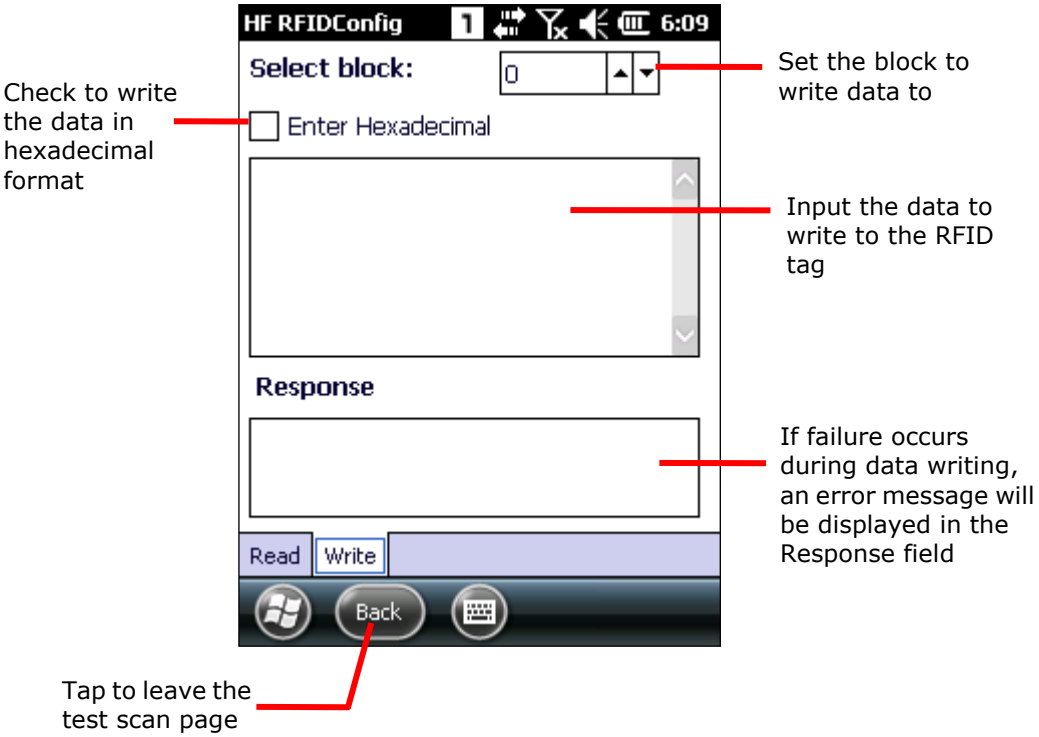


Note: Refer to the specifications of the RFID tag to read for its memory organization.

To write data into an RFID tag:

1) Tap **Write** tab page.
2) Input the data you would like to write in the blank field below.
3) Press the scan key (or side trigger) on the mobile computer.

   If data failed to write into the RFID tag, an error message will display in the **Response** field below.



Note:

(1) Generally the readable RFID data lies in user block. If the data to collect confides in a non-user block such as the lock block, select **Display hex values** lest the data to collect involves any invisible character.

(2) Different RFID tags may have different default blocks (also "pages"), and different amount of bytes and number of blocks. The data written will be truncated to fit inside the blocks of the targeted RFID tag. Therefore part of the data may be discarded when it comes to the end of a block. Refer to RFID Tag Default .

(3) You may set the start byte to read/write data and the length of the data to read/write on the Data Output page.

Chapter 3

CAMERA

The mobile computer is equipped with a 5.0 mega-pixel camera. The OS also has an integrated camera application for taking pictures and storing them on the mobile computer's storage where they can be viewed, edited and output.

The camera application provides users with customization that allows better image documentation.

This chapter will guide you to use the camera.

Note: When the camera is active, the 2D imager will be temporarily out of service. To re-launch the reader module, close the camera application.

IN THIS CHAPTER

3.1. LAUNCH CAMERA

To launch the camera:

1) Tap **Start** | **Pictures & Videos** | **Camera**  .

   Camera application opens and is ready to take pictures.

3.1.1. CAMERA SCREEN

Camera opens showing a subject area on the screen, and a toolbar at the top, which you may use to open **Photo Viewer**, take pictures, adjust camera settings, or exit the camera application.

3.2. TAKE PICTURES

To take a picture:

1) Open camera as described in Launch Camera.
2) Enable/disable camera flash and adjust picture quality or other settings according to your preferences. See Camera Settings.
3) Frame your object on the screen.
4) Press the Camera shutter button on the right side of the mobile computer to take the picture.

   After the picture is taken, a preview of it will appear briefly on the screen. A pop-up window will show asking whether you would like to save the picture taken.

   By default, pictures taken will be stored under **My Device\My Documents\DCIM** in .jpg format. To change the default storage path, see Camera Settings.

3.2.1. CAMERA SETTINGS

The camera supports changing resolution, flash light mode, camera effect, brightness, and default file storage format and location.

To access camera settings:

1) Open camera as described in Launch Camera.
2) Tap **Menu** button in the toolbar.

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

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

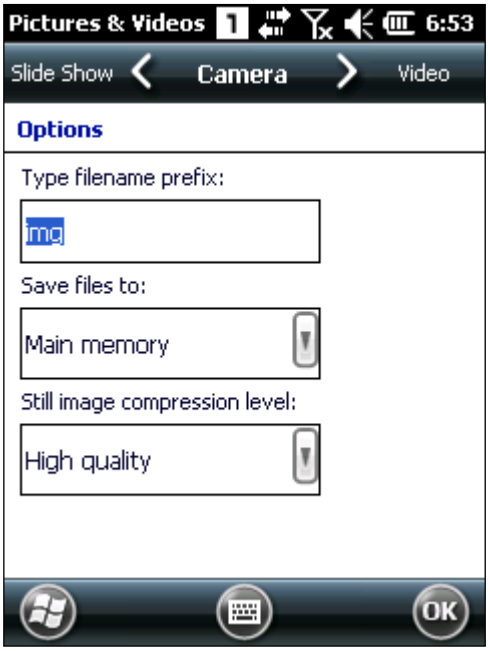
Available settings are detailed as below:

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: 240x320, 480x640, 960x1280, 1200x1600, 1536x2048, 1944x2592.
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 tab pages: **Camera**, **Video**, **General**, and **Slide Show**.

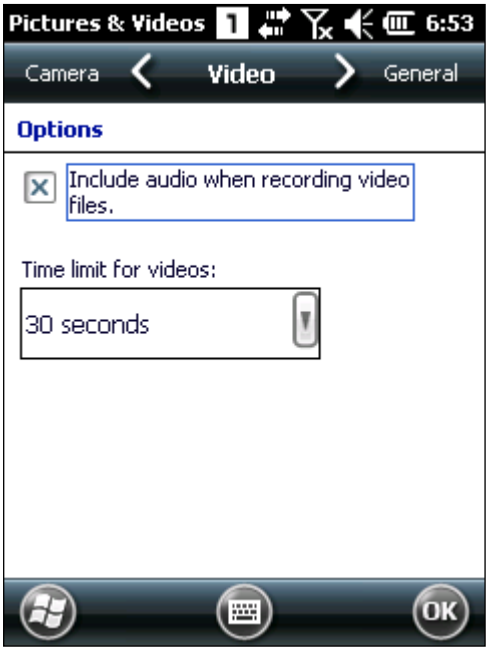
Camera tab page:

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



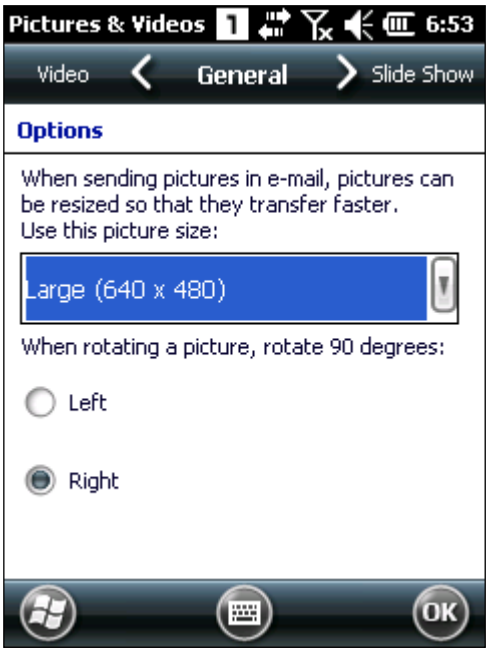
Video tab page:

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



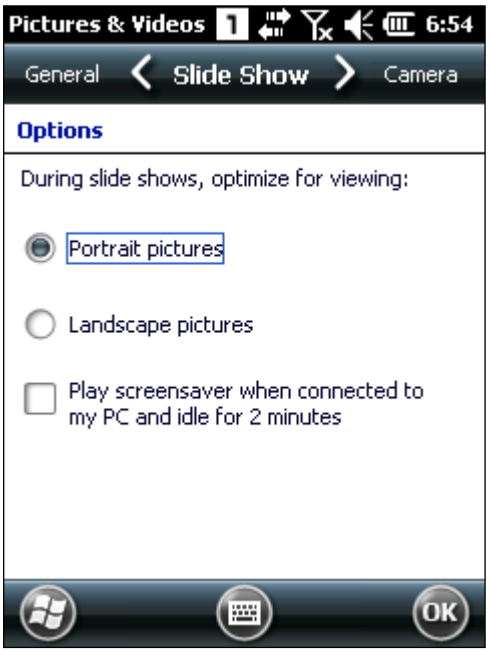
General tab page:

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



Slide Show tab 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

To launch the video camera:

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

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

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

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

3) 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 tab pages: **Video**, **General**, **Slide Show** and **Camera**. These are the same as described in Camera Settings.

3.5. VIEW PICTURES

Pictures & Videos is an application that views and edits the pictures taken and videos shot, or those copied or downloaded. It also sets the background picture 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

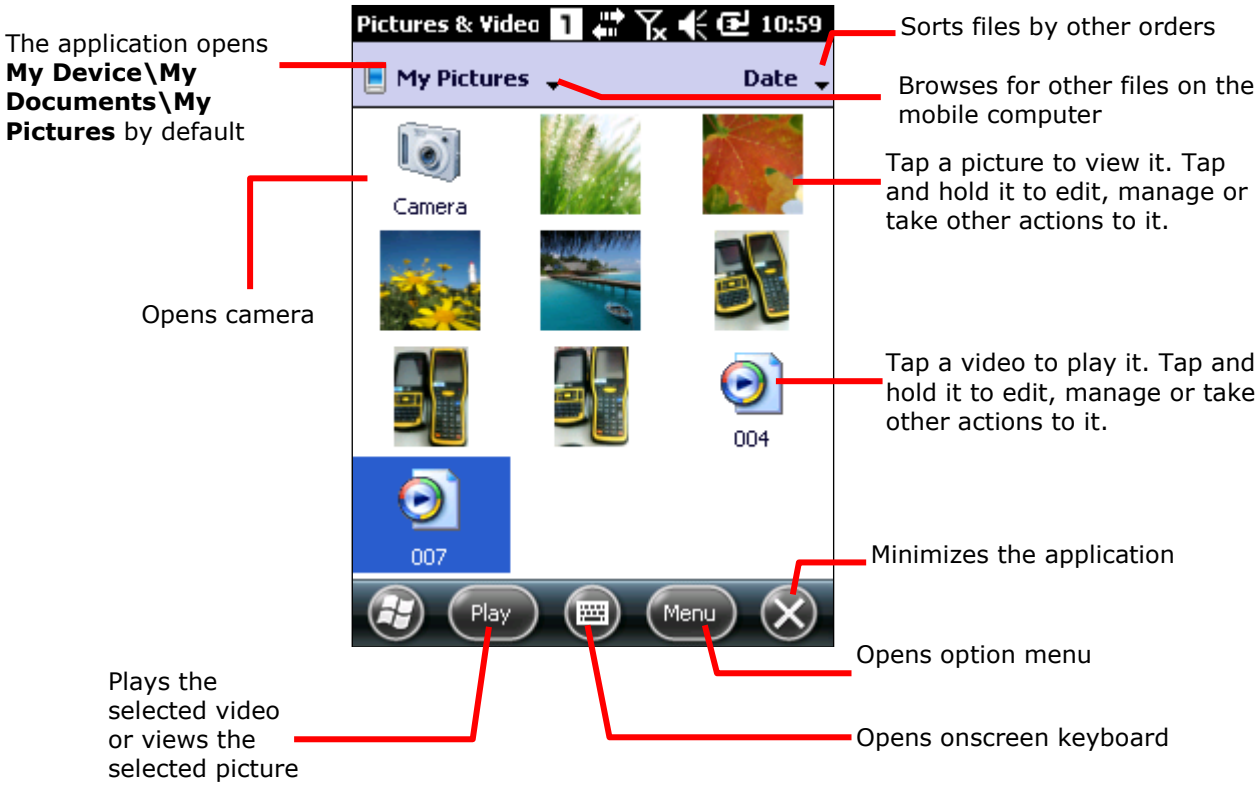
To launch Pictures & Videos:

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

OR

Tap **Thumbnails** button on the camera or video recorder menu bar.

Pictures & Videos opens showing the pictures and videos stored under **My Device\My Documents\My Pictures**. Supported file formats include jpg, .png, .bmp, .gif.



VIEW A PICTURE OR VIDEO

To view a picture or video:

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

Tap the thumbnail of the picture or video to view. 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. Windows Embedded Handheld 6.5 bears much similarity to desktop OS, and users rely only on a few basic gestures such as tap, double-tap and drag to navigate within the OS.

IN THIS CHAPTER

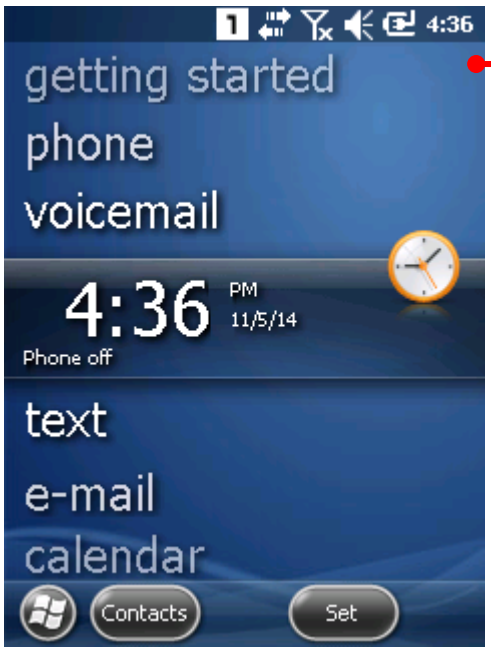
4.1. 1ST STARTUP

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.

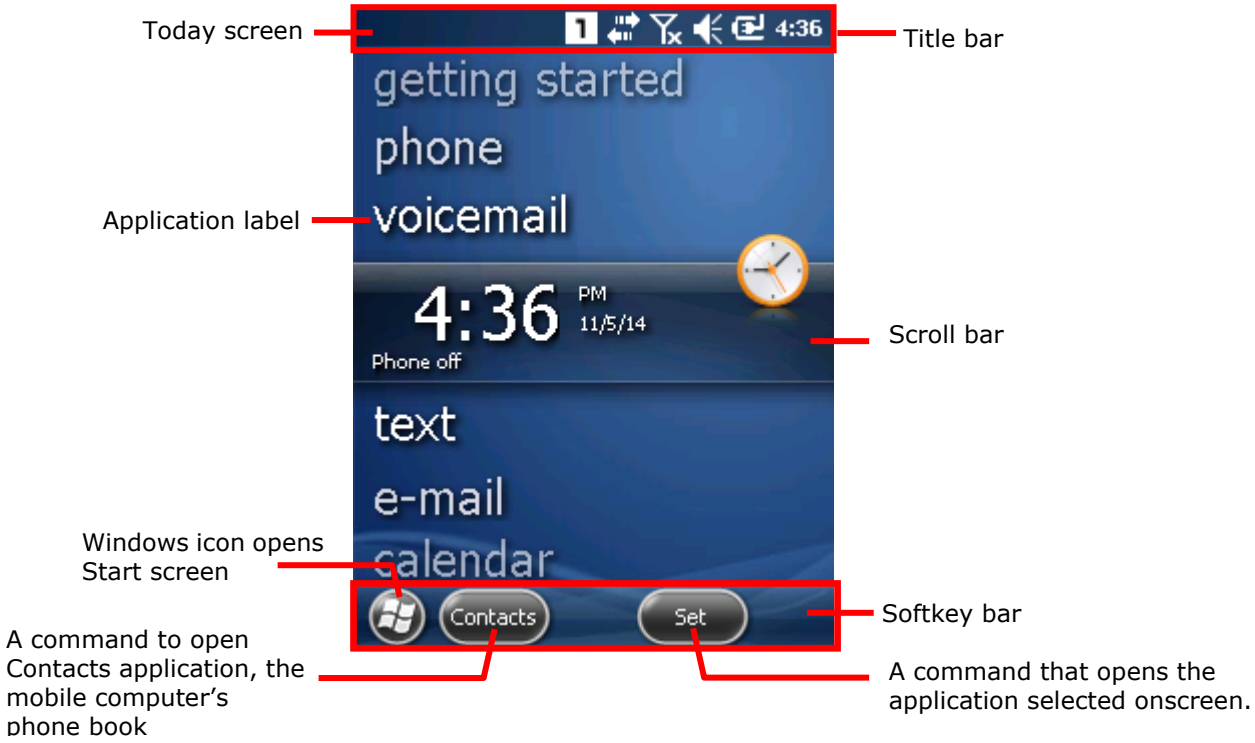
When the mobile computer first powers on, the OS boots into Today Screen:



4.2. TODAY SCREEN

It is the 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:

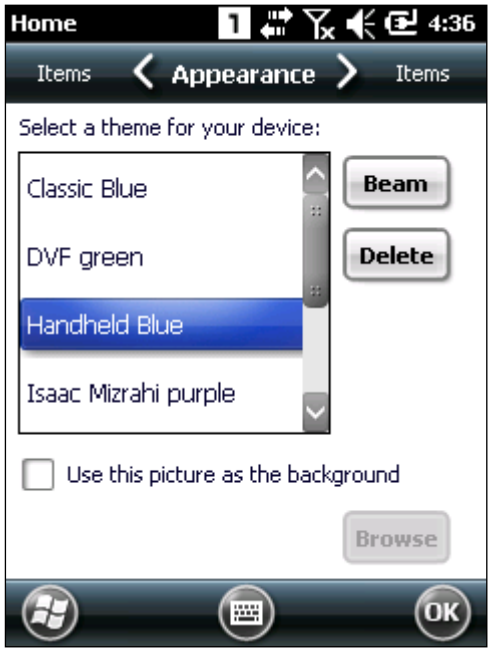
1) Tap Windows icon on the softkey bar.
2) Tap **Settings** | **Home**.

   Home settings open.

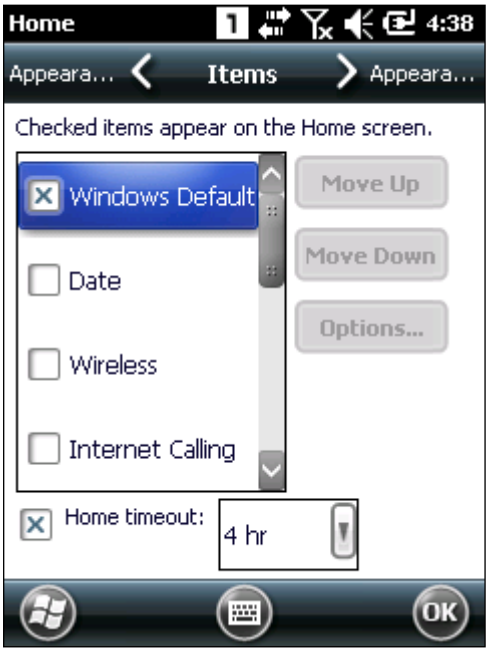
3) Select between **Appearance** and **Items** tabs.

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

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



Home Settings
- Items tab 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.

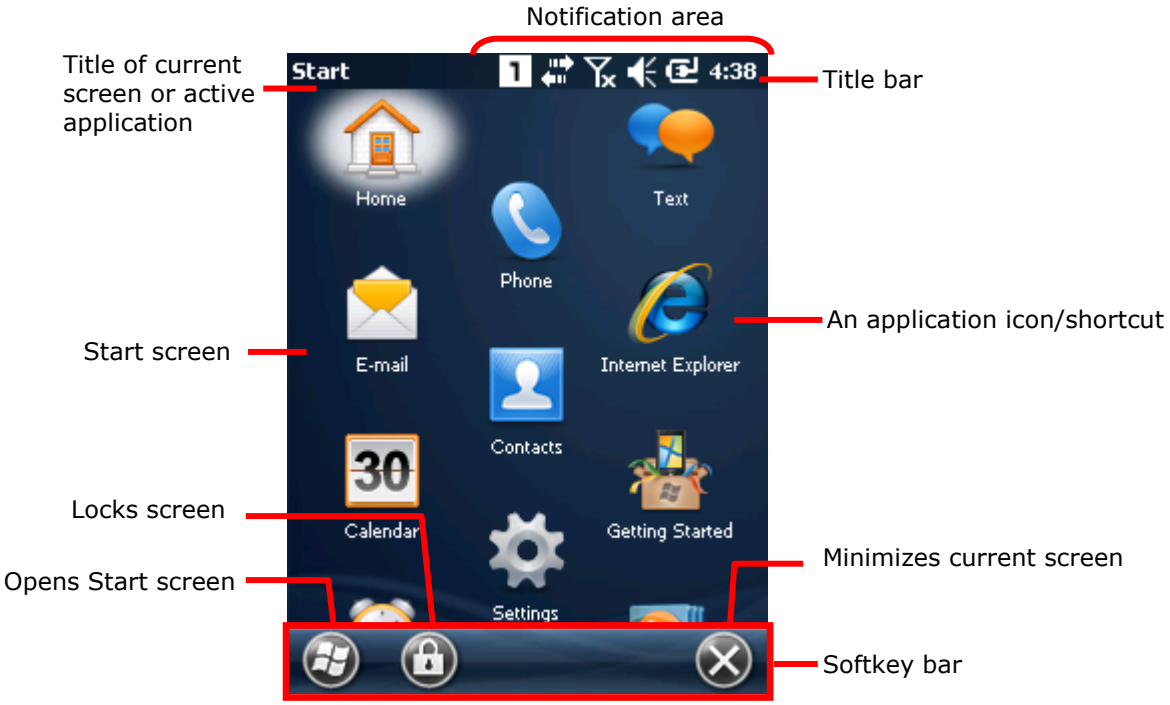
4.3. START SCREEN

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:



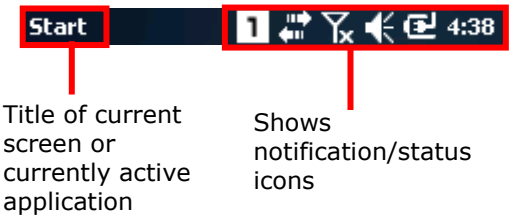
Facility	Description
Start screen	Accesses all applications and settings.
Notification area	Shows the time, radio signal strength, battery status, and other information. It also displays notification icons and status icons.
Minimize button	Minimizes the active application or current screen.
Windows icon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

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 the 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.)

Enters numbers and symbols.
- Press Alpha key to convert to alphabetic input.

Enters alphabetic letters.
- Press Shift key to switch between uppercase and lowercase letters.
- Press Alpha key to convert to numeric/symbolic input.

Keypad Function mode is on.

System sound enabled

System sound muted

Vibrator on

No SIM card installed

3G+ network available

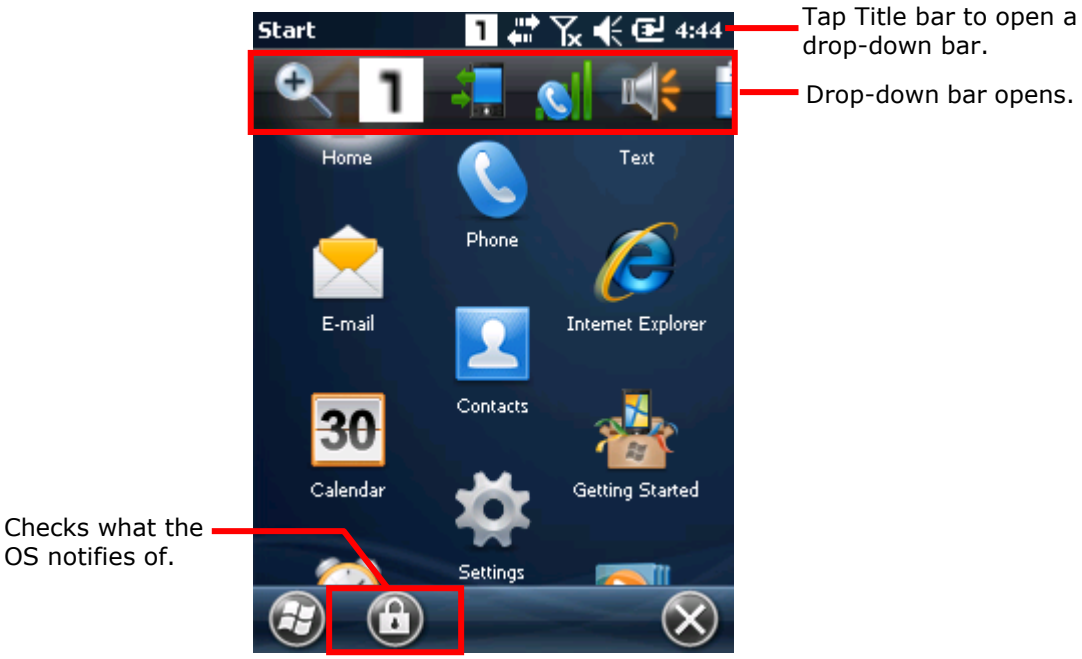
3G+ network connected

3G	3G network available
3G	3G network connected
H	HSDPA network available
H	HSDPA connected
E	EDGE network available
E	EDGE connected
G	GPRS network available
G	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.
	Indicates the current keypad input state. "1" indicates the keypad is in numeric input mode; "a" indicates the keypad is in alphabetic input mode.
	Leads to **Wireless Manager** and **Connections** (Manager) where your current mobile data can be viewed and configured.
	Leads to **Wireless Manager**.
	This icon signifies Wi-Fi network(s) are available. See Use Wi-Fi for how to set up a Wi-Fi connection.
	Delivers current system volume and opens volume settings. See Volume Control for more details.
	Opens power settings where battery level and charging status can be viewed. See Monitor Battery Level.
	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 tab page opens.

2) Tap 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 screen, 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\Start Menu\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 application.
	Text	Sends SMS text messages.
	E-mail	Pens and sends emails.
	Contacts	Shows and searches for contact information stored on the mobile computer.
	Internet Explorer	Browses world wide web.
	Calendar	Creates and manages events, meetings, and appointments.
	Settings	Accesses system settings. See System Folder 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 or copied.
	Windows Media	Plays audio/video files.
	MSN Weather	Checks the weather of your locale and other parts of the world.

	MSN Money	Checks stocks.
	Calculator	Performs mathematical calculations.
	Games	Mobile device games provided by Microsoft.
	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.
	Internet Sharing	Shares the mobile computer's mobile data connection with another computer through a USB cable, serial cable or Bluetooth.
	Task Manager	Monitors the active applications and CPU/memory usage on the mobile computer. See Task Manager.
	Search Phone	Searches contacts, files and other data on the mobile computer.
	Help	Accesses OS online help.
	CipherLab Utilities	This folder contains more CipherLab-developed applications that are preinstalled on the mobile computer and which strengthen the user's system management.
	Office Mobile 2000	Opens Microsoft Office suite applications including Excel Mobile, SharePoint WorkSpace Mobile, OneNote Mobile, Word Mobile, and PowerPoint Mobile.
	Google Maps	Opens Google Map application.
	Remote Desktop Mobile	Connects to a remote computer.

4.4. 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.

4.4.1. 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.

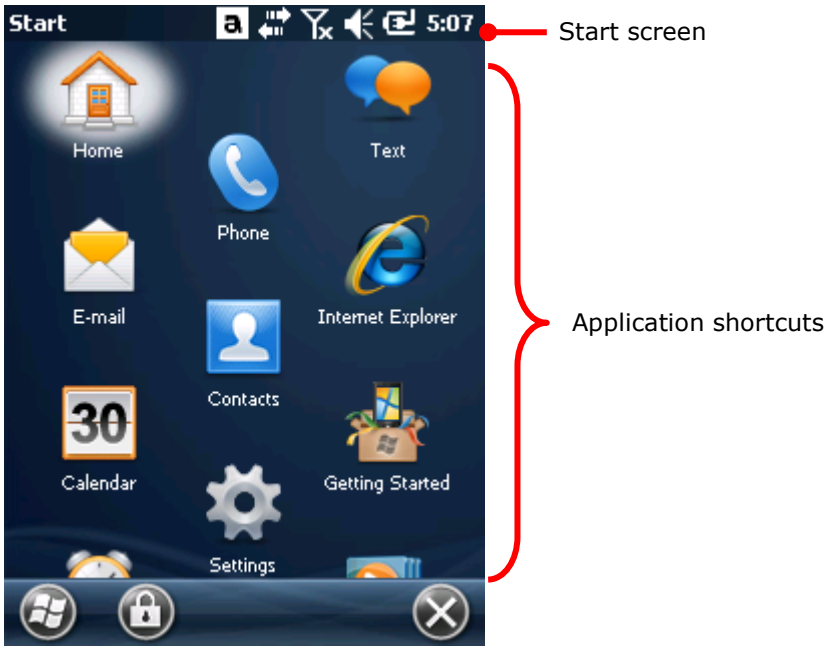
If an emergency call number is entered, the buttons to place and end calls display.

3) Follow onscreen instructions to proceed.

4.5. 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.



4.5.1. 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

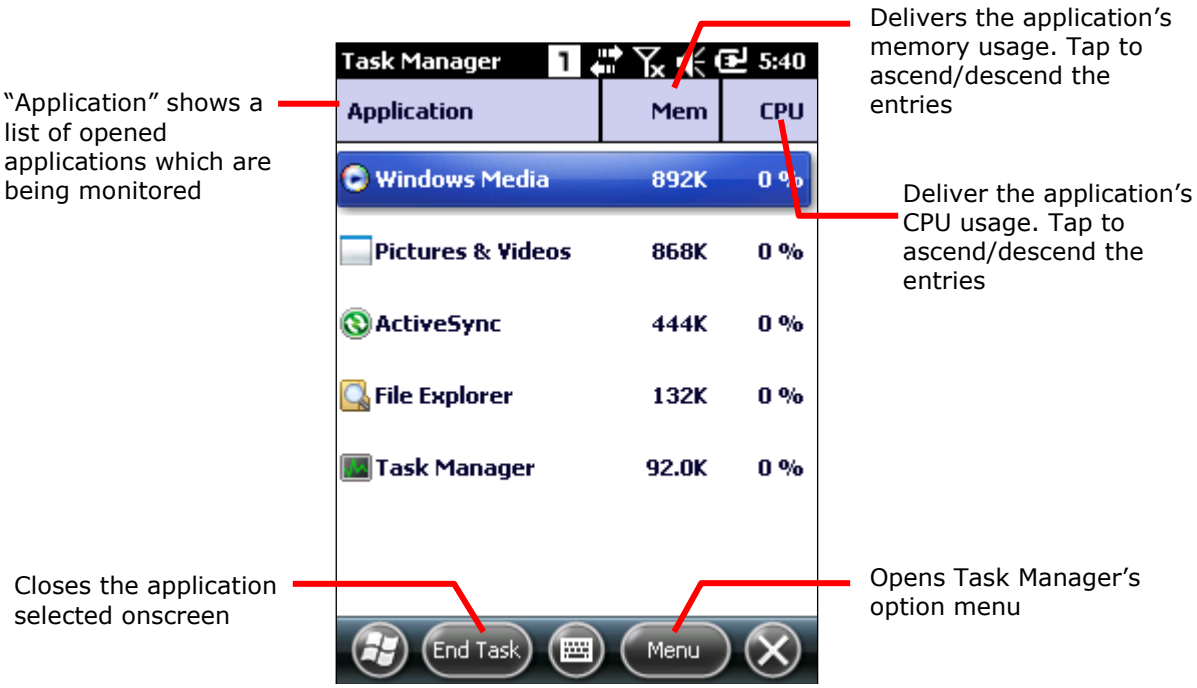
To launch Task Manager:

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 monitoring:



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:

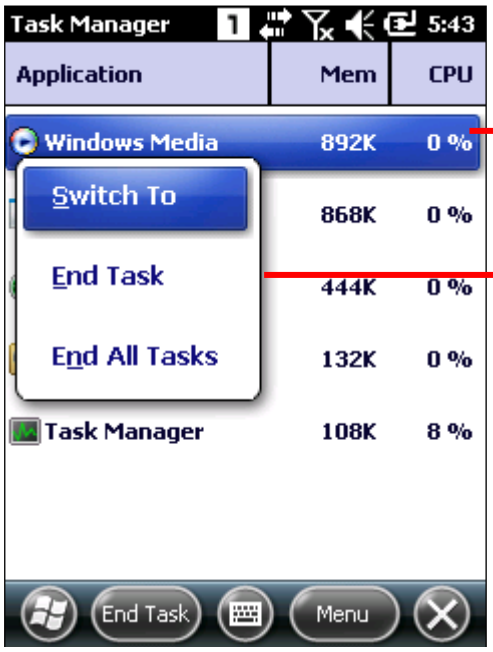
1) Launch Task Manager as described in Launch Task Manager.

   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.

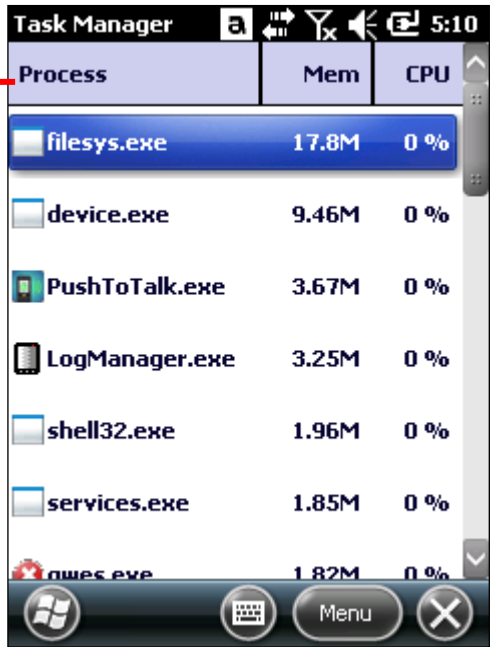
   Task Manager opens monitoring opened applications.

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.

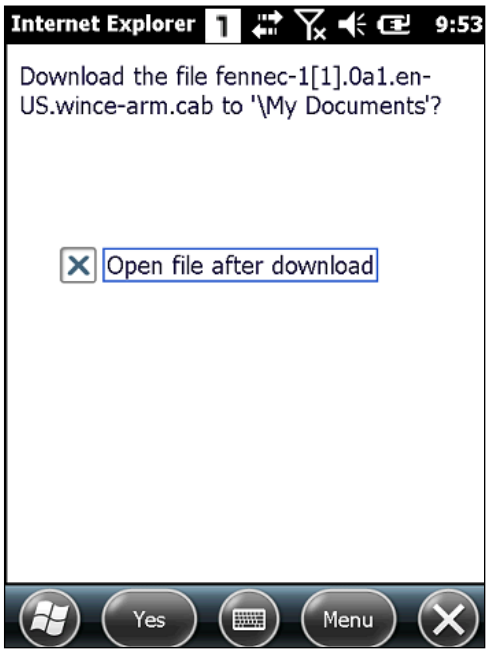
Warning: To protect your mobile computer and personal data, always download applications from trusted sources.

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.

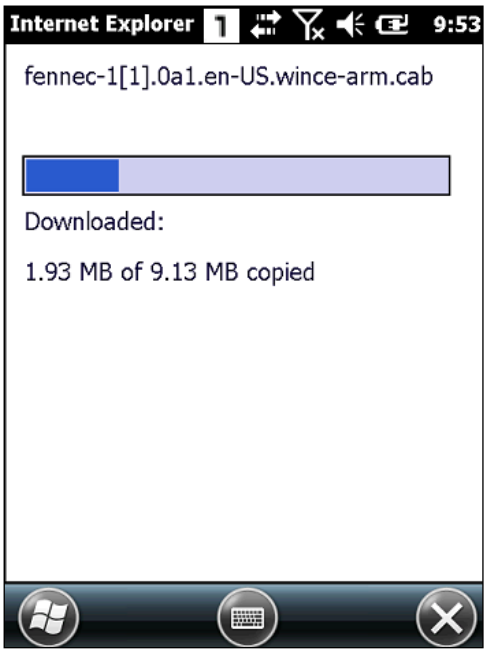
Alternatively, the OS allows you to download and install an application right from the mobile computer.

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.

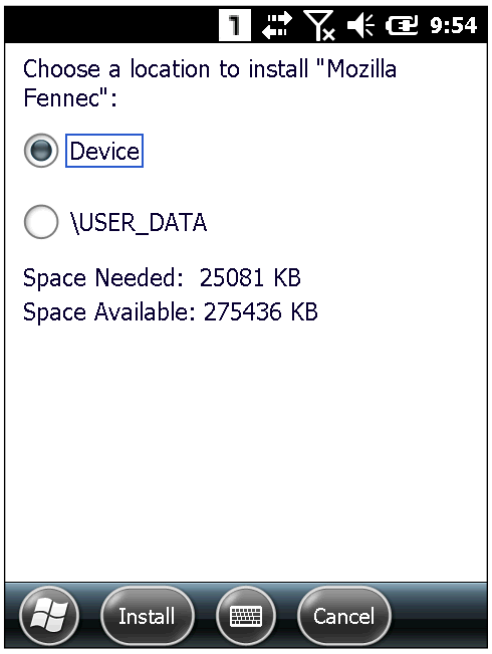
After download finishes, use File Explorer to browse to the application program in the local storage. Tap the program file to run the installation.



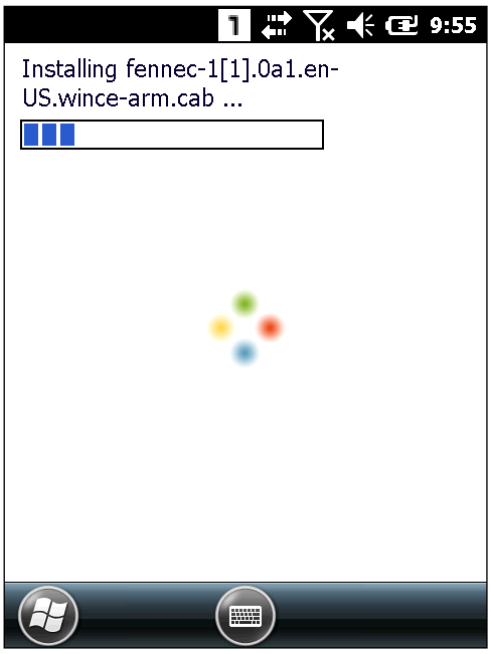
This screenshot shows downloading an application program to the mobile computer. When asked to confirm the download, tap the "Yes" command on the softkey bar.



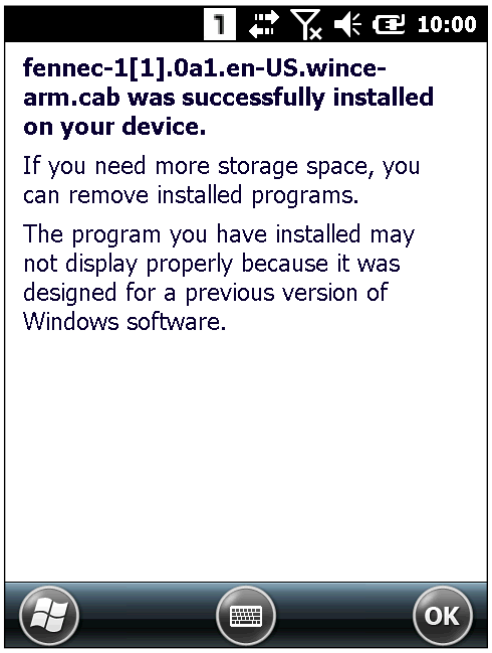
Download starts and proceeds.



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:

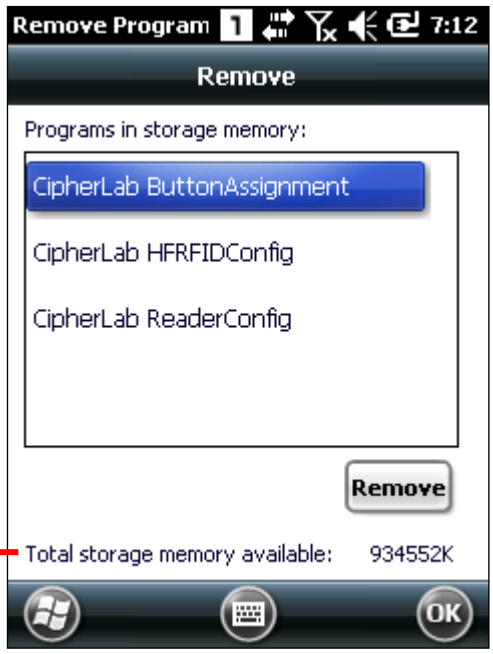
1) On Start screen, tap **Settings** | **System** | **Remove Programs** .

   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.



Currently available internal storage

4.6. SUSPEND & RESET MOBILE COMPUTER

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

4.6.1. SUSPEND MOBILE COMPUTER

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

MANUAL SUSPENSION

Press the power button without holding it. The mobile computer enters suspension.

AUTO-SUSPENSION

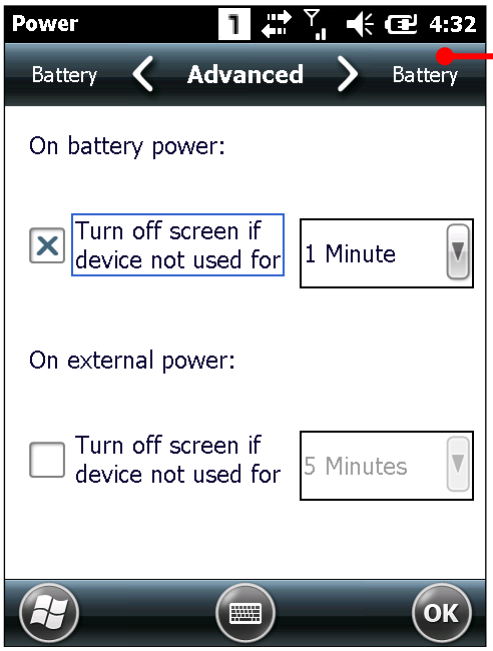
Set up a power plan to suspend the mobile computer in an apt timing.

To set up a power plan:

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

   Power setting opens showing Battery tab page.

2) Tap **Advanced** tab.



Power Information's **Advanced** tab page

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

Note the following cases will also cause the mobile computer to enter suspension:

- 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 Power Management.

4.6.2. 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.

4.6.3. RESET MOBILE COMPTUER

Resetting the mobile computer helps resolve certain problems within the OS and applications. Once the mobile computer is reset, DRAM will be initialized, and all data cached in DRAM will be gone after system reset. However all flash memory, system settings and clock/calendar time will be preserved.

To reset the mobile computer:

Method 1

1) Press and hold down the power key for more than 3 seconds until a menu shows allowing selection between **Restart** and **Power off**.
2) Tap **Restart**. The mobile computer will power off and then turn on again.

OR

Method 2

1) Using the stylus, poke the reset button to restart the device.

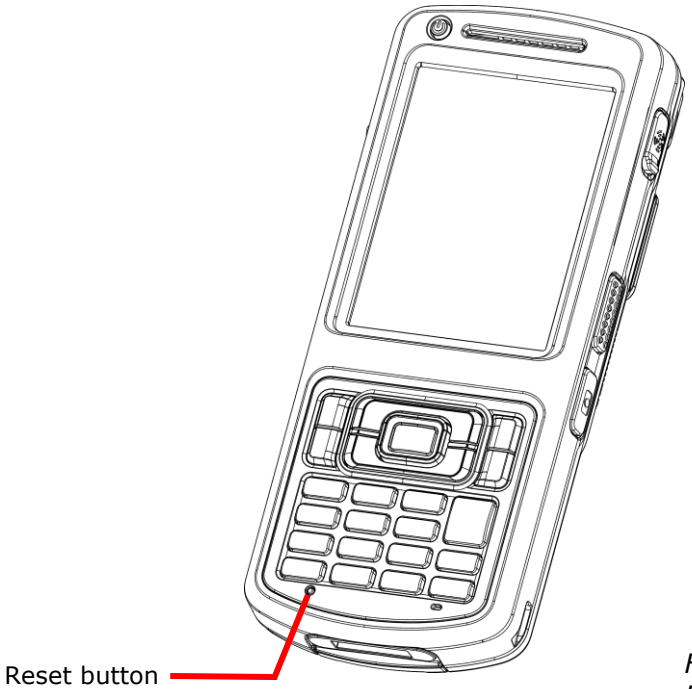


Figure 16:
Reset Mobile Computer

Note:

(1) Data loss may occur if files are not properly saved before system reset.

(2) Pressing the power key and selecting **Restart** (**Method 1**) is the recommended method for performing system reset. Perform **Method 2** only when **Method 1** is not effective.

(3) Perform system reset only on the occasion when one or more applications on the mobile computer are misbehaving, and the system fails to respond.

4.7. UPDATE OS IMAGE

OS image upgrade helps optimize the mobile computer's performance and functionality. There are two approaches for updating the OS image, through CipherLab Mobile Deployment System, or with the use of an SD card.

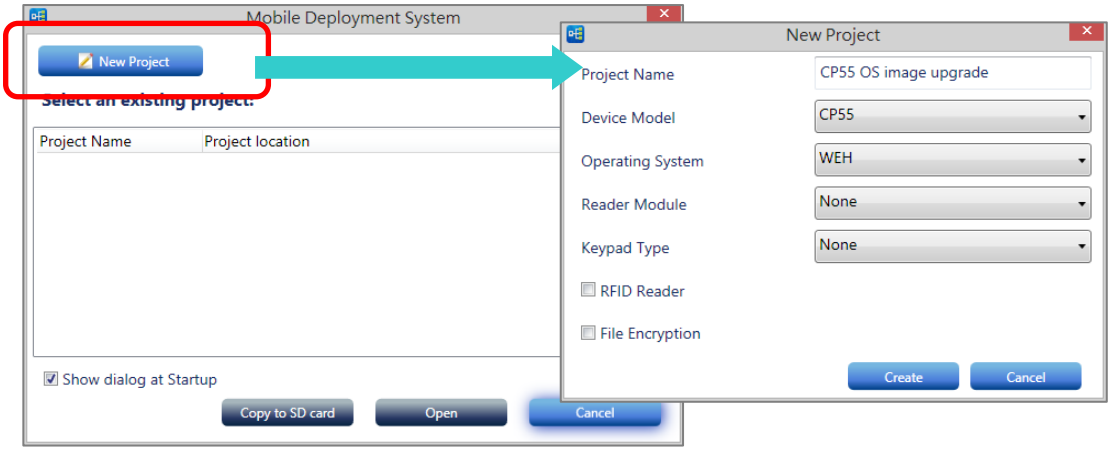
4.7.1. OS UPDATE VIA MOBILE DEPLOYMENT SYSTEM

The CipherLab Mobile Deployment System will load the selected OS image and hidden partition files onto the mobile computer. The **Mobile Deployment System** tool, the OS image file (with .nb0 extension) and the hidden partition file (with .clh extension) of the latest version are required for update.

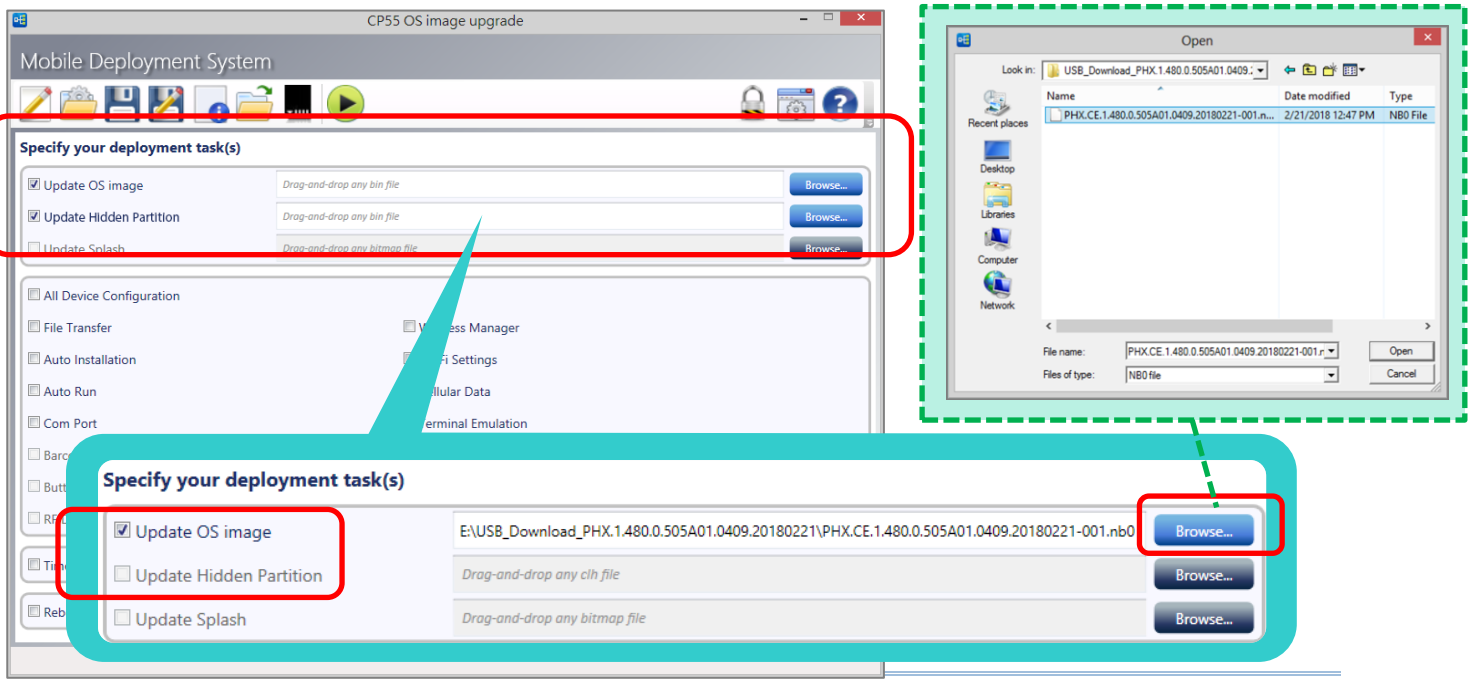
To update the mobile computer's operating system:

1) Obtain the CipherLab **Mobile Deployment System** tool and install it on your PC.

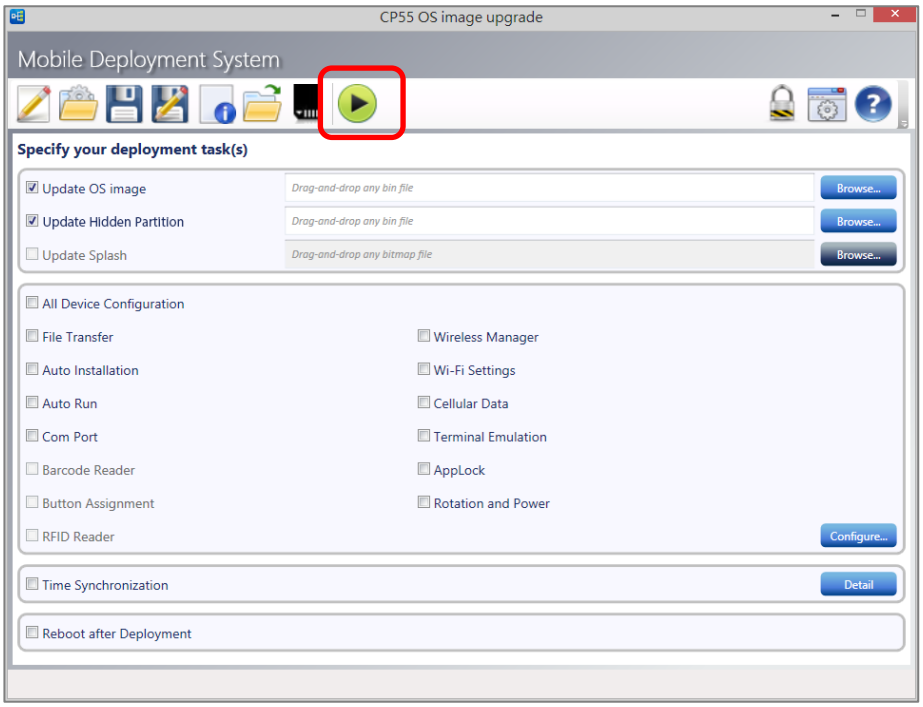
2) Open Mobile Deployment System, and select an existed project from Project Name list to open. Or create a **New Project** and fill in all necessary fields and click "**Create**".



3) On the main menu, tick "**Update OS image**" and "**Update Hidden Partition**" under "**Specify your deployment task(s)**" and click "**Browse**" buttons to select the OS image and hidden partition files respectively from your PC client.

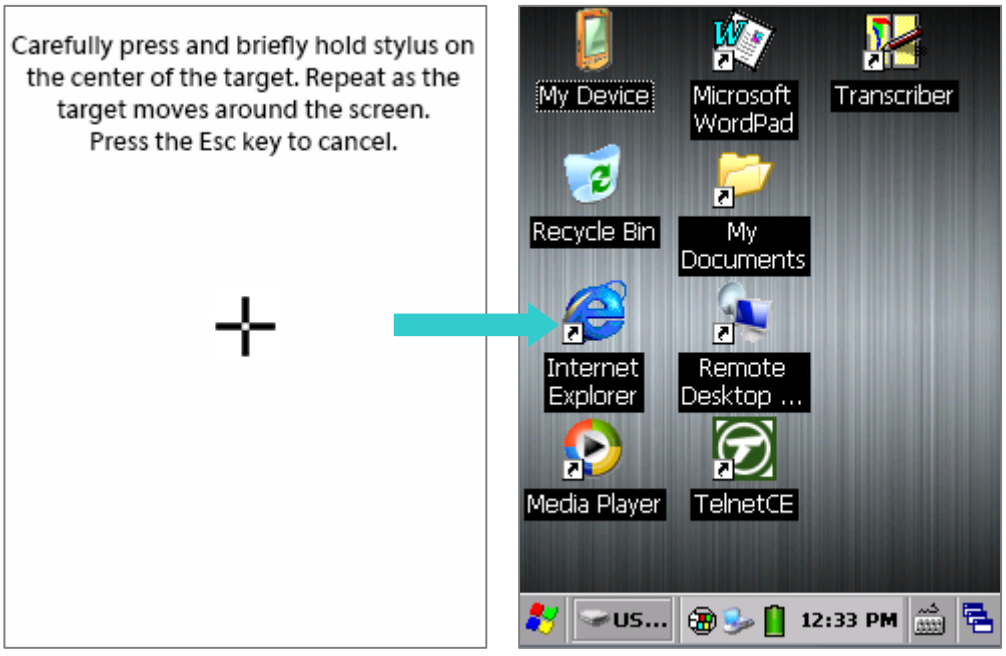


4) Power on the mobile computer and connect it to your PC through a Snap-on Cable or Cradle. Once "**Deploy**" button on the taskbar changes from  to  , the device is successfully connected.



5) Tap the "**Deploy**" button  to proceed OS image upgrade.

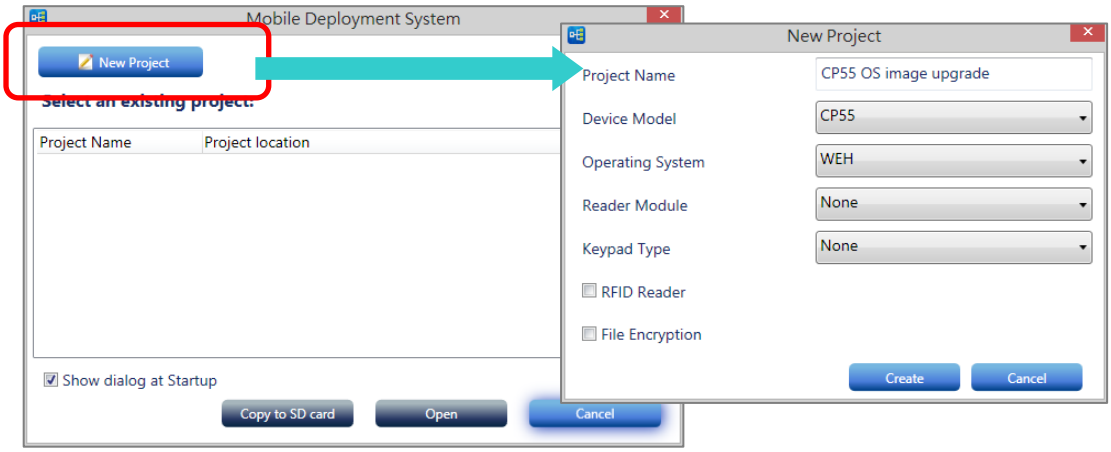
6) After update is complete, the mobile computer will restart to show the calibration screen. Complete the calibration steps to display the desktop.



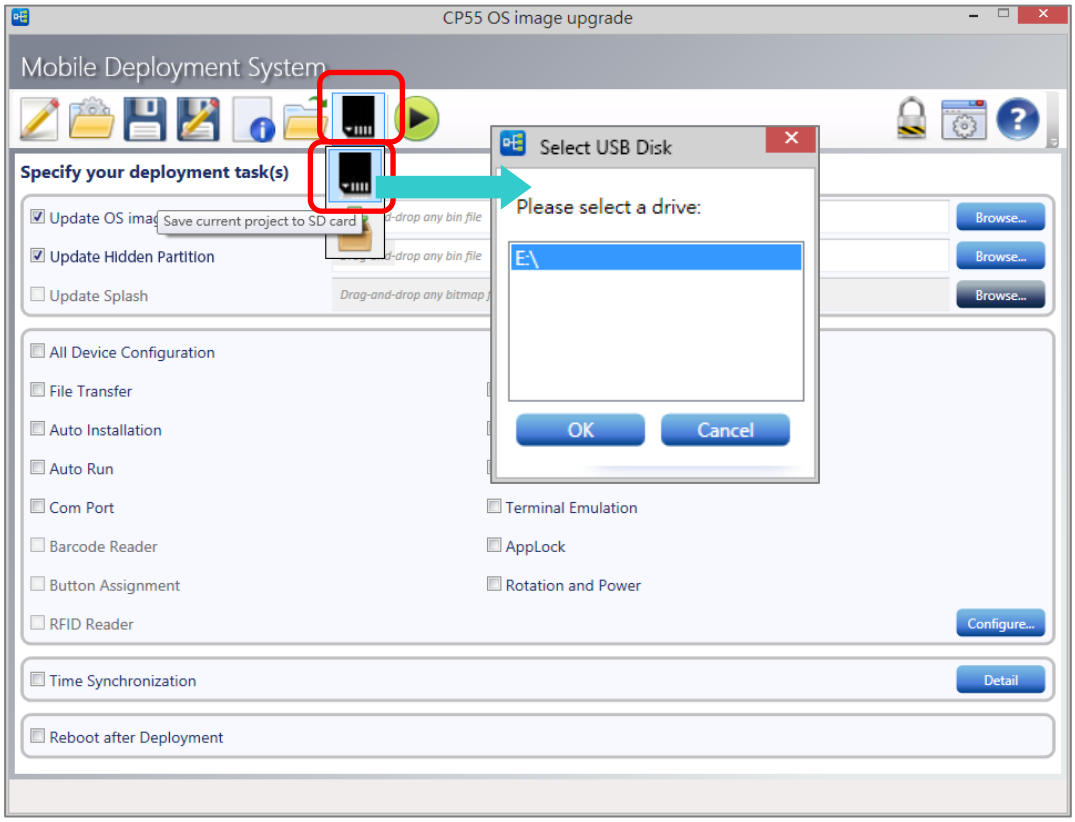
4.7.2. OS UPDATE WITH MEMORY CARD

You may also upgrade with the use of an SD card and the OS image and hidden partition files.

1) On your PC, insert a microSD card of at least 4GB and formatted to FAT32.
2) Open Mobile Deployment System, and select an existed project from Project Name list to open. Or create a **New Project** and fill in all necessary fields and click "**Create**".

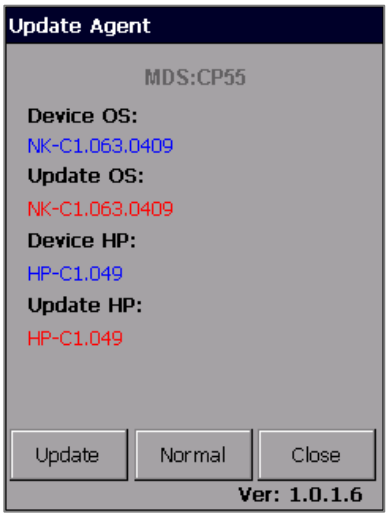


3) On the main menu, tick "**Update OS image**" and "**Update Hidden Partition**" under "**Specify your deployment task(s)**" and click "**Browse**" buttons to select the OS image and hidden partition files respectively from your PC client.
4) Tap "**Save current project to SD card**" button  to save the files to the microSD card.

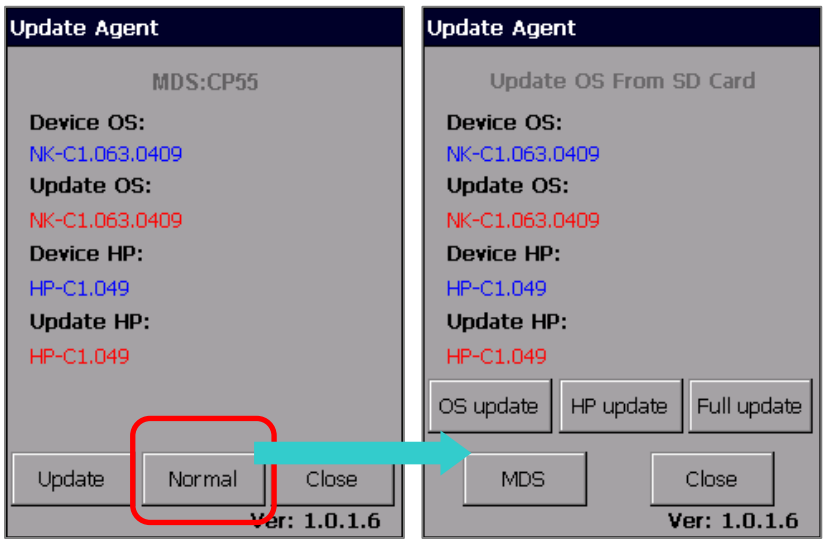


5) Eject the microSD card from the PC, and insert it into the card slot as described in Insert SD Card.

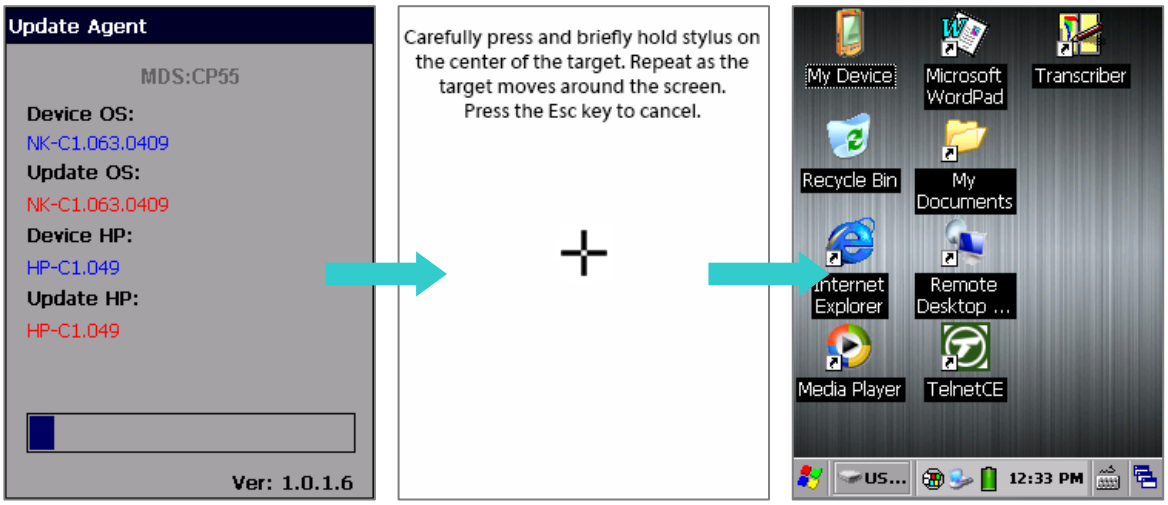
6) Power on the mobile computer, and click "**Update Agent**" in "**Storage Card**".



7) Click "**Update**" to update directly, or click "**Normal**" to select the option you need.



8) Once the update progress is completed, the mobile computer will restart to show the calibration screen. Complete the calibration steps to display the desktop. Then the update task is done.



Chapter 5

RADIOS

The mobile computer is a versatile networker. It integrates Wi-Fi and Bluetooth for wireless data, and optionally an HSPA (3.75G) 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.

IN THIS CHAPTER

5.1. 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.

When you are not using Wi-Fi, remember to disable Wi-Fi connection to save battery power. See Power On/Off Wi-Fi.

5.1.1. POWER ON/OFF WI-FI

Before configuring any Wi-Fi connection settings, check if Wi-Fi power is turned on.

To turn on Wi-Fi:

1) Tap **Start** | **Settings** | **Connections** | **Wireless Manager** .
2) Tap **All** or **Wi-Fi** to turn on Wi-Fi power.

   Wi-Fi status displays as "Available", meaning Wi-Fi is switched on and the mobile computer has detected available Wi-Fi networks.

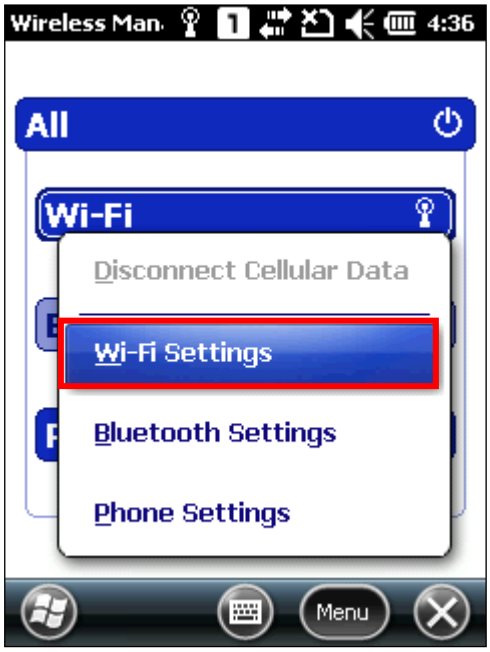
3) Once Wi-Fi is on, the mobile computer starts scanning for the available Wi-Fi networks within its reach. The O.S. shortly displays a "Multiple Networks Detected" dialog prompting a few of the found networks. Select the network you would like to connect to, and tap **OK** on the softkey bar to confirm. If the network selected is security-enabled, the screen will display a field for you to enter the password.

Note: Wi-Fi settings under Wireless Manager will be kept through suspension and reboot. After the mobile computer resumes from suspension or restarts, Wi-Fi power status will be maintained, and the mobile computer will attempt to reconnect to the previous connection.

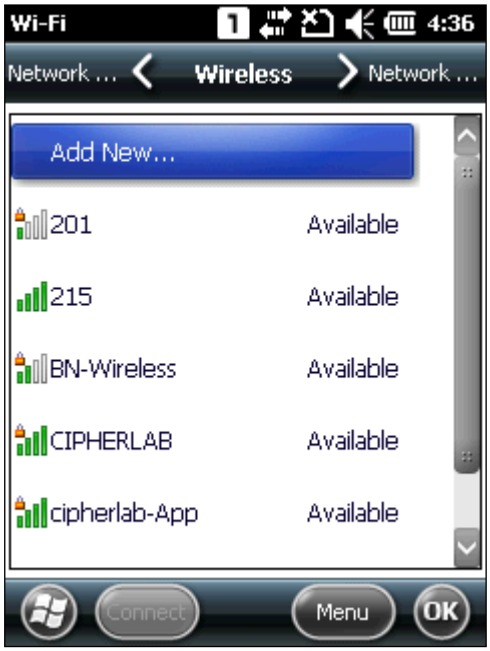
5.1.2. ESTABLISH WI-FI CONNECTION

To establish a Wi-Fi connection:

1) Turn on Wi-Fi power as in Power On/Off Wi-Fi.
2) Tap **Menu** | **Wi-Fi Settings** to configure related settings..



3) On the **Wireless** tab, you will see a list of available Wi-Fi networks, including the signal strength of each network and a small lock icon to indicate its encryption status.



The icon next to the network name provides a visual status for the radio. It is only available when all of the following is true:

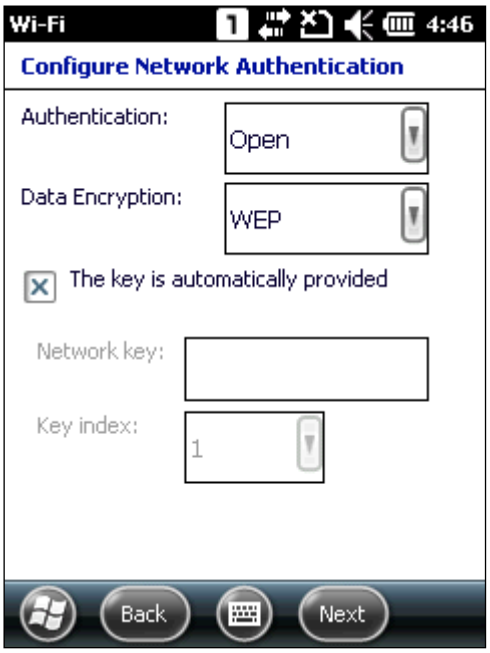
Icon	Indication
 (no-bar)	The signal strength (RSSI) for the current AP (to which the radio is associated) is -91 dBm or weaker.
 (one-bar)	The RSSI for the current AP is -90 dBm or stronger but no more than -82 dBm.
 (two-bar)	The RSSI for the current AP is -81 dBm or stronger but no more than -72 dBm.
 (three-bar)	The RSSI for the current AP is -71 dBm or stronger but no more than -68 dBm.
 (four-bar)	The RSSI for the current AP is -67 dBm or stronger.
 (Encryption)	The RSSI for the current AP has data encryption for connection.
 (fail)	The signal for the current AP is unavailable.

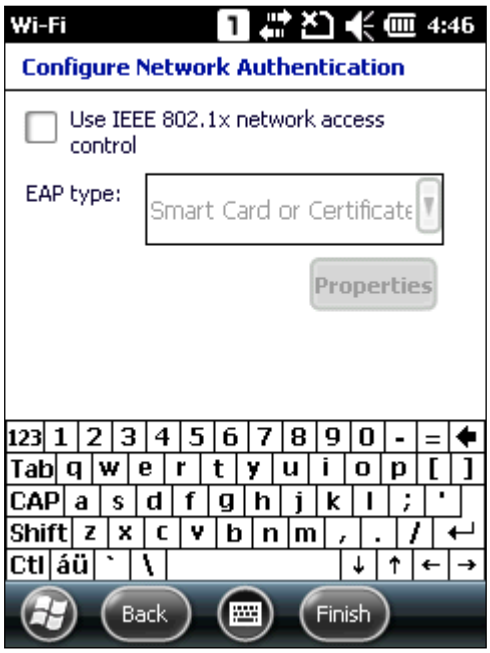
A strong signal (four bars) usually means that the wireless network is close or there is no interference. For best performance, connect to the wireless network with the strongest signal. However, if an unsecured network has a stronger signal than a security-enabled one, it's safer for your data if you connect to the security-enabled/encrypted network (but you must be an authorized user of that network).

To improve the signal strength, you can move your mobile computer closer to the wireless router or access point, or move the router or access point so it’s not close to sources of interference such as brick walls or walls that contain metal support beams.

4) Tap the network you would like to connect to, or tap **Add New...** to add a new network to the available network list. A settings page will open specifying the type of network to connect to (Internet or Work). Tap **Next** and follow through the next pages to set up connection. If the selected network has an encryption method, deselect “The key is automatically provided” and enter the network key in the field below.

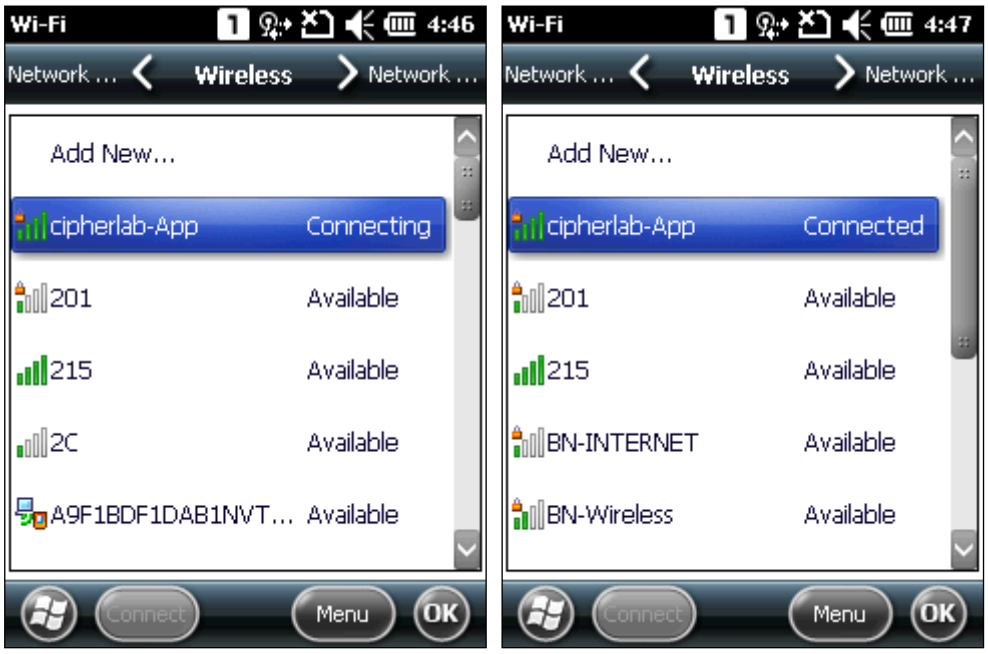
   When done, tap **Finish** to return to Wireless tab.





5) Wait a few seconds for the mobile computer to connect to the preferred network you have configured. Then tap **OK** to close the current window.

Note: Be sure to tap **OK** in order to store Wi-Fi settings and ensure Wi-Fi reconnection to the selected access point.



6) Once connected successfully, the associated icon will appear on the title bar and the connected network name will be displayed for Wi-Fi status in **Wireless Manager**.

Note: If the Wi-Fi power item disappears during the Wi-Fi connection, open ActiveSync on your PC, click **File** | **Connection Settings**. and enable "Allow wireless connection on device when connected to the desktop" check box.

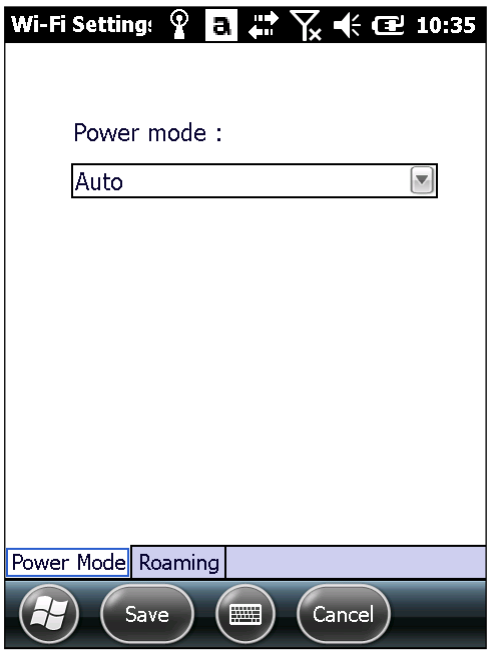
5.1.3. CONFIGURE WI-FI SETTINGS

WI-FI POWER MODE

To adjust the Wi-Fi power mode for Wi-Fi roaming:

1) Tap **Start** | **Settings** | **Connection** | **Wi-Fi Settings**.
2) Select the Wi-Fi module power mode between **Auto** or **Active**. Power consumption is lower in **Auto** mode, while **Active** mode provides higher Wi-Fi roaming performance and better roaming efficiency.

Note: **Auto** mode is the recommended power mode. Select **Active** mode only when necessary, as this mode affects overall battery consumption.



3) Tap **Save** on the softkey bar to confirm your settings.

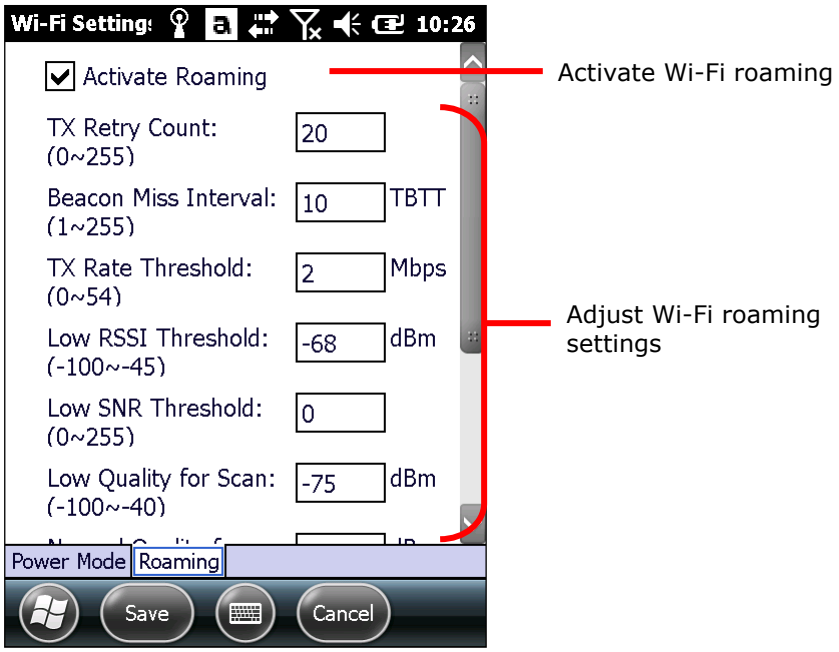
WI-FI ROAMING

When Wi-Fi roaming is enabled, the mobile computer auto-searches and switches to another network when the signal strength of the current network falls low.

To enable Wi-Fi roaming:

1) Tap **Start** | **Settings** | **Connection** | **Wi-Fi Settings** | **Roaming** tab page.
2) Select the **Activate Roaming** checkbox to enable Wi-Fi roaming.

   Adjust the other settings to set your Wi-Fi roaming conditions.



Item	Description	Default
Power Mode	Select the Wi-Fi module power mode between Auto or Active. Power consumption is lower in Auto mode, while Active mode provides higher roaming performance and better roaming efficiency. ▸ Auto mode is the recommended power mode. Select Active mode only when necessary, as this mode affects overall battery consumption.	Auto
Activate Roaming	Select whether to activate roaming.	Enabled
TX Retry Count	Roam to another access point after performing the specified amount of consecutive TX retries but failing to connect. Set between 0 and 255 (value 0 means to ignore this setting).	20 times
Beacon Miss Interval	Roam to another access point when the mobile computer loses beacon frames for the specified duration, which is expressed in TBTT (Target Beacon Transmission Time) interval. Set between 1 and 255.	10 TBTT
TX Rate Threshold	Roam to another access point when TX data rate is lower than the specified value. Set between 0 and 54.	2 Mbps
Low RSSI	Roam to another access point when signal strength is	-68 dBm

Threshold	lower than the specified value. Set between -100 and -45.	
Low SNR Threshold	Roam to another access point when SNR (Signal Noise Ratio) is higher than the specified value. Set between 0 and 255.	0
Low Quality for Scan	Perform a background scan every 5 seconds to discover nearby access points when the signal strength is lower than the specified value. Set between -100 and -40.	-75 dBm
Normal Quality for Scan	Perform a background scan every 10 seconds to discover nearby access points when the signal strength is lower than the specified value. Set between -100 and -40.	-75 dBm
Roaming Attempt Guard Interval	Does not roam to another access point when the interval between two events for low quality roaming is smaller than the set value. Set between 0 and 1443.	5 sec
Candidate Quality Threshold	Does not roam to another access point when the signal strength of the candidate AP is worse than the specified value set for low quality roaming. Set between -95 and -40.	-75 dBm

3) Tap **Save** on the softkey bar to confirm your settings.

5.2. 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 the need of a second pairing procedure.

5.2.1. BLUETOOTH PROFILES SUPPORTED

Bluetooth Profiles Supported		
Serial Port Profile	(SPP)	supports Server/Client
Object Push Profile	(OPP)	supports Server/Client
File Transfer Profile	(FTP)	supports Server/Client
Personal Area Networking Profile	(PAN)	
Human Interface Device Profile	(HID)	supports keyboard and mouse without cursor
Headset Profile	(HSP)	
Hands-Free Profile	(HFP)	

5.2.2. POWER 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** label.

   Bluetooth power is switched on.

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

OR

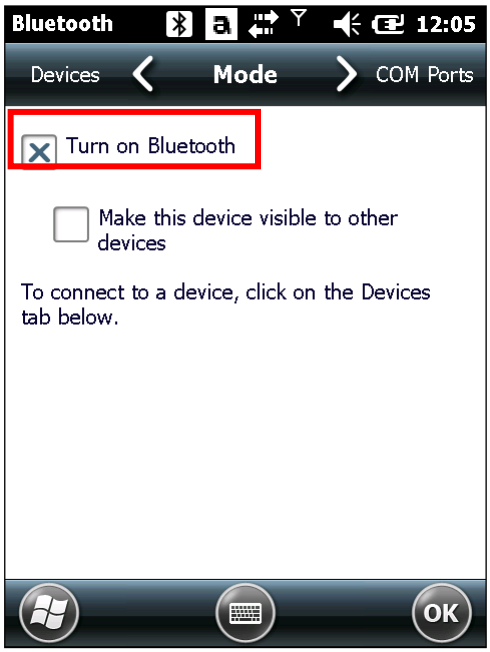
1) On Start screen, tap **Settings** | **Bluetooth** .

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

2) Tap **Mode** tab.

Mode tab 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.

Note: Bluetooth settings will be kept through suspension and reboot. After the mobile computer resumes from suspension or restarts, Bluetooth power status will be maintained, and the mobile computer will attempt to reconnect to the previous connection.

5.2.3. 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.

To change the mobile computer's device name:

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

   About screen opens showing Version tab page.

2) Tap **Device ID** tab.

   Device ID tab page opens.

3) Enter a name following the prompted rule.

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

5.2.4. SET BLUETOOTH VISIBILITY

By opening or closing Bluetooth visibility, you can control whether or not other Bluetooth devices can discover the mobile computer.

To enable Bluetooth visibility on the mobile computer:

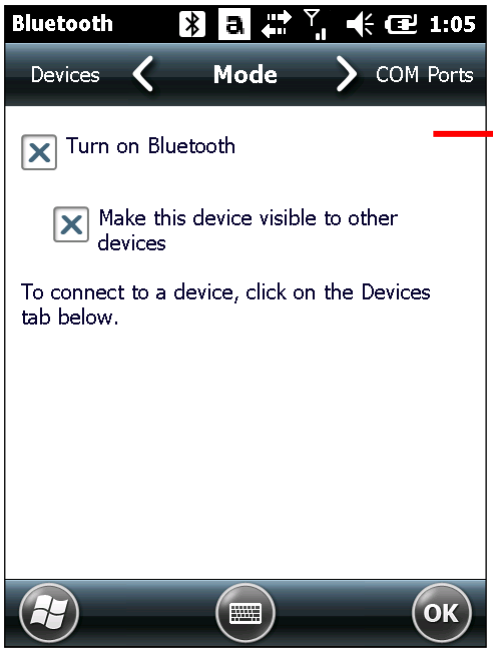
1) On Start screen, tap **Settings** | **Bluetooth** .

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

2) Tap **Mode** tab.

   Mode tab 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.

   Under **Settings** | **Connections** | **Wireless Manager**, Bluetooth status will be displayed as "Visible".

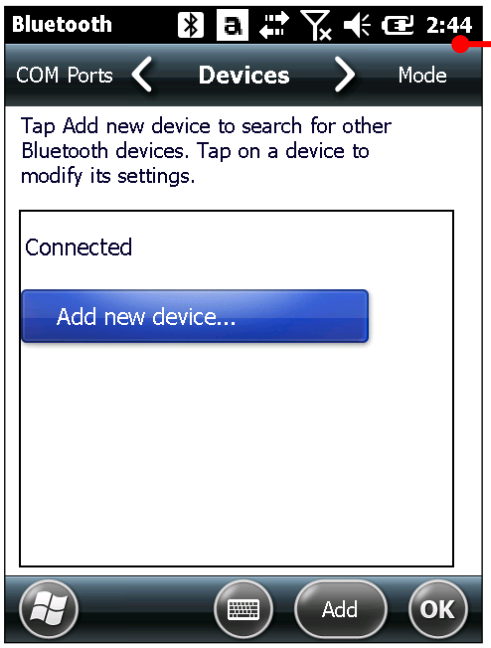
5.2.5. PAIR & CONNECT BLUETOOTH DEVICES

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

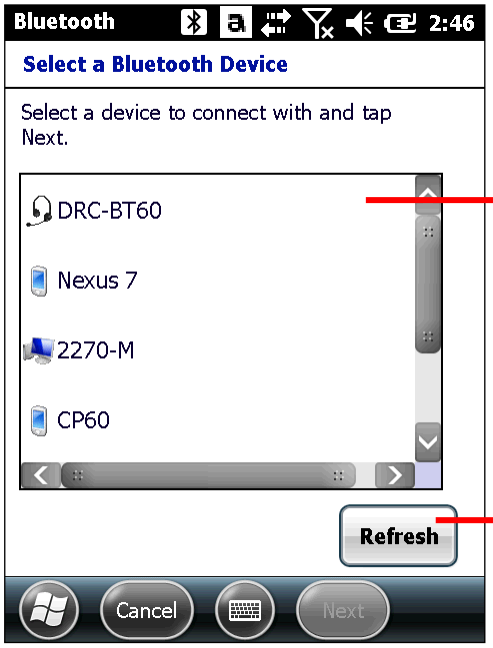
   Bluetooth settings open showing **Devices** tab page.



Devices tab page under Bluetooth settings

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

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



Bluetooth scanning results

Tap to scan again

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.

Bluetooth device paired and connected

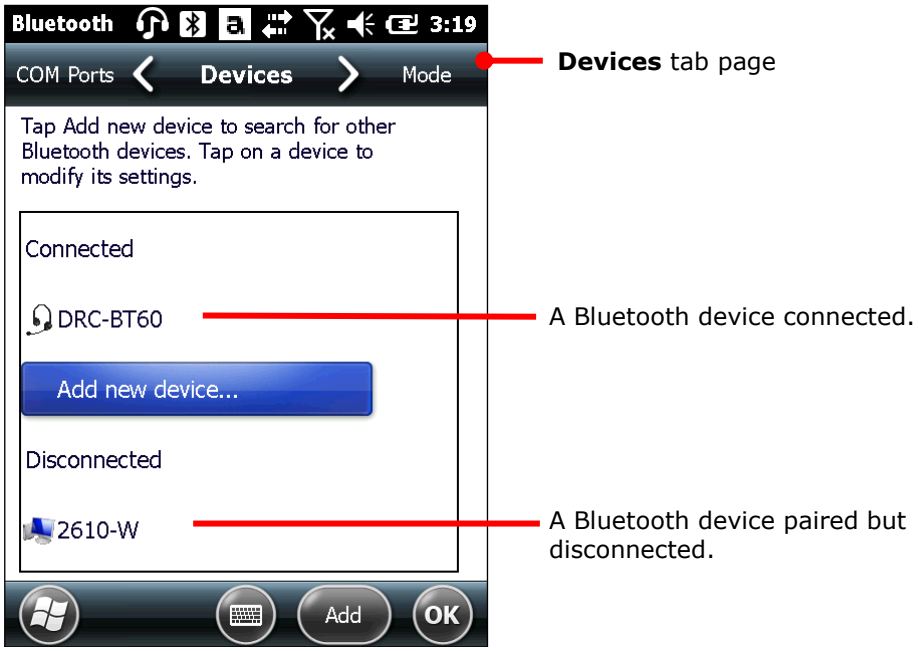
5) Tap **Done** on the softkey bar.

OR

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

Devices tab 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.

DISCONNECT BLUETOOTH DEVICES

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

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

OR

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

   Bluetooth settings open showing **Devices** tab 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.

UNPAIR BLUETOOTH DEVICES

To unpair a Bluetooth device:

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

   Bluetooth settings open showing **Devices** tab 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.

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** tab 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.

5.2.6. 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** | **Settings** | **Bluetooth**.)

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

2) Tap and hold the device to configure.

   Context menu opens.

3) Tap **Edit**.

   Partnership Settings opens listing the device's available profiles.

Partnership Settings

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

5.2.7. BLUETOOTH FILE EXCHANGE

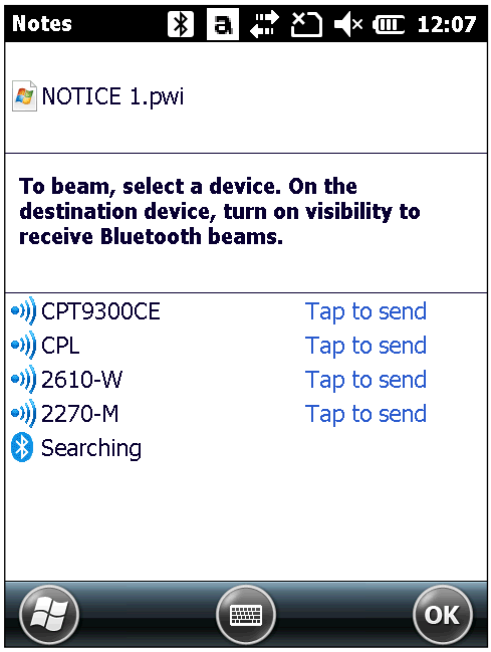
Once connected with other devices using Bluetooth, the mobile computer can offload or download files to/from them. Basically it relies on File Explorer to get it done.

OFFLOAD FILES

1) On the mobile computer, turn on Bluetooth as described in Power On/Off Bluetooth.
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 Power On/Off Bluetooth if you haven't.
5) Make the mobile computer discoverable as mentioned in Set Bluetooth Visibility.

   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.

5.2.8. 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 tab page.

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

Bluetooth's Device tab 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 tab 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.

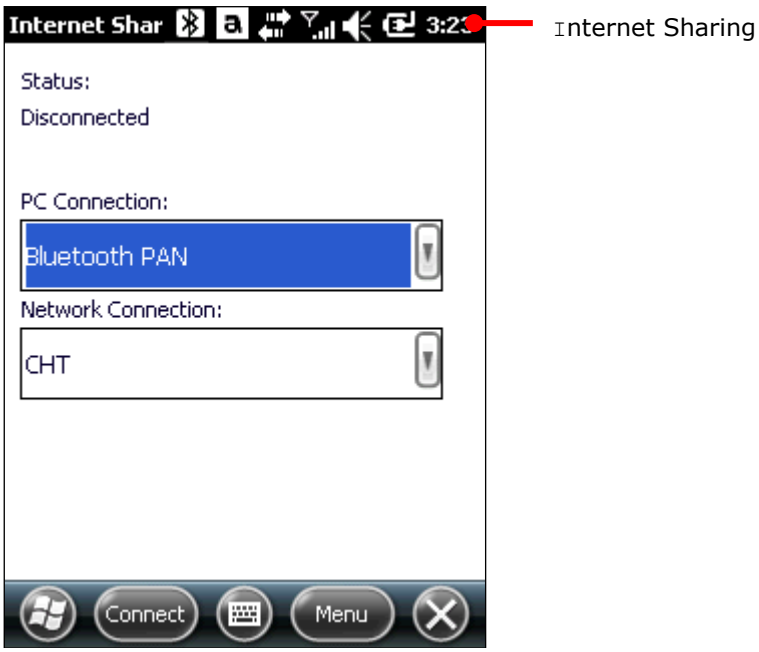
5.2.9. BLUETOOTH INTERNET SHARING

"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.

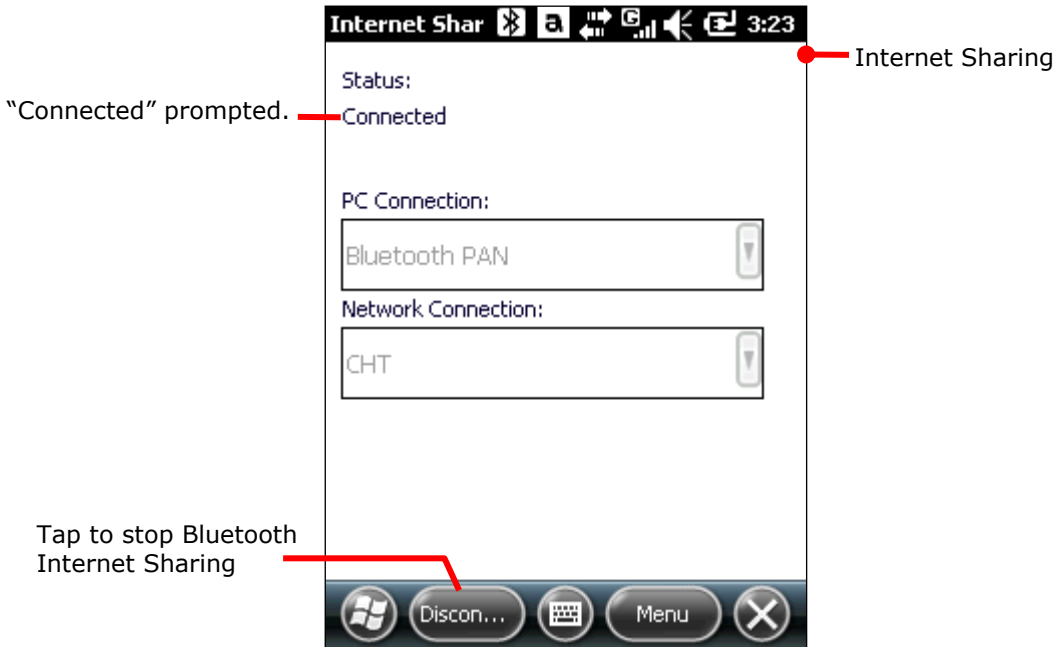
   Internet Sharing opens.



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.

5.2.10. 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.

Chapter 6

USING THE PHONE

The CP55 Mobile Computer allows making phone calls and connecting to the network over General Packet Radio Service (GPRS). Insert the SIM card before turning on the power. Refer to Install SIM Card.

Note: If the SIM card is not in position, you may make emergency calls if the service is supported.

IN THIS CHAPTER

6.1. INSTALL 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.

To insert a SIM card, follow the steps below:

1) Power off the mobile computer. Remove the hand strap, battery door and main battery.
2) Locate the SIM card socket in battery chamber.
3) Push back the SIM card socket hinged cover to unlock it.
4) Swivel up the hinged cover.
5) Position the SIM card as illustrated below the socket . Fit the SIM card into place so the metal contacts on the SIM and the PCB meet.
6) Put down the hinged cover.
7) Push-lock the hinged cover.
8) Restore battery, battery door, and hand strap.

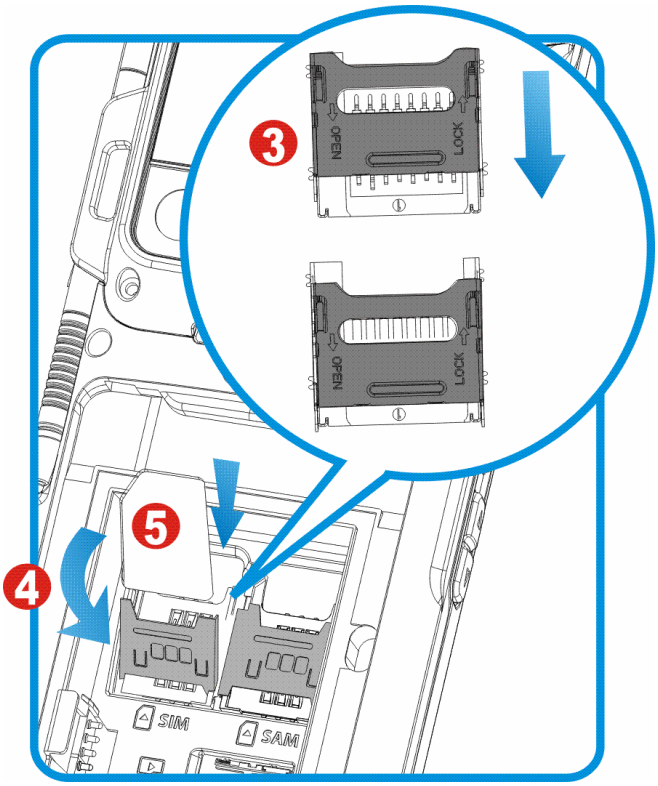


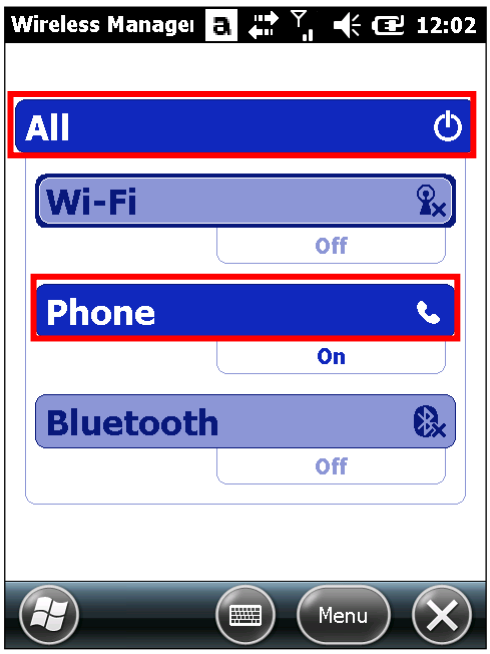
Figure 17: Inserting SIM Card

6.2. PHONE POWER

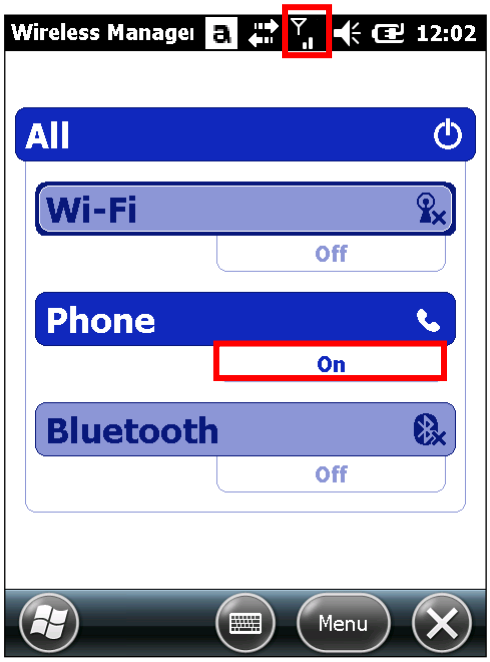
6.2.1. POWER ON PHONE VIA WIRELESS MANAGER

1) Tap **Start** | **Settings** | **Connections** | **Wireless Manager**.

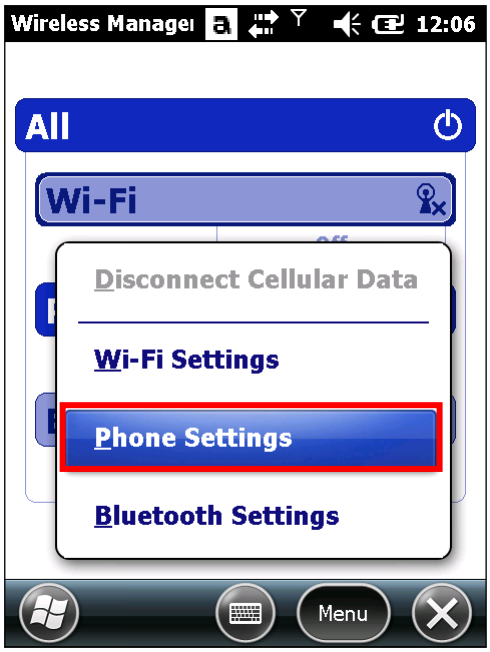
2) Make sure the phone power is turned "on". If not, tap **All** or **Phone** label to turn on the power.



When the power is turned on, the Phone status appears as "On", and an antenna signal icon  will be displayed on the title bar to indicate you are connected to your service provider's network. As the strength of the signal diminishes, so will the number of bars in the icon.



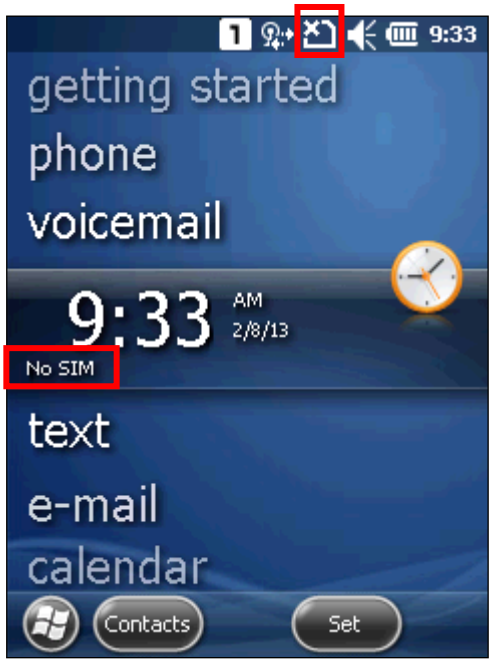
3) Tap **Menu** | **Phone Settings** to configure related settings if necessary.



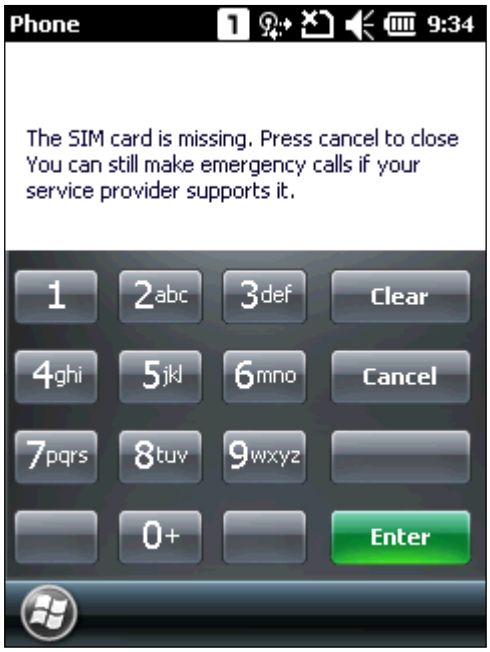
Note: Phone Settings are only available when the phone power has been turned on. You can check the security settings, change the PIN code on your SIM card and so on if necessary.

6.2.2. SIM CARD MISSING

1) On the **Home Screen**, the notification icon on the title bar shows that the SIM card is missing.



2) If supported by your service provider, emergency calls are allowed when a SIM card is absent. Tap **Phone** on the Start Screen, or press the [SEND] button on the physical keypad to access the phone application.



6.3. PHONE APPLICATION

6.3.1. PHONE INTERFACE

To access the phone application, tap **Phone** on the Start Screen, or press the [SEND] button on the physical keypad. The display panel on the top half of the screen is used to show your service provider's name and the contact name and/or phone number when making or receiving a call.

- Tap the scroll bar next to the display panel to browse call history, which keeps a record of the phone numbers dialed in and out, as well as missed phone calls.
- Tap a contact name to view, edit the contact details, send or beam contact info, or add contact to speed dial list.
- Tap the **Menu** button  on the softkey bar to switch the view options.

The phone keypad is displayed for telephone number input or speed dial.

- Tap the button  (Hide keypad) on the softkey bar to hide the keypad.
- Tap the button  (Show keypad) on the softkey bar to show the keypad.

6.3.2. BUTTONS

The phone keypad features the following buttons:

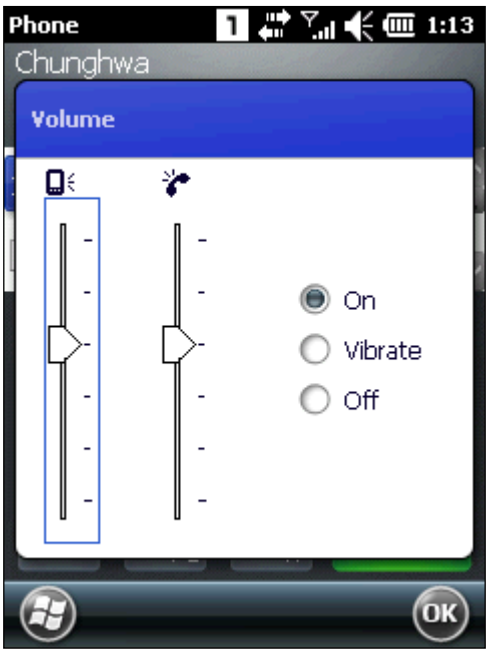
Button	Description
	[Backspace] button allows you to delete the last input.
	[Speed Dial] button allows you to view, edit the speed dial list and pick the number you want to call.
	[Call History] button allows you to browse, edit call history and pick the number you want to call.
	[Talk] button allows you to make or receive a call. ▸ Alternatively, you may press [SEND] on the physical keypad.
	[End] button allows you to hang up a call. ▸ Alternatively, you may press [END] on the physical keypad.

6.3.3. VOLUME

SYSTEM AND RINGER VOLUME

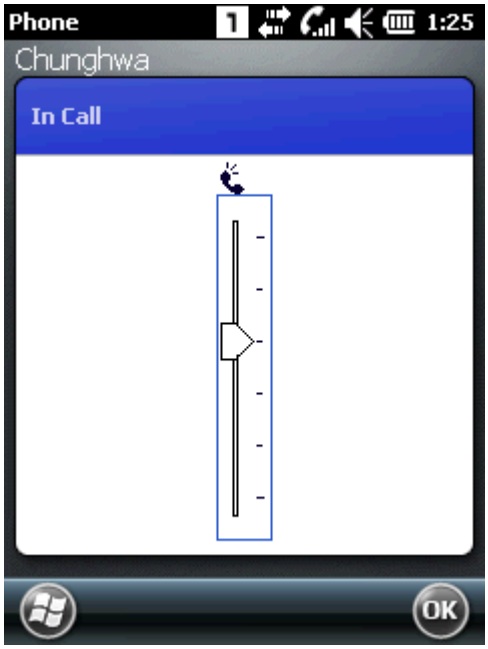
Tap the speaker icon in the title bar drop-down list to change system volume or phone ringer volume. You may also mute it or have it set as vibrate instead. An on-screen gauge will appear to indicate the current settings.

Volume adjustment can also be done by pressing the volume up/down buttons on the right side of the mobile computer.



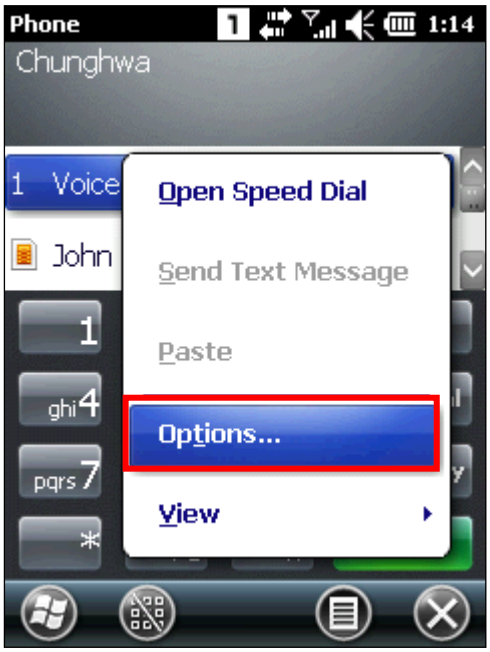
IN-CALL VOLUME

During a call, you can adjust the in-call volume by tapping the speaker icon in the title bar drop-down list, or by pressing the volume buttons on the right side of the mobile computer. An on-screen gauge will appear to indicate the current volume.



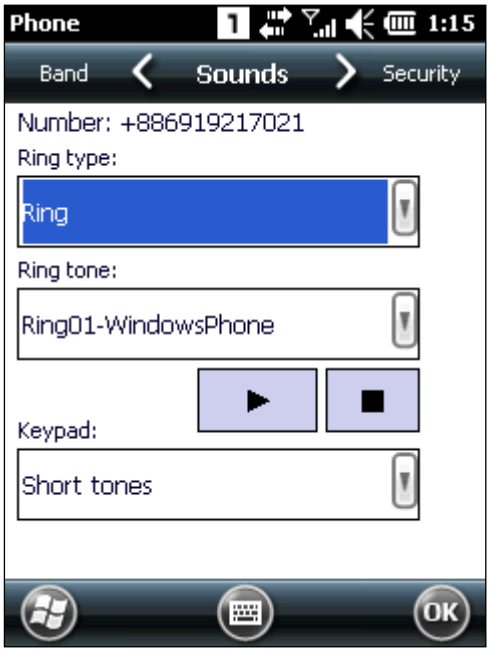
6.4. PHONE SETTINGS

Tap **Menu** | **Options** to configure phone settings if necessary.



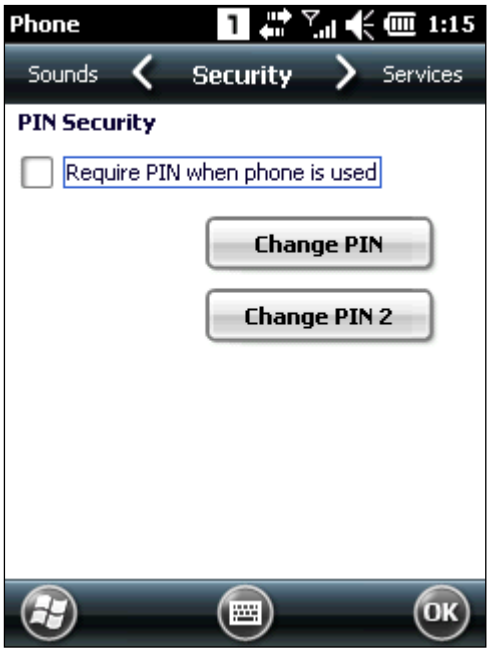
SOUNDS TAB PAGE

Tap the Sounds tab to adjust phone ring type, ring tone, and keypad sound.



SECURITY TAB PAGE

Tap the Security tab to change SIM card security and PIN code setting.



Note: The PIN verification on the mobile computer allows three chances to input the correct PIN code. If input fails three times, the SIM card will be locked, and you will need to obtain the PUK code from your network operator to unlock it

SERVICES TAB PAGE

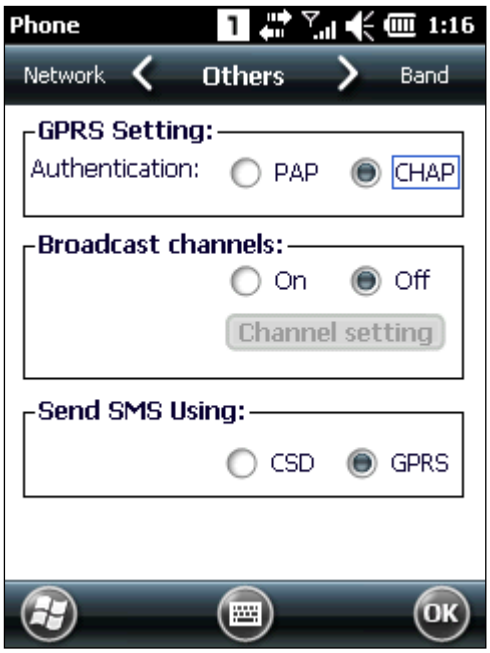
Tap the Services tab to get phone service settings from your network operator.

NETWORK TAB PAGE

Tap the Network tab to change phone network settings and edit your preferred networks.

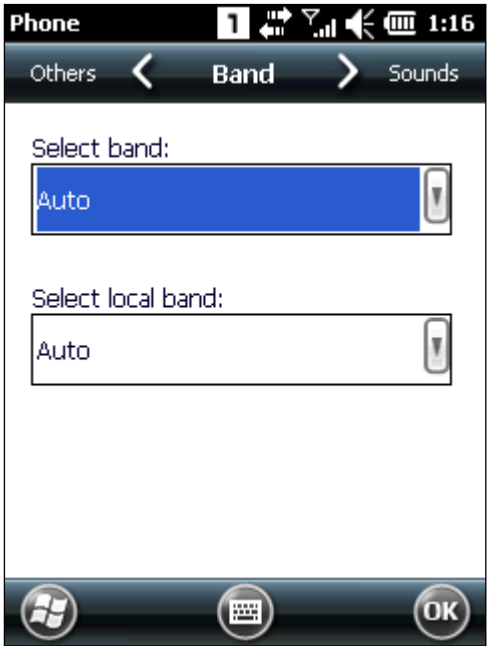
OTHERS TAB PAGE

Tap the Others tab to configure GPRS authentication type, broadcast channels, and SMS transmission settings.



BAND TAB PAGE

Tap the Band tab to change the band type and the local band in your geographic region.



6.5. MAKING PHONE CALLS

The phone features allow you to make or receive phone calls and assign a Speed Dial number to a contact.

"1" indicates the reserved Speed Dial number for the contact (or Voicemail)

6.5.1. DIAL A NUMBER

You can dial a number by any of the following ways:

- Direct dialing: Use the dial pad on the screen or the physical keypad – simply enter the number you want to call.
- Dial from Contacts: Browse the contact list via the display panel to find the contact or number you want to call.
- Use speed dial: Enter the speed dial number of the desired contact.
- Dial from call history: Browse call history via the display panel to pick the number you want to call.

6.5.2. MAKE A CALL

DIALING OUT

Tap the green [Talk] button on the phone keypad, or press [SEND] from the physical keypad.

HANGING UP

Tap the red [End] button on the phone keypad, or press [END] from the physical keypad.

DURING A CALL

During a call, you may select to turn on the speaker, mute the receiver, or hold the line by tapping the respective on-screen buttons. Alternatively you may place another call by the **Add Call** button, or open the **Contacts** application.

6.5.3. ANSWER A CALL

ANSWERING A CALL

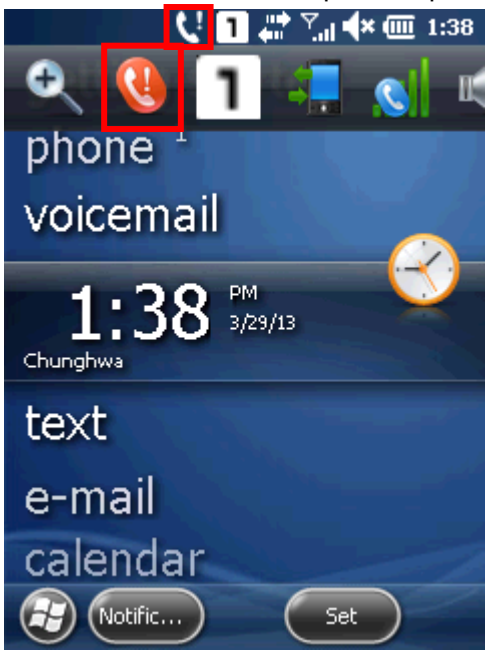
Tap the **Answer** button  or press [SEND] from the physical keypad.

IGNORING A CALL

Tap **Ignore** button  or press [END] from the physical keypad.

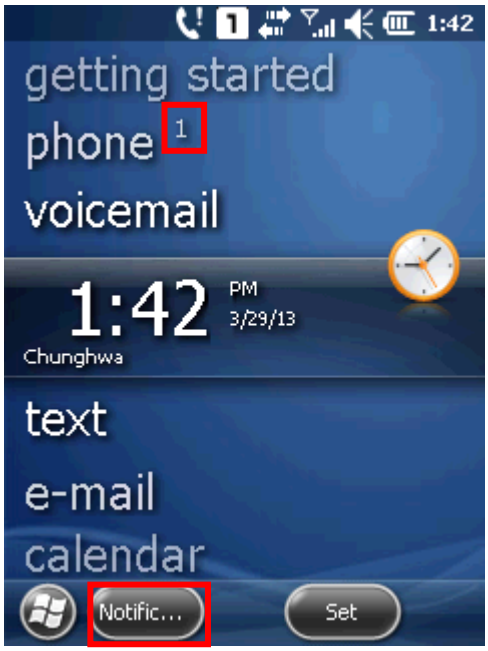
VIEWING A MISSED CALL

When you have a missed call,  will be displayed on the title bar. Tapping it will reveal a missed call icon  . Tap it to open the Call History page to identify the missed call.



OR

On the Today Screen, an uppercase number "1" will appear next to the "Phone" label to indicate you have 1 missed call. Tap **Notification** on the softkey bar to view the notification message.



When the notification message pops-up, tapping the  icon on the softkey bar will open the Call History page, where you can check information about the missed call.

Note: The right LED on top of the mobile computer will also flash red to notify there is a missed call.

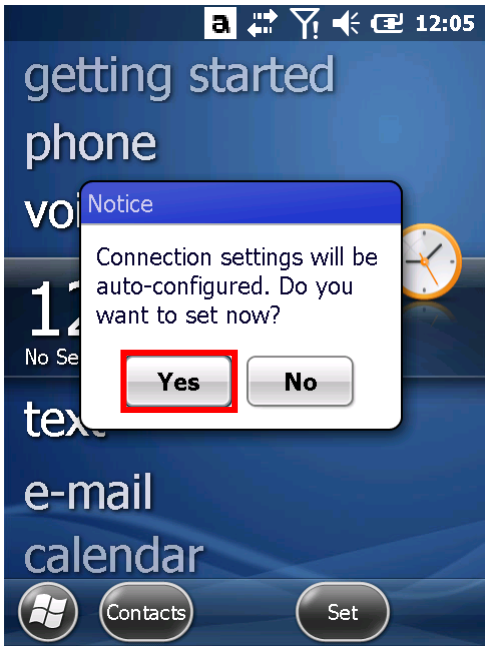
6.6. CONFIGURING CELLULAR NETWORK

AUTOMATIC CONNECTION

The mobile computer features Mobile Network Wizard, which automatically configures your network provider and APN when a SIM card is installed. To launch the wizard:

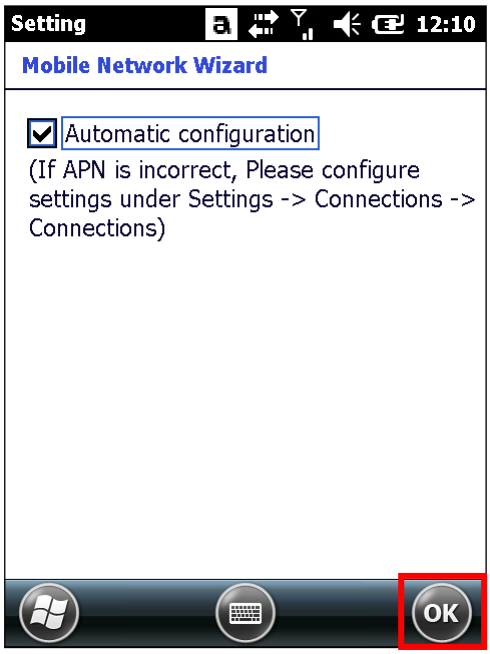
1) Insert a SIM card on the mobile computer as described in Install SIM Card.
2) Power on the mobile computer.
3) When the SIM card is detected, a dialog will pop-up asking for confirmation to automatically configure network settings.

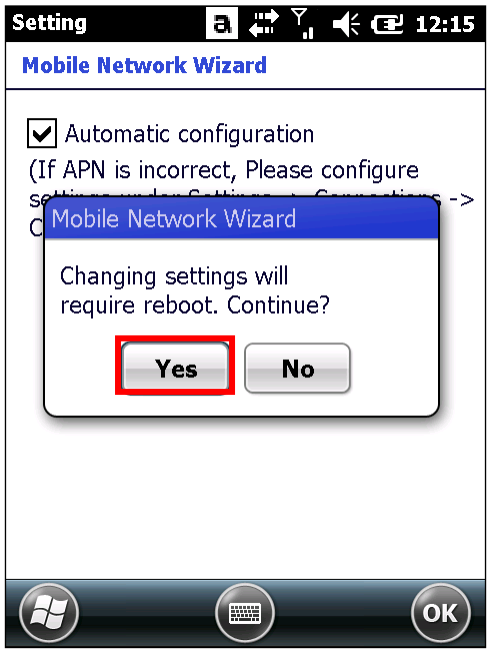
   Tap **Yes** to confirm.



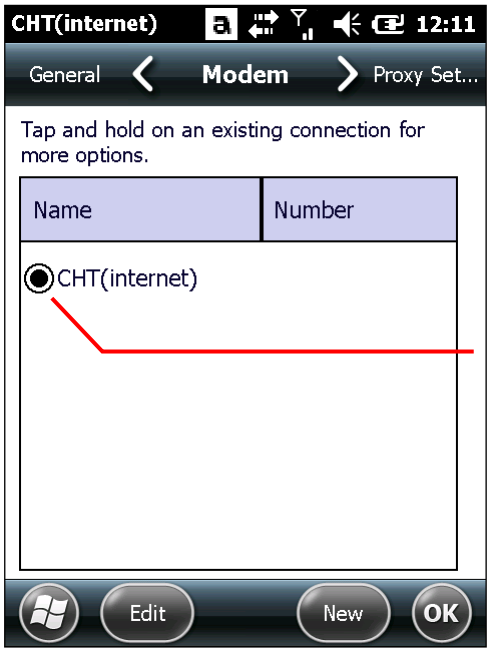
4) The Mobile Network Wizard page opens showing an option to automatically configure the network.

Tap **OK** on the softkey bar, and **Yes** in the pop-up dialog to confirm. The mobile computer will proceed to reboot





5) A new GPRS connection based on your ISP will be automatically created under Settings | **Connections** | **Connections**. Tap and hold the connection and select **Connect** in the pop-up menu to apply the specified network.



A GPRS connection will be automatically created under **Settings** | **Connections** | **Connections**.

6) To open Mobile Network Wizard, tap **Start** | **Settings** | **Connections** | **Mobile Network Wizard**  .

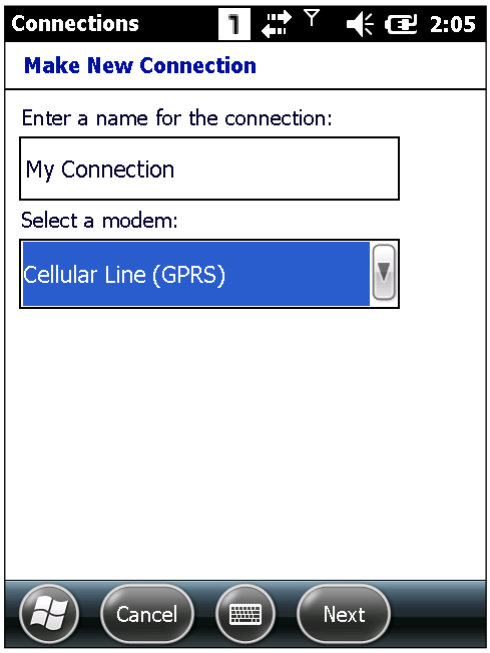
MANUAL CONNECTION

If you would like to manually enter your own network settings, follow the steps below.

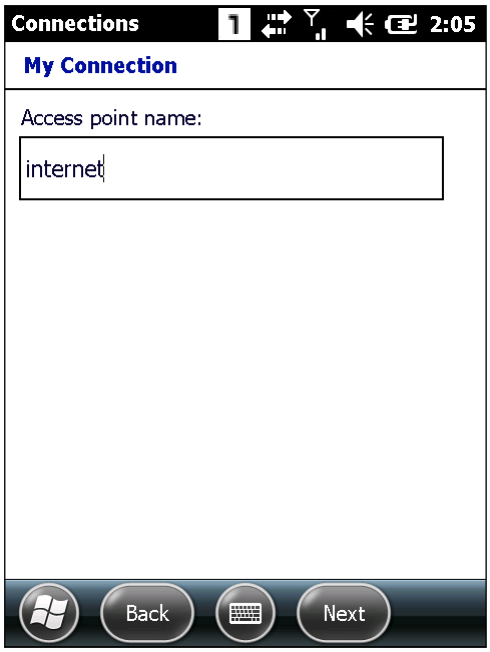
1) Tap **Start** | **Settings** | **Connections** and select **Connections**.

2) Tap **Add a new modem connection** and follow the on-screen instructions to enter the connection name and modem types.

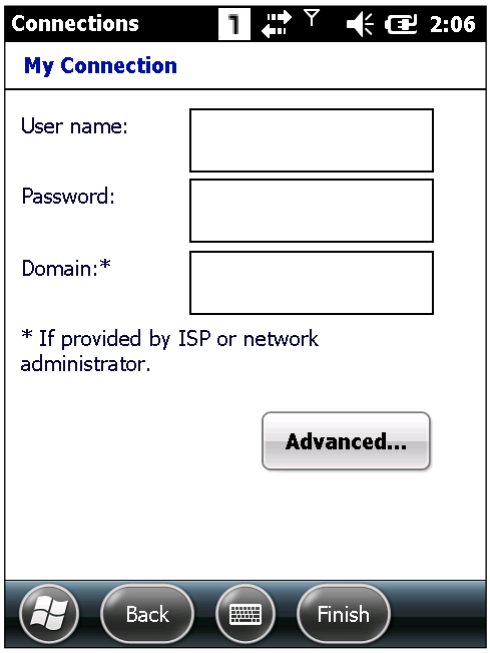
3) Enter the connection name and select "Cellular Line (GPRS, 3G)" from the drop-down list. Tap **Next**.

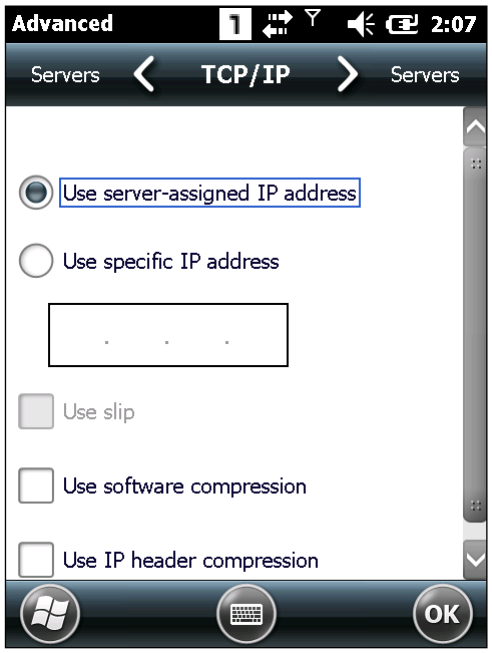


4) Specify the AP name from your service provider, for example, "internet". Tap **Next**.



5) Enter user name, password and domain information as necessary. Tap **Advanced** to access TCP/IP and server settings. When all settings are completed, tap **Finish**.





Note:

(1) You must connect to the GPRS modem specified by the mobile phone service provider.

(2) Performing hardware reset will not affect the wireless connection settings made under Wireless Manager. On the next system startup, the mobile computer will reflect the same wireless connection statuses as previously set.

6.7. VOIP

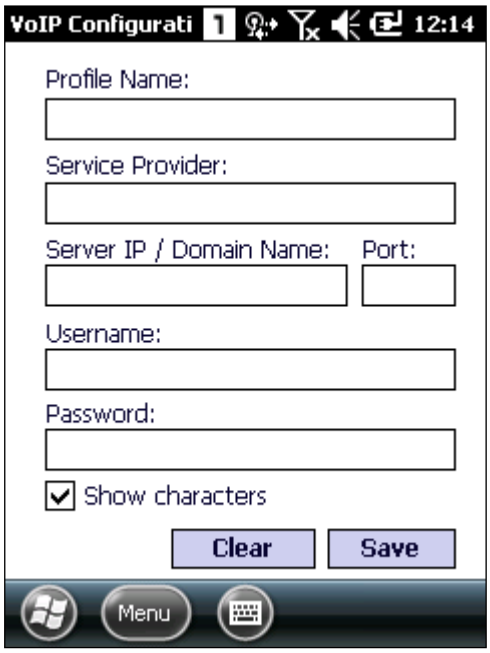
The mobile computer supports VoIP (Voice over Internet Protocol) through connection to a SIP server. VoIP transforms analog voice signals into digital data and transmits them over the Internet in the form of data packets. This allows instant audio communication while maintaining device portability.

Note: To use VoIP, first establish an Internet connection. See Use Wi-Fi for details.

6.7.1. LAUNCH VOIP

1) Tap **Start Screen** | **Settings** | **Personal** | **VoIP**  to launch the VoIP configuration tool.

   The VoIP Configuration tool opens. When first launched, an empty page appears for you to create a new profile.



6.7.2. CREATE VOIP PROFILE

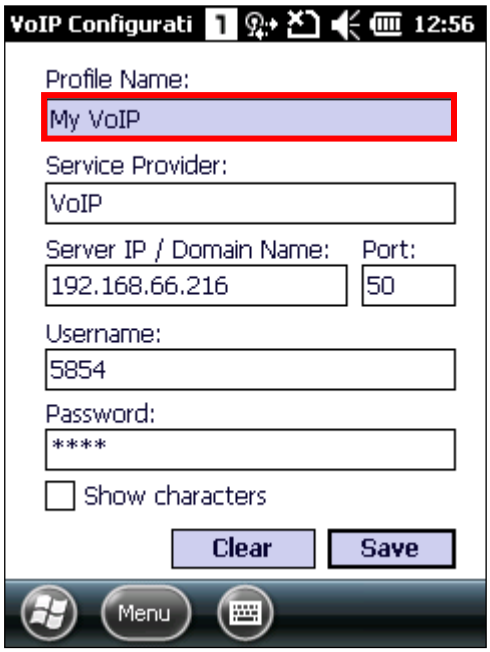
To use VoIP for internet-based mobile communication, you must create a VoIP profile that contains the settings for connecting to a SIP server.

1) Open the VoIP Configuration tool as described in Launch VoIP.

   In the blank page, enter a name for the profile, the service provider and IP address/port to connect, and the username and password for a secured connection.

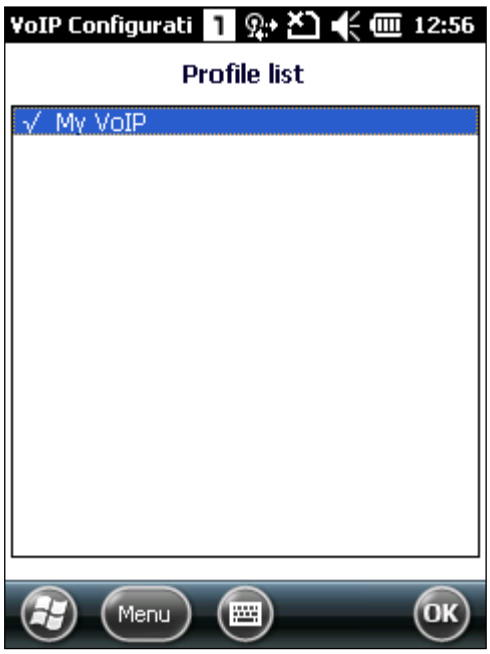
   Note: Whether or not a password is required depends on security settings of the VoIP server. If a password is required but not entered, connection to the server will fail.

2) Tap **Save** button to store the profile settings. The background color of the Profile Name field will change to indicate the profile has been stored.



3) Tap **Menu** button on the softkey bar and select **Profile list** in the pop-up menu.

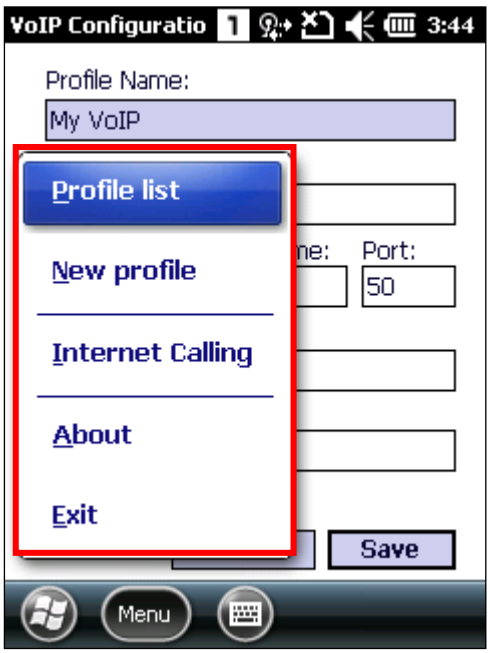
The created profile will be listed on the profile list page, with a tick ✓in front of it to indicate it is the active profile.

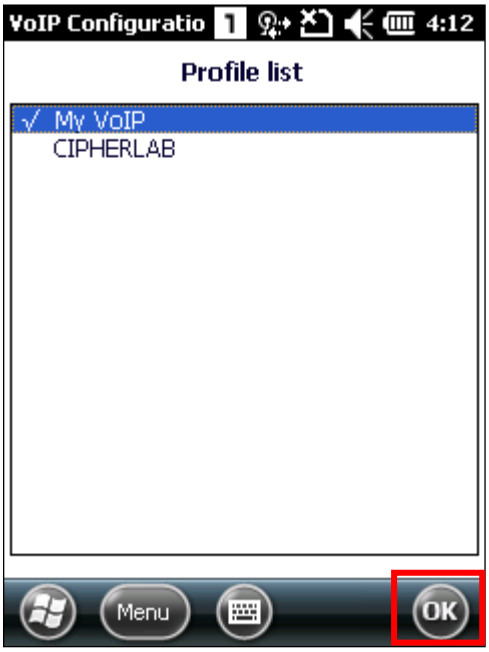


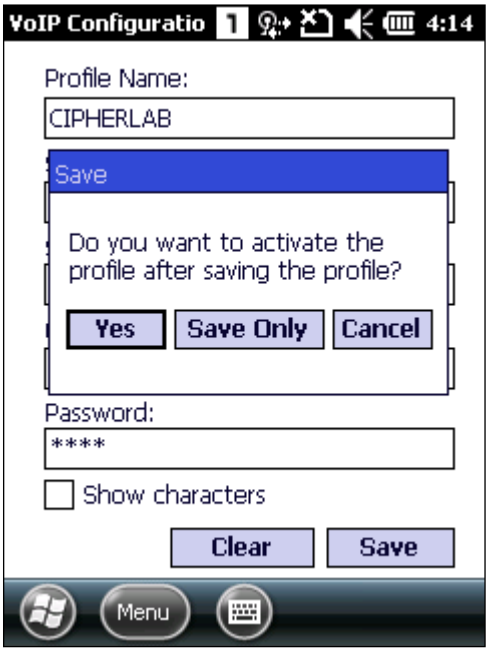
- To take more actions to the profile, see Edit Profile List.
- To add another profile, see New profile.
- To close the profile list and return to the Profile Settings page, tap **OK** on the softkey bar.

6.7.3. VOIP MENU

The VoIP configuration page features a menu list for managing profiles, activating VoIP, viewing software information and exiting the configuration tool.



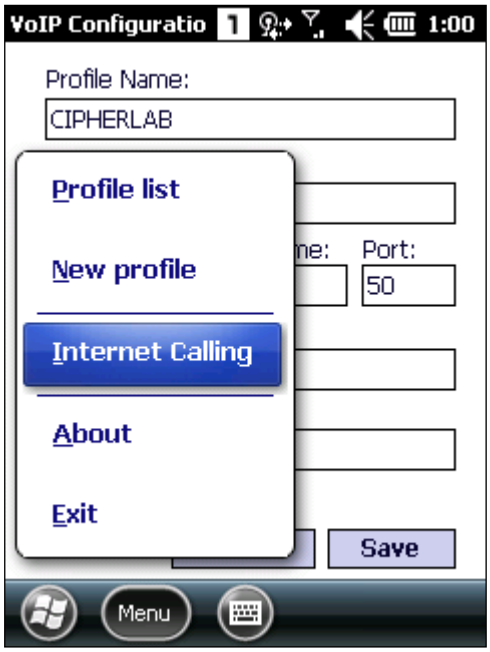
Option	Description
Profile list	Opens **Profile list** page which shows all the existing VoIP profiles created or imported into the VoIP Configuration tool. ▸ Tap **OK** on the softkey bar to open the Profile Settings page and view detailed information about the selected profile or edit its settings. 

New profile	Opens a new page with empty fields for you to create a new profile. Enter profile settings and tap **Save** in the lower right corner. Two possible actions will follow: ▸ If there is no existing profile in the Profile list, the new profile created will be automatically assigned as the active profile. ▸ If there is already an active profile in the Profile list, a pop-up dialog will show asking whether you would like to activate the newly created profile. Tap **Yes** to activate it directly, or tap **Save Only** to save the profile but not apply it. 
Internet Calling	Opens settings page to select the timing to apply VoIP. See Activate VoIP.
About	Shows copyright information about the application.
Exit	Exits VoIP Configuration. ▸ The **Exit** button is available as a menu option on the Profile Settings page only. If you are currently viewing the Profile list, tap **OK** on the softkey bar to close the Profile list and return to the Profile Settings page.

6.7.4. ACTIVATE VOIP

Follow the steps below to activate VoIP:

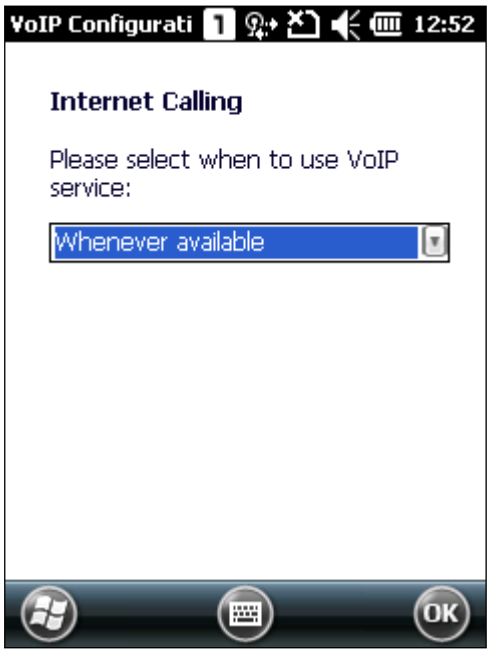
1) Create or import a VoIP profile.
2) Tap **Menu** on the softkey bar and select **Internet Calling** in the pop-up menu.



3) On the Internet Calling page, select when to activate VoIP in the drop-down list. Available options are: Whenever available, Only if cellular is not available, or Never.

   To enable VoIP in all possible cases, select **Whenever available** in the drop-down list.

   Tap **OK** on the softkey bar to apply the changes.

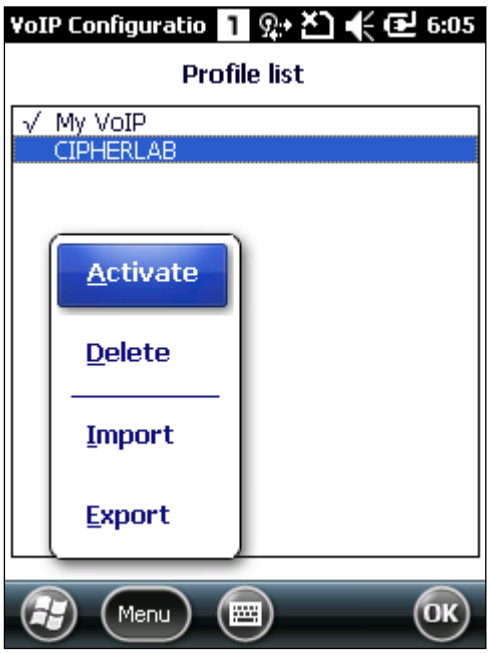


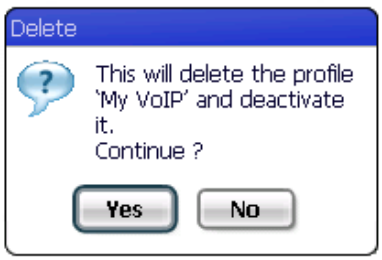
4) If VoIP is available, an icon for phone power appears on the title bar, with bars indicating the signal strength.

5) Press the [SEND] button on the physical keypad, or tap **Start** | **Phone** to open the phone dialing page. The name of the VoIP service provider is shown in the upper left corner. You may now dial the number you would like to call.

6.7.5. EDIT PROFILE LIST

On the Profile list, tap the **Menu** icon on the softkey bar to edit the profile. Menu options include: **Activate**, **Delete**, **Import** and **Export**.



Option	Description
Activate	Activates the selected profile. If multiple profiles exist in the Profile list, you may use this to change the active VoIP profile.
Delete	Deletes the selected profile. ▸ If the profile to delete is the active profile, a prompt will show notifying that the profile will be deactivated. The next listed profile will be appointed as the active profile. 
Import	Imports a profile from the mobile computer's internal storage or storage card. ▸ By exporting/importing profiles to and from a storage card, you may deploy VoIP settings on a certain mobile computer to all of your devices.
Export	Exports the selected profile to the mobile computer's internal storage or storage card.

Chapter 7

MORE APPLICATIONS

Additional applications include:

Applications	Description
Button Assignment	Assigns new functions to some physical keys.
GPS Viewer	Discovers your location on earth.
Signature Utility	Captures, views, edits signatures.
Backup Utility	Performs backup and restoration of registry and system files.
Push to Talk	Transmits real-time audio content through wireless connection.

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

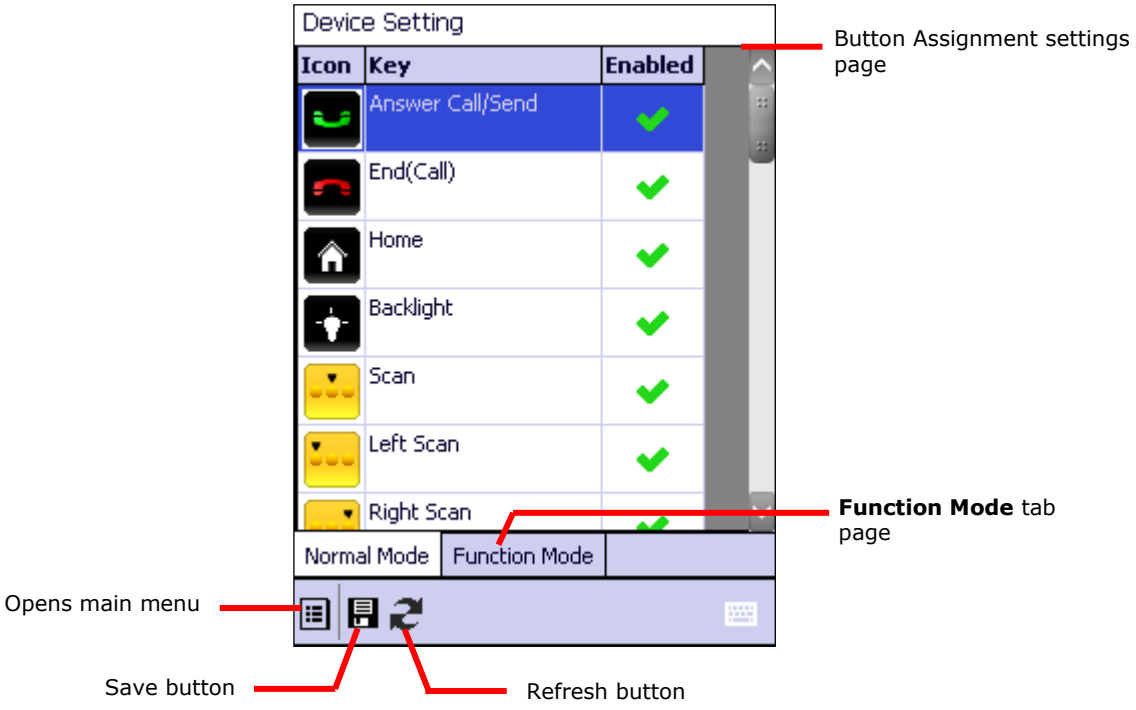
To launch Button Assignment:

1) Tap **Start** | **Settings** | **System** | **Button Assignment** .

   Button Assignment opens showing **Normal Mode** tab page with an additional **Function Mode** tab page.

   The Normal Mode tab 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

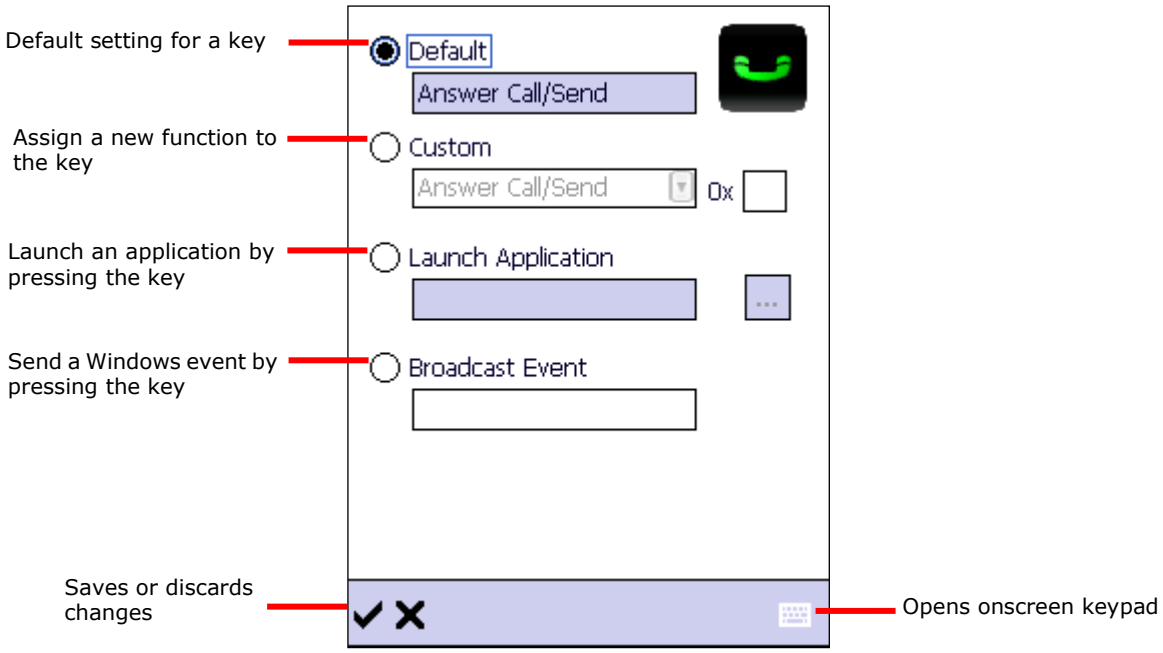
Toolbar icon	Description
	Opens Button Assignment main menu which can be used to manage profiles, reset settings to default, obtain version information, or exit the application.
	Saves current settings as a new profile, or saves changes made to the profile currently opened.
	Refreshes the screen to profile 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.

   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.

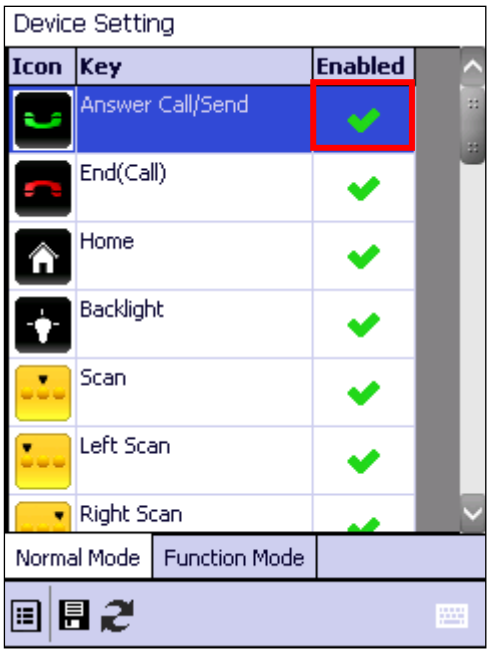
3) Re-assign the button as desired, and tap ✔ to save, or ✕ to cancel.

4) Open the Button Assignment main menu and tap **Write to device** to apply changes.

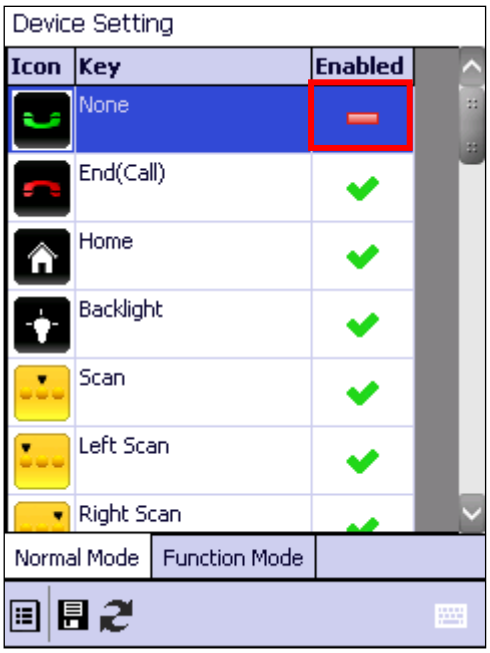
DISABLE/ENABLE KEY FUNCTION

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

To edit an existing profile:

1) Tap the main menu button and tap **User Profile** in the option menu.
2) Select the profile you wish to edit, then tap ✔.
   The selected profile opens.
3) Modify the profile according to your needs, then tap .
4) In the dialog box that appears, tap **Yes** to proceed, or **No** to cancel.

DELETE PROFILE

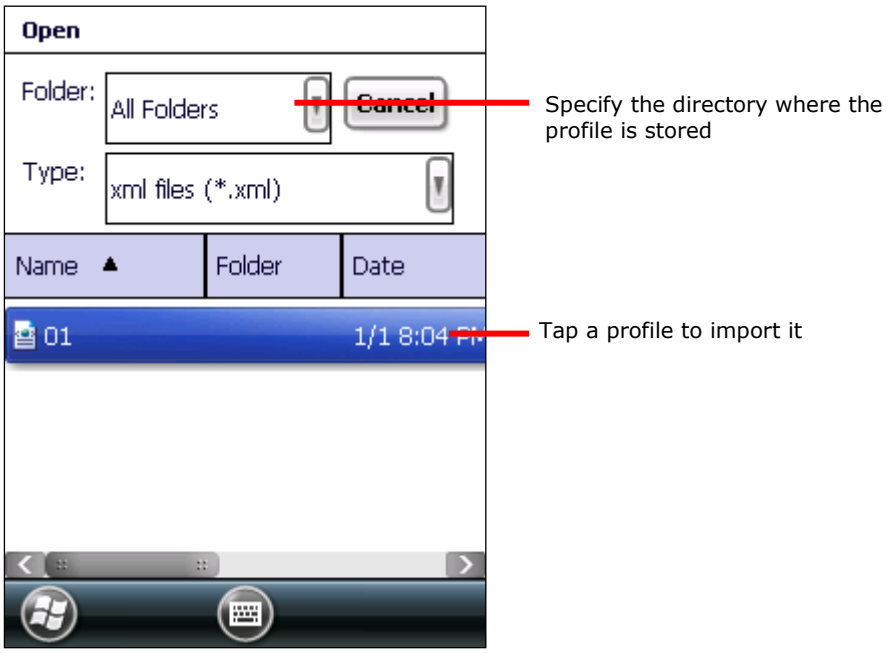
To delete an existing profile:

1) Tap the main menu button and tap **User Profile** in the option menu.
2) Select the profile you wish to delete, then tap .
3) In the dialog box that appears, tap **Yes** to proceed, or **No** to cancel.

IMPORT/EXPORT PROFILE

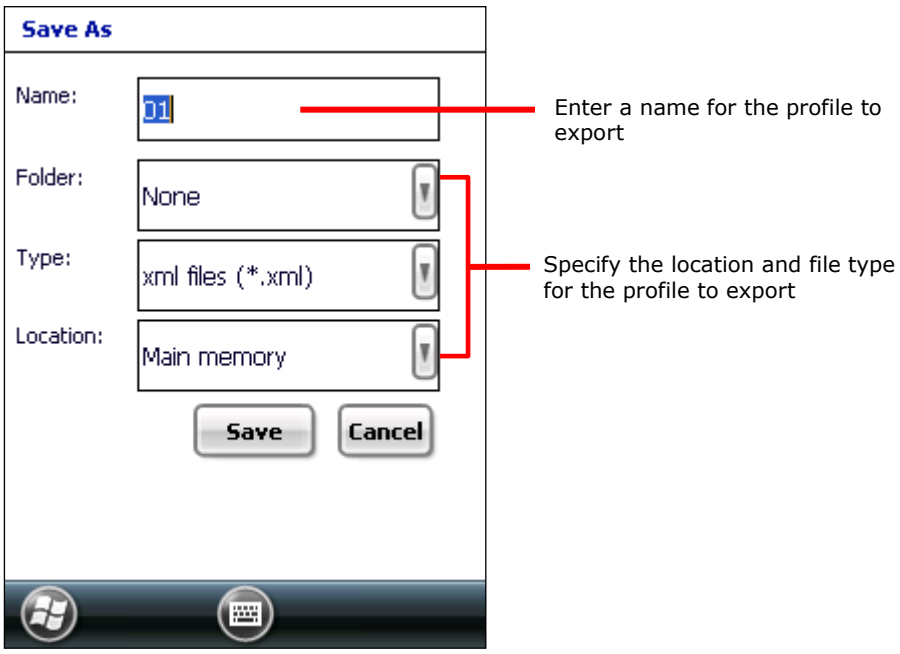
Profile settings can be exported as an independent .xml file, which may be transferred to other devices so they can share identical button assignment settings.

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 01export settings.



Note: The **All Folders** directory refers to all folders under **My Device\My Documents**. If no subfolder is selected upon export, the exported file will be stored directly 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.

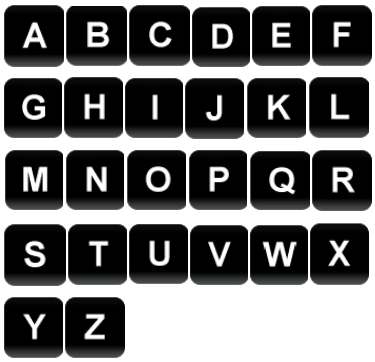
NUMERIC KEYPAD

Button	Normal Mode	Fn Mode	General Options	Special Options (Normal Mode Only)
	Send	Start screen	Send End Start screen OK Home End Left Right Up Down Page Up Page Down Volume Up Volume Down Increase Backlight Brightness Decrease Backlight Brightness Backspace Enter Esc Tab Shift - . * # ! @ $ % ^ & ( ) 1, 2, 3…..9, 0	
	End	OK		
	Home	F11		
	Backlight	F12		
	Scan	N/A		Camera Scan + User Define
	Left Scan	N/A		Camera Scan + User Define
	Right Scan	N/A		Camera Scan + User Define
	Camera	N/A		Camera
	Volume Up	N/A		
	Volume Down	N/A		
	Left	Home		
	Right	End		
	Up	Page Up		
	Down	Page Down		
	Esc	Esc		
	Tab	Tab		
	Enter	Enter		

	Backspace	Backspace	F1-24 User Define	
	[*] Asterisk	N/A		
	[#] Number	N/A		
	1, 2, 3…..9, 0	F1, F2, F3…..F9, F10		
	Shift	Shift		

QWERTY KEYPAD

Button	Normal Mode	Fn Mode	General Options	Special Options (Normal Mode Only)
	Send	Start screen	Send End Start screen OK Home End Left Right Up Down Page Up Page Down Volume Up Volume Down Increase Backlight Brightness Decrease Backlight Brightness Backspace Enter Esc Tab Shift - . * # ! @ $ % ^ & ( ) 1, 2, 3…..9, 0 F1-24 User Define	
	End	OK		
	Home	F11		
	Backlight	F12		
	Scan	N/A		Camera Scan + User Define
	Left Scan	N/A		Camera Scan + User Define
	Right Scan	N/A		Camera Scan + User Define
	Camera	N/A		Camera
	Volume Up	N/A		
	Volume Down	N/A		
	Left	Home		
	Right	End		
	Up	Page Up		
	Down	Page Down		
	Esc	Esc		
	Tab	Tab		
	Backspace	Backspace		
	Space	Space		

	Enter	Enter		
	$	$		
	@	@		
	_	_		
	&	F10		
	ABC…..Z	N/A		
	N/A	F1-F9		
	Shift	Shift		
	Ctrl	Ctrl		
	Alt	Alt		

Note: (1) Direct keys (scan key, side trigger keys, volume up/down keys, Application key) on the mobile computer are available for re-assigning only under normal mode.

(2) Several of the direct keys provide special functions under normal mode. These special functions 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. The GPS module turns on automatically once GPS software launches on the mobile computer.

For CP55 mobile computers equipped with GPRS, **GPS Viewer** comes as preinstalled GPS software. To launch **GPS Viewer**:

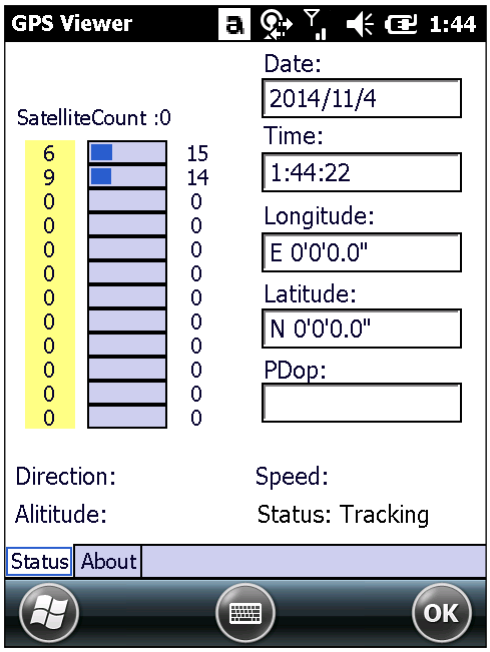
1) Turn on Cellular data/GPS power as in Power On Phone via Wireless Manager.

   Select whether to enable A-GPS to assist location discovery in GPS Manager.

2) Tap **Start** | **Settings** | **System** | **GPS Viewer**  .

   GPS Viewer opens showing **Status** tab page. The GPS module turns on.

   If there is a 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 on-screen.



Note: For **GPS Viewer** to function properly, cellular data/GPS power must be enabled.

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 "Position", during which latitude, longitude and altitude information are all obtained.

Note: For multiple GPS-enabled programs to access GPS data, tap **Start** | **Settings** | **System** | **GPS Manager** | **COM Port** tab page. Select **Enable GPS program port** and specify a program port for related software to obtain GPS data from.

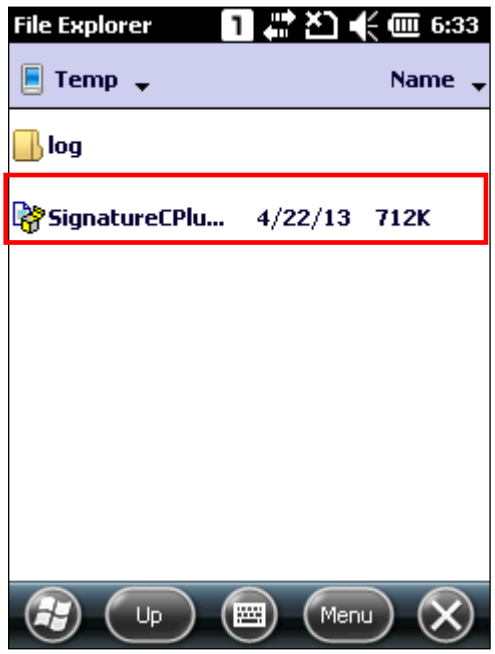
7.3. SIGNATURE UTILITY

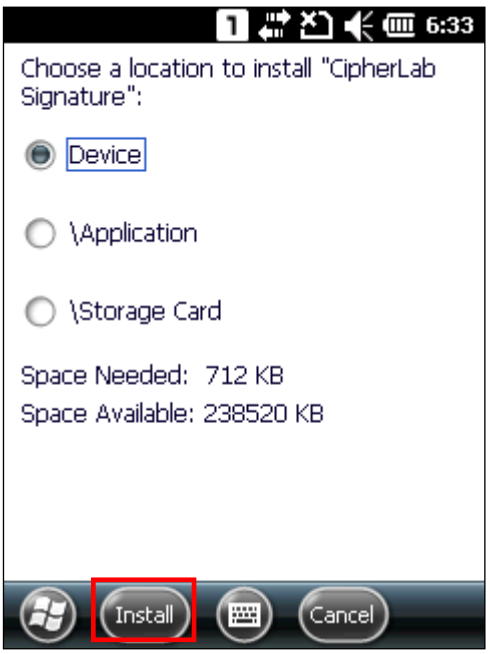
Signature utility captures, views and edits signature files. If you need to manage signatures, install signature utility according to the following steps.

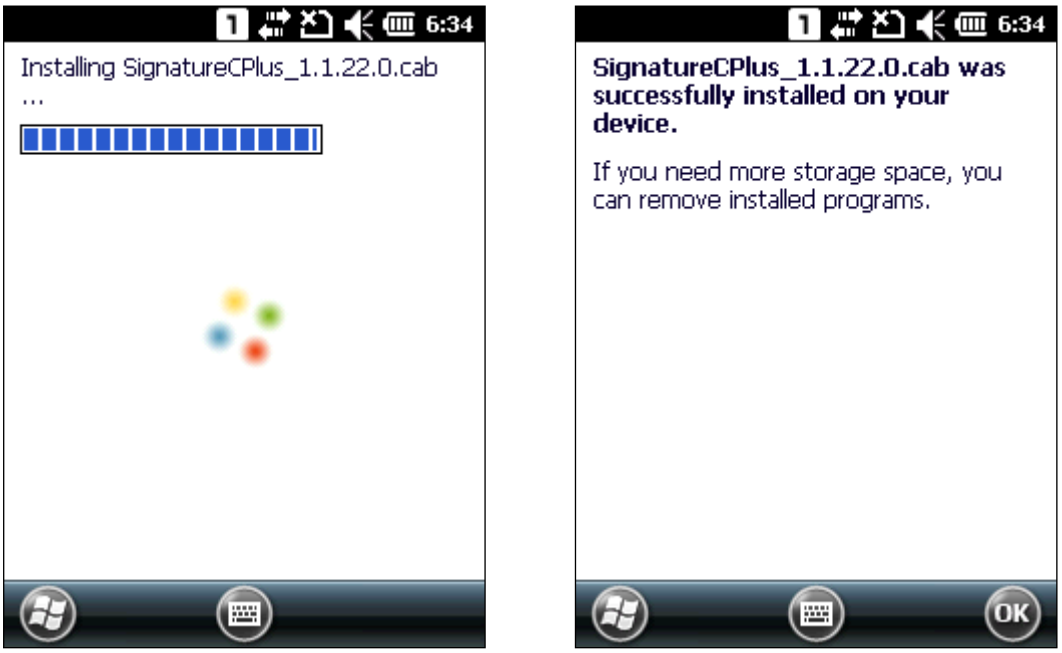
7.3.1. INSTALL SIGNATURE UTILITY

INSTALL WITH .CAB FILE

1) On your PC, log in to GoBetween to download the file of installation.
2) Connect the mobile computer to your PC via ActiceSync.
3) Copy the .cab file from your PC to a path of your selection on the mobile computer.
4) On the mobile computer, use **File Explorer** to locate the copied .cab file.
5) Tap the .cab file to start installation. Select the location to store the application and tap **Install**.



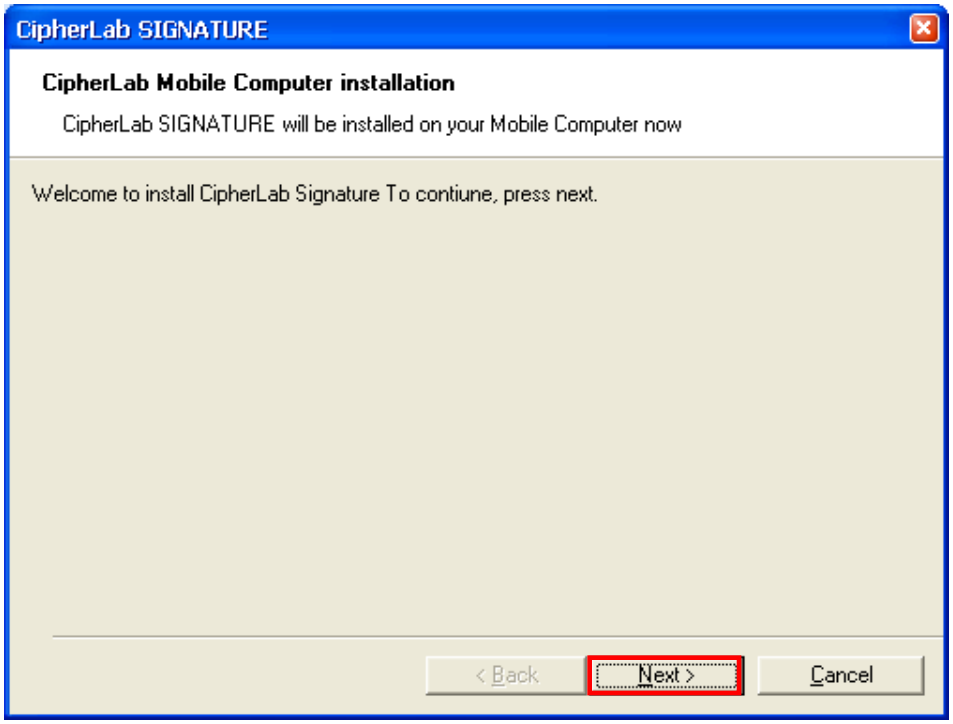


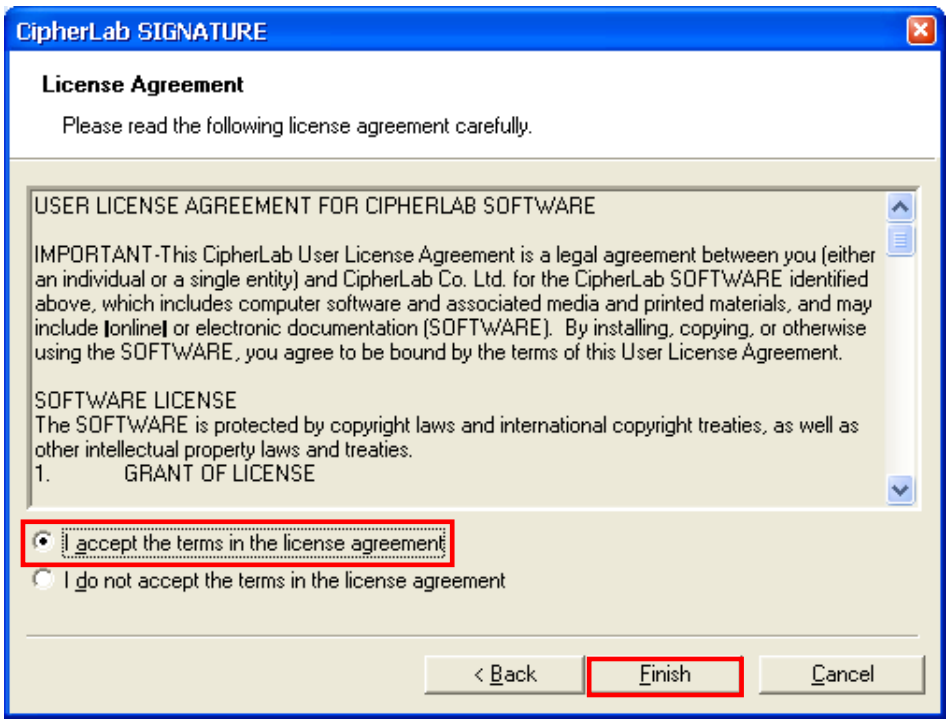


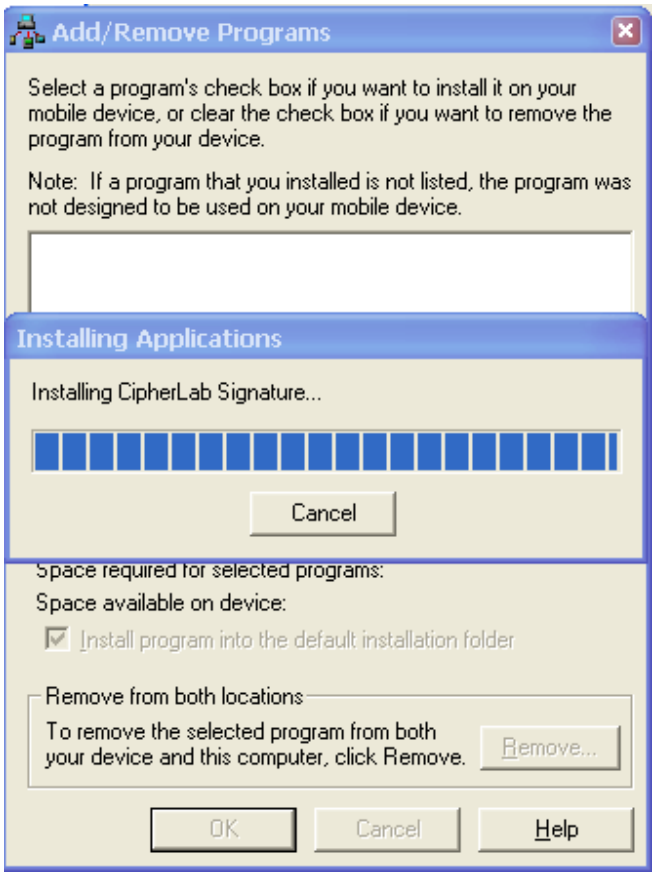
6) **Signature** utility is installed on the mobile computer's Start Screen.

INSTALL WITH .EXE FILE

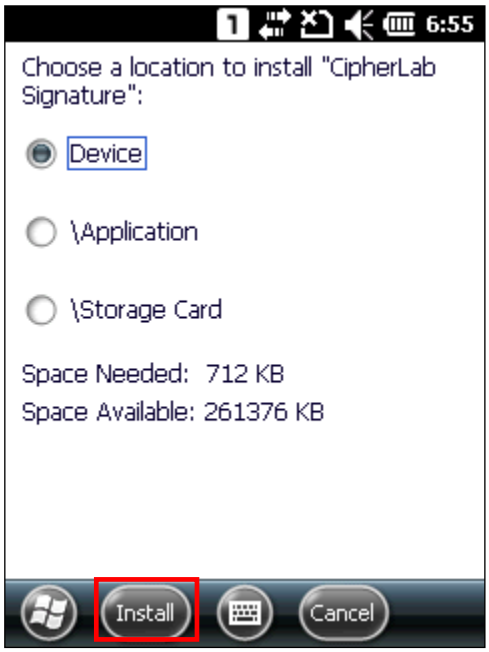
1) On your PC, log in to GoBetween to download the file of installation.
2) Connect the mobile computer to your PC via ActiceSync.
3) On your PC, double-click the Signature utility executable file (.EXE) to begin the installation process.

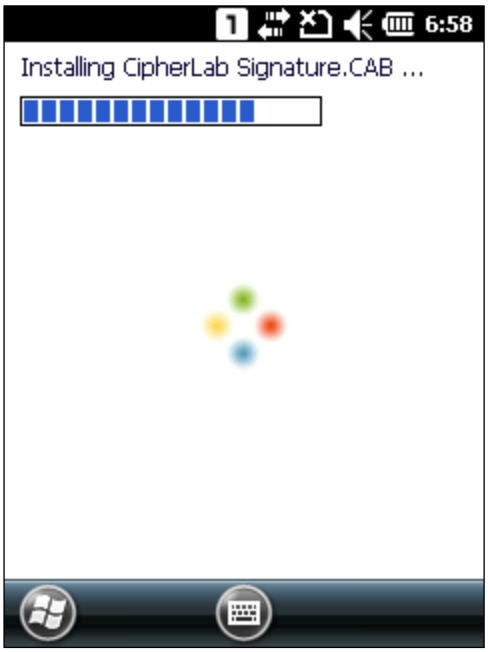






4) On the mobile computer, select where to install the utility, either in one of the device's storage spaces, or on the storage card.





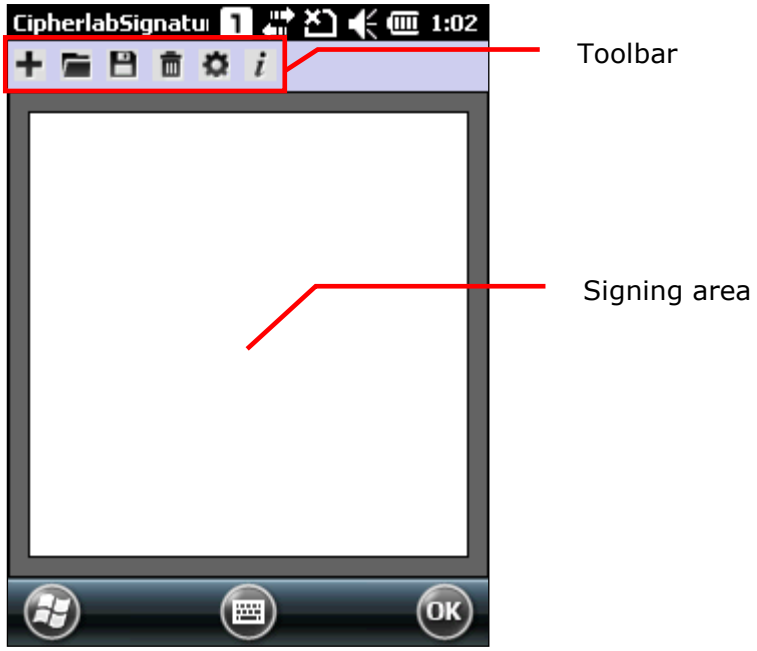
5) **Signature** utility is installed on the mobile computer's Start Screen.

7.3.2. LAUNCH SIGNATURE UTILITY

To launch Signature utility:

1) Tap **Start** | **Programs** | **Signature** .

   Signature utility opens showing a toolbar along the top and a signing area within its window.



TOOLBAR & SIGNING AREA

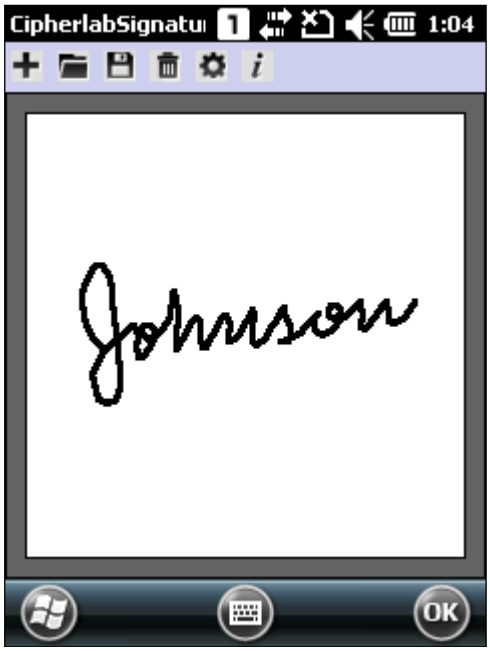
Toolbar features a few icons to launch actions from the utility.

Toolbar icon	Description
	Creates a new signature file.
	Loads an existing signature file.
	Saves the created/edited signature to an image file (BMP, JPG or Locus format).
	Clears the signing area.
	Opens preferences settings.
	Views utility info including developer and software version.

7.3.3. CAPTURE SIGNATURE

To capture a signature:

1) Launch Signature utility as described in Launch Signature Utility.
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 **OK** to exit Signature utility.

7.3.4. 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.
2) Tap  icon on toolbar.

   The utility opens a screen allowing users to select the location and file type of the signature to view. All signature files meeting the requirements are listed.
3) Tap the signature file to view.

   The file opens onscreen overlaid by a dialog asking if you want to modify the opened signature file.
4) Confirm **Yes** if you want to change the opened signature.

OR

Tap **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 pops up notifying that the image cannot be opened.

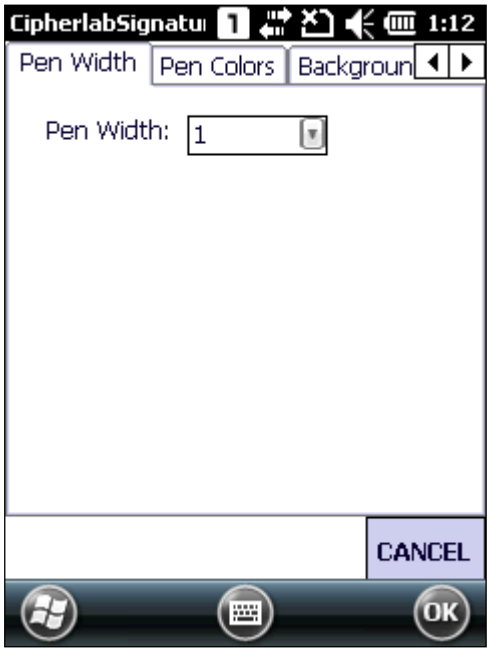
7.3.5. PREFERENCES

The utility supports preferences settings which change the utility's behaviors 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.
2) Tap ⚙ icon on toolbar.

   Preferences settings open showing **Pen Width** tab page.



3) Select between **Pen Width**, **Pen Colors** and **Background Colors** tabs to customize signing preferences.
4) Tap **OK** on the softkey bar to save the changes.

7.4. BACKUP UTILITY

CipherLab's Backup Utility performs backup and restoration, a process of copying files and putting them back to system. They are very important for a computer or database once it is rendered unusable by any software or hardware error.

Backup Utility facilitates backing up important files from time to time to save it for usage during unexpected errors.

Features:

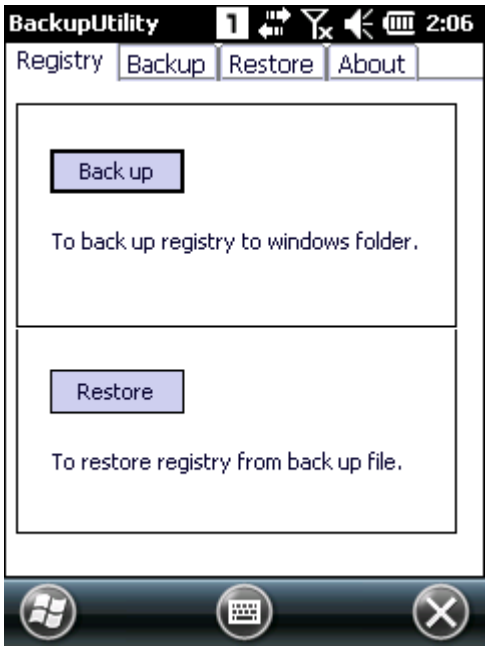
- Reserves and restores system registry and system files.
- Flexible file selection.

7.4.1. LAUNCH BACKUP UTILITY

To launch Backup Utility:

I) Tap **Start** | **Programs** | **Backup Utility**  .

Backup Utility opens showing **Registry** tab page.



The four tab pages serve the following functions:

Tab page	Description
Registry	▸ Backs up system registry. ▸ Recovers system registry.
Backup	Makes duplicate copy of system files.
Restore	Recovers system files.
About	Delivers software version and developer info.

7.4.2. REGISTRY BACKUP AND RESTORATION

The registry is a database of the information about system configuration and application settings that form the basis of operating system. You may back up and restore the system registry to keep the mobile computer at a stable condition.

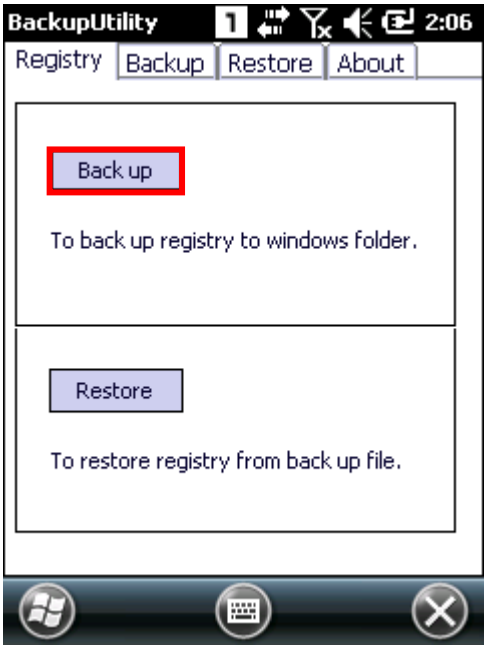
REGISTRY BACKUP

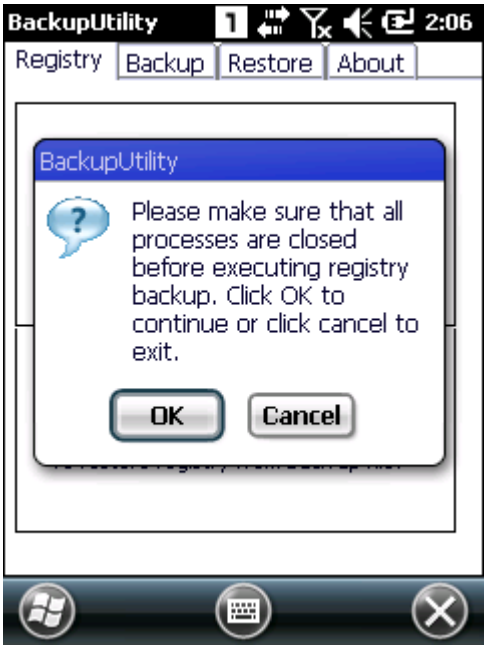
You may use registry backup to reserve the system configuration and application settings at a checkpoint when the condition is stable, which can come to rescue when the system becomes unstable and erroneous.

To back up the system registry:

1) Launch Backup Utility as described in Launch Backup Utility.
2) Tap the **Back up** button.

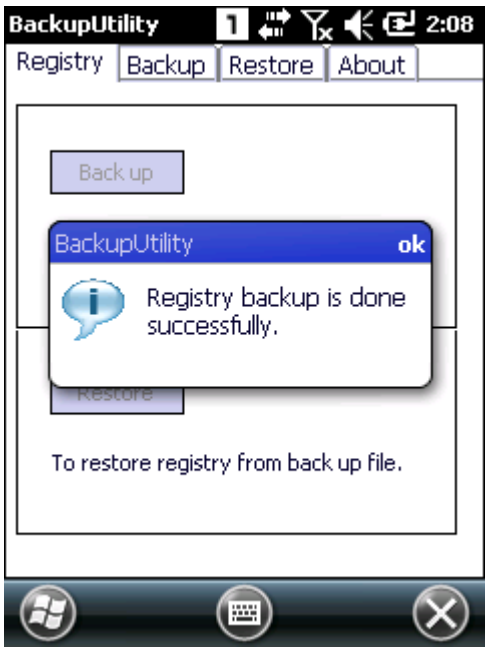
   A dialog pops up prompting you to close all processes and programs before registry backup.





3) Tap **OK** to proceed, or tap **Cancel** to abort.

Registry backup is completed within a few seconds. Tap **OK** to close the window.



Warning: Whenever changes are made to the system configurations and settings, remember to perform registry backup again to update the system registry.

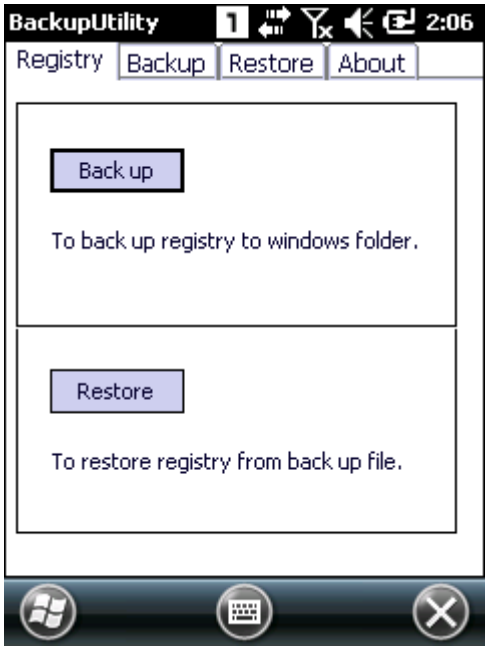
REGISTRY RESTORATION

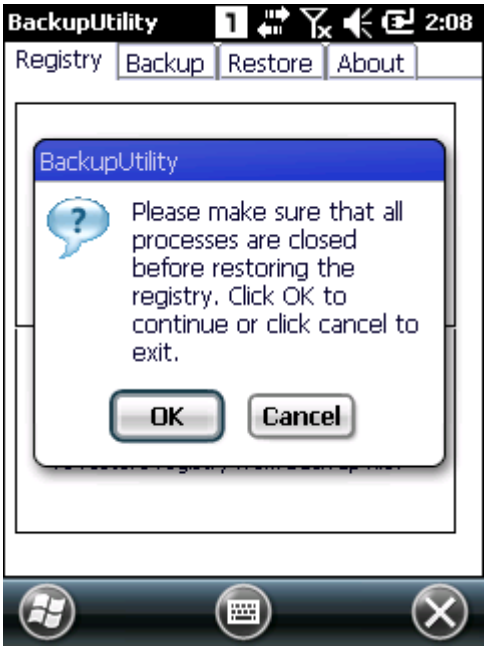
Registry restoration brings system configuration and application settings back to an earlier checkpoint when the environment is stable. Perform backup of system registry on a regular basis to facilitate restoration at a later stage.

To restore system registry:

1) Launch Backup Utility as described in Launch Backup Utility.
2) Tap the **Restore** button.

   A dialog pops up prompting you to close all processes before restoration.





3) Tap **OK** to proceed, or tap **Cancel** to abort.

The mobile computer proceeds to restore the registry. When completed, a dialog pops up confirming that system reboot (warm boot) must be performed for the changes to take effect.

4) Tap **OK** to reboot the mobile computer. System configuration and application settings are restored to an earlier stage.

7.4.3. DEVICE DATA BACKUP AND RESTORATION

DEVICE DATA BACKUP

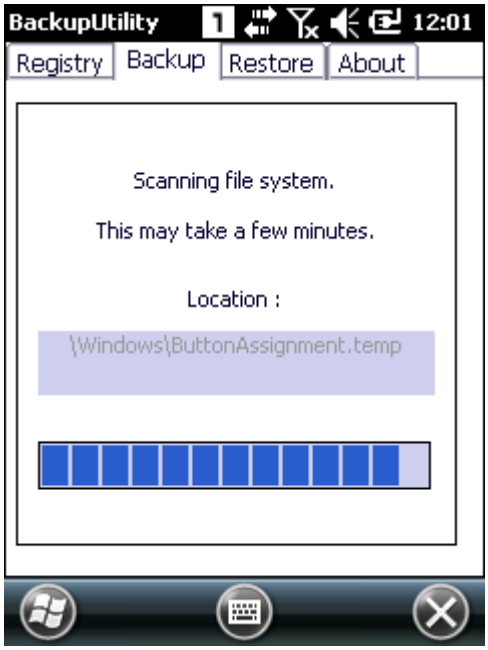
The **Backup** tab page can be applied for backup of system files and user data.

To back up system file(s):

1) Launch Backup Utility as described in Launch Backup Utility.

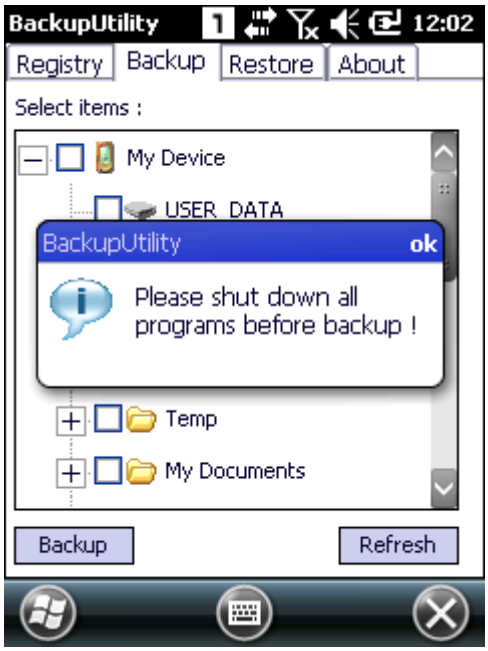
2) Tap **Backup** tab.

   Backup Utility automatically starts searching and importing system and user items from the **\My Device** directory.



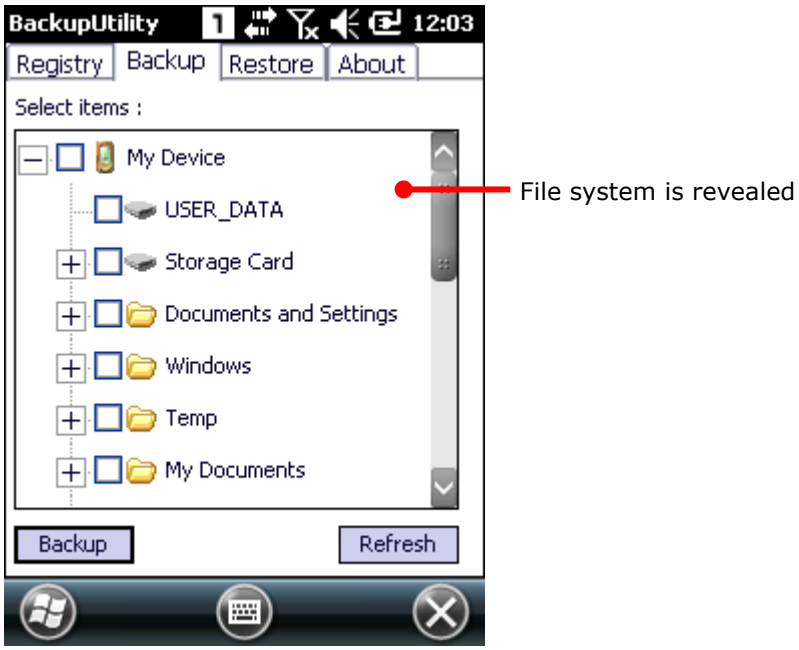
3) When the search is through, the discovered file system will come into view, overlaid by a dialog prompting that all applications should be closed before backup.

   Tap **OK** to close the dialog.



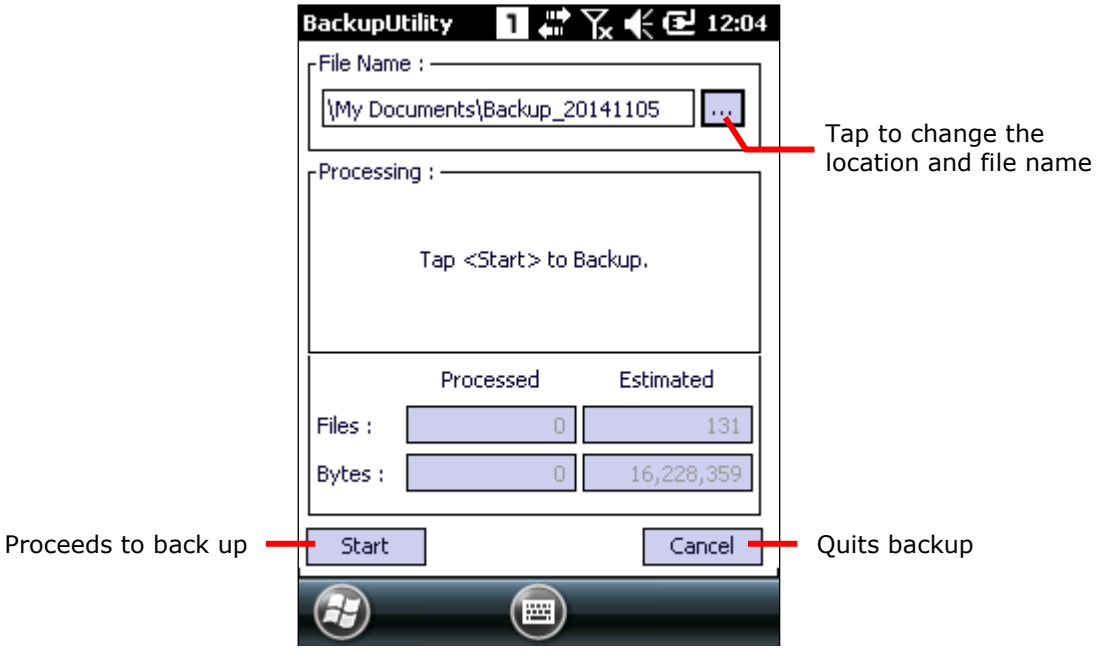
4) The file system is revealed as a tree-like structure in hierarchical order. Each plus sign (+) is a node to expand an item or sub-item. Each item comes with a check box for selection.

   Select the items you would like to back up.



   If the items "Machine Registry" and "User Registry" are not listed, it means registry backup has not been performed. Perform Registry Backup, and then tap **Refresh** to list all available items.

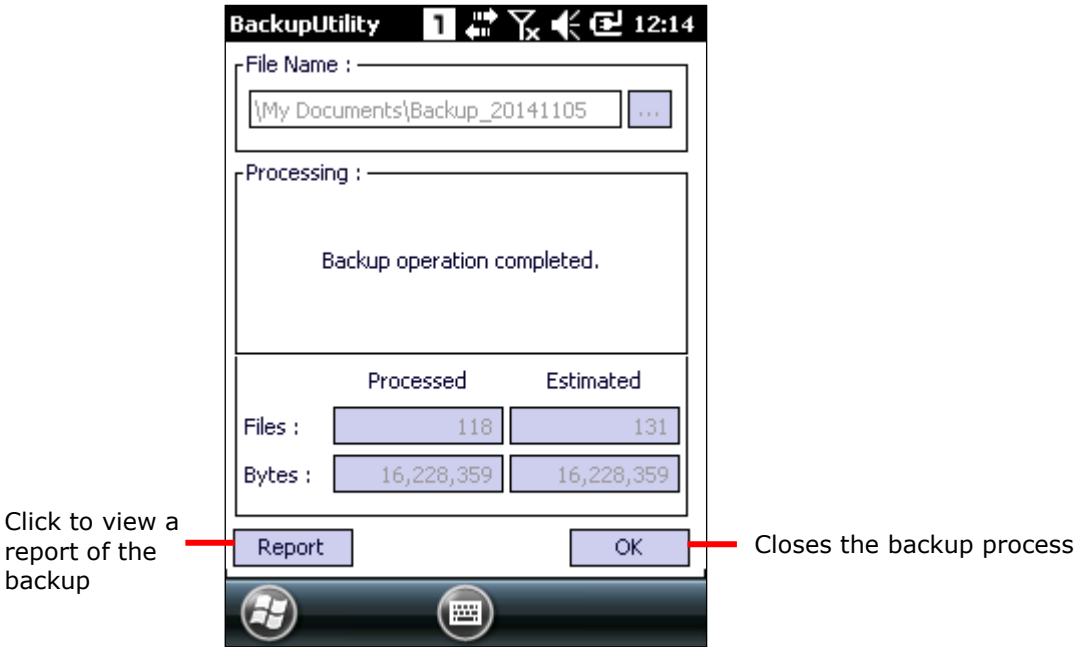
5) Tap the **Backup** button in the lower left corner. A page shows to change the storage location and file name of the backup file and the estimated file number and size.



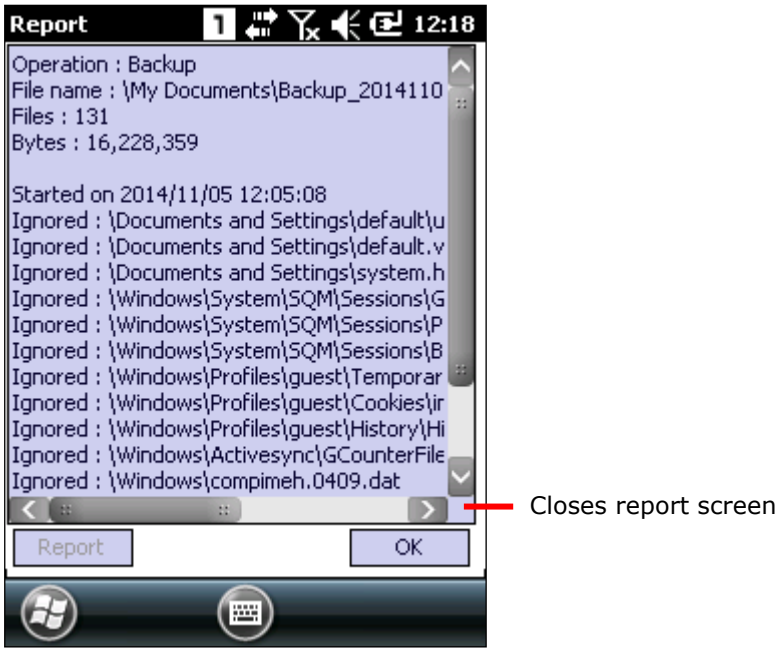
   By default, the system backup file is saved to **\My Device\My Documents** with the default filename and extension "Backup_YYYYMMDD.bkp". You may modify the file name, or tap the Browse icon ... to adjust the storage location.

6) Tap **Start** to proceed.

Backup utility proceeds to generate a backup file for system data. Results are displayed on the screen.



7) Tap **OK** to finish and quit backup, or tap **Report** to view the details of the generation.



A backup file with .bkp format is generated under **\My Device\My Documents** for necessary restoration in case of emergency.

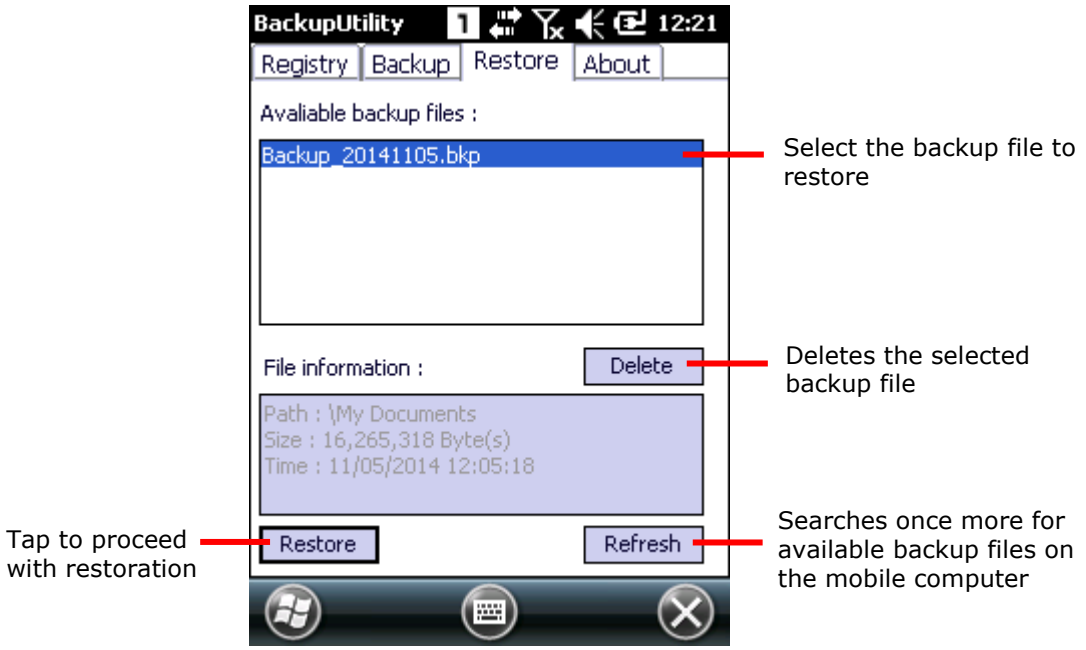
DEVICE DATA RESTORATION

You may restore system files and user data as long as any backup file is found in the storage, whether internal or external.

To restore device data:

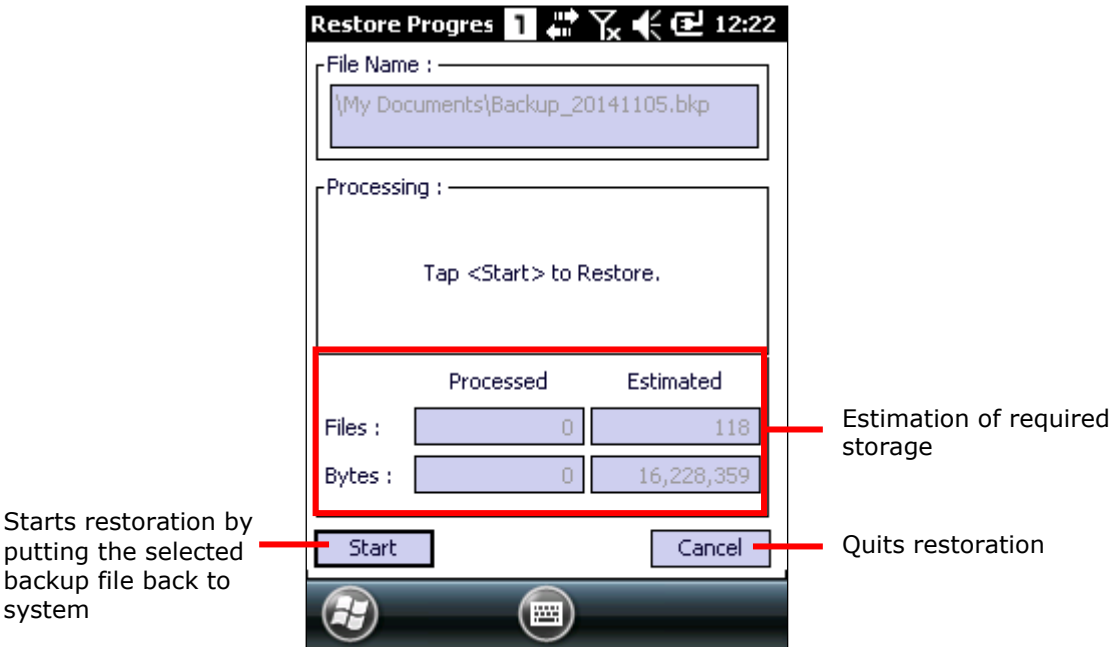
1) Launch Backup Utility as described in Launch Backup Utility.
2) Tap **Restore** tab.

   Backup Utility searches for available backup files on the mobile computer. If the auto-search doesn't start, tap the **Refresh** button in the bottom right corner. Once the search is completed, the backup files on the mobile computer will be listed under **Available backup files**.



3) Tap the **Restore** button in the bottom left corner.

   A screen opens showing estimation of required storage.



4) Tap the bottom-left **Start** button.

   Restoration begins, and the selected backup file is placed back to the system.

5) Follow the prompt message and restart the mobile computer to apply changes.

7.5. PUSH TO TALK

CipherLab Push to Talk is a walkie-talkie service that allows users of an active talk group to communicate with all other members of the group instantaneously with a simple push of a button.

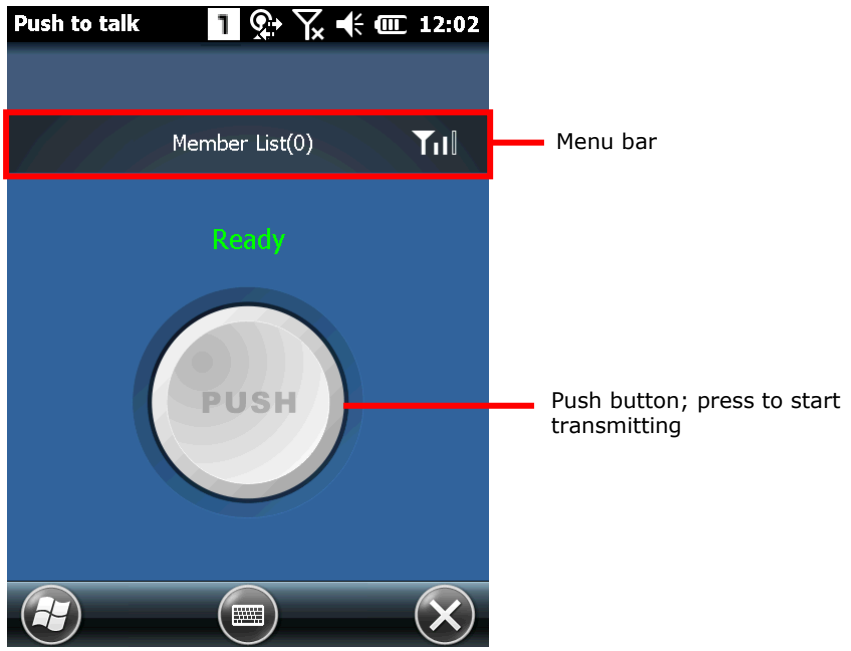
7.5.1. LAUNCH PUSH TO TALK

Once Push to Talk is launched for the first time on the mobile computer, it will be continuously running in the background to enable real-time communication.

To launch Push to Talk for the first time:

1) Tap **Start** | **CipherLab Uilities** | **Push to Talk**  .

   Push to Talk opens showing a **PUSH** button in the middle and a menu bar at the top.



7.5.2. COMMUNICATE WITH GROUP MEMBERS

Push to Talk functions through group communication, meaning that when an audio transmission is initiated on one device, all other devices in that group will receive the audio message. Groups are established by Wi-Fi connection under a specific subnetwork (subnet). All devices that are currently running Push to Talk and are connected within a certain wireless subnet will be automatically incorporated as a group member.

A mobile computer can communicate with group members either by sending out audio content, or by receiving it. When a member in the group initiates an audio content, all other members turn into recipients and will automatically receive the audio content on their mobile computer.

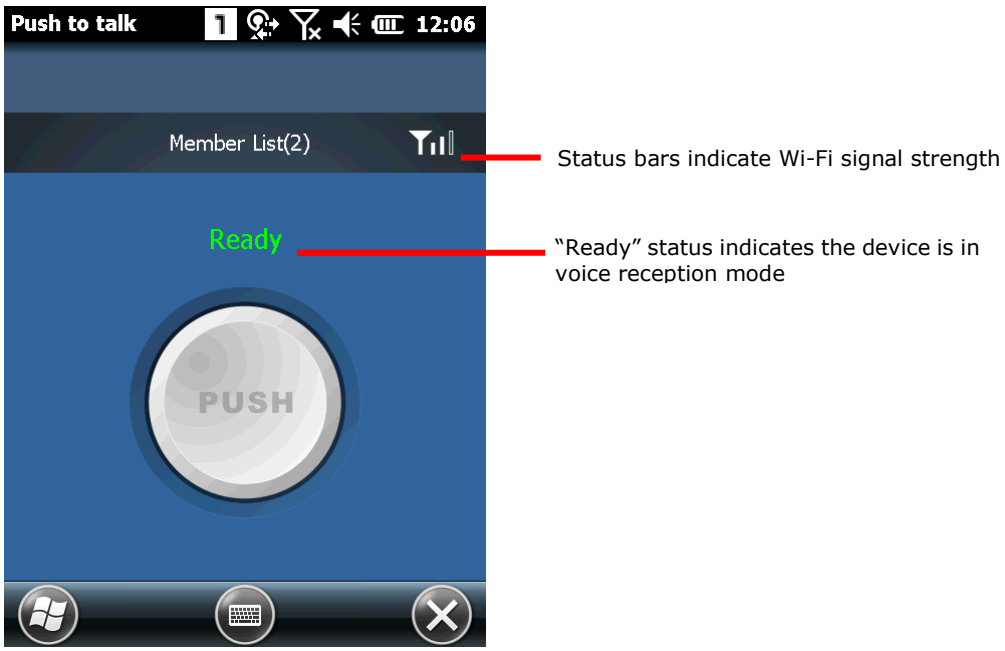
Note: For optimized performance, the Wi-Fi signal strength should be stronger than -60 dB.

SENDING AUDIO CONTENT

To send audio content to other devices:

1) Have all devices you would like to communicate with connect to a specific (or several specific) access point(s) as described in Use Wi-Fi. Make sure these access points belong to the same subnet.
2) On all of the devices, launch Push to Talk as described in Launch Push to Talk.

   Push to Talk opens in voice reception mode.



3) Tap and hold the **PUSH** button. The button will turn red to indicate the device is ready for transmission. You can start talking into the receiver to transmit your message to all other devices in the group.

"Transmitting" status indicates the device is in transmit mode

When tapped and held, PUSH button turns red

When finished transmitting the audio message, let go of the **PUSH** button. The button will return to gray and the mobile computer will switch back to voice reception mode.

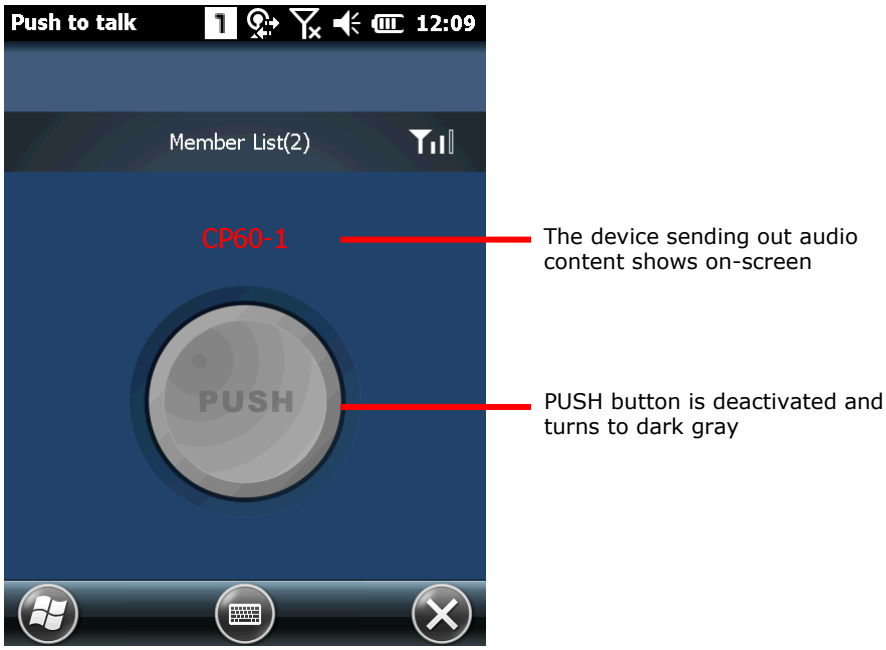
RECEIVING AUDIO CONTENT

To receive audio content from group members:

1) Have all devices you would like to communicate with connect to a specific (or several specific) access point(s) as described in Use Wi-Fi. Make sure these access points belong to the same subnet.
2) On all of the devices, launch Push to Talk as described in Launch Push to Talk.

   Push to Talk opens in voice reception mode.

   When another device in the group is sending out audio content, the **PUSH** button will become deactivated, and the device name currently transmitting the audio message will be shown on-screen.



3) As long as Push to Talk is running on the system, it is still open to receive audio messages from other devices even if it is not the active application onscreen. If you are working on other tasks or applications, the mobile computer will still receive audio messages once they are transmitted.

Note: The mobile computer will not be able to receive audio content when the system is under suspension, or when Wi-Fi has been disconnected.

ASSIGNING OTHER KEYS AS PUSH BUTTON

By default, communication can be done by tapping and holding the **PUSH** button on-screen. Alternatively you may assign a physical key to function as the **PUSH** button. The keys available for assignment are:

- Scan key
- Side triggers (Left and right scan keys)
- Application key

See Button Assignment for how to re-assign the above physical keys.

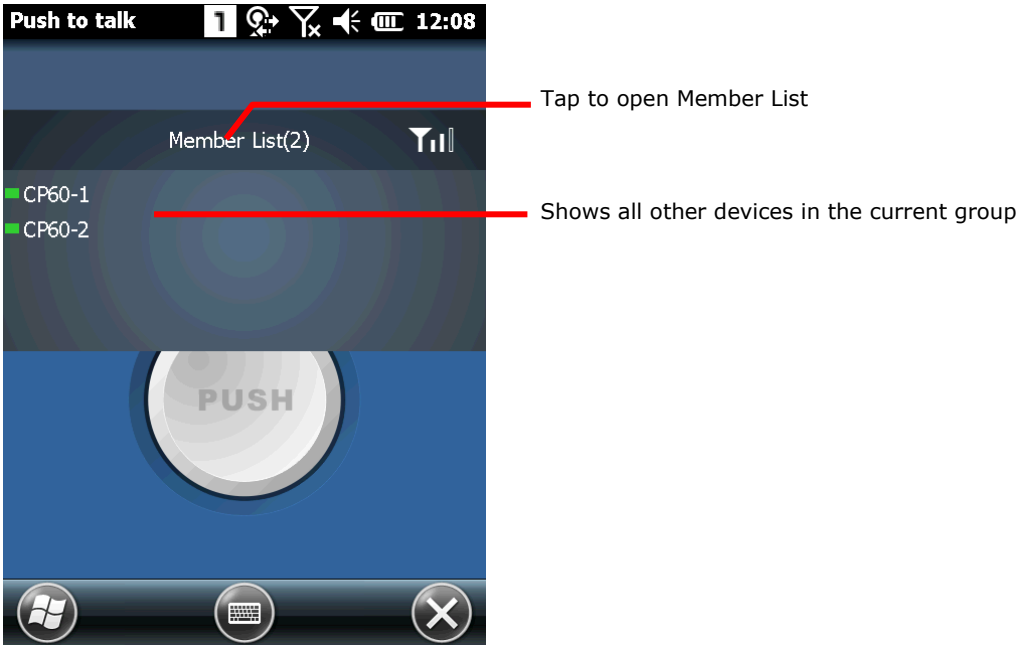
MANAGING MEMBER LIST

The Member List will show all other devices (not including the device under operation) that have connected to the wireless subnet and are currently running the Push to Talk application.

OPEN MEMBER LIST

1) Launch Push to Talk as described in Launch Push to Talk.
2) Tap **Member List** on the Push to Talk menu bar to view all members in the current group.

   The number of devices connected to the group will be shown on the Member List label.



   Tap **Member List** again to close the list.

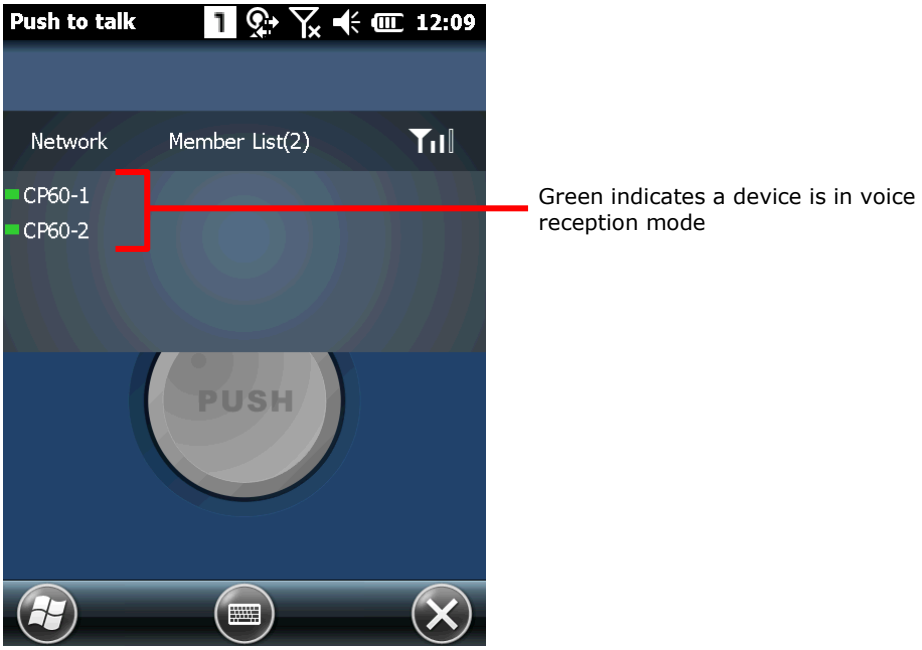
CHECK MEMBER STATUS

In the Member List, a short bar in front of the device name will change its color to indicate the status of that device. Possible colors are:

Status	Mode	Meaning
Green	Voice reception mode	Device is connected to the wireless subnet and is currently running Push to Talk.
Red	Active transmit mode	Device is transmitting audio message to other devices.
Yellow	Passive transmit mode	Device is receiving audio message from another device.
Gray	Disconnected	Device has been disconnected from the group. Make sure device has Wi-Fi access, the system hasn't shut down or entered suspension, and is still running the Push to Talk application.

VOICE RECEPTION MODE

When Push to Talk is opened, devices will be in voice reception mode and are ready to receive audio content. The status bar before the device name appears in green.



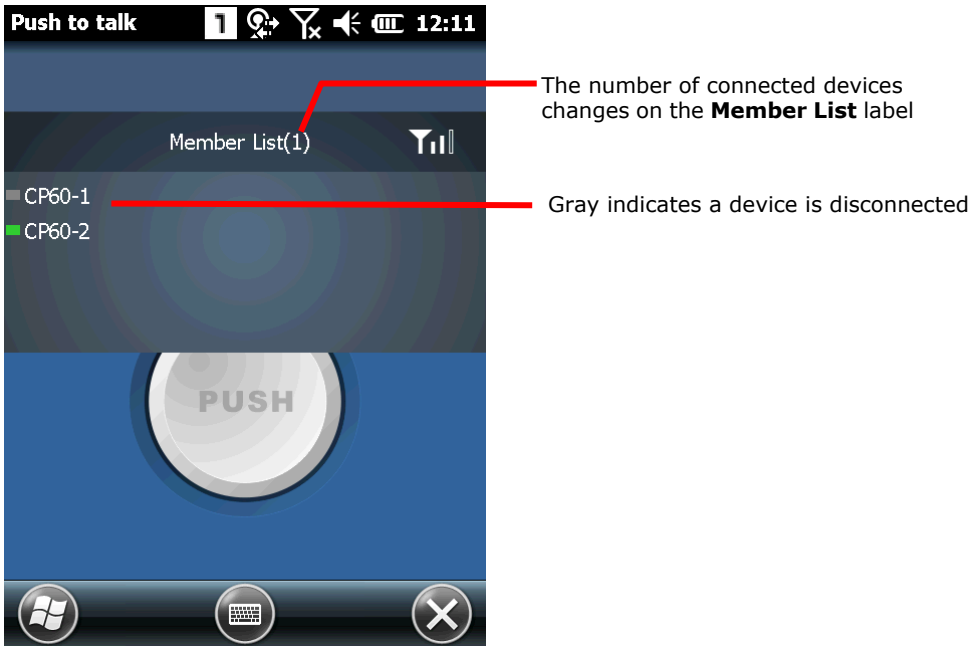
ACTIVE AND PASSIVE TRANSMIT MODES

When one of the devices in the group is sending out audio content, the status bar before that device name will change to red. The status bar for all other devices will change to yellow.

Note that in a certain group, only one device can be sending out audio content at a time. A separate transmit session can only be initiated when all devices have returned to voice reception (green) mode.

DEVICE DISCONNECTED

When one or more of the devices in the group is disconnected, the status bar before the device name will change to gray. The **Member List** label will be updated to reflect the remaining number of connected devices. When this occurs, check the Wi-Fi connection status on that specific device, make sure the mobile computer is powered on and not in suspension, and the Push to Talk application is currently running.



CHANGING DEVICE NAME

In the member list, device names will appear as individually set under **Start Screen** | **Settings** | **System** | **About** | **Device ID** tab page. If you have a number of devices in the same group, modify the device names on some or all of them in order to distinguish between them.

Note: After changing the device name on one or more of the devices, have all the other devices in the group shut down Push to Talk and re-open it again. This will update the device names shown in the member list.

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 the process for updating the OS image.

IN THIS CHAPTER

8.1. 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 RTC time, calendar, time zone, and up to three alarms which can serve as reminders.

Note: RTC time can be reserved for approximately 60 days on the mobile computer after the main battery pack has been removed.

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.

POWER
- Battery tab: View the current main battery level.
- Advanced tab: Configure to turn off the display panel when it is idle for a

specific period of time, either on battery or external power.

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 tab pages, **Sounds** and **Notifications**:

Tab page	Description
Sounds	Mutes/unmutes the sounds for system events, programs, screen taps, and physical key pressing.
Notifications	Configures the ring type for a number of system events such as established or disconnected connections and so on.

CONNECTIONS

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

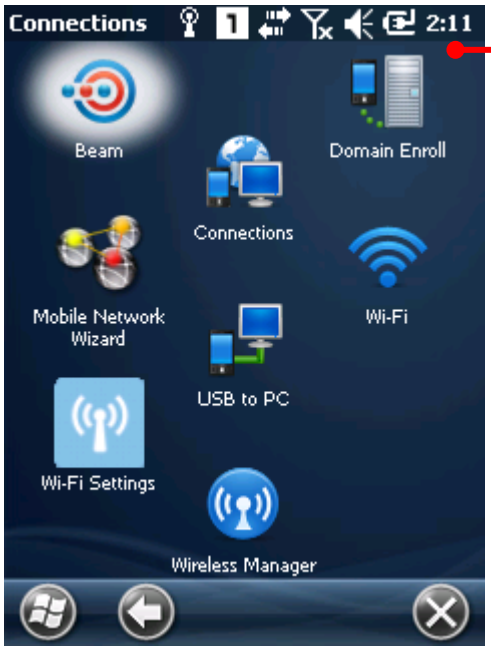
Leads to System Folder, where the hardware and software on the mobile computer can be configured and their info can be viewed.

8.1.1. 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 infrared or Bluetooth.

Open **Beam** application and select **Receive all incoming beams** to enable Bluetooth-based data exchange with other devices.

CONNECTIONS (MANAGER)

Sets mobile data connection with two tab pages – Tasks and Advanced.

Page	Description
Tasks tab page	Sets where mobile data connects to, to Internet (**My ISP**), or to an internal network (intranet) or a VPN (**My Work Network**).

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. ▸ Add a new modem connection Creates a mobile data connection to Internet. Request your mobile carriers for the information needed.

		▸ 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 tab page	Featured settings are:	

Setting	Description
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.

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.

MOBILE NETWORK WIZARD

Mobile Network Wizard automatically configures your network provider and APN when a SIM card is installed. See Automatic Connection.

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.

WI-FI

Refer to Use Wi-Fi.

WI-FI SETTINGS

Enables Wi-Fi roaming on the mobile computer and manages roaming settings. See Configure Wi-Fi Settings.

WIRELESS MANAGER

The Wireless Manager page shows the following items:

- **All**: Turns on/off all the radios on the mobile computer.
- **Wi-Fi**: Turns on/off Wi-Fi. Check Use Wi-Fi to configure Wi-Fi settings.
- **Bluetooth**: Turns on/off Bluetooth. Check Use Bluetooth to configure Bluetooth settings.
- **Phone**: Turns on/off phone. Check Using the Phone to configure phone settings.

Tap the "Menu" command on the softkey bar to access Wi-Fi Settings, Bluetooth Settings and Phone Settings.

Setting	Description
Wi-Fi Settings	Wi-Fi settings feature two tabs – **Wireless** and **Network Adapters**. **Wireless** tab page: - Searches for available access points and establishes connections. **Network Adapters** tab page: - Modifies network card settings such as static IP connection, sets up server connection, and configures where the network cards connect to, Internet or your work network.
Bluetooth Settings	Bluetooth settings feature three tabs – **Devices**, **Mode** and **COM Ports**. **Devices** tab 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** tab page: - Turns on/off Bluetooth. - Hides/reveals the mobile computer from/to other Bluetooth devices. **COM Ports** tab 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** tab page: - Configures phone ring type. - Configures phone ring tone. - Configures keypad tones. **Security** tab page: - Enables/disables PIN code(s) for the inserted SIM card. - Edits the existing PIN code(s) of the inserted SIM card. **Services** tab page: - **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** tab 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.

8.1.2. PERSONAL FOLDER

This section guides to **Personal Folder** .

Open Start screen, tap **Settings** | **Personal**.

Personal folder opens:

Personal folder opens

BUTTONS

Provides two tabs – **Program Buttons** and **Up/Down Control**.

Tab 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.

OWNER INFORMATION

Creates contact info about the owner of the mobile computer and also some notes.

PHONE

Opens phone settings. Refer to Using the Phone.

VOIP

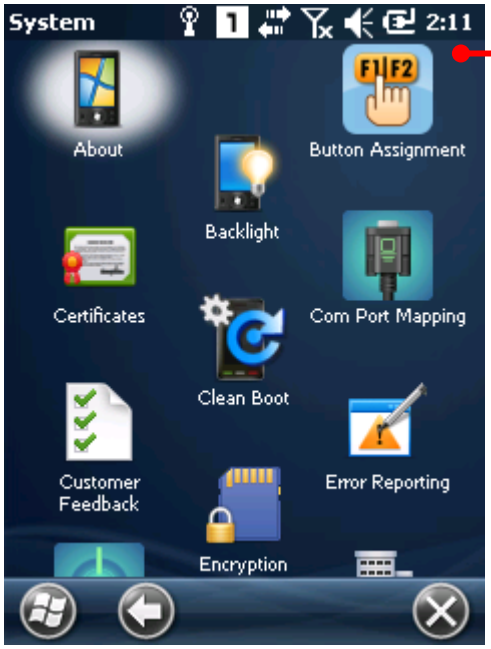
Connects the mobile computer to a SIP server in order to place calls over the Internet.

8.1.3. 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**.

Tab 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**.

Tab 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.

<table>
<tr><td>Battery Power</td><td>Sets the screen backlight timeout on battery power and whether to trigger screen/keypad light-up upon pressing a key.

<table><tr><th>Option</th><th>Default Settings</th></tr><tr><td>Turn off LCD backlight if device is not used for:</td><td>Checked;
2 min</td></tr><tr><td>Turn off keypad backlight if device is not used for:</td><td>Checked;
10 sec</td></tr><tr><td>Turn on LCD backlight when a button is pressed or the screen is tapped</td><td>Checked</td></tr><tr><td>Turn on keypad backlight when a button is pressed</td><td>Checked</td></tr></table></td></tr>
<tr><td>External Power</td><td>Sets the screen backlight timeout on external power and whether to trigger screen/keypad light up upon pressing a key.

<table><tr><th>Option</th><th>Default Settings</th></tr><tr><td>Turn off LCD backlight if device is not used for:</td><td>Checked;
2 min</td></tr><tr><td>Turn off keypad backlight if device is not used for:</td><td>Unchecked</td></tr><tr><td>Turn on LCD backlight when a button is pressed or the screen is tapped</td><td>Checked</td></tr><tr><td>Turn on keypad backlight when a button is pressed</td><td>Checked</td></tr></table></td></tr>
<tr><td>Profile</td><td>Sets backlight profiles or restores them back to default.</td></tr>
</table>

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.

CLEAN BOOT

Allows clean boot of the mobile computer, which eliminates all user data and restores the mobile computer back to factory settings.

- A confirmation key is required for clean boot.
- A warning message will show asking for confirmation before the mobile computer re-boots and starts the clean boot process.
- Make sure you have completed data backup to an external storage before performing clean boot.
- It is recommended to have the mobile computer connected to an external power source when performing clean boot.

COM PORT MAPPING

Maps the physical UART port to COM ports 1 through 9.

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**.

Tab 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

Select the checkbox to enable AGPS function for improved GPS performance.

GSENSOR CALIBRATION

Calibrates the G-sensor. Opens to show a round ball which fixes at the center of a set of circles when the mobile computer is placed on a level surface, and dislocates when the mobile computer is tilted. Place the mobile computer on a flat surface before calibration, and tap **Calibrate**.

HF RFID CONFIGURATION

Configures the RFID reader and displays test scan results.
See Use HF RFID Configuration.

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.

READER CONFIGURATION

Allows users to set scanner preferences, data output format and destination, symbology settings, and read barcodes.

REGIONAL SETTINGS

Controls how to display numbers, currency, date, time, etc on the mobile computer. Featured tabs are – **Region**, **Number**, **Currency**, **Time** and **Date**.

Tab 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.

Tab Page	Description
General	Switches the mobile computer between portrait 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.

- Portrait 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

STORAGE INFORMATION

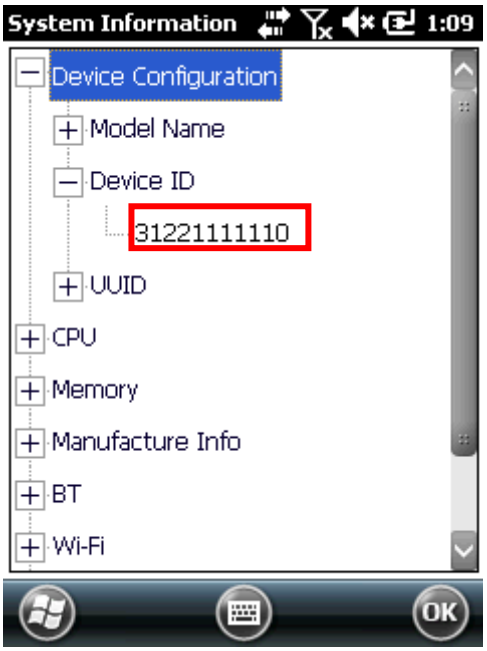
Provides storage status of the internal storage (which is divided into System files and User data) and external storage on the mobile computer.

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 ID, a sequence of digits that deliver information about the hardware integrated on the mobile computer. The coding rule is tabulated as below:



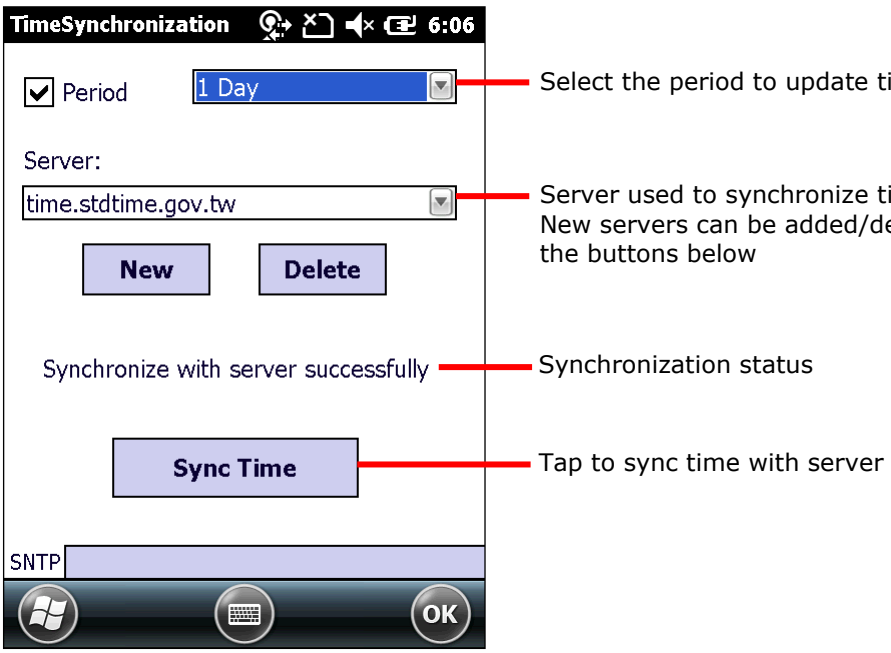
Digit Pair	Hardware	Code
1st	Barcode Reader	0: None 1: Laser (SE955-E) 4: Long range laser (SE965-E) 3: 2D (SE4500) 9: CCD (SM1)
2nd	RFID Reader	0: None 1: RFID
3rd	Bluetooth	0: None 2: Bluetooth
4th	Wi-Fi	0: None 2: Wi-Fi
5th	Camera	0: None 1: Camera
6th	Keypad	0: None 1: Numeric (29 Key) 2: QWERTY (47 Key)
7th	LCD	0: None 1: 3.5" QVGA 2: 3.5" VGA
8th	WWAN	0: None 1: WWAN module
9th	GPS	0: None 1: GPS
10th	Touch panel	0: None 1: 3.5" QVGA Transflective 2: 3.5" VGA Transflective
11th	Others	0: None

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

Synchronizes the mobile computer's time with an NTP server, either automatically or manually. Users can also select the time period for auto-synchronization. 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.

USB CONNECTION

Sets the type of USB connection without re-plugging the USB cable.

- **ActiveSync Serial Mode**: Sets up ActiveSync connection with PC through serial protocol.
- **Mass Storage – SD Card**: Presents the mobile computer with an SD card installed as a storage device. If no SD card is installed, the directory on the PC will be blank.

Note: Selection of ActiveSync Advanced Network Mode or ActiveSync Serial Mode will be synchronized with settings under **Settings** | **System** | **USB to PC**.

SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

OS Version	Microsoft Windows Embedded Handheld 6.5
CPU	TI OMAP4430 1GHz Processor

Memory

RAM	512MB DDR SDRAM
Flash	4GB Flash ROM
Expansion Slot	One expansion slot, supports MicroSD from 256MB to 4GB, or MicroSDHC from 4GB to 32GB

COMMUNICATIONS & DATA CAPTURE

Communications

USB Host/Client	USB 2.0
WPAN	Built-in module for Bluetooth version 2.1 + EDR Class 1.5 connectivity
WLAN	Built-in module for 802.11 a/b/g/n networking
WWAN	Built-in module for GSM/HSPA (Data only)
GPS	Built in GPS module, supports A-GPS

Data & Image Capture

Digital Camera	5 megapixel with auto focus and LED flash
Barcode Reader	Ordering options include ▸ CCD (SM1) ▸ Laser (Symbol SE955) ▸ Long range laser (Symbol SE965HP) ▸ 2D (Symbol SE4500DL)
RFID Reader	HF RFID reader supports ISO14443A and B, 15693 and Secure Access Module (SAM).

ELECTRICAL CHARACTERISTICS

Batteries

Main Battery Pack	3.7V, 3300 mAh Rechargeable Li-ion battery Charging time: approximately 4 hours
Backup Battery	15 mAh Rechargeable Lithium battery (via main battery or DC input) Data retention for 30 minutes Charging time: 8 hours

Power Adapter

Power Supply Cord for Snap-on Cable	Input	AC 100~240V, 50/60 Hz
	Output	DC 5V, 3A

PHYSICAL CHARACTERISTICS

Color Tap Screen Display

Display	3.5” Transflective TFT-LCD, 65K colors, sunlight readable
Resolution	QVGA 240 (W) x 320 (H), VGA

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 status and radio connection status
Audio	▸ Integrated with speaker and microphone ▸ 3.5mm 4-ring headset jack ▸ Bluetooth headset supported
Vibrator	0.45G force

Sensors

Built-in Sensors	G-sensor, Light Sensor

Enclosures

Materials	Plastic & metal
Dimensions	182 mm (L) x 77.5 mm (W) x 37 mm (H) with battery
Weight	410g

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating[Note]	-20 °C to 50 °C / -4°F to 122°F
Storage	-30 °C to 70 °C / -22°F to 158°F (without battery)
Charging	0 °C to 40 °C / 32°F to 104°F (with battery)

Humidity (non-condensed)

Operating	5% to 95%
Storage	5% to 95%

Resistance

Impact Resistance	Multiple 1.5 m (4.9 ft.) drops to concrete, meets and exceeds applicable MIL-STD 810G specifications
Tumble Test	1,000 tumbles (2,000 drops) at 0.5 m (1.6 ft.) per applicable IEC tumble specifications
Splash/Dust Resistance	IP65 per applicable IEC 60529 sealing specs
Electrostatic Discharge	± 15 kV air discharge, ± 8 kV contact discharge

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 Config ▸ Button Assignment ▸ Signature Capture ▸ Push to Talk ▸ GPS Viewer ▸ SPB SmartShell (optional) ▸ AppLock ▸ MIRROR Browser for web application ▸ Terminal Emulation
Third-party software	▸ SOTI MobiControl for remote device control (downloadable from website) ▸ Naurtech CETerm – Terminal emulator (3270, 5250, VT) and industrial web browser ▸ SYSDEV Kalipso

ACCESSORIES

Accessory Options

- Snap-on Charging and Communication Cable (USB or RS-232)
- Charging & Communication Cradle
- Pistol Grip
- Snap-on Car Charger

Appendix I

SCAN ENGINE SETTINGS

The CipherLab developed utility **Reader Configuration** configures the following reader types:

- CCD (SM1)
- 1D Laser (SE955)
- 1D Long Range Laser (SE965HP)
- 2D Imager (SE4500DL)

The reader integrated on the mobile computer is either a CCD, 1D or 2D scan engine. When the center scan key or side trigger is pressed, the mobile computer will read a printed barcode in position.

CipherLab **HF RFID Configuration** configures the RFID reader onboard. With the RFID reader enabled, press the scan key to read an RFID tag in position.

Note:

(1) CCD, 1D and 2D scan engines don't coexist on the mobile computer because they are all 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, 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.

		CCD	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 UPC-E to UPC-A	✓	✓	✓
	UPC-E1	✓	✓	✓
	Convert UPC-E1 to UPC-A	✓	✓	✓
2D Symbologies	Aztec	✘	✘	✓
	Data Matrix	✘	✘	✓
	Maxicode	✘	✘	✓
	MicroPDF417	✘	✘	✓
	MicroQR	✘	✘	✓
	PDF417	✘	✘	✓
	QR Code	✘	✘	✓

RFID TAGS SUPPORTED

The RFID reader supports both reading and writing RFID data. Supported labels include ISO 15693, ISO 14443A and ISO 14443B.

Supported RFID tags include:

ID_MOD_RFID		UID Only	Read Page	Write Page
ISO 14443A	Mifare Classic S50 1K	✓	✓	✓
	Mifare S50 1K UID 7 Bytes	✓	✓	✓
	Mifare Classic S70 4K	✓	✓	✓
	Mifare Ultralight (UL/ULC)	✓	✓	✓
	Mifare S20 Mini	✓	✓	✓
	Mifare DESFire V0.6 4K	✓	✓(2)	✓(2)
	Mifare DESFire EV1 2K/4K/8K	✓	✓(2)	✓(2)
	Mifare PLUS S 2K/4K	✓	✓(2)	✓(2)
	SLE 66R35	✓	✓	✓
ISO 14443B	SR176	✓	✓	✓
	SRI512	✓	✓	✓
	SRIX4K	✓	✓	✓
ISO 15693	I-CODE SLI-S/L	✓	✓	✓
	I-CODE SLIX	✓	✓	✓
	SRF 55V10P	✓	✓	✓
	SRF 55V02P	✓	✓	✓
	Tag-it HF-I Pro/Plus	✓	✓	✓

Note:

(1) For more information, refer to the specifications of the RFID tags to read.

(2) To read/write data or support additional functions, users must obtain permission from the RFID chip manufacturer.

Appendix II

CCD (SM1)

The tables below list the symbologies settings for the CCD reader (SM1).

SYMBOLOGY SETTINGS

CCD Engine	Description	Default
CODABAR		
Codabar		**Enable**
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: 0-55; 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 39		
Code 39		**Enable**
Code 39	Checkbox to enable Code 39 decoding.	Enable
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: 0-55; 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 93 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 128		
Code 128		
Code 128	Checkbox to enable Code 128 decoding.	Enable
ISBT 128		
ISBT 128	Checkbox to enable ISBT 128 decoding.	Enable
GS1-128		
GS1-128	Checkbox to enable GS1-128 decoding.	Enable
CODE 2 OF 5		
Industrial 25 (Discrete 25)		
Discrete 25	Checkbox to enable Discrete 2 of 5 decoding.	Enable
Length option	Sets the length of the Discrete 25 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; 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 Interleaved 2 of 5 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ Disable ▸ USS Check Digit ▸ OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable

GS1 DATABAR		
GS1 DataBar-14		
GS1 DataBar-14	Checkbox to enable GS1 DataBar-14 decoding.	Enable
GS1 DataBar Limited		
GS1 DataBar Limited	Checkbox to enable GS1 DataBar Limited decoding.	Enable
GS1 DataBar Expanded		
GS1 DataBar Expanded	Checkbox to enable GS1 DataBar Expanded decoding.	Enable
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: 0-55; 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	Select to decode Bookland data starting with 978 as 10-digit format along with the Bookland check digit, or decode Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable
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		
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

Appendix III

LASER (SE955 & SE965HP)

The tables below list the symbology settings for 1D laser scan engine (SE955) and 1D long range laser scan engine (SE965HP).

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: 0-55; 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: 0-55; 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: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 93		
Code 93		
Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 93 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 128		
Code 128		
Code 128	Checkbox to enable Code 128 decoding.	Enable
ISBT 128		
ISBT 128	Checkbox to enable ISBT 128 decoding.	Enable
GS1-128		
GS1-128	Checkbox to enable GS1-128 decoding.	Enable
CODE 2 OF 5		
Chinese 25		
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 Discrete 25 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; 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 Interleaved 2 of 5 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ 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		
GS1 DataBar-14	Checkbox to enable GS1 DataBar-14 decoding.	Enable
GS1 DataBar Limited		
GS1 DataBar Limited	Checkbox to enable GS1 DataBar Limited decoding.	Enable
GS1 DataBar Expanded		
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: 0-55; 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	Select to decode Bookland data starting with 978 as 10-digit format along with the Bookland check digit, or decode Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable

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

<table>
<tr><td>EAN Addon Option</td><td>Decide whether to decode EAN-8, EAN-13 with addons (including Addon 2 and 5).
Ignore Addon
Decode only with addons
Auto-discriminate</td><td>Ignore Addon</td></tr>
<tr><td>EAN 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 Addon Option</td><td>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</td><td>Ignore Addon</td></tr>
<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 IV

2D IMAGER (SE4500DL)

The tables below list the symbology settings for 2D imager (SE4500DL).

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: 0-55; 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: 0-55; 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: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 93		
Code 93		
Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 93 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; Length 1<Length 2) ▸ Any Length	Max / Min Length (4-55)
CODE 128		
Code 128		
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		
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 Discrete 25 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; 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 Interleaved 2 of 5 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; 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 Matrix 2 of 5 symbols to decode. ▸ One Fixed length (Length 1) ▸ Two Fixed lengths (Length 1>Length 2) ▸ Max / Min Length (range: 0-55; 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		
Composite CC-A/B	Checkbox to enable Composite CC-A/B decoding.	Disable
Composite CC-C		
Composite CC-C	Checkbox to enable Composite CC-C decoding.	Enable
Composite TLC 39		
TLC 39	Checkbox to enable TLC 39 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		
GS1 DataBar-14	Checkbox to enable GS1 DataBar-14 decoding.	Enable
GS1 DataBar Limited		
GS1 DataBar-Limited	Checkbox to enable GS1 DataBar-Limited decoding.	Enable
GS1 DataBar Expanded		
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		
Inverse	Checkbox to enable Inverse 1D decoding.	Disable
KOREAN 3 OF 5		
Korean 3 of 5		
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: 0-55; 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		
Australian Postal	Checkbox to enable Australian Postal decoding.	Enable
Japan Postal		
Japan Postal	Checkbox to enable Japan Postal decoding.	Enable

Netherlands KIX Code		
Netherlands KIX Code	Checkbox to enable Netherlands KIX Code decoding.	Enable
US Postnet		
US Postnet	Checkbox to enable US Postnet decoding.	Enable
US Planet		
US Planet	Checkbox to enable US Planet decoding.	Enable
UK Postal		
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
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable
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 decode mirror images. **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 MicroPDF417 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

HF RFID READER

The HF RFID reader supports ISO14443A and B, 15693 and Secure Access Module (SAM).

RFID TAG DEFAULT START BYTE

Tag Type	Standard	Default Start Byte
Mifare Classic S20/S50/S70	ISO 14443A	64
Mifare UL	ISO 14443A	16
SLE 66R35	ISO 14443A	64
SRI176	ISO 14443B	8
SRF 55VxxP	ISO 15693	0
ICODE	ICODE® (Phillips)	0
Tag-it	Tag-it® (TI)	0

Appendix VI

PHYSICAL KEYPAD REFERENCE TABLE

NUMERIC KEYPAD

Numeric keypad layout:

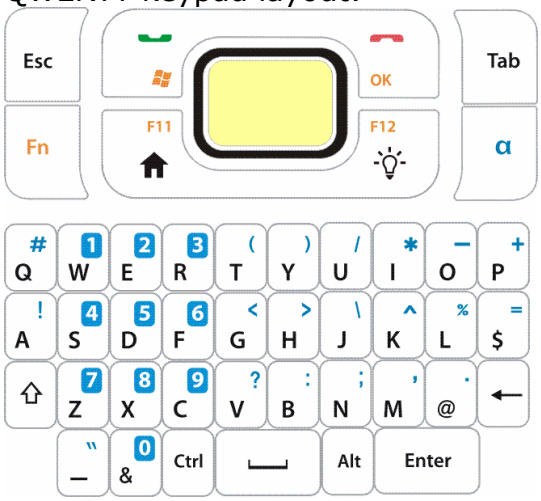
USING ALPHA, SHIFT & FN KEYS

Key	[α] Mode	[α] + ⇧ Mode	[**Fn**] Mode
1	Blank space	Blank space	F1
2	abc	ABC	F2
3	def	DEF	F3
4	ghi	GHI	F4
5	jkl	JKL	F5
6	mno	MNO	F6
7	pqrs	PQRS	F7
8	tuv	TUV	F8
9	wxyz	WXYZ	F9
0	+/	+/	F10
*	-$	-$	
#	%.	%.	
Home			F11
Backlight			F12
SEND			Windows
END			OK

Under [α] mode, pressing the Shift key ⇧ twice triggers CAPS LOCK mode.

QWERTY KEYPAD

QWERTY keypad layout:



USING ALPHA, SHIFT & FN KEYS

Key	⇧ Mode	[α] Mode	[**Fn**] Mode
q	Q	#	
w	W	1	F1
e	E	2	F2
r	R	3	F3
t	T	(	
y	Y	)	
u	U	/	
i	I	*	
o	O	-	
p	P	+	
a	A	!	
s	S	4	F4
d	D	5	F5
f	F	6	F6
g	G	<	
h	H	>	
j	J	\	
k	K	^	
l	L	%	
$	$	=	
z	Z	7	F7
x	X	8	F8
c	C	9	F9
v	V	?	
b	B	:	
n	N	;	
m	M	,	
@	@	.	
_	_	"	
&	&	0	F10
Home			F11

Backlight			F12
SEND			Windows
END			OK

Pressing the Shift key ⇧ twice triggers CAPS LOCK mode.