

CipherLab Reference Manual

Windows Embedded Compact 7.0

CP55 Mobile Computer

(CE)

Version 1.02



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 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 Český [Czech]	<i>[Jméno výrobce]</i> tímto prohlašuje, že tento <i>[typ zařízení]</i> je ve shodě se základními požadavky a dalšími příslušnými ustanoveními směrnice 1999/5/ES.
da Dansk [Danish]	Undertegnede <i>[fabrikantens navn]</i> erklærer herved, at følgende udstyr <i>[udstyrets typebetegnelse]</i> overholder de væsentlige krav og øvrige relevante krav i direktiv 1999/5/EF.
de Deutsch [German]	Hiermit erkläre <i>[Name des Herstellers]</i> , dass sich das Gerät <i>[Gerätetyp]</i> in Übereinstimmung mit den grundlegenden Anforderungen und den übrigen einschlägigen Bestimmungen der Richtlinie 1999/5/EG befindet.
et Eesti [Estonian]	Käesolevaga kinnitab <i>[tootja nimi = name of manufacturer]</i> seadme <i>[seadme tüüp = type of equipment]</i> vastavust direktiivi 1999/5/EÜ põhinõuetele ja nimetatud direktiivist tulenevatele teistele asjakohastele sätetele.
en English	Hereby, <i>[name of manufacturer]</i> , declares that this <i>[type of equipment]</i> is in compliance with the essential requirements and other relevant provisions of Directive 1999/5/EC.
es Español [Spanish]	Por medio de la presente <i>[nombre del fabricante]</i> declara que el <i>[clase de equipo]</i> cumple con los requisitos esenciales y cualesquiera otras disposiciones aplicables o exigibles de la Directiva 1999/5/CE.
el Ελληνική [Greek]	ΜΕ ΤΗΝ ΠΑΡΟΥΣΑ <i>[name of manufacturer]</i> ΔΗΛΩΝΕΙ ΟΤΙ <i>[type of equipment]</i> ΣΥΜΜΟΡΦΩΝΕΤΑΙ ΠΡΟΣ ΤΙΣ ΟΥΣΙΩΔΕΙΣ ΑΠΑΙΤΗΣΕΙΣ ΚΑΙ ΤΙΣ ΛΟΙΠΕΣ ΣΧΕΤΙΚΕΣ ΔΙΑΤΑΞΕΙΣ ΤΗΣ ΟΔΗΓΙΑΣ 1999/5/ΕΚ.
fr Français [French]	Par la présente <i>[nom du fabricant]</i> déclare que l'appareil <i>[type d'appareil]</i> est conforme aux exigences essentielles et aux autres dispositions pertinentes de la directive 1999/5/CE.
it Italiano [Italian]	Con la presente <i>[nome del costruttore]</i> dichiara che questo <i>[tipo di apparecchio]</i> è conforme ai requisiti essenziali ed alle altre disposizioni pertinenti stabilite dalla direttiva 1999/5/CE.
Latviski [Latvian]	Ar šo <i>[name of manufacturer / izgatavotāja nosaukums]</i> deklarē, ka <i>[type of equipment / iekārtas tips]</i> atbilst Direktīvas 1999/5/EK būtiskajām prasībām un citiem ar to saistītajiem noteikumiem.
Lietuvių [Lithuanian]	Šiuo <i>[manufacturer name]</i> deklaruojama, kad šis <i>[equipment type]</i> atitinka esminius reikalavimus ir kitas 1999/5/EB Direktyvos nuostatas.
nl Nederlands [Dutch]	Hierbij verklaart <i>[naam van de fabrikant]</i> dat het toestel <i>[type van toestel]</i> in overeenstemming is met de essentiële eisen en de andere relevante bepalingen van richtlijn 1999/5/EG.
mt Malti [Maltese]	Hawnhekk, <i>[isem tal-manifattur]</i> , jiddikjara li dan <i>[il-mudell tal-prodott]</i> jikkonforma mal-ħtiġijiet essenzjali u ma provvedimenti oħrajn rilevanti li hemm fid-Dirrettiva 1999/5/EC.
hu Magyar [Hungarian]	Alulírott, <i>[gyártó neve]</i> nyilatkozom, hogy a <i>[... típus]</i> megfelel a vonatkozó alapvető követelményeknek és az 1999/5/EC irányelv egyéb előírásainak.
pl Polski [Polish]	Niniejszym <i>[nazwa producenta]</i> oświadczam, że <i>[nazwa wyrobu]</i> jest zgodny z zasadniczymi wymogami oraz pozostałymi stosownymi postanowieniami Dyrektywy 1999/5/EC.
pt Português [Portuguese]	<i>[Nome do fabricante]</i> declara que este <i>[tipo de equipamento]</i> está conforme com os requisitos essenciais e outras disposições da Directiva 1999/5/CE.
sl Slovensko [Slovenian]	<i>[Ime proizvajalca]</i> izjavlja, da je ta <i>[tip opreme]</i> v skladu z bistvenimi zahtevami in ostalimi relevantnimi določili direktive 1999/5/ES.
Slovensky [Slovak]	<i>[Meno výrobcu]</i> týmto vyhlasuje, že <i>[typ zariadenia]</i> spĺňa základné požiadavky a všetky príslušné ustanovenia Smernice 1999/5/ES.
fi Suomi [Finnish]	<i>[Valmistaja = manufacturer]</i> vakuuttaa täten että <i>[type of equipment = laitteen tyyppimerkintä]</i> tyyppinen laite on direktiivin 1999/5/EY oleellisten vaatimusten ja sitä koskevien direktiivin muiden ehtojen mukainen.
sv Svenska [Swedish]	Härmed intygar <i>[företag]</i> att denna <i>[utrustningstyp]</i> 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
1.02	Jul 15, 2015	<ul style="list-style-type: none">▶ Add a step relating to microSD card to 4.4.2.▶ Delete description relating to CD▶ Add Related Documentation to Introduction▶ Add download information to 6.3.1.
1.01	June 26, 2014	<ul style="list-style-type: none">▶ Modify 4.1.2 Start Menu, 4.3.1 Suspend Mobile Computer – Remove “Suspend” function from Start Menu
1.00	June 20, 2014	Draft release

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INTRODUCTION

Thank you for choosing CipherLab products. CipherLab welcomes another Windows Embedded by introducing CP55 Series Mobile Computer. Powered by Windows Embedded Compact 7.0, the mobile computer delivers better user experience and advances enterprise mobile computing.

The mobile computer has transfective 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 CE 7.0 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/>.

USE MOBILE COMPUTER

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

1. IN THIS CHAPTER

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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

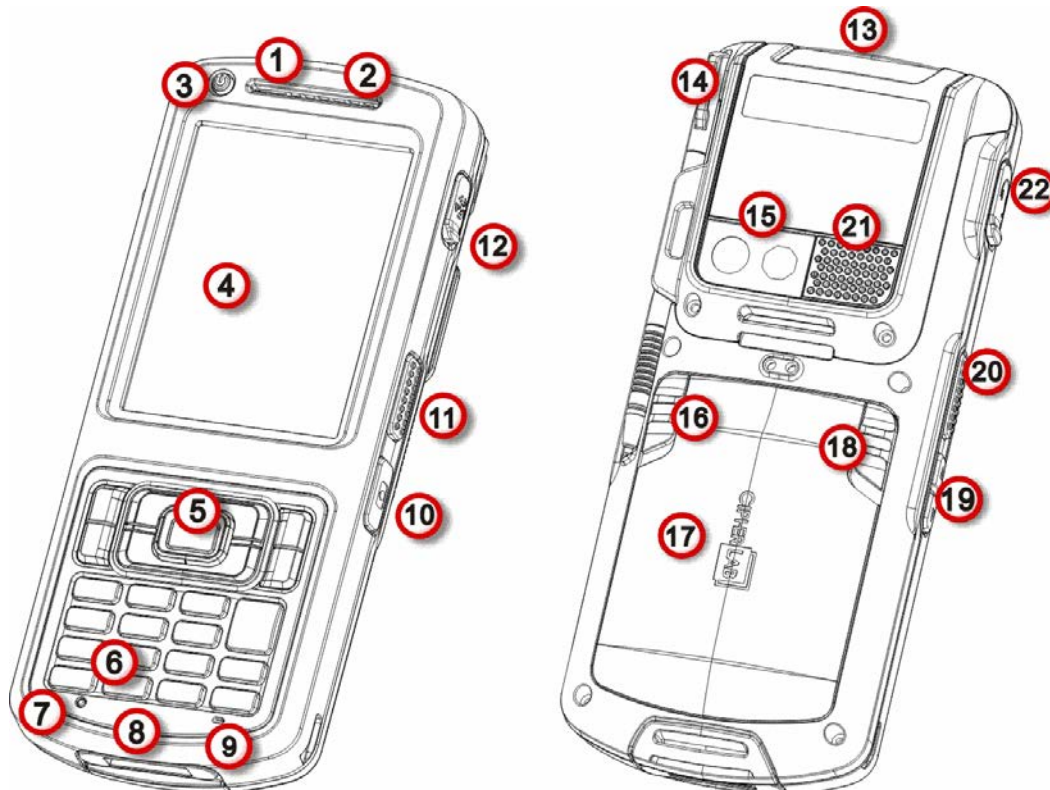


Figure 1: Overview

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.

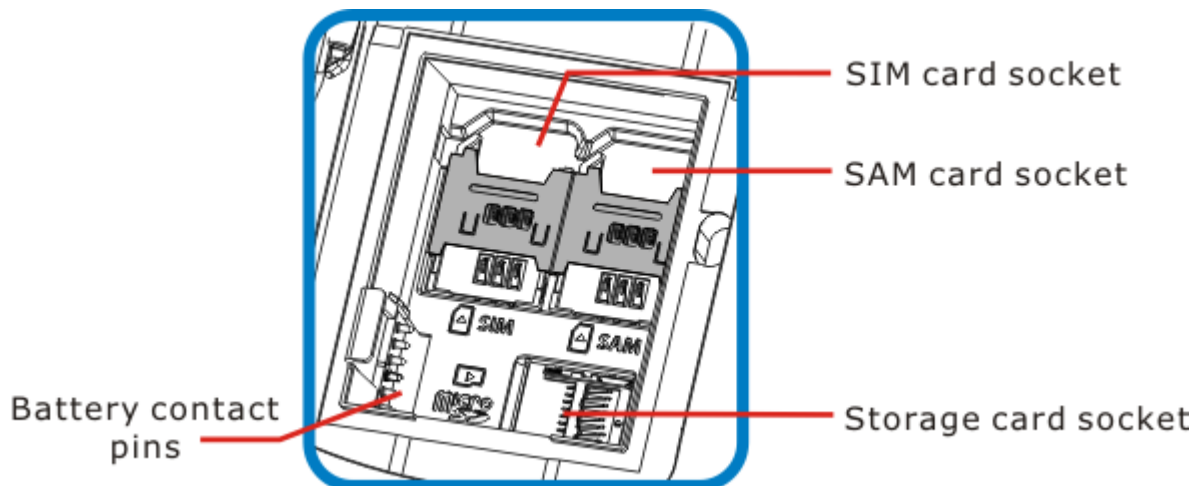


Figure 2: Inside Battery Chamber

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

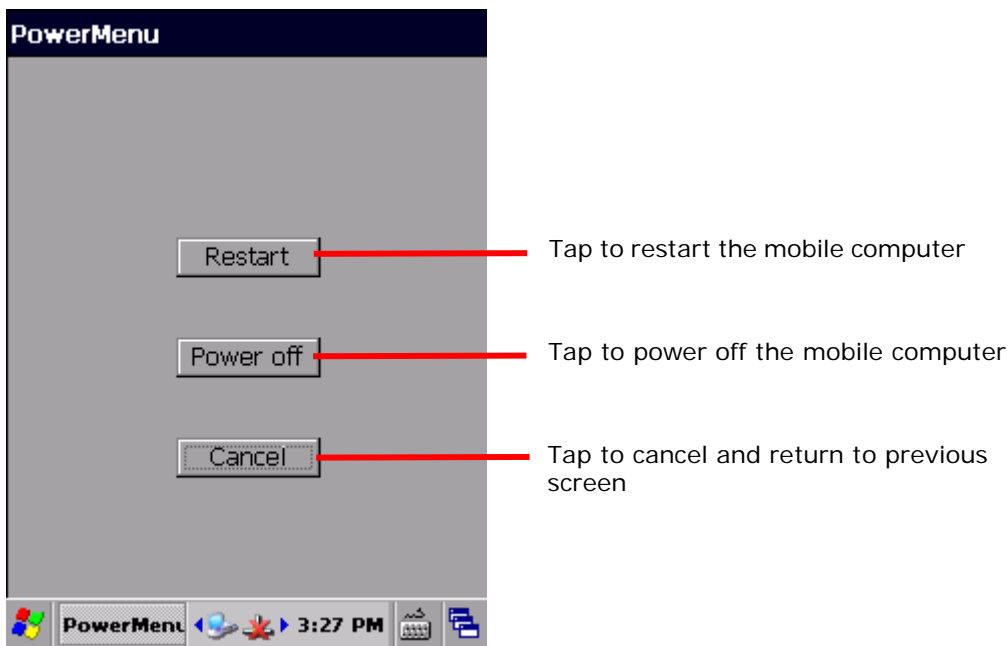
POWER ON

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.

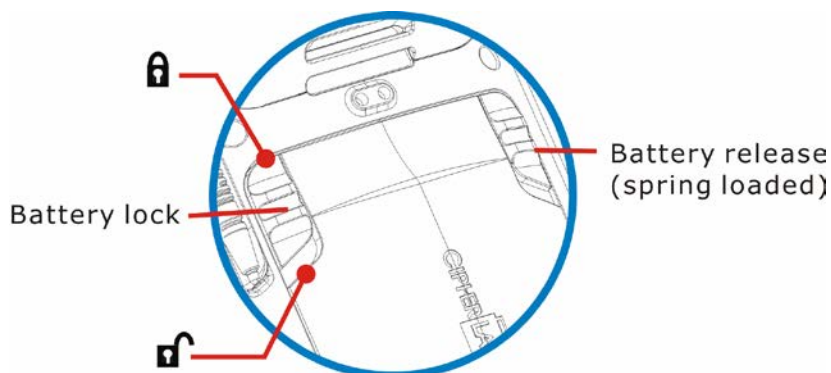


Figure 3: Battery Door Latches

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

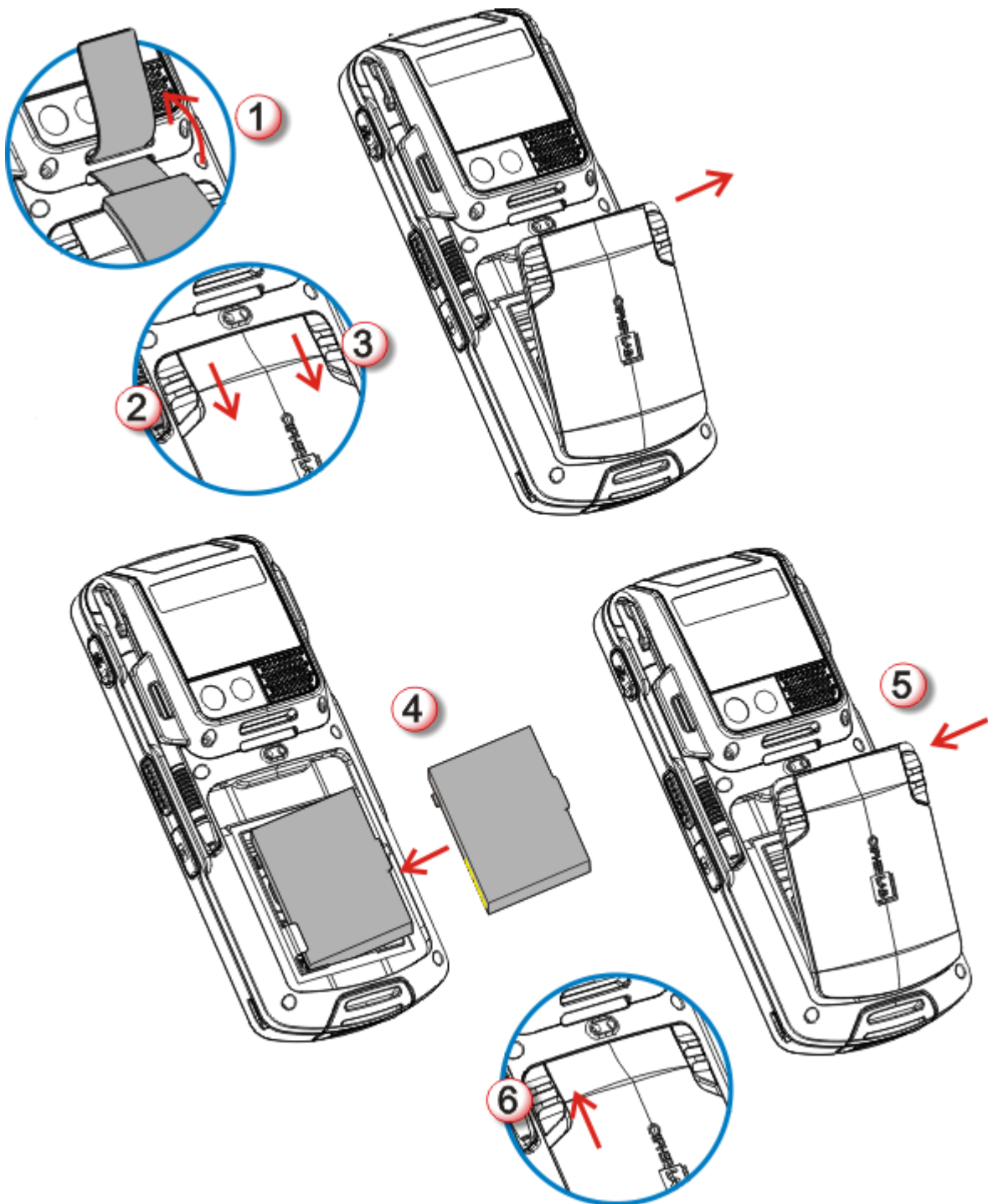


Figure 4: Main Battery Setup

- 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.

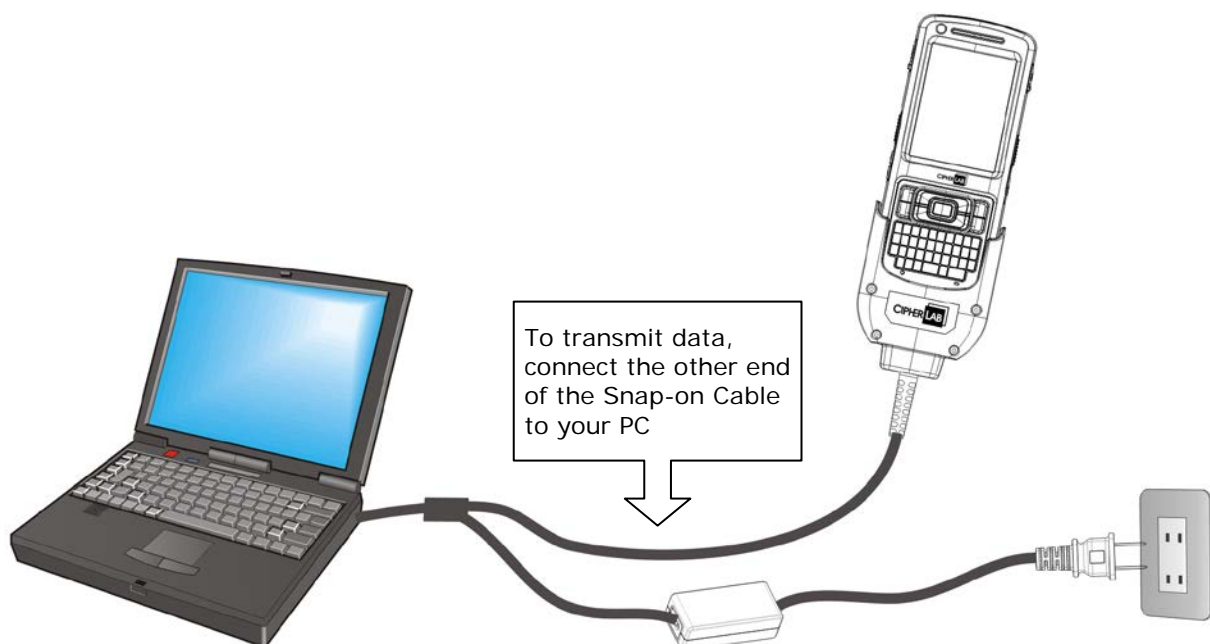


Figure 5: Direct Charging Using Snap-on Cable

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.

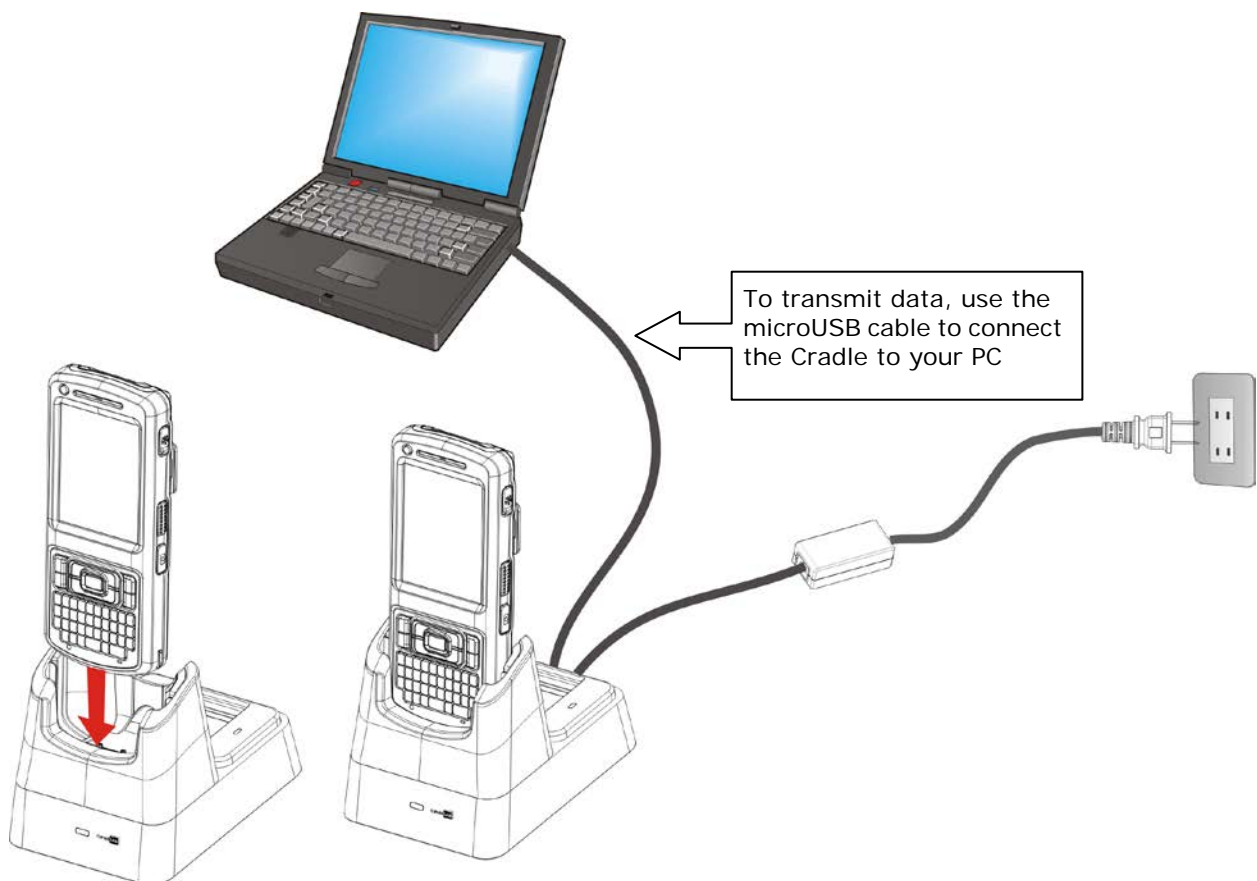


Figure 6: Direct Charging Using Cradle

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:

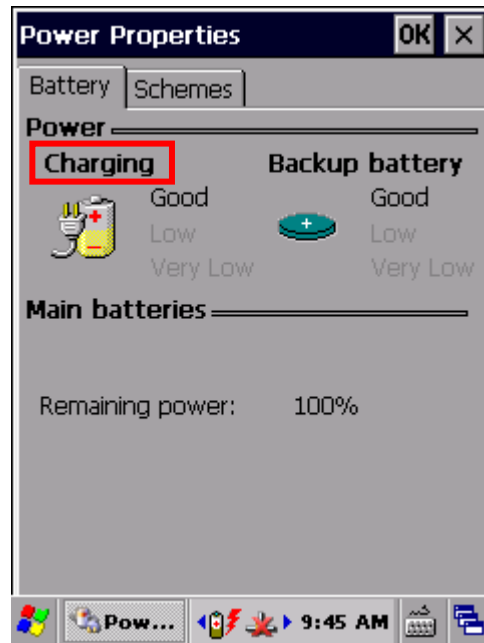
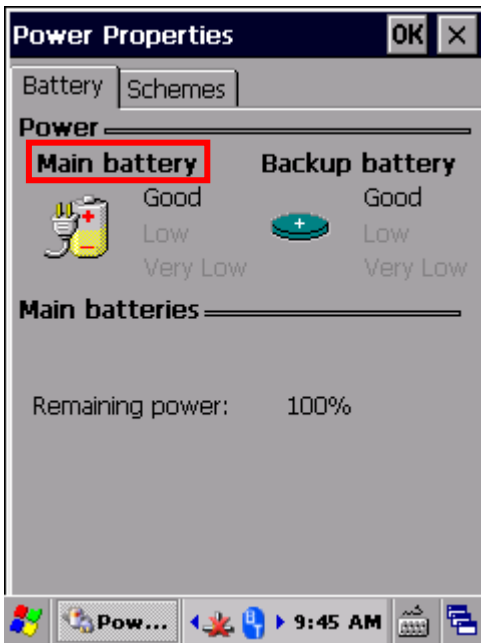
- 1) Tap **Start | Settings | Control Panel | Power** .

Power Properties window opens showing **Battery** tabbed page. Main battery level is summarized under **Power** label as “Good”, “Low” or “Very Low”. Precise battery level is also shown in percentage under the **Main batteries** label.

Depending on whether the main battery is being charged, charging status will show as “Main battery”, meaning the mobile computer is on battery power, or “Charging”, meaning that external power is connected.

Main battery isn't being charged.

Main battery is being charged.

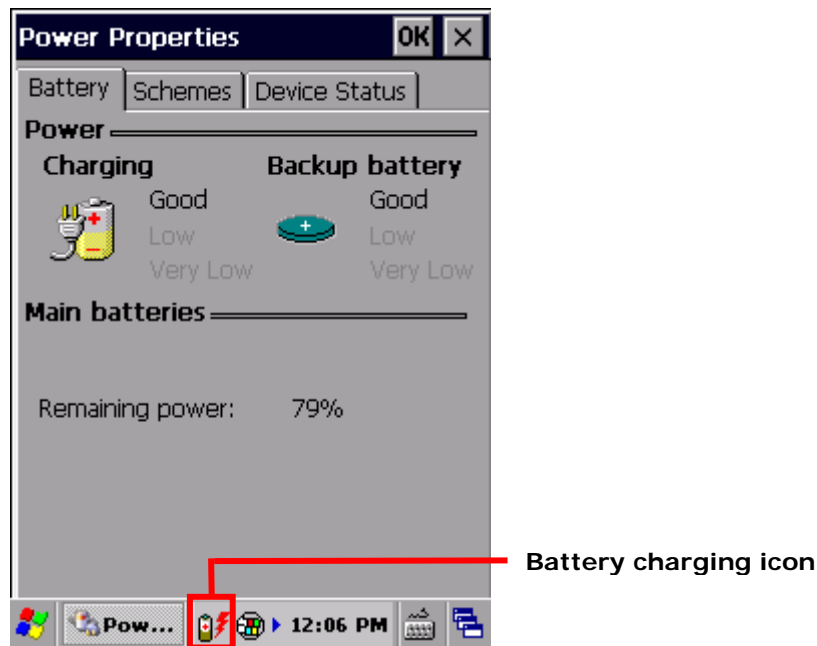


Main battery level descriptions are as follows:

Description	Battery Status
Good	Main battery level is good (40~100%).
Low	Main battery level is low (20~39%). Charging is recommended.
Very Low	Main battery level is very low (<19%) and needs to be charged immediately.

BATTERY STATUS ICONS

The OS features a couple of icons that deliver main battery status. These icons can be found on the taskbar, which is settled at the bottom of every screen.

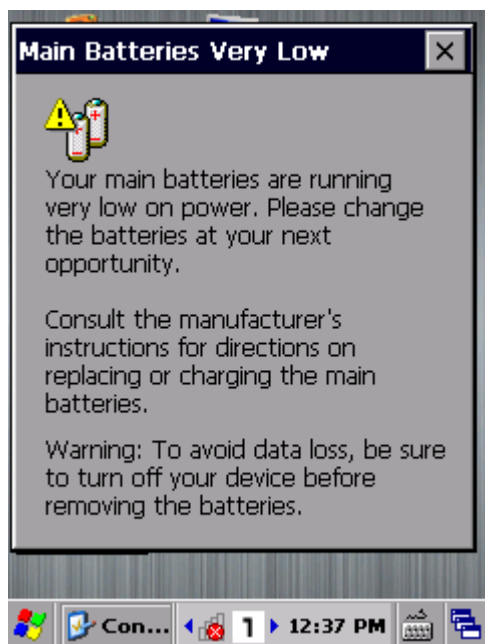


Battery level is illustrated by the following icons :

Icon	Battery Status
	Main battery level is 91%~100%.
	Main battery level is 71%~90%.
	Main battery level is 51%~70%.
	Main battery level is 21%~50%.
	Main battery level is 11%~20%.
	Main battery level is 1%~10%. Charge or replace main battery immediately!
	Main battery is being charged from external power.
	Mobile computer is connected to external power, but main battery level is full and does not need charging.

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.

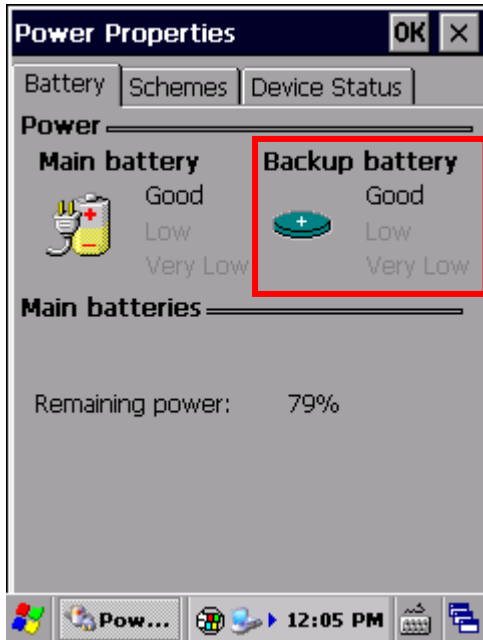
Note: Constant usage of the mobile computer at low battery level can affect battery life. For maximum performance, recharge the battery periodically to avoid battery drain out and maintain good battery health.

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 | Control Panel | Power** .

On **Battery** tabbed page of **Power Properties** window, backup battery level is summarized as "Good", "Low" or "Very Low" under the **Power** label.



Backup battery level descriptions are as follows:



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

BATTERY STATUS ICONS

When backup battery level is low, an icon pops-up on the taskbar as a sign of notification.

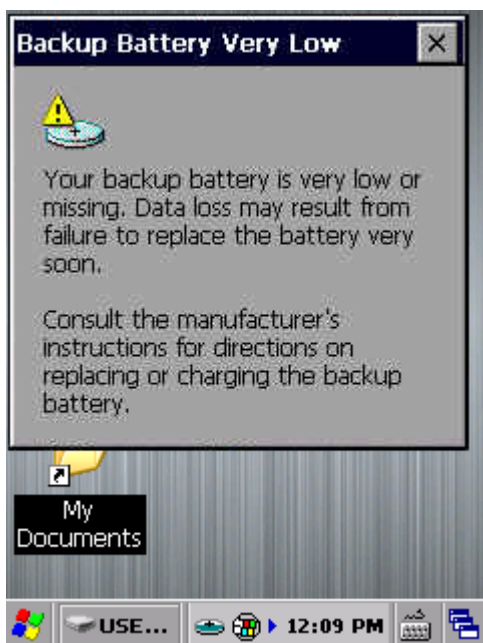


Battery level is illustrated by the following icons:

Icon	Battery Status
	Backup battery level is low.
	Backup battery level is extremely low and requires charging 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.

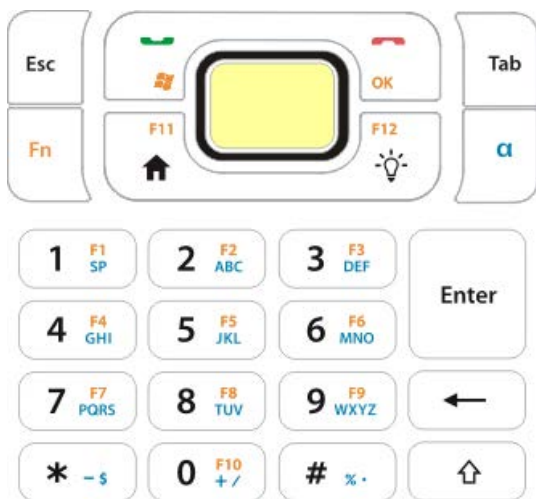


Figure 7: Numeric Keypad



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.

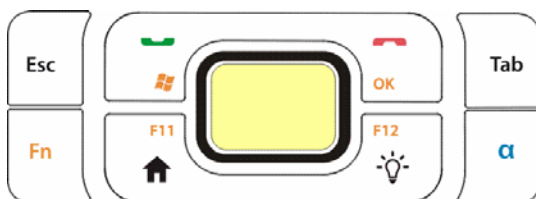


















Figure 9: Enhanced Keys

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

Key Group	Description														
ACTION KEYS	<p>The Scan key is an action key which delivers the function below:</p> <table border="1"> <thead> <tr> <th>Key</th> <th>Press</th> </tr> </thead> <tbody> <tr> <td>Scan Key </td> <td>Reads barcodes</td> </tr> </tbody> </table>	Key	Press	Scan Key 	Reads barcodes										
Key	Press														
Scan Key 	Reads barcodes														
OS KEYS	<p>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.</p> <table border="1"> <thead> <tr> <th>Key</th> <th>Press</th> </tr> </thead> <tbody> <tr> <td>Windows </td> <td>Opens Start Menu. (Requires Function Key pressed beforehand.)</td> </tr> <tr> <td>OK</td> <td> <ul style="list-style-type: none"> ▶ 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> <ul style="list-style-type: none"> ▶ Opens the previous screen worked on. ▶ Closes a menu of an application, or an opened dialog. </td> </tr> <tr> <td>Tab </td> <td> <ul style="list-style-type: none"> ▶ Navigates among the highlight items in some applications. ▶ Enters Tab character, which means it moves the caret to the next tab stop. </td> </tr> </tbody> </table>	Key	Press	Windows 	Opens Start Menu . (Requires Function Key pressed beforehand.)	OK	<ul style="list-style-type: none"> ▶ 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.) 	Send 	Key available for function assignment in CipherLab utility Button Assignment.	End 	Key available for function assignment in CipherLab utility Button Assignment.	Esc	<ul style="list-style-type: none"> ▶ Opens the previous screen worked on. ▶ Closes a menu of an application, or an opened dialog. 	Tab 	<ul style="list-style-type: none"> ▶ Navigates among the highlight items in some applications. ▶ Enters Tab character, which means it moves the caret to the next tab stop.
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Send 	Key available for function assignment in CipherLab utility Button Assignment.														
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Esc	<ul style="list-style-type: none"> ▶ Opens the previous screen worked on. ▶ Closes a menu of an application, or an opened dialog. 														
Tab 	<ul style="list-style-type: none"> ▶ Navigates among the highlight items in some applications. ▶ Enters Tab character, which means it moves the caret to the next tab stop. 														
NAVIGATION KEYS	<p>The buttons encircling the Scan key are the up/down/right/left navigation keys:</p>  <p>They move the caret in an input field. In certain applications, they navigate vertically or horizontally among highlighted items.</p>														
FUNCTION KEY Fn	<p>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.</p> <p>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.</p>														
[ALPHA] KEY α	<p>[Alpha] key α switches the keypad input mode between numeric mode and alphabetic mode.</p>														

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.

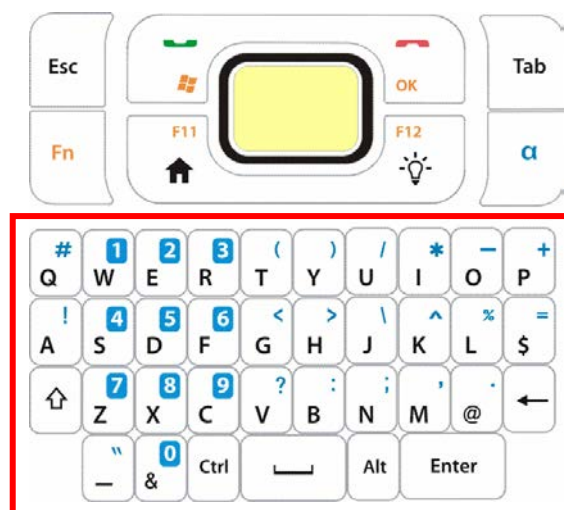
Numeric keypad enters numbers 0 through 9 by default. Symbols * through) and alphabetic characters can be entered by combined use of the Alpha key and Shift key.



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 [a] serves as a switch key between numeric and alphabetic input modes.

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




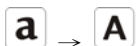
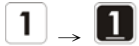


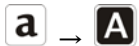
Status Icon	Alpha Key	Input Mode
	On QWERTY keypad, press [a] once	Numbers
	On numeric keypad, press [a] once	Lowercase alphabetic characters

Note:

- (1) The Alpha key [a] can be used to switch between alpha  and numeric  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
	Press [⇧] once	<p>The Shift key [⇧] modifies the next key pressed depending on the input mode.</p> <p>(1) In numeric mode (), it will act on the next key pressed. However, the actual content input is not affected.</p> <p>(2) In alpha (lowercase alphabetic) mode (), it will show a single uppercase character after pressing Shift key [⇧] one time.</p> <p>For example, input "ABC", and it will show "Abc."</p>
		
	Press [⇧] twice (enter Shift Lock Mode)	<p>Pressing Shift key [⇧] two times will lock the present input mode.</p> <p>(1) In numeric mode (), it will lock numeric mode. However, the actual content input is not affected.</p> <p>(2) In alpha (lowercase alphabetic) mode (), it will lock uppercase alphabetic mode (= Caps Lock).</p> <p>For example, input "ABC", and it will show "ABC".</p>
		

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  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  will go off.

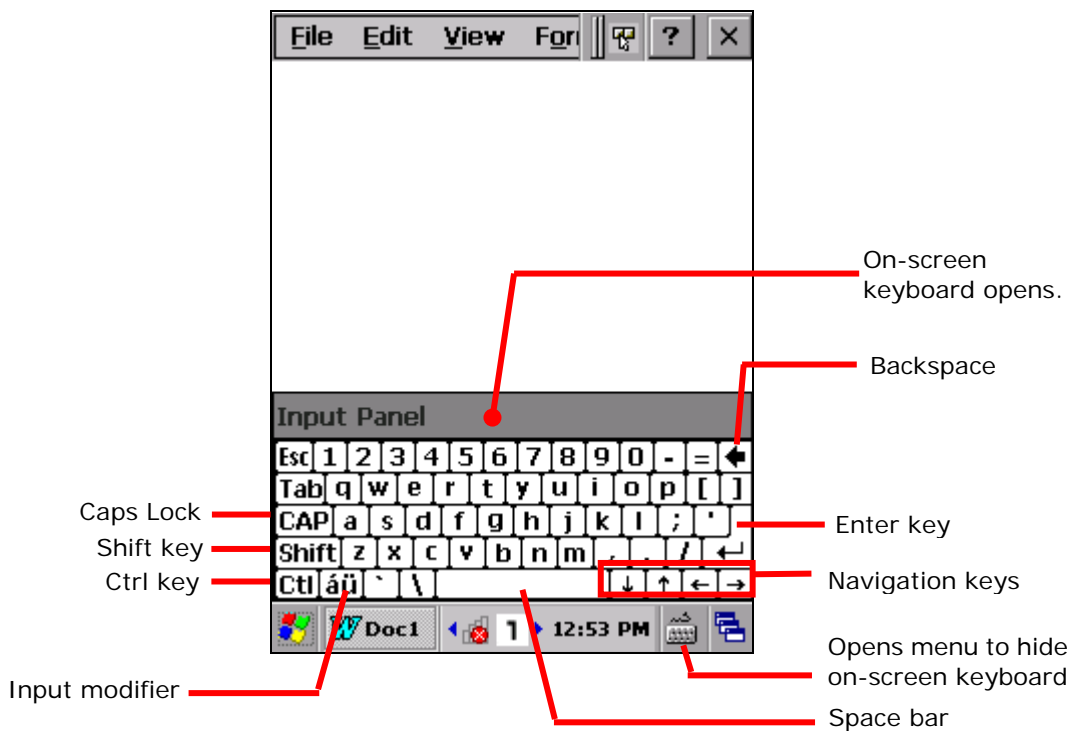
Note: There is no need to long press the [Fn] key.

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 taskbar and select **Keyboard** to open it. On-screen keyboard opens and readies to enter lowercase letters, numbers, and a few frequently used symbols.



MODIFIER KEYS

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

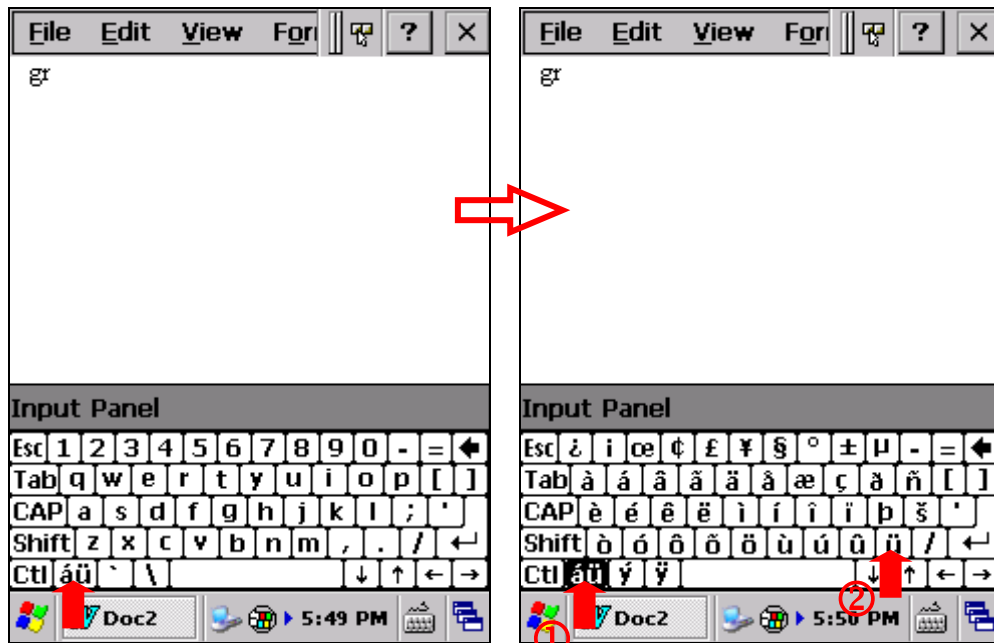
The on-screen keyboard enters modifier state.

- 2) Press the second key.

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

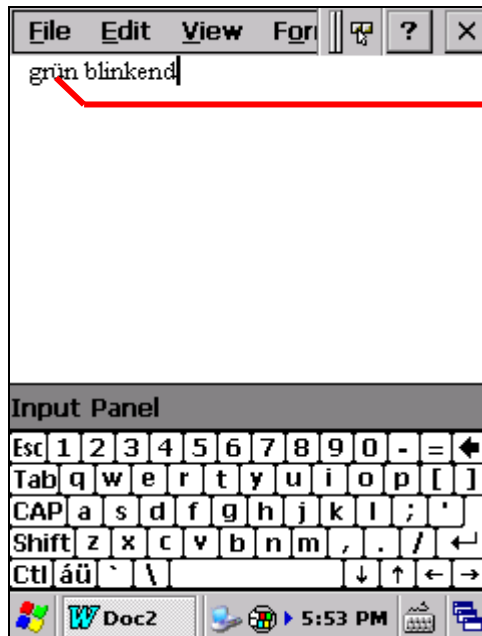
Modifier keys are explicated as following

Key	Description
Ctrl key Ctrl	Once tapped, it becomes color-inverted Ctrl 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 Ctrl 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, ì, 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.

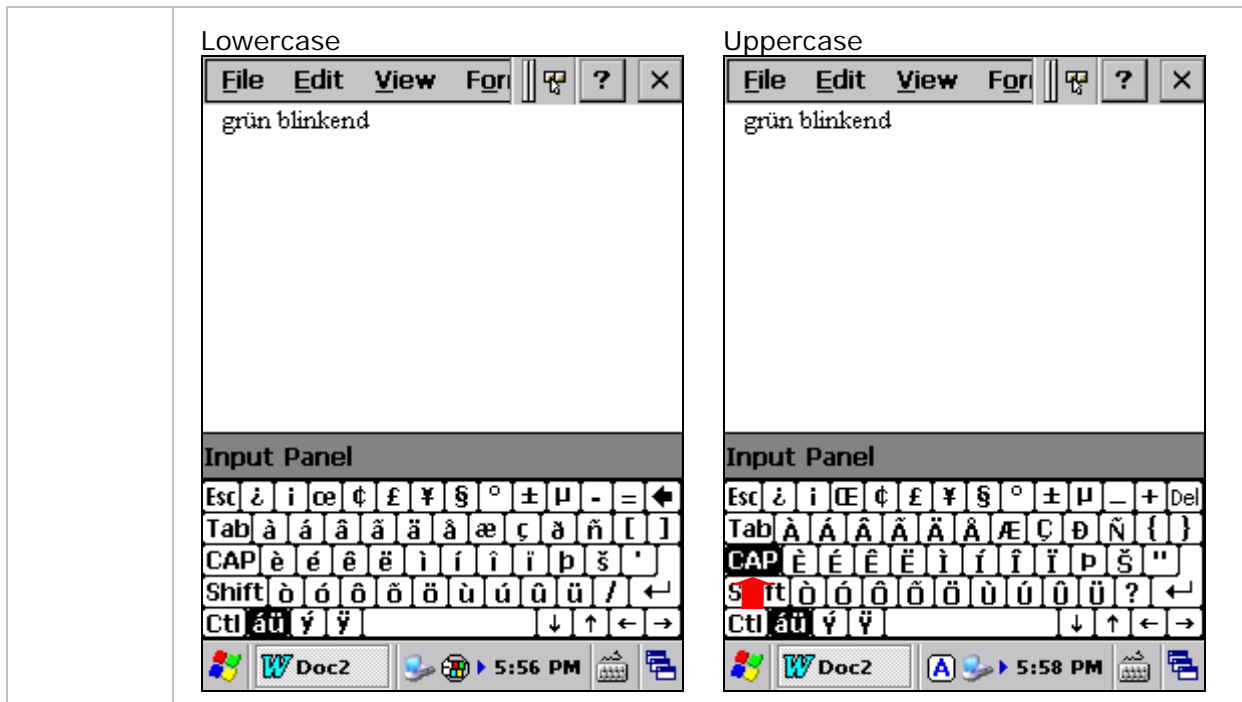
áü key becomes color-inverted **áü**. Then tap a character key.






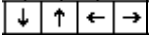
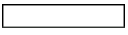
Letter variant "ü" is entered

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

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

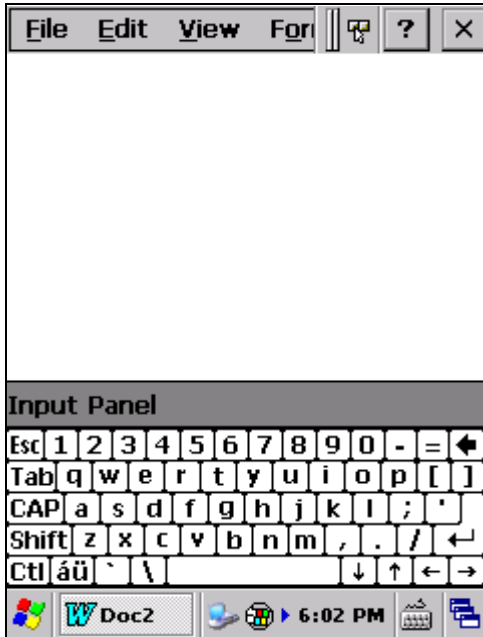


OTHER KEYS

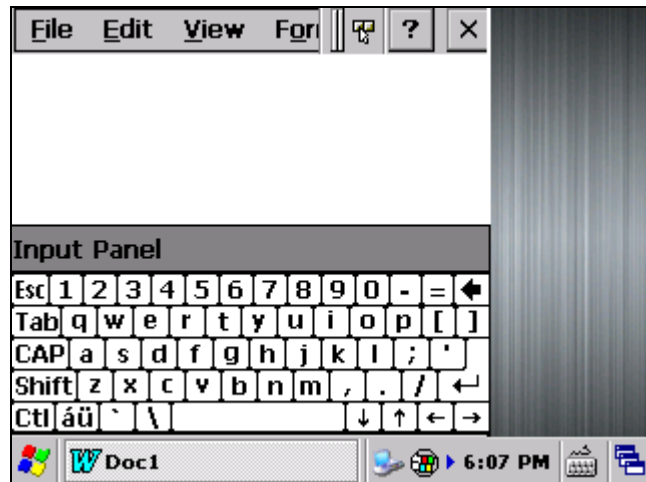
Key	Description
Tab key 	Navigates among the highlight items in some applications. For text input, it inserts Tab character, which means it moves caret to the next tab stop.
Backspace 	Erases the characters to the left of caret.
Enter key 	Executes a command or confirms input. When text input, it inserts 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:

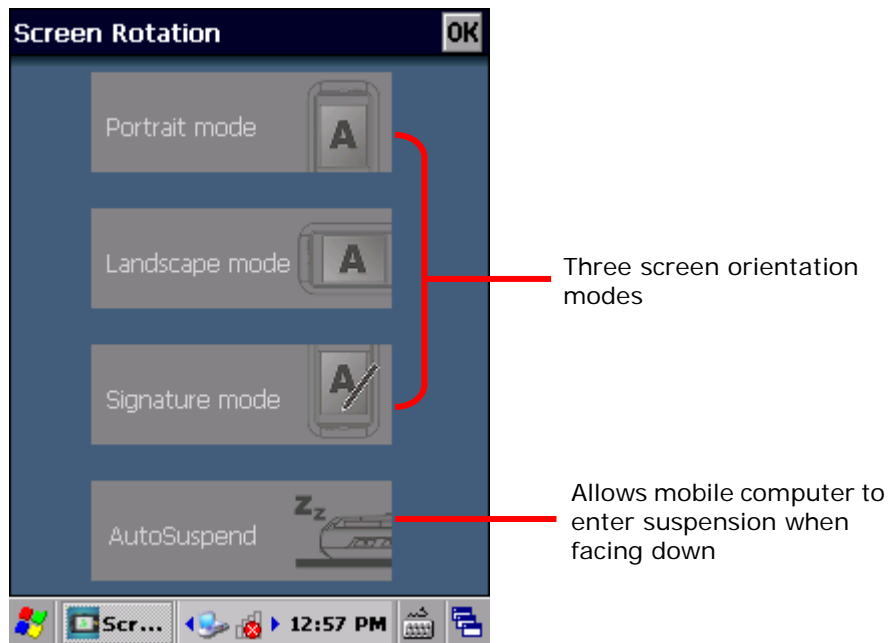
- ▶ **Tap** – Touch any item on the screen such as an application icon or a setting icon to work on it, or touch any key on the on-screen keyboard to type it.
- ▶ **Tap and hold** – Touch an item on the screen and do not release until an action occurs.
- ▶ **Drag** – Touch and hold an item for a moment 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

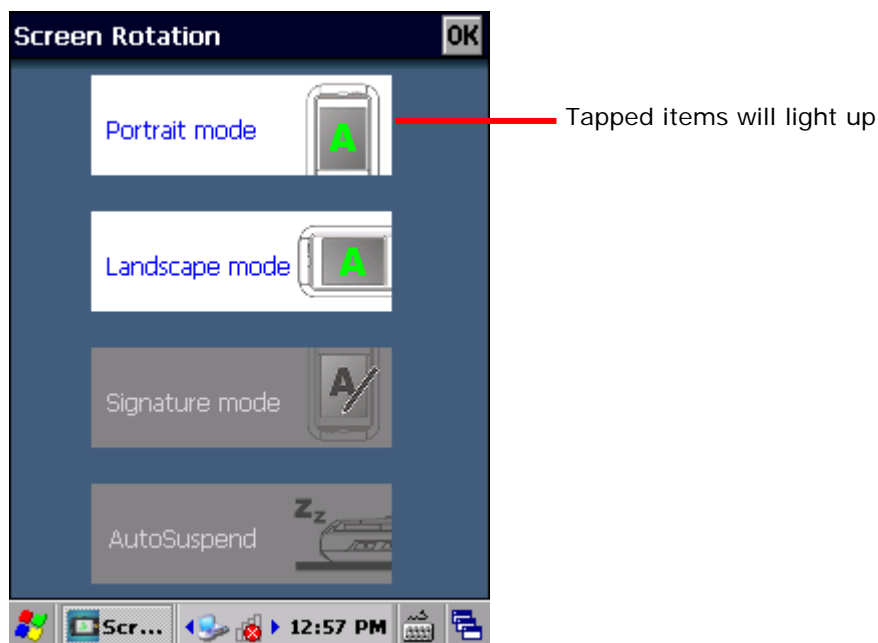
The mobile computer has a built-in G-sensor for screen orientation. In order to enable automatic screen orientation:

- 1) Tap **Start** | **Settings** | **Control Panel** | **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 save power. Alternatively you can set the backlight manually according to your preferences.

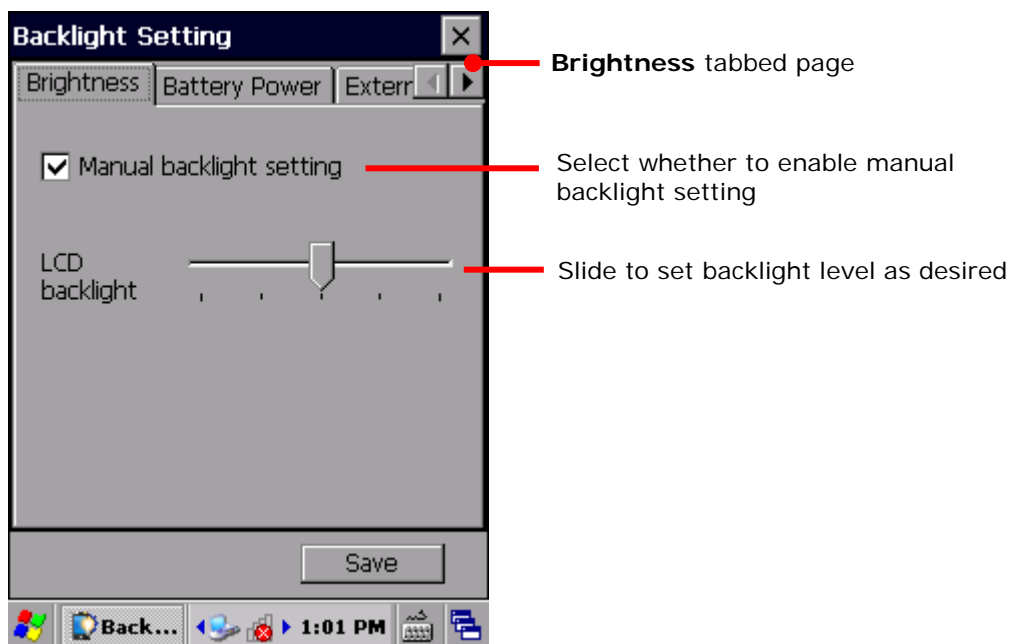
MANUAL BACKLIGHT ADJUSTMENT

To adjust screen backlight:

- 1) Tap **Start | Settings | Control Panel | Backlight Setting** .

Brightness tabbed 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 screen and keypad backlights 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 screen and keypad backlights will adjust automatically according to the backlight profiles set under the **Profile** tabbed page.




- 2) Tap **Save** in the lower right corner to apply the settings.

AUTOMATIC BACKLIGHT PROFILES

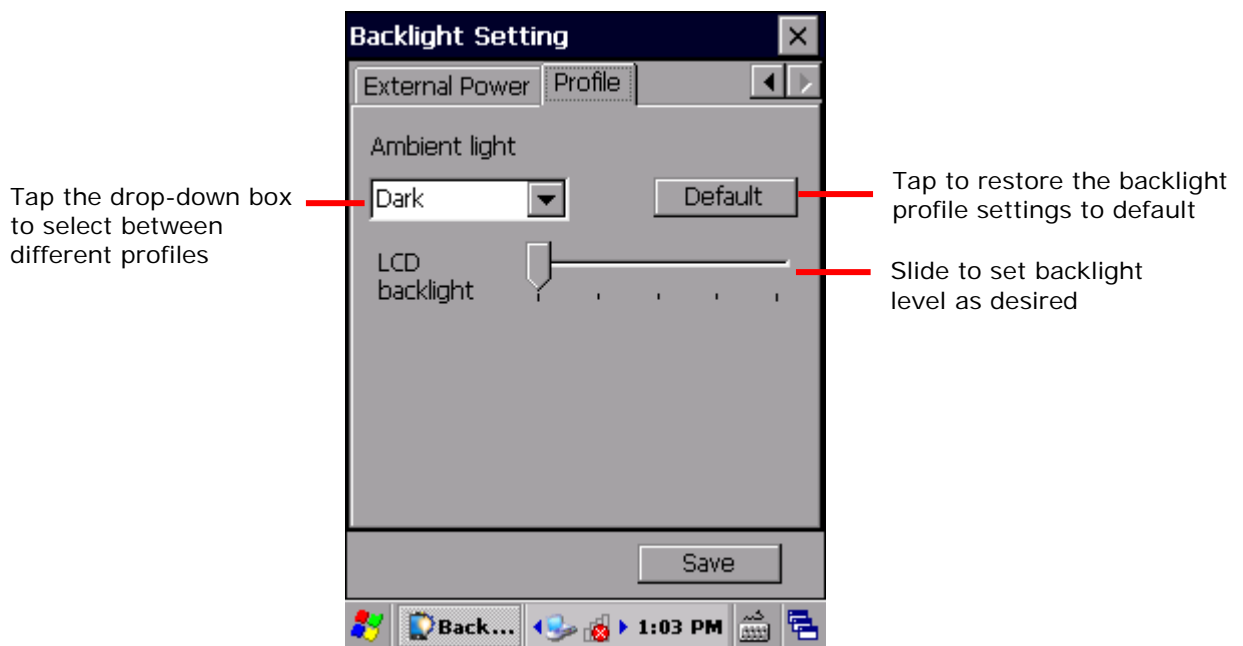
The mobile computer stores three backlight profiles to represent backlight level under different environments. These can be configured according to user's likings.

To set backlight profiles:

- 1) Tap **Start** | **Settings** | **Control Panel** | **Backlight Setting** .
- 2) Uncheck **Manual backlight setting** to enable profile function.
- 3) Switch to the **Profile** tabbed page.

Three profiles, **Dark**, **Bright**, and **Brightest** are available in the drop-down box. Select the profile you would like to modify and use the 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 **Save** in the lower right corner to apply the settings.

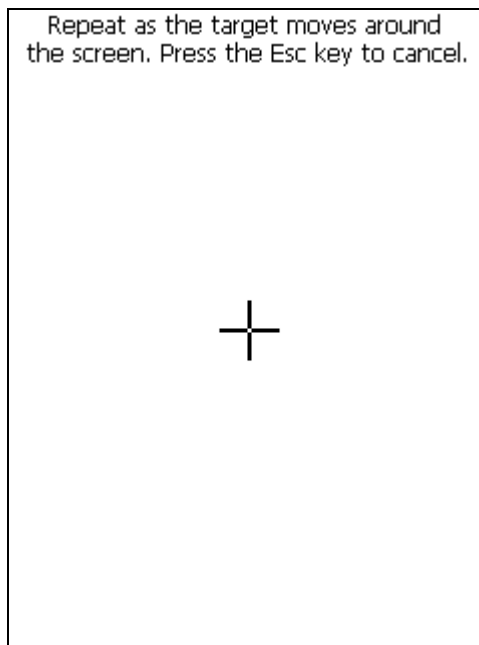
1.6.4. CALIBRATION

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** | **Control Panel** | **Stylus** .
- 2) Tap **Calibration** tabbed page.

Calibration tabbed page opens. Tap **Recalibrate** 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 **Calibration** tabbed 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 OS (Windows Embedded Compact 7.0), 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

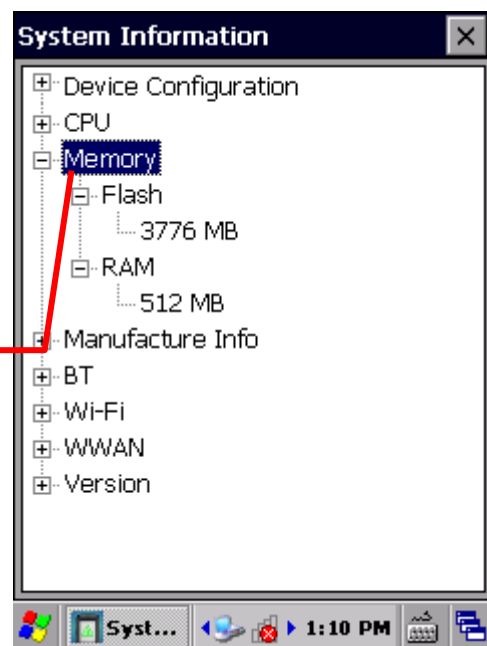
INTERNAL STORAGE

To check internal storage size:

- 1) Tap **Start** | **Settings** | **Control Panel** | **System**

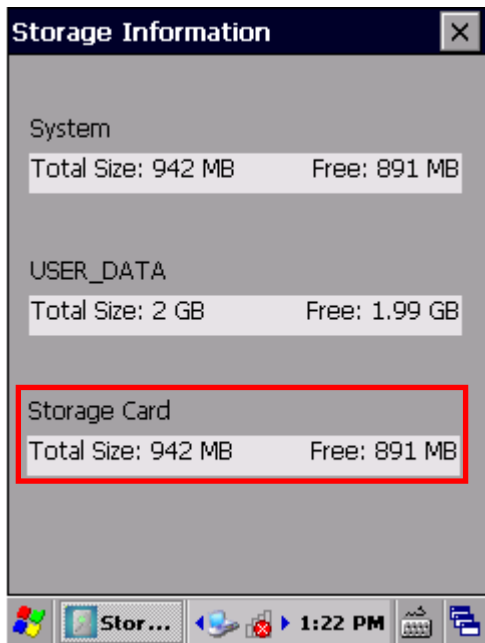
Information  . The application opens revealing information about the mobile computer's assemblage and hardware/firmware components, including device manufacturer, device ID, memory size, and firmware/software version. RAM and Flash size are also listed among this info.

Expand to view information on memory size



EXTERNAL STORAGE

Tap **Start | Settings | Control Panel | 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).

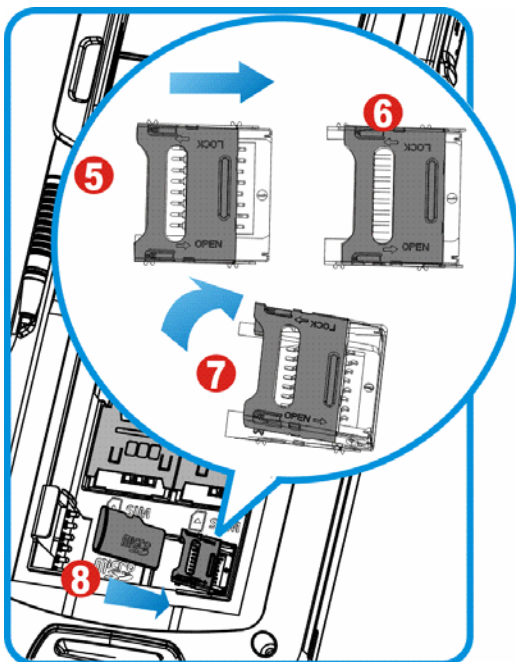


1.7.3. INSERT SD CARD

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 [Main Battery Setup](#).
- 4) Locate the SD card socket inside the battery chamber. (See [Inside Battery Chamber](#).) The SD card socket is equipped with a hinged cover.




- 5) Push the hinged cover to the "open" position.
- 6) The hinged cover is unlocked.
- 7) Swivel up the hinged cover.
- 8) Insert the SD card into the cover slot in the direction indicated . The metal contact pins should face down.
- 9) Put down the hinged cover and push it back to the "lock" position.
- 10) 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** | **Control Panel** | **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** | **Control Panel** | **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.

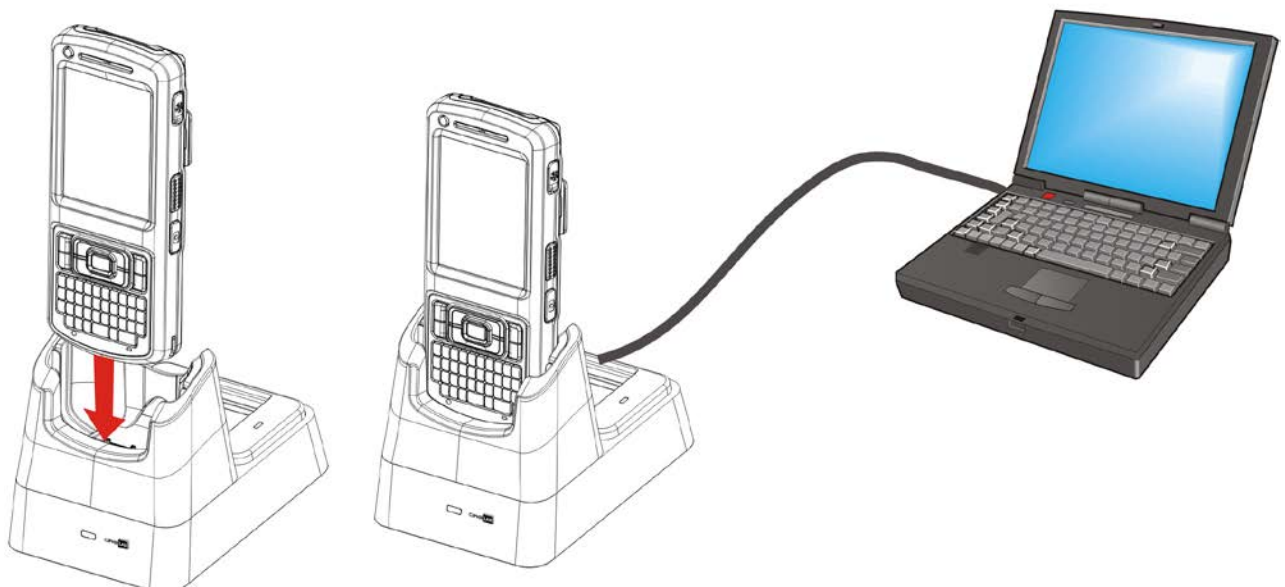




Figure 12: Direct Data Communication Using Cradle

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	<ul style="list-style-type: none"> ▶ 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)	<ul style="list-style-type: none"> ▶ 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.

1.8.5. 1ST USB SYNC

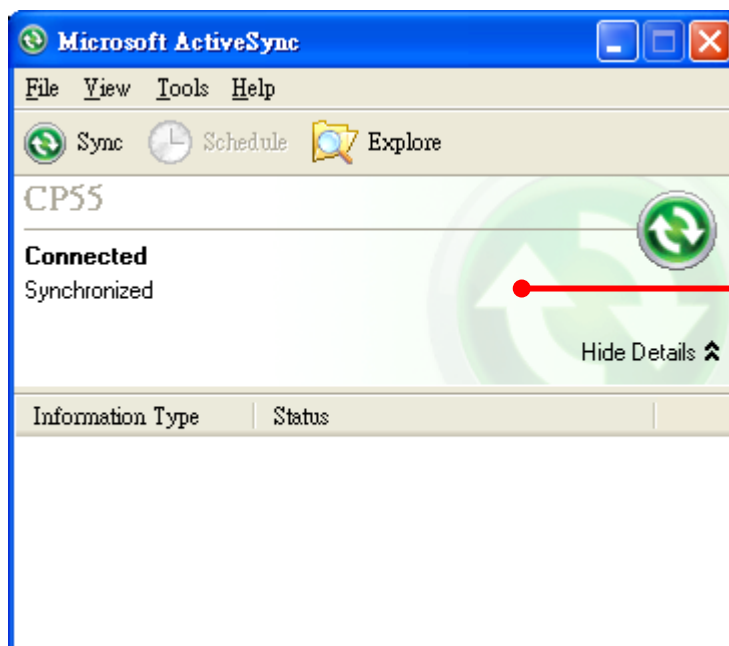
This section will guide you through USB syncing. To connect ActiveSync using USB:

- 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 [Use Snap-on Cable](#).
- 3) On your PC, run the syncing program.

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

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

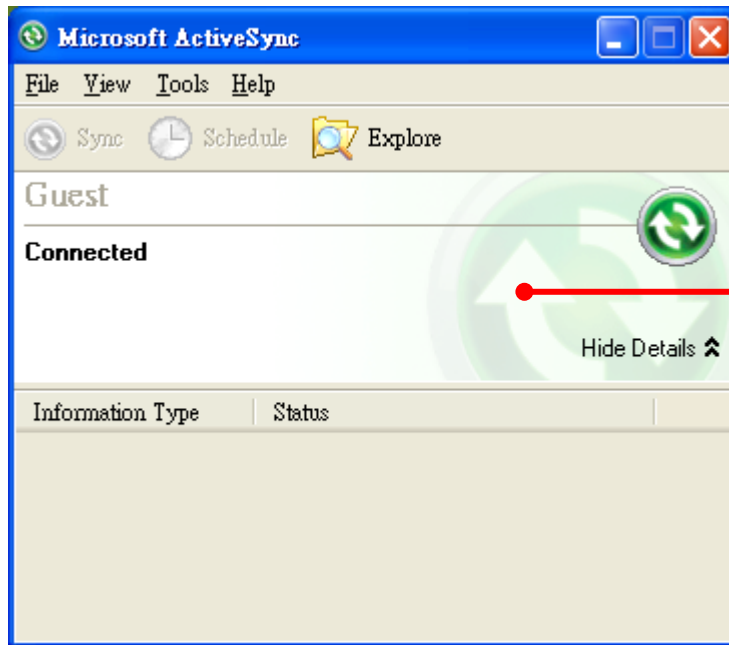
If you have pressed **Next**, follow the on-screen instructions and select the data categories you would like to synchronize. Once confirmed, synchronization will begin shortly, and when the process is finished, ActiveSync window will show "Synchronized" to indicate that the data on the mobile computer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




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

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

1.8.6. DISCONNECT USB ACTIVESYNC

To disconnect USB ActiveSync:

- 1) On your PC, open ActiveSync by double-clicking its icon  in the notification area. ActiveSync opens.
- 2) From the menu bar, click **File | Connection Settings**. [Connection Settings] window opens.
- 3) Deselect **Allow USB connections**.
- 4) Press the **OK** button to apply the change and quit setting.

This way when you plug your mobile computer the next time, ActiveSync won't attempt to connect to it.

1.8.7. ACTIVESYNC ACTIONS TO TAKE

Once “Synchronization Relationship” or “Temporary Relationship” is established between two computers, a variety of actions can be taken to enhance resource sharing between them as previously mentioned in [Sync Partnership](#).

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

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

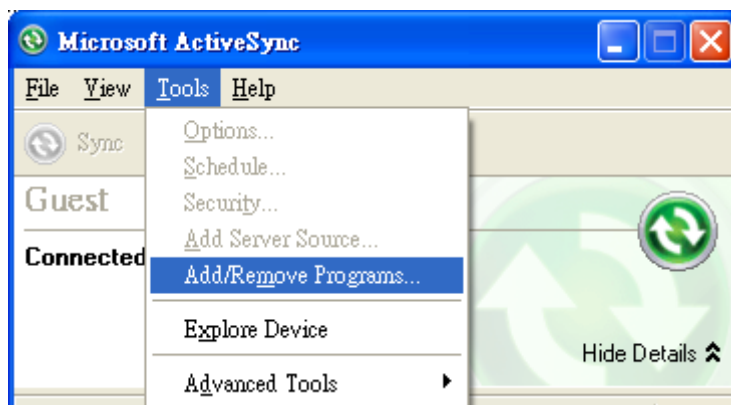
ADD/REMOVE PROGRAMS

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.

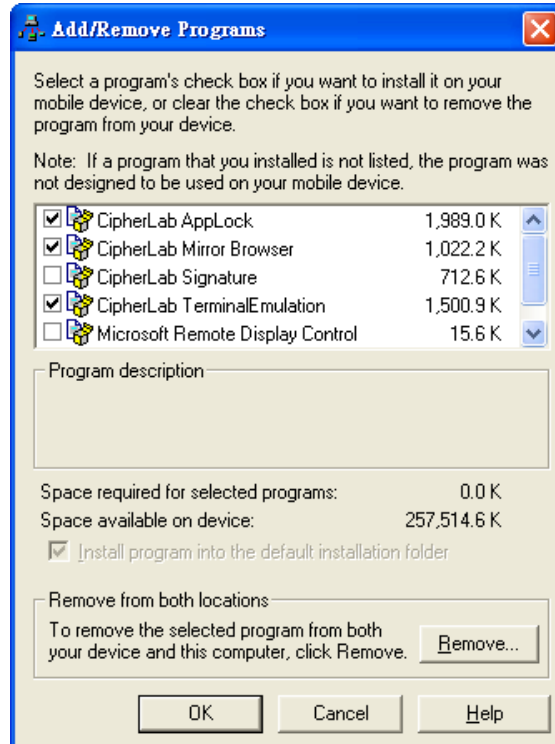
Many application programs are installed in different ways. Read their installation guides or documentation to know how they are installed. If you are installing an application that cannot be installed on your PC first, try to install it right from the mobile computer. See [Install Applications](#) for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

To install an application on the mobile computer:

- 1) Connect two computers as described in [Use Snap-on Cable](#).
- 2) Sync two computers as described in [1st USB Sync](#).
- 3) On the PC, from the menu bar of ActiveSync, select **Tools** | **Add/Remove Programs**.



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



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


5) Press the **OK** button.

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

6) Follow the 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 MENU

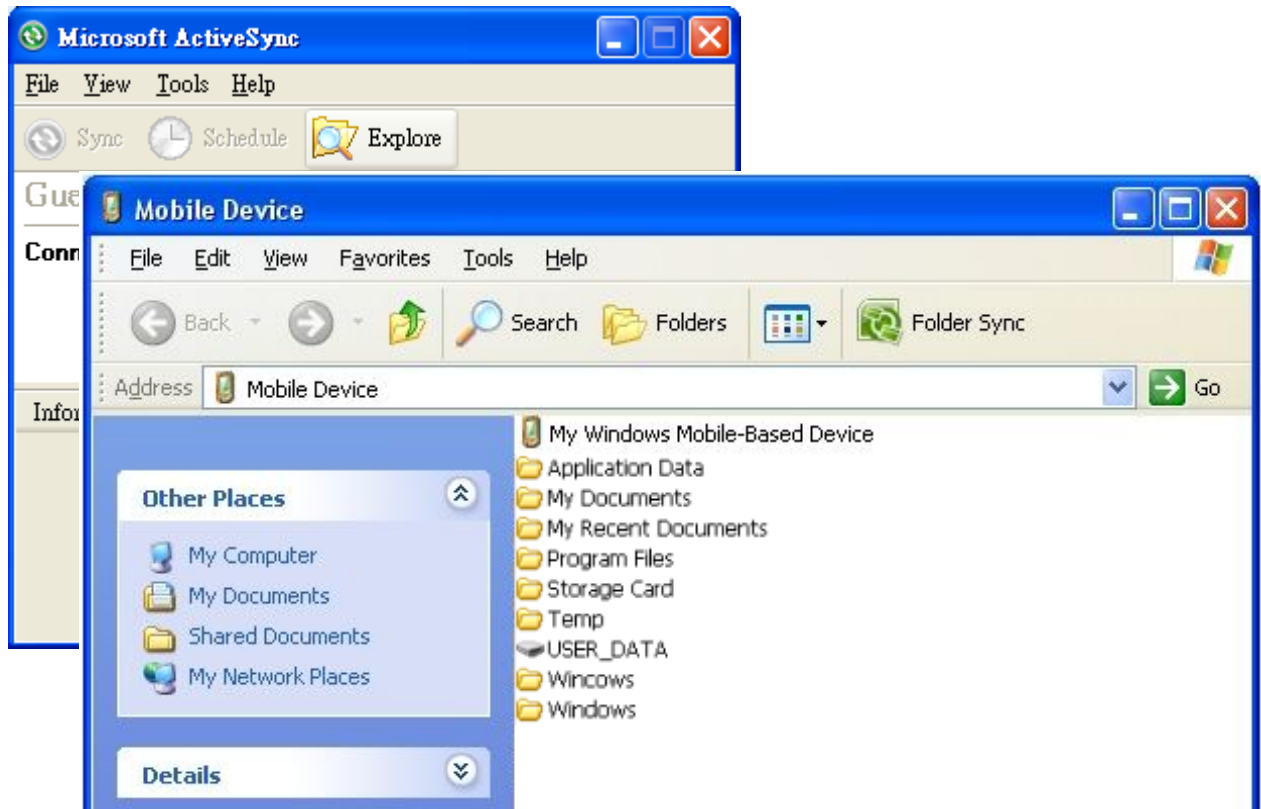
ActiveSync features "Explore" to add an application shortcut to Start menu where it is easier to launch the application.

To add an application shortcut to Start menu:

- 1) Connect two computers as described in [Use Snap-on Cable](#).
- 2) Sync two computers as described in [1st USB Sync](#).

- 3) 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 root directory "**Mobile Device**" opens presenting a few folders (and files).



- 4) Add File Shortcuts to Desktop Double-click **My Windows Mobile-Based Device** .

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

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

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

- 6) Open the folder of the application to create shortcut for.
 7) Find the executable file of that application. Right-click on it and select **Copy** from the context menu that comes up.
 8) Browse to **My Device\Windows\Programs**.
 9) Right-click any vacant spot in the folder and select **Paste shortcut** from the context menu that comes up.

A shortcut to the application is added to the mobile computer's Start menu.

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

You can also add an application shortcut to Start menu directly on the mobile computer. See [Add Items to Start Menu](#) for more details.


REMOVE ITEMS FROM START MENU

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

You can also remove an added shortcut from Start menu directly on the mobile computer. See [Add Items to Start Menu](#) for more details.

ADD ITEM SHORTCUTS TO DESKTOP

To add a shortcut of an application or file to the mobile computer's desktop:

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

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

- 4) Browse to the file to create shortcut for.
- 5) Right-click on the file and select **Copy** from the context menu that comes up.
- 6) Browse to **My Device\Windows\Desktop**.
- 7) Right-click any vacant spot in the folder and select **Paste shortcut** from the pop-up menu that comes up.

A shortcut to the file is added to the mobile computer's desktop.


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

You can also add a file shortcut to the desktop directly on the mobile computer. See [Add Items to Start Menu](#) or more details.

CREATE NEW FOLDERS

To create a new folder on the mobile computer:

- 1) Connect two computers as described in [Use Snap-on Cable](#).
- 2) Sync two computers as described in [1st USB Sync](#).

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

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

- 3) Browse where you want to create a folder.
- 4) Right-click any vacant spot there.

Context menu opens

- 5) Select **New Folder**.

A new folder is created.

BACKUP DATA

To best protect your work, back up 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 <ul style="list-style-type: none"> ▶ 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 <ul style="list-style-type: none"> ▶ 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 <ul style="list-style-type: none"> ▶ 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.

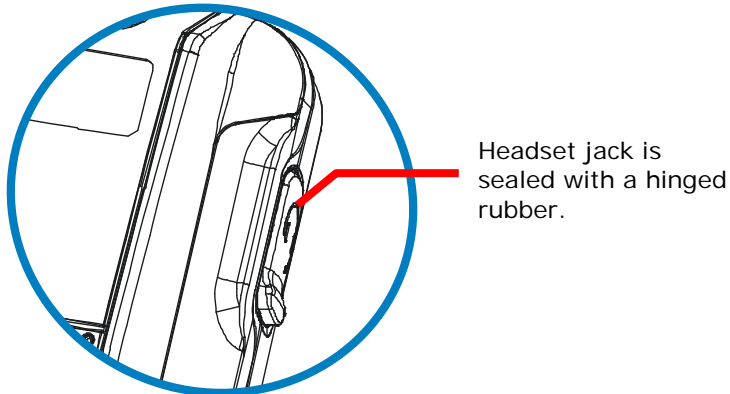
1.9. VOLUME AND AUDIO

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](#).



Headset jack is sealed with a hinged rubber.

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](#).

Turns up and down system volume

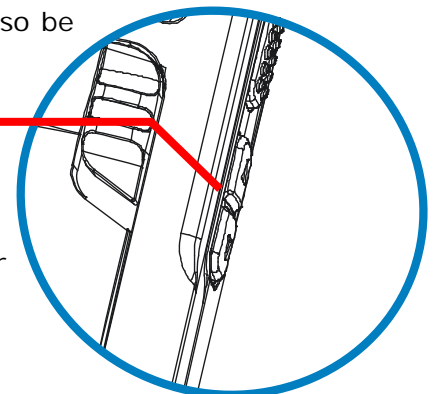


Figure 14:
Physical Volume Rocker

ON-SCREEN VOLUME GAUGE

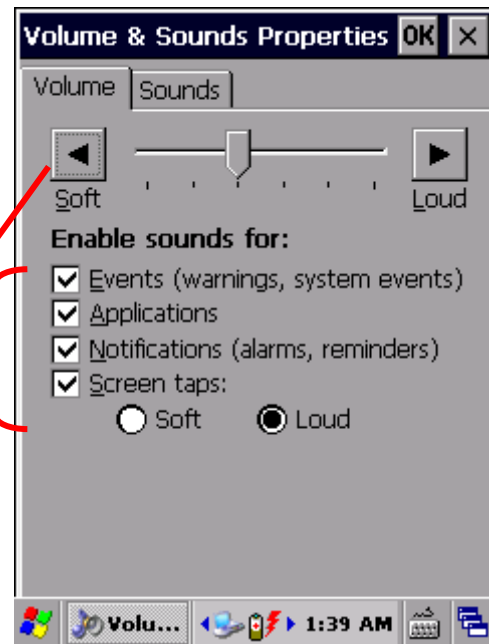
The on-screen volume gauge can also be used to adjust system volume:

- 1) Tap **Start | Settings | Control Panel | Volume & Sounds**.

Volume & Sounds Properties window opens showing a slider to adjust system volume and a few checkboxes to select the occasions to play system sounds for.

Slider bar and buttons to adjust system volume

Checkboxes to select when to play system sounds



- 2) Adjust the settings to meet your needs.

When finished, tap **OK** on the title bar to apply the settings.

Note: When using the physical volume rocker to adjust system volume, make sure **Volume & Sounds** window is not the active window on-screen.

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-specced 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.

2. IN THIS CHAPTER

2.1 Use Reader Config.....	52
2.2 Use HF RFID Configuration.....	71

2.1. USE READER CONFIG

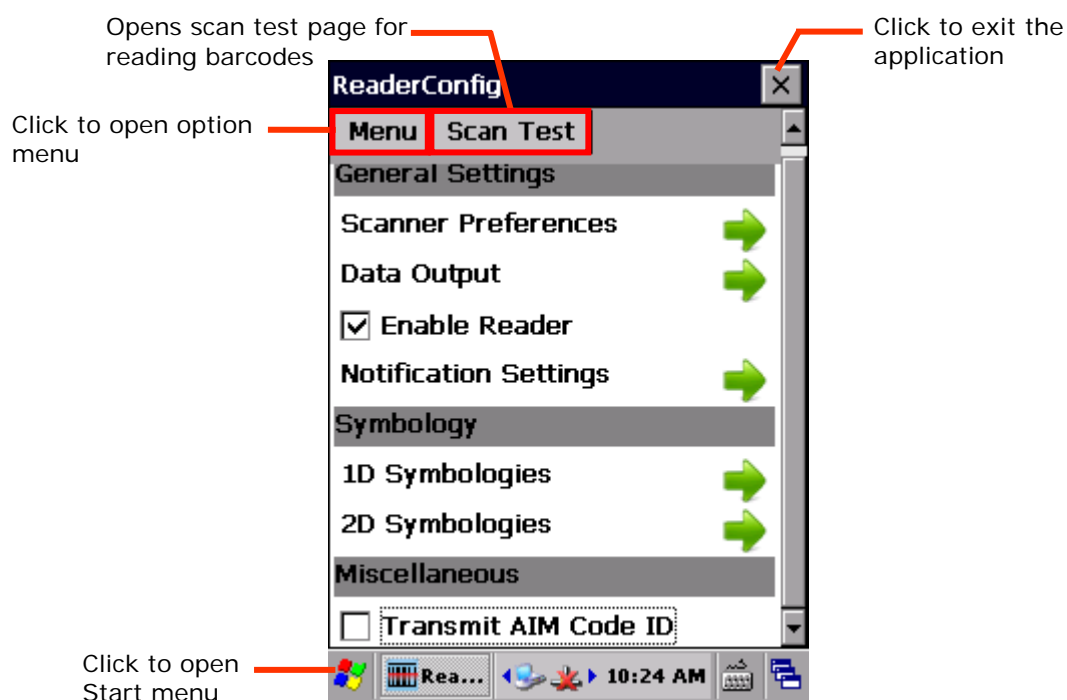
The mobile computer is capable of reading printed barcodes. The reader module can be either a (laser) 1D reader or a 2D imager. The mobile computer is installed with a CipherLab utility **Reader Config** to configure the scan engine built inside. Use it to create a profile of settings that best suits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

2.1.1. LAUNCH READER CONFIG

To launch Reader Config:

- 1) Tap **Start** | **Settings** | **Control Panel** | **Reader Config** .

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**.

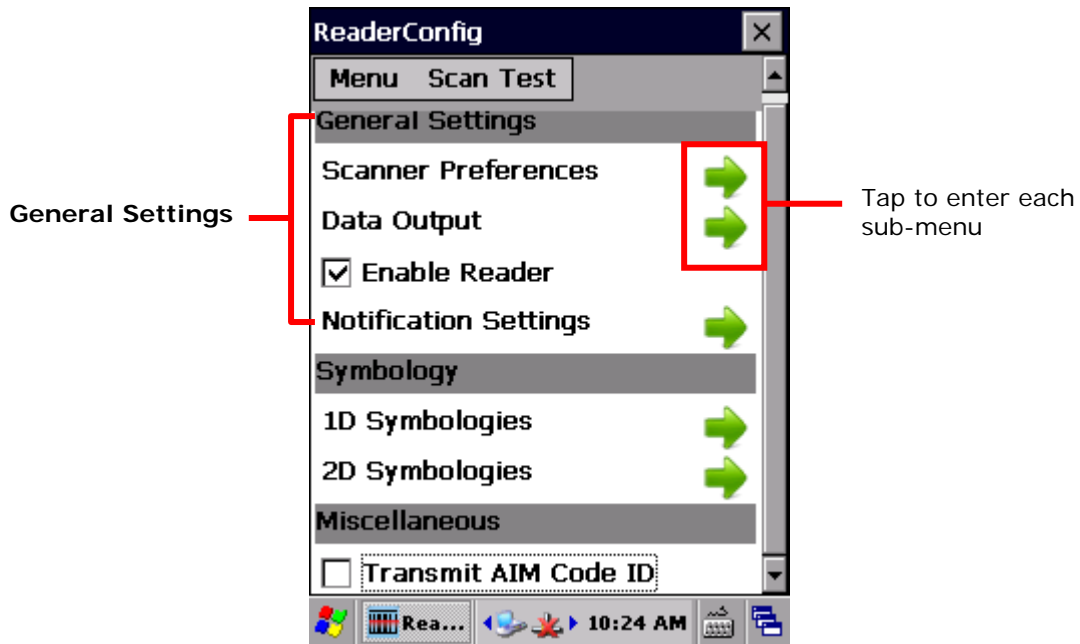


Note: Reader Config will automatically detect the type of reader module integrated on the mobile computer and adjust its settings accordingly.

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

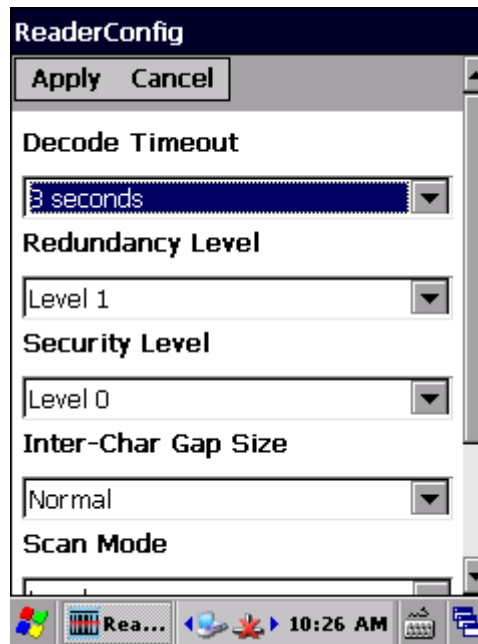
SCANNER PREFERENCES

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	<p>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.</p> <p>The readings needed for each level are as follows:</p> <table border="1"> <thead> <tr> <th>Level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25.</td> </tr> <tr> <td>2</td> <td>All barcodes must be successfully read twice before being decoded.</td> </tr> <tr> <td>3</td> <td>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.</td> </tr> <tr> <td>4</td> <td>All barcodes must be successfully read three times before being decoded.</td> </tr> </tbody> </table>	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
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.											
Scan Mode	<p>Sets the reader's scanning behavior.</p> <ul style="list-style-type: none"> ▶ "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	<p>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.</p> <p>The readings needed for each level are as follows:</p> <table border="1"> <thead> <tr> <th>Level</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25.</td> </tr> <tr> <td>2</td> <td>All barcodes must be successfully read twice before being decoded.</td> </tr> <tr> <td>3</td> <td>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.</td> </tr> <tr> <td>4</td> <td>All barcodes must be successfully read three times before being decoded.</td> </tr> </tbody> </table>	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
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.											
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	<p>Sets the reader's scanning behavior.</p> <ul style="list-style-type: none"> ▶ 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

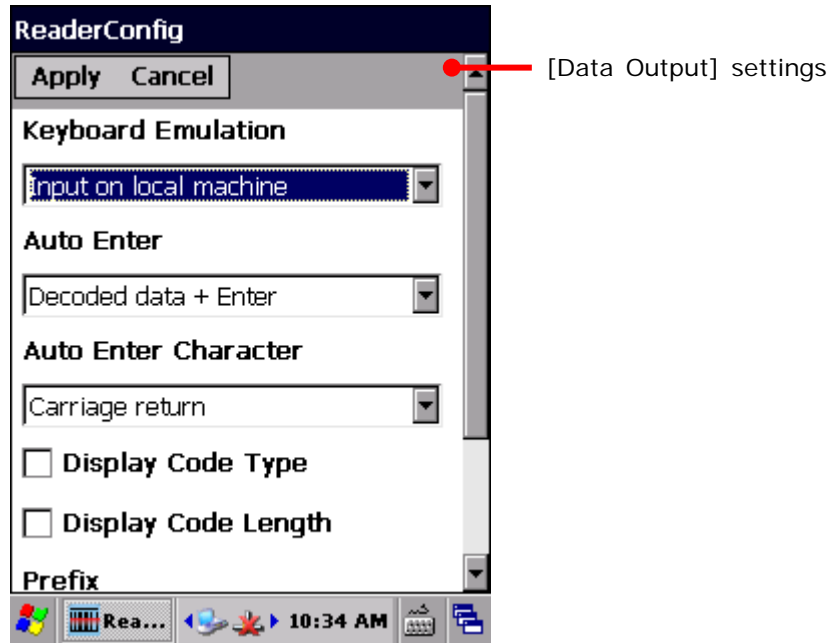
Setting	Description	Default										
Decode Timeout	Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.	3 sec.										
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.	Level 1										
Security Level	<p>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:</p> <table border="1"> <thead> <tr> <th>Level</th> <th>Description</th> </tr> </thead> <tbody> <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> </tbody> </table>	Level	Description	0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.	1	Select this level if misdecodes have occurred. It fixes most misdecodes.	2	Select this level if Level 1 should fail to eliminate misdecodes.	3	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.	Level 0
Level	Description											
0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.											
1	Select this level if misdecodes have occurred. It fixes most misdecodes.											
2	Select this level if Level 1 should fail to eliminate misdecodes.											
3	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.											
Inter-Char Gap Size	Sets the intercharacter gap size for Code 39 and Codabar. Switch between Normal and Large .	Normal										
Scan Mode	<p>Sets the reader's scanning behavior. Options available are Level, Presentation Mode and Auto Aim.</p> <ul style="list-style-type: none"> ▶ 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. 	Level										
Decoding Illumination	Enables an LED light beam to aid barcode reading.	Selected (Enabled)										
Decode Aiming Pattern	Projects a crosshair at the center of the laser light beam to facilitate barcode reading.	Selected (Enabled)										
Picklist Mode	When selected, only barcodes aligned at the crosshair of the laser light beam will be decoded.	Deselected (Disabled)										
Display Mode	Enable improved performance for reading barcodes on electronic displays and mobile phones.	Deselected (Disabled)										

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	<p>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:</p> <ul style="list-style-type: none"> ▶ 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: <ul style="list-style-type: none"> ▶ 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: <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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: <ul style="list-style-type: none"> ▶ 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.

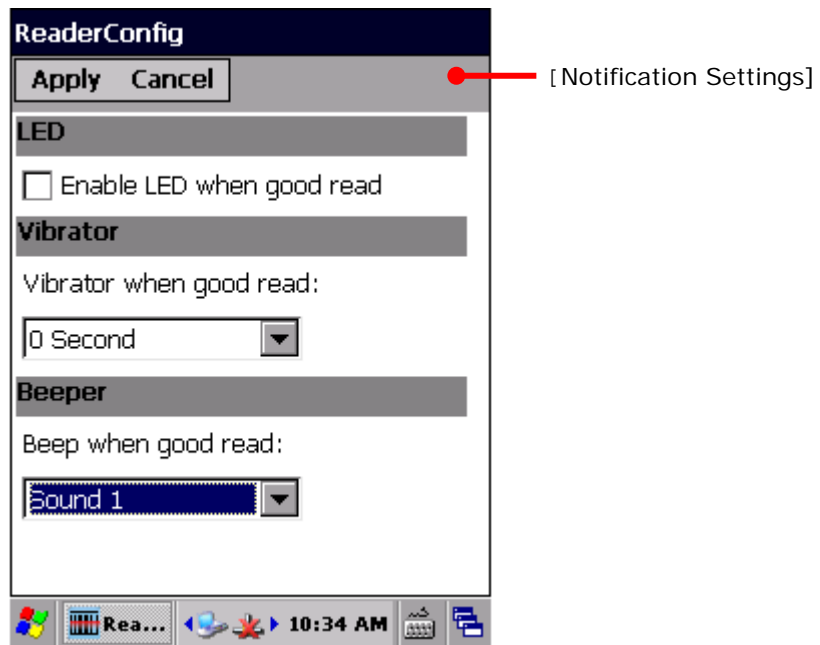
To open **Notification Settings** page:

- 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.

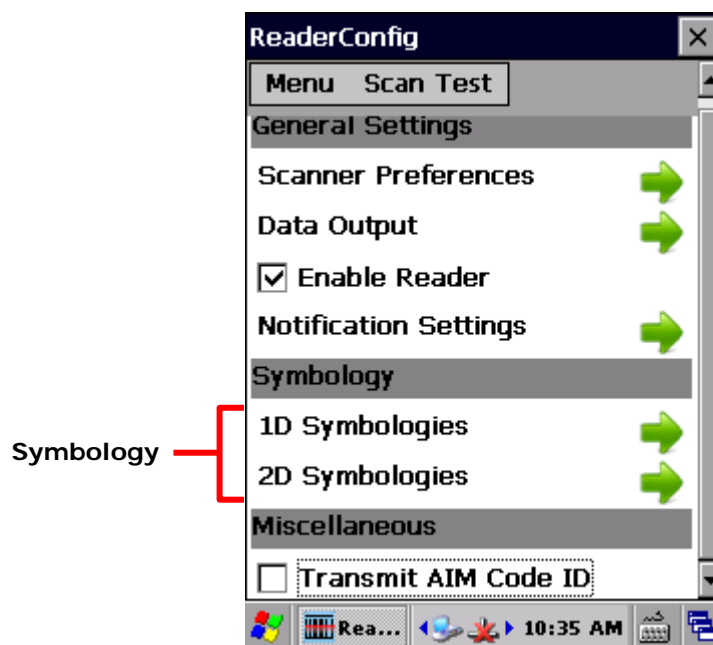


Setting		Description	Default
LED	Enable LED when good read	Selects to enable/disable LED light (left) for scanning good read. See Status LED for details.	Deselected (Disabled)
Vibrator	Vibrator when good read	Enables/disables tactile feedback (vibration) for good read and sets the vibration duration.	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:

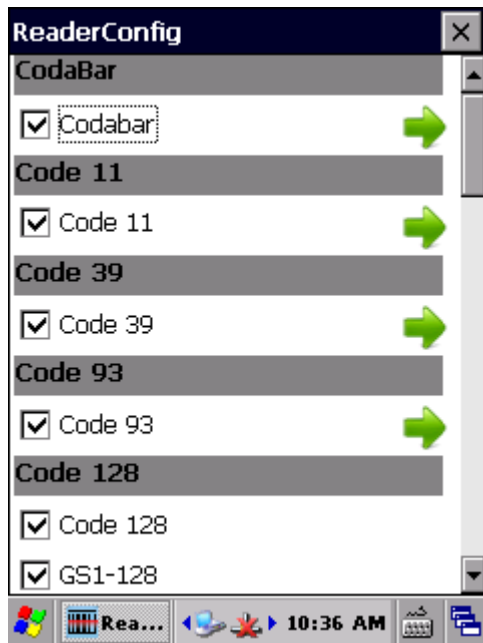
- 1) Open **Reader Config** as described in [Launch Reader Config](#).

Reader Config main menu opens.

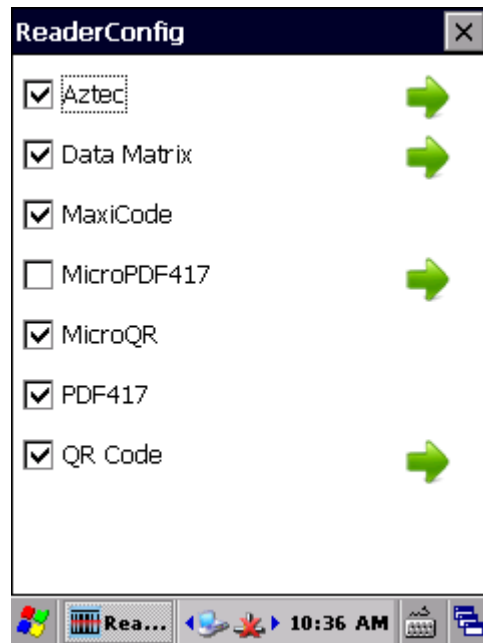
- 2) Tap the arrow next to **1D Symbologies** (or **2D Symbologies** in the case of a 2D imager).

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

1D Symbologies

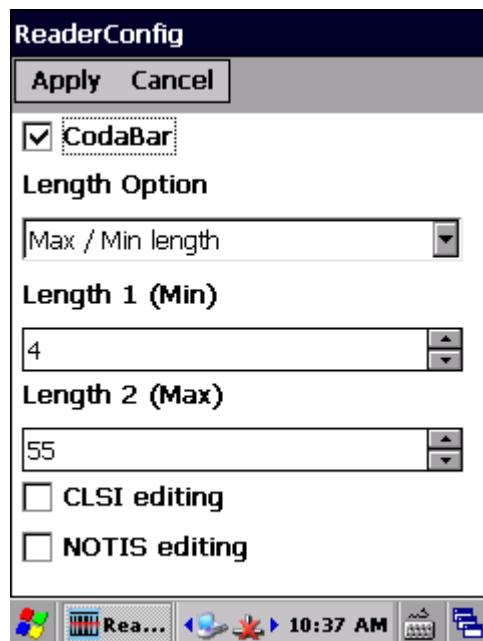
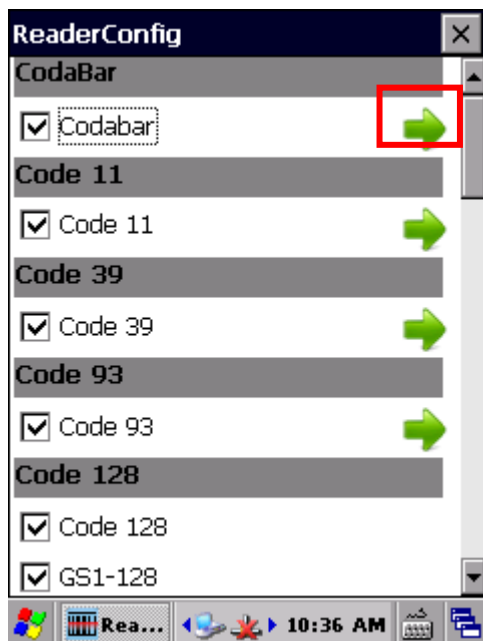


2D Symbologies



SYMBOLGY SETTINGS

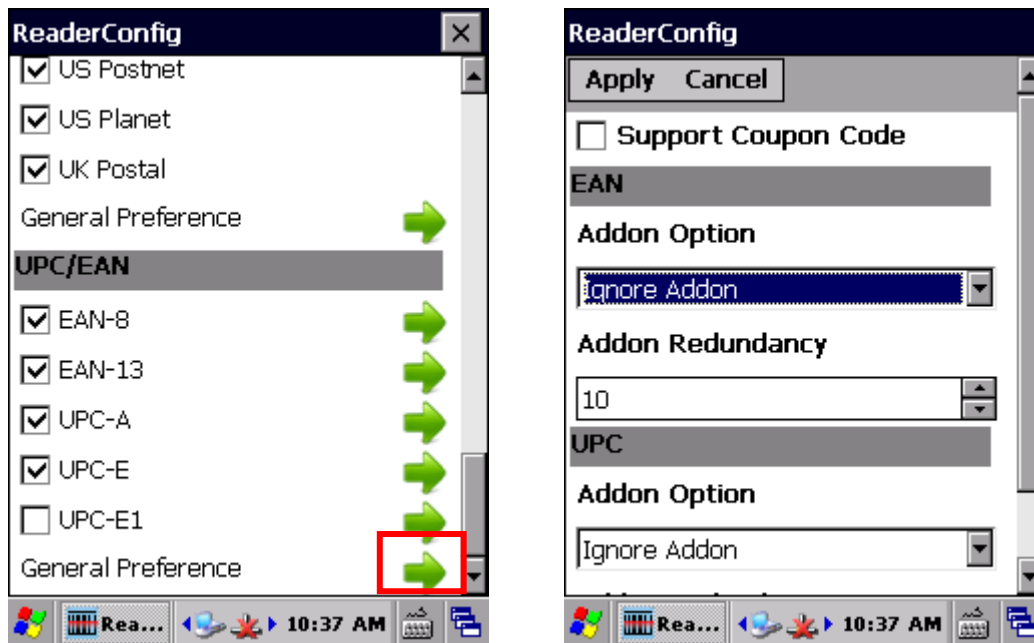
Tap the arrow next to each symbology checkbox to access detailed settings for that symbology.



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.

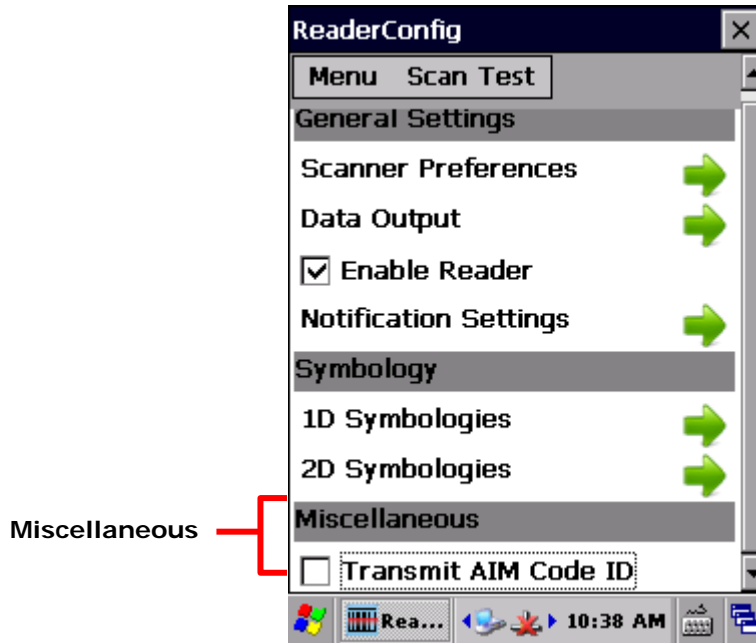


For details about the featured settings:

- ▶ See Appendix II: CCD [Symbology Settings](#).
- ▶ See Appendix III: 1D Laser [Symbology Settings](#).
- ▶ See Appendix IV: 2D Imager [Symbology Settings](#).

2.1.4. MISCELLANEOUS

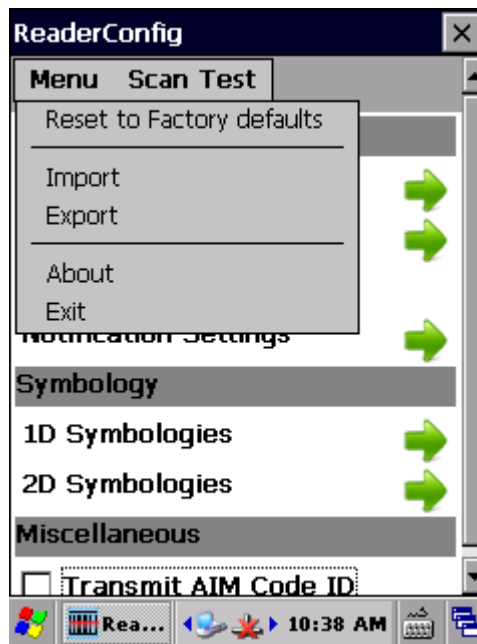
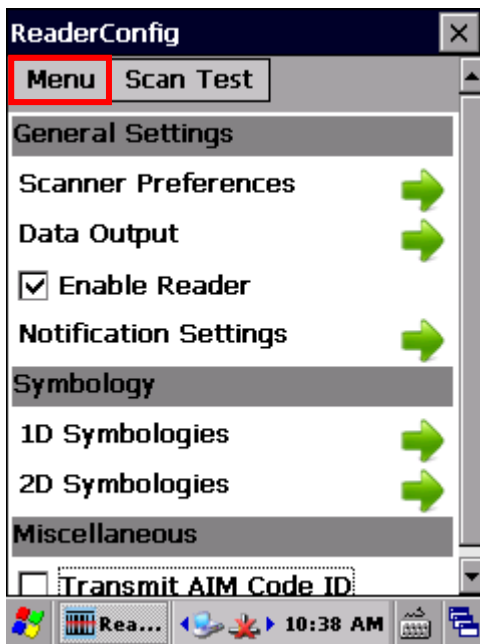
This section allows enabling code ID transmission for easy identification of the scanned barcode.



Setting	Description	Default
Transmit AIM Code ID	<p>Sets whether to include AIM code ID character in the decoded data. For AIM code ID, see the following:</p> <ul style="list-style-type: none"> ▶ 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.

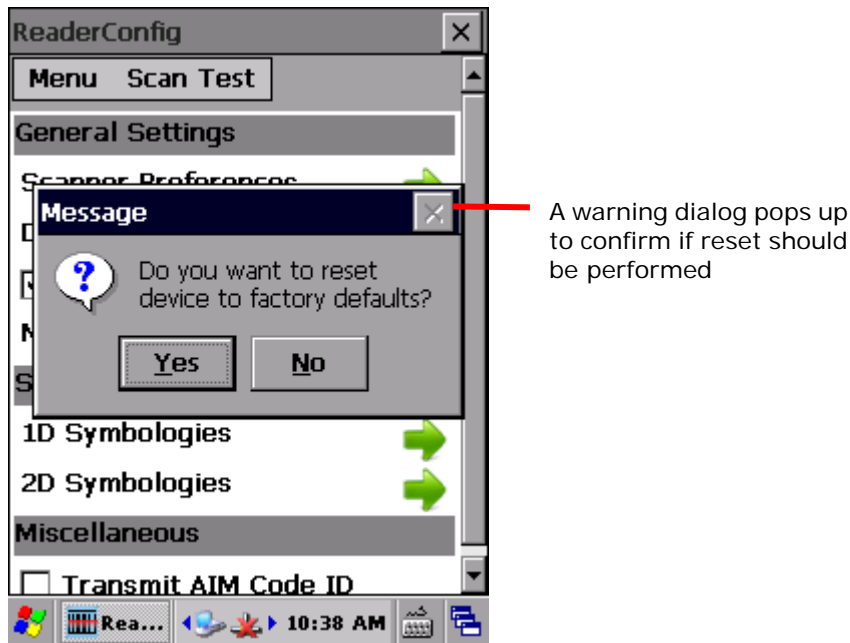


RESET TO FACTORY DEFAULT

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.

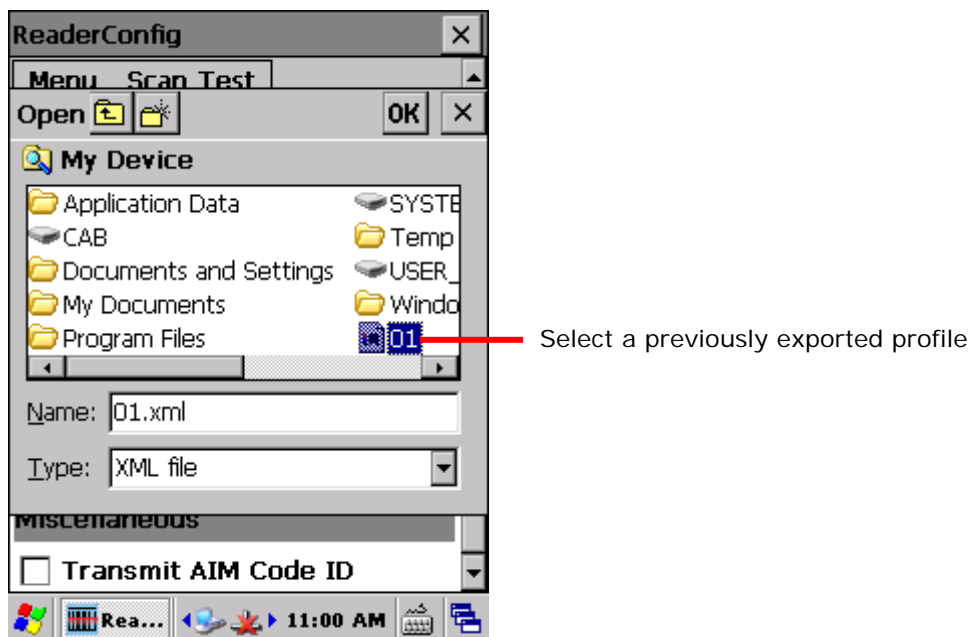
To import settings:

- 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.



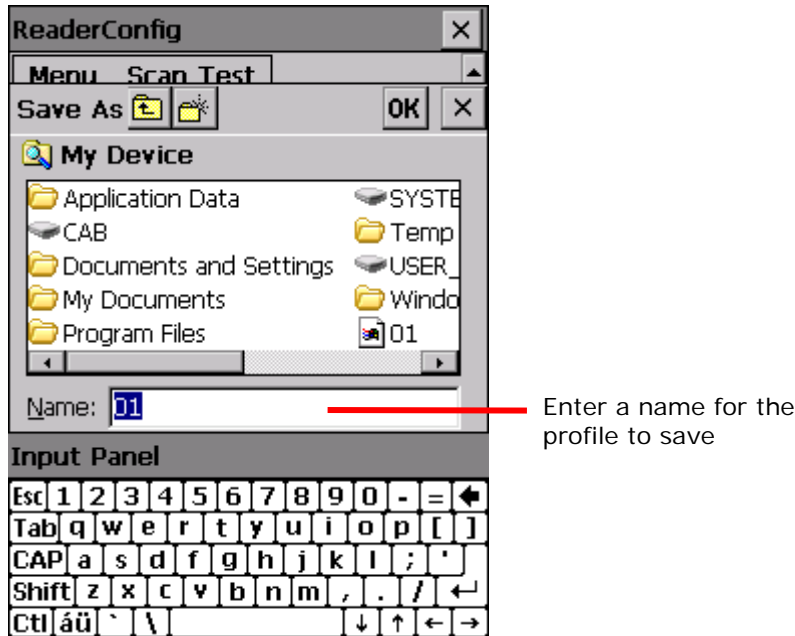
- 4) Select the profile you would like to apply and tap **OK**. In a few seconds a prompt will appear on the mobile computer to indicate settings have been imported successfully.



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.

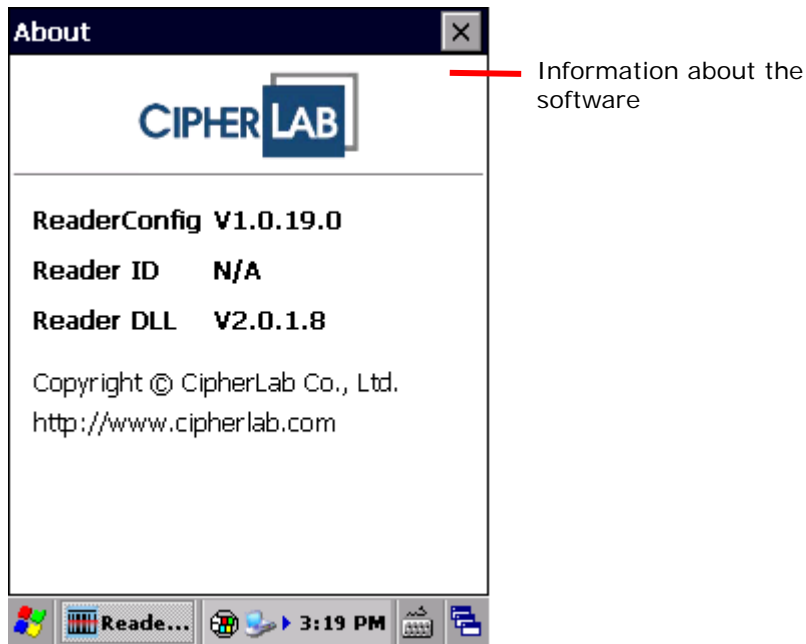


- 4) Enter file name, storage folder and location. Tap **OK** to export. A prompt will appear on-screen to notify that settings have been exported.



ABOUT

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



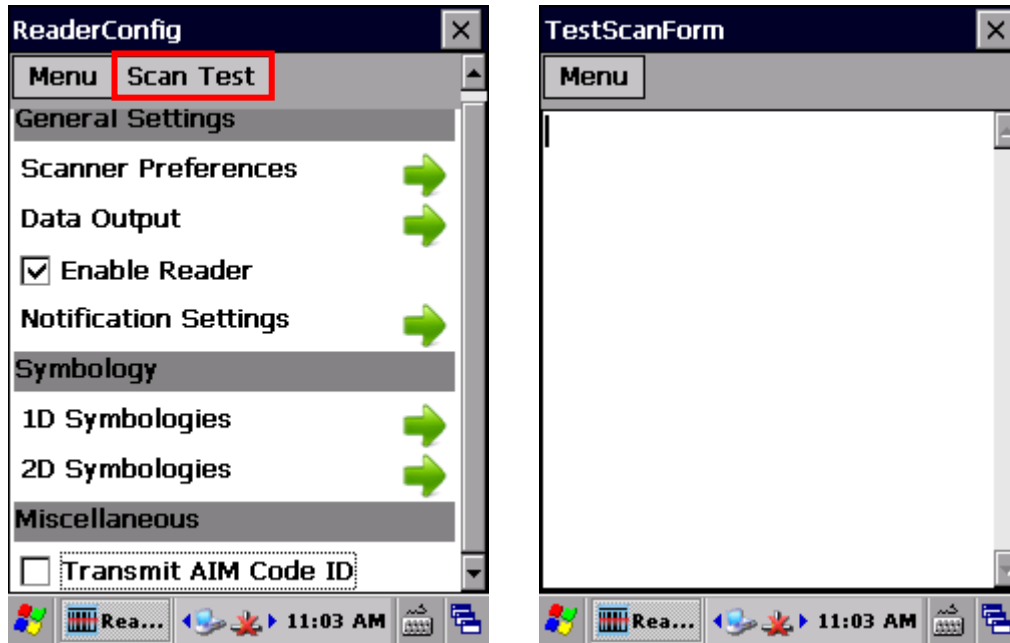
2.1.6. READ PRINTED BARCODES

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.

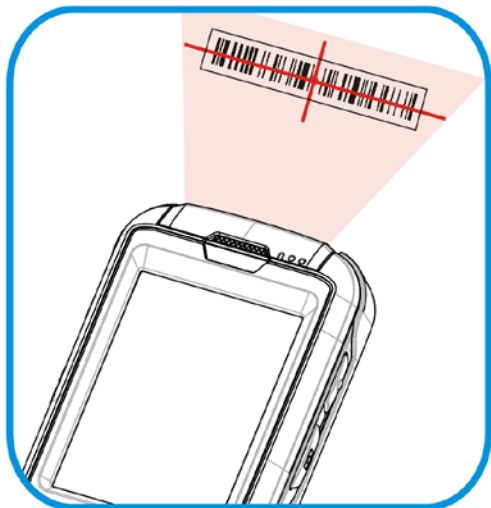

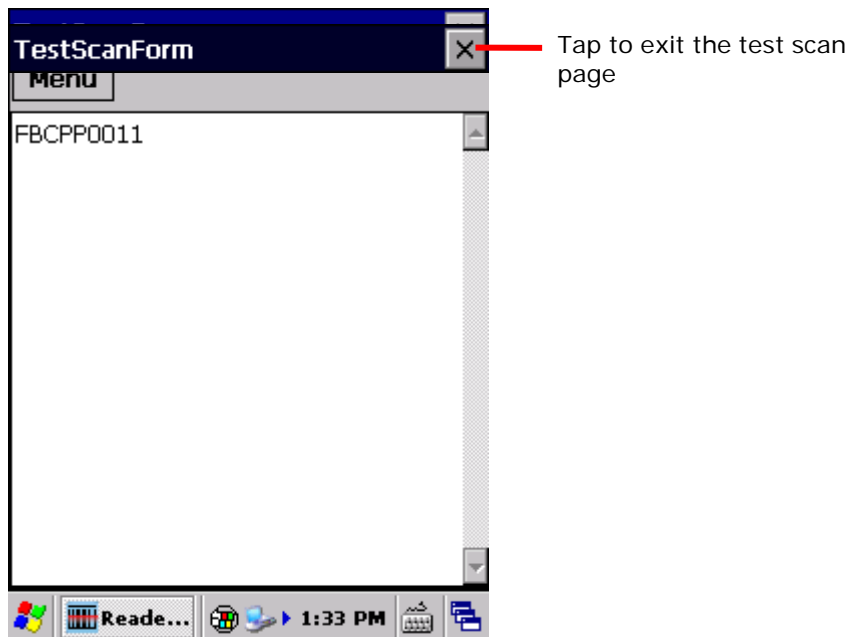


Figure 15: Read printed barcodes

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

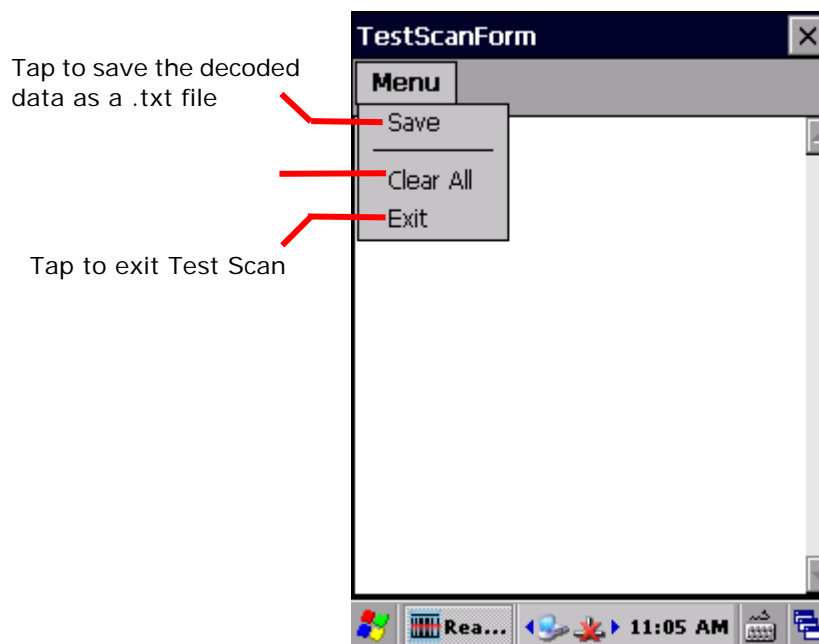


To display more information such as barcode type and length, configure the reader as in [Data Output](#).

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.



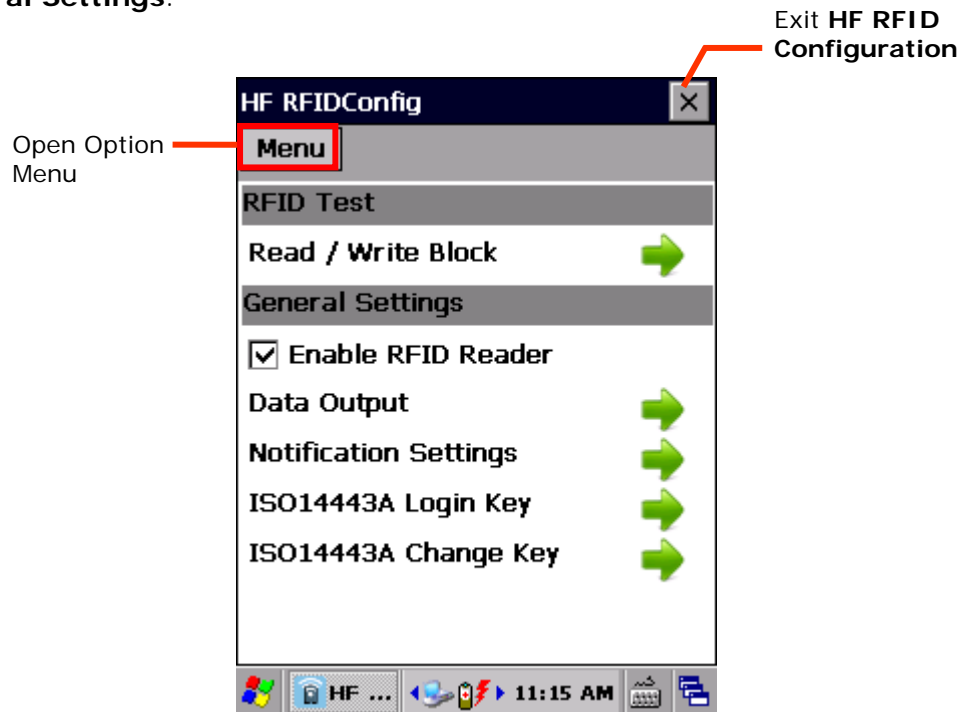
2.2. USE HF RFID CONFIGURATION

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.

- 1) Tap **Start | Settings | Control Panel | 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.

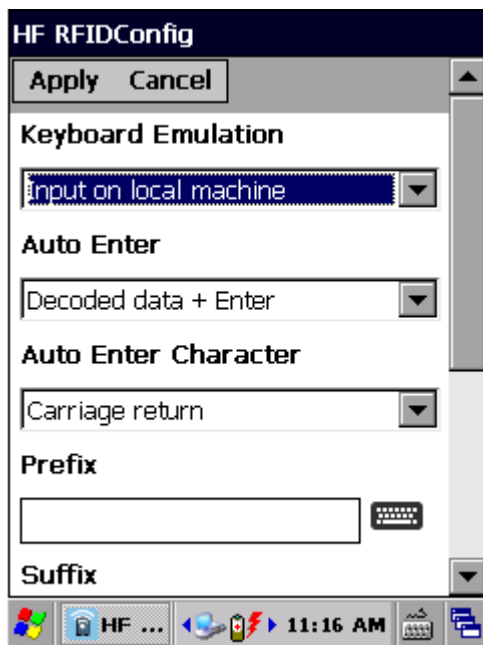
- ▶ Enable RFID Reader (Enabled by default)
- ▶ Data Output
- ▶ Notification Settings
- ▶ ISO14443A Login Key
- ▶ ISO14443A Change Key

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**.



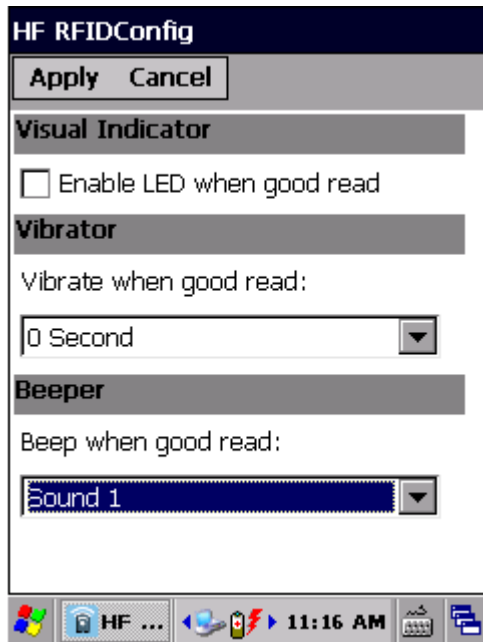
Setting	Description	Default
Keyboard Emulation	Treats decoded data as typed text and outputs it to the active application locally on the mobile computer or remotely on a connected computer. Options are: <ul style="list-style-type: none"> ▶ None: Disables Keyboard emulation whereby decoded data won't 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: <ul style="list-style-type: none"> ▶ 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: <ul style="list-style-type: none"> ▶ 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 Block .	-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: <ul style="list-style-type: none"> ▶ 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.

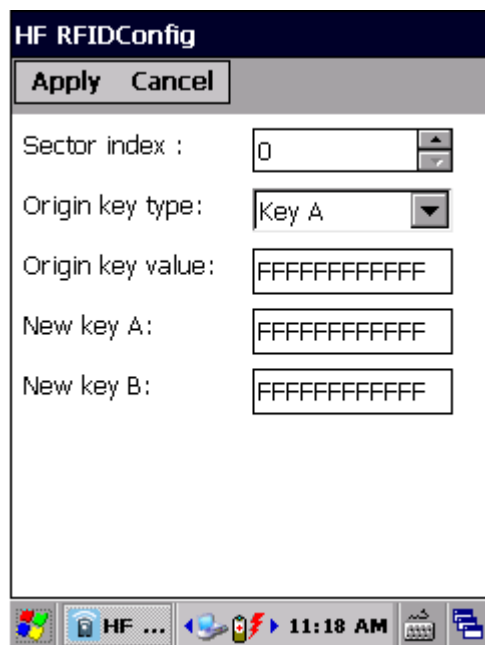


Setting	Description	Default
Login Key	<p>Use the Login key drop-down box to select Key A or Key B, and enter its current value in the field below.</p> <ul style="list-style-type: none"> ▶ Keys A and B are what the RFID reader module relies on to access (read or write) an RFID tag. By default, both keys 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:

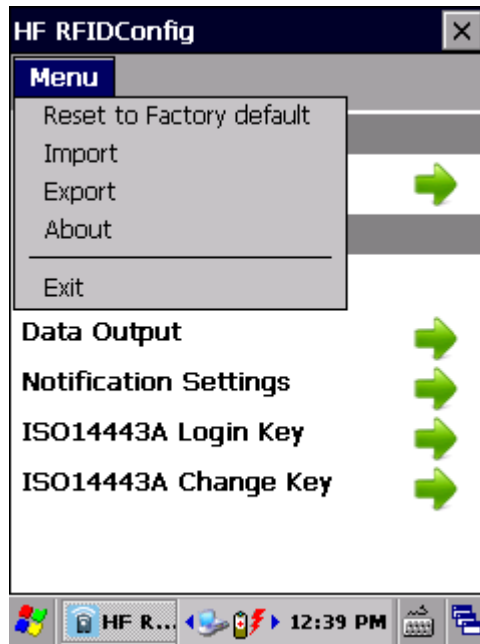
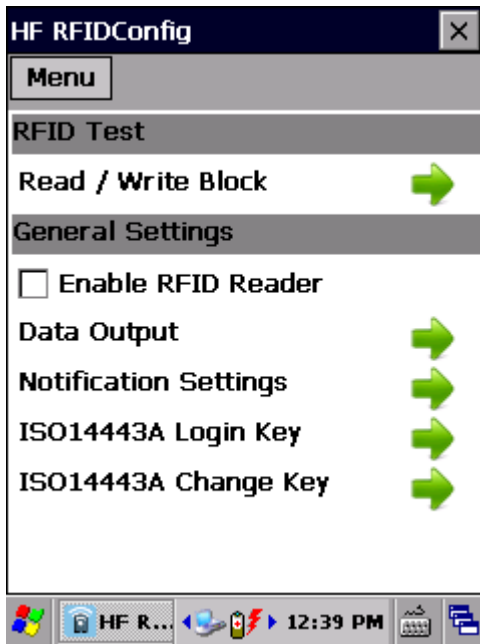
- 1) Launch the RFID reader as described in [Launch HF RFID Configuration](#).
- 2) Tap the green arrow next to **ISO14443A Change Key**.
- 3) Enter the original value of key A or key B, the new assigned value, and the sector to implement the change.
- 4) Place the RFID tag in proximity to the mobile 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.



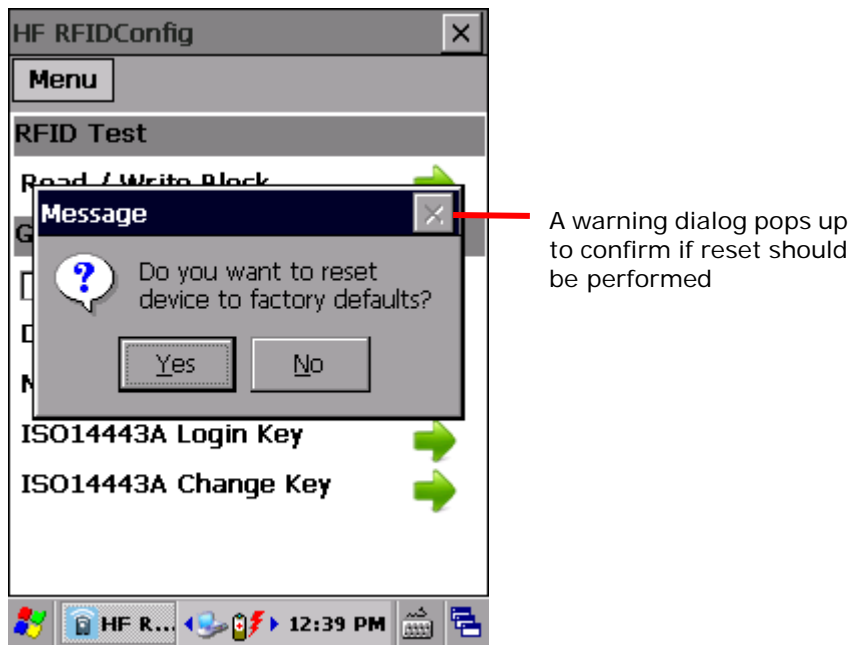
RESET TO FACTORY DEFAULT

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.



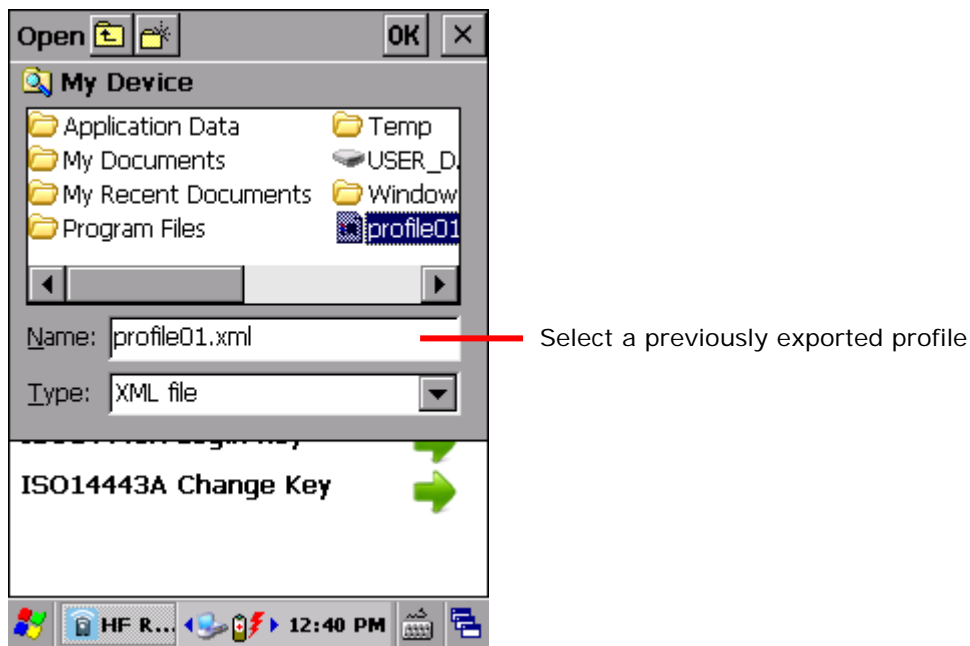
IMPORT AND EXPORT

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.

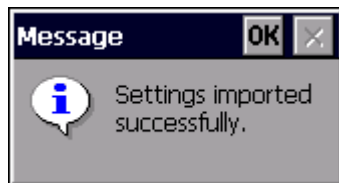
To import settings:

- 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.



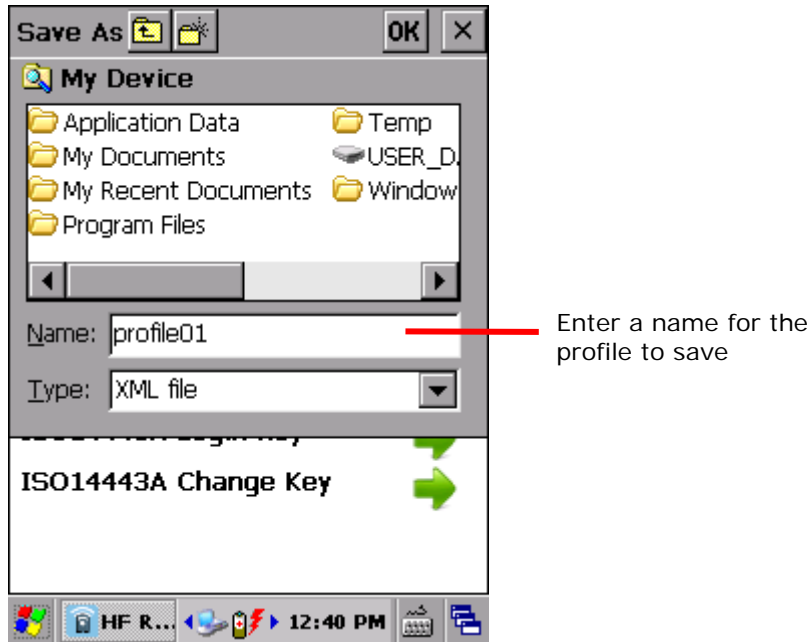
- 4) Select the profile you would like to apply and tap **OK**. In a few seconds a prompt will appear on the mobile computer to indicate settings have been imported successfully.



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.

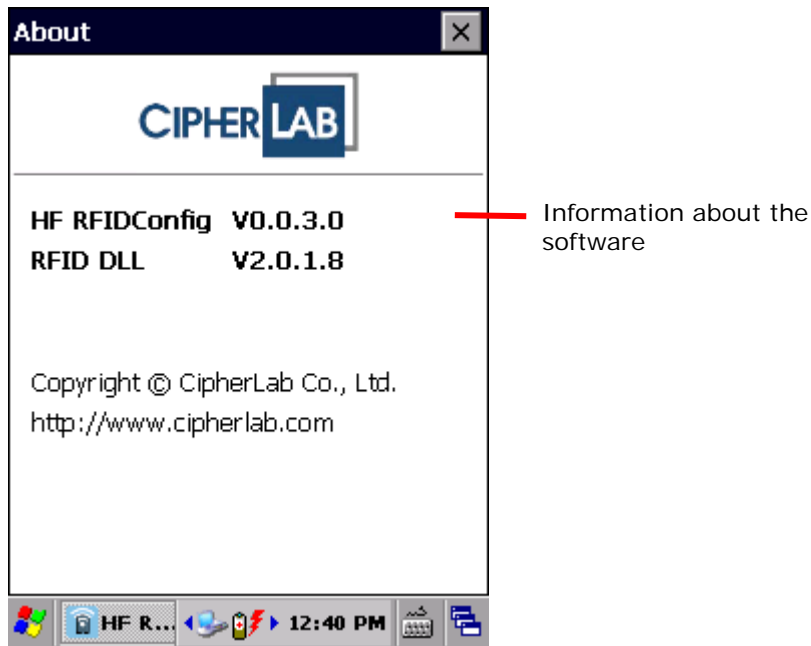


- 4) Enter file name, storage folder and location. Tap **OK** to export. A prompt will appear on-screen to notify that settings have been exported.



ABOUT

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

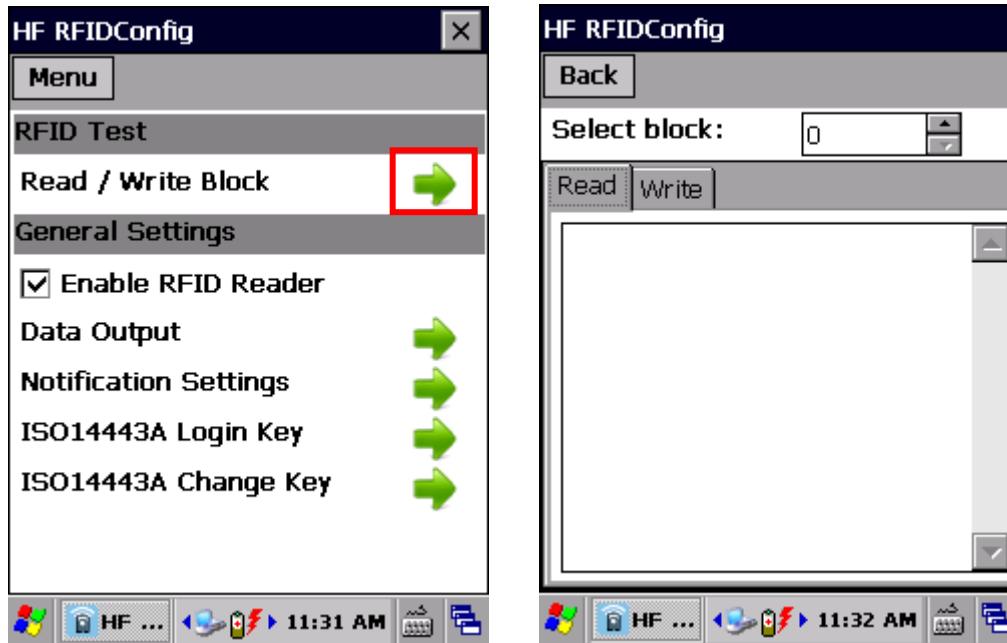


2.2.4.READ AND WRITE RFID TAGS

To read an RFID tag:

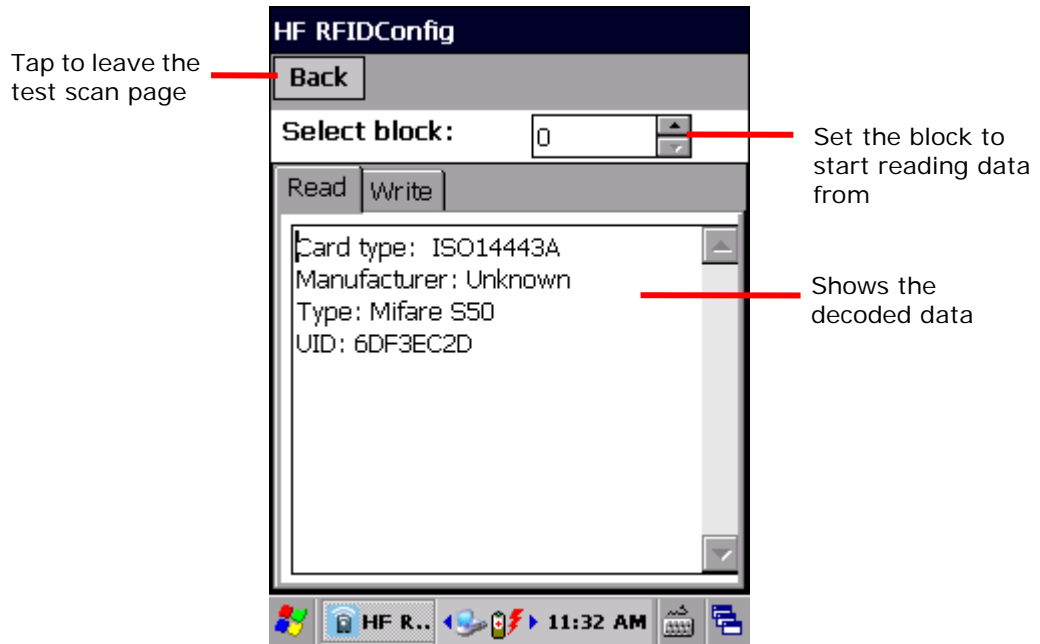
- 1) Adjust the RFID reader settings first. For instance, specify how many bytes you would like to read from the tag, the start position to collect data, where and how to output data in [Data Output](#). If security keys are needed to access the data on the RFID tag, specify Key A and/or Key B in [ISO14443A Login Key](#).
- 2) Tap the green arrow next to **Read / Write Block**.

Read tabbed 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.

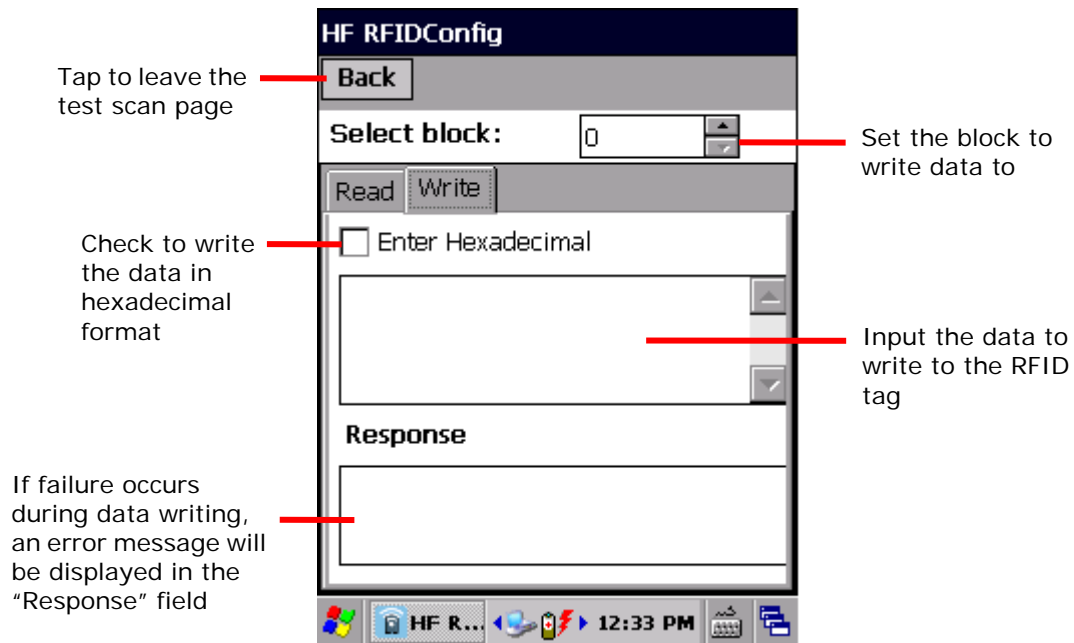


Note: Refer to the specifications of the RFID tag to read for its memory organization. ◦

To write data into an RFID tag:

- 1) Tap **Write** tabbed 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 Block](#).
- (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.

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.

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3.1. LAUNCH CAMERA

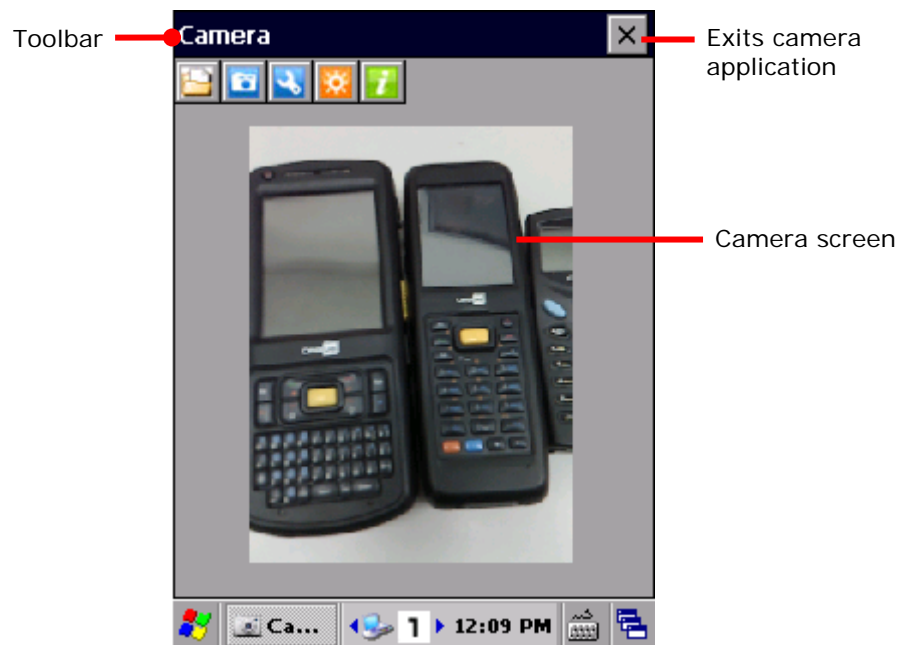
To launch the camera:

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



3.1.2. CAMERA TOOLBAR

The camera toolbar allows users to take and save pictures, view saved images, adjust camera settings, enable camera flash light and view information of the application.



Button	Description
	Views pictures saved on the mobile computer's internal storage. Supported file formats include .jpeg, .png, .bmp and .gif files.
	Triggers camera shutter button to take a picture.
	Opens Camera Settings .
	Enables/disables camera flash light. ▶ Flash light default settings can be adjusted in Camera Settings .
	Opens a dialog that delivers application version information.

3.2. TAKE PICTURES

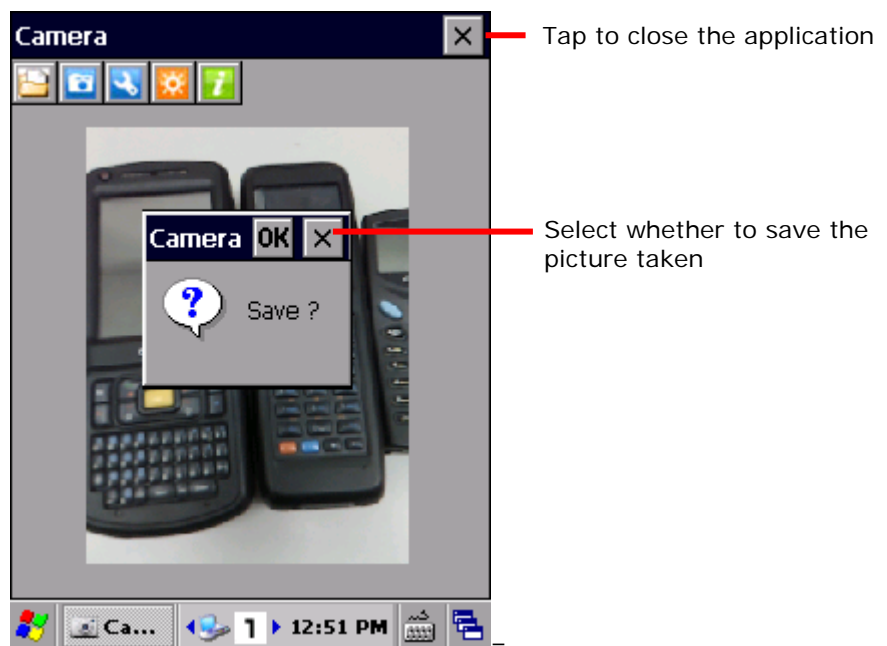
To take a picture:

- 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.

OR

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.

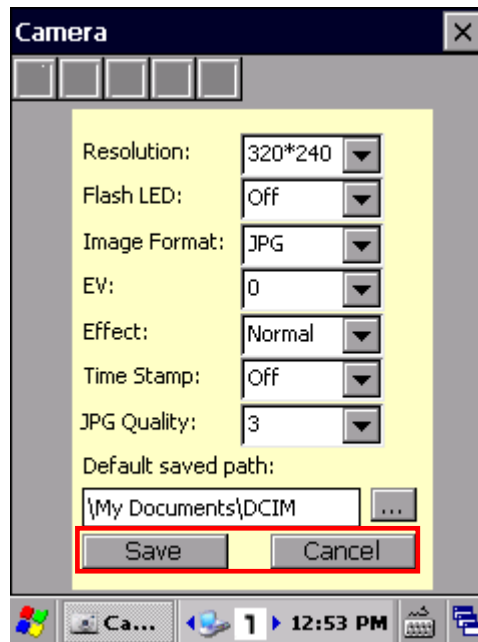
To access camera settings:

1) Open camera as described in [Launch Camera](#).

2) Tap the  button in the toolbar.

A window appears on-screen showing various option settings.

3) After adjusting settings, tap **Save** or **Cancel** to close the window.




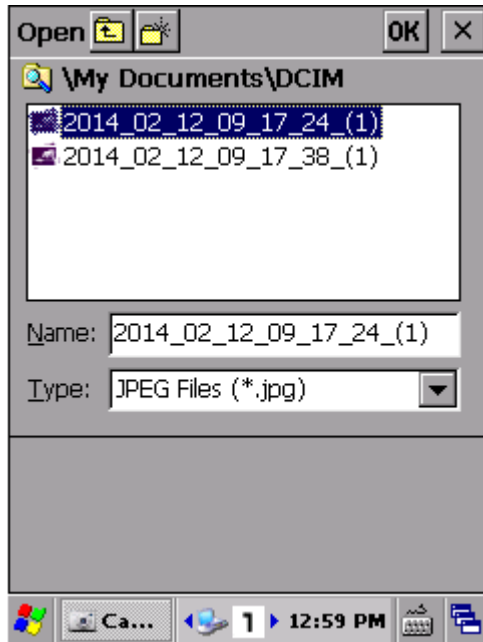
Available settings are detailed as below:







Item	Description
Resolution	The mobile computer supports the following resolutions: 320x240, 640x480, 1280x960, 2592x1944.
Flash LED	Sets the default flash light setting as Off, On or Auto. Flash light can also be controlled using the Camera Toolbar .
Image Format	Sets the format of the saved picture as .jpg or .bmp.
EV	Sets exposure value between -2 and 2 in increments of 1.
Effect	Sets camera effect between Mono, Sepia, Negative, or Off.
Time Stamp	Selects whether to add a time stamp to the picture taken.
JPG Quality	Selects the quality of the picture taken (when stored as .jpg format).
Default saved path	Changes the default path to store the pictures taken.

3.3. VIEW PICTURES

To view a taken picture or an image stored on the mobile computer:

- 1) Tap the  button on the toolbar.
- 2) Browse to the desired path and select the file to view. Supported file formats include jpg, .png, .bmp, .gif.



- 3) The picture will be displayed on the screen. You may use the toolbar buttons  to take more actions to the picture.
 - ▶ Tap  or  to view the previous or next picture.
 - ▶ Tap  to close the preview screen.
 - ▶ Tap  to delete the picture.
- 4) When finished viewing, tap the exit button  at the top right corner of the preview screen.

OPERATING SYSTEM

The mobile computer is powered by Windows Embedded Compact 7.0, a member of Windows Embedded family. Windows Embedded Compact 7.0 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.


4. IN THIS CHAPTER

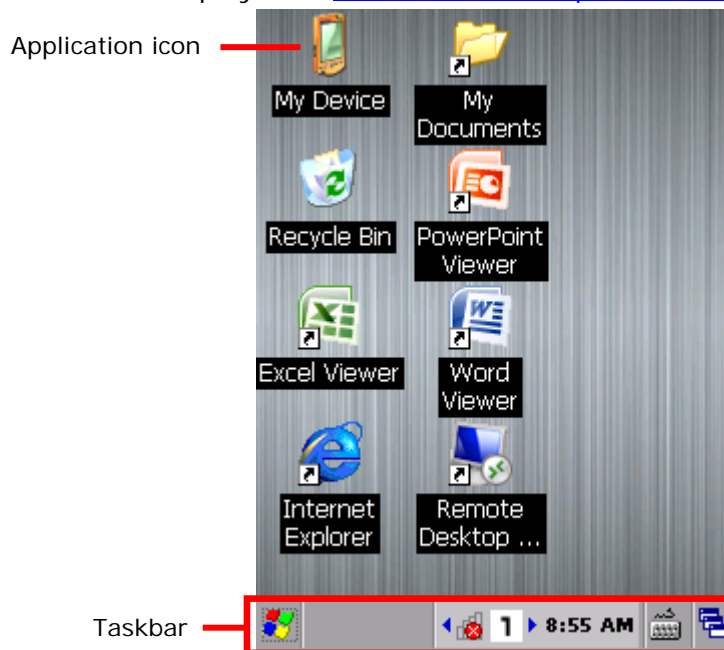
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4.1. DESKTOP









Desktop is where all features on the mobile computer are accessed from.

Basic operations on the desktop:

- ▶ Tap the Start button  to open the Start menu.
- ▶ Double-tap an application icon on the desktop to open it.
- ▶ Tap a blank spot on the desktop to open an option menu for customizing the wallpaper and the items to display. See [Customize Desktop and Start Menu](#) for more details.



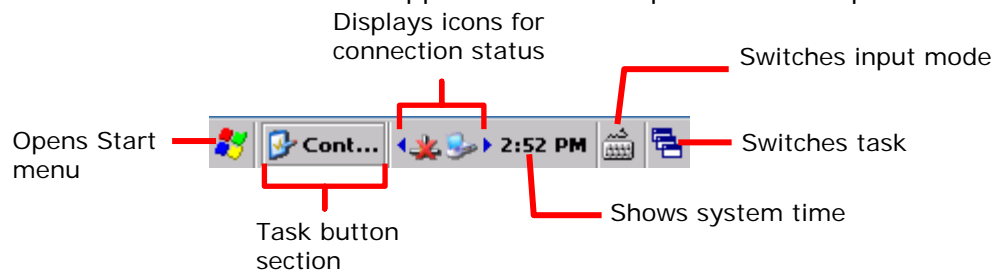
Items on the desktop include:

Icon	Description
	File explorer for the mobile computer's internal storage.
	Recycle bin.
	Shortcut for Excel file viewer.
	Shortcut for Internet Explorer.
	Shortcut which opens \My Device\My Documents directory.
	Shortcut for PowerPoint file viewer.
	Shortcut for Word file viewer.
	Shortcut for Remote Desktop Connection.

4.1.1. TASKBAR




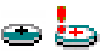





At the bottom of the screen is the taskbar, which is divided into the following sections:

- ▶ Start button: opens Start menu
- ▶ Task button section that shows a button of the current application open on-screen
- ▶ Notification area which displays icons for connection status of the mobile computer, as well as system time
- ▶ A keyboard icon for switching input mode
- ▶ A task icon to switch between active applications or re-open the desktop



STATUS ICONS

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

Options	Description
	External power source connected and charging.
	Battery icons indicate the amount of power remaining in the main battery. The higher the green level, the more power in the main battery.
	When the battery icon changes to red, main battery level is low and needs charging immediately.
	Backup battery level is low; check if main battery level is full, or connect the mobile computer to external power to avoid battery depletion and data loss.
	Enters numbers and symbols. <ul style="list-style-type: none"> ▶ Press Alpha key to convert to alphabetic input.
	Enters alphabetic letters. <ul style="list-style-type: none"> ▶ Press Shift key to switch between uppercase and lowercase letters. ▶ Press Alpha key to convert to numeric/symbolic input.
	Keypad Function mode is on.
	PC connection icon that appears when ActiveSync connection is established.
	A specific wireless connection is terminated or has failed. Double-tap the icon to open a window to check IP information. Included connections are: <ul style="list-style-type: none"> ▶ Bluetooth PAN

- ▶ 802.11a/b/g/n
- ▶ WWAN



A specific wireless connection has been established successfully.

Double-tap the icon to open a dialog to check IP information. Included connections are:

- ▶ Bluetooth PAN
- ▶ 802.11a/b/g/n
- ▶ WWAN connection




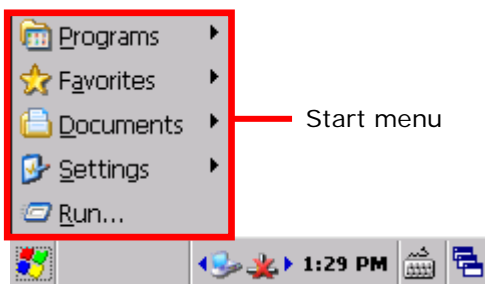
Indicates the Wi-Fi module is enabled. The more the green bars, the stronger the signal.



Indicates cellular data connection status. Red means no connection is established, yellow means the mobile computer is connecting to the WWAN network, and white means a connection is successfully established.

4.1.2. START MENU

Tap the Start button  on the taskbar to open the Start Menu.



Options	Description
Programs	Accesses programs stored in the directory My Device\Windows\Programs .
Favorites	Accesses favorite links to webpages that are stored under the directory My Device\Windows\Favorites .
Documents	Accesses recently opened documents stored under the directory My Device\Windows\Recent .
Settings	Provides access to the following: <ul style="list-style-type: none"> ▶ Control Panel ▶ Network and Dial-up Connections ▶ Taskbar and Start Menu
Run	Opens a program, folder or document as specified.

4.1.3. CUSTOMIZE DESKTOP AND START MENU

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

CHANGE BACKGROUND

You may change the background of the desktop to a picture of your own choice.

- 1) Tap and hold any blank space on the desktop.

A pop-up menu shows with actions to take to the desktop.



- 2) Tap **Properties** in the pop-up menu.

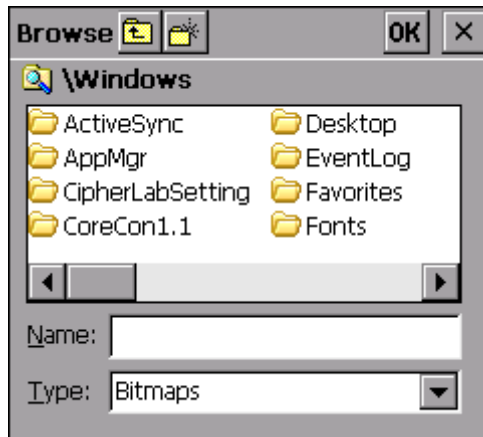
Display Properties window opens showing two tabbed pages for changing desktop background and OS appearance.

- 3) Tap **Browse** button on the **Background** tabbed page.



- 4) In the Browse window that pops up, select the image file you would like to apply as the desktop background.

Supported file formats are .bmp, .gif and .jpg files.



The selected file will appear on the desktop as the background image.

CHANGE APPEARANCE

You may change the overall scheme, color of title bars, dialog boxes, menu text, selected items and so on to suit your preferences.

- 1) Tap and hold any blank space on the desktop.

A pop-up menu shows with actions to take to the desktop.



- 2) Tap **Properties** in the pop-up menu.
- 3) Tap **Appearance** tab to open a page for changing the scheme style and item color.



ADD ITEMS TO DESKTOP

ADD APPLICATION SHORTCUTS

- 1) On the mobile computer, tap **My Device** on the desktop.
- 2) Browse to the executable file of the program you would like to create a shortcut for.
- 3) Tap and hold the file. A pop-up menu will show on the screen.
- 4) Tap **Copy** in the pop-up menu.

Browse to **My Device\Windows\Desktop**.

- 5) Tap and hold any blank space on the screen and select **Paste shortcut** from the pop-up menu that comes up.

A shortcut to the program is added to the mobile computer's desktop.

ADD BOOKMARKED WEBPAGE SHORTCUTS

- 1) On the mobile computer, tap **My Device** on the desktop.
- 2) Browse to **My Device\Windows\Favorites**.
- 3) Tap and hold the bookmark to create a shortcut for. A pop-up menu will show on the screen.
- 4) Tap **Copy** in the pop-up menu.
- 5) Browse to **My Device\Windows\Desktop**.
- 6) Tap and hold any blank space on the screen and select **Paste shortcut** from the pop-up menu that comes up.

A shortcut to the bookmarked webpage is added to the mobile computer's desktop.

ADD FILE SHORTCUTS

- 1) On the mobile computer, tap **My Device** on the desktop.
- 2) Browse to the file to create a shortcut for.
- 3) Tap and hold the file. A pop-up menu will show on the screen.

- 4) Tap **Copy** in the pop-up menu.
- 5) Browse to **My Device\Windows\Desktop**.
- 6) Tap and hold any blank space on the screen and select **Paste shortcut** from the pop-up menu that comes up.

A shortcut to the bookmarked webpage is added to the mobile computer's desktop.

ADD ITEMS TO START MENU

ADD APPLICATION SHORTCUTS

- 1) On the mobile computer, tap **My Device** on the desktop.
- 2) Browse to the executable file of the program you would like to create a shortcut for.
- 3) Tap and hold the file. A pop-up menu will show on the screen.
- 4) Tap **Copy** in the pop-up menu.
- 5) Browse to **My Device\Windows\Programs**.
- 6) Tap and hold any blank space on the screen and select **Paste shortcut** from the pop-up menu that comes up.

A shortcut to the program is added to the Start Menu.

REMOVE ITEMS FROM START MENU

- 1) On the mobile computer, tap **My Device** on the desktop.
- 2) Browse to **My Device\Windows\Programs**.
Programs folder opens. All applications available in the Start menu can be found here.
- 3) Tap and hold the application to remove. A pop-up menu shows on the screen.
- 4) Tap **Delete**.

The application is removed from Start Menu.

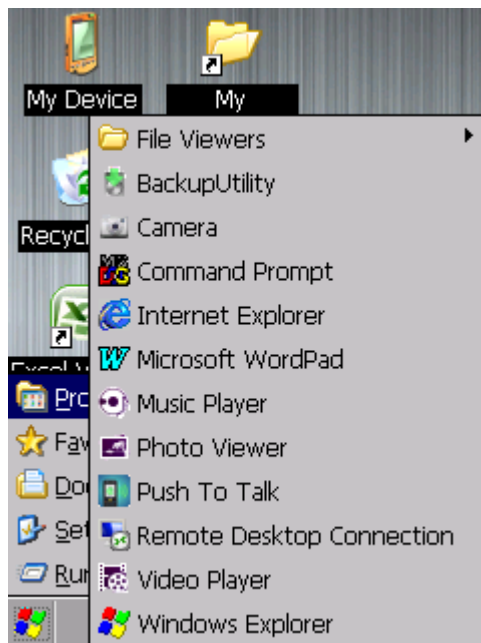
4.2. MANAGING PROGRAMS

4.2.1. LAUNCH PROGRAM







- 1) Tap **Start | Programs** to display a menu listing all the programs installed on the mobile computer.

Note: Use this menu to launch any programs newly installed on the mobile computer. Alternatively, you may add a shortcut of the program on the desktop. See [Add Items to Desktop](#).

- 2) Tap the desired program to launch it on-screen.



The programs pre-installed on the mobile computer include:

Icon	Description
	FILE VIEWERS Accesses document viewing applications for PDF, Excel, PowerPoint and Word files.
	BACKUP UTILITY Application for performing backup and restoration of registry and system files.
	CAMERA Camera application.
	COMMAND PROMPT Command line interpreter program which can be used to execute commands.
	INTERNET EXPLORER Browser for the world wide web.
	MICROSOFT WORDPAD Wordpad for entering text.

**MUSIC PLAYER**

Audio file player.

**PHOTO VIEWER**

Photo viewing application.

**PUSH TO TALK**

Application for transmitting real-time audio content through wireless connection.

**REMOTE DESKTOP CONNECTION**

Program for connection to a remote computer.


**VIDEO PLAYER**

Video file player.

**WINDOWS EXPLORER**

Browser for the mobile computer's internal storage.


4.2.2. SWITCH BETWEEN ACTIVE TASKS


To switch between the active tasks currently running on the mobile computer, tap  on the [Taskbar](#). In the pop-up menu that shows up, tap the program or task button to open, or tap **Desktop** to minimize the active window and display the desktop.

4.2.3. EXIT A PROGRAM

To ensure efficient use of the memory, you should exit a program when it is no longer in use

Note: Always remember to save the data or settings before you exit a program.

Tap  to close an active window, dialog box, or running program. You may alternatively press **ESC** on the physical keypad to close a dialog box or running program.

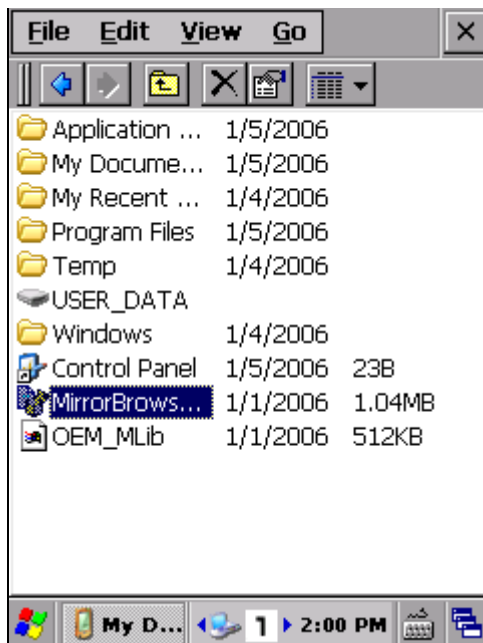
Tap  to save the current settings and close a dialog, program, or minimize the window for certain programs. You may alternatively press **Enter** on the physical keypad to save settings and close a dialog or program.

4.2.4. INSTALL APPLICATIONS

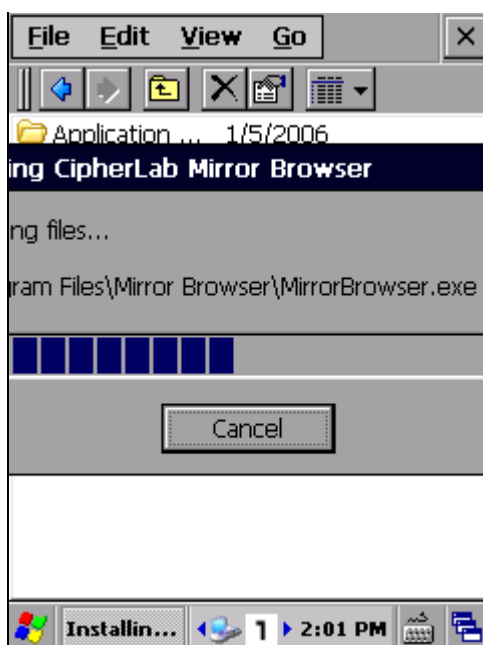
As mentioned in [Add/Remove Programs](#), you can download and install an application on your PC first and offload it to the mobile computer later using Microsoft ActiveSync.

Alternatively, the OS allows you to install an application right from the mobile computer. Follow the steps below to complete installation:

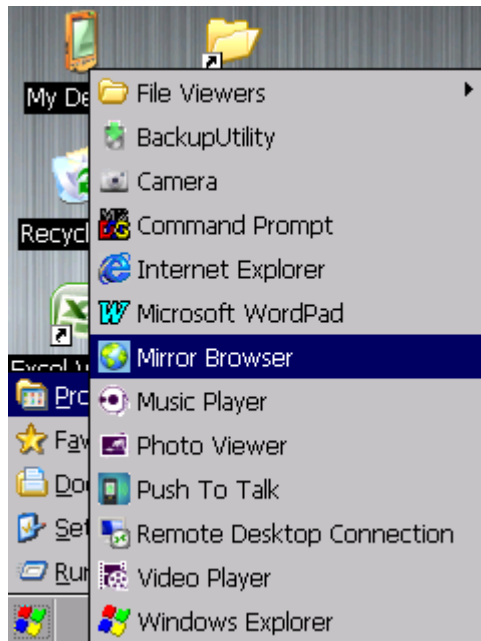
- 1) Using your PC, copy the installation file (.CAB) to the mobile computer's internal storage via ActiveSync.
- 2) On the mobile computer, use **My Device (File Explorer)** to browse to the installation file.



- 3) Tap the file to begin the installation process. Confirm the location to install the program if necessary. The program proceeds to install to the specified location.



- 4) When installation is finished, launch it by tapping **Start | Programs** and locating it in the Programs menu.



Alternatively, you may download an application to install from the Internet. See [Use Wi-Fi](#) for how to connect the mobile computer to the Internet.

UNINSTALL APPLICATIONS

On the mobile computer, the acquired (non-inherent) applications can be deleted from the OS through manual removal (uninstallation). To uninstall an application:

- 1) Tap Start | **Settings** | **Control Panel** | **Remove Programs** .

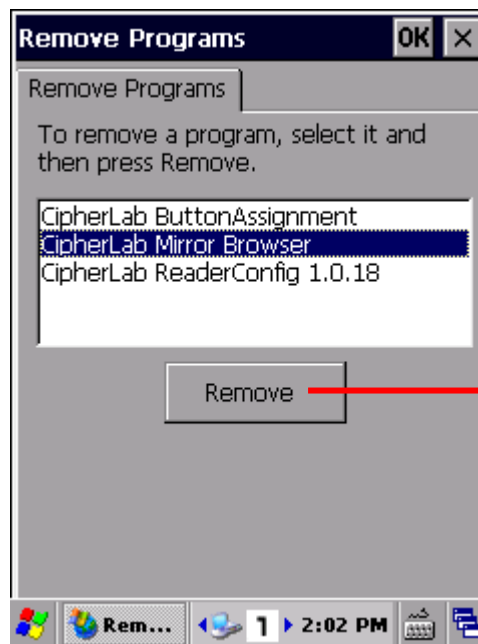
Remove Programs opens showing the applications downloaded and installed from external sources.

- 2) Tap the application to remove.

The **Remove** button becomes available.

- 3) Tap **Remove** to uninstall the application.

- 4) Follow on-screen instructions to complete through the uninstallation process.



Tap to remove the selected application

4.3. 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.

4.3.1. 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.

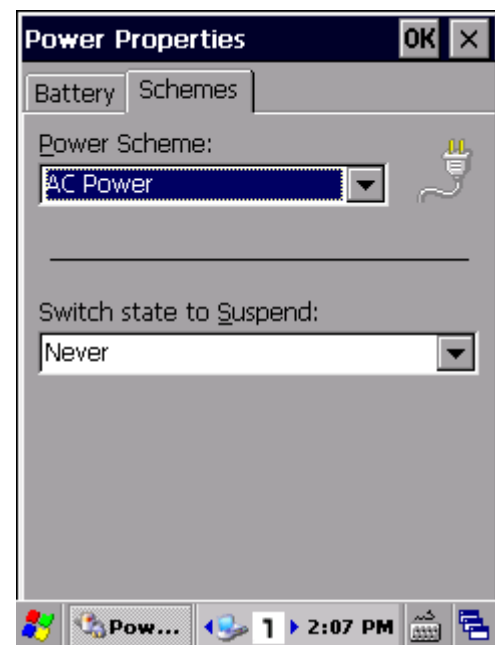
AUTO-SUSPENSION

Set up a power plan to suspend the mobile computer in apt timing. This helps preserve battery life.

- 1) Tap **Start | Settings | Control Panel | Power**  | **Schemes** tabbed page.
- 2) Under **Switch state to Suspend**, set a time limit to suspend the mobile computer as long as it has been in idle state for the indicated period of time. Power plans are available for both battery power and external power.
- 3) Tap  to save the settings and close the application, or  to exit the application directly.

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](#).

4.3.2. 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.
-

4.3.3. 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.

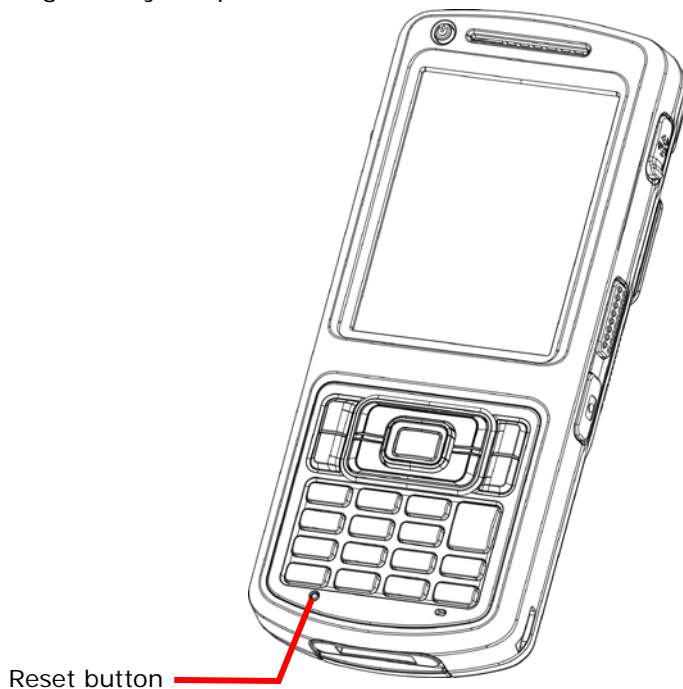


Figure 16:
Reset Mobile Computer

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.

4.4. UPDATE OS IMAGE

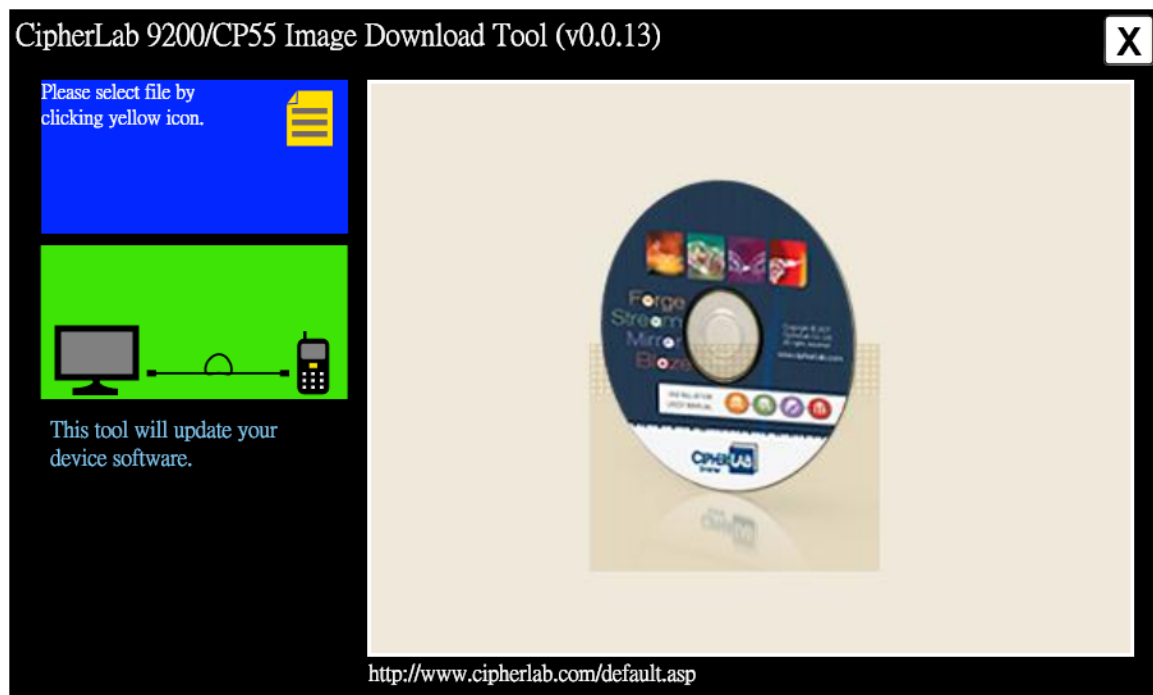
OS image upgrade helps optimize the mobile computer's performance and functionality. There are two approaches for updating the OS image, through the CipherLab Image DownloadTool, or with the use of an SD card.

4.4.1. OS UPDATE VIA DOWNLOAD TOOL

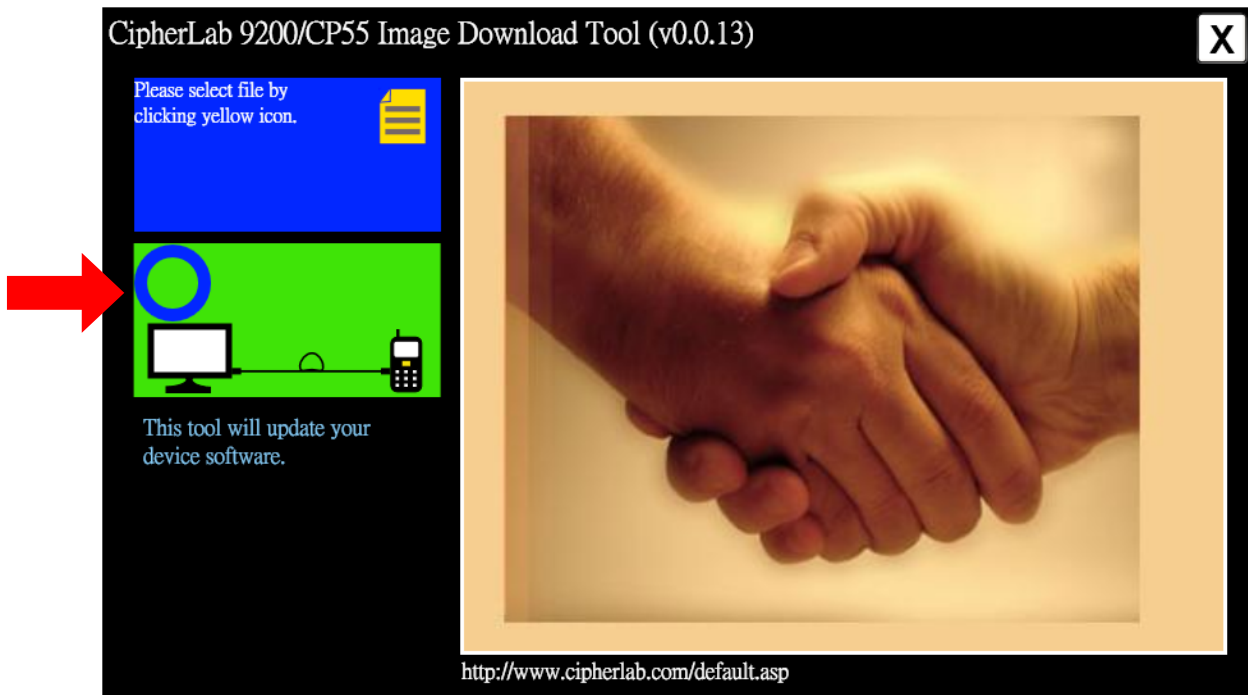
The CipherLab Image Download Tool utility will load the selected OS image onto the mobile computer. This utility and the OS image file (.nb0 format) of the latest version are required for the OS update.

To update the mobile computer's operating system:

- 1) Obtain the CipherLab Image Download Tool and install it on your PC.
- 2) Open the CipherLab Image Download Tool.



- 3) Power on the mobile computer and connect it to your PC through a Snap-on Cable or Cradle. The icon on the taskbar will show that the device is successfully connected.

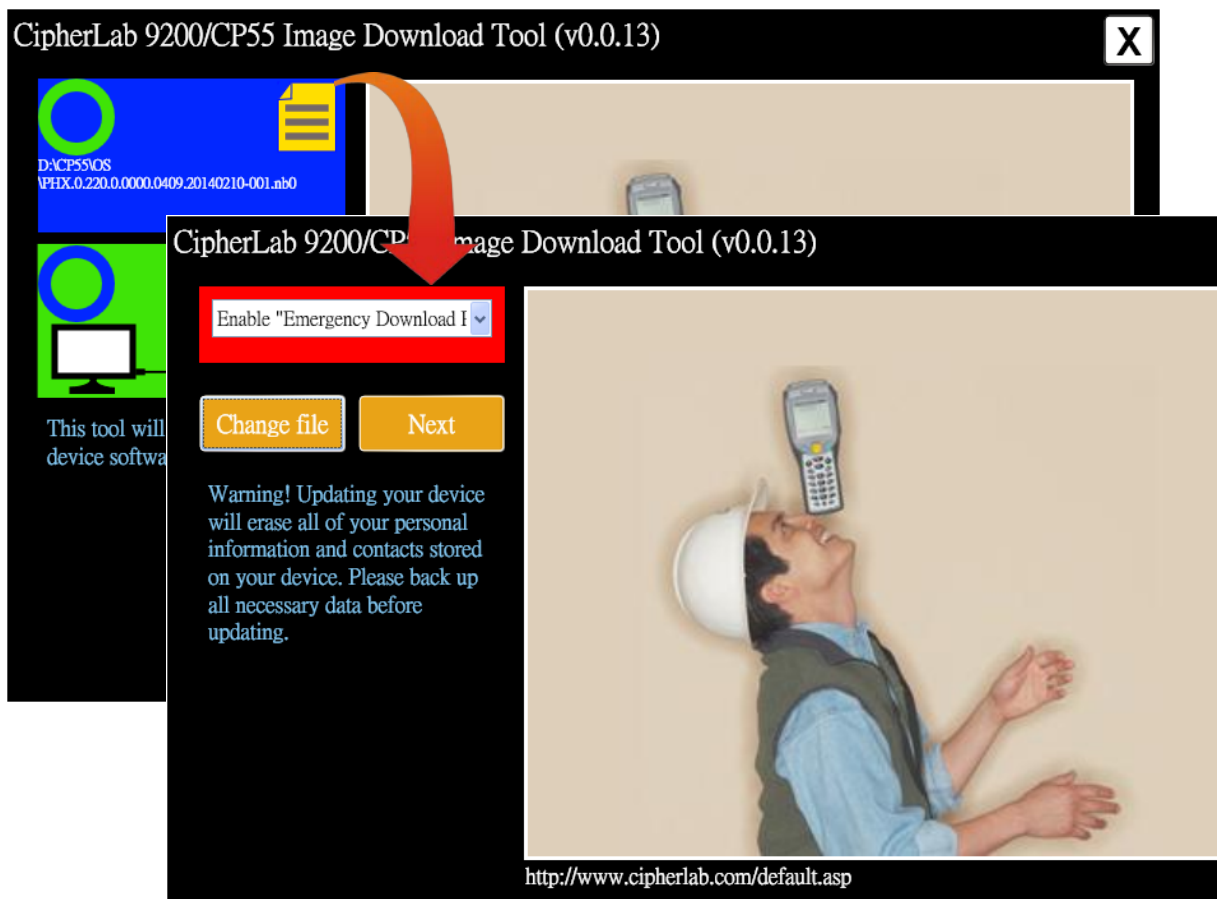


4) Tap the yellow Browse button to select the image file you wish to update with.

OR

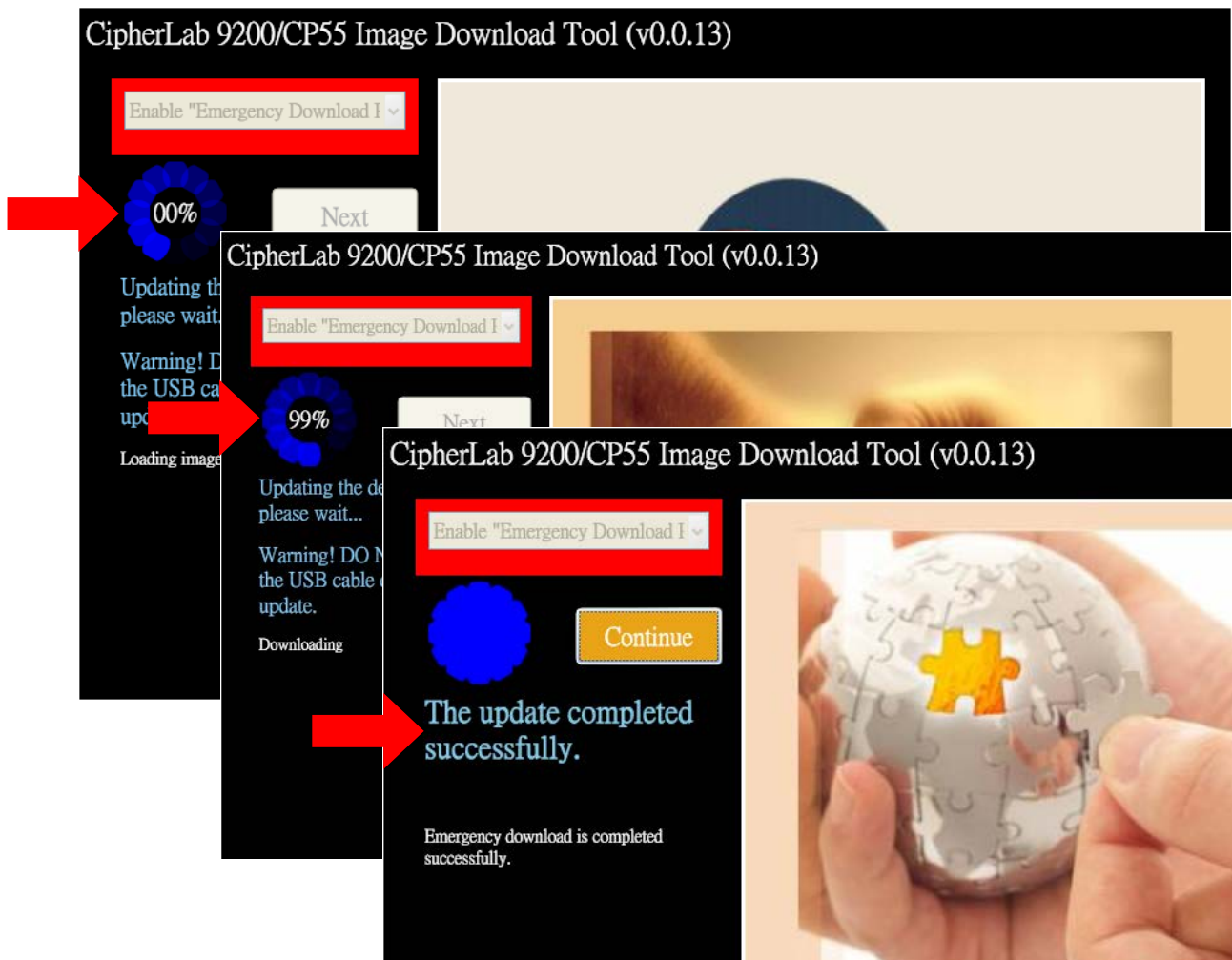
Drag the image file to the blue section.

The selected image file will appear on the screen.



- 5) Click **Next** to start the update process.

The tool will download the image file to the mobile computer and start installation. Installation progress will be displayed on the screen in terms of percentage.



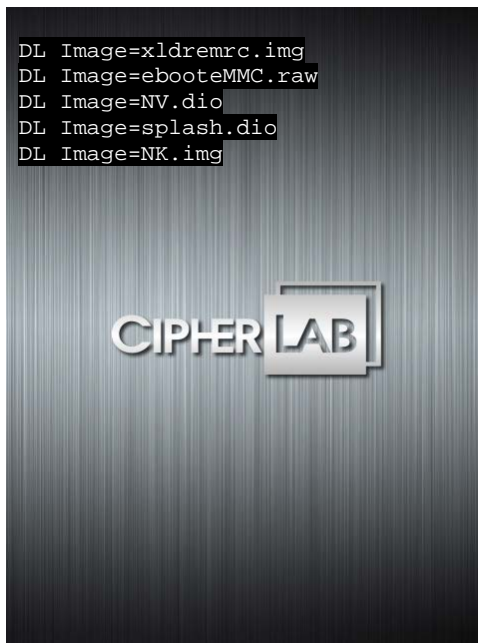
- 6) After update is complete, the mobile computer will restart to show the calibration screen. Complete the calibration steps to display the desktop.



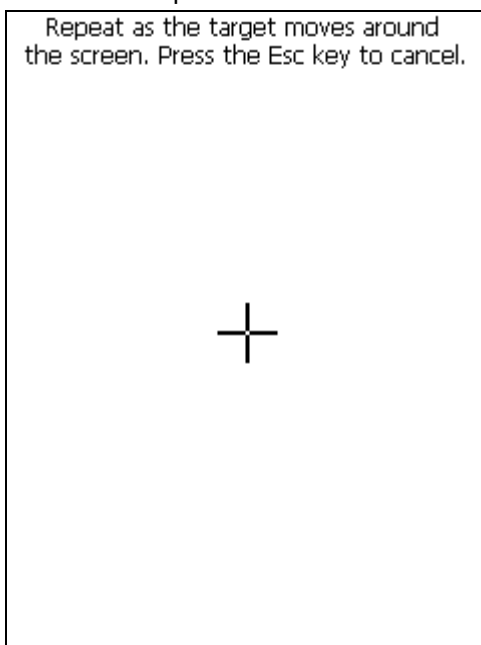
4.4.2. OS UPDATE WITH MEMORY CARD

You may also upgrade the OS image with the use of an SD card and an .nb0 OS image file.

- 1) On your PC, insert a microSD card of at least 4GB and format to FAT32.
- 2) Copy the latest OS image file to the microSD card.
- 3) Insert the microSD card into the card slot as described in [Insert SD Card](#).
- 4) Power on the mobile computer by pressing the power button, and at the same time press the [Volume Down] key on the left side of the mobile computer.
- 5) The mobile computer powers on and directly enters firmware upgrade mode.
System upgrade with the OS image file will start automatically.



- 6) When OS upgrade is complete, the mobile computer will restart to show the calibration screen. Complete the calibration steps to display the desktop.



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.

5. IN THIS CHAPTER

5.1 Access Cellular WWAN	112
5.2 Use Wi-Fi	118
5.3 Use Bluetooth.....	129

5.1. ACCESS CELLULAR WWAN


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

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

5.1.1. 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.

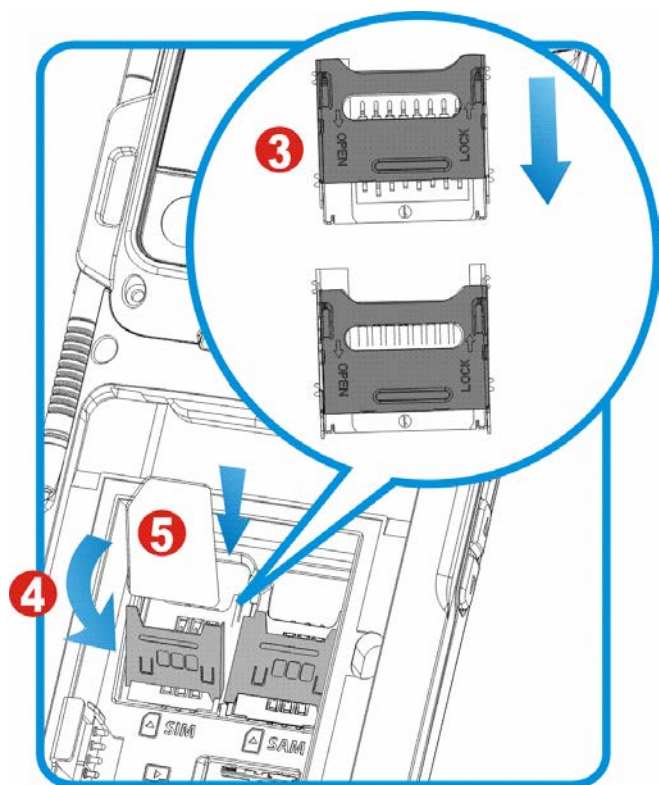




Figure 17: Inserting SIM Card

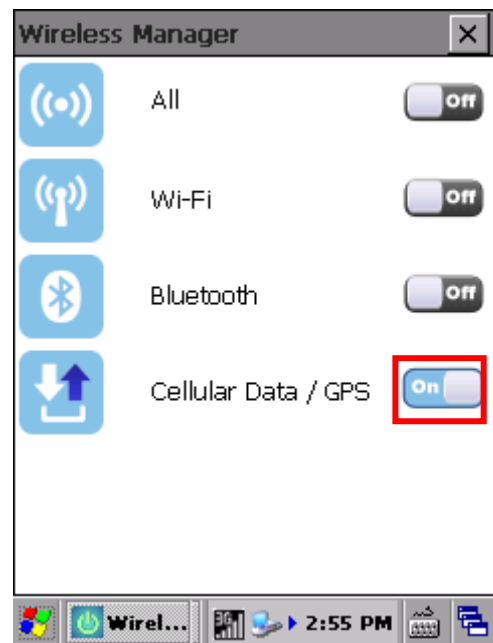
5.1.2. POWER ON/OFF CELLULAR DATA

Before establishing a WWAN connection, turn on cellular data in Wireless Manager.

- 1) Tap **Start | Settings | Control Panel | Wireless Manager** .
- 2) Make sure the Cellular Data/GPS label is turned "on".

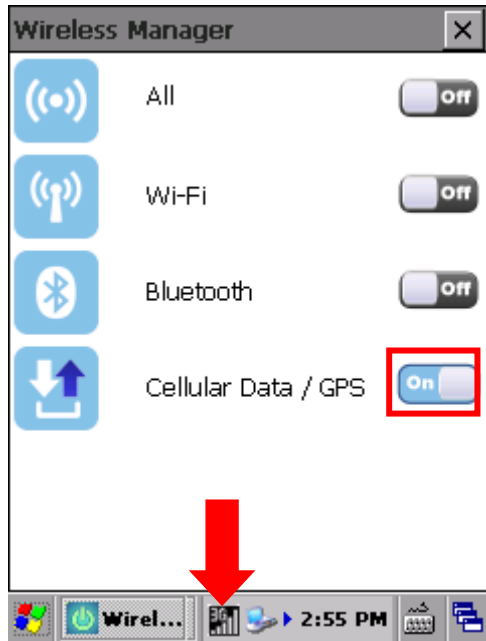
If cellular data is not enabled, tap the "Off" icon  to switch on cellular data.

The cellular data module will begin to initialize and check for the SIM card. The icon will change to  shortly to indicate cellular data is activated.






CELLULAR DATA STATUS ICONS

After cellular data is enabled, the mobile computer will automatically connect to the GPRS network from your service provider. An icon will appear on the taskbar to show the connection status.




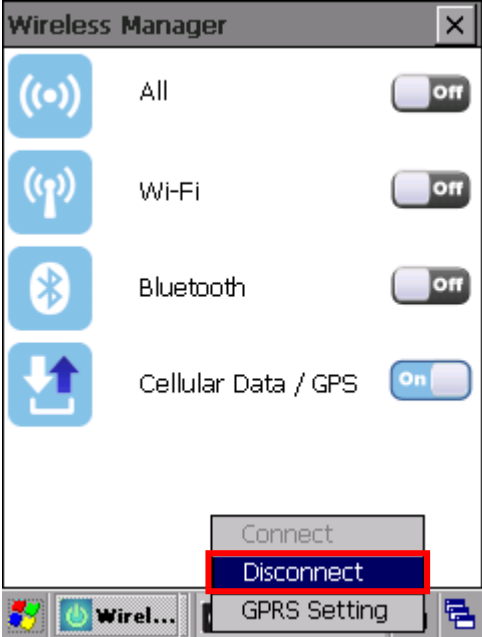
The icons available for cellular data connection status are as follows:

Icon	Indication
	<ul style="list-style-type: none"> ▶ Initializing the cellular data module ▶ Cellular data is disconnected
	Connecting to cellular data
	Cellular data connection has been established successfully

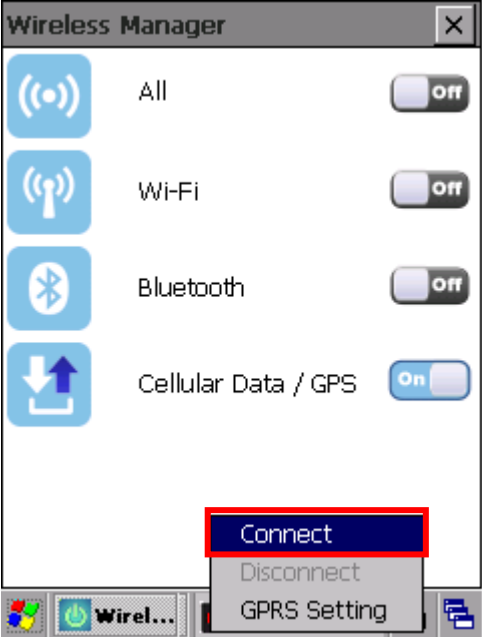
Note: Cellular Data settings under Wireless Manager will be kept through suspension and reboot. After the mobile computer resumes from suspension or restarts, the power status for cellular data will be maintained, and the mobile computer will attempt to reconnect to the previous connection.

CONNECT/DISCONNECT CELLULAR DATA

Tap the icon  to access a menu that allows you to choose to connect/disconnect cellular data. The icon on the taskbar will reflect the current status (disconnected, connecting, or connected).



Disconnect the current WWAN connection



Connect to a WWAN network

5.1.3. CONFIGURE GPRS SETTINGS

To open the GPRS settings page:

- 1) Turn on cellular data/GPS power as in [Power On/Off Cellular Data](#).

- 2) Tap the cellular data icon  in Wireless Manager to open the GPRS settings page.



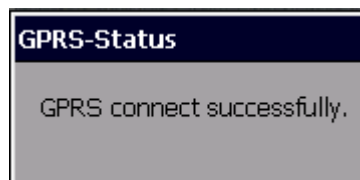
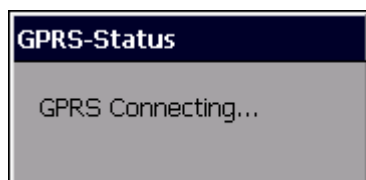
OR

- Tap  on the taskbar and select **GPRS Setting** in the pop-up menu.




- 3) To enable automatic connection to the available GPRS network, make sure **Auto connect GPRS when modem is on** is selected.

If **Auto connect GPRS when modem is on** is not selected, once you select it, the mobile computer will automatically connect to the GPRS network. When this is enabled, the mobile computer will also reconnect whenever it is restarted or whenever Cellular data has been powered off and on again.



If necessary, you may also change the access point name of your service provider's GPRS network, and enter the user name and password in the fields below.

- 4) Tap  in the upper right corner to save any changes.

5.1.4. SET SECURITY

Select the **Enable PIN** checkbox to enable PIN code protection against unauthorized use.

- 1) On the GPRS settings page, select the **Enable PIN** checkbox. A pop-up window will appear for you to enter the PIN code.
- 2) Enter the PIN code and tap **OK** to save.



- 3) When disabling the **Enable PIN** checkbox, a dialog box will appear asking you to enter the PIN code first as confirmation to make adjustments.

Note: PIN verification allows three attempts for entering the correct PIN code. If you fail three times, the SIM card will be blocked. Contact your network operator to unblock the SIM card.

5.2. USE WI-FI

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

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


For authentications based on secure certificates, see [Certificates](#).


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

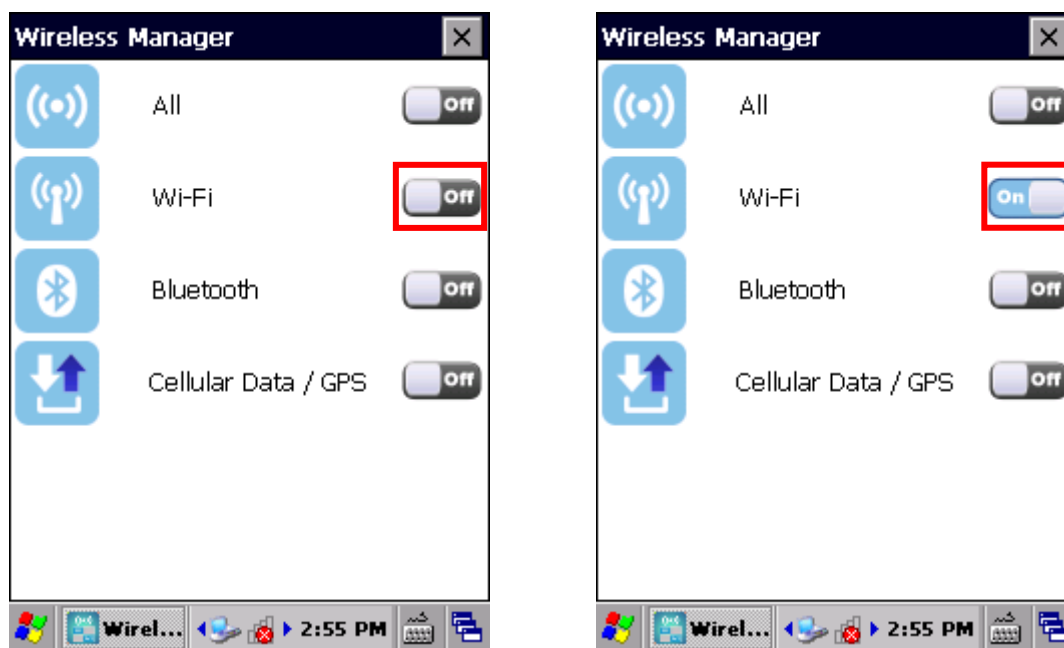
5.2.1. POWER ON/OFF WI-FI

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




To turn on Wi-Fi:

- 1) Tap **Start | Settings | Control Panel | Wireless Manager** .
- 2) Make sure the Wi-Fi label is turned “on” .

If the Wi-Fi label is turned “off”, tap the “Off” icon . Wi-Fi power is switched on in a few seconds.



OR

- 1) Tap the Wi-Fi icon in Wireless Manager  or the Wi-Fi icon on the taskbar  to open the **Wi-Fi Settings** page.
- 2) Tap the power button  to turn on/off Wi-Fi power.

The settings on the **Wi-Fi Settings** page will be synchronized with the settings under Wireless Manager.



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.


5.2.2. ESTABLISH WI-FI CONNECTION

To establish a Wi-Fi connection:

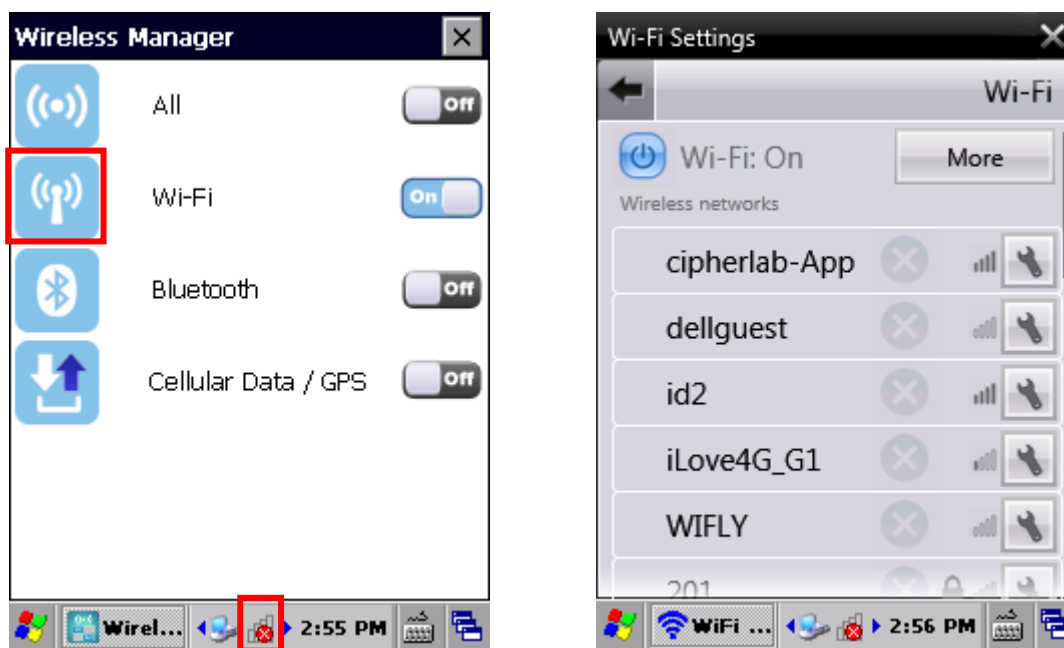
1) Turn on Wi-Fi power as in [Power On/Off Wi-Fi](#).





2) Tap the Wi-Fi icon  in Wireless Manager.

OR

Tap the Wi-Fi icon on the taskbar .

A Wi-Fi settings page opens showing a list of the available access points. The mobile computer will update the list every few seconds.



- ▶ Use the Power button  to power on/off Wi-Fi. These settings will be synchronized with [Power On/Off Wi-Fi](#) settings under Wireless Manager.
- ▶ The lock button  indicates the wireless connection is protected by a security protocol, and requires a security key to connect.
- ▶ The signal icon  indicates the signal strength of the wireless connection.
- ▶ The tools icon  opens wireless connection settings.

3) Tap the name of the access point you would like to connect to.



- 4) If a security plan is enabled for that connection, a dialog will open asking you to enter the security key. Enter the key and tap **OK** to confirm.



- 5) The mobile computer will start to connect to the selected access point. Once connected, a blue indicator will show before the active connection. The Wi-Fi icon on the taskbar will also be updated to indicate an active connection is established.




ADD MANUAL CONNECTION

To manually add a new connection:

- 1) Turn on Wi-Fi power as is in [Power On/Off Wi-Fi](#).

- 2) Tap the Wi-Fi icon  in Wireless Manager.

OR

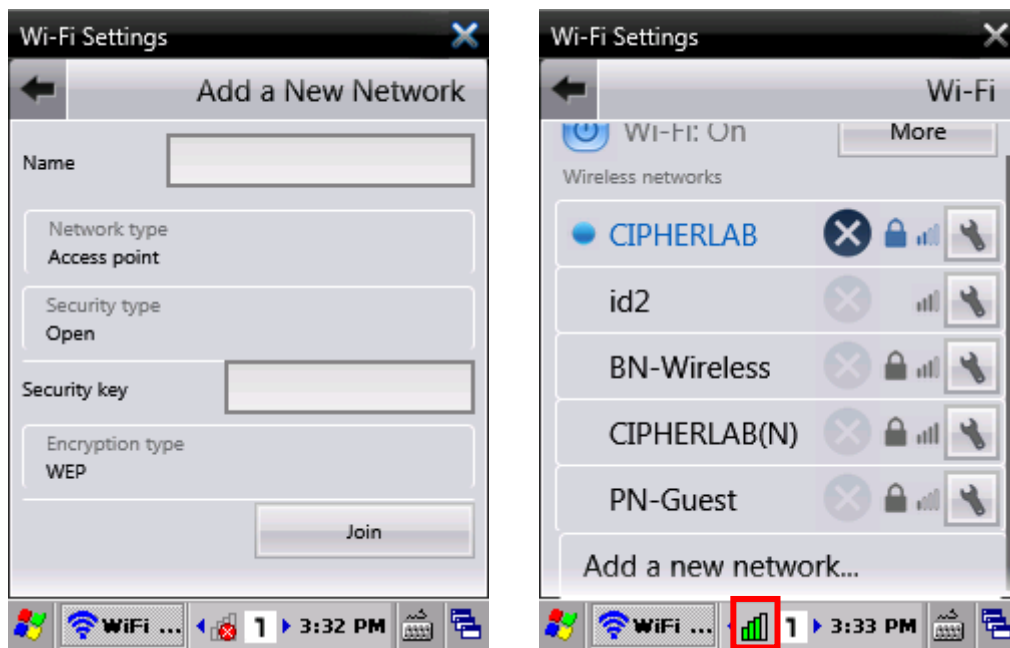
Tap the Wi-Fi icon on the taskbar .

- 3) Tap **Add a new network** at the bottom of the Wi-Fi Settings page.



- 4) Enter the name of the wireless network in the window, and select the connection type, security and encryption. After entering the data, tap **Join** to confirm.

The mobile computer will search for WLAN networks matching the specified conditions. After the mobile computer has successfully connected to the specified network, the Wi-Fi icon on the taskbar will change to indicate that a connection is established.




SYSTEM TRAY ICONS

System tray icons in the notification area on the taskbar deliver the Wi-Fi connection status. Statuses are as follows:

Icon	Description
	Indicates no Wi-Fi connection is established.
	Indicates poor Wi-Fi signal (RSSI value is -90 dBm or weaker).
	Indicates relatively low Wi-Fi signal (RSSI value is stronger than -90 dBm but does not exceed -70 dBm).
	Indicates good Wi-Fi signal (RSSI value is stronger than -70 dBm but does not exceed -50 dBm).
	Indicates high Wi-Fi signal (RSSI value is stronger than -50 dBm).

5.2.3. CONFIGURE WI-FI SETTINGS

To configure Wi-Fi settings:

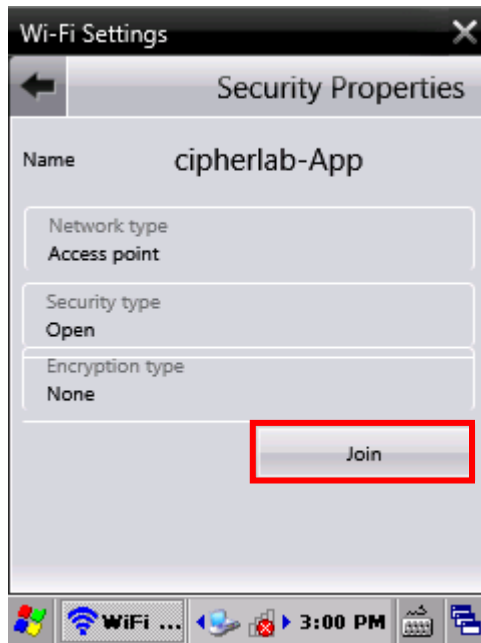
- 1) Tap the settings icon  next to the access point you would like to connect to.
A Network Properties page shows.



- 2) Tap **Network security properties** to view the security settings of the access point.



Tap **IP properties** to enter address information for DHCP/static IP connection.
After modifying security properties, tap **Join** to connect to the access point.



Label	Options	Description
Network security properties	Network type	Select the network type. <ul style="list-style-type: none"> ▶ Access Point ▶ Ad hoc (connect to other devices in the WLAN network via peer-to-peer)
	Security type	Select the security type. <ul style="list-style-type: none"> ▶ Shared ▶ Open ▶ WPA2 Personal ▶ WPA Personal ▶ WPA2 Enterprise ▶ WPA Enterprise ▶ 802.1x
	Encryption type	Different encryption types are supported for WPA2 Personal/WPA Personal and WPA2 Enterprise/WPA Enterprise. <ul style="list-style-type: none"> ▶ WEP (for Shared key, Open and 802.1x connections) ▶ TKIP ▶ AES
	EAP type	Only available for WPA2 Enterprise/WPA Enterprise. <ul style="list-style-type: none"> ▶ PEAP
	Authentication method	When an authentication method is enabled, you will be requested to enter the domain/username and password after tapping the Join button. <ul style="list-style-type: none"> ▶ Select whether to validate server certification.
IP properties	DHCP	Enter the IP address, subnet mask, router and DNS for dynamic IP connection.
	Static	Enter the IP address, subnet mask, router and DNS for static IP connection.

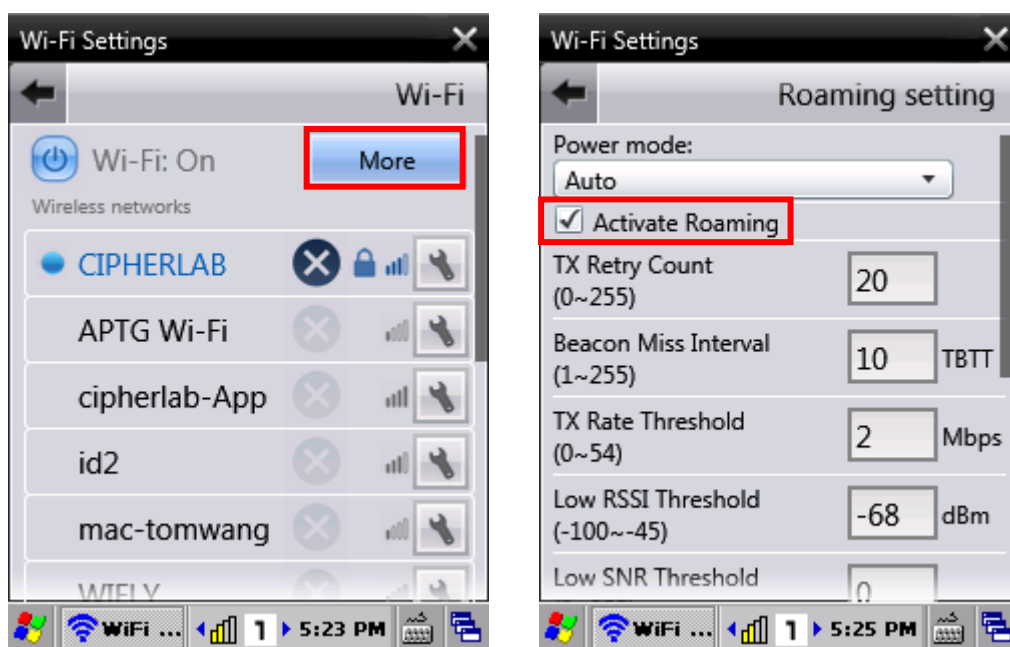
SET WI-FI ROAMING

You may enable Wi-Fi roaming on the CP55 mobile computer, which auto-searches and switches to another network when the signal strength of the current network falls low.

To enable Wi-Fi roaming:

- 1) On the Wi-Fi settings page, tap **More** in the upper right corner to open a Roaming setting page.
- 2) Select the **Activate Roaming** checkbox to enable Wi-Fi roaming.

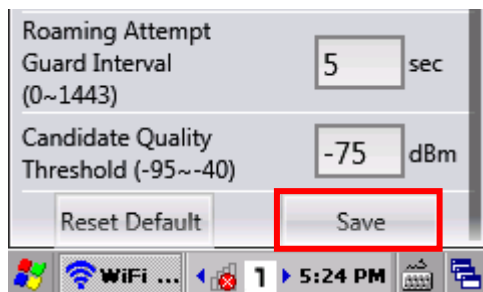
The other settings on this page allow you to adjust Wi-Fi roaming settings



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. <ul style="list-style-type: none"> ▶ 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 Threshold	Roam to another access point when signal strength is lower than the specified value. Set between -100 and -45.	-68 dBm
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) After modifying the settings, scroll down to the bottom of the page and tap **Save**.



5.2.4. DELETE CONNECTION

To delete a previous connection:

- 1) Tap the disconnection button  next to the connection. A warning dialog appears confirming that the connection will be deleted.



- 2) Tap **OK** to delete the connection.

Note: The mobile computer will automatically search for available wireless networks and refresh the list of networks every few seconds. Therefore the deleted network will appear in the list shortly, making it available for connection once more.

5.3. USE BLUETOOTH

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

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

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

5.3.1. 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)	

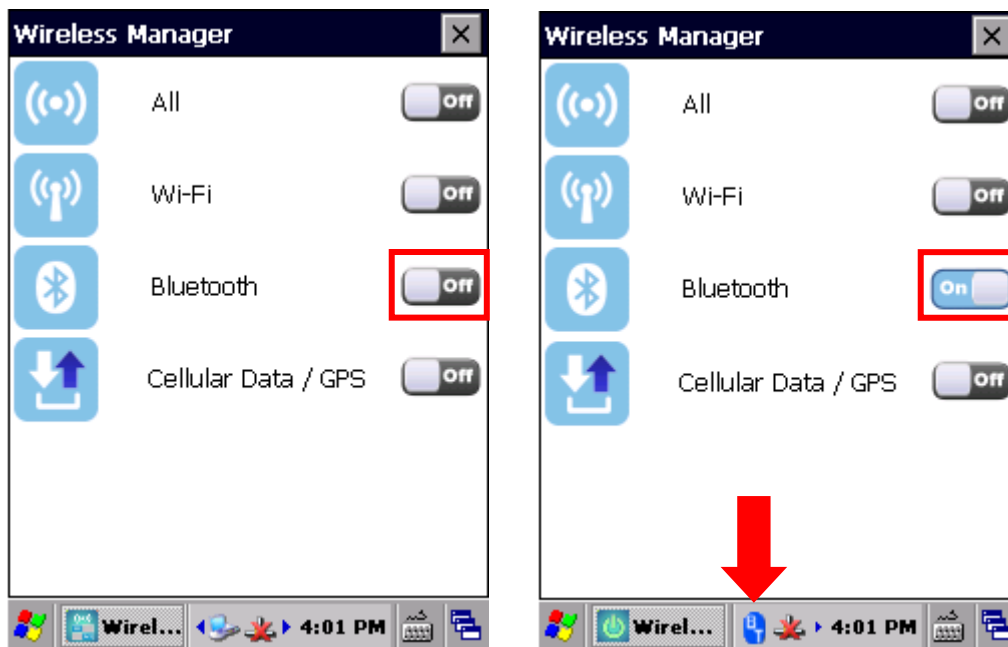
5.3.2. POWER ON/OFF BLUETOOTH

To turn on/off Bluetooth power:

1) Tap **Start | Settings | Control Panel | Wireless Manager** .


2) Make sure the Bluetooth label is turned "on" .

If the Bluetooth label is turned "off", tap the "Off" icon  to switch on Bluetooth power. After a few seconds, Bluetooth power is switched on. A Bluetooth icon will appear on the taskbar.



OR

1) Tap the Bluetooth icon in Wireless Manager  to open the **Bluetooth Settings** page.

2) Tap the Bluetooth power button  to turn on/off Bluetooth power.

The settings on the **Bluetooth Settings** page will be synchronized with the settings under Wireless Manager.

Note: Bluetooth settings under Wireless Manager 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.



5.3.3. CHANGE BLUETOOTH NAME

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

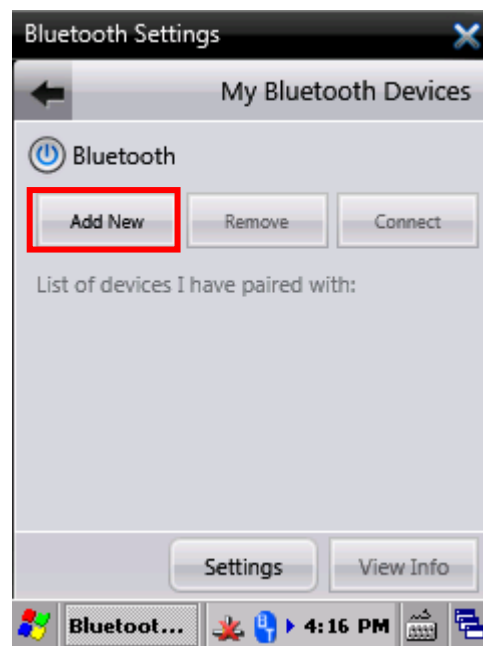
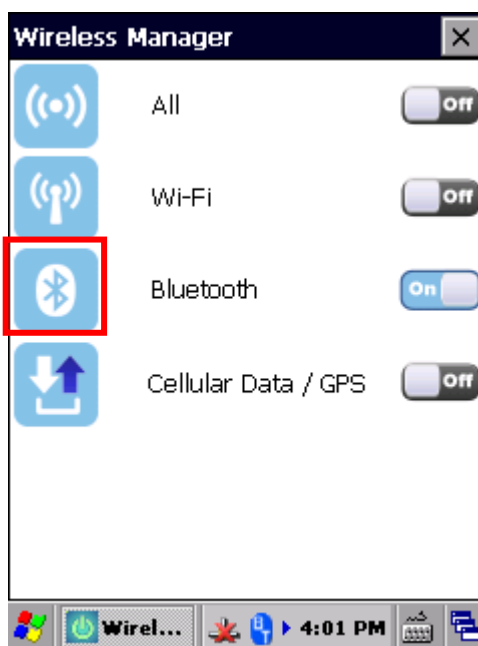
To change the mobile computer's device name:

- 1) Enable Bluetooth as described in [Power On/Off Bluetooth](#).

- 2) Tap the Bluetooth icon in Wireless Manager  to open the **Bluetooth Settings** page.

OR

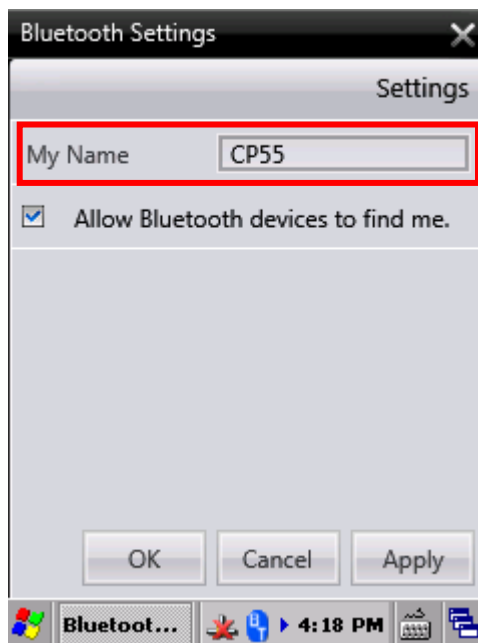
Tap the Bluetooth icon on the taskbar .



- 3) Tap the **Settings** button.



Modify the device's Bluetooth name in the **My Name** field.




4) Tap **Apply** to confirm, or tap **OK** to confirm apply the change.

5.3.4. SET BLUETOOTH VISIBILITY

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

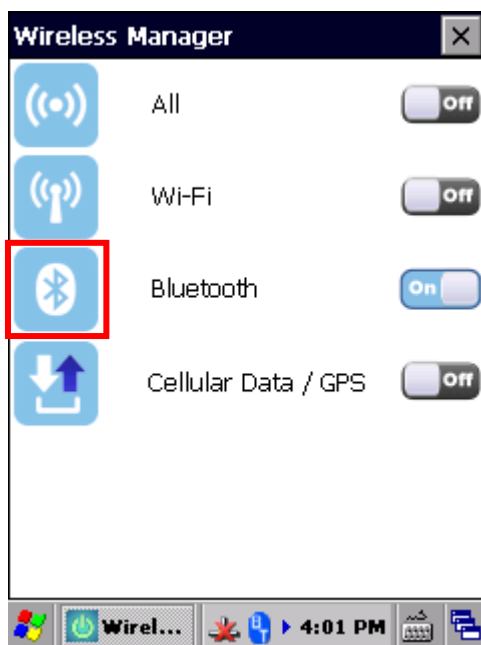
To enable Bluetooth visibility on the mobile computer:

- 1) Turn on Bluetooth power as in [Power On/Off Bluetooth](#).

- 2) Tap the Bluetooth icon in Wireless Manager  to open the **Bluetooth Settings** page.

OR

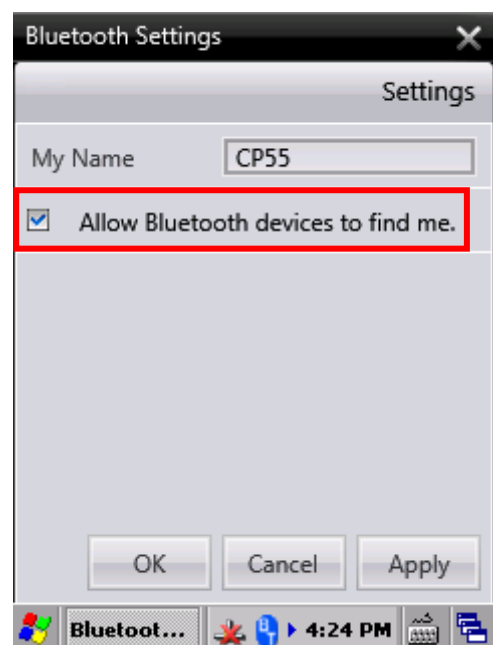
Tap the Bluetooth icon on the taskbar .



- 3) Tap **Settings** on the Bluetooth Settings page.

For other Bluetooth devices to find the mobile computer, check the **Allow Bluetooth devices to find me** checkbox. If the checkbox is deselected, other Bluetooth devices will not be able to discover and connect to the mobile computer.


- 4) Tap **Apply** to confirm, or tap **OK** to confirm and leave the page.



5.3.5. PAIR BLUETOOTH DEVICES

To pair the mobile computer with other Bluetooth devices:

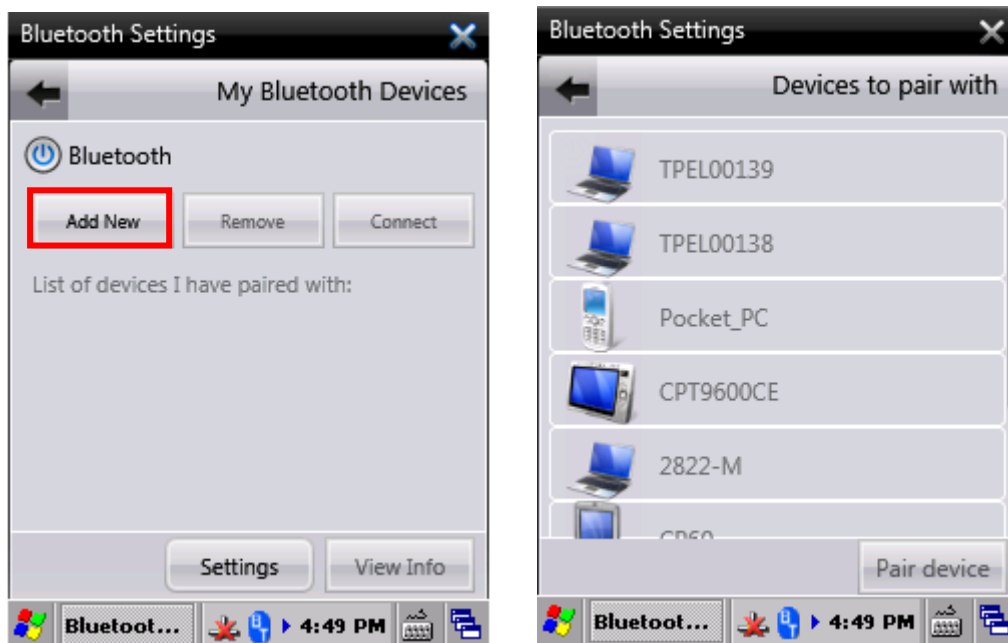
- 1) Turn on Bluetooth power as in [Power On/Off Bluetooth](#).

- 2) Tap the Bluetooth icon in Wireless Manager  to open the **Bluetooth Settings** page.

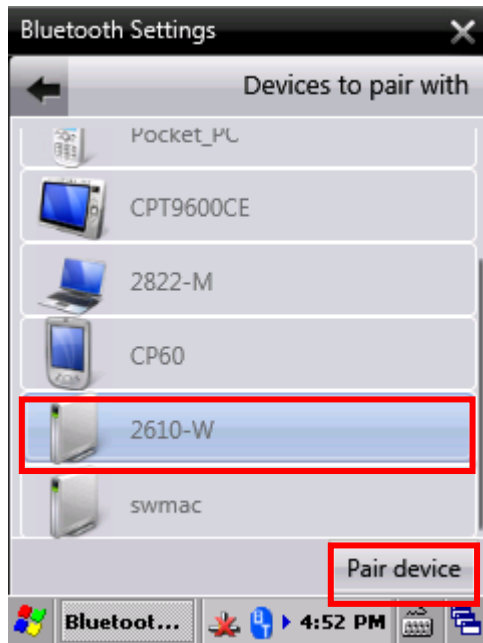
OR

Tap the Bluetooth icon on the taskbar .

- 3) On the Bluetooth Settings page, tap **Add New**. The page opens showing a list of the Bluetooth devices available for connection.

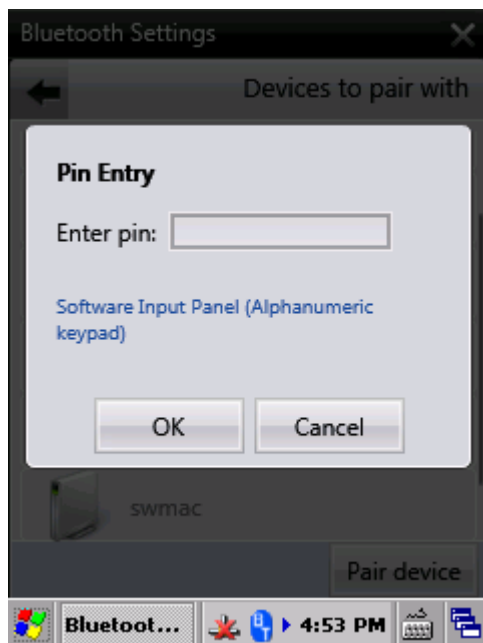


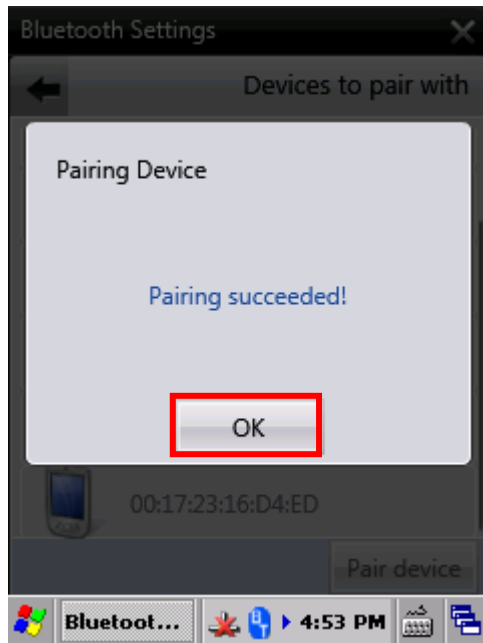
- 4) Select the Bluetooth device you would like to connect to and tap **Pair device**.



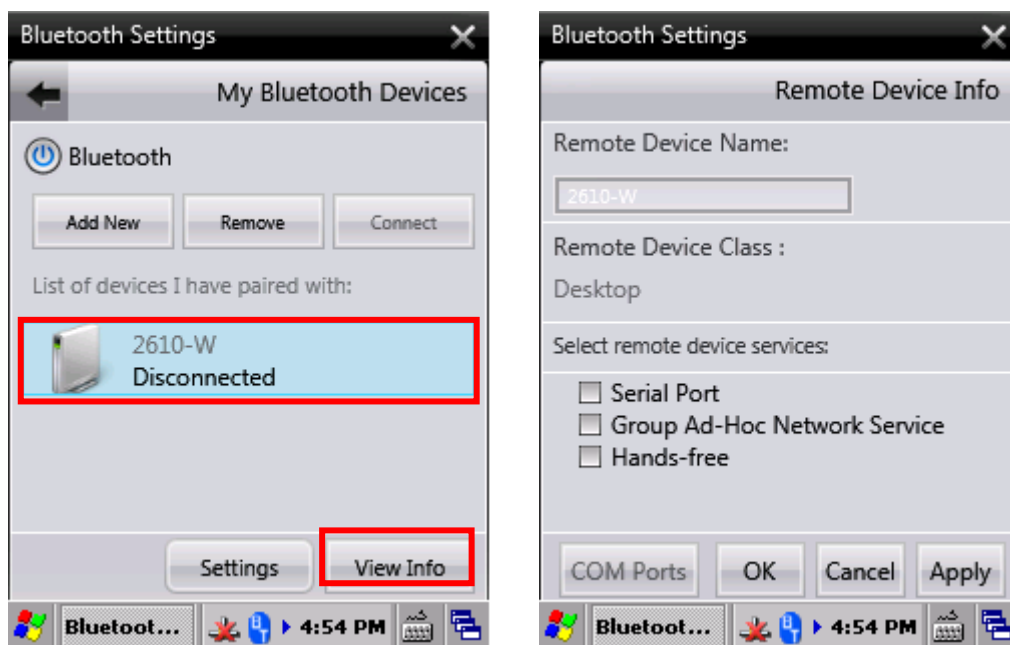
- 5) Enter a PIN code on the mobile computer and tap **OK**. On the remote Bluetooth device, enter the same PIN code to confirm connection. The mobile computer will begin to pair with the Bluetooth device.

After pairing has succeeded, tap **OK** to close the dialog and return to the Bluetooth Settings page.





- 6) On the **Bluetooth Settings** page, the paired device will appear under “List of devices I have paired with”. You may select the paired Bluetooth device, and tap **View Info** to view the remote device name, device class, and its available services.



- 7) To enable one or more available Bluetooth services, select the checkbox and tap **Apply** to save, or tap **OK** to save and leave the page.

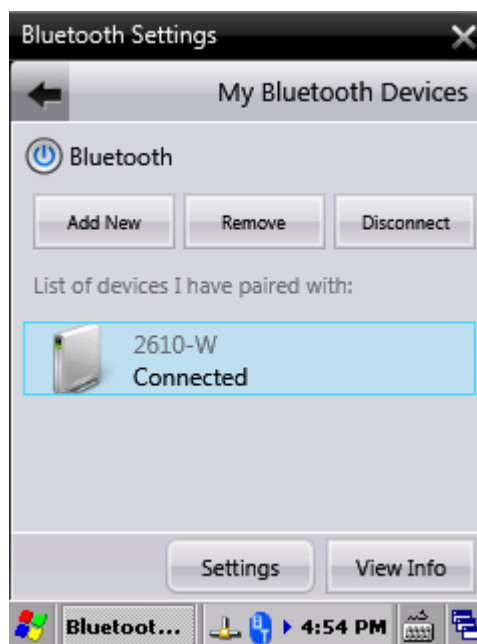
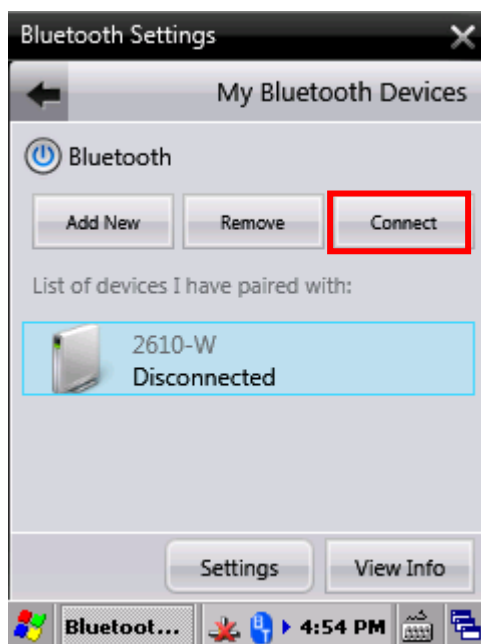
CONNECT BLUETOOTH DEVICES

To connect to a Bluetooth service:

- 1) Select the Bluetooth device in the paired device list, and tap **View Info** to check the Bluetooth services supported by that device.
- 2) Select the Bluetooth services that you would like to use, and tap **OK**



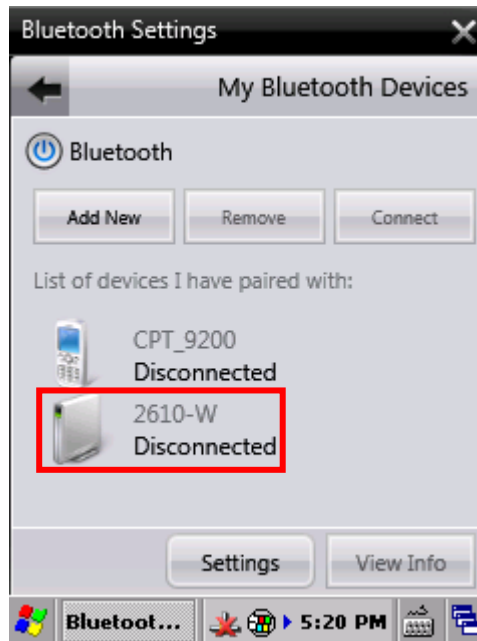
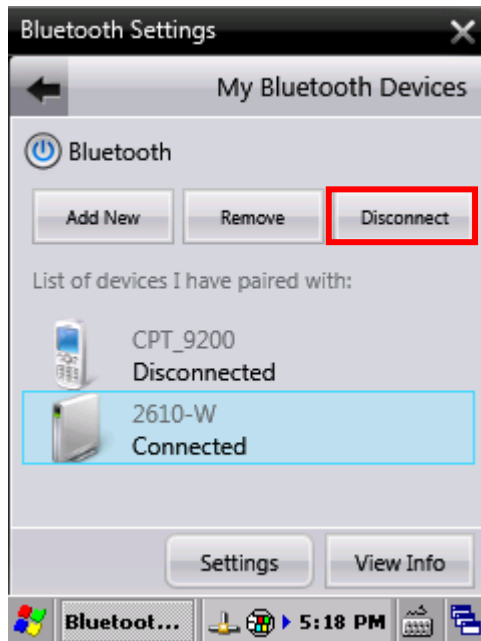
- 3) Tap **Connect** to connect to the selected services.



DISCONNECT BLUETOOTH DEVICES

To disconnect a Bluetooth device:

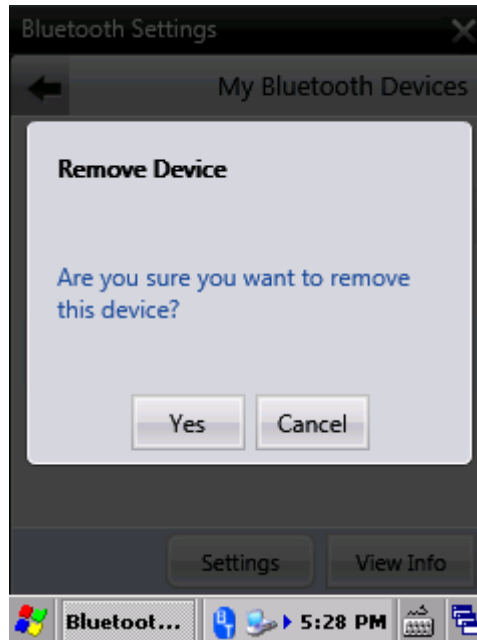
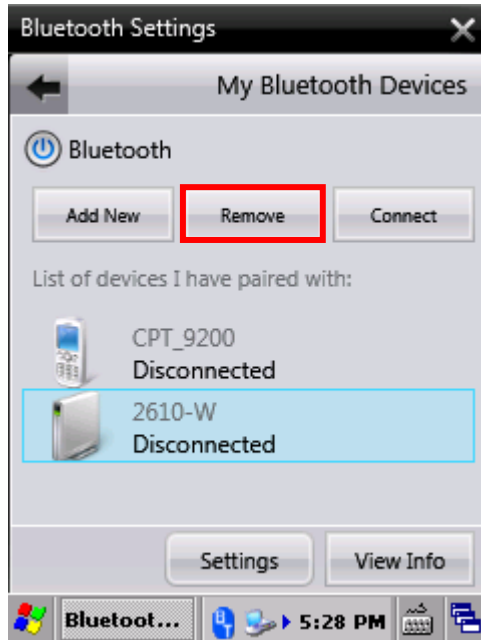
- 1) In the device list, select the Bluetooth device you would like to disconnect.
- 2) Tap **Disconnect** to discontinue any connected services with the Bluetooth device.



UNPAIR BLUETOOTH DEVICES

To unpair a Bluetooth device:

- 1) In the device list, select the Bluetooth device you would like to unpair.
- 2) Tap **Remove**. A dialog will open asking you to confirm whether to remove (unpair) the Bluetooth device.



- 3) Tap **Yes** to confirm.

5.3.6. BLUETOOTH FILE TRANSFER

The mobile computer supports transferring files to other Bluetooth devices via file transfer profile (FTP). The supported file formats include:

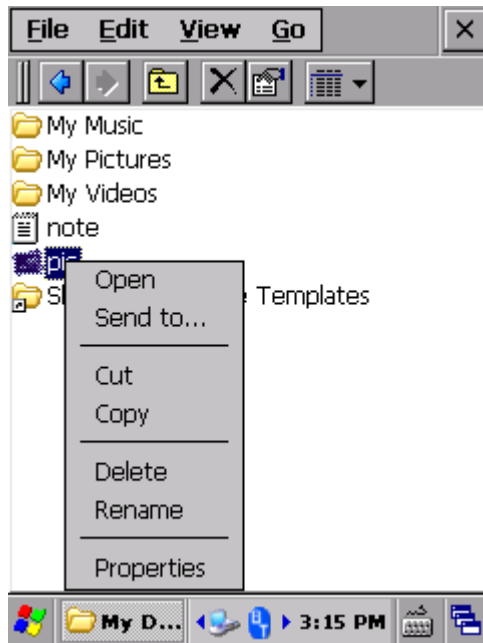
- ▶ Doc files: .doc, .dot, .txt
- ▶ Image files: .jpg, .bmp, .gif, .png
- ▶ Audio files: .wav, .mp3, .mpa, .wma, .aif, .aiff, .au, .snd
- ▶ Video files: .mpeg, .mpg, .mp2, .asf, .wmv, .wm, .mpe, .m1v, .nsc

SEND FILE VIA BLUETOOTH

- 1) Turn on Bluetooth power as in [Power On/Off Bluetooth](#).
- 2) Pair with the Bluetooth device you would like to transfer data to as in [Pair Bluetooth Devices](#). The paired device will be listed on the Bluetooth Settings page.

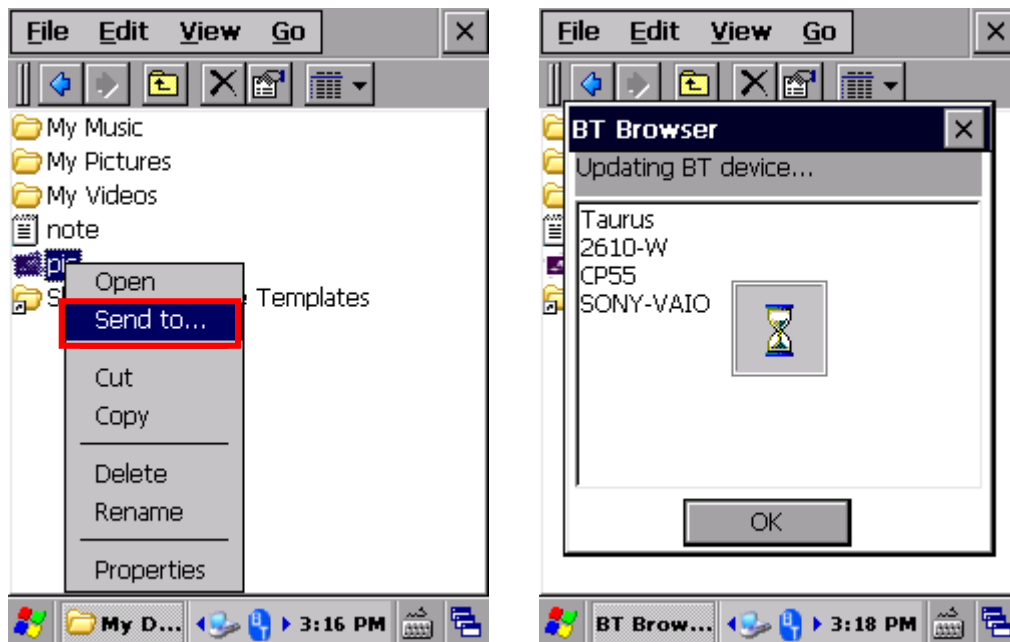


- 3) On the desktop, tap **My Device** and browse to the file you would like to transfer.
- 4) Select the file to transfer, and tap and hold the item to open a pop-up menu.

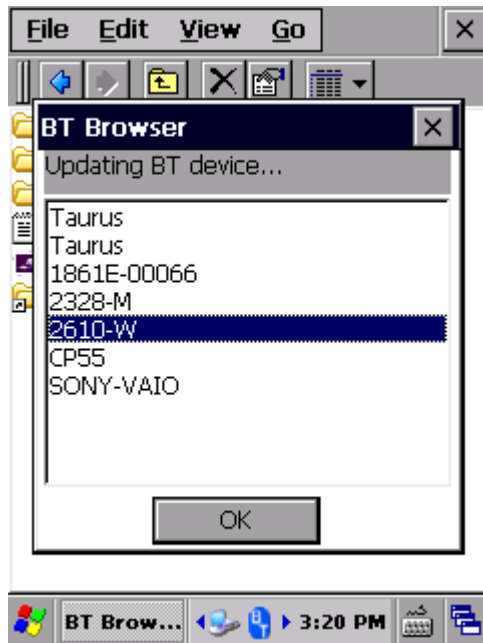


Note: The selected file to transfer must not be a read-only file.

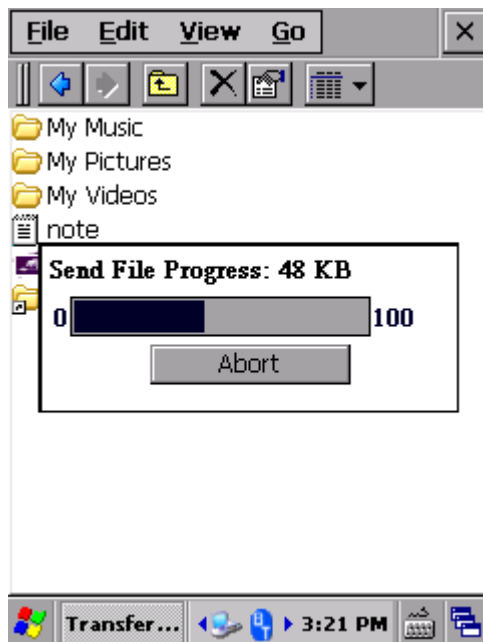
- 5) Select **Send to...** in the pop-up menu. A **BT Browser** window will appear listing the Bluetooth devices discovered nearby. The BT Browser will continue to update any newly found Bluetooth devices to the list.



- 6) Tap the Bluetooth device you would like to send the file to.

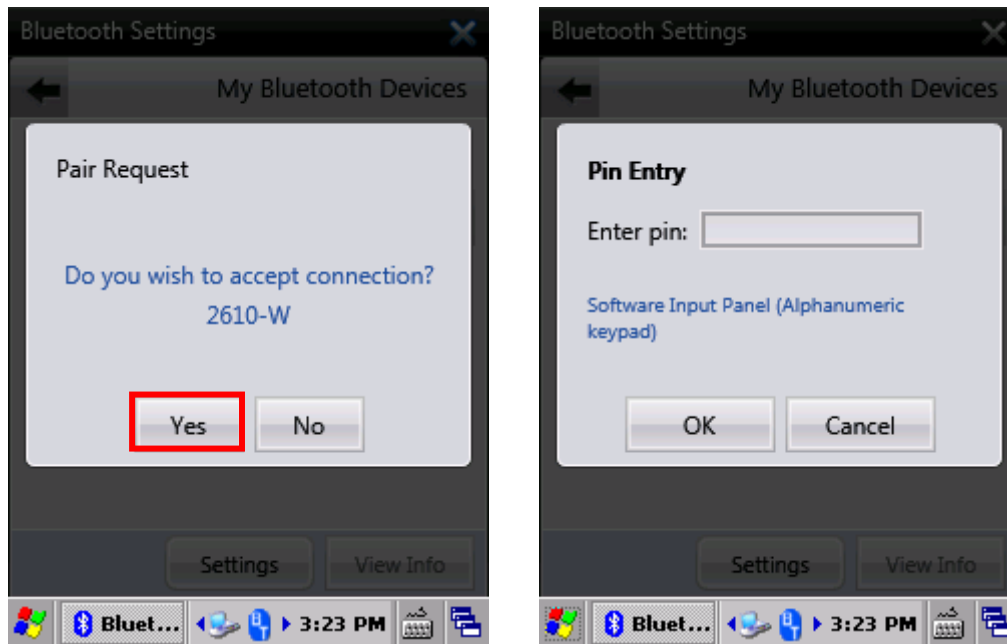


- 7) Click **OK**. The selected file will begin to transfer to the remote Bluetooth device. A progress bar displays the current transfer status.



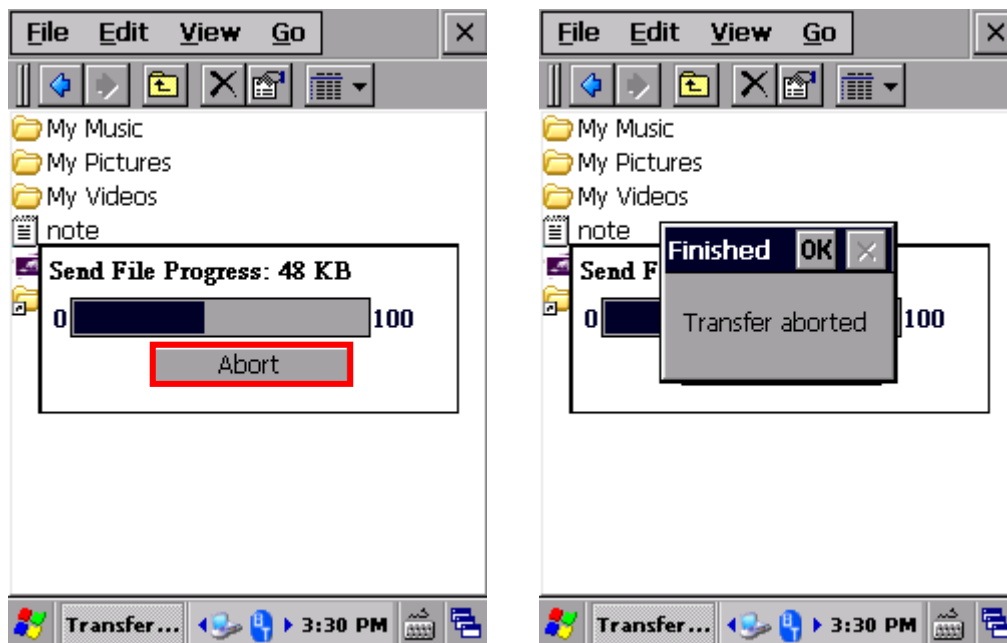
- 8) If the Bluetooth device selected has not yet been paired with, a pair request prompt will come up asking to establish a Bluetooth connection with the target device. A prompt will also show on the target device to confirm the connection. If a passkey is required, make sure the same passkey is entered on both devices.

Once a connection is established, the selected file will begin to transfer.



ABORT FILE TRANSFER

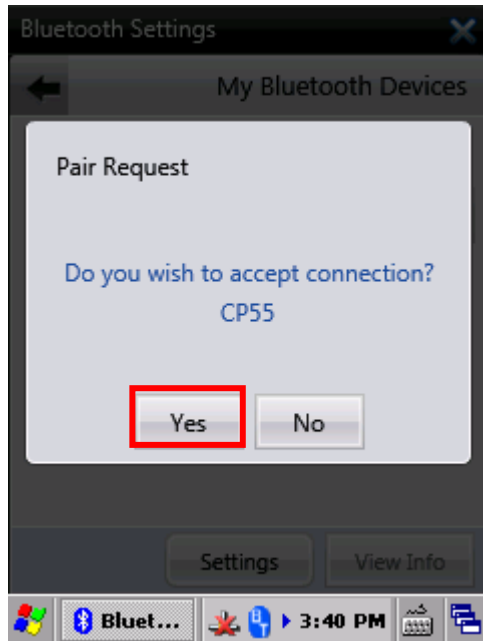
- 1) After file transfer has begun, to terminate the transfer process, tap **Abort** below the progress bar to quit.



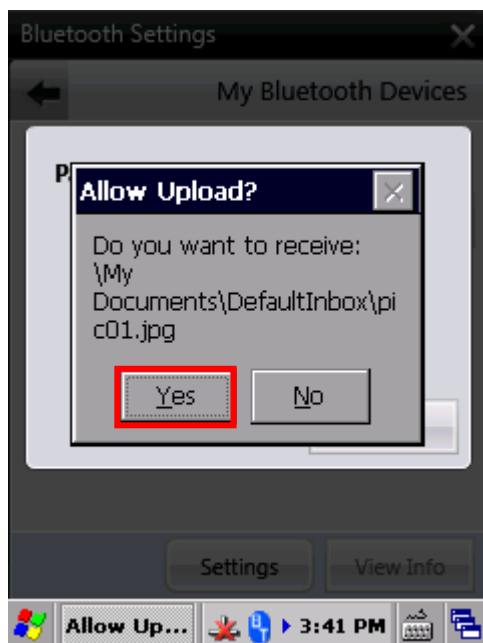
RECEIVE FILE VIA BLUETOOTH

- 1) The mobile computer may accept incoming files from other Bluetooth devices. When an incoming file is being transferred from a Bluetooth device that has not yet been paired with, a pair request will appear onscreen.

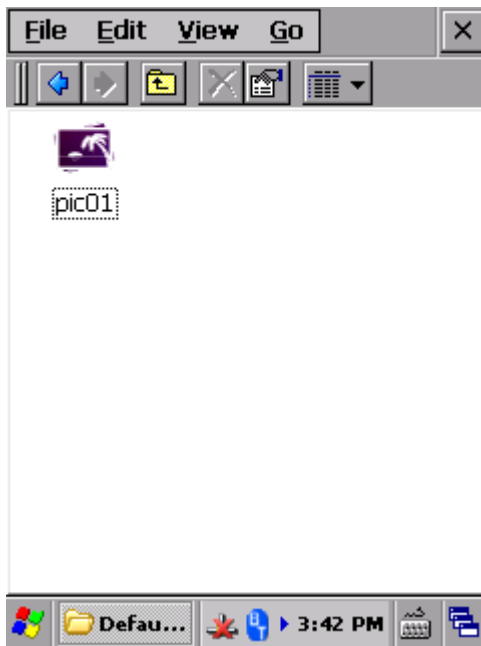
Tap **Yes** to pair with the device. Enter a passkey that matches the one entered on the Bluetooth device if necessary.



- 2) After pairing is completed successfully, a prompt appears on the screen asking whether you would like to receive the transferred file. Tap **Yes** to accept the file.



- 3) The transferred file will be saved under the default inbox path: **My Device\My Documents\DefaultInbox**. Tap **My Device** on the desktop and browse to the inbox folder to check the received file.

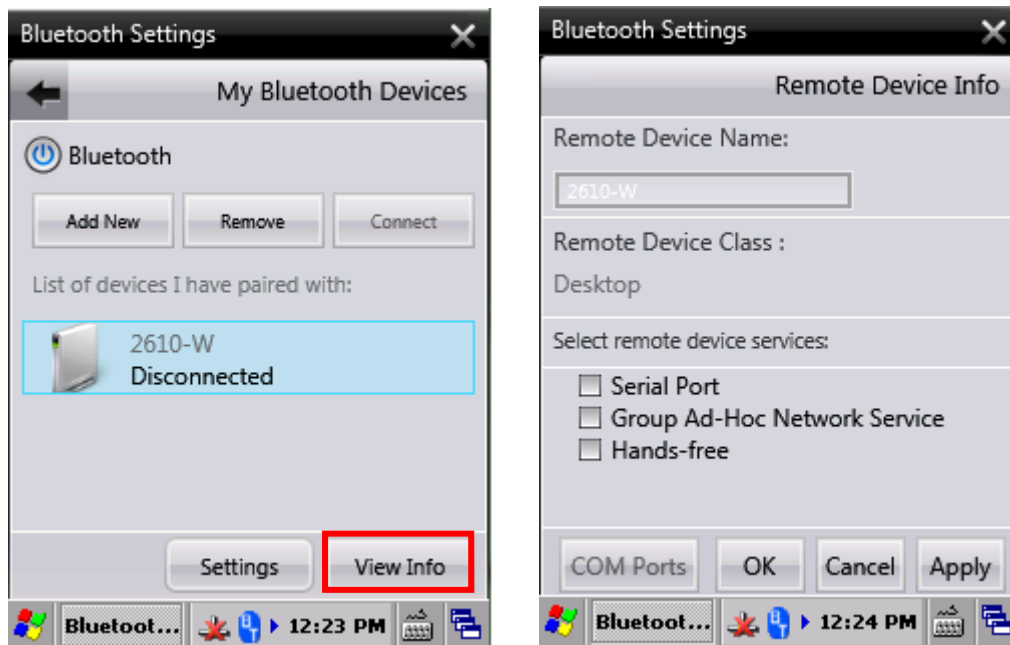


5.3.7. SERIAL PORT SERVICE

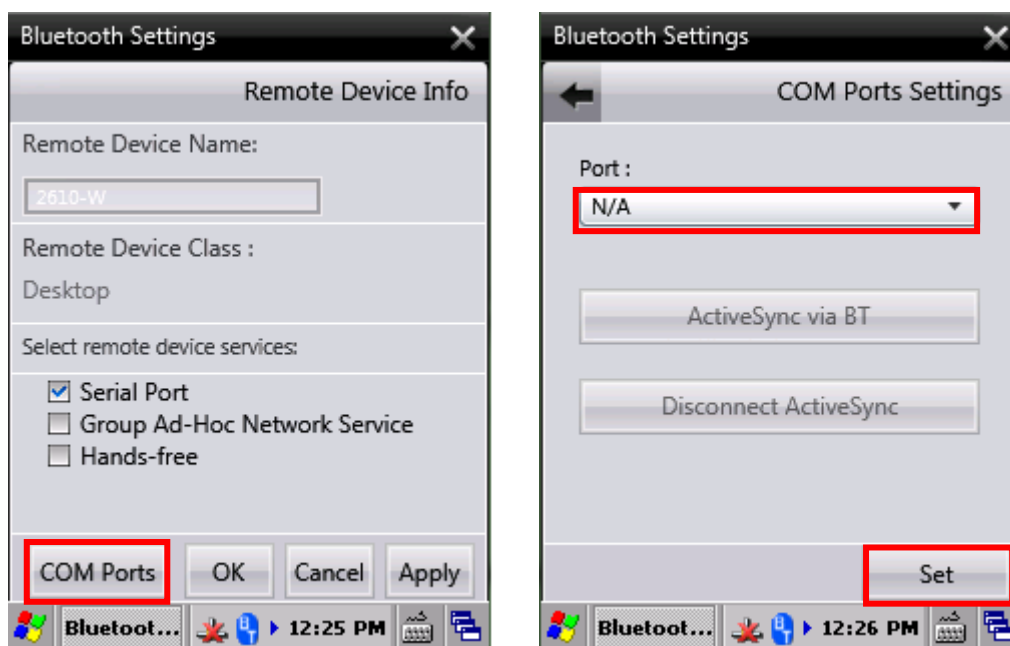
To use Bluetooth serial port profile (SPP) service:

- 1) Pair the mobile computer with the Bluetooth device as described in [Pair Bluetooth Devices](#).
- 2) Select the Bluetooth device in the **Bluetooth Settings** page and tap **View Info**.

The Bluetooth profiles supported by the device will appear as checkbox items available for selection.



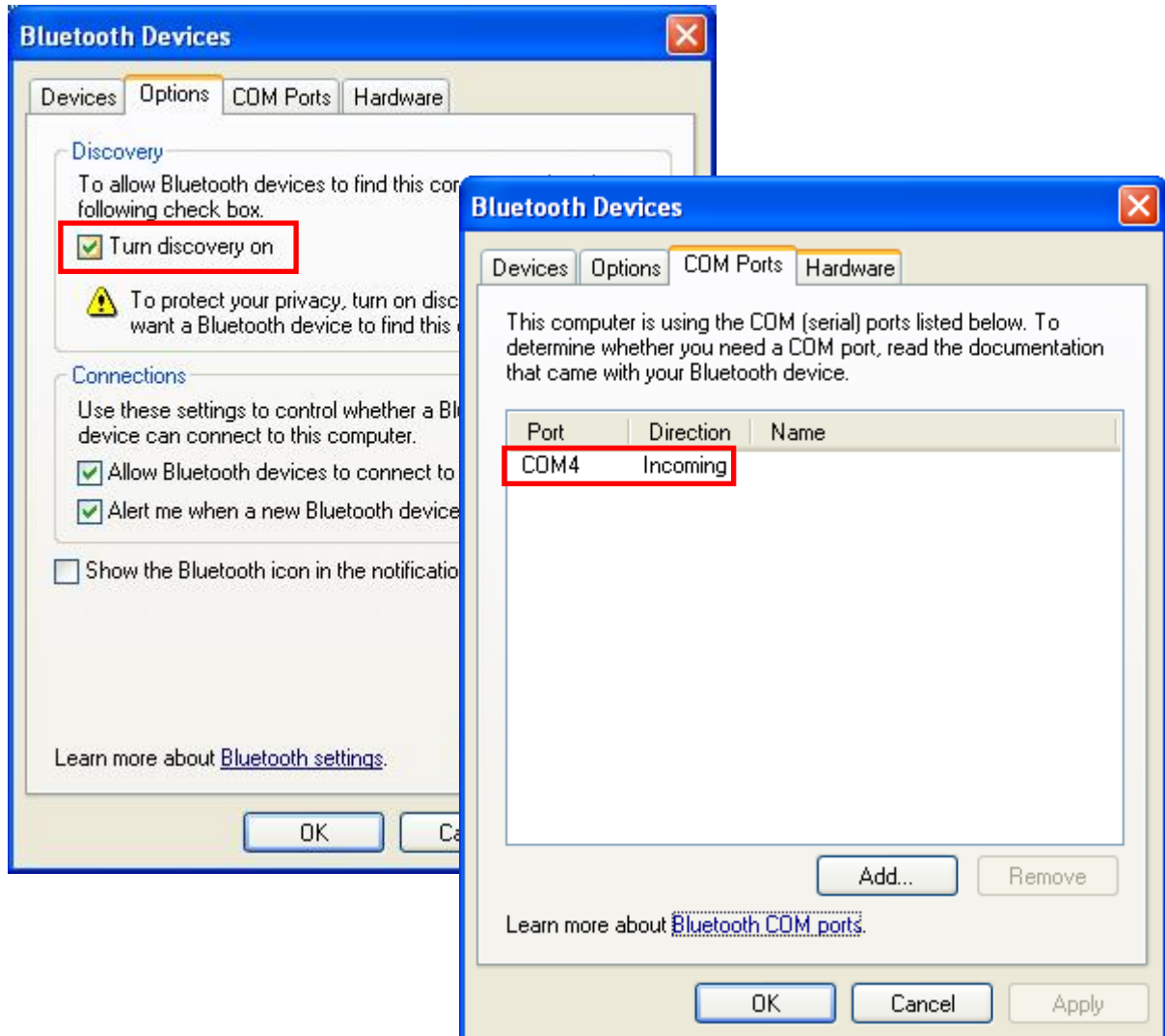
- 3) Select **Serial Port** service. **COM Ports** button will become available. Select the COM port to apply in the drop-down box. Tap **Set** to apply.



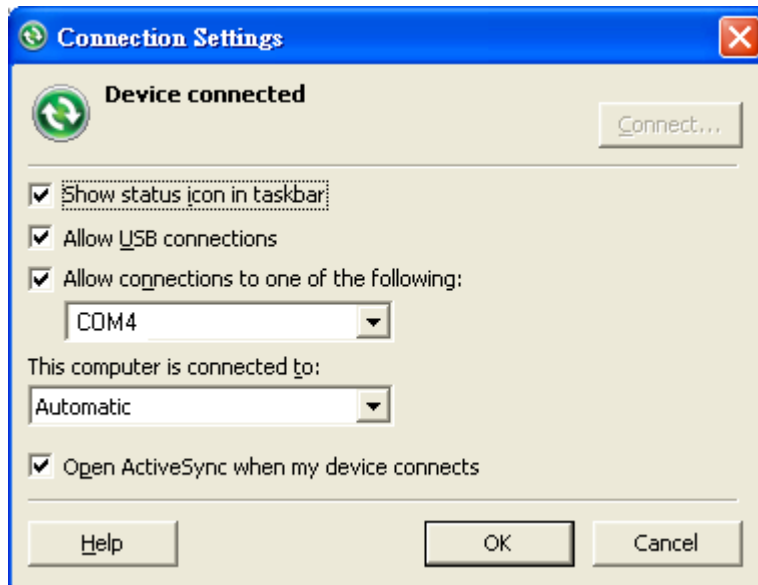
5.3.8. ACTIVESYNC VIA BLUETOOTH

To create an ActiveSync connection between your PC and mobile computer via Bluetooth, first you will need to configure Bluetooth settings on your PC.

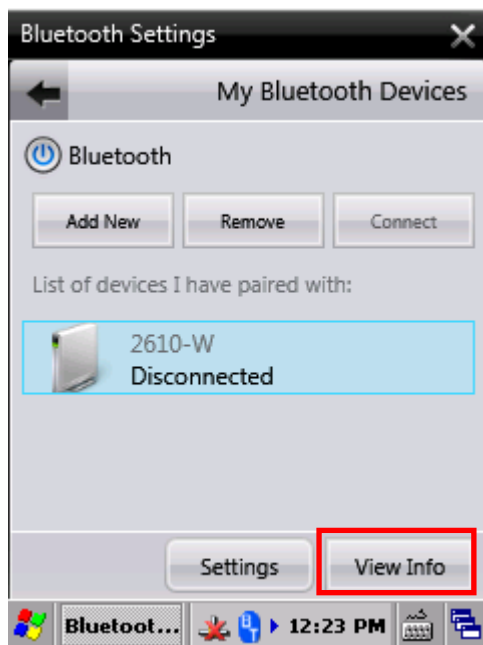
- 1) On your PC, configure necessary Bluetooth settings, such as turn Bluetooth discovery on, allow other Bluetooth devices to connect to the PC, and add a COM port for incoming connection.



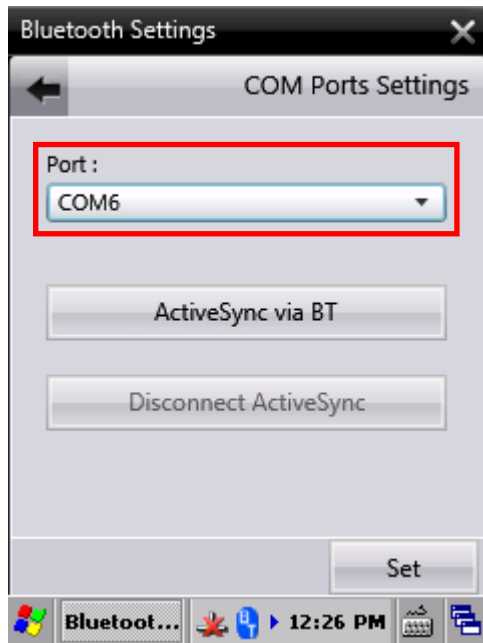
- 2) On the PC, open **ActiveSync** | **File** | **Connection Settings** and specify the COM port for incoming connection.



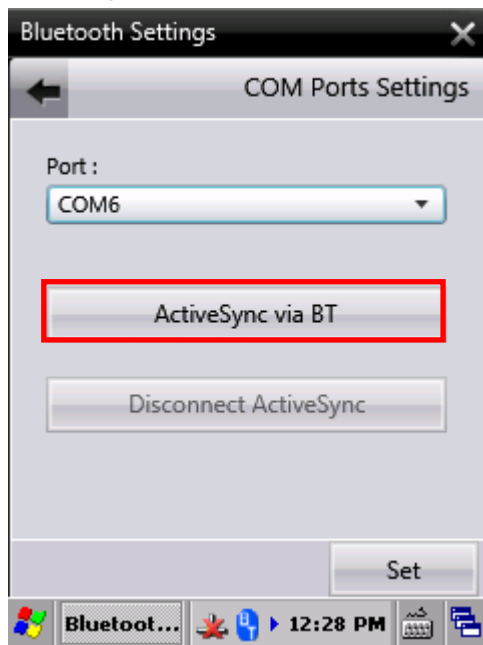
- 3) Pair the mobile computer to your device as in [Pair Bluetooth Devices](#). On the Bluetooth Settings page, tap **View Info** and make sure [Serial Port Service](#) is selected in the list of available services.



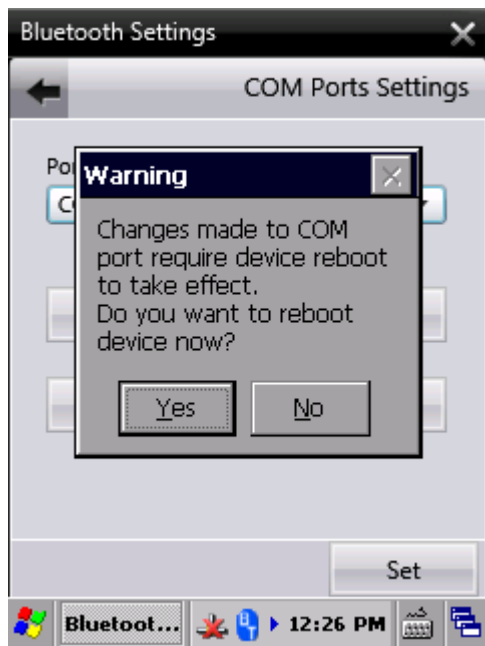
- 4) Tap **COM Ports** to select the COM Port for connection. By default, the mobile computer uses COM6 as the Bluetooth Serial Port Profile (SPP) COM Port.



- 5) Tap **ActiveSync via BT**. The mobile computer then connects to your PC via Bluetooth ActiveSync.



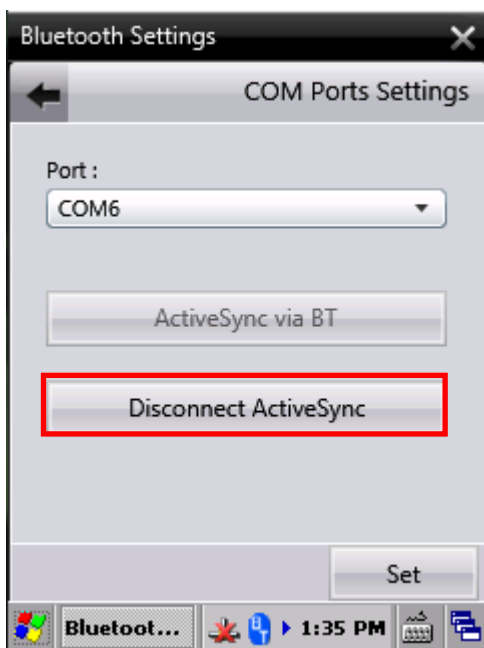
If it is the first time the mobile computer performs ActiveSync connection via Bluetooth, or if changes are made to the COM port settings, device reboot is needed for the settings to take effect.



DISCONNECT BLUETOOTH ACTIVESYNC

To disconnect an ActiveSync Bluetooth connection:

Tap **Disconnect ActiveSync** to discontinue the Bluetooth ActiveSync connection.



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.

6. IN THIS CHAPTER

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6.1. 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.

6.1.1. LAUNCH BUTTON ASSIGNMENT

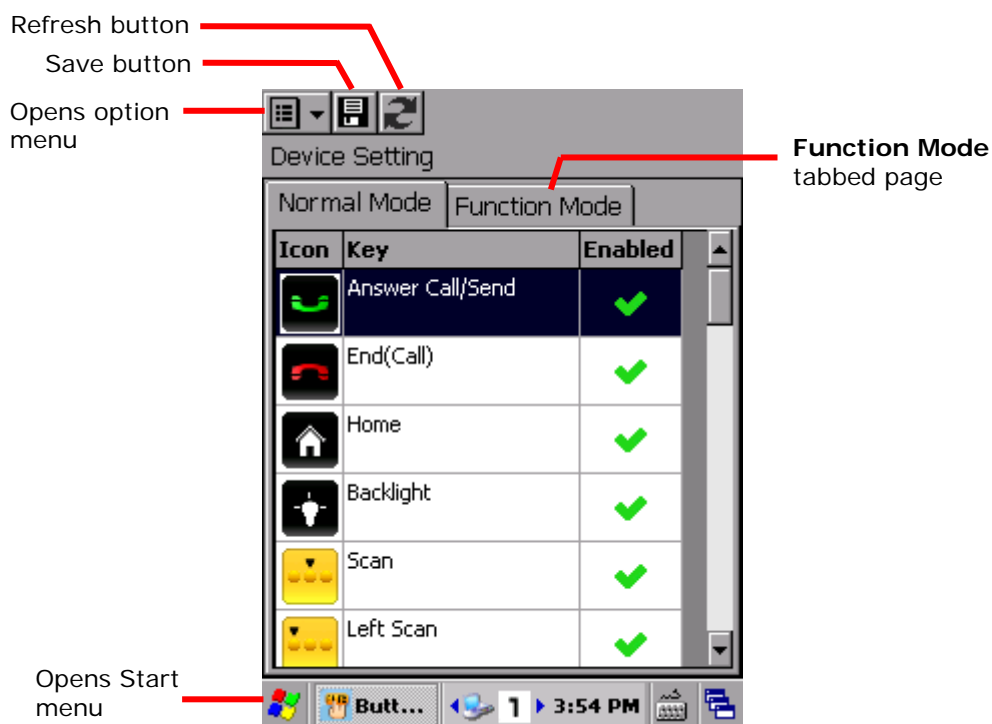
To launch Button Assignment:




- 1) Tap **Start | Settings | Control Panel | Button Assignment** .

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

The Normal Mode tabbed page consists of a table listing three columns: **Icon** column displaying the buttons available for reassignment, **Key** column showing the assigned function of each button, and **Enabled** column to enable or disable the indicated buttons in a single tap.

At the upper left of the screen is a taskbar that can be used to open additional settings, save a profile or refresh settings to the stored profile.

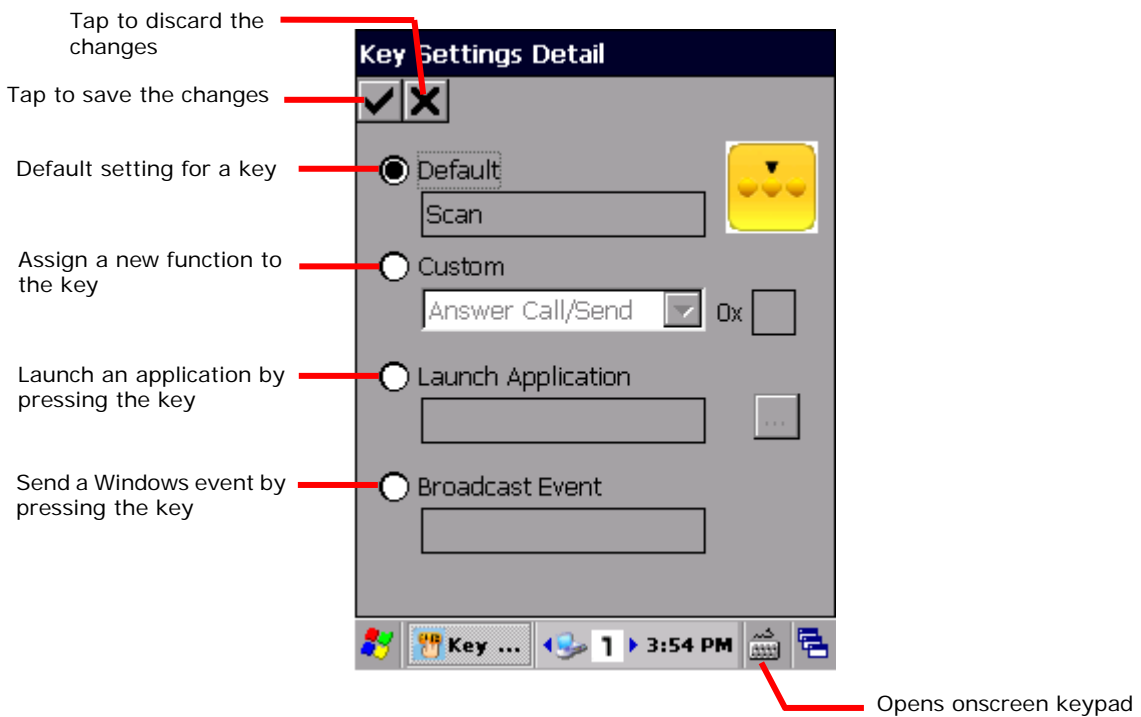


Toolbar icon	Description
	Opens Button Assignment main menu which can be used to manage profiles, reset settings to default, obtain version information, or exit the application.
	Saves current settings as a new profile, or saves changes made to the profile currently opened.
	Refreshes the screen to profile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

6.1.2. 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.





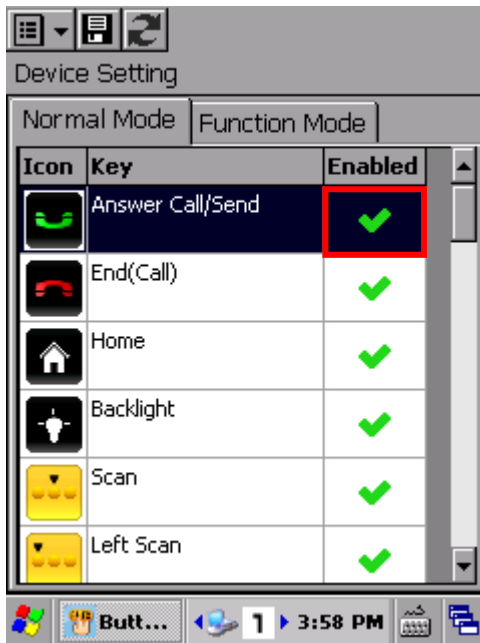
Item	Value
Default	Sets the key function back to factory default.
Custom	Provides a drop-down list to select the preferred function for the specific key. (Options available differ with the key.) Either select a pre-defined function, or select "User define" and enter a valid ASCII key code (0x00~0xFF) 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.

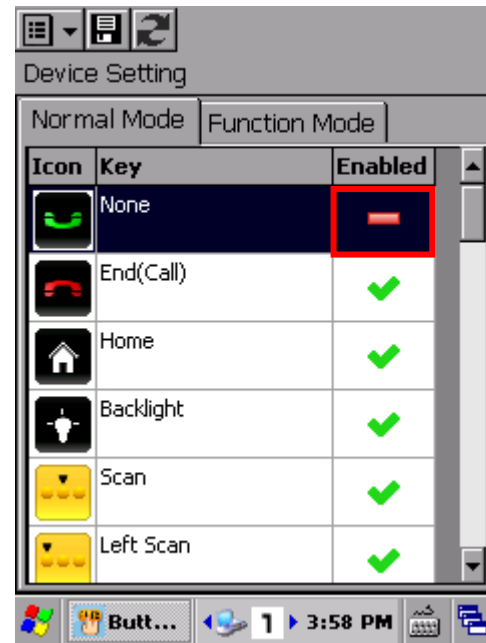
DISABLE/ENABLE KEY FUNCTION

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.

6.1.3. MAIN MENU




When the main menu button  is tapped, an option menu opens providing the following functions:

Item	Description												
User Profile	<p>Displays the existing profiles (not including default settings), and a toolbar to manage profiles:     </p> <table border="1"> <thead> <tr> <th>Toolbar icon</th> <th>Description</th> </tr> </thead> <tbody> <tr> <td></td> <td>Applies the selected profile.</td> </tr> <tr> <td></td> <td>Returns to the previous page.</td> </tr> <tr> <td></td> <td>Deletes the selected profile.</td> </tr> <tr> <td></td> <td>Imports a previously exported profile.</td> </tr> <tr> <td></td> <td>Exports the selected profile as an .xml file.</td> </tr> </tbody> </table>	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.
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	<p>Reads and displays the current settings on the mobile computer. This should be done:</p> <ul style="list-style-type: none"> ▶ Before creating a new profile ▶ To check the current environment on the mobile computer. 												
Write to device	<p>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:</p> <ul style="list-style-type: none"> ▶ 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. <p>Only by tapping this option will the displayed settings come into action.</p>												
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

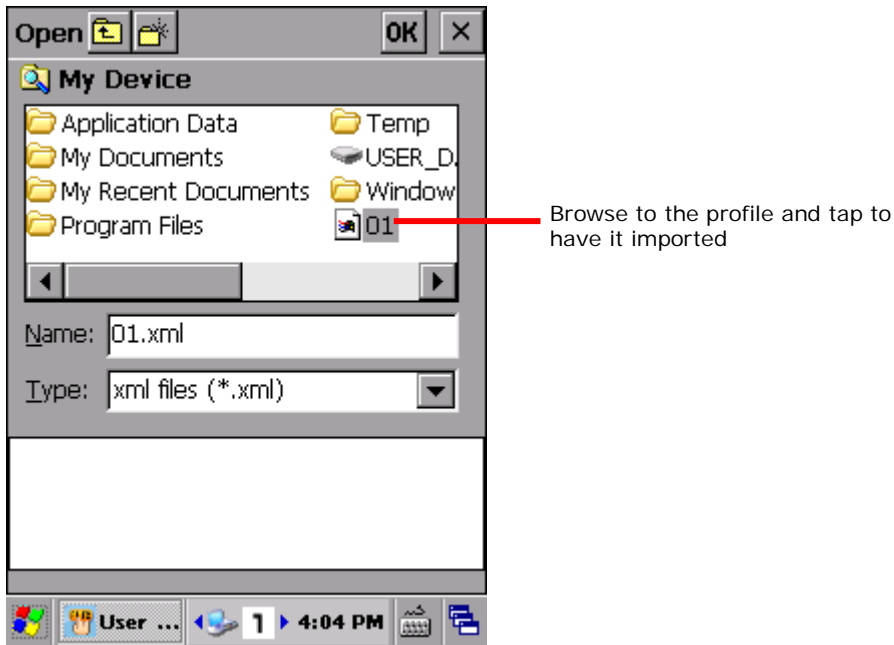
To delete an existing profile:

- 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

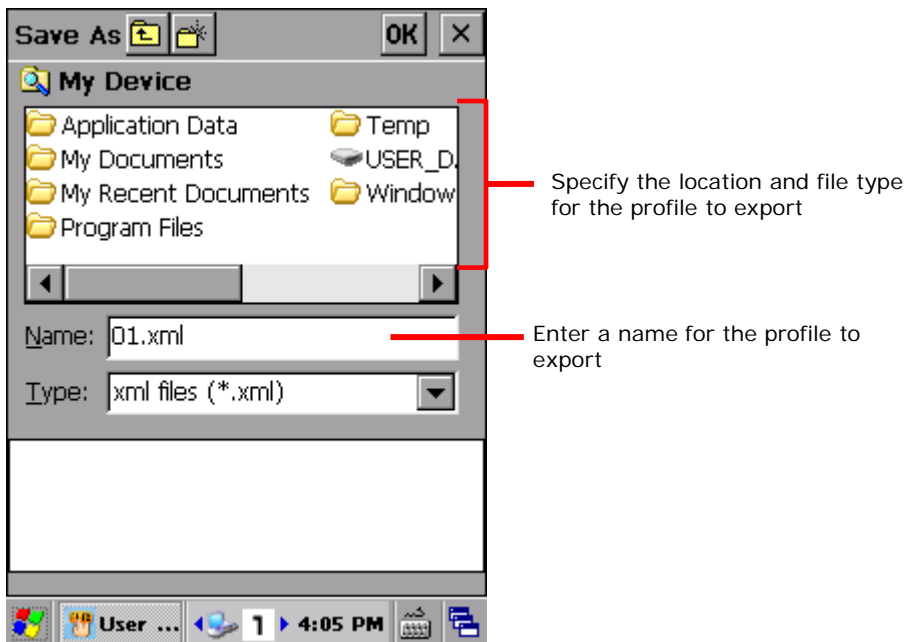
Profile settings can be exported as an independent .xml file, which may be transferred to other devices so they can share identical button assignment settings.



- 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 export settings.

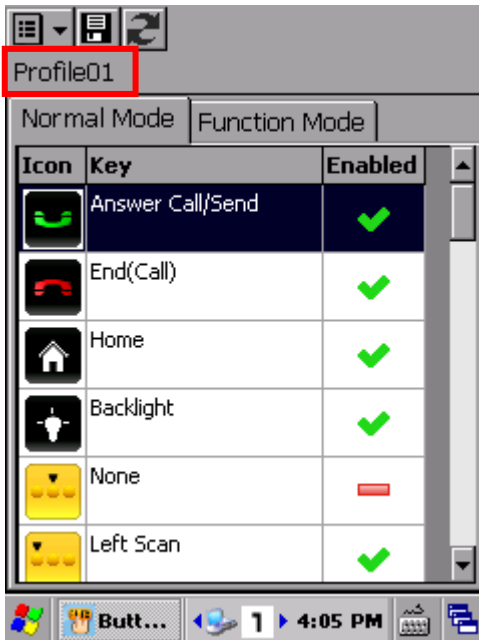


3) Tap  to proceed, or  to cancel.

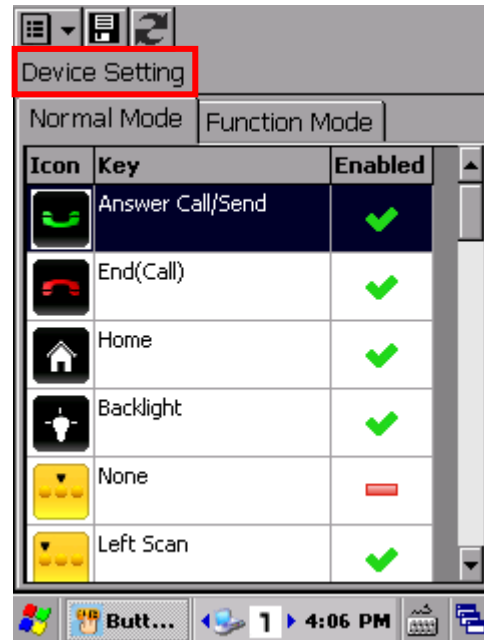
READ/WRITE SETTINGS

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

6.1.4. 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](#).






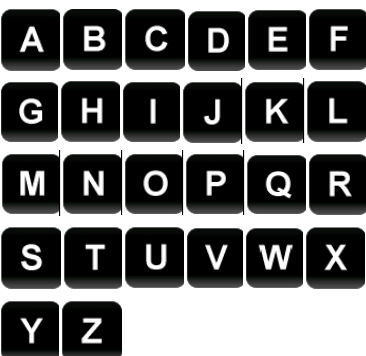




NUMERIC KEYPAD

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

	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 Menu	Send End	
	End	OK	Start Menu OK	
	Home	F11	Home End	
	Backlight	F12	Left Right	
	Scan	N/A	Up Down Page Up	Camera Scan + User Define
	Left Scan	N/A	Page Down Volume Up Volume Down	Camera Scan + User Define
	Right Scan	N/A	Increase Backlight Brightness Decrease Backlight Brightness	Camera Scan + User Define
	Camera	N/A	Backspace Enter	Camera
	Volume Up	N/A	Esc Tab	
	Volume Down	N/A	Shift -	
	Left	Home	. *	
	Right	End	# !	
	Up	Page Up	@ \$ %	
	Down	Page Down	^ &	
	Esc	Esc	()	
	Tab	Tab	1, 2, 3.....9, 0 F1-24	
	Backspace	Backspace	User Define	
	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.

6.2. 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**:

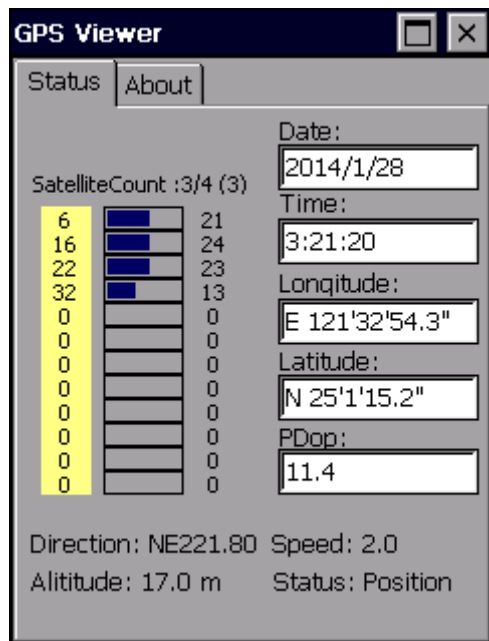
- 1) Turn on Cellular data/GPS power as in [Power On/Off Cellular Data](#).

Select whether to enable A-GPS to assist location discovery in [GPS Manager](#).

- 2) Tap **Start | Settings | Control Panel | GPS Viewer** .

GPS Viewer opens showing **Status** tabbed 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. <ul style="list-style-type: none">▶ 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. <ul style="list-style-type: none">▶ 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 | Control Panel | GPS Manager | COM Port** tabbed page. Select **Enable GPS program port** and specify a program port for related software to obtain GPS data from.

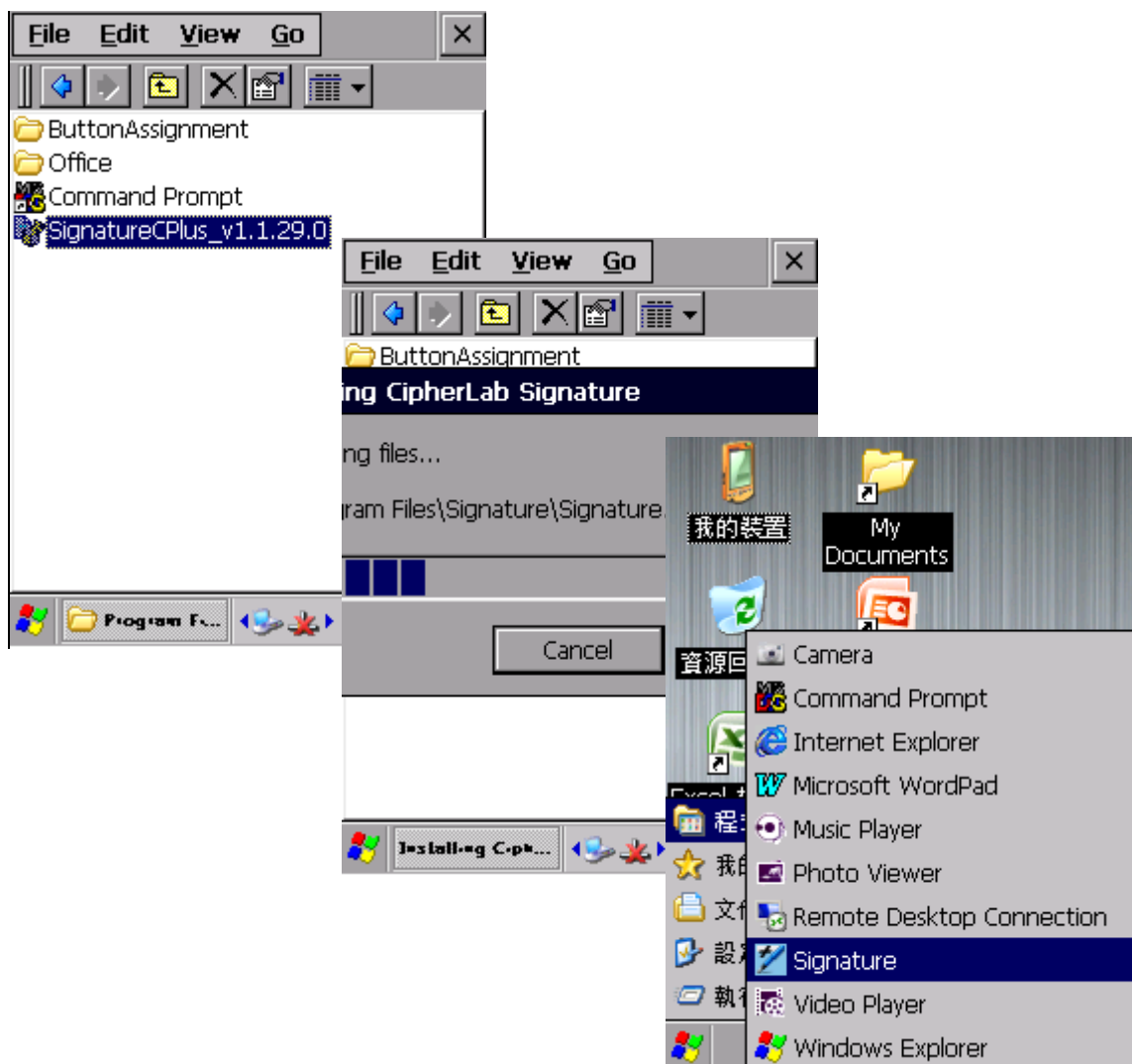
6.3. SIGNATURE UTILITY

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

6.3.1. INSTALL SIGNATURE UTILITY

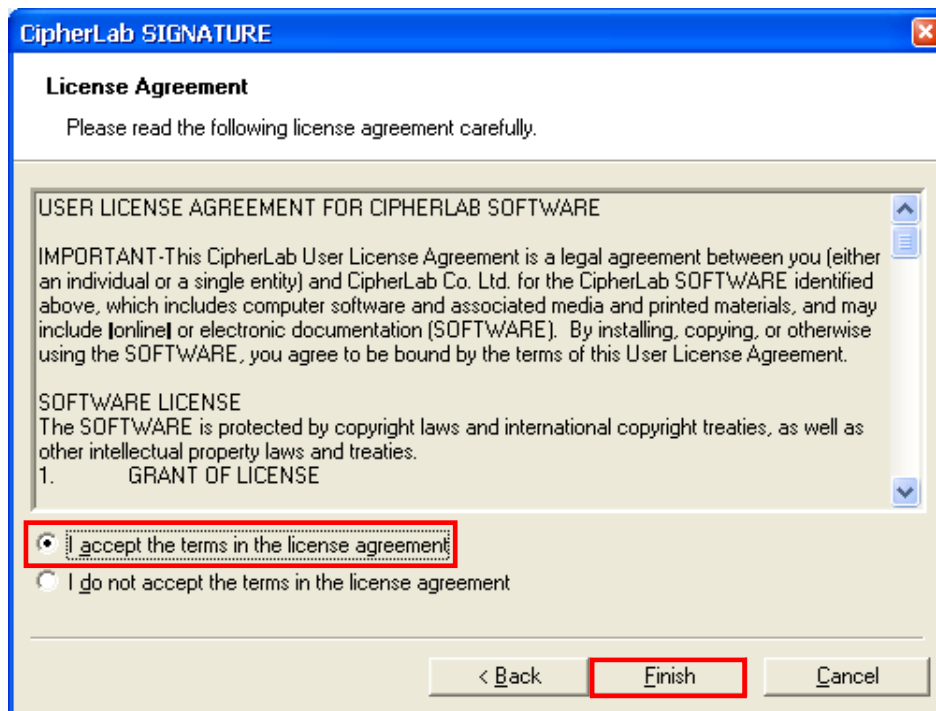
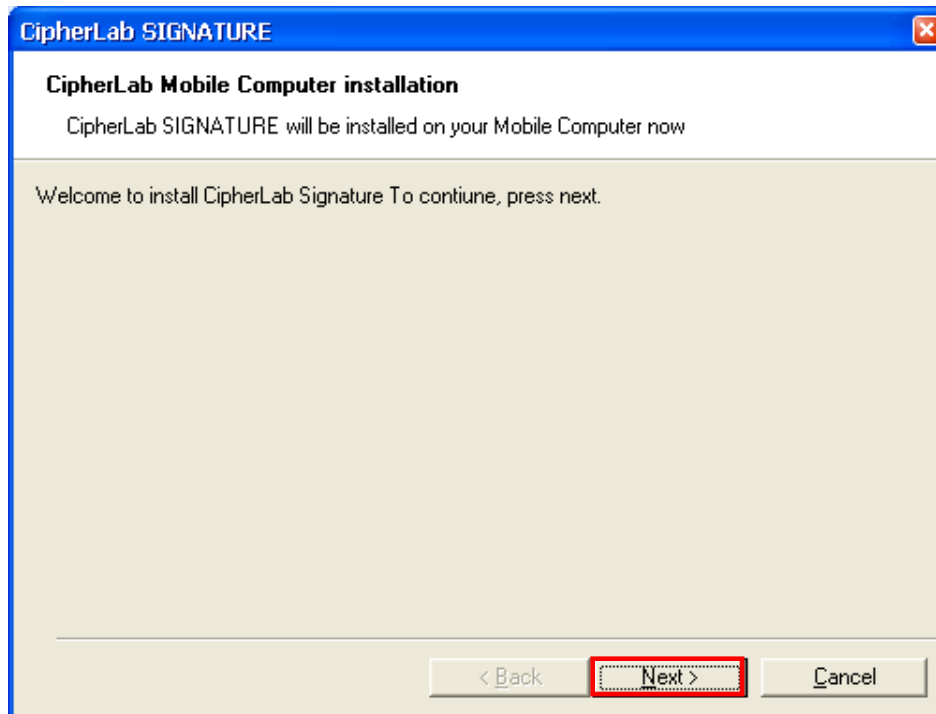
INSTALL WITH .CAB FILE

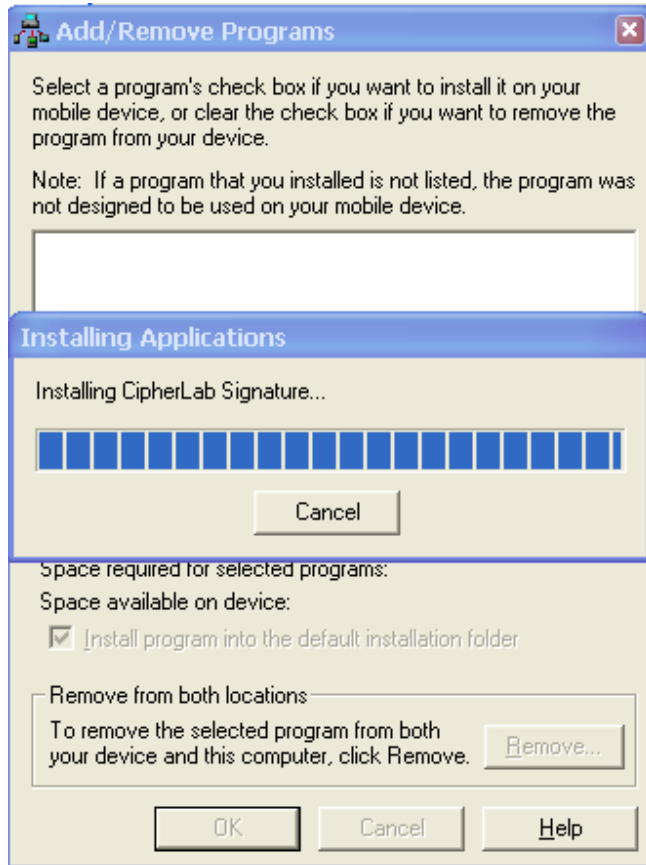
- 1) On your PC, log in to GoBetween to download the file of installation.
- 2) Connect the mobile computer to your PC via ActiceSync.
- 3) Obtain the Signature utility installation file (.CAB) and copy it to the mobile computer.
- 4) On the mobile computer, browse to the location where the .CAB file is stored.
- 5) Double-tap the file to start installation. After **Signature** utility is installed on the mobile computer, it will be listed under **Start** menu | **Programs**.



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, Signature utility will start to install. When completed, it will be listed under **Start** menu | **Programs**

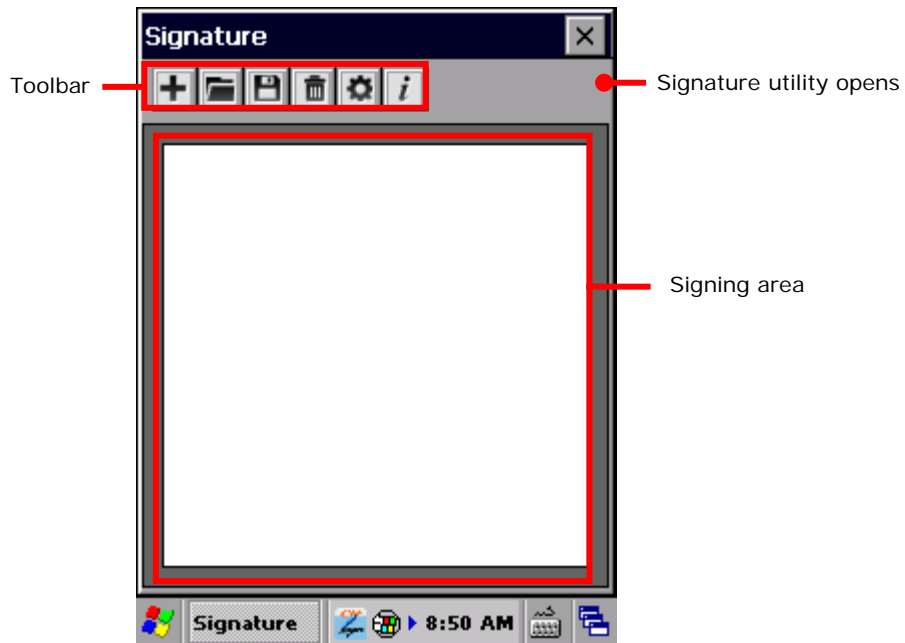


6.3.2. LAUNCH SIGNATURE UTILITY

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 file.
	Loads a signature image.
	Saves the affixed signature to an image file (BMP, JPG or Locus format).
	Clears signing area.
	Opens preferences settings.
	Views utility info including developer and software version.

6.3.3. 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  in the upper right corner to quit Signature utility.

6.3.4. 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


Confirm **No** if you only want to view it.

Note: Signature utility loads images of maximum 640 x 480 pixels. If it tries to load an image beyond this limit, an error message pops up notifying that the image cannot be opened.

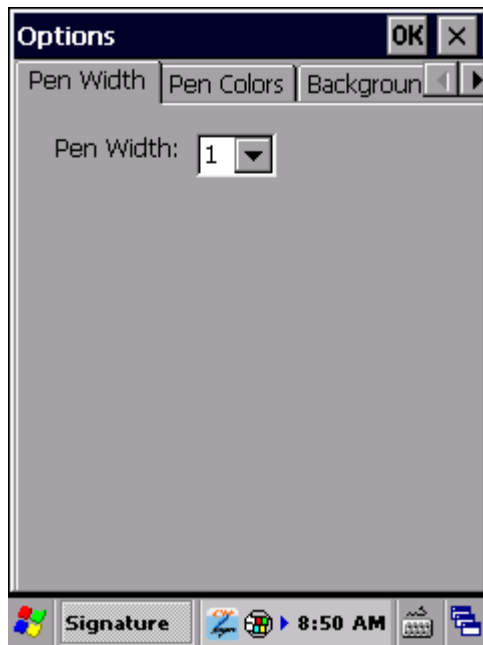
6.3.5. PREFERENCES



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** tabbed page.



- 3) Select between **Pen Width**, **Pen Colors** and **Background Colors** tabs to customize signing preferences.
- 4) Tap  to save changes, or tap  to quit settings without saving.

6.4. 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:

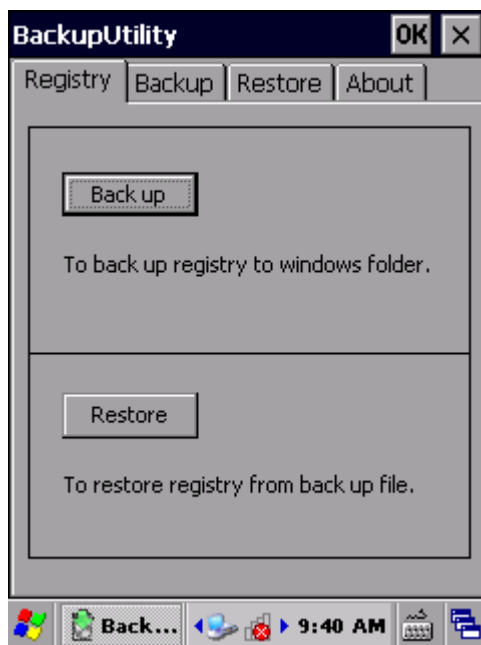
- ▶ Reserves and restores system registry and system files.
- ▶ Flexible file selection.

6.4.1. LAUNCH BACKUP UTILITY

To launch Backup Utility:

- 1) Tap **Start | Programs | Backup Utility** .

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



The four tabbed pages serve the following functions:

Tabbed Page	Description
Registry	<ul style="list-style-type: none"> ▶ 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.

6.4.2. 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.

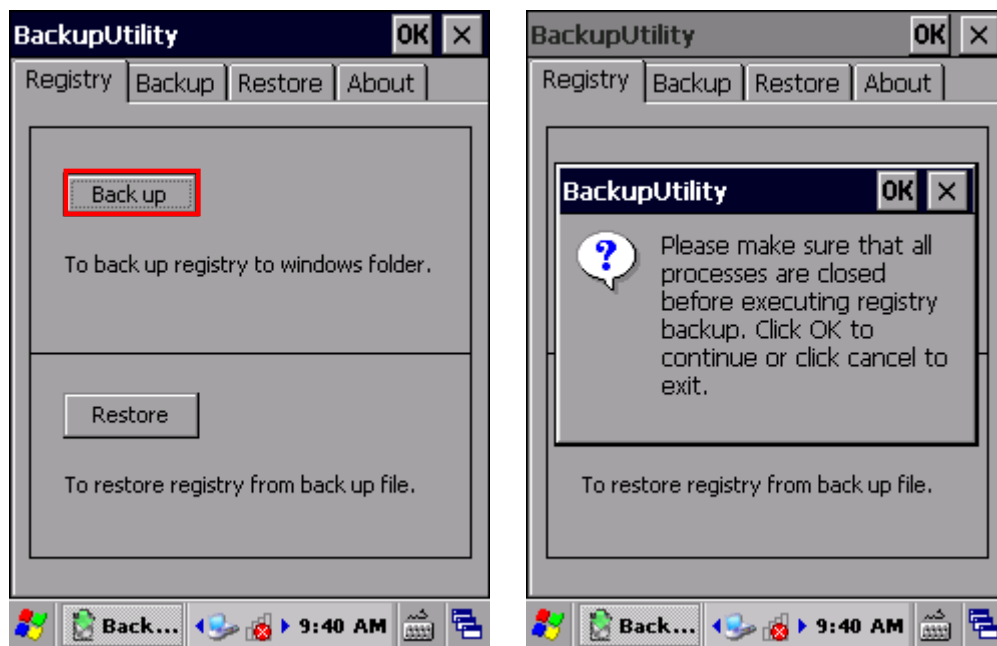
REGISTRY BACKUP



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:

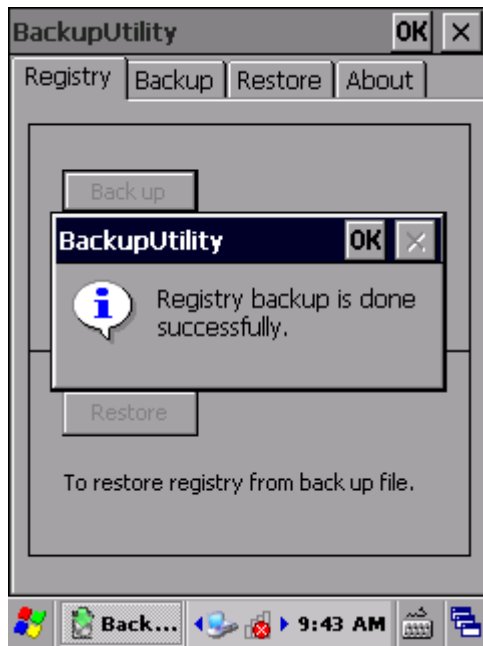
- 1) Launch Backup Utility as described in [Launch Backup Utility](#).
- 2) Tap the **Back up** button.

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



- 3) Tap  to proceed, or tap  to cancel.

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.

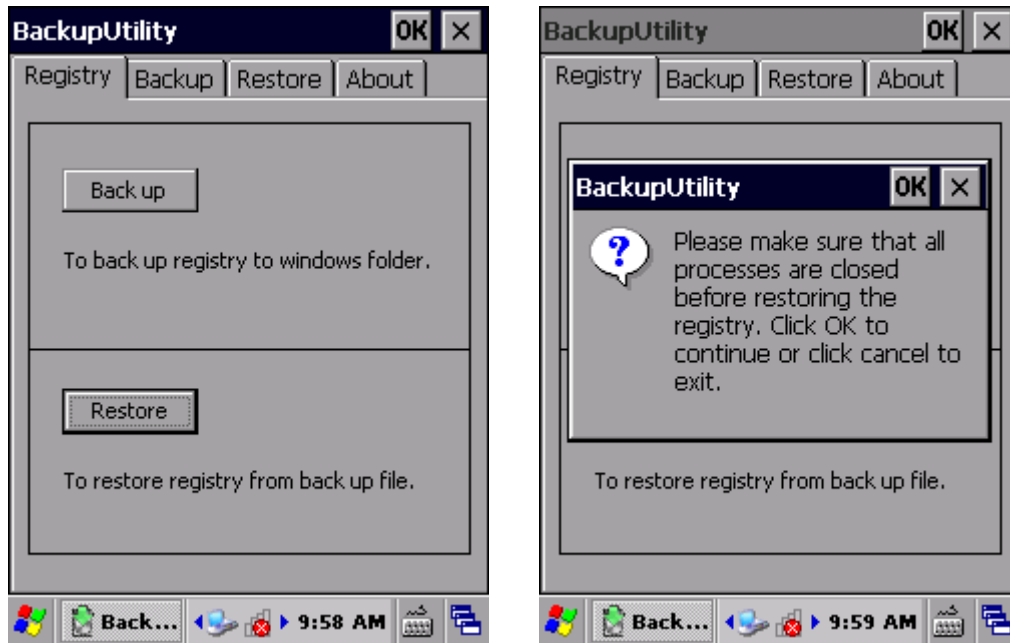
REGISTRY RESTORATION



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:

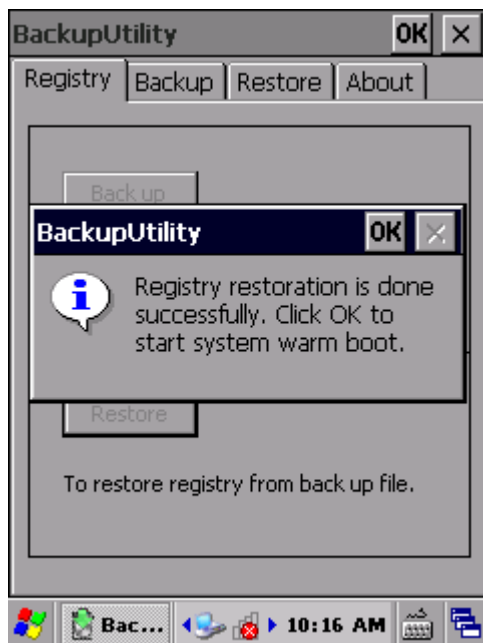
- 1) Launch Backup Utility as described in [Launch Backup Utility](#).
- 2) Tap the **Restore** button.


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



- 3) Tap  to proceed, or tap  to cancel.

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  to reboot the mobile computer. System configuration and application settings are restored to an earlier stage.

6.4.3. DEVICE DATA BACKUP AND RESTORATION

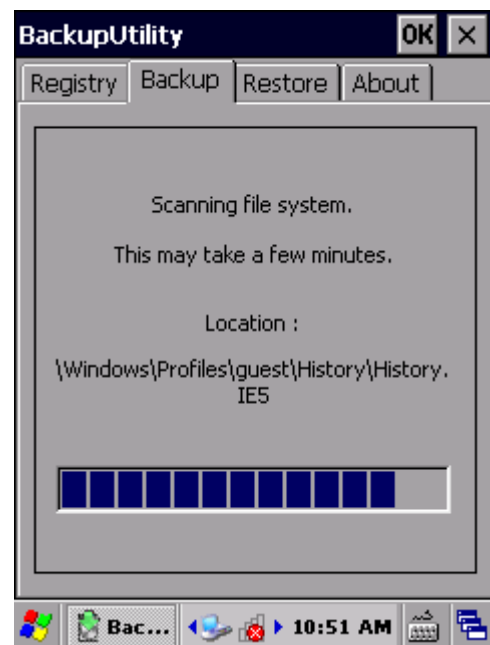
DEVICE DATA BACKUP

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

To back up system file(s):

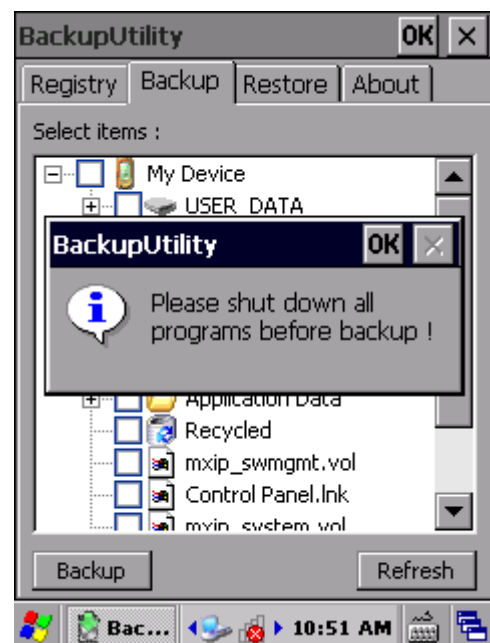
- 1) Launch Backup Utility as described in [Launch Backup Utility](#).
- 2) Tap **Backup** tab.

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



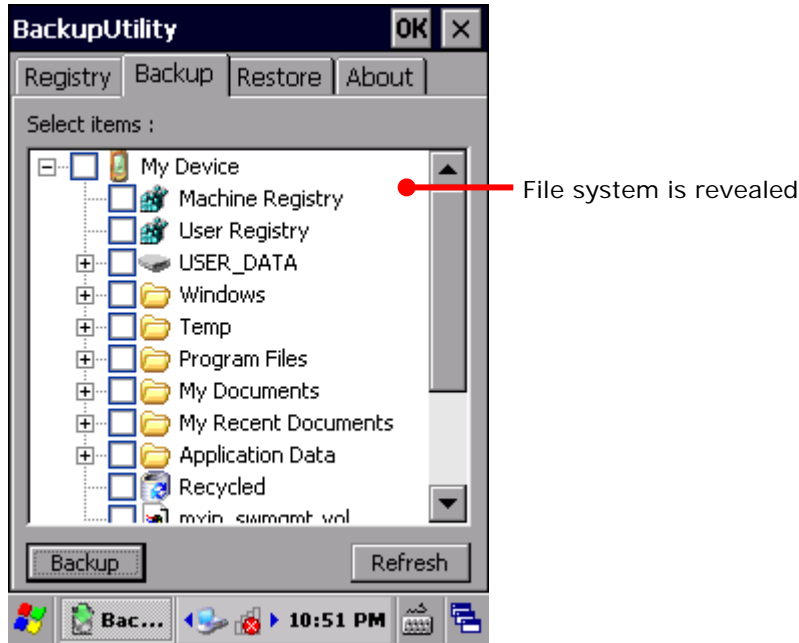
- 3) When the search is through, the discovered file system will come into view, overlaid by a dialog prompting that all applications should be closed before backup.

Tap **OK** to close the dialog.



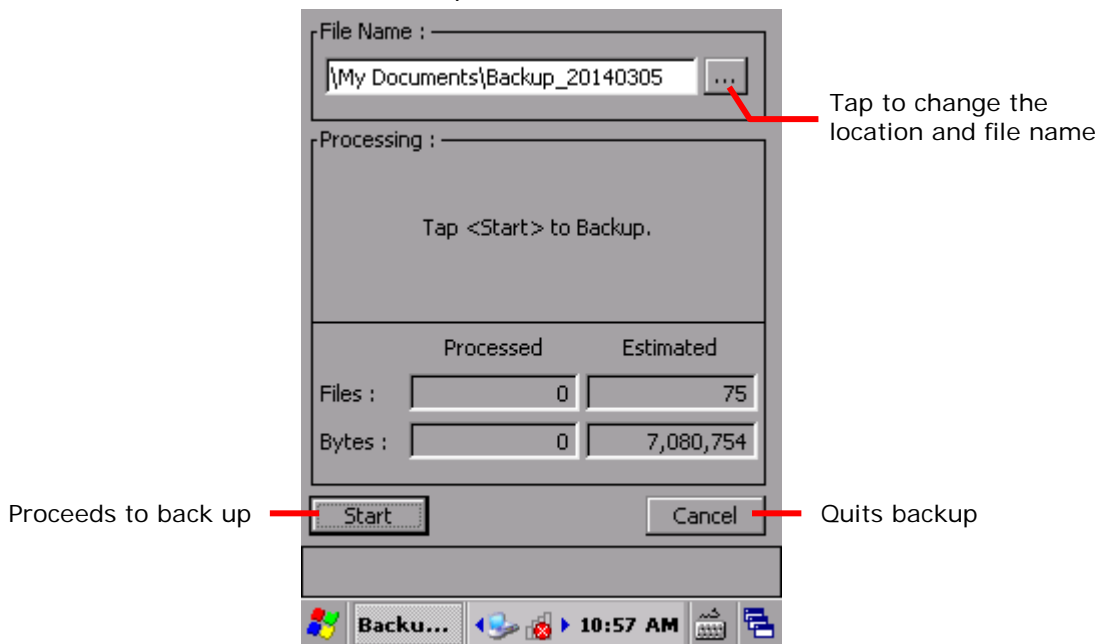
- 4) The file system is revealed as a tree-like structure in hierarchical order. Each plus sign (+) is a node to expand an item or sub-item. Each item comes with a check box for selection.

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.

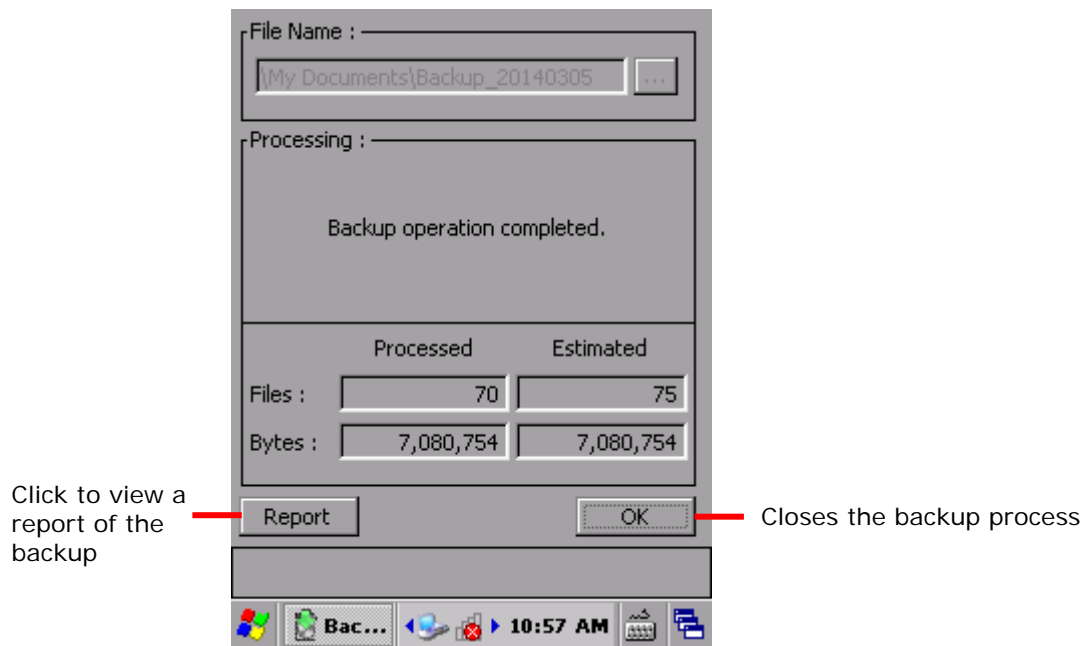
- 5) Tap the **Backup** button in the lower left corner. A page shows to change the storage location and file name of the backup file and the estimated file number and size.



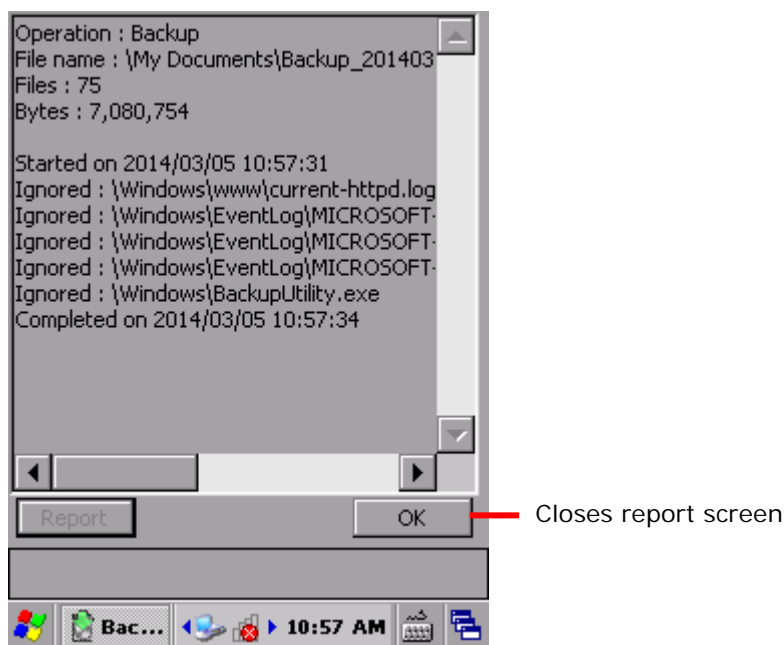
By default, the system backup file is saved to **\My Device\My Documents** with the default filename and extension "Backup_YYYYMMDD.bkp". You may modify the file name, or tap the Browse icon to adjust the storage location.

- 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.

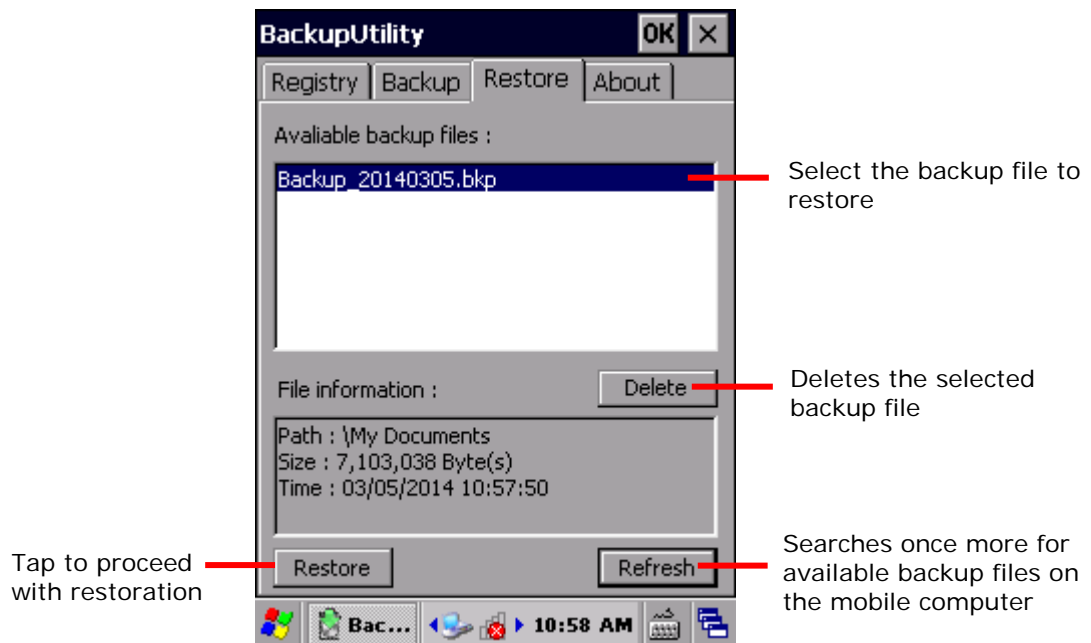
DEVICE DATA RESTORATION

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

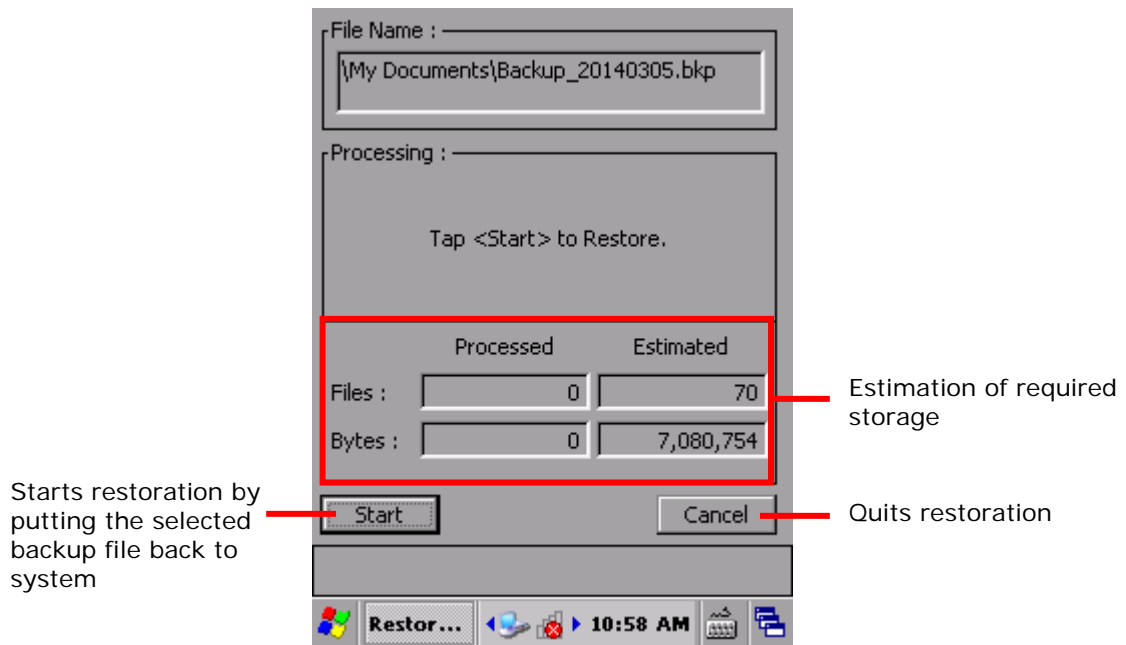
To restore device data:

- 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.

6.5. 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.

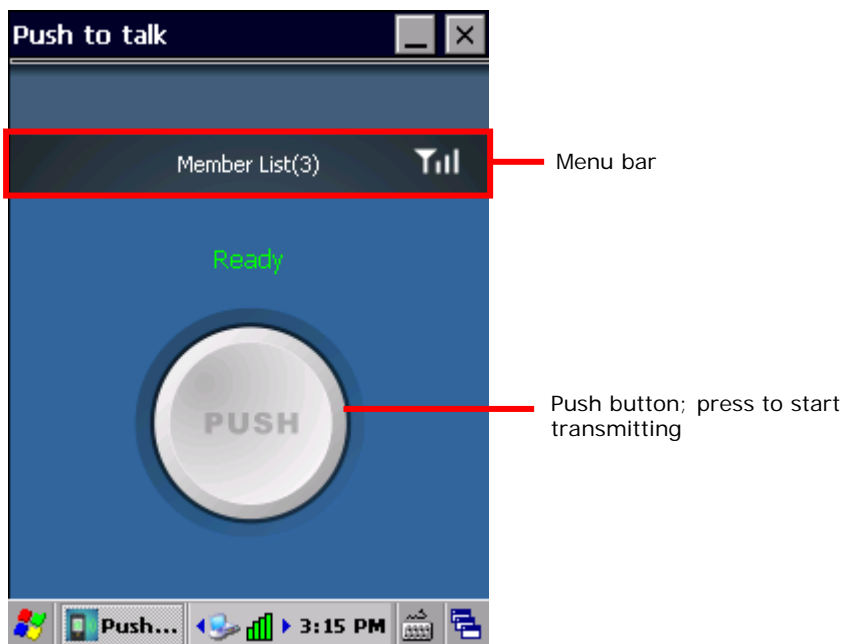
6.5.1. LAUNCH PUSH TO TALK

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 | Programs | Push to Talk** .

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



6.5.2. 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.

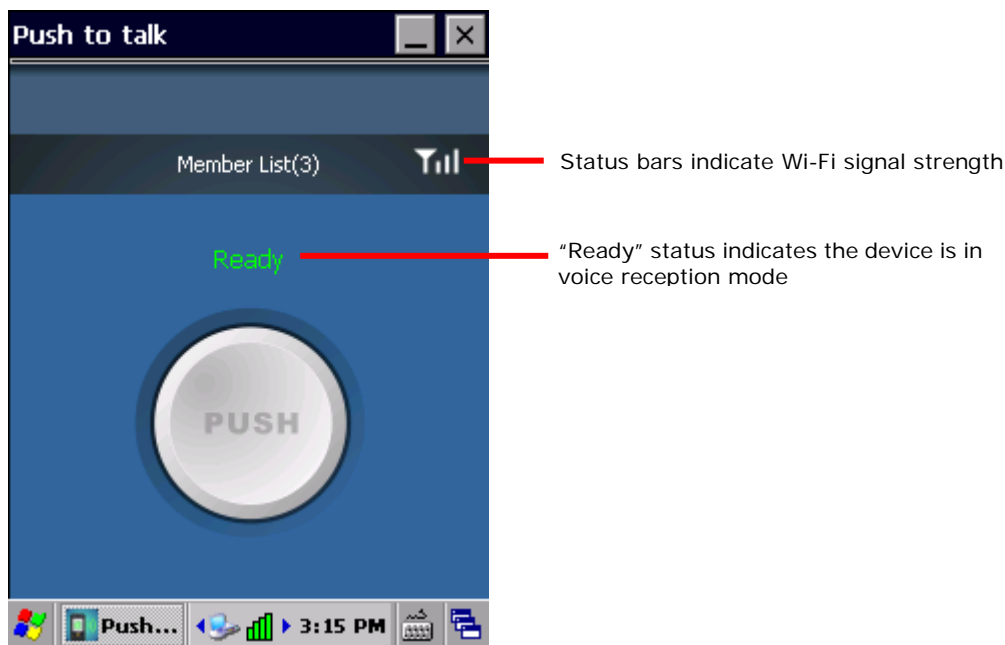
Note: For optimized performance, the Wi-Fi signal strength should be stronger than -60 dB.

SENDING AUDIO CONTENT

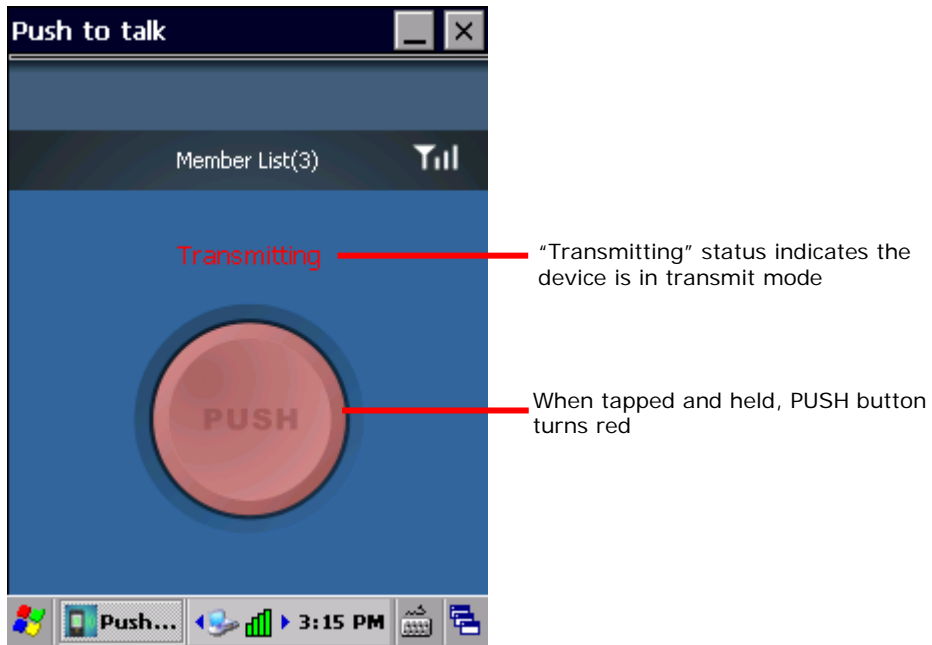
To send audio content to other devices:

- 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.



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.

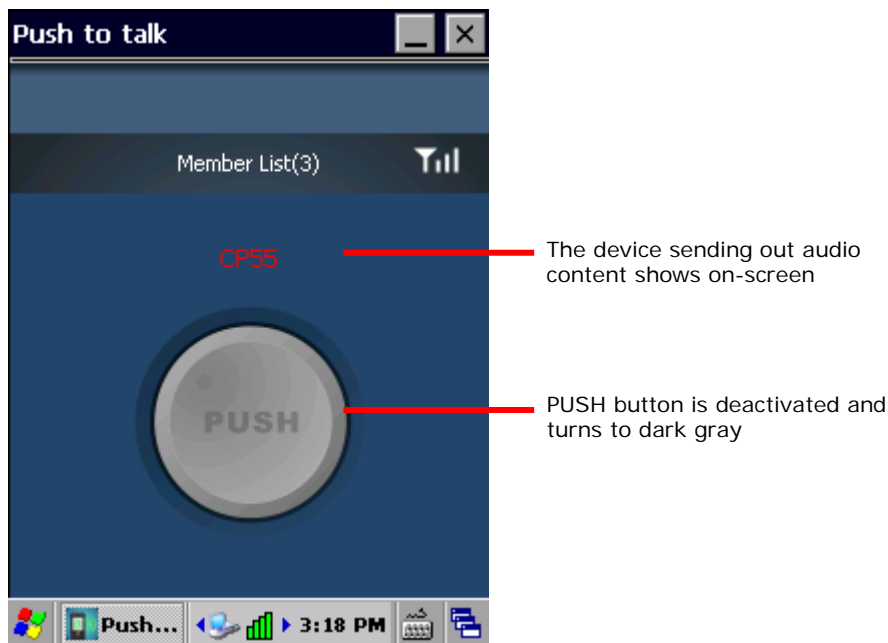
RECEIVING AUDIO CONTENT

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.

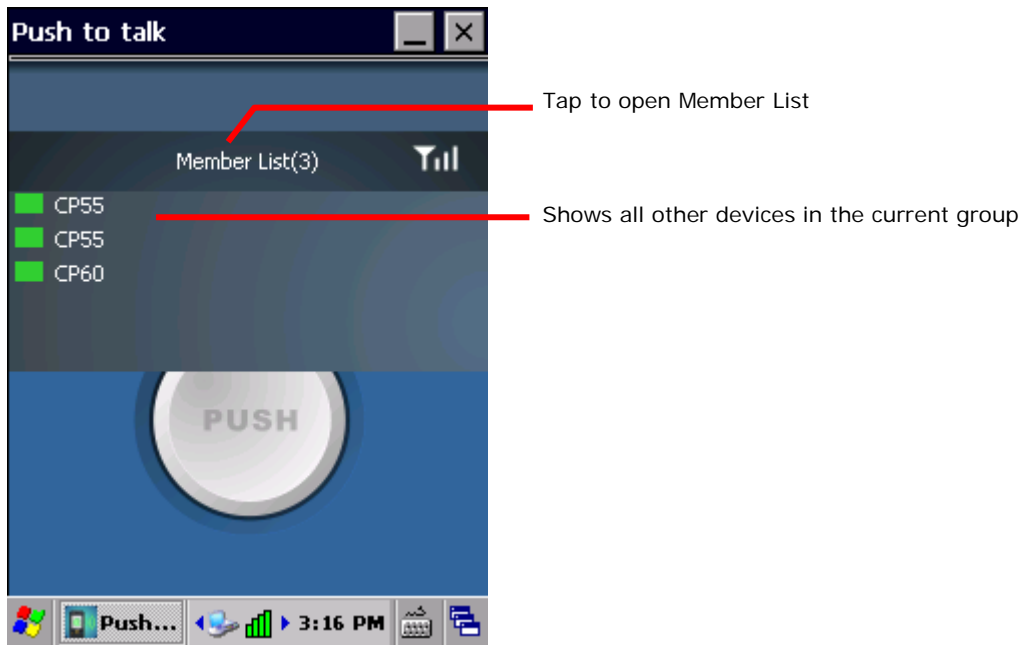
MANAGING MEMBER LIST

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.

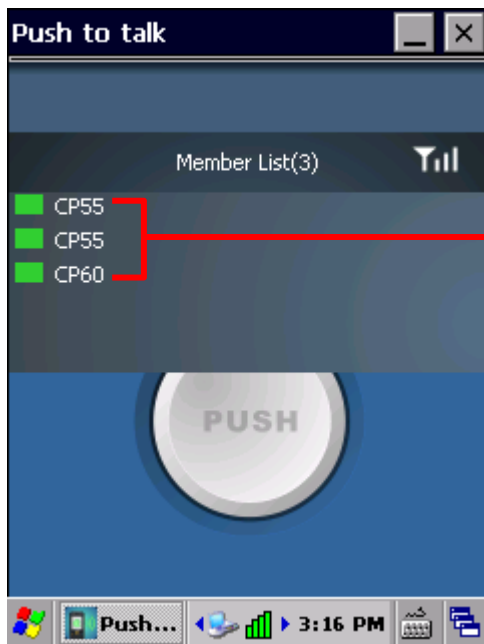
CHECK MEMBER STATUS

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.

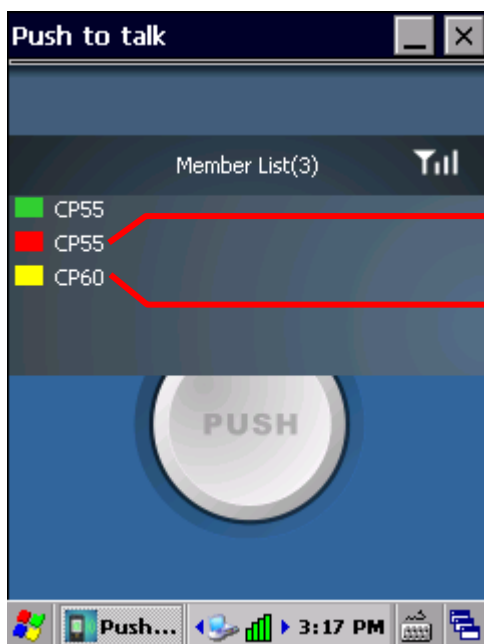


Green indicates a device is in voice reception mode

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.

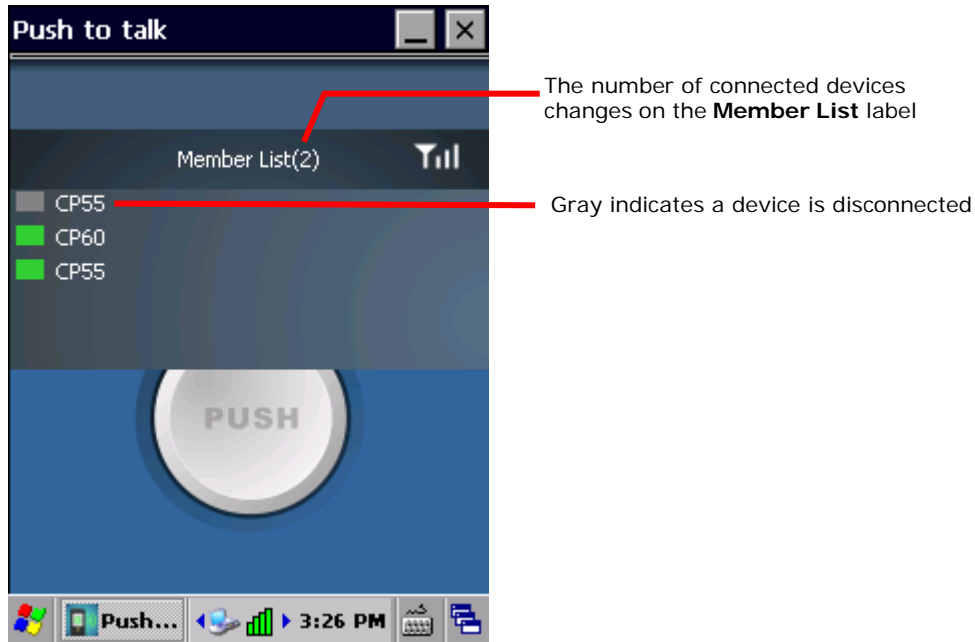


Red indicates a device is currently transmitting audio content

Yellow indicates a device is currently receiving audio content

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** tabbed 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.

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.

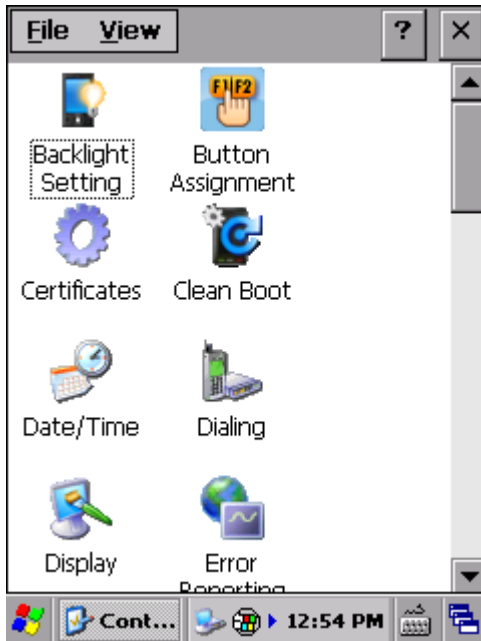
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7.1. CONTROL PANEL

To access control panel settings:

- ▶ Tap **Start** | **Settings** | **Control Panel** to display a window listing all the programs installed on the mobile computer.



Icon	Description
------	-------------



BACKLIGHT SETTING

Sets screen and keypad timeout and brightness. Four tabs are featured – **Brightness**, **Battery Power**, **External Power**, and **Profile**. See also [Power](#) for setting up power plans to save battery consumption.

Tabbed Page	Description										
Brightness	<p>Selects whether to allow manual adjustment of the screen and keypad backlights.</p> <ul style="list-style-type: none"> ▶ Adjust the screen to the dimmest comfortable brightness to save power. See also Adjust Backlight. 										
Battery Power	<p>Sets the screen backlight timeout on battery power and whether to trigger screen/keypad light-up upon pressing a key.</p> <table border="1"> <thead> <tr> <th>Option</th> <th>Default Settings</th> </tr> </thead> <tbody> <tr> <td>Turn off LCD backlight if device is not used for:</td> <td>Checked; 1 min</td> </tr> <tr> <td>Turn off keypad backlight if device is not used for:</td> <td>Checked; 5 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</td> <td>Checked</td> </tr> </tbody> </table>	Option	Default Settings	Turn off LCD backlight if device is not used for:	Checked; 1 min	Turn off keypad backlight if device is not used for:	Checked; 5 sec	Turn on LCD backlight when a button is pressed or the screen is tapped	Checked	Turn on keypad backlight when a button is	Checked
Option	Default Settings										
Turn off LCD backlight if device is not used for:	Checked; 1 min										
Turn off keypad backlight if device is not used for:	Checked; 5 sec										
Turn on LCD backlight when a button is pressed or the screen is tapped	Checked										
Turn on keypad backlight when a button is	Checked										

	pressed										
External Power	<p>Sets the screen backlight timeout on external power and whether to trigger screen/keypad light up upon pressing a key.</p> <table border="1"> <thead> <tr> <th><u>Option</u></th> <th><u>Default Settings</u></th> </tr> </thead> <tbody> <tr> <td>Turn off LCD backlight if device is not used for:</td> <td>Checked; 10 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> </tbody> </table>	<u>Option</u>	<u>Default Settings</u>	Turn off LCD backlight if device is not used for:	Checked; 10 min	Turn off keypad backlight if device is not used for:	Checked; 10 sec	Turn on LCD backlight when a button is pressed or the screen is tapped	Checked	Turn on keypad backlight when a button is pressed	Checked
<u>Option</u>	<u>Default Settings</u>										
Turn off LCD backlight if device is not used for:	Checked; 10 min										
Turn off keypad backlight if device is not used for:	Checked; 10 sec										
Turn on LCD backlight when a button is pressed or the screen is tapped	Checked										
Turn on keypad backlight when a button is pressed	Checked										
Profile	Sets backlight profiles or restores them back to default.										



BUTTON ASSIGNMENT

Redefines key functions under keypad's normal and function mode. See Button Assignment for more details.



CERTIFICATES

Imports either your personal digital certificates, certificates from trusted authorities, or intermediate certificates in order to access certain secured networks. Once imported, you may view or remove the installed certificates.



CLEAN BOOT

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

- ▶ Data placed under the USER_DATA directory will not be cleared.
- ▶ 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.



DATE/TIME

Sets RTC time, calendar and time zone.

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



DIALING

Dials up the connection and configure settings for modem communication. (Not available for now).



DISPLAY

Changes the desktop background image and system appearance (color of desktop, windows, title bars, dialogs, menus, selected items, etc.).



ERROR REPORTING

Reports software errors to Microsoft for better improvement.



GPS MANAGER

- ▶ **GPS Manager** tab: Provides a checkbox to enable A-GPS to assist GPS positioning. Before enabling, [Install SIM Card](#) first and [Power On/Off Cellular Data](#).
- ▶ **COM Port** tab: Provides a checkbox to enable the GPS program port, and a drop-down box to select the port to use for streaming GPS data. COM0~8 and GPD1~9

Note that **GPS Manager** is available only on devices integrated with GPRS modules.



GPS VIEWER

Program for viewing GPS positioning results. This is available only on devices integrated with GPRS modules.



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 on a level surface, and dislocates when the mobile computer is tilted. Place the mobile computer on a flat surface before calibration, and tap **GSensor Calibration**.



HF RFID CONFIGURATION

Configures the RFID reader and displays test scan results. See [Use HF RFID Configuration](#).



INPUT PANEL

- ▶ Select an input method and tap **Options** to make further adjustments.
- ▶ Set whether to allow applications change input panel state.



INTERNET OPTIONS

Configures how the mobile computer connects to the Internet.



KEYBOARD

Enables and sets character repeat delay and rate.



MOUSE

Tests the double-click sensitivity of the stylus. See also [Stylus](#).



NETWORK AND DIAL-UP CONNECTIONS

Configures whether the mobile computer connects to a network directly or through a modem. Same as tapping **Start | Settings | Control Panel | Network and Dial-up Connections**.

Available connection types include:

- ▶ 115200 (for dial-up internet access)
- ▶ TIWLNAPI1 (via 802.11 a/b/g/n)
- ▶ BTPAN1 (via Bluetooth)

**OWNER**

Records information about the mobile computer's owner, owner notes, and network ID.

**PASSWORD**

Sets a password to secure the mobile computer upon power on or awake from suspension.

- ▶ When password protection is enabled, access to Control Panel settings and Password settings is also protected.

**PC CONNECTION**

Select between USB serial connection and COM port connection.

Tabbed Page	Description
PC Connection	Select to connect the mobile computer with your PC through USB serial connection or. <ul style="list-style-type: none"> ▶ Changing connections settings may affect communications with your PC.
COM Port	Select whether to allow the physical UART to act as a COM port, and specify the COM port to map to.

**POWER**

Displays battery level and sets up power plans. Two tabs are featured – **Battery** and **Power Off**.

Tabbed Page	Description
Battery	Delivers a summary of battery level for main & backup batteries, and also denotes the main battery level percentage.
Schemes	Sets a power scheme to switch the mobile computer to suspend after a specified amount of time.

**READER CONFIG**

Allows users to set scanner preferences, data output format and destination, symbology settings, and perform test scanning of barcodes. See [Use Reader Config](#).

**REGIONAL SETTINGS**

Controls how to display date, time and numbers, currency as well as interface and input language on the mobile computer. Featured tabs are – **Region**, **Language** and **Input**.

Note: Default interface language and input language are bound to the OS and cannot be changed.

**REMOVE PROGRAMS**

Views and removes non-inherent applications installed on the mobile computer. See also [Uninstall Applications](#).

**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 on the storage card.



STYLUS

- ▶ **Double-tap** tab: Configures and tests double-tap sensitivity.
- ▶ **Calibration** tab: Recalibrates the touch screen when it is no longer responding correctly to stylus movement.



SYSTEM

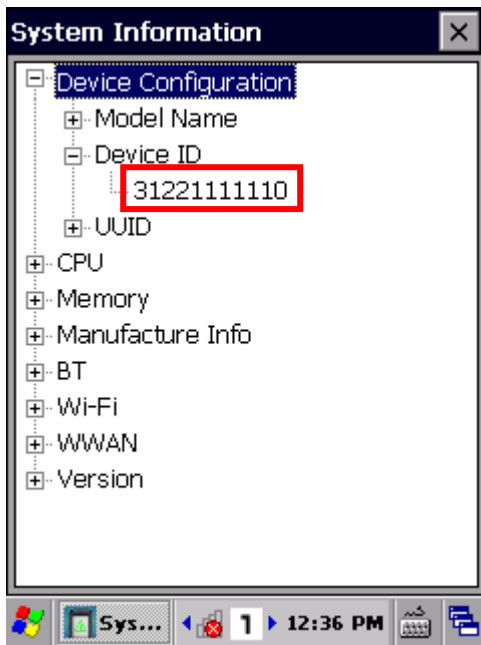
- ▶ **General** tab: Displays OS and system hardware information.
- ▶ **Device Name** tab: Tap a name and description for the mobile computer.
- ▶ **Copyrights** tab: Views copyright statements.



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



TERMINAL SERVER CLIENT

Logs onto a Windows Terminal Server or a remote computer through remote desktop connection. You may then access all programs, files and network resources on the remote host or terminal server.



TIME SYNC

Provides two tabs, **SNTP** and **GPS**.

- ▶ **SNTP** tabbed page: Synchronizes the mobile computer's time with an NTP server either automatically or manually. Users can also select the time period for auto-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.

- ▶ **GPS** tabbed page: Gets time information through GPS data packet. [Power On/Off Cellular Data](#) first under Wireless Manager. This tabbed page is available only on devices integrated with GPRS modules.



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. This is the default setting.
- ▶ **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 **Start | Settings | Control Panel | USB to PC**.



VOLUME & SOUNDS

- ▶ **Volume** tab: Adjusts system sounds and volume for events, applications, notifications and stylus movements.
- ▶ **Sounds** tab: Changes event sounds to meet your preferences and save them as schemes.



WIRELESS MANAGER

Enables/disables Bluetooth, Wi-Fi and cellular data power status.







7.2. CONNECTION SETTINGS

To access connection settings:

- ▶ Tap **Start | Settings | Control Panel | Network and Dial-up Connections**.

OR

- ▶ Tap **Start | Settings | Network and Dial-up Connections**.

Icon	Description
	MAKE NEW CONNECTION Tap to create a new connection which is not listed.
	115200 Refers to dial-up internet access.
	TIWLNAPI1 Refers to the 802.11 a/b/g/n module for wireless local area networking (WLAN) connection. Configure Wi-Fi settings by tapping Start Settings Control Panel Wireless Manager Wi-Fi  .
	BTPAN1 Refers to wireless personal area networking (WPAN). Configure Bluetooth settings by tapping Start Settings Control Panel Wireless Manager Bluetooth  .

7.3. TASKBAR AND START MENU SETTINGS

To access taskbar and Start Menu settings:

- ▶ Tap **Start** | **Settings** | **Taskbar and Start Menu**.



Tabbed page	Setting	Description
General	Always on top	Select to keep the taskbar at the top of the screen, even when an application is open.
	Auto hide	Select to auto hide the taskbar and reveal it by tapping on the bottom of the screen.
	Show Clock	Select to show clock time at the right side of the taskbar region.
Advanced	Clear	Tap to clear all contents in the Documents menu.
	Expand Control Panel	Select to show Control Panel items in an expanded menu.

SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

OS Version	Microsoft Windows Embedded Compact 7.0
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 <ul style="list-style-type: none">▶ 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	Input	AC 100~240V, 50/60 Hz
Snap-on Cable	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	<ul style="list-style-type: none"> ▶ 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

Operating	90%, non-condensing (Max 60°C / 140°F)
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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	<ul style="list-style-type: none"> ▶ 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

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.
-

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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.

CCD (SM1)

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

SYMBOLGY 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ The 14-character barcode length does not include start/stop characters. 	Disable
NOTIS	Sets whether to include start/stop characters in the transmitted data. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ "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. <ul style="list-style-type: none"> ▶ "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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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

LASER (SE955 & SE965HP)

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

SYMBOLGY SETTINGS

Symbology	Description	Default
CODABAR		
CodaBar		
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ The 14-character barcode length does not include start/stop characters. 	Disable
NOTIS	Sets whether to include start/stop characters in the transmitted data. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ Disable ▶ One Check Digit ▶ Two Check Digits 	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. <ul style="list-style-type: none"> ▶ Check Digit Option" must be enabled. 	Disable
Length option	Sets the length of the Code 11 symbols to decode. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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	<p>This only applies to GS1 DataBar-14 and GS1 DataBar Limited barcodes not decoded as part of a Composite barcode.</p> <p>Convert to EAN-13</p> <p>Strips the leading "010" from barcodes.</p> <ul style="list-style-type: none"> ▶ The barcode must be composed of a leading "01" as the application identifier (AI) and a first digit of zero. <p>Convert to UPC-A</p> <p>Strips the leading "0100" from barcodes.</p> <ul style="list-style-type: none"> ▶ 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	<p>Sets the length of the MSI symbols to decode.</p> <ul style="list-style-type: none"> ▶ 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	<p>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.</p> <ul style="list-style-type: none"> ▶ 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	<p>When two check digits are set for verification, two choices are available for the pair of check digits.</p> <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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										
UPC Security Level	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 border="1" style="width: 100%; border-collapse: collapse;"> <thead> <tr> <th style="text-align: left;">Level</th> <th style="text-align: left;">Description</th> </tr> </thead> <tbody> <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> </tbody> </table>	Level	Description	0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.	1	Select this level if misdecodes have occurred. It fixes most misdecodes.	2	Select this level if Level 1 should fail to eliminate misdecodes.	3	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.	Level 2
Level	Description											
0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.											
1	Select this level if misdecodes have occurred. It fixes most misdecodes.											
2	Select this level if Level 1 should fail to eliminate misdecodes.											
3	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.											

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 ": <ul style="list-style-type: none"> ▶] = 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 (Discrete 25)	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, 1e3001234567890510 .	
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 1e00110012345678902 .	

Note: In EAN-128 emulation mode, RSS is transmitted using Code 128 rules (= "Jc1").

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. <ul style="list-style-type: none"> ▶ 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!

2D IMAGER (SE4500DL)

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

SYMBOLGY 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ The 14-character barcode length does not include start/stop characters. 	Disable
NOTIS	Sets whether to include start/stop characters in the transmitted data. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ Disable ▶ One Check Digit ▶ Two Check Digits 	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. <ul style="list-style-type: none"> ▶ Check Digit Option" must be enabled. 	Disable
Length option	Sets the length of the Code 11 symbols to decode. <ul style="list-style-type: none"> ▶ 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 <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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	<p>UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode.</p> <p>UPC Never Linked</p> <p>Transmit UPC barcodes regardless of whether a 2D barcode is detected.</p> <p>UPC Always Linked</p> <p>Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted.</p> <p>▶ CC-A/B or CC-C must be enabled.</p> <p>Auto-discriminate</p> <p>Transmit UPC barcodes as well as the 2D portion if present.</p>	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	<p>This only applies to GS1 DataBar-14 and GS1 DataBar Limited barcodes not decoded as part of a Composite barcode.</p> <p>Convert to EAN-13</p> <hr/> <p>Strips the leading "010" from barcodes.</p> <ul style="list-style-type: none"> ▶ The barcode must be composed of a leading "01" as the application identifier (AI) and a first digit of zero. <p>Convert to UPC-A</p> <hr/> <p>Strips the leading "0100" from barcodes.</p> <ul style="list-style-type: none"> ▶ 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	<p>Sets the length of the MSI symbols to decode.</p> <ul style="list-style-type: none"> ▶ 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	<p>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.</p> <ul style="list-style-type: none"> ▶ 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	<ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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. <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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). <ul style="list-style-type: none"> ▶ 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
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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	<p>Transmit data from certain Micro PDF 417 barcodes as if it was encoded in Code 128 barcodes.</p> <ul style="list-style-type: none"> ▶ Transmit AIM code ID character in Miscellaneous options must be enabled first. <p>When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes:</p> <table border="1" style="width: 100%;"> <tr> <td> <p>The first codeword of MicroPDF417 is 903-905:</p> <p>The original Code ID "]L3" will be changed to "]C1".</p> </td> </tr> <tr> <td> <p>The first codeword of MicroPDF417 is 908 or 909:</p> <p>The original Code ID "]L4" will be changed to "]C2".</p> </td> </tr> <tr> <td> <p>The first codeword of MicroPDF417 is 910 or 911:</p> <p>The original Code ID "]L5" will be changed to "]C0".</p> </td> </tr> </table>	<p>The first codeword of MicroPDF417 is 903-905:</p> <p>The original Code ID "]L3" will be changed to "]C1".</p>	<p>The first codeword of MicroPDF417 is 908 or 909:</p> <p>The original Code ID "]L4" will be changed to "]C2".</p>	<p>The first codeword of MicroPDF417 is 910 or 911:</p> <p>The original Code ID "]L5" will be changed to "]C0".</p>	Disable
<p>The first codeword of MicroPDF417 is 903-905:</p> <p>The original Code ID "]L3" will be changed to "]C1".</p>					
<p>The first codeword of MicroPDF417 is 908 or 909:</p> <p>The original Code ID "]L4" will be changed to "]C2".</p>					
<p>The first codeword of MicroPDF417 is 910 or 911:</p> <p>The original Code ID "]L5" will be changed to "]C0".</p>					
MicroQR					
PDF417					
QR Code					
QR Code	Selects whether to enable QR Code decoding.	Enable			
QR Code Inverse	<p>Decide whether to decode QR Code Inverse.</p> <table border="1" style="width: 100%;"> <tr> <td> <p>Regular Only</p> <p>Decodes regular QR Code only.</p> </td> </tr> <tr> <td> <p>Inverse Only</p> <p>Decodes inverse QR Code only.</p> </td> </tr> <tr> <td> <p>Inverse Auto-detect</p> <p>Decodes both regular and inverse QR Codes.</p> </td> </tr> </table>	<p>Regular Only</p> <p>Decodes regular QR Code only.</p>	<p>Inverse Only</p> <p>Decodes inverse QR Code only.</p>	<p>Inverse Auto-detect</p> <p>Decodes both regular and inverse QR Codes.</p>	Regular Only
<p>Regular Only</p> <p>Decodes regular QR Code only.</p>					
<p>Inverse Only</p> <p>Decodes inverse QR Code only.</p>					
<p>Inverse Auto-detect</p> <p>Decodes both regular and inverse QR Codes.</p>					

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		
AIM Code ID character	<p>Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "]cm":</p> <ul style="list-style-type: none"> ▶] = Flag Character (ASCII 93) ▶ c = Code Character ▶ m = Modifier Character ▶ Refer to AIM Code ID – Code Characters. 	Disable

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

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.