CipherLab
Reference Manual

Windows Embedded Handheld 6.5

9200

Version 1.07

Copyright © 2015 CIPHERLAB CO., LTD.
All rights reserved

The software is provided under a license agreement containing restrictions on use and disclosure and is also protected by copyright law. Reverse engineering of the software is prohibited.

Due to continued product development this information may change without notice. The information and intellectual property contained herein is confidential between CIPHERLAB and the client and remains the exclusive property of CIPHERLAB CO., LTD. If you find any problems in the documentation, please report them to us in writing. CIPHERLAB does not warrant that this document is error-free.

No part of this publication may be reproduced, stored in a retrieval system, or transmitted in any form or by any means, electronic, mechanical, photocopying, recording or otherwise without the prior written permission of CIPHERLAB CO., LTD.

For product consultancy and technical support, please contact your local sales representative. Also, you may visit our web site for more information.

The CipherLab logo is a registered trademark of CIPHERLAB CO., LTD.

All brand, product and service, and trademark names are the property of their registered owners.

The editorial use of these names is for identification as well as to the benefit of the owners, with no intention of infringement.

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

IMPORTANT NOTICES

FOR USA

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

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

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

FCC Caution:

Any changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate this equipment.
This transmitter must not be co-located or operating in conjunction with any other antenna or transmitter.

Operations in the 5.15-5.25GHz band are restricted to indoor usage only.

FOR CANADA

This device complies with RSS-210 of the Industry Canada Rules. Operation is subject to the following two conditions: (1) This device may not cause harmful interference, and (2) this device must accept any interference received, including interference that may cause undesired operation.

Ce dispositif est conforme à la norme CNR-210 d'Industrie Canada applicable aux appareils radio exempts de licence. Son fonctionnement est sujet aux deux conditions suivantes: (1) le dispositif ne doit pas produire de brouillage préjudiciable, et (2) ce dispositif doit accepter tout brouillage reçu, y compris un brouillage susceptible de provoquer un fonctionnement indésirable.

Caution:

(i) The device for operation in the band 5150-5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems;

(ii) The maximum antenna gain permitted for devices in the bands 5250-5350 MHz and 5470-5725 MHz shall comply with the e.i.r.p. limit; and

(iii) The maximum antenna gain permitted for devices in the band 5725-5825 MHz shall comply with the e.i.r.p. limits specified for point-to-point and non point-to-point operation as appropriate.

(iv) Users should also be advised that high-power radars are allocated as primary users (i.e. priority users) of the bands 5250-5350 MHz and 5650-5850 MHz and that these radars could cause interference and/or damage to LE-LAN devices.

Avertissement:

Le guide d'utilisation des dispositifs pour réseaux locaux doit inclure des instructions précises sur les restrictions susmentionnées, notamment :

(i) Les dispositifs fonctionnant dans la bande 5 150-5 250 MHz sont réservés uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux;

(ii) Le gain maximal d'antenne permis pour les dispositifs utilisant les bandes 5 250-5 350 MHz et 5 470-5 725 MHz doit se conformer à la limite de p.i.r.e.;

(iii) Le gain maximal d'antenne permis (pour les dispositifs utilisant la bande 5 725-5 825 MHz) doit se conformer à la limite de p.i.r.e. spécifiée pour l'exploitation point à point et non point à point, selon le cas.

(iv) De plus, les utilisateurs devraient aussi être avisés que les utilisateurs de radars de haute puissance sont désignés utilisateurs principaux (c.-à-d., qu'ils ont la priorité) pour les bandes 5 250-5 350 MHz et 5 650-5 850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

FOR PRODUCT WITH LASER

CAUTION 

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

SPECIFIC ABSORPTION RATE (SAR) INFORMATION

The product complies with the FCC / Canada portable RF exposure limit set forth for an uncontrolled environment and are safe for intended operation as described in this manual. The further RF exposure reduction can be achieved if the products can be kept as far as possible from the user body or set the device to lower output power if such function is available.

1. FCC SAR Value (standard limit is 1.6 W/Kg)
   USA (1g): measure Max 1.33 W/ Kg
2. CE SAR Value (standard limit is 2 W/Kg)
   CE (10g): measure Max 0.63 W/ Kg

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.

CARE & MAINTENANCE

- This mobile computer is intended for industrial use. The mobile computer is rated IP65, however, damage may be done to the mobile computer if it is exposed to extreme temperatures or soaked in water.
- When the body of the mobile computer gets dirty, use a clean, wet cloth to wipe off dust and debris. DO NOT use bleaches or cleaners.
- Use a clean, non-abrasive, lint-free cloth to wipe dust off the LCD touch screen. DO NOT use any pointed or sharp objects against the surface. Always keep the LCD dry.
- If you want to put away the mobile computer for a period of time, download the collected data to a host computer, and then remove the battery pack from the mobile computer's battery compartment. Store the mobile computer and battery pack separately.
- If you encounter malfunction on the mobile computer, write down the specific scenario and consult your local sales representative.

- This phone has been tested and rated for use with hearing aids for some of the wireless technologies that it uses. However, there may be some newer wireless technologies used in this phone that have not been tested yet for use with hearing aids. It is important to try the different features of this phone thoroughly and in different locations, using your hearing aid or cochlear implant, to determine if you hear any interfering noise. Consult your service provider or the manufacturer of this phone for information on hearing aid compatibility. If you have questions about return or exchange policies, consult your service provider or phone retailer.

  To determine the compatibility of a WD and a particular hearing aid, simply add the numerical part of the hearing aid category (e.g. M2/T2=2) with the numerical part of the WD emission rating (e.g., M3=3) to arrive at the system classification for this particular combination of WD and hearing aid. A sum of 5 would indicate that the WD and hearing aid would provide normal use, and a sum of 6 or greater would indicate that the WD and hearing aid would provide excellent performance. A category sum of less than 4 would likely result in a performance that is judged unacceptable by the hearing aid user.

  WHAT IS HEARING AID COMPATIBILITY?

  The Federal Communications Commission has implemented rules and a rating system designed to enable people who wear hearing aids to more effectively use these wireless telecommunications devices. The standard for compatibility of digital wireless phones with hearing aids is set forth in American National Standard Institute (ANSI) standard C63.19. There are two sets of ANSI standards with ratings from one to four (four being the best rating): an "M" rating for reduced interference making it easier to hear conversations on the phone when using the hearing aid microphone, and a "T" rating that enables the phone to be used with hearing aids operating in the telecoil mode thus reducing unwanted background noise.

  HOW WILL I KNOW WHICH WIRELESS PHONES ARE HEARING AID COMPATIBLE?

  The Hearing Aid Compatibility rating is displayed on the wireless phone box.

  A phone is considered Hearing Aid Compatible for acoustic coupling (microphone mode) if it has an "M3" or "M4" rating. A digital wireless phone is considered Hearing Aid Compatible for inductive coupling (telecoil mode) if it has a "T3" or "T4" rating.

  The tested M-Rating and T-Rating for this device (FCC ID: Q3N-9200C) are M3 and T3.

  HOW WILL I KNOW IF MY HEARING AID WILL WORK WITH A PARTICULAR DIGITAL WIRELESS PHONE?

  You'll want to try a number of wireless phones so that you can decide which works the best with your hearing aids. You may also want to talk with your hearing aid professional about the extent to which your hearing aids are immune to interference, if they have wireless phone shielding, and whether your hearing aid has a HAC rating.

EUROPE – EU DECLARATION OF CONFORMITY

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

- EN 60950-1: 2001
- EN 60950-1/A1: 2010
- EN 60950-1/A11: 2009
- EN 60950-1/A12: 2011
  Safety of Information Technology Equipment
- EN 62479:2010
  Assessment of the compliance of low power electronic and electrical equipment with the basic restrictions related to human exposure to electromagnetic fields (10 MHz to 300 GHz)
- EN 62311: 2008 / Article 3(1)(a) and Article 2 2006/95/EC)
  Assessment of electronic and electrical equipment related to human exposure restrictions for electromagnetic fields (0 Hz-300 GHz) (IEC 62311:2007 (Modified))
- EN 50360: 2001+A1: 2012
  Product standard to demonstrate the compliance of mobile phones with the basic restrictions related to human exposure to electromagnetic fields (300 MHz - 3 GHz)
- EN 62209-1: 2006
  Human exposure to radio frequency fields from hand-held and body-mounted wireless communication devices – Human models, instrumentation, and procedures –
  Part 1: Procedure to determine the specific absorption rate (SAR) for hand-held devices used in close 13 proximity to the ear (frequency range of 300 MHz to 3 GHz).
- EN 62209-2: 2010
  Human exposure to radio frequency fields from handheld and bodymounted wireless communication devices — Human models, instrumentation, and procedures
- EN 300 330-2 V1.5.1: 2006
  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods.
- EN 300 330-1 V1.7.1: 2010
  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short Range Devices (SRD); Radio equipment in the frequency range 9 kHz to 25 MHz and inductive loop systems in the frequency range 9 kHz to 30 MHz; Part 1: Technical characteristics and test methods.
- EN 300 440-1 V1.6.1: 2010
  Electromagnetic compatibility and Radio spectrum Matters (ERM); Short range devices; Radio equipment to be used in the 1 GHz to 40 GHz frequency range; Part1: Technical characteristics and test methods.

- EN 300 440-2 V1.4.1: 2010

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

- EN 300 328 V1.7.1: 2006

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

- EN 301 893 V1.6.1: 2011

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

- EN 301 908-1 V5.2.1: 2011

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

- EN 301 511 V9.0.2: 2003

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

- EN 301 489-1 V1.9.2: 2008

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

- EN 301 489-3 V1.4.1 2002

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

- EN 301 489-7 V1.3.1: 2005

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

- EN 301 489-17 V2.2.1: 2012

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

- EN 301 489-24 V1.5.1: 2010

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

CE 0560

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

DECLARATION OF CONFORMITY

CIPHER LAB

Declaration of Conformity

Manufacturer

CIPHERLAB Co., Ltd.
12F., 333, Dunhua S. Rd., Sec. 2
Taipei, Taiwan 106, R.O.C.
Tel: +886 2 8647 1166
http://www.cipherlab.com

EC Representative's information

CIPHERLAB GmbH
Gießerallee 21, 47877 Willich
Germany
Tel: +49 2154 89777 20
http://www.cipherlab.com

Type of Equipment

Mobile Computer

Model(s) Declared

9200, 9200W, 9200C

Initial Year of Manufacture **2014**

Reference to the specification under which conformity is declared in accordance with Council Directive- 2004/108/EC (EMC), 1999/5/EC (R&TTE), 2006/95/EC (LVD), 2011/65/EU (RoHS), 1999/519/EC (EMF).

EN 300 328 V1.7.1	**EN 300 440-1 V1.6.1**
EN 300 440-2 V1.4.1	**EN 301 489-1 V1.9.2**
EN 301 489-17 V2.2.1	**EN 301 489-24 V1.5.1**
EN 301 489-3 V1.4.1	**EN 301 489-7 V1.3.1**
EN 301 511 V9.0.2	**EN 301 908-1 V5.4.1**
EN 301 908-2 V5.2.1	**EN 62479:2010**
EN 62311:2008	**EN 60950-1 : 2006+A11+A1+A12:2011**
EN 61000-3-2 :2006/A1:2009/A2:2009	**EN 61000-3-3 :2008**
EN 55024 : 2010	**EN 55022 : 2010 / AC:2011**
EN 302 291-1 V1.1.1	**EN 50360:2001 A1:2012**
EN 301 893 V1.6.1 (9200C)	**EN 302 291-2 V1.1.1**

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

Signature

Full Name *Herbie Jiang*
Title *Manager*

2014/Aug./22

RELEASE NOTES

Version	Date	Notes
1.07	Jul 28, 2015	▸ Delete description relating to CD
		▸ Delete description relating to CD
1.06	May 19, 2015	▸ Add new function for adding and deleting NTP server in 9.4 Time Synchronization
1.05	Dec 12, 2014	▸ Add note to 7.2 Configure Reader Settings
1.04	Dec 5, 2014	▸ Revise SAR value, Declaration of Conformity
		▸ Add note for preventing data loss in 1.1.3 Replace Main Battery
		▸ Add 512 MB SDRAM and \RAM Disk descriptions in 1.2 Memory and Specifications
		▸ Add 1.2.1 Internal Data Storage
		▸ Revise data restore screen in 9.3 Mobile Ghost
		▸ Add automatic time sync option in 9.4 Time Synchronization
1.03	Jun 4, 2014	▸ Update Appendix I: Supported RFID tag list
		▸ Update Appendix V: RFID Tag Default Start Byte
1.02	Mar 24, 2014	▸ Update accessory list: add Snap-on Car Charger
		▸ Add information for transmissive LCD
		▸ Update COM port for Snap-on cable RS-232 connection
		▸ Add description for 6.6.4 Activate VoIP
		▸ Update environmental specifications: add ESD information
1.01	Nov 25, 2013	▸ Add 1.1.3 Replace Main Battery
		▸ Add descriptions for Battery replacement LED in 1.1.2 Monitor Battery Level – Main Battery Low Battery Alert, 1.5.1 Status LED, Physical Specifications – Notifications
1.00	Nov 8, 2013	▸ Initial release

CONTENTS

IMPORTANT NOTICES ..... - 3 -
For USA ..... - 3 -
For Canada ..... - 4 -
For Product with Laser ..... - 5 -
Specific Absorption Rate (SAR) information ..... - 5 -
Safety Precautions ..... - 5 -
Care & Maintenance ..... - 5 -
Europe – EU Declaration of Conformity ..... - 5 -
Declaration of Conformity ..... - 10 -
RELEASE NOTES ..... - 11 -
INTRODUCTION 1
Features 2
Inside the Package 2
Accessories 2
QUICK START 5
Overview 5
Installing Battery 7
Inserting SIM Card 8
Using Memory Card 9
Power On/Off Mobile Computer 10
Connecting Headset 10
Charging & Communication 11
Using Wireless Networks 11
Using Snap-on Cable 12
Using Cradle 13
USING THE 9200 MOBILE COMPUTER 15
1.1. Battery 16
1.1.1. Battery Status Indicators 17
1.1.2. Monitor Battery Level 18
1.1.3. Replace Main Battery 21
1.1.4. Power Management 22
1.2. Memory 23
1.2.1. Internal Data Storage 23
1.2.2. Check Storage Space 24
1.3. Keypad 26
1.3.1. Keypad Settings 27
1.3.2. Alpha Key 28
1.3.3. Shift Key 28
1.3.4. Function Key 29
1.3.5. Programmable Keys 29

1.4. Touch Screen 30
1.4.1. Adjust LCD Backlight 30
1.4.2. Screen Settings 31
1.4.3. Calibration 32
1.5. Notifications 33
1.5.1. Status LED 33
1.5.2. Audio 33
1.5.3. Vibrator 34
1.6. Data Capture 35
1.6.1. Barcode Reader 35
1.6.2. RFID Reader 35
1.6.3. Digital Camera 35
1.7. Snap-on Charging & Communication Cable 36
1.8. Charging & Communication Cradle 37
LEARNING WINDOWS EMBEDDED HANDHELD BASICS 39
2.1. Getting Started 40
2.1.1. Home Screen 40
2.1.2. Title Bar 41
2.1.3. Title Bar Drop-down List 42
2.1.4. Start Screen 44
2.1.5. Device Lock 47
2.2. Input Methods 48
2.3. Managing Programs 49
2.3.1. Add a Program to Start Screen 49
2.3.2. Create a New Folder 49
2.3.3. Switch Between Active Programs 49
2.3.4. End a Program 50
2.3.5. Find a File 51
2.4. Using ActiveSync 52
2.4.1. Synchronization with Your Computer 52
2.4.2. Add/Remove Programs 53
2.4.3. Explore Device 55
2.5. Suspend & Reset 56
2.5.1. Suspension 56
2.5.2. Hardware Reset (Cold Boot) 57
CONFIGURING 9200 MOBILE COMPUTER 59
3.1. CipherLab Smart Shell 60
3.1.1. Exit CipherLab Smart Shell 62
3.2. Settings 64
3.2.1. Connections 66
3.2.2. Personal 68
3.2.3. System 69
3.3. Device Name 72
3.3.1. Change Device Name 72
3.4. Update OS Image 73
USING 802.11 RADIO 75
4.1. Wi-Fi Module 76

4.2. Control Wi-Fi via Wireless Manager 77
4.2.1. Power On Wi-Fi 77
4.2.2. Create Wi-Fi Connection 79
4.3. Control Wi-Fi via SCU 83
4.3.1. Launch SCU 83
4.3.2. Status Tab page 84
4.3.3. Configuration Tab page 85
4.3.4. Diagnostics Tab page 101
USING BLUETOOTH 109
5.1. Bluetooth Power 110
5.1.1. Power On BT via Wireless Manager 110
5.2. Search Devices 112
5.3. Pair Devices 114
5.3.1. Pair 114
5.3.2. Unpair 116
5.4. Serial Port Service 117
5.5. Object Push via Beam 121
5.5.1. Send a File 121
5.5.2. Receive a File 122
5.6. ActiveSync via Bluetooth 123
USING THE PHONE 125
6.1. Phone Power 126
6.1.1. Power On Phone via Wireless Manager 126
6.1.2. SIM Card Missing 128
6.2. Phone Application 129
6.2.1. Phone Interface 129
6.2.2. Buttons 130
6.2.3. Volume 130
6.3. Phone Settings 132
6.4. Making Phone Calls 136
6.4.1. Dial a Number 136
6.4.2. Make a Call 137
6.4.3. Answer a Call 138
6.5. Configuring GPRS Network 141
6.6. VoIP 144
6.6.1. Launch VoIP 144
6.6.2. Create VoIP Profile 145
6.6.3. VoIP Menu 147
6.6.4. Activate VoIP 149
6.6.5. Edit Profile List 151
USING READER CONFIGURATION UTILITY 153
7.1. Launch Reader Configuration 154
7.2. Configure Reader Settings 155
7.2.1. Barcode Reader 155
7.2.2. RFID Reader 159
7.2.3. Mifare Key 161

7.2.4. Data Output....163
7.2.5. Notifications....165
7.2.6. Reset to Default....166
7.2.7. Auto-start Reader Configuration....166
7.2.8. Symbology Settings....167
7.2.9. About....168
USING CAMERA....169
8.1. Camera Interface....170
8.2. Taking a Picture....171
8.3. Shooting a Video....173
8.4. Camera Settings....175
8.5. Pictures & Videos....177
8.5.1. View an Image....177
8.5.2. Playback a Video....179
8.5.3. Advanced Settings....180
MORE APPLICATIONS....183
9.1. GPS Receiver....184
9.2. Button Assignment....185
9.2.1. Reassign Physical Keys....185
9.2.2. Reset Physical Keys to Default....187
9.3. Mobile Ghost....188
9.3.1. Create Backup Image....189
9.3.2. Restore Backup Image....190
9.4. Time Synchronization....192
9.5. Signature Utility....195
9.5.1. Capturing a Signature....199
9.5.2. Viewing a Signature....201
9.5.3. Changing Signature Settings....202
SPECIFICATIONS....205
Platform, Processor & Memory....205
Communication & Data Capture....205
Electrical Characteristics....206
Physical Characteristics....206
Environmental Characteristics....207
Programming Support....207
Accessories....208
SCAN ENGINE SETTINGS....209
Symbologies Supported....210
RFID Tags Supported....212
CCD (SM1)....213
Symbology Settings....213

LASER (SE955) 217
Symbology Settings 217
Miscellaneous 222
AIM Code ID – Code Characters 222
AIM Code ID – Modifier Characters 222
2D IMAGER (SE4500DL) 227
Symbology Settings 227
1D Symbologies 227
2D Symbologies 234
Miscellaneous 235
HF RFID READER 237
RFID Tag Default Start Byte 237

INTRODUCTION

The 9200 Mobile Computer, powered by Windows Embedded Handheld 6.5, is light-weight, easy to use, and provides more powerful and handy tools to delivering flexibility in customization.

Specifically designed to work as an industrial PDA, the 9200 Mobile Computer provides rich options of data collection, voice and data communication, long-lasting working hours, and so on. Its large color transflective/transmissive TFT display guarantees ease in reading in all lighting conditions. Integrated with Bluetooth and 802.11b/g technologies, you may choose to include a GSM/GPRS module to gain greater speeds and optimal mobility. In particular, an integrated GPS receiver is made available for use with third-party location-based applications.

This manual serves to guide you through how to install, configure, and operate the mobile computer. The Care & Maintenance section is specifically crucial for those who are in charge of taking care of the mobile computer.

We recommend you to keep one copy of the manual at hand for quick reference or maintenance purposes. To avoid any improper disposal or operation, please read the manual thoroughly before use.

Thank you for choosing CipherLab products!

FEATURES

- Built tough to survive drop test and sealed against moisture/dust to industrial standard IP65
- Microsoft Windows Embedded Handheld 6.5 operating system with a powerful Qualcomm MSM7225-1 528 MHz processor
- 512 MB NAND flash memory to store OS and software programs
- 256 MB or 512 MB SDRAM to store and run programs, as well as store program data
- One microSD expansion slot for memory card up to 4GB, and SDHC is supported up to 32GB
- Three reader options — CCD, 1D laser scanner or 2D imager
- Built-in 3.0 Megapixel CMOS digital camera with white LED for flash and auto focus
- Self-definable ambidextrous side triggers
- Total wireless solution — connectivity includes Bluetooth, 802.11b/g and GSM/EDGE/ UMTS/HSPA
- A 2.8" color transflective or transmissive TFT display delivering excellent visibility in all lighting conditions
- Programmable feedback including speaker and vibrator
- Built-in tools including scan engine setting tool Reader Configuration, Mobile Ghost, Button Assignment utility, etc.
- Supports Mirror Browser, Terminal Emulation utilities
- Accessories and peripherals include Snap-on Cable, Cradle, Snap-on Car Charger etc.

INSIDE THE PACKAGE

The following items are included in the kit package. Save the box and packaging material for future use in case you need to store or ship the mobile computer.

- 9200 Mobile Computer
- Rechargeable Li-ion battery pack
- Stylus
- Snap-on Cable (USB or RS-232)
- Hand Strap
- AC Power Adaptor
- LCD Protective Film
- Quick Guide

ACCESSORIES

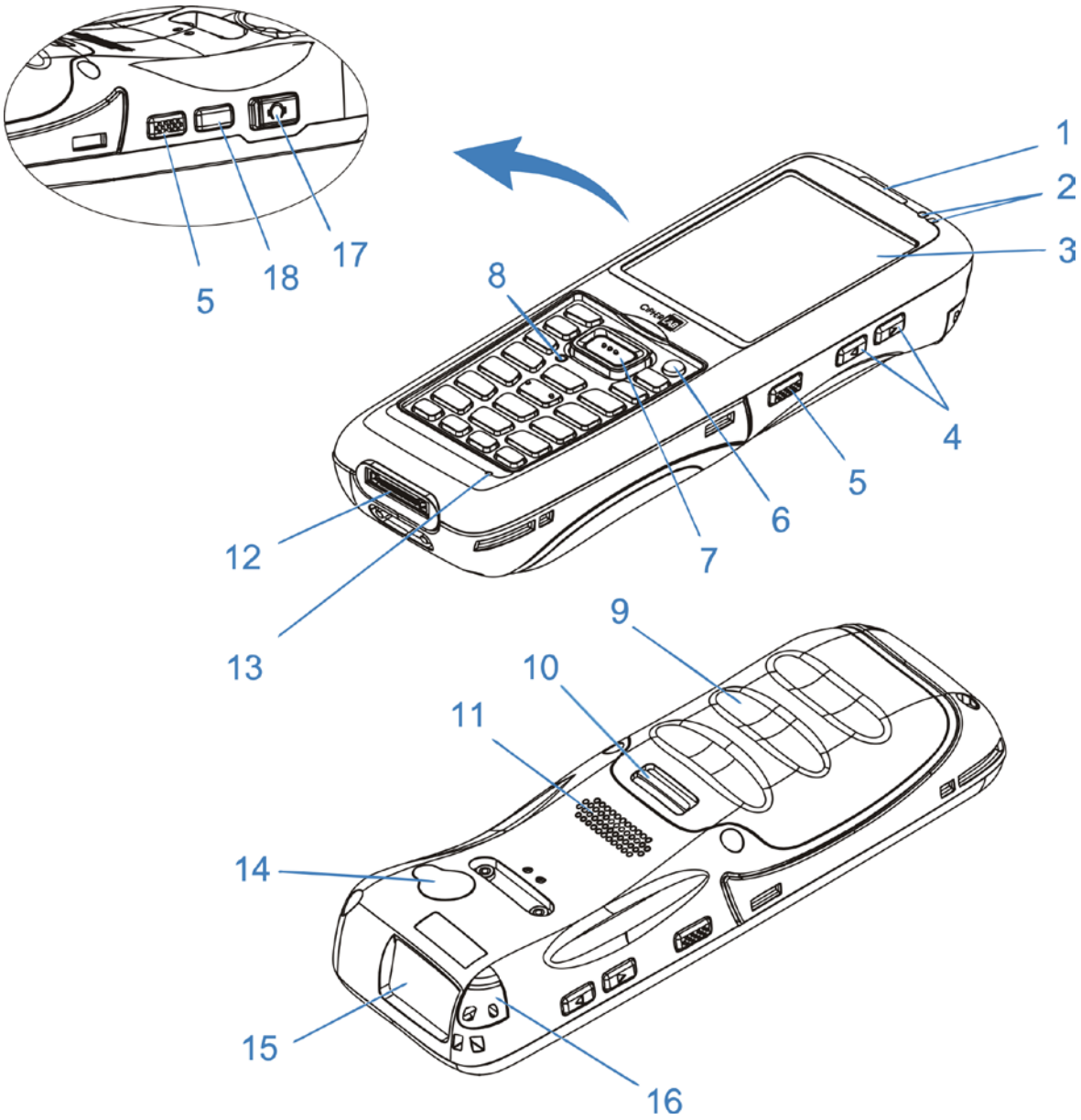
- Protective Cover
- Spare Rechargeable Battery Pack
- Snap-on Cable (USB or RS-232)
- Snap-on Car Charger
- Charging & Communication Cradle

RELATED DOCUMENTATION

Log in to GoBetween to access related documentation about the 9200 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/.

QUICK START

OVERVIEW



No.	Description	No.	Description
1	Receiver	2	Status LEDs for scanner good read (left) and battery charging (right)
3	Touch Screen	4	Volume Buttons
5	Side Triggers, user-definable	6	Power Key
7	Scan Key, user-definable	8	Reset Button
9	Battery Cover	10	Battery Cover Latch

11	Speaker	12	Charging and Communication Port
13	Microphone	14	Digital Camera
15	Scanning Window	16	Stylus Slot
17	Headset Jack	18	Application Key, user-definable

INSTALLING BATTERY

For shipping and storage purposes, the mobile computer and the main battery are saved in separate packages.

Note: Any improper handling may reduce the battery life.

1. Push down the clip on top of the battery cover to unlock it.
2. Lift up and remove the battery cover.
3. Insert the battery pack into the battery compartment at a proper angle (30°~45°) with the battery contact pins facing to the right.
4. Press the battery down into place. Make sure that the battery is snugly fit into the compartment.
5. Replace the battery cover. Fix the lower end first, then pull down the clip on top and press battery cover in until a 'click' is heard. Lock battery cover by pushing up the clip.

Warning:

(1) Check that the clip on top of the battery cover is at the "lock" position before powering on the device.

(2) For initial use, insert a charged battery, secure the battery cover in place, then press the Power key to power on the mobile computer.

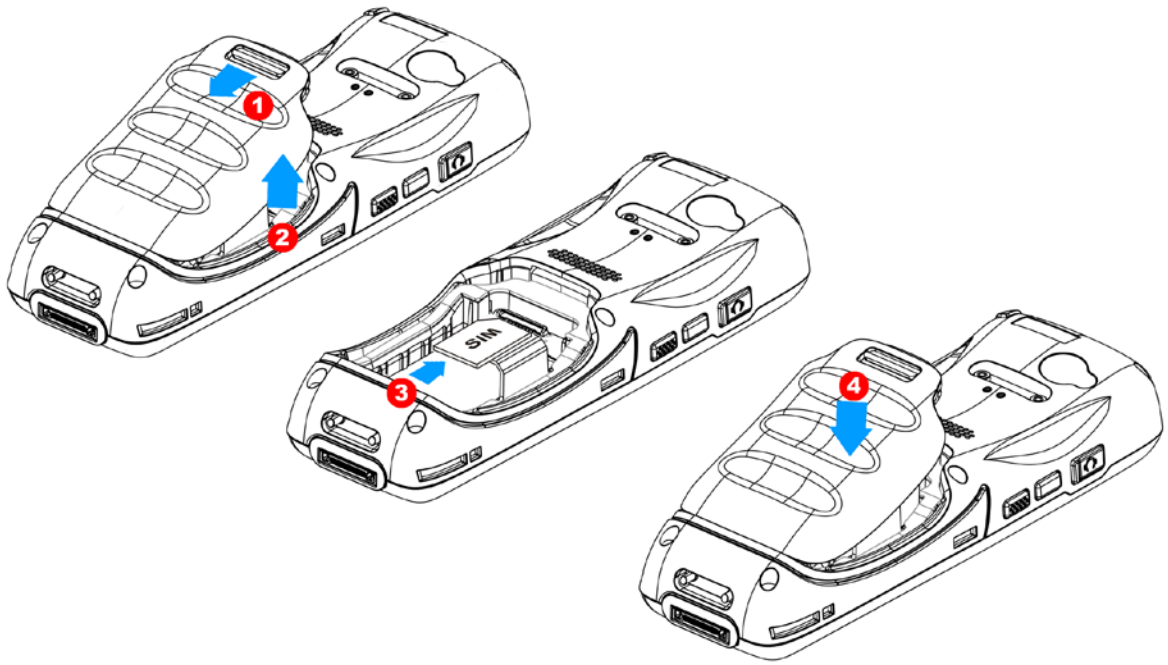
INSERTING SIM CARD

Inserting Card

1. Push down the clip on top of the battery cover to unlock it.
2. Remove the battery cover as well as the battery.
3. Insert SIM card into the SIM card slot as the icon engraved in the battery compartment shows. Push SIM card to lock it in.
4. Replace the battery cover. Fix the lower end first, then pull down the clip on top and press battery cover in until a 'click' is heard. Lock battery cover by pushing up the clip.

Removing Card

1. Push down the clip on top of the battery cover to unlock it.
2. Remove the battery cover as well as the battery.
3. Push the SIM card. It will be ejected automatically for removal.
4. Replace the battery cover. Fix the lower end first, then pull down the clip on top and press battery cover in until a 'click' is heard. Lock battery cover by pushing up the clip.



USING MEMORY CARD

The micoSD card slot is located at the top of the battery compartment.

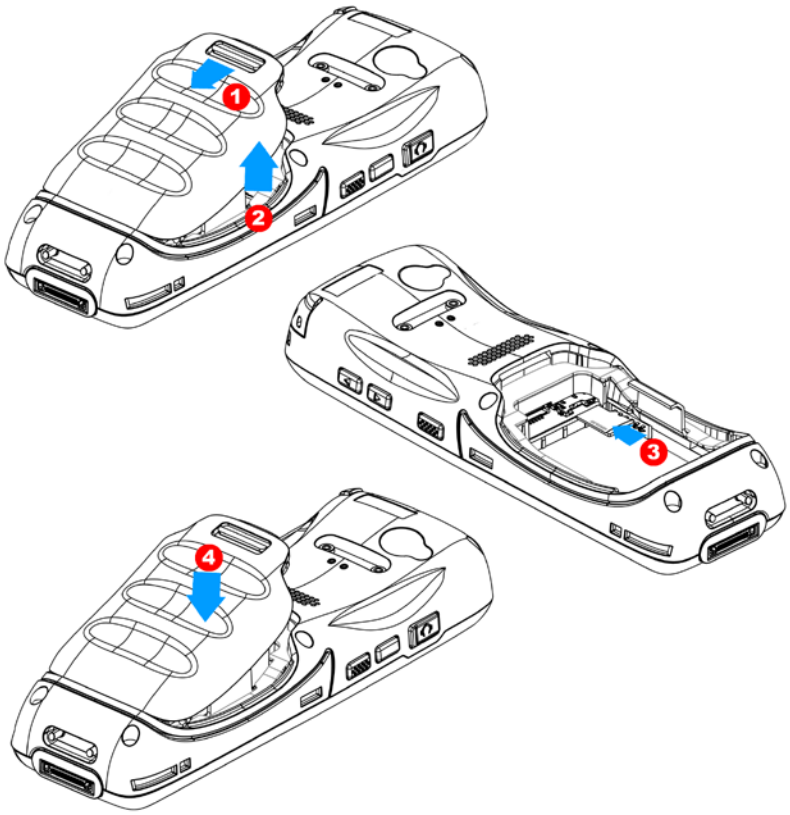
Inserting Card

1. Push down the clip on top of the battery cover to unlock it.
2. Remove the battery cover as well as the battery.
3. Insert memory card into the micoSD card slot as the icon engraved in the battery compartment shows. Push microSD card to lock it in.
4. Replace the battery cover. Fix the lower end first, then pull down the clip on top and press battery cover in until a 'click' is heard. Lock battery cover by pushing up the clip.

Removing Card

1. Push down the clip on top of the battery cover to unlock it.
2. Remove the battery cover as well as the battery.
3. Push the memory card. It will be ejected automatically for removal.
4. Replace the battery cover. Fix the lower end first, then pull down the clip on top and press battery cover in until a 'click' is heard. Lock battery cover by pushing up the clip.

Note: We suggest using Toshiba and SanDisk class 4 card types.



POWER ON/OFF MOBILE COMPUTER

POWER ON

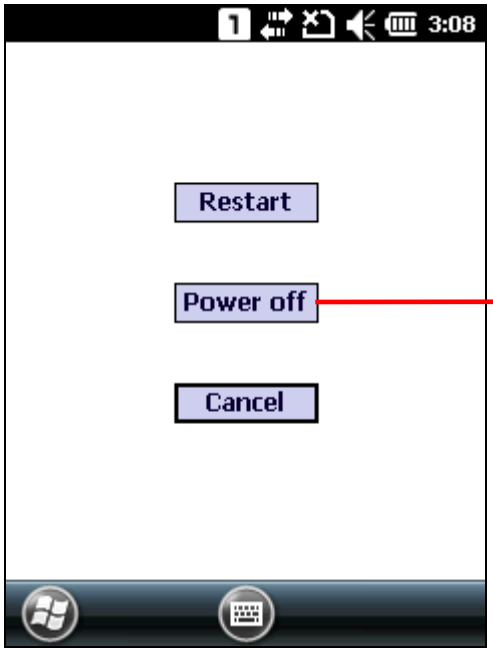
To power on the mobile computer, press and hold the power button located on the upper right of the keypad. The mobile computer opens to show the Home Screen.

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

POWER OFF

To power off the mobile computer, press and hold the power button for more than three seconds. A menu will appear on-screen to allow selection between restart and power off. Make sure all user data and tasks have been stored before tapping **Power off**.

Note: See Internal Data Storage to check whether data will be retained when the mobile computer is powered off.



CONNECTING HEADSET

The headset jack is located on the left side of the mobile computer. You can use the headset for audio playback or communication via the phone application, audio instant messaging, etc.

1. Flip up the rubber cover.
2. Connect the headset to the headset jack.
3. Replace the rubber cover.

Note: Make sure you use a headset that follows the CTIA standard.

CHARGING & COMMUNICATION

The main battery may not be charged to full for shipment. When you first receive the kit package, you will need to charge the main battery to full before using the mobile computer. You may use the Snap-on Cable or Charging & Communication Cradle along with a power adapter to charge the mobile computer, or connect it to your PC for data transmission. Alternatively, you may use the Snap-on Car Charger to charge the mobile computer in your vehicle.

Charging Time

- Main battery: The main battery powers the mobile computer to work. It takes approximately 4 hours to charge an empty main battery to full. The charging LED above the screen (located on the right) will light up in red while charging and will turn green when charging is complete.
- When the main battery is removed, RTC retention will be maintained.
- Backup battery: The backup battery is mounted on the main board. Its role is to temporarily keep the mobile computer in suspension when the main battery is drained out so data in DRAM will be retained. The backup battery takes approximately 3.5 hours to charge to full by the main battery or power adapter.

Charging Temperature

- It is recommended to charge the battery at room temperature (18°C to 25°C) for optimal performance.
- Battery charging stops when ambient temperature drops below 0°C or exceeds 40°C.

Operation on Battery Power

- When 802.11b/g, GSM/GPRS, and Bluetooth are all enabled on battery power, the main battery charge will drop down substantially.
- In order to prevent system shut down after the battery is drained out, we suggest that you keep a fresh battery for replacement at all times or connect the mobile computer to an external power.

USING WIRELESS NETWORKS

The mobile computer supports widely applied wireless technologies, Bluetooth and 802.11b/g, and is able to send/receive data in real time in an efficient way. Select GSM/GPRS modules embedded for a total wireless solution for data and voice communication.

USING SNAP-ON CABLE

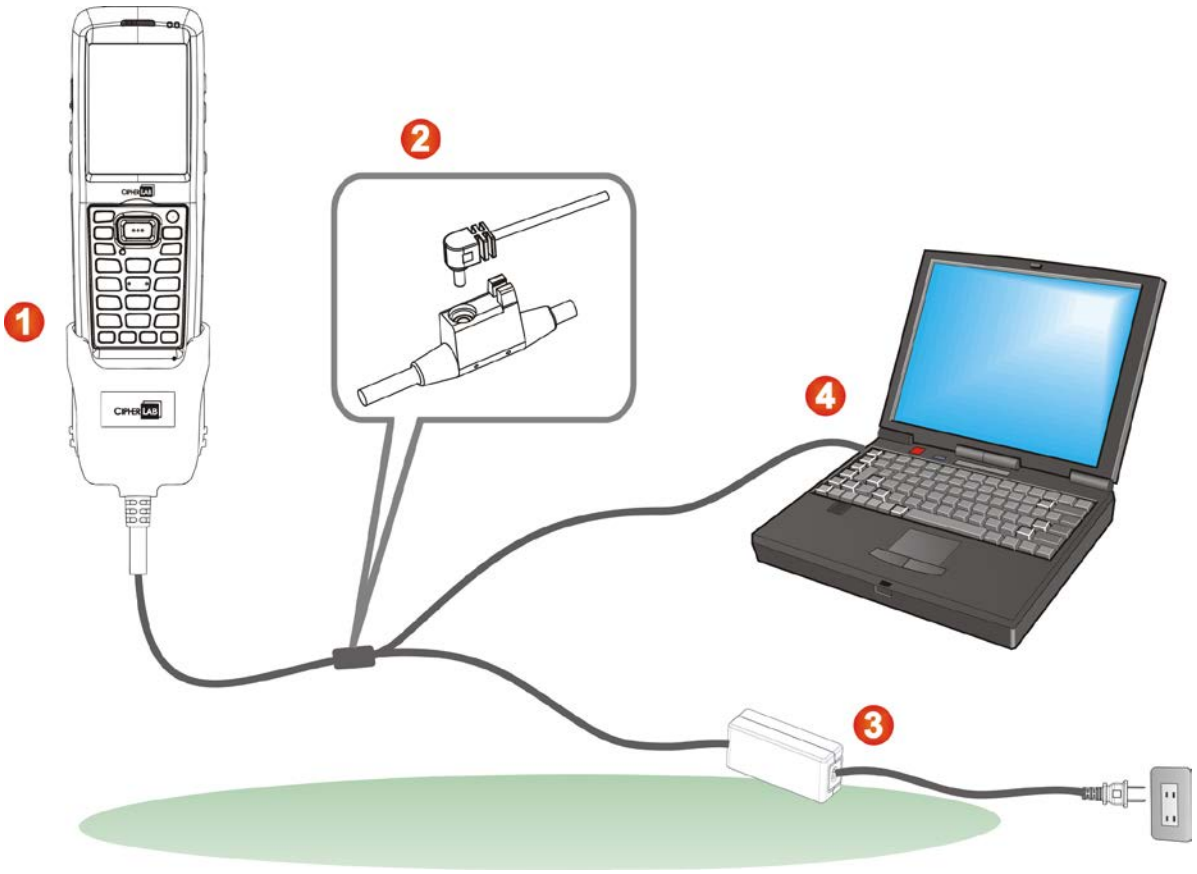
1. Fasten the Snap-on Charging and Communication Cable to the lower end of the mobile computer.
2. Insert the adapter DC plug into the power jack on the Snap-on Cable.
3. Connect one end of the power cord to the adaptor, and the other end to an electrical outlet. (Use power cord suitable for your country.)

   The charging LED (left) on the mobile computer lights red while charging. The LED will turn green when charging is completed.
4. If necessary, connect the USB/RS-232 end of the cable to your PC for data transmission.

Note:

(1) You may connect the Snap-on Cable to your PC for simultaneous data communication and charging.

(2) The mobile computer uses COM4 for serial transmission via RS-232.



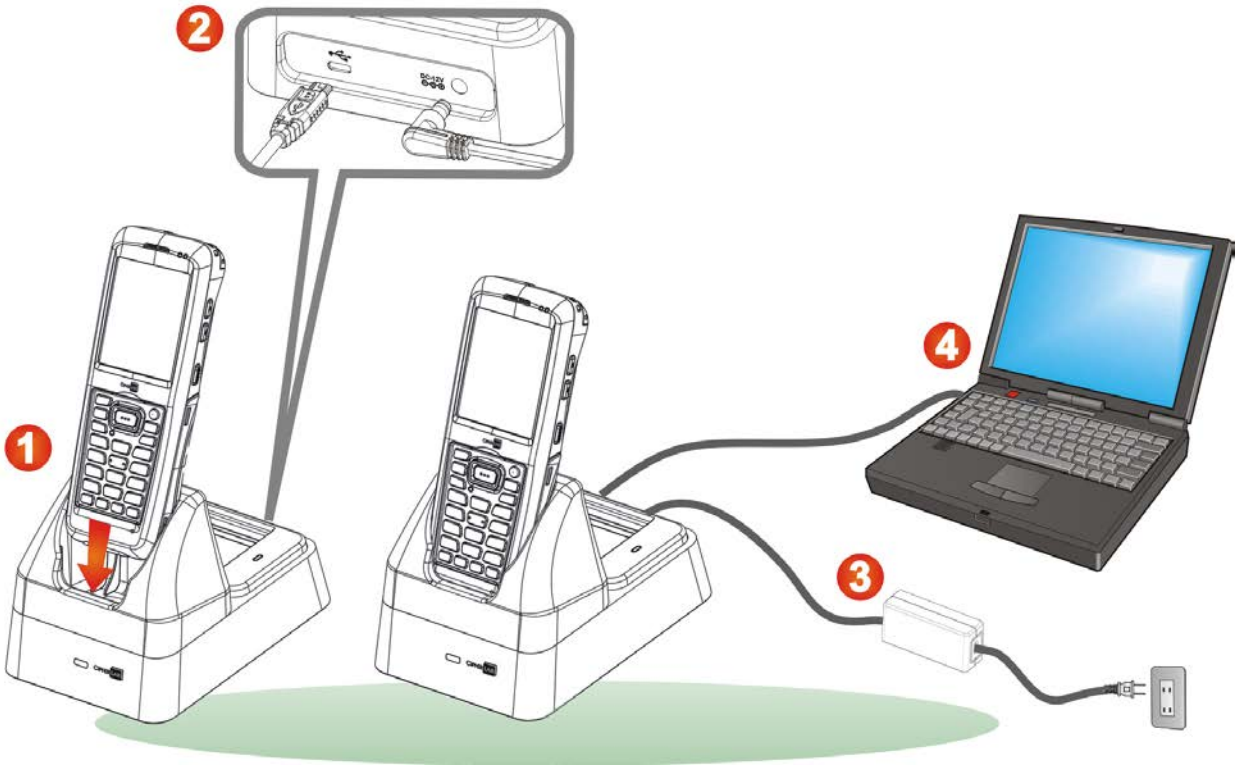
9200 LED Indicator	Status	Description
Charging	Red, solid	Charging the mobile computer
	Green, solid	Charging complete

USING CRADLE

1. Seat the mobile computer on the Charging and Communication Cradle.
2. Insert the adapter DC plug into the power jack on the back of the Cradle.
3. Connect one end of the power cord to the adaptor, and the other end to an electrical outlet. (Use power cord suitable for your country.)

   The charging LED (left) on the mobile computer lights red while charging. The LED will turn green when charging is completed.
4. If necessary, connect the Cradle and your PC with the USB cable provided for data transmission.

Note: You may connect the Charging & Communication Cradle to your PC for simultaneous data communication and charging.



9200 Cradle LED Indicator	Status	Description
Charging	Red, solid	Charging the mobile computer
	Green, solid	Charging complete
	Red, blinking (2s:2s)	Charging error

Chapter 1

USING THE 9200 MOBILE COMPUTER

This chapter explains the features and usage of the mobile computer.

IN THIS CHAPTER

1.1 Battery 16
1.2 Memory 23
1.3 Keypad 26
1.4 Touch Screen 30
1.5 Notifications 33
1.6 Data Capture 35

1.1. BATTERY

- Main Battery

  The mobile computer is powered by a rechargeable 3.7 V/3300mAh Li-ion battery pack, and it takes approximately 4 hours to charge it to full from the power adaptor or approximately 8 hours using the Snap-on Cable (at 500mA). However, the charging time may vary by working condition.

- Spare Battery

  A spare battery pack is provided as an accessory. We recommend keeping a fully charged spare battery at hand in order to replace the main battery when it is nearly drained out.

- Backup Battery

  Settled on the main board is a backup battery that keeps the mobile computer in suspension when the main battery is depleted. The backup battery is a 70 mAh rechargeable Li-ion battery, and can retain data in the DRAM for 30 minutes when it is fully charged (as long as wireless modules on the mobile computer are inactive). The backup battery can be charged by the main battery or the power adapter, and takes approximately 3.5 hours to charge to full. See Backup Battery Level for how to check its charging status.

Warning:

(1) The battery cover must be secured in position. If not, the mobile computer cannot turn on by pressing the power key or wake up by pressing the scan key.

(2) For a new battery, make sure it is fully charged before using.

(3) To avoid data loss, when replacing the main battery, make sure you replace it with a well-charged spare battery pack. Always prepare a spare battery at hand, especially when you are on the road.

1.1.1. BATTERY STATUS INDICATORS

The battery pack is the only power source for the mobile computer to work. Therefore, when the main battery level goes low, you need to replace the battery pack with a charged one or charge it as soon as possible. Most of all, you should backup important data on a regular basis.

By checking the battery status icon, you can tell the battery level remaining in the main battery – the more the white bars, the more power in the main battery. Tap the top of the screen to expand the title bar pull-down list, and then tap the battery icon to quickly access the Power Settings. Refer to Title Bar Drop-down List.

Alternatively, you may go to **Start Screen** | **Settings**, and tap **Power**.

Battery Icon	Description
	External power source is connected and main battery is charging.
	Main battery level is 80% ~ 100%.
	Main battery level is 60% ~ 79%.
	Main battery level is 40% ~ 59%.
	Main battery level is 20% ~ 39%.
	Main battery level is very low (0% ~ 19%) and needs charging immediately.

Note: When the mobile computer is fully charged and battery level reaches 100%, the battery icon will change from  to  to indicate charging is completed.

Warning:

(1) Once the battery level drops below 20%, the low battery notification will be displayed on the screen.

(2) Data loss with RAM may occur when battery level is low. Always save data before the battery runs out of power or keep a fresh battery for replacement.

(3) 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.

1.1.2. MONITOR BATTERY LEVEL

MAIN BATTERY LEVEL

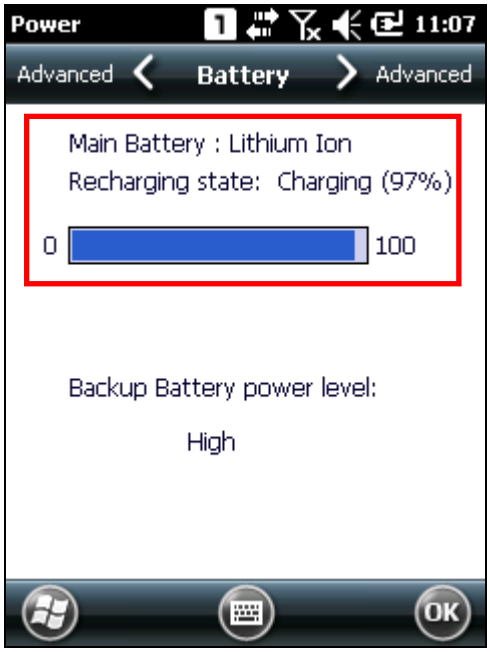
The main battery is the only source that feeds the mobile computer to work. It also supplies the backup battery on the main board in order to retain the data stored in DRAM. When main battery level gets low, recharge it or replace it as soon as possible. Most critically, back up the important data from time to time to protect your work.

To check main battery level:

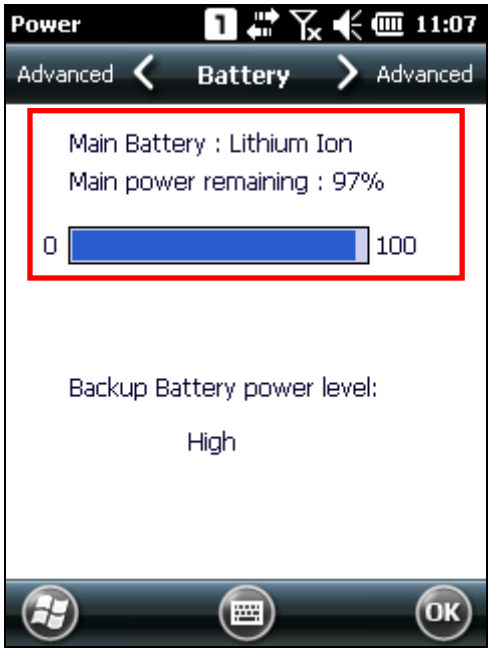
1. Tap **Start Screen** | **Settings** | **Control Panel** | **Power**.

   Battery level is displayed in a horizontal bar. Battery level percentage is also shown to provide a clear grasp of the remaining battery power.

   Main battery is being charged (external power connected).

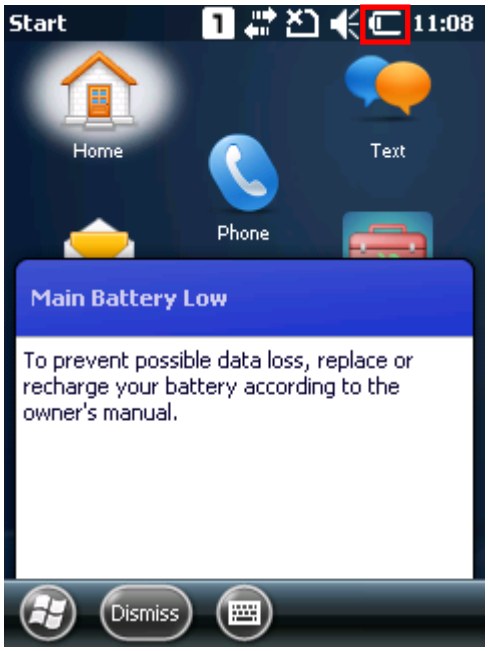
   Mobile computer is running on battery power. Remaining power of the main battery is shown.

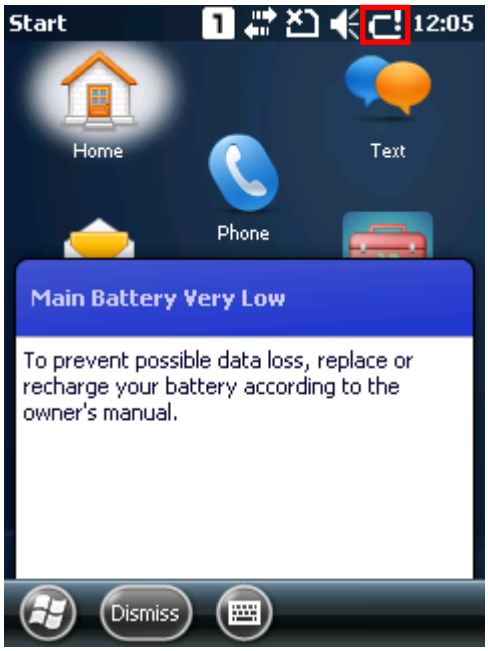
   

LOW BATTERY ALERT

When main battery level drops to 20%, the mobile computer prompts “Main Battery Low” warning. When further reduced to 5%, the mobile computer prompts “Main Battery Very low” to solicit your immediate action. A warning icon on the title bar will also show to notify users that main battery level is running low. When this occurs, either connect the mobile computer to an external power source, or replace the main battery pack as soon as possible.

To replace the main battery pack, see Replace Main Battery.



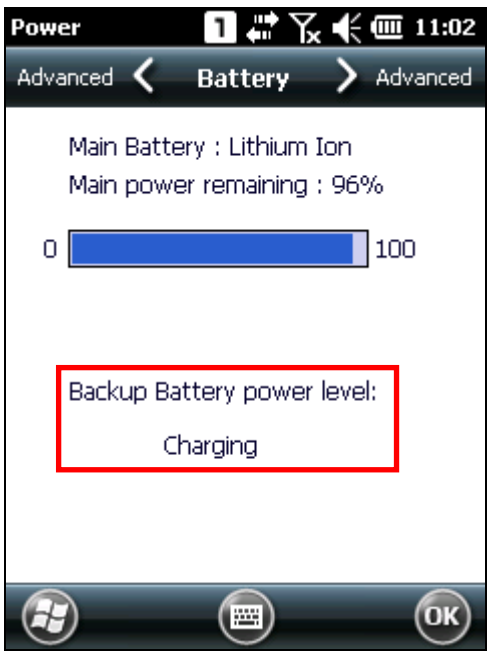


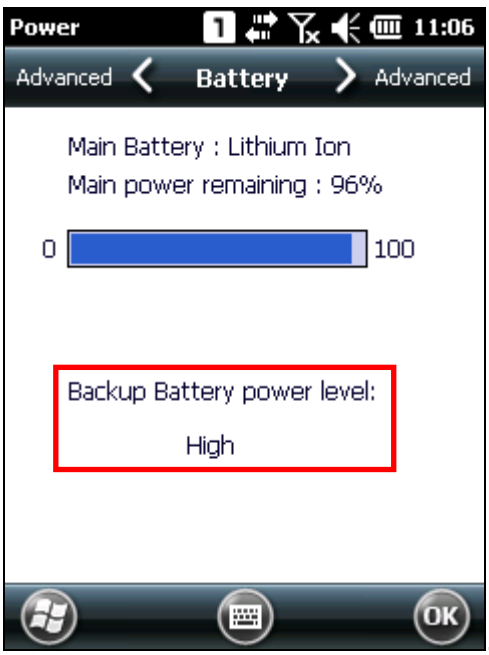
BACKUP BATTERY LEVEL

The backup battery can be charged through the main battery pack or the power adapter. To check the backup battery level:

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

   Backup battery level is summarized on the lower half of the screen.





Available backup battery level descriptions are:

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

STATUS ICONS

When the backup battery level drops to “Low”, the title bar delivers a backup battery icon as a warning. When this happens, make sure the main battery is well charged; if not, plug in the power adapter immediately to prevent battery drain out and thus unexpected system shutdown and data loss.

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

LOW BATTERY ALERT

Backup battery is rechargeable by the main battery pack. Low backup battery puts DRAM data in great danger. Always save data from time to time or keep a fully charged battery at hand for replacement.

Once backup battery drains out completely, the data in DRAM is gone. Any data that has not been saved will be lost!

1.1.3. REPLACE MAIN BATTERY

When main battery level is low, follow the steps below to replace the main battery. It is critical that the following steps are taken in order to prevent data loss.

I) Check the Backup Battery Level on the mobile computer. Make sure it is not drained out.

2) Remove the battery cover on the back of the mobile computer.

   The left LED on the front of the mobile computer will light up in red for several seconds. The mobile computer will enter suspension.

3) After the red LED goes off, proceed to remove the main battery.

   DO NOT remove the main battery if the LED is still blinking, or data loss will occur!

4) Insert a charged main battery pack, and replace the battery cover.

5) Press the power button to wake up the mobile computer.

Note:

(1) If the main battery is removed before the red LED goes off, the mobile computer will shut down, and all unsaved data will be lost.

(2) Before replacing the main battery, make sure the backup battery is well-charged in order to avoid unnecessary data loss.

(3) After removing the main battery, insert a well-charged battery as soon as possible.

(4) If the mobile computer is already in suspension mode, removing the battery cover will wake up the system and cause the red LED to light up. Wait for the red LED to go off before removing the main battery.

1.1.4. POWER MANAGEMENT

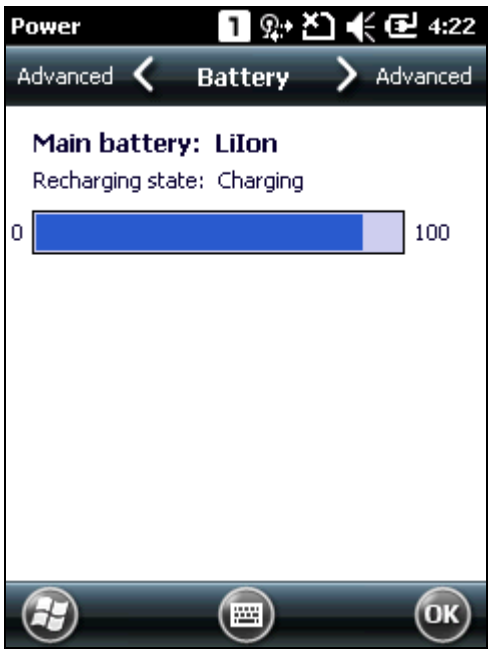
For any portable device, power management is a critical issue especially when you are on the road. Below are some tips to help you save battery power.

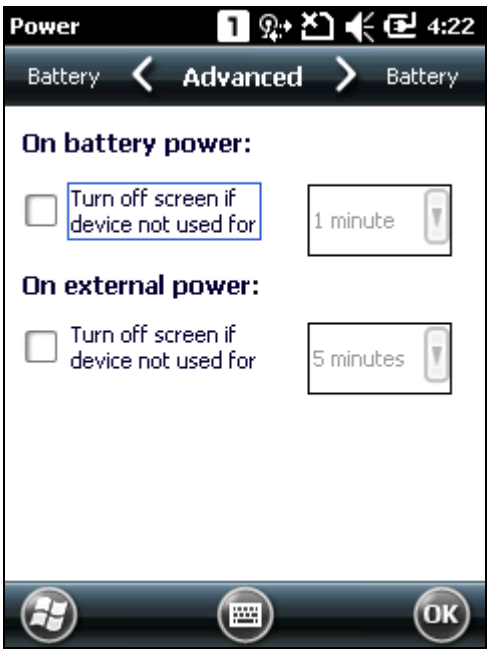
Warning: Using backlight, wireless connectivity, and peripheral devices while on battery power will substantially reduce battery power.

- Bring a second battery pack on the road.
- End wireless connections such as Bluetooth, 802.11b/g or GSM/GPRS which are not in use.
- Shorten the Backlight turn off time, go to **Start Screen** | **Settings** | **System**, and tap **Screen Backlight**. Refer to Adjust LCD Backlight.
- Disable key light function, go to **Start Screen** | **Settings** | **System**, and tap **Keypad Backlight** to select **Always Off** to disable keypad Backlight function.
- Go to **Start Screen** | **Settings**, and tap **Power**.

  In the **Battery** tab, you may monitor the charging status.

  In the **Advanced** tab, you may specify automatic turn-off times for the mobile computer to conserve power. When the screen is turned off, the system is in standby mode, meaning it is ready for use but not in use.





1.2. MEMORY

- Flash Memory (ROM)

  512 MB flash memory for storing OS (Windows Embedded Handheld 6.5) and custom application programs. A portion of the memory is referred to as Flash Disk (folder), which can store data and programs that you wish to retain even after hardware reset.

- Random-access Memory (RAM)

  Optional 256 MB or 512 MB RAM for storing and running programs, as well as storing program data. On devices with 512 MB RAM, an additional folder is available on RAM for storing user files.

- Expansion Slot

  The mobile computer is equipped with one microSD card slot, which is user accessible. High capacity memory card (microSDHC) is supported as well.

1.2.1. INTERNAL DATA STORAGE

The table below compares the internal storage spaces on the mobile computer.

Device	Storage path	Description
9200 with 256 MB SDRAM	\My Device	▸ Data is retained when mobile computer is powered off, suspended, reset, restarted, or when the main battery is replaced ▸ Data stored under \USER_DATA is retained when mobile computer goes through factory reset
9200 with 512 MB SDRAM	\My Device	▸ Larger storage size ▸ Slower data transfer rate ▸ Data is retained when mobile computer is powered off, suspended, reset, restarted, or when the main battery is replaced ▸ Data stored under \USER_DATA is retained when mobile computer goes through factory reset
	\RAM Disk	▸ Smaller storage size ▸ Much faster data transfer rate ▸ Data is retained when mobile computer is suspended, reset, restarted, or when the main battery is replaced ▸ Data is NOT retained when mobile computer is powered off

CAUTION OF DATA LOSS

When the main battery is removed or drained, the backup battery on the main board takes over to supply the mobile computer and keep it in suspension. A fully charged backup battery will retain the data in the RAM for 30 minutes. When the backup battery is drained out as well, only the contents of RTC will be retained. All other unsaved data will be lost.

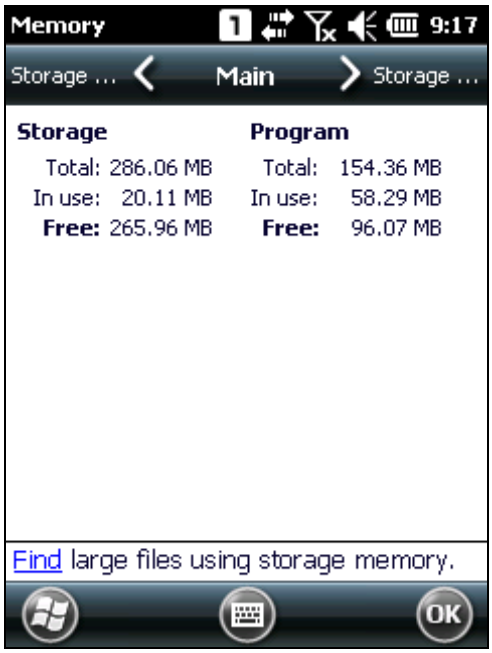
If you want to put away the mobile computer for a couple of days, you should be aware that data loss occurs when the main battery and backup battery discharges completely. Therefore, it is necessary to backup data and files before putting away the mobile computer.

1.2.2. CHECK STORAGE SPACE

Go to **Start Screen** | **Settings** | **System**, and tap **Memory** to check usage of the internal and external storage spaces.

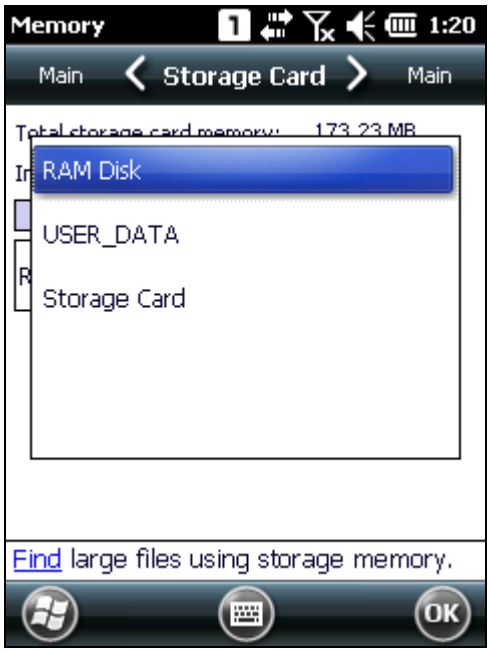
MAIN TAB PAGE

Storage memory refers to the memory allocated for file and data storage, while program memory refers to the memory allocated for running programs.



STORAGE CARD TAB PAGE

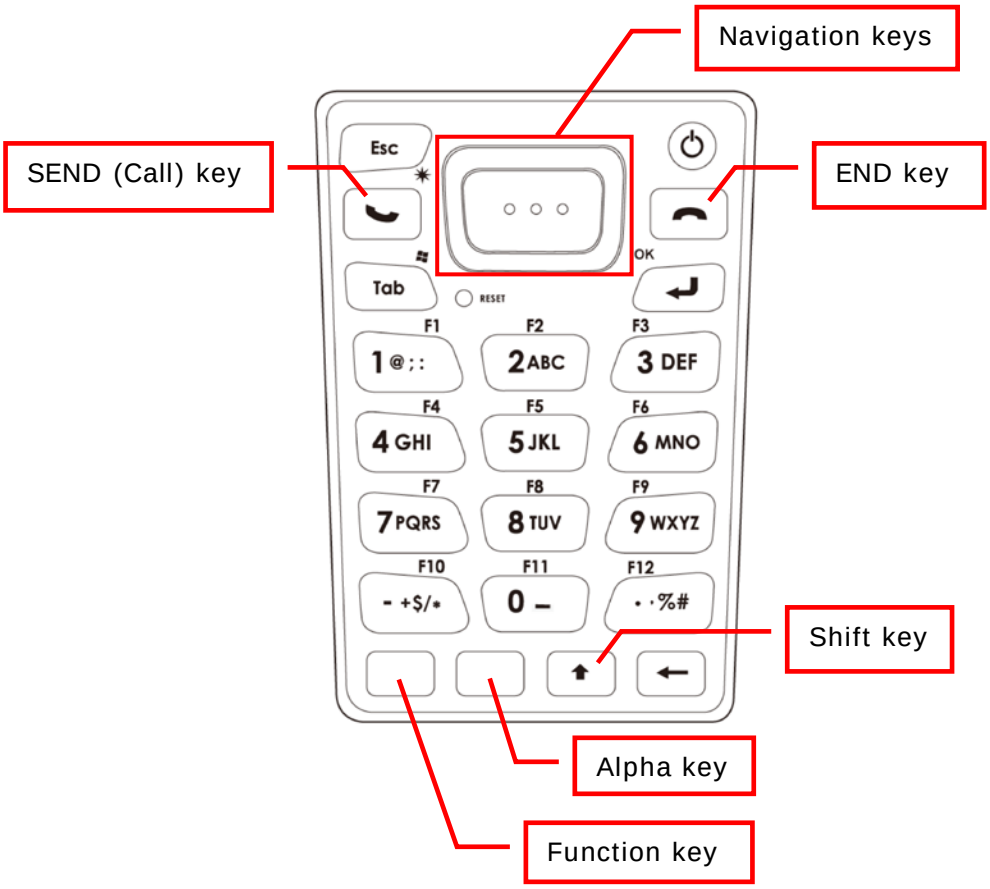
This tab page provides storage space information of the Flash Disk folder, RAM Disk folder (in the case of a 512 MB SDRAM device) and storage card (in case a memory card is installed). The Flash Disk folder is part of the onboard flash memory, while the RAM Disk folder is part of the SDRAM. Because the flash memory is non-volatile, data or programs stored in this folder will not be erased after shutdown or hardware reset. However, the data stored under the RAM Disk folder will be lost when the mobile computer is powered off.





1.3. KEYPAD

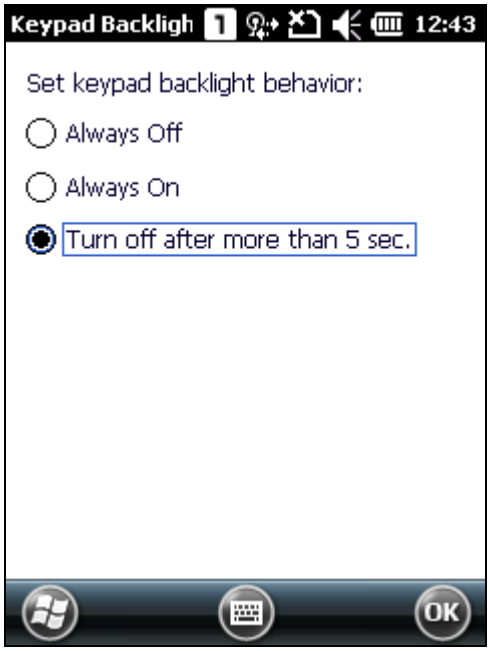
The Alphanumeric keypad includes alphanumeric keys, call/end keys, navigation keys, function keys, and so on. This keypad is set to numeric mode by default.



1.3.1. KEYPAD SETTINGS

Go to **Start Screen** | **Settings** | **System**, and tap **Keypad Backlight** to configure related settings.

The keypad backlight is set to be automatically turned on for 5 seconds when any key is pressed. Alternatively you may have it always turned off or turned on instead. It is suggested to turn on the keypad backlight while working in a dark area; however, using backlight while on battery power will substantially reduce battery power.



1.3.2. ALPHA KEY

This alphanumeric keypad is set to numeric mode by default. The Alpha key [α] serves as a switch key between numeric and alpha (lower-case alphabetic) input modes.

Note: Press [α] key to switch between numeric and lower-case alphabetic modes.

The alpha icon will appear on the status bar with a sequence as shown below.

Status Icon	Alpha Key	Input Mode
1	---	Numbers
a	Press [α] one time	Lower-case alphabetic characters

Note:

(1) Under a mode, use the Shift key [⇧] to enter ALPHA (upper-case alphabetic) character (A or A) mode.

(2) If you are using the on-screen keyboard, tap CAP (Caps Lock) to switch upper-case and lower-case alphabetic modes.

1.3.3. SHIFT KEY

Status Icon	Shift Key	Input Mode
1 → 1	Press [⇧] one time	The Shift key [⇧] modifies the next key pressed depending on the input mode. (1) In numeric mode (1), it will modify the next key pressed. (2) In alpha (lower-case alphabetic) mode (a), it will show a single upper-case character after pressing Shift key [⇧] one time. For example, input “ABC”, it will show “Abc.
a → A		
1 → 1	Press [⇧] two times (enter Shift Lock Mode)	Pressing Shift key [⇧] two times will lock the present input mode. (1) In numeric mode (1), it will lock numeric mode. (2) In alpha (lower-case alphabetic) mode (a), it will lock upper-case alphabetic mode (= Caps Lock). For example, input “ABC”, it will show “ABC”.
a → A		

Note: It is not necessary to long press the Shift key [⇧].

1.3.4. FUNCTION KEY

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

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

Note: It is not necessary to long press the [Fn] key.

The default [Fn] key combinations are defined as below:

Key Combination	Action
[Fn], [1] = F1	Softkey 1
[Fn], [2] = F2	Softkey 2
[Fn], [3] = F3	Talk
[Fn], [4] = F4	Minimize current active window
[Fn], [5] = F5	n/a
[Fn], [6] = F6	Volume Up
[Fn], [7] = F7	Volume Down
[Fn], [8] = F8	*
[Fn], [9] = F9	#
[Fn], [0] = F10	Record

Note: Press the [Fn] key first, and then press the second key for a specific function.

1.3.5. PROGRAMMABLE KEYS

The following keys are user-definable. They can be defined to serve as another key or to serve as a shortcut to launch a specific program. See Button Assignment utility for more details.

- Two side triggers
- Application key
- [-] (Hyphen key)
- [.] (Period key)

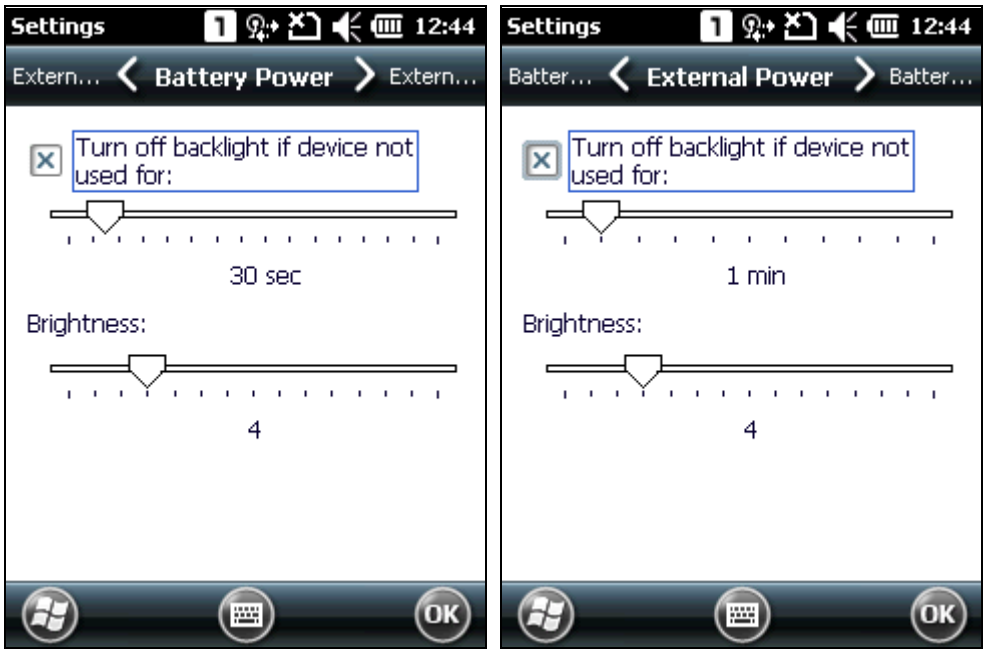
1.4. TOUCH SCREEN

The mobile computer comes with a 2.8" TFT graphic LCD with 240 by 320 pixels resolution (QVGA). The LED backlight of the screen, which helps ease reading under dim environments, can be controlled manually and automatically.

Warning:	Using backlight while on battery power will substantially reduce battery power. It is suggested to dim the backlight while working in a well-lit area or automatically turn off the mobile computer when not in use.

1.4.1. ADJUST LCD BACKLIGHT

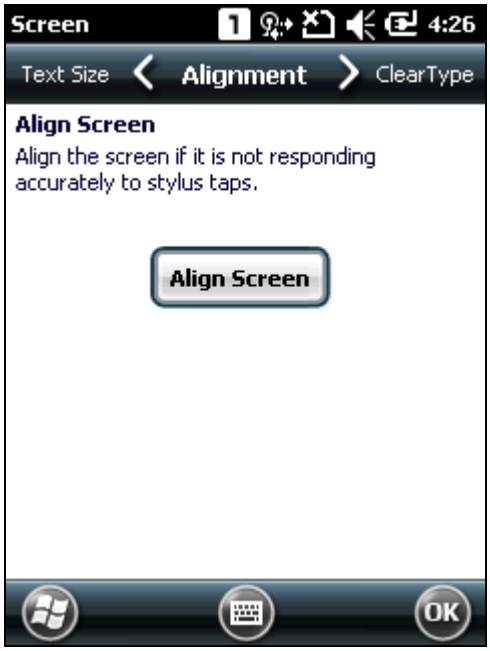
Go to **Start Screen** | **Settings** | **System**, and tap **Screen Backlight** to configure related settings. In the Backlight/External Power configuration screen, you can select the **Turn off backlight if device is not used for** check box to disable the backlight function, and select the time from the related drop-down list to control the backlight disabled time. You can also set the backlight brightness by dragging the slider to the right (to increase brightness) or left (to reduce brightness).

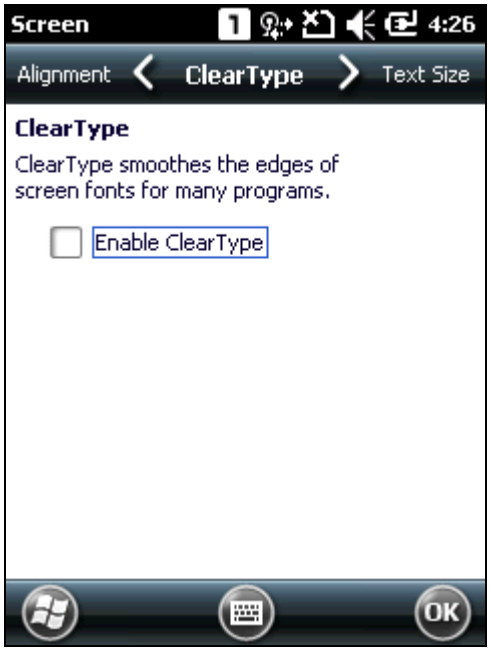


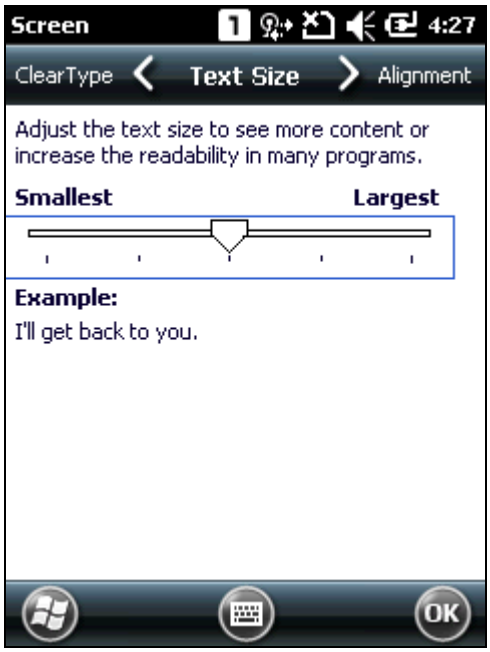
1.4.2. SCREEN SETTINGS

The LCD is also a touch screen that can be calibrated through screen alignment.

Go to **Start Screen** | **Settings** | **System**, and tap **Screen** to configure related settings. You may re-calibrate the touch screen, smooth the font edges or adjust the text size displayed on the screen if necessary.







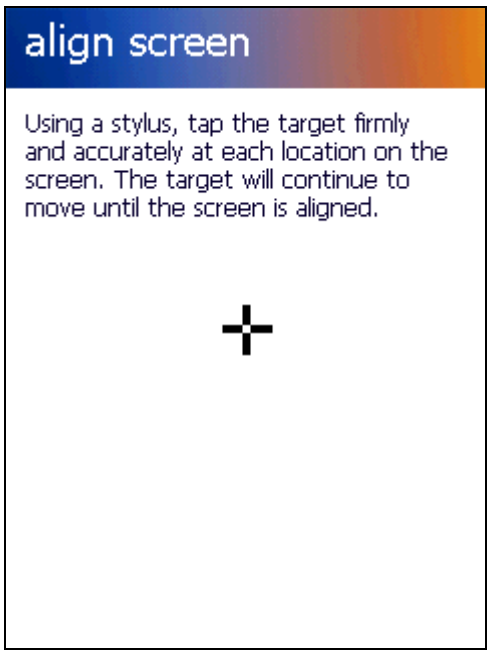
Warning: DO NOT use any pointed or sharp objects to move against the surface of the screen.

1.4.3. CALIBRATION

The mobile computer's touchscreen needs to be calibrated after a period of use to ensure its accuracy. Calibration will align a set of coordinates on the touch panel and LCD underneath.

Tap **Settings** | **System** | **Screen** to open the Alignment tab page. Tap **Align Screen** to start touchscreen calibration. Use the stylus to tap the crosshairs one by one to perform calibration.

When calibration is completed, the alignment screen will close.



1.5. NOTIFICATIONS

1.5.1. STATUS LED

Two LED indicators located above the touch screen provide information about charging status, scanner light beam, and scanner "Good Read" during data collection.

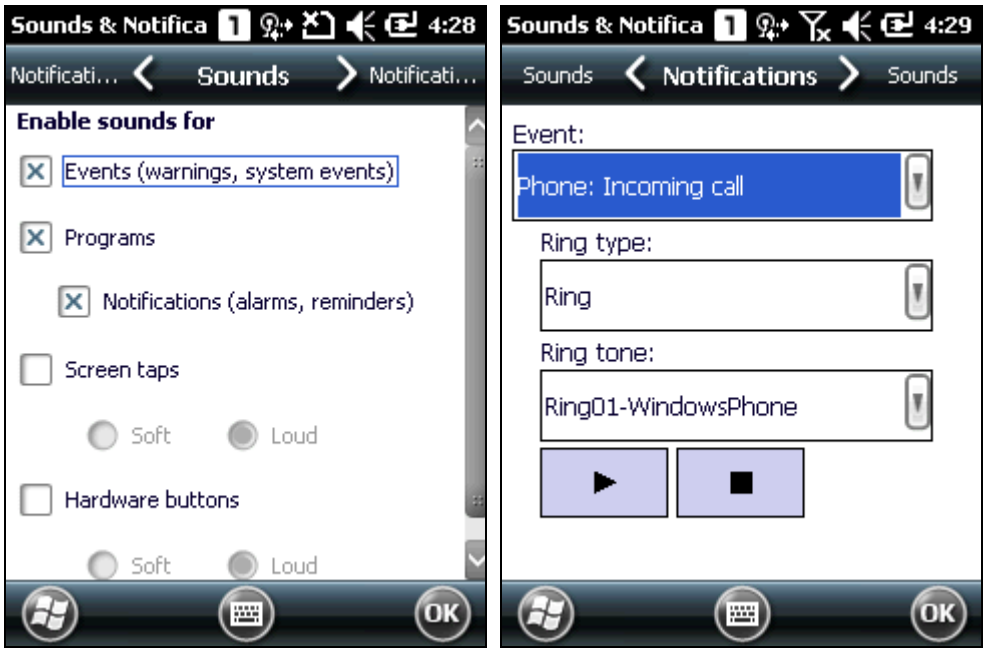
LED Indicators		Status	Description
Left	Charging	Green, solid	Charging complete
		Red, solid	Charging the mobile computer
		Red, solid for 8 sec, then flashing	Charging error (for instance, battery not in place)
	Scanner decode	Green, flash once	Good read
	Battery replacement	Red, on for several seconds	Ready for replacing main battery when light turns off
Right	Scanner beam	Orange, on while scan key is pressed	Scanner laser beam sent out

Note: For Scanner decode and Scanner beam LED to function, LED notification must be enabled in Reader Configuration. See Enable LED Notification.

1.5.2. AUDIO

The speaker is used to play sounds for events in Windows and programs, or play audio files such as .WAV files. In addition, it can be programmed for status feedback. In noisy environments, you may consider connecting a CTIA headset instead. A headset jack is provided on the left side of the mobile computer, which is a 3.5 mm DIA stereo earphone jack. The mobile computer also supports using Bluetooth headsets.

Go to **Start Screen** | **Settings**, and tap **Sounds & Notifications** to configure related settings.



1.5.3. VIBRATOR

The mobile computer is integrated with a vibrator, which is software programmable for tactile feedback. This can be helpful when working in noisy environments.

Tap the top of the screen to open the title bar drop-down list, and then tap the volume setting icon to change the system volume or phone ringing volume. You may mute it or have it set to vibrate instead.



Note: You may switch the volume mode between On, Vibrate and Off in the Volume control screen. The volume adjustment slider bar is only available for adjustment in volume “On” mode.

1.6. DATA CAPTURE

1.6.1. BARCODE READER

A selection of scan engines is available for delivering flexibility to meet different requirements. Depending on the scan engine integrated, the mobile computer is capable of scanning barcodes of a number of symbologies that are enabled by default while running the ReaderConfig.exe utility. If you need to scan barcodes that are encoded in a different symbology, enable the symbology first.

1.6.2. RFID READER

By selection, the mobile computer provides an RFID reader for decoding RFID tags. To ready the mobile computer to read such tags, select the RFID label in the Reader Configuration Utility.

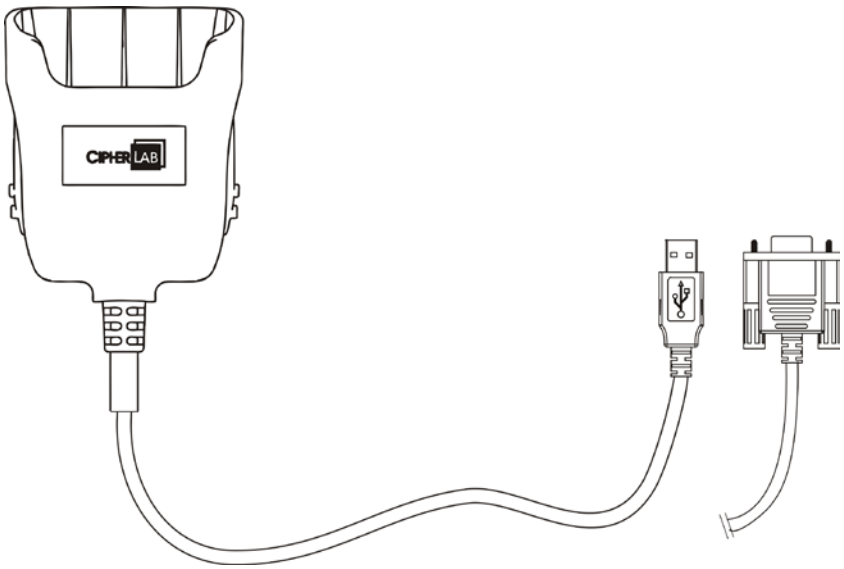
1.6.3. DIGITAL CAMERA

An integrated 3.0 megapixel CMOS camera in the mobile computer is specifically designed for collecting image data. We provide an image capture utility that is specifically designed to turn on the camera and capture images.

1.7. SNAP-ON CHARGING & COMMUNICATION CABLE

The Snap-on Charging & Communication Cable provides a convenient way to charge your mobile computer and also connect it to your PC.

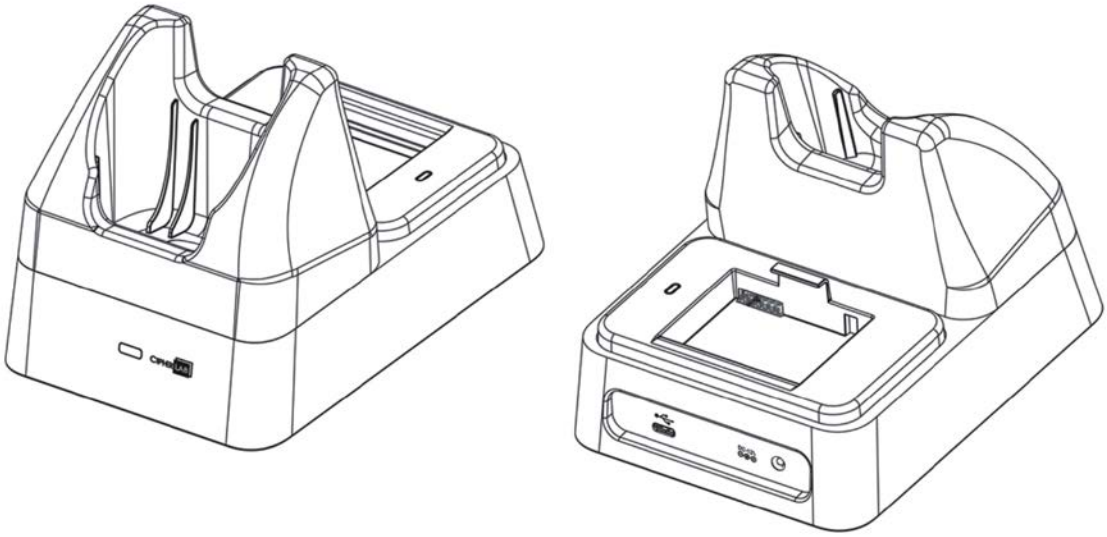
- Slide and “click” to attach; press release buttons and pull to detach
- Connects the mobile computer and PC through USB or RS-232
- Provides DC adapter jack on cable for charging the mobile computer
- Completes charging in approximately 8 hours
- LED on mobile computer shows charging status
- Adapter input 100-240VAC, 50/60Hz; output 5VDC/4A



1.8. CHARGING & COMMUNICATION CRADLE

The Charging & Communication Cradle charges your mobile computer and a spare battery at the same time. You may also use the cradle for data transmission between your PC.

- Presents charging compartment for mobile computer and spare battery
- Provides microUSB socket on the back for data transmission with PC
- Supports USB Host Mode via a USB OTG cable
- Provides DC adapter jack on the back for charging the mobile computer
- Completes charging in approximately 4 hours
- Front LED shows charging status for mobile computer
- Side LED shows charging status for spare battery
- Adapter input 100-240VAC, 50/60Hz; output 5VDC/3.3A



Chapter 2

LEARNING WINDOWS EMBEDDED HANDHELD BASICS

This chapter mainly describes the basic skills to work with the 9200 Mobile Computer. The add-on utilities for applications regarding data collection, processing, and transmission, are introduced in the following chapters.

The mobile computer is specifically designed for real-time data collection in the Windows Embedded Handheld 6.5 environment. It won't take long for any Windows user to get familiarized with it. Keep these basic skills in mind and explore this Windows Embedded Handheld device at ease.

- Tap an item to select it.
- Tap and hold an item to see a menu that enables tasks, such as cut, copy, rename, delete, etc.
- Tap  at the bottom of the screen to close an active window, a dialog box, or a running application.
- Tap  at the bottom of the screen to save the current settings and exit the application (or minimize the window in some applications).
- Tap  at the bottom of the screen to return the previous menu.
- Tap  at the bottom of the screen to open the Start Screen.

IN THIS CHAPTER

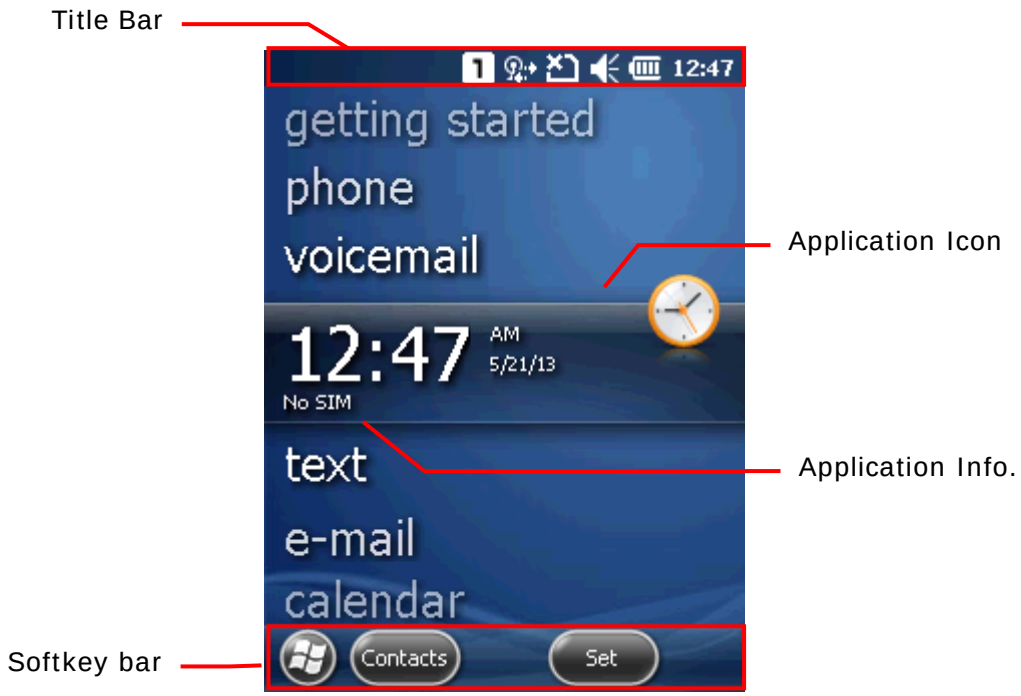
2.1 Getting Started 40
2.2 Input Methods 48
2.3 Managing Programs..... 49
2.4 Using ActiveSync..... 52
2.5 Suspend & Reset 56

2.1. GETTING STARTED

2.1.1. HOME SCREEN

When the mobile computer is fully charged, press the Power key for three seconds to turn on the mobile computer and wait for the **Home Screen** to come up.

Scroll the **Home Screen** up and down to highlight a desired application. The additional information or items will appear sideways, and softkey bar will be available at the bottom of the screen as well.



If you are using the mobile computer for the first time, there are a couple of things to do after the **Home Screen** comes up.

- Go to **Start Screen** | **Settings**, and tap **Home** to change theme, background, and status items shown on the **Home Screen**, etc.
- Go to **Start Screen** | **Settings**, and tap **Clock & Alarms** to select time zone, change local time, set alarms, etc.

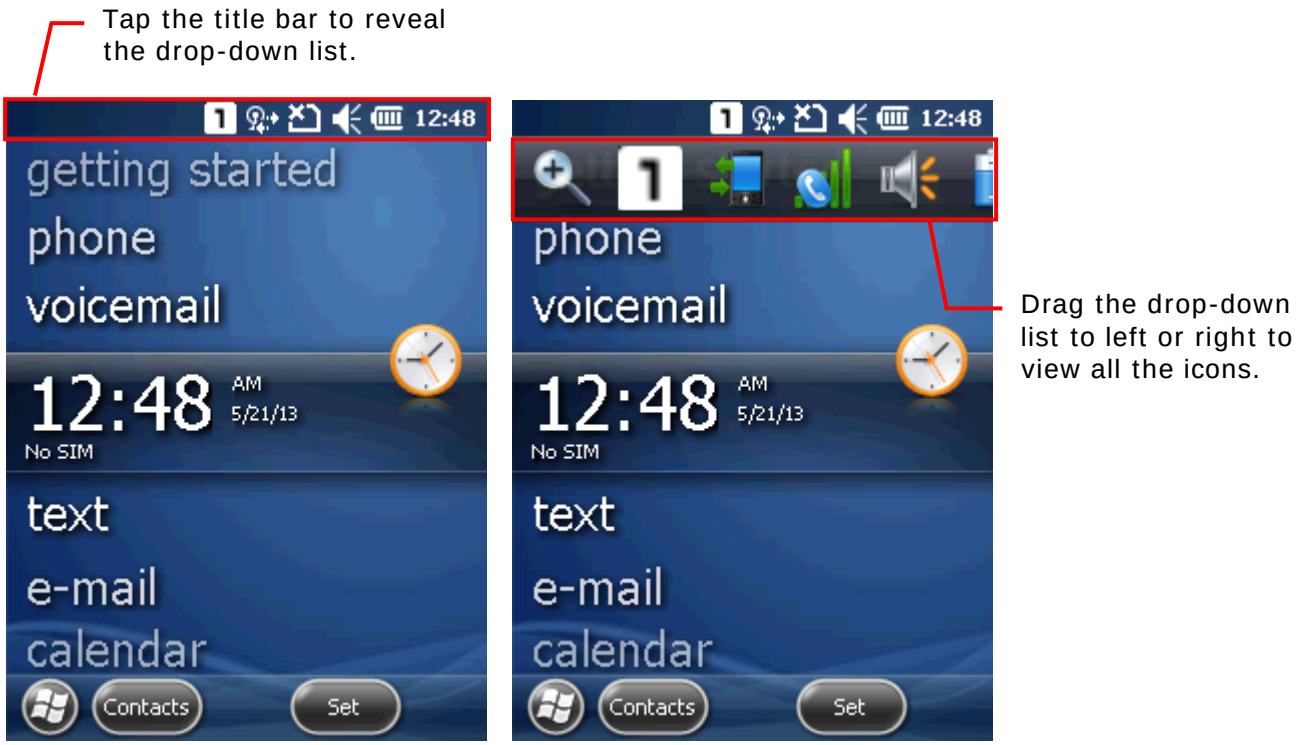
2.1.2. TITLE BAR

The icons at the top of the screen are explained below.

Icon	Description
	External power source is connected.
	Battery power remaining: more bars indicate more power in the battery.
	Keypad is in default numeric mode or alphabetic mode.
	Shift [⇧] is enabled in numeric mode/numeric lock mode.
	Shift [⇧] is enabled in alpha mode/alpha lock mode.
	Function mode is enabled.
	Volume status: On, off, or vibrate.
	SIM card is missing. You can still make emergency calls if your service provider supports it.
	GPRS service available.
	GPRS connection is established.
	EDGE service available.
	EDGE connection is established.
	UMTS (3G) service available.
	UMTS (3G) connection is established.
	HSPA service available.
	HSPA connection is established.
	Incoming call.
	Missed call.
	Antenna signal status: Phone power off.
	Antenna signal status: PIN Code required for powering on the Phone.
	Antenna signal status: phone power on; more bars indicate stronger signal.
	Connection is active.
	Wi-Fi Network is detected (but not connected).
	Wi-Fi Network is connected.
	Reminder for an alarm or appointment is active.
	Receiving Bluetooth beams.
	System notification icon.
	E-mail/text message is received.
	Roaming.

2.1.3. TITLE BAR DROP-DOWN LIST

The title bar drop-down list is hidden at the top of the screen, and can be expanded by tapping the title bar:



Icon	Description
	Tap it to zoom in or zoom out of current view.
	Tap it to check the current status for wireless data transferring. See Using 802.11 Radio and Configuring GPRS Network for more details.
	Tap it to check the phone status. You may configure the settings through **Wireless Manager**. See Using the Phone for more details.
	Tap it to show detected networks for Wireless local area networking (WLAN) connection. This is not available until Wi-Fi power is turned on. ▸ Wi-Fi can be controlled via two separate methods according to the module onboard; see Using 802.11 Radio for more details. ▸ This is not available for CCX-enabled devices. In this case, see Control Wi-Fi via SCU for how to detect and connect to available WLAN networks.
	Tap it to change the system volume. You may mute it or have it set as vibrate instead.
	Tap it to monitor the charging status and change the power scheme.
	Tap it to change the clock and alarms settings.
	Tap it to submit customer feedback to Microsoft for improving Windows Embedded Handheld software.


Tap it to view the reminder for an alarm or appointment.


Tap it to receive incoming Bluetooth beams.


Bluetooth A2DP profile is in use. Tap it to access the Bluetooth devices list.


Tap it to view a missed call.


Tap it to check a new e-mail.


Tap it to check a new voicemail.


Tap it to send an SMS text message.


Speakerphone is on.

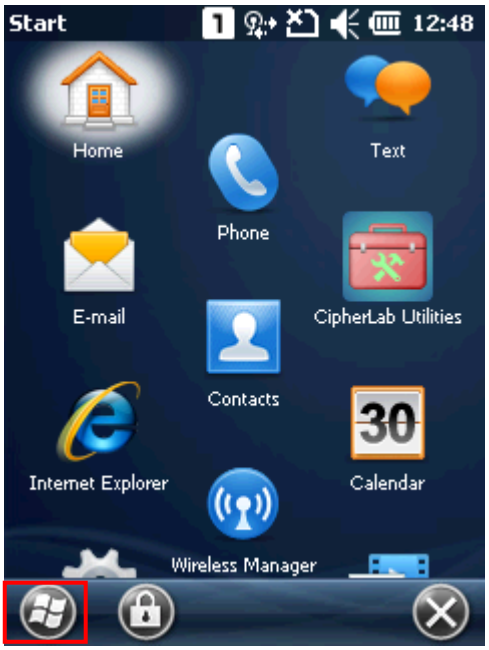

Tap it to access the Bluetooth configuration.


Tap it to configure ActiveSync connection settings.


Roaming is on.

2.1.4. START SCREEN

Tap  to open the **Start Screen**. You can tap to access application programs and useful utilities developed by CipherLab, or configure system settings.



The icons provided on the Start Screen are depicted as follows:

Icon	Name	Description
	Home (Today)	Opens the Home Screen.
	Phone	Launches the mobile computer's phone.
	Text	Sends SMS text messages.
	E-mail	Writes and sends emails.
	Contacts	List all of your contacts, including e-mail and instant messenger contacts; similar to the phone book on a cell phone.
	CipherLab Utilities	This folder contains more CipherLab-developed applications that are preinstalled on the mobile computer and which strengthen the user's system management.

	Internet Explorer	Browses world wide web.
	Wireless Manager	Quick sets the power for Wi-Fi, phone and Bluetooth, and opens each of the settings pages. ▸ For CCX-enabled devices, Wi-Fi power cannot be controlled using Wireless Manager. Instead, Wi-Fi settings are to be adjusted in SCU. See Control Wi-Fi via SCU for more details.
	Calendar	Creates and manages events, meetings, and appointments.
	Settings	Accesses system settings.
	Getting Started	Opens Getting Started application to set OS basic features.
	Pictures & Videos	Views pictures and plays videos downloaded, copied or taken with the built-in camera.
	Camera	Takes pictures and shoots videos.
	Windows Media	Plays audio/video files.
	Marketplace	Not available; Marketplace for Mobile service was terminated on 22nd May 2012.
	Messenger	Provides IM service.
	Windows Live	Accesses Windows Live services (such as Hotmail) or searches world wide web.
	MSN Weather	Checks the weather of your locale and other parts of the world.
	Calculator	Performs mathematical calculations.
	Notes	Creates notes by typing on the physical keypad or on-screen keypad.

	Tasks	Creates, tracks, and manages tasks.
	Adobe Reader LE	Browses PDF files.
	File Explorer	Browses and manages the files on local storage.
	ActiveSync	Synchronizes Microsoft Office Outlook data between the mobile computer and another Windows-based computer.
	Internet Sharing	Shares the mobile computer's mobile data connection with another computer through a USB or RS-232 cable.
	Task Manager	Monitors the active applications and CPU/memory usage on the mobile computer.
	Search Phone	Searches contacts, files and other data on the mobile computer.
	Help	Accesses OS online help.
	Remote Desktop Mobile	Connects to a remote computer.
	Alarms	Opens Clock & Alarms application to: ▸ Set date, time, time zone for your locale. ▸ Set and manage alarms.
	Bing	Opens search engine. ▸ Confirmation for service agreement is needed before first use.
	MSN Money	Checks stocks.
	Games	Opens Windows Embedded Handheld games.

2.1.5. DEVICE LOCK

By default, the device is unlocked. You may lock the mobile computer to prevent unintended operation. When locked, the mobile computer will not respond to screen touch or keypad input until it is unlocked; volume keys will also be unavailable until the device is unlocked. However, on the Lock screen you can still monitor the device status on the title bar.

Lock 9200

Open **Start Screen**, and tap the lock icon on the softkey bar to protect your mobile computer.

Password Lock

You may further apply password protection to block unauthorized access. Go to **Start Screen** | **Settings**, and tap **Lock**.

- Simple PIN: Set up a password (4-digit at least)
- Strong alphanumeric: Set up a strong password (7-character at least)

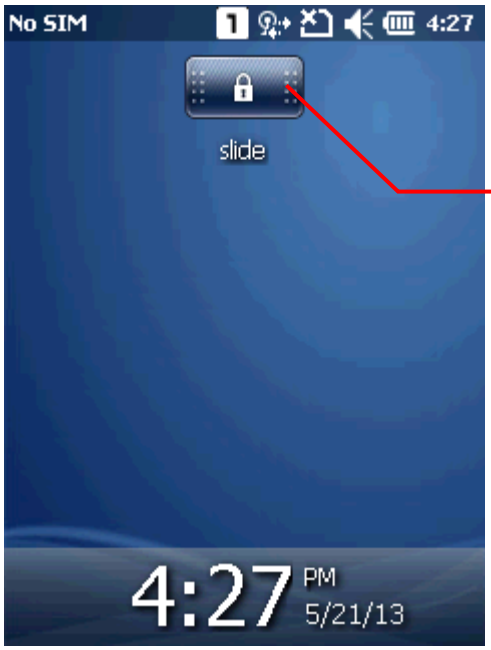
Unlock 9200

Drag the lock slide to left or right of the unlock screen.

Note: For the Simple PIN password to Lock screen, the password can not be a sequence of numerals (e.g. 1111 or 1234), and cannot contain uppercase/lowercase letters or punctuation.



Tap to lock device.



Device is locked

2.2. INPUT METHODS

The keyboard icon  is seated at the middle bottom of the screen. Tap the icon to show or hide the on-screen keyboard.

Data entry can be performed by the following methods.

Physical Keypad

Type with the physical keypad on the mobile computer.

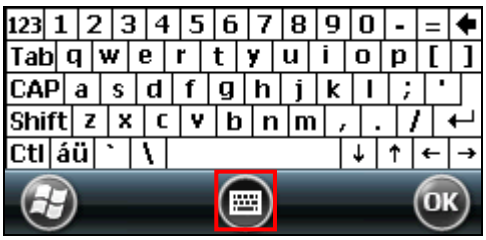
Data Capture

Scan barcode in applications, e.g. Notes, Reader Config, etc.

Software Keypad

Type or write the input panel:

Tap the keyboard button on the middle of the softkey bar to show or hide the input panel.



2.3. MANAGING PROGRAMS

Tap the **Start** button to open the **Start Screen**. Tap a program to launch it. To add a new program or subfolder to the **Start Screen**, you can either use **File Explorer** on the mobile computer or **ActiveSync** on your PC. See Using ActiveSync for how to operate via ActiveSync.

Warning: To avoid making any changes to the program configurations by accident, we recommend you to use **Copy** and **Paste Shortcut** rather than **Cut** and **Paste**.

2.3.1. ADD A PROGRAM TO START SCREEN

1. Tap **Start Screen** | **File Explorer**.
2. Navigate to find the program of interest.
3. Tap and hold the program and select **Copy** from the pop-up menu.
4. Navigate to the Programs folder – **My Device\Windows\Start Menu\Programs**.
5. Tap and hold any blank spot on the screen and select **Paste Shortcut** from the pop-up menu. The new program will be added to the Programs folder.
6. Open **Start Screen**. The newly added program will appear now.

2.3.2. CREATE A NEW FOLDER

1. Tap **Start Screen** | **File Explorer**.
2. Navigate to the location which you would like to create a new folder.
3. Tap **Menu** | **New Folder** and a subfolder will be created.

OR

Tap and hold any blank spot on the screen and select **New Folder** in the pop-up menu.

2.3.3. SWITCH BETWEEN ACTIVE PROGRAMS

1. Tap **Start Screen** | **Task Manager**.
2. Select which running program to use.
3. Tap **Menu** | **Switch To** and the program will be maximized on-screen

OR

Tap and hold the program of interest and select **Switch To** in the pop-up menu.

2.3.4. END A PROGRAM

In general, the system manages memory automatically, and there is no need to exit a program in order to open another or to conserve memory. However, random access memory (RAM) may be used up when too many programs are running simultaneously. As a result, it will slow down system operation or cause program errors. In this case, you should exit one or more of the running programs to release memory. In order to use memory in a more efficient way, you are recommended to exit a program once it is no longer in use.

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

Tap  to close an active window, a dialog box, or a running application.

Tap  to save the current settings and exit the application (or minimize the window in some applications). If the button is not displayed on the softkey bar, press **OK** on the physical keypad.

Note: Some programs come with an associated icon on the softkey bar. You may tap the icon and tap **End Task** to end the active program.

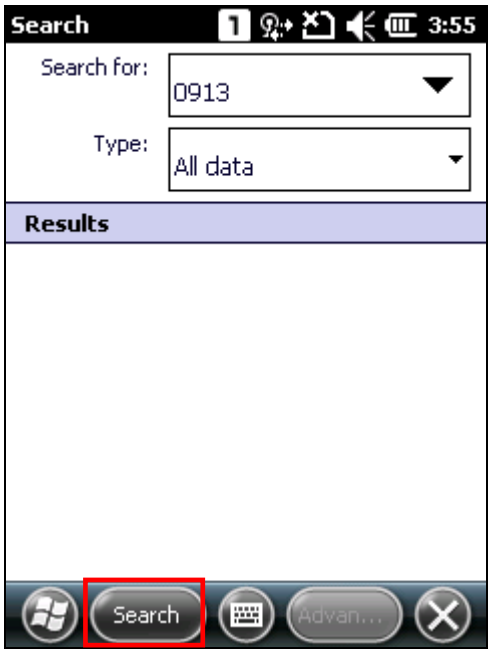
1. Tap **Start Screen** | **Task Manager**.
2. Select a running program to stop.
3. Tap **End Task** on the softkey bar and the program will be closed.



2.3.5. FIND A FILE

1. Tap **Start Screen** | **Search Phone**.
2. In the “Search for” box, enter the file name, keyword, or other information you want to search for. If you have searched for this item before, tap the drop-down list and select it.

   In the “Type” box, select a data type to help minimize your search. If the data type of your file is other than listed, you may try “Larger than 64 KB”. However, if the target file is less than 64 KB, it will not be searchable.



3. Tap **Search**.
4. In the Results list, tap the item you would like to open.

2.4. USING ACTIVESYNC

Microsoft's syncing tools enables users to update or back up the data on their handheld devices 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:

O.S.	Syncing Program
Windows Vista, Windows 7, Windows 8	WMDC
Windows XP SP3 or earlier	ActiveSync

ActiveSync and WMDC are downloadable from Microsoft's website. Download and install the right one on your PC. Before syncing your PC and device, make sure your PC has the appropriate syncing tool installed.

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

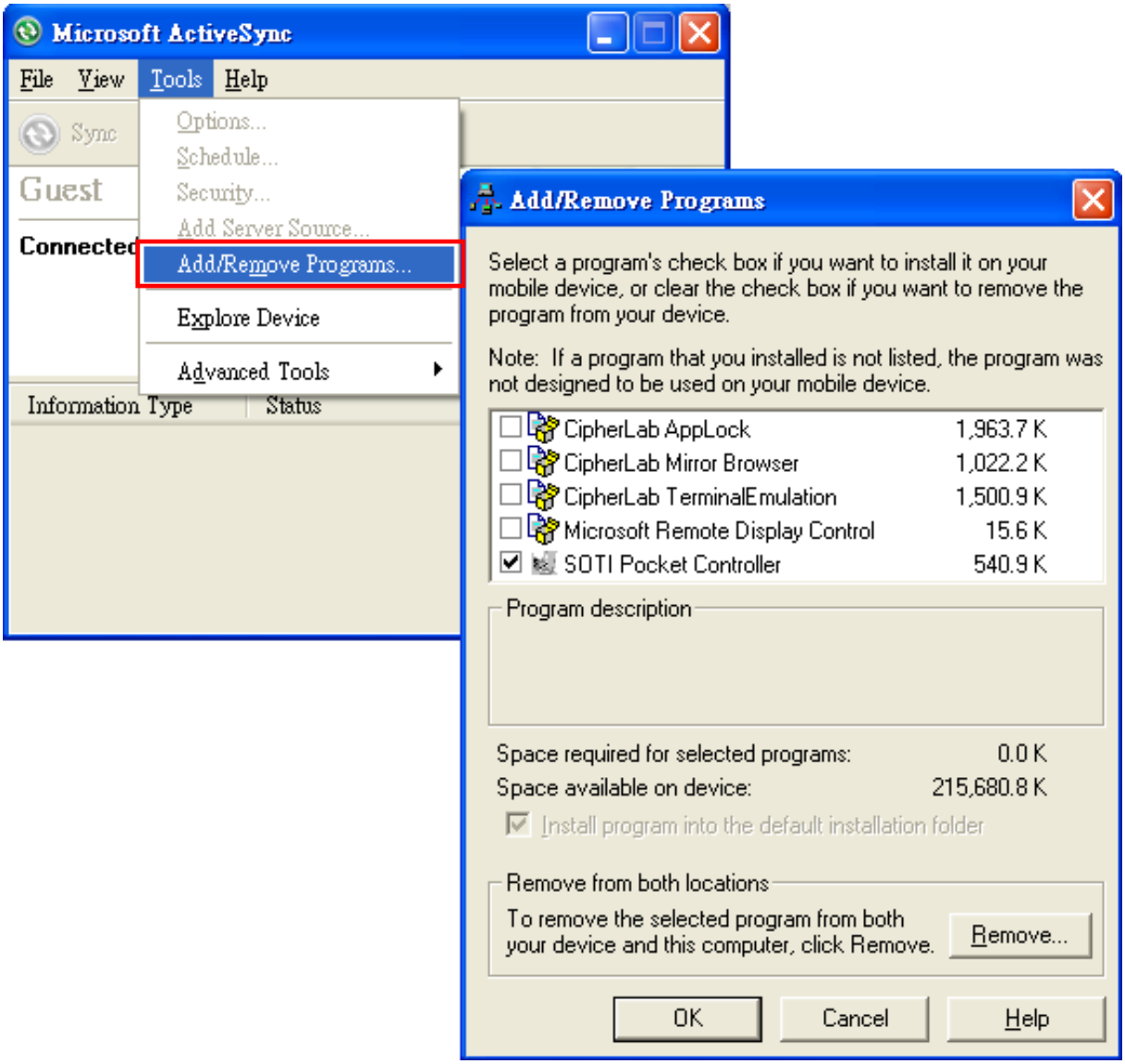
2.4.1. SYNCHRONIZATION WITH YOUR COMPUTER

1. Follow these instructions for initial ActiveSync operation:
   - Connect the mobile computer and your PC with the Snap-on Cable or Cradle. Turn on the mobile computer.
2. Your computer will automatically detect the USB device.
3. Select which partnership to set up. If you want to synchronize data between the mobile computer and your personal computer, select Standard Partnership; otherwise, select Guest Partnership
4. Wait a few seconds for the mobile computer to get connected (and synchronized if a Standard Partnership is selected).

Note: For ActiveSync via Bluetooth, refer to Using Bluetooth.

2.4.2. ADD/REMOVE PROGRAMS

On your PC, open ActiveSync and click **Tools** | **Add/Remove Programs** to install a program that is designed to be used on a mobile device running Windows Embedded Handheld. If a previously installed user program is no longer desired, you may also remove it from the system.



Aside from using the **Add/Remove Programs** menu option to manage programs, you can also install and remove programs by copying and pasting the installation file (or executable file) to the location of interest.

Alternative for Installing New Programs (Copy & Paste)

Follow these steps to install a new program manually.

1. Establish USB connection between your mobile computer and your PC.
2. On your PC, open ActiveSync and click **Explore** on the taskbar.
4. Navigate through file folders on your computer to find the new program (.CAB, .EXE, etc.)
5. Right-click the program and select **Copy** from the pop-up menu.
6. Navigate to the target folder, e.g. the Programs folder (**\Windows\Start Menu\ Programs**), depending on where you wish to access the program. Right-click anywhere blank and select **Paste** from the pop-up menu.
7. On the mobile computer, tap the pasted file to start installation or execute the application.

Alternative for Removing Programs

Follow these steps to uninstall a program manually.

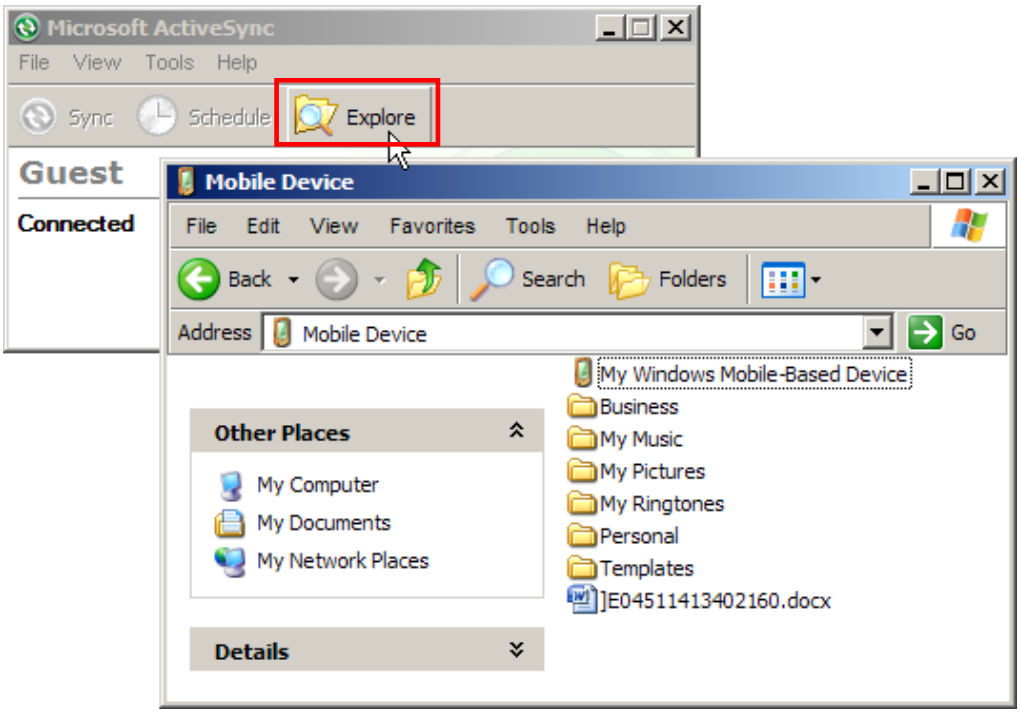
1. Go to **Start Screen** | **Settings** | **System** and select **Remove Programs**.
2. Tap the name of the program that you want to delete.
3. Tap **Remove**.
4. Tap **Yes** to uninstall the program.

Note: If the program does not appear in the list of installed programs, you may use File Explorer to locate it. Tap and hold the program to select **Delete** from the pop-up menu.

2.4.3. EXPLORE DEVICE

Add a Program to Start Screen

1. Establish USB connection between your mobile computer and your PC.
2. On your PC, open ActiveSync and click **Explore** on the taskbar.



3. Navigate through file folders to find the program you desire.
4. Right-click the program and select **Create Shortcut** from the pop-up menu.
5. Right-click the shortcut and select **Cut** from the pop-up menu.
6. Navigate to the Programs folder **\Windows\Start Menu\Programs**.
7. Right-click anywhere blank on the window and select **Paste** from the pop-up menu. The new program will be added to the Programs folder.
8. On the mobile computer, go to **Start Screen** and the new program will appear now.

Note: **Create Shortcut**, **Cut**, and **Paste**: The same result can be performed by **Copy** and **Paste Shortcut**.

Create a New Folder

1. Establish USB connection between your mobile computer and your PC.
2. On your PC, open ActiveSync and click **Explore** on the taskbar.
3. Navigate to the target folder where you wish to create a new folder.
4. Right-click anywhere blank on the window and select **New Folder** from the pop-up menu. A subfolder will be created.

2.5. SUSPEND & RESET

2.5.1. SUSPENSION

The mobile computer operates continuously once it is powered on. To minimize power consumption, suspend the mobile computer if you are not actively using it. When the mobile computer enters suspension, the system is in a power-saving status and can be quickly awoken to operate as needed.

Enter Suspension

Press the Power key for about 0.2 seconds to enter suspension.

Resume from Suspension

Press the Power key for about 0.2 seconds to awake the mobile computer. Alternatively, you may press the Scan key.

Warning: To save battery power, it is suggested that the mobile computer is set to be automatically suspended when not in use. Refer to Power Management for more information about saving power.

2.5.2. HARDWARE RESET (COLD BOOT)

When the mobile computer runs slower than normal or when it stops responding to input, reset it with a hardware reset, also known as cold boot. This will restart the mobile computer and initialize RAM. All data cached in RAM will be gone after hardware reset, while flash memory and RTC will be retained.

Hardware Reset (= Cold Boot)

- 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 to show the Home Screen.

OR

- Method 2

1. Using the stylus, poke the reset button to restart the device.
2. The mobile computer will power off and then turn on again to show the Home Screen.

Warning:

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

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

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

Chapter 3

CONFIGURING 9200 MOBILE COMPUTER

In this chapter, a brief on the system settings is provided for your reference.

IN THIS CHAPTER

3.1 CipherLab Smart Shell 60
3.2 Settings 64
3.3 Device Name 72

Tap  to open the **Start Screen**, and tap **Settings** to configure related settings.



3.1. CIPHERLAB SMART SHELL

CipherLab Smart Shell is an optional OS interface that features a Home Screen and a set of screen views with programs and services arranged based on their properties. By switching between 3D carousel view or tiles view, you can easily access commonly used programs and settings, or manage your tasks, calendar, and contacts. You can also adjust screen views to fit your preferences by customizing screen layout and items displayed.

When installed, the mobile computer will enter CipherLab Smart Shell when the system is powered on.



Icon	Description
	Tap it for a 3D carousel view.
	Provide a fast and convenient way to access your favorite or recently used items and services.
	Tap to close any launched programs, or switch to a running program.
	Supports settings and layout change based on the view opened on-screen.
	Tap it to switch Bluetooth mode (invisible or discoverable).
	Tap it to enable/disable Wi-Fi.
	Tap it to enable/disable GSM/GPRS.
	Flight Mode: Tap it to disable all wireless signals. The icon color will change from white to red.

3.1.1. EXIT CIPHERLAB SMART SHELL

If you would like to exit Smart Shell and return to the built-in OS interface, follow the steps below:

1. Tap the “Launcher” icon on the Smart Shell homepage.



2. Tap the **Settings** icon to open the system settings page.



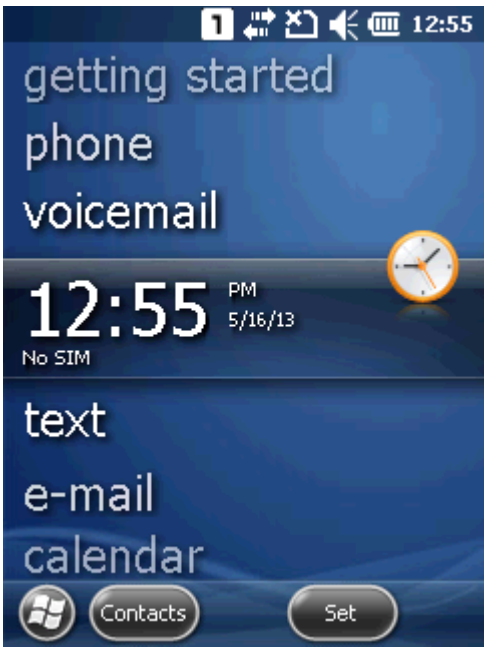
3. Tap the **Sbp Mobile Shell** icon to open Smart Shell Settings.



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

Tap **Exit Shell** to exit Smart Shell and show the OS Home Screen.





3.2. SETTINGS

Tap **Start Screen** | **Settings** to access the settings menu for configuring system time, layout, sounds and notifications, power, wireless connection, and more.



Bluetooth

Refer to Using Bluetooth.

Clock & Alarms

- Time tab: Change the date, time and time zone settings. By default, the time zone settings will be automatically synchronized and updated by notification.
- Alarms tab: You may set up at most three alarms to wake you up or as a reminder.

Home

Refer to Home Screen.

- Appearance tab: Customize the theme and background of the Home Screen.
- Items tab: Select items that will appear on the Home Screen, and configure Home Screen timeout.

Lock

Tap it to apply password protection to limit access to the mobile computer, and any screen or keypad input will be blocked.

Refer to Device Lock.

Power

- Battery tab: View the current main battery level.
- Advanced tab: Configure to turn off the display panel when it is idle for a specific period of time, either on battery or external power.

Sounds & Notifications



Refer to Audio.

- Sounds tab: Configure sounds for specific actions, events, programs, etc.
- Notifications tab: Select to play sounds as notifications for some events.

Connections



Refer to Connections.

Personal



Refer to Personal.

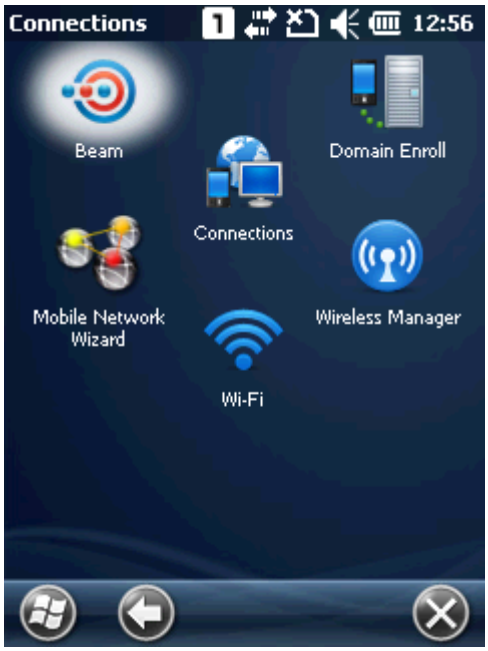
System



Refer to System.

3.2.1. CONNECTIONS

Go to **Start Screen** | **Settings** | **Connections**.



Beam

Tap it to receive incoming Bluetooth beams.

Connections

Refer to Configuring GPRS Network.

Domain Enroll

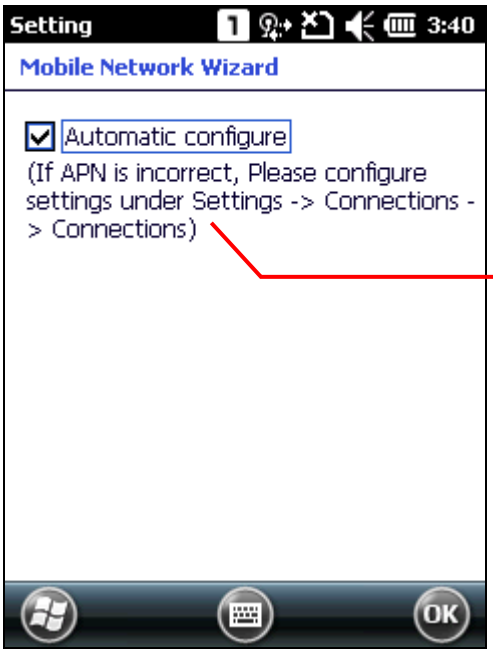
Connects to an SCMDM server with an enrollment ID and password, allowing company deployment on multiple mobile computers.

Mobile Network Wizard

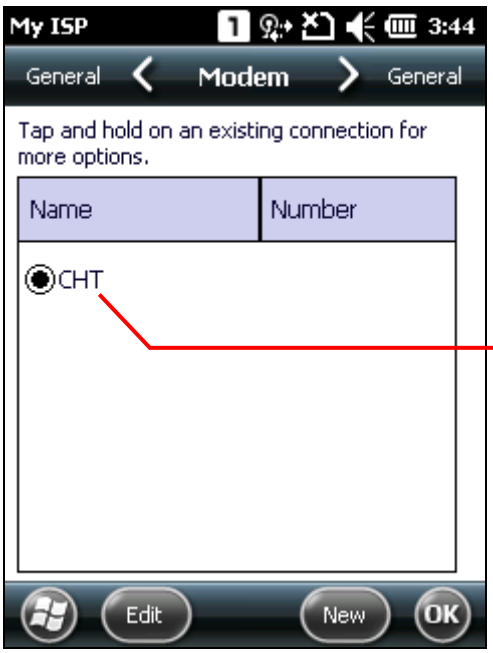
Mobile Network Wizard automatically configures your network provider and APN when a SIM card is installed.

The mobile computer detects when a SIM card is inserted and asks for confirmation to automatically configure network settings. Confirm “yes” to open an automatic configuration page. Tap **OK** to enable automatic configuring. System reboots and a new GPRS connection based on your ISP will be automatically created under **Settings** | **Connections** | **Connections**. Tap and hold the connection and select **Connect** in the pop-up menu to apply the specified network.

- Actual network settings depend on the network provider. GPRS settings can also be configured manually; see Configuring GPRS Network.



When a SIM card is inserted, an automatic configuration page will open. Tap **OK** on the softkey bar to confirm and allow the system to reboot.



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

Wi-Fi

Refer to Using 802.11 Radio.

Wireless Manager

Tap it to enable/disable Wi-Fi, Bluetooth or Phone Power. For related information, refer to Control Wi-Fi via Wireless Manager, Power On BT via Wireless Manager and Power On Phone via Wireless Manager.

- For CCX-capable devices, Wireless Manager cannot be used to control Wi-Fi; use SCU to adjust Wi-Fi settings instead. See Control Wi-Fi via SCU for more details.

3.2.2. PERSONAL

Go to **Start Screen** | **Settings** | **Personal**.



Buttons



- Tap it to adjust the character input repeat delay and rate, move the slider to right or left for repeat speed.

Owner Information



- Identification tab: Enter your contact information.
- Notes tab: Enter your notes.

Phone



- Refer to Using the Phone.

3.2.3. SYSTEM

Go to **Start Screen** | **Settings** | **System**.



About

- Version tab: Displays information of OS software, processor, etc.
- Device ID tab: Enter a name and description for identifying the mobile computer.
- Copyrights tab: Displays important statements on copyrights.

Button Assignment

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

Certificates

View or modify digital certificates that some applications use to establish trust for secure connections.

Clean Boot

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

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

Customer Feedback



Sends customer feedback to Microsoft for improving Windows Embedded Handheld software.

Encryption



Encrypts files stored on the SD card. The encrypted files can only be read on the mobile computer.

Error Reporting



Determines whether to enable error reporting to help Microsoft improve Windows Embedded Handheld software. By default, it will automatically collect errors and report to Microsoft.

External GPS



- Programs tab: Specify a program port for multiple GPS-enabled programs to access GPS data.
- Hardware tab: For the GPS program port to work, you must specify the correct hardware port. For example, if you are using the GPS receiver integrated on the mobile computer, select COM 7 and 4800 for baud rate.
- Access tab: By default, Windows Embedded Handheld manages access to your GPS receiver and allows multiple programs to obtain GPS data simultaneously. If you clear the check box, some programs may not be able to obtain GPS data.

GPS Manager



- AGPS tab: Select the checkbox to enable AGPS function for improved GPS performance.
- Ephemeris tab: Configure how to download ephemeris data, or tap **Download** to update ephemeris at any time. The data is valid for seven days according to the system date and time. The date of last download will be displayed at the lower left of the screen.

Keypad Backlight



Change keypad backlight behavior. By default, the keypad backlight will be automatically turned on for five seconds when any key is pressed.

Managed Programs



Manages programs that are installed in RAM.

Memory



- Main tab: View the current capacity and usage of the onboard RAM, which is divided into file storage and program usage.
- Storage Card tab: View memory usage of the storage card.

Reader Configuration



- CipherLab's scanning utility which allows configuration of symbology, scan settings, and output and notification settings.

Regional Settings



- Region tab: Customize the appearance and formatting to your geographic region.
- Number tab: Customize the number format.
- Currency tab: Customize the currency format.
- Time tab: Customize the time format.
- Date tab: Customize the date format.

Remove Programs



Removes programs that are stored in RAM.

Screen



- Alignment tab: Align the screen for calibration.
- ClearType tab: Apply Clear Type fonts.
- Text Size tab: Use the slider to adjust the text size.

Screen Backlight



- Battery Power tab: Configure when to turn on/off the backlight and brightness of the LCD backlight when on battery power.
- External Power tab: Configure when to turn on/off the backlight and brightness of the LCD backlight when on external power.

System Information



Displays important device information for software package, hardware modules, and manufacture info.

Task Manager



Lists all applications which are currently running on the mobile computer. Tap and hold an application to switch to it or end it if processing too many applications takes up a lot of memory or CPU resource.

Time Synchronization



Synchronizes the mobile computer's system time via two methods, **SNTP** and **GPS**.

- SNTP tab: Manually synchronizes the mobile computer's time with an NTP server. Synchronized time will be written to RTC and system time will be updated.
- GPS tab: Gets time information through GPS data packet.

USB Connection



Sets USB connection between ActiveSync and Mass Storage when the mobile computer is connected to a Windows-based PC.

- **ActiveSync**: Synchronizes the mobile computer and PC through ActiveSync connection. This is the default setting.
- **Mass Storage**: 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.

USB to PC

Disable this to switch USB connection from RNDIS to PPP. If the checkbox is enabled, when the mobile computer is connected to your PC through USB connection, internet sharing to the mobile device will be enabled and ActiveSync connection might be interrupted. Disable advanced network functionality to troubleshoot ActiveSync connection problems.

3.3. DEVICE NAME

3.3.1. CHANGE DEVICE NAME

Go to **Start Screen** | **Settings** | **System**, and tap **About** to change the device name on the Device ID tab to make the device more recognizable.



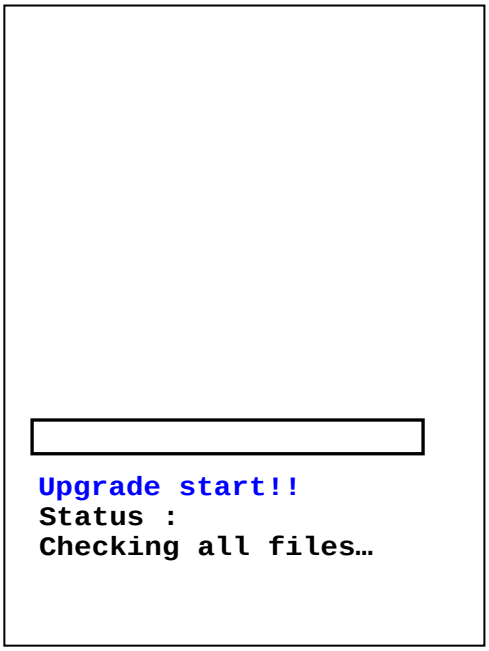
3.4. UPDATE OS IMAGE

Upgrading the OS image helps optimize the mobile computer's performance and functionality. The upgrading process relies on a memory card, and an .nb0 OS image file.

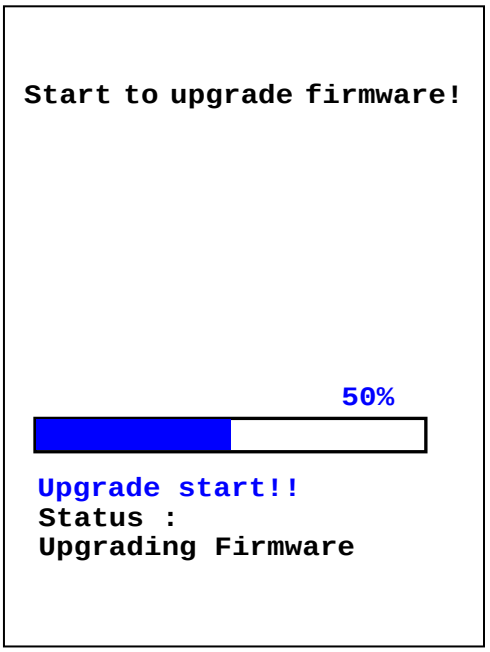
1. On your PC, copy the latest OS image file to a microSD card.
2. Insert the microSD card into the card slot as described in Using Memory Card.
3. Power on the mobile computer by pressing the power button, and at the same time press the Volume Down key on the right side of the mobile computer
4. The mobile computer powers on and directly enters firmware upgrade mode.

   System upgrade with the OS image file will start automatically. An upgrade progress bar will show on-screen.

Starting upgrade

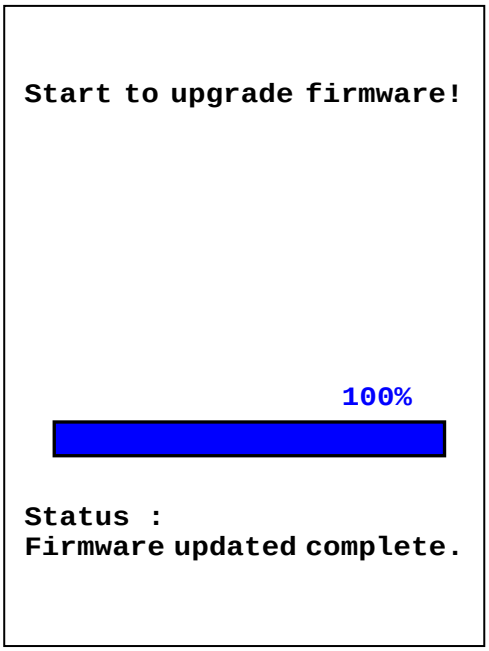


OS upgrading

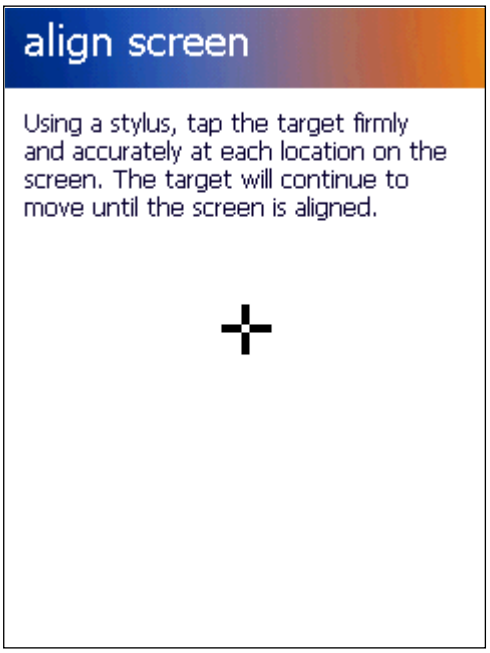


5. When OS upgrade is complete, the mobile computer will restart. After system startup, tap the screen to enter calibration.

OS upgrade complete



Restart and enter Calibration



Chapter 4

USING 802.11 RADIO

The Wi-Fi module integrated on the mobile computer lets you configure and connect to network wirelessly.

IN THIS CHAPTER

4.1 Wi-Fi Module 76
4.2 Control Wi-Fi via Wireless Manager 77
4.3 Control Wi-Fi via SCU 83

4.1. WI-FI MODULE

The 9200 mobile computer comes with two options for Wi-Fi hardware module. These two modules differ in their procedure to set up Wi-Fi connection. Refer to the table below for how to determine which method to take.

SKU No.	Description
1, 2, 4, 5	These devices use Windows Zero Configuration (Wireless Manager) for Wi-Fi service. Set Wi-Fi at **Start menu** | **Connection** | **Wi-Fi**. See details in Control Wi-Fi via Wireless Manager.
3, 6	These are CCX-enabled devices that use the client utility SCU for Wi-Fi service. Set Wi-Fi at **Start menu** | **Settings** | **System** | **SCU**. See details in Control Wi-Fi via SCU.

Note: If you are unsure of the SKU number of your mobile computer, check if SCU is available at **Start menu** | **Settings** | **System**. If the mobile computer is equipped with SCU, then it is CCX-enabled. In this case, use SCU to configure Wi-Fi settings. If not, use Wireless Manager as an alternative.

4.2. CONTROL WI-FI VIA WIRELESS MANAGER

4.2.1. POWER ON WI-FI

1. Go to **Start Screen** | **Wireless Manager** as shown below.



2. Tap **All** or **Wi-Fi** to turn on the power.

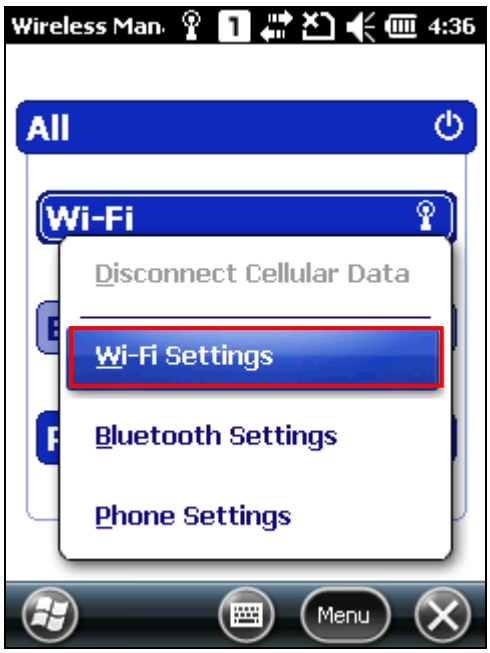


3. When the Wi-Fi status is “Available”, it means it is turned on and Wi-Fi networks are available.



4.2.2. CREATE WI-FI CONNECTION

1. Tap **Menu** | **Wi-Fi Settings** to configure related settings.



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



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

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

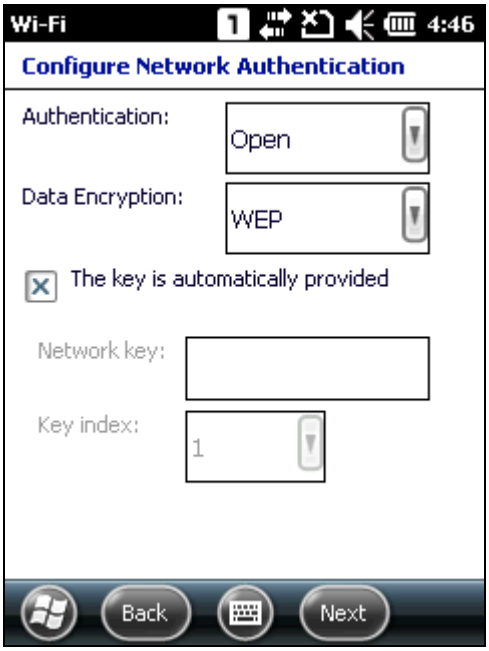
A strong signal (four bars) usually means that the wireless network is close or there is no interference. For best performance, connect to the wireless network with the strongest signal. However, if an unsecured network has a stronger signal than a security-enabled one, it's safer for your data if you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

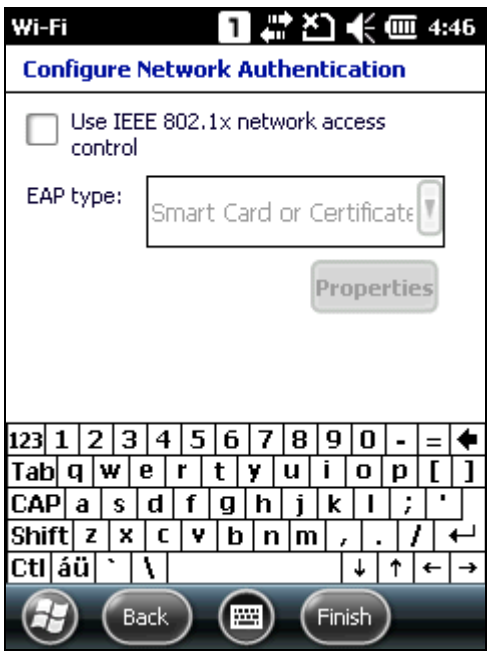
To improve the signal strength, you can move your mobile computer closer to the wireless router or access point, or move the router or access point so it’s not close to sources of interference such as brick walls or walls that contain metal support beams.

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

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

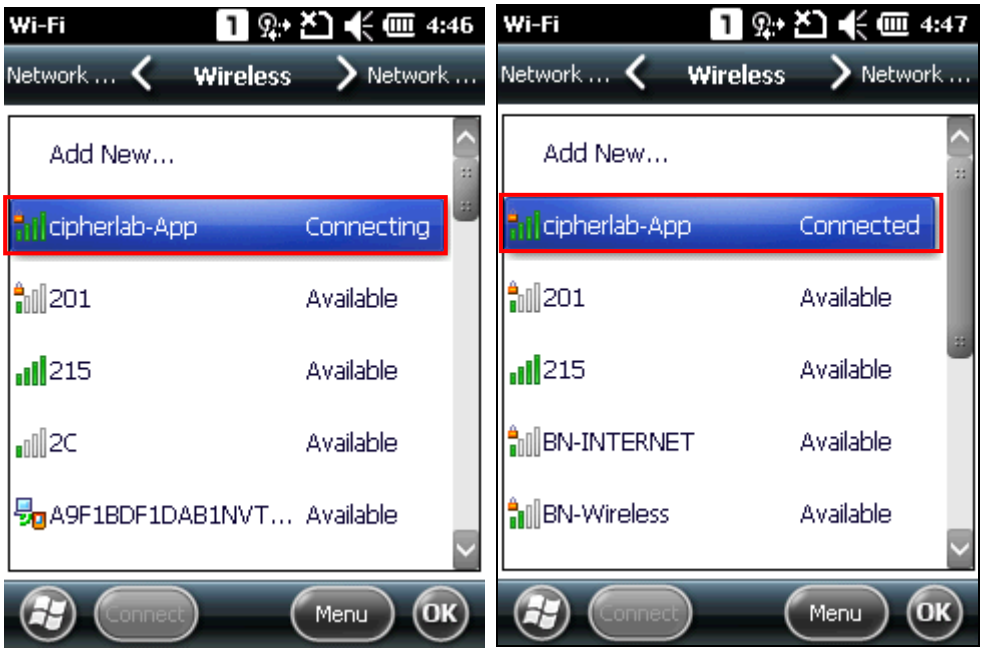






4. Wait a few seconds for the mobile computer to connect to the preferred network you have configured. Then tap **OK** to close the current window.

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



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



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

4.3. CONTROL WI-FI VIA SCU

Summit Client Utility (SCU) functions by the use of Wi-Fi profiles. Profiles are a set of radio and security settings that are stored in the registry. You may create, rename, edit and delete profiles, as well as alter global settings that apply to every profile or to SCU itself. For more details on profile settings, please visit the following websites:
http://www.summitdata.com/documentation.html
http://www.summitdata.com/Documents/summit_users_guide_3_03.html
http://www.summitdata.com/Documents/summit_quick_start_v3_03.html

4.3.1. LAUNCH SCU

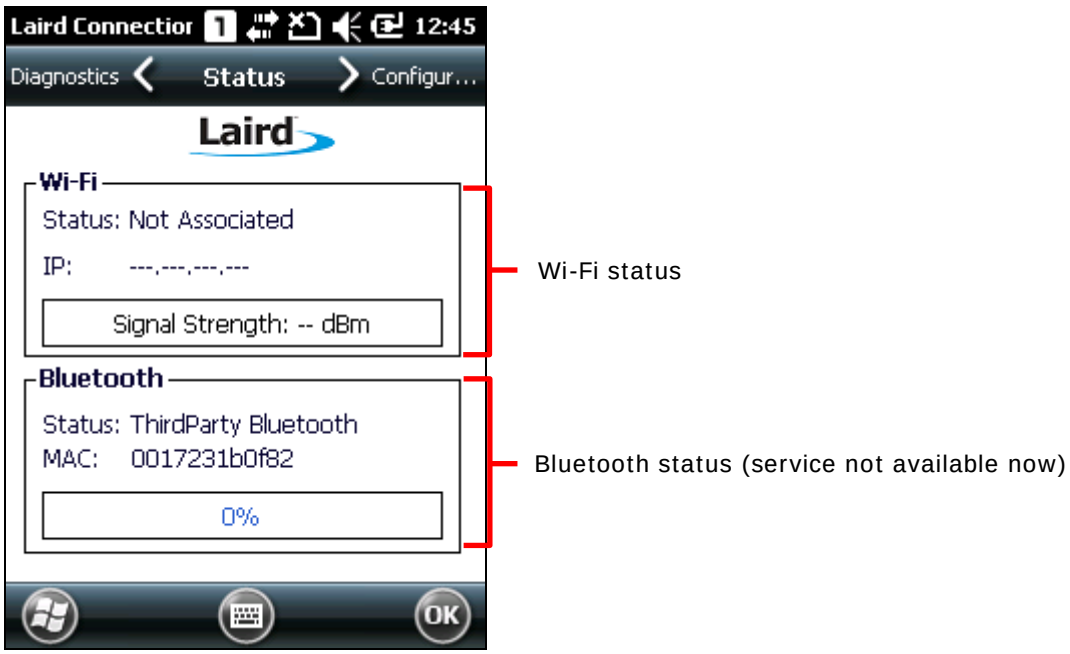
Wi-Fi settings can be adjusted with Summit Client Utility. Within this application are three tab pages which allow users to select the access point for connection, create profiles for better management, perform diagnostics on connectivity, and fine-tune property settings to meet their individual requirements.

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

SCU opens showing three tab pages: **Status**, **Configuration**, and **Diagnostics**. The following sections explicate in detail the settings on each of these pages.

4.3.2. STATUS TAB PAGE

The Status tab page provides basic information on WLAN connection and Bluetooth status. Wi-Fi settings can be configured in Configuration Tab page.



Note: SCU does not currently support viewing or configuring Bluetooth settings.

4.3.3. CONFIGURATION TAB PAGE

TURN ON/OFF WI-FI POWER

Select the Wi-Fi checkbox to turn on Wi-Fi power. Deselect it to shut down Wi-Fi.



Note:

(1) Wi-Fi connection status will be reflected under **Wireless Manager**, which can be accessed by tapping the **Title bar** | **Wireless Manager** icon, or **Start Screen** | **Settings** | **Connections** | **Wireless Manager**. When Wi-Fi power is off, or SCU has not yet performed a scan for access points nearby, the status will display as “Unavailable”. When Wi-Fi power is on and SCU has scanned for available access points but not yet established an active connection, the status will display as “Available”. When a WLAN connection is established, the status will display as “Network Card”. Wireless Manager cannot be used to control Wi-Fi power.

(2) SCU does not allow configuration of Bluetooth settings. To establish and manage Bluetooth connections, tap **Start Screen** | **Settings** | **Bluetooth**.

ACTIVE PROFILE

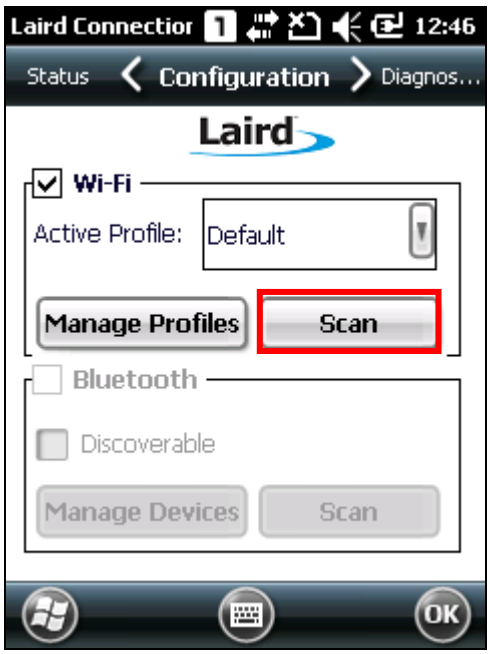
A profile is a set of parameters that define the manner which a device associates to a wireless LAN (WLAN) infrastructure. A profile contains information including the System Set Identifier (SSID, the "name" of the WLAN infrastructure), means of data encryption, authentication type, and security credentials.

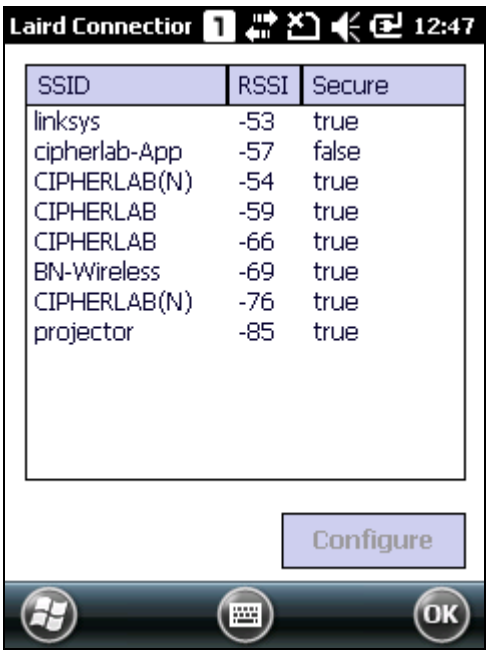
Select an active profile in the drop-down box on the **Configuration** tab page. To add a profile other than the “Default” profile, see Create Wi-Fi Profile.



CREATE WI-FI PROFILE

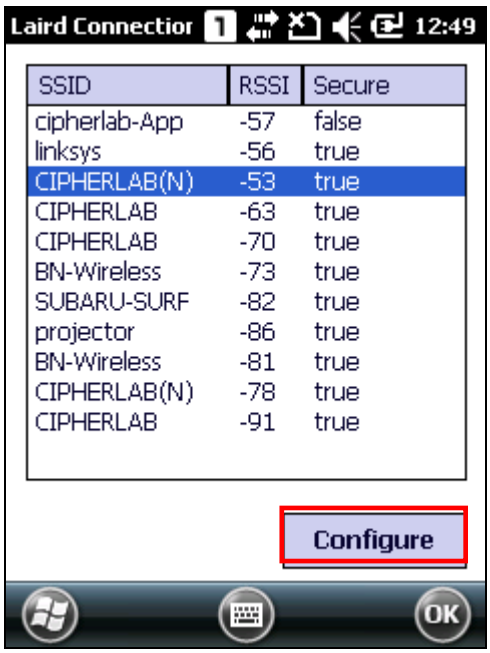
1. Open SCU as described in Launch SCU.
2. Tap the **Configuration** tab to show the Configuration tab page.
3. Tap **Scan** to view a list of access points that are broadcasting their SSIDs. You may sort the list by tapping the column headers.

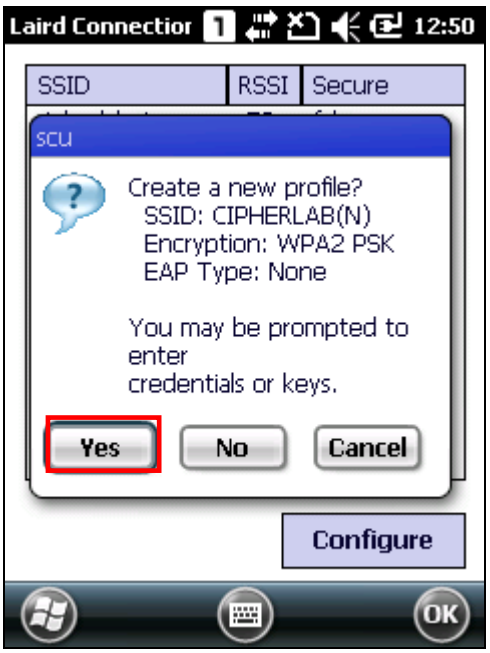




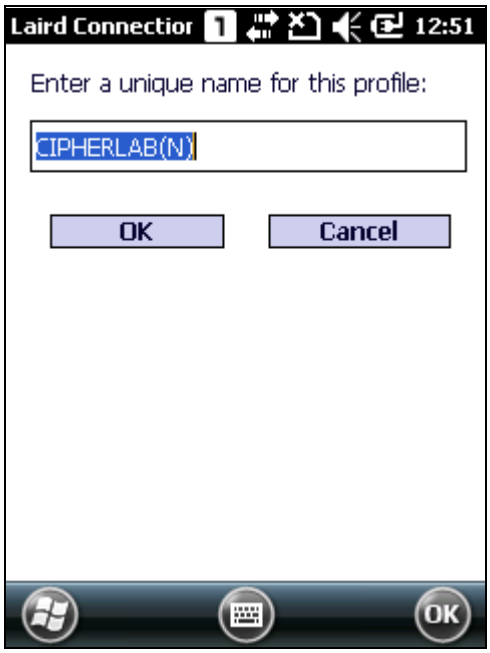
Item	Description
SSID	Service Set Identifier (SSID)
RSSI	Received Signal Strength Indication (RSSI)
Secure	Indicates whether data encryption is enabled: true or false

4. To configure a profile, tap twice on any of the access points, or select the access point and tap **Configure**. A prompt shows confirming whether to create a profile with the identified SSID, encryption and EAP type. Tap **Yes** to continue.

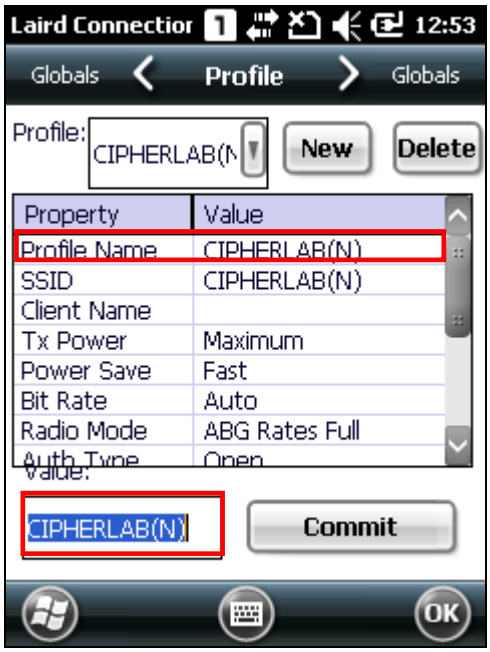




5. Enter a unique name for the profile and tap **OK**.



6. A profile settings page opens showing detailed radio settings. Tap each item and adjust its **Value** to suit your needs.



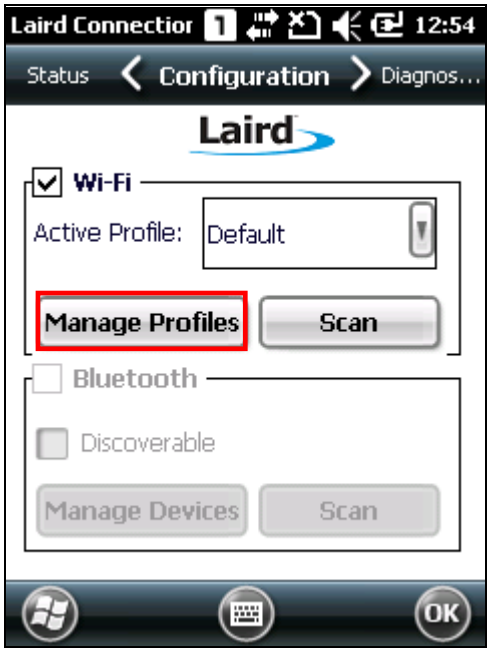
7. When finished fine-tuning all settings, tap **Commit** to save the profile.

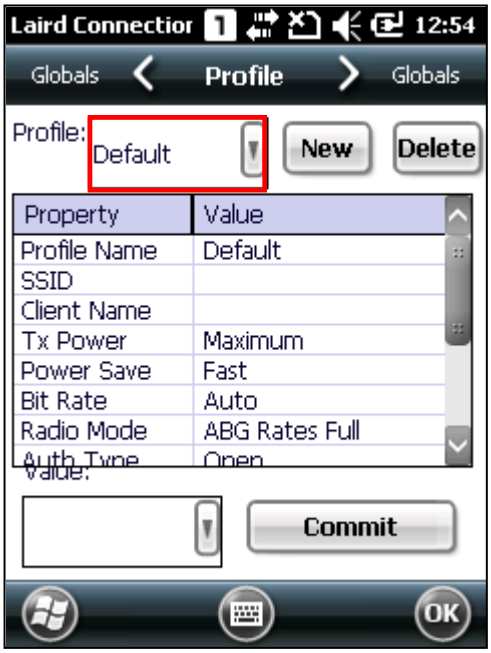
8. Tap **OK** on the softkey bar to close Profile Settings page and return to Configuration settings.

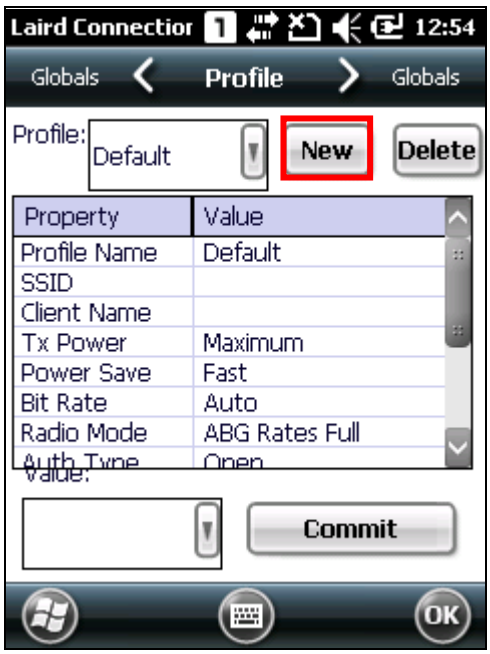
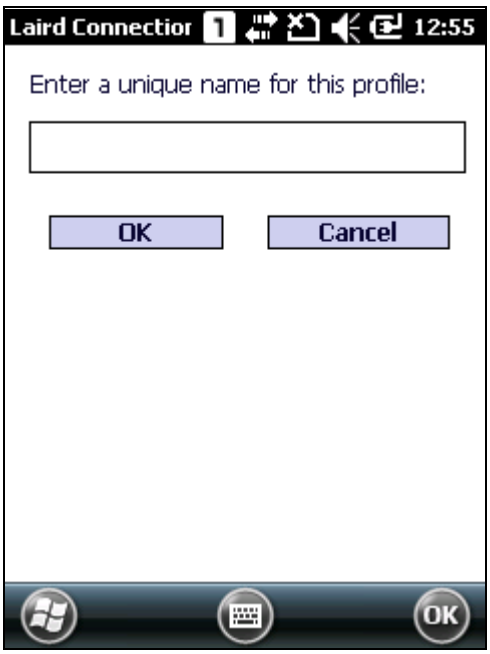
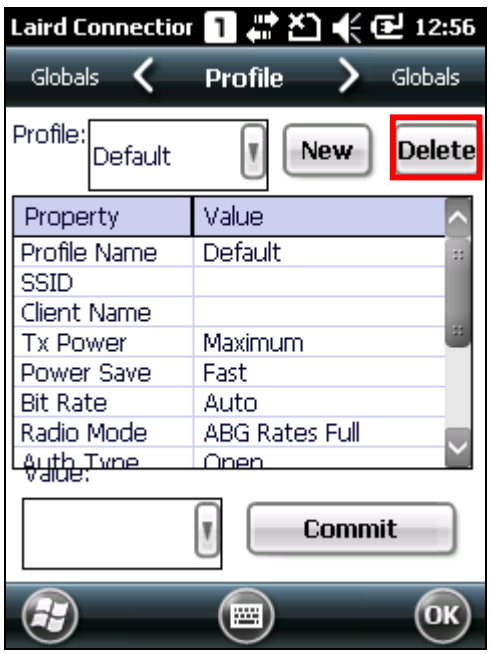
   If you would like to directly activate the newly created profile, select it as the Active Profile on the Configuration settings page.

MANAGE WI-FI PROFILE

1. Open SCU's **Configuration** tab page as described in Create Wi-Fi Profile.
2. Tap **Manage Profiles** to open the Profile settings page.

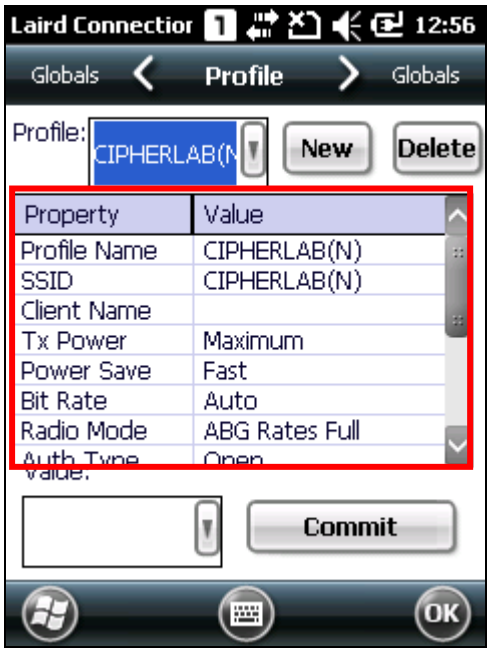


Item	Description
Profile	When SCU is first launched, "Default" is the active profile. Unless it is modified, this profile does not specify an SSID, EAP type or encryption method. You can chose to do the following: ▸ Modify the default profile ▸ Tap **New** to add a new profile ▸ Select an existing profile from the drop-down menu and configure 

New	Tap **New** and enter a unique name for the profile. Configure the Radio settings, Encryption, EAP Type, and other settings for this new profile. ▸ The name for each profile must be unique ▸ You can define up to 20 profiles  
Delete	Select a profile from the drop-down menu and tap **Delete**. ▸ You cannot delete the Active Profile. Make sure the selected profile is not the active profile under **Configuration** tab page. 

Radio Settings

After selecting a profile in the **Profile** drop-down bar, configure radio settings in the scrollable menu below.



Property	Description
Profile Name	Tap to rename the selected profile. Up to 32 characters allowed.
SSID	Service Set Identifier (SSID) for the WLAN infrastructure to which the radio will connect. If no SSID is specified, the radio will only associate to an access point that broadcasts its SSID. ▸ Value: A string of up to 32 characters ▸ Default: None
Client Name	Name assigned to the mobile computer with Summit radio installed. ▸ Value: A string of up to 16 characters ▸ Default: None
Tx Power	The power of the radio in milliwats (mW). In certain cases this value will be overwritten by the access point, which will dictate to the radio which power to use. ▸ Value: Maximum (Maximum power defined for the current regulatory domain) or a specified percentage 75%, 50%, 25%, 10% ▸ Default: Maximum
Power Save	Power save mode for the radio. Set the radio to its optimum power-consumption setting. ▸ Value: CAM — Constantly Awake Mode (CAM) keeps the radio powered up continuously so there is minimal lag in message

		response time. This mode consumes the most power but offers the highest throughput. It is recommended when AC power is in use.
	Maximum	In Max Power Savings (Max PSP) mode, the access point buffers incoming messages for the radio, which wakes up periodically and connects to the access point to see if any buffered messages are waiting. The radio requests buffered messages and then goes back to sleep. It conserves the most power but offers the lowest throughput. It is recommended when battery power is in use.
	Fast	Power Save Mode (Fast PSP) switches between the two modes described above, depending on network traffic. This mode switches to CAM when retrieving a large number of packets and switches back to PSP (= Power Save Polling) after the packets have been retrieved. It is recommended when power consumption is a concern but you need greater throughput than that allowed by Max PSP.

- Default: Fast

Bit Rate	The measurement of how much data is transmitted in a given amount of time from one location to another. ▸ Value: Auto (rate is negotiated automatically with the AP) ▸ Default: Auto
Radio Mode	Use of 802.11a/b/g/n frequncies and data rates when interacting with an AP, or the use of ad hoc to associate to a station radio. ▸ Value: B rates only, BG rates full, G rates only, BG LRS, A rates only, ABG rates full, BGA rates full, Ad Hoc

B rates only	1, 2, 5.5, and 11 Mbps.
BG rates full	All B and G rates, plus N rates if supported.
G rates only	6, 9, 12, 18, 24, 36, 48, and 54 Mbps.
BG LRS	1, 2, 5.5, 6, 11, 24, 36, and 54 Mbps. This should only be used with Cisco APs running IOS in autonomous mode (without controllers).

		A rates only: 6, 9, 12, 18, 24, 36, 48, and 54 Mbps, plus N rates if supported. ABG rates full: All A rates and all B and G rates, with A rates (the 802.11a radio) preferred, plus N if supported. BGA rates full: All B and G rates and all A rates, with B and G rates (the .11g radio) preferred, plus N rates if supported. Ad Hoc: When selected, the Summit radio associates to another station radio that is in ad hoc mode and has the same SSID and, if configured, static WEP key. ▸ Default: ABG rates full
Auth Type	802.11 authentication type used when associating to an AP. ▸ Value: Open, Shared (shared-key), LEAP (Network-EAP) ▸ Default: Open ▸ It is recommended that the default setting Open is selected.
WPA	WPA and WPA2 support the same authentication methods and similar key management methods; the difference is mainly in area of encryption. WPA defines TKIP as the primary encryption method, while WPA2 defines AES-CCMP as the primary encryption method. ▸ Value: None, WPA, WPA2 ▸ Default: None
Encryption	This specifies the type of key used to encrypt and decrypt transmitted data, and how that key is specified or derived. Select Encryption type in the **Value** drop-down box. Item: Description None: N/A TKIP: The encryption method defined with WPA. TKIP uses RC4 encryption as does WEP. AES-CCMP: The encryption method defined with IEEE 802.11i and certified with WPA2. AES-CCMP is stronger than RC4 WEP: The encryption method defined with the original IEEE 802.11 standards; encrypts transmitted data using 64-bit or 128-bit encryption. CKIP: CKIP is supported for use only with static WEP. For CKIP, encryption keys need to

	be defined in SCU; for CKIP-EAP, encryption keys are derived dynamically from an EAP authentication.

Authentication

This is the protocol used to authenticate the device and its user if the WLAN uses the Enterprise version of Wi-Fi Protected Access (WPA) and WPA2. Select Authentication type in the **Value** drop-down box, then enter the credentials necessary for each type in the appeared fields.

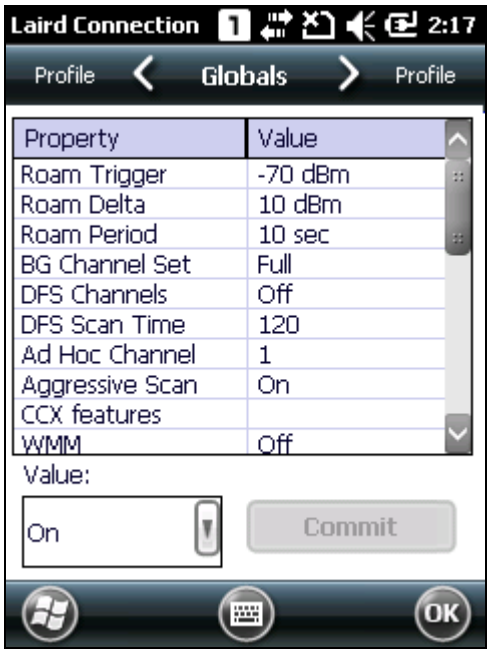
Item	Description
None	N/A
LEAP	Credentials values for LEAP: ▸ User Name (up to 64 characters) ▸ Password (up to 32 characters)
EAP-FAST	Credentials values for EAP-FAST ▸ User Name (up to 64 characters) ▸ Password (up to 32 characters) ▸ PAC Filename (up to 32 characters): You may create a protected access credential (PAC) for each client device. When creating a PAC manually, you must store it in the directory identified in Certs Path on the **Globals** settings page. To use automatic provisioning, leave this field blank. ▸ PAC Password (up to 32 characters)
PEAP-MSCHAP	Credentials values for PEAP-MSCHAP, PEAP-GTC, EAP-TTLS: ▸ User Name (up to 64 characters) ▸ Password (up to 32 characters) ▸ CA Cert: Filename and extension of root certificate authority (CA) digital certificate (up to 32 characters). Specify the Certs Path in **Globals** settings page > **Certs Path**.
PEAP-GTC	
EAP-TTLS	
EAP-TLS	Credentials values for EAP-TLS and PEAP-TLS: ▸ User: Username or Domain/Username (up to 64 characters) ▸ User Cert: Filename and extension of user certificate residing in the Microsoft certificate store. See Certificates. ▸ CA Cert: Filename and extension of root certificate authority (CA) digital
PEAP-TLS	

			certificate (up to 32 characters). Specify the Certs Path in **Globals** settings page > **Certs Path**.
		PSK	Pre-shared keys (PSK) consist of up to 256 bits entered as a string of up to 64 hexadecimal digits.
	Fast Reauth	The expedited WPA key handshake used to reduce roaming time to 125 msec or less. Available for WPA TKIP and WPA2 AES-CCMP. ▸ Value: None, CCKM ▸ Default: None	
Value	Use this box to change the value of a selected item. Depending on the item property, this can be done by choosing a value from a drop-down list, or entering the desired value with the on-screen or physical keypad. 		
Commit	After making any changes on the **Profile** tab page, the **Commit** button must be tapped in order for the settings to take effect. 		

MANAGE GLOBAL SETTINGS

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

1. Open SCU's Configuration tab page as described in Create Wi-Fi Profile.
2. Tap **Manage Profiles** to open the Profile settings page.
3. Tap the **Globals** tab to open the Global settings page.



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

Item	Description

<table>
<tr><td></td><td>
<table>
<tr><td>Full</td><td>All channels</td></tr>
<tr><td>1, 6, 11</td><td>The most commonly used 2.4 GHz channels</td></tr>
<tr><td>1, 7, 13</td><td>For ETSI and TELEC radios only</td></tr>
<tr><td>Custom</td><td>Indicates the system registry has been edited to include a value other than those available in the drop-down value</td></tr>
</table>
Default: Full
</td></tr>
<tr><td>DFS Channels</td><td>Indicates whether to support 5 GHz (802.11a) channels where dynamic frequency selection (DFS) is required.
Value: On, Off
Default: Off</td></tr>
<tr><td>DFS Scan Time</td><td>Enables determining the dwell (listen) time when passively scanning on a DFS channel.
Valid range of 20-500 ms configurable
Default: 120
When the DFS Scan Time is changed to a value lower than default, it is recommended that the beacon period in the WLAN infrastructure is changed as well. Ideally, the dwell time should be 1.5 times than that of the beacon period.</td></tr>
<tr><td>Ad Hoc Channel</td><td>The channel to be used for an ad hoc connection if the active profile has a Radio Mode value of “Ad Hoc”.
Value:
<table>
<tr><td>1~14</td><td>One of the 2.4 GHz channels</td></tr>
<tr><td>36, 40, 44, 48</td><td>UNII-1 channels</td></tr>
</table>
Default: 1
If a channel that is not supported is selected, then SCU will automatically apply the default channel setting (1).</td></tr>
<tr><td>Aggressive Scan</td><td>Aggressive scanning complements and works in conjunction with the standard scanning that is configured through the Roam Trigger, Roam Delta, and Roam Period settings. It is recommended that aggressive scanning is enabled unless there is significant co-channel interference because of overlapping coverage from APs that are on the same channel.
Value: On, Off
Default: On</td></tr>
<tr><td>CCX features</td><td>Whether to allow the use of Cisco information element (IE) and CCX version number to authorize support for CCX features.
Value: Full, Off
Full mode uses Cisco IE and CCX version number and enables support for all CCX features. Off mode disables all support for Cisco IE and CCX version number.
Default: N/A
If the radio fails to connect to an 802.11n wireless network, set CCX features as “Off” and try again.</td></tr>
<tr><td>WMM</td><td>Whether to allow the use of Wi-Fi Multimedia (WMM) Extensions or not.
Value: On, Off
Default: Off</td></tr>
</table>

<table>
<tr><td></td><td>
Changing this setting requires suspend/resume of the mobile computer to take effect.
</td></tr>
<tr><td>Auth Server</td><td>
Type of authentication server being used for EAP authentication.
Value:
<table>
<tr><td>Type 1</td><td>Cisco Secure ACS or another server that uses PEAPv1 for PEAP with EAP-MSCHAPV2 (PEAP-MSCHAP)</td></tr>
<tr><td>Type 2</td><td>A different authentication server, such as Juniper Networks Steel Belted RADIUS, that uses PEAPv0 for PEAP-MSCHAP</td></tr>
</table>
Default: Type 1
</td></tr>
<tr><td>TTLS Inner Method</td><td>
Authentication method used within secure tunnel created by EAP-TTLS.
Value:
<table>
<tr><td>Auto-EAP</td><td>Any available EAP method</td></tr>
<tr><td>MSCHAPV2</td><td></td></tr>
<tr><td>MSCHAP</td><td></td></tr>
<tr><td>PAP</td><td></td></tr>
<tr><td>CHAP</td><td></td></tr>
<tr><td>EAP-MSCHAPV2</td><td></td></tr>
</table>
Default: Auto-EAP
</td></tr>
<tr><td>PMK Caching</td><td>
The type of Pairwise Master Key (PMK) caching to use with a WPA2 encryption type (alternative to WPA2 CCKM).
Value: Standard or OPMK (opportunistic PMK)
Default: Standard
</td></tr>
<tr><td>TX Diversity</td><td>
How to handle antenna diversity when transmitting data to AP.
Value:
<table>
<tr><td>Main Only</td><td>Use main antenna only</td></tr>
<tr><td>Aux Only</td><td>Use auxiliary antenna only</td></tr>
<tr><td>On</td><td>Use diversity</td></tr>
</table>
Default: On
</td></tr>
<tr><td>RX Diversity</td><td>
How to handle antenna diversity when receiving data from AP.
Default: On-start on Main
This is a fixed setting; on startup, the main antenna is always used
</td></tr>
<tr><td>Frag Thresh</td><td>
When packet size exceeds the set threshold, it becomes fragmented.
Value: 256 ~ 2346
Default: 2346 (bytes)
</td></tr>
<tr><td>RTS Thresh</td><td>
When packet size exceeds the set threshold, RTS/CTS is required on link.
Value: 0 ~ 2347
Default: 2347 (bytes)
</td></tr>
<tr><td>LED</td><td>
Indicates whether or not an LED is used.
Value: On, Off
Default: Off
</td></tr>
</table>

Tray Icon	Whether to enable the system tray icon or not. ▸ Value: On, Off ▸ Default: On
Admin Password	N/A
Auth Timeout (s)	Specifies how long it will wait for an EAP authentication request to succeed or fail. If authentication credentials are specified in the active profile and the authentication times out, then association will fail. If authentication credentials are not specified in the active profile and the authentication times out, then the user will be required to enter credentials again. ▸ Value: 3 ~ 60 ▸ Default: 8 (seconds)
Certs path	File path where the certificate for EAP authentication is stored. ▸ Value: A valid directory path of up to 64 characters ▸ Default: Depends on device
Supplicant	The user (client) making a request to gain access to system resources through the authentication server. ▸ Value: Summit, Third Party ▸ Default: Summit
Auto Profile	Activate or deactivate automatic profile selection. ▸ Value: On, Off ▸ Default: Off ▸ When On is selected, proceed to the Profile settings page and select from the existing profiles those which you would like to add to the Auto Profile list. The number of profiles in this list is limited to 19. When Auto Profile is activated, the Summit radio will attempt to associate to an access point after a device startup or resume, and it will try out each listed profile in order until the radio associates to an access point. The successful profile becomes the active profile and remains active until one of the following occurs: ▸ The device goes through suspension and resume, power-cycling, or restart, which causes the radio to go through the automatic profile selection process once more. ▸ Auto Profile is turned off and an active profile is manually selected on the SCU **Configuration** tab.

4.3.4. DIAGNOSTICS TAB PAGE

Perform diagnostic tests to troubleshoot connection issues when necessary.

1. Open SCU as described in Launch SCU.

2. Tap the **Diagnostics** tab to show the Diagnostics page.

   Diagnostics status for Wi-Fi and Bluetooth shows, along with on-screen buttons to open Advanced settings and view software version information.



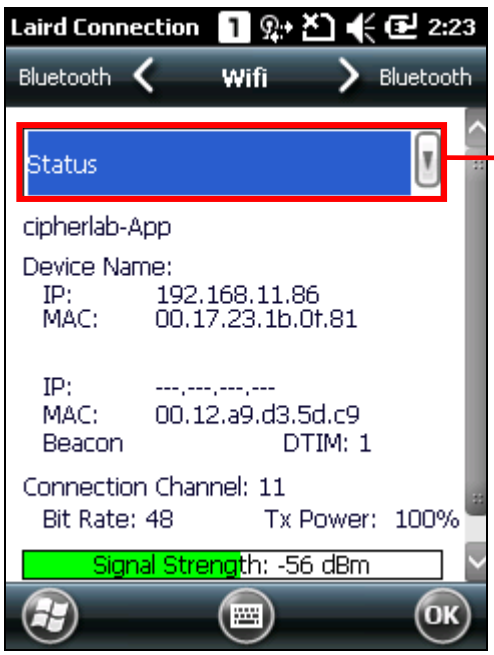
ADVANCED DIAGNOSTICS

1. Open Diagnostics Tab page.
2. Tap the **Advanced** button to open advanced diagnostics settings.



CHECK STATUS

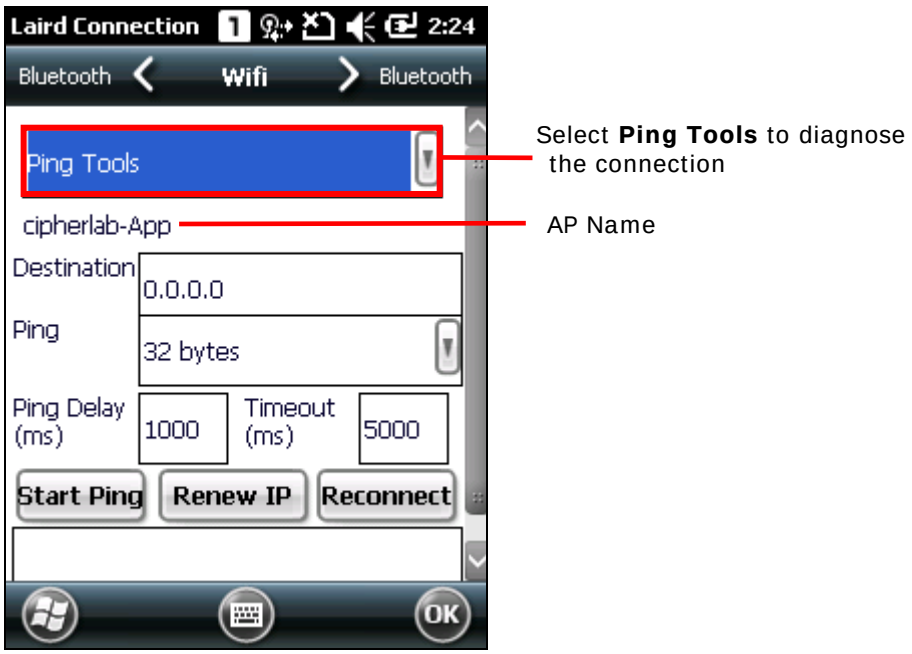
To check diagnostics status, select **Status** in the drop-down bar.



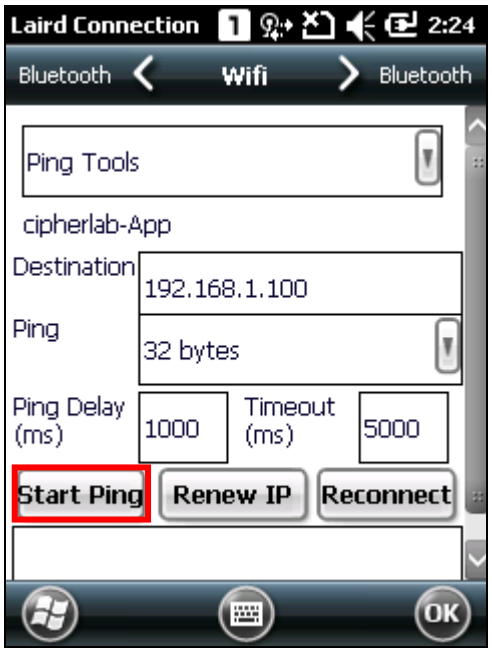
Select **Status** to check connection details

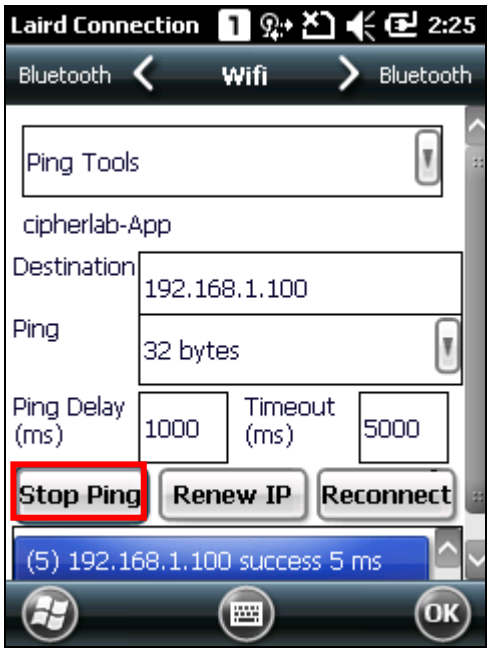
USE PING TOOLS

To perform ping tests, select **Ping Tools** in the drop-down bar.

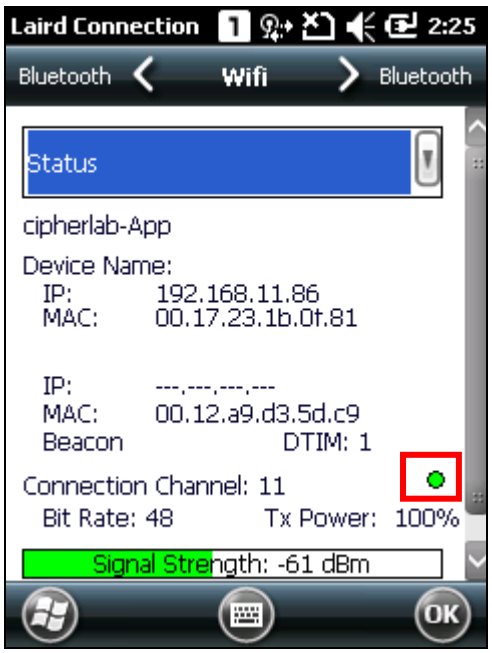


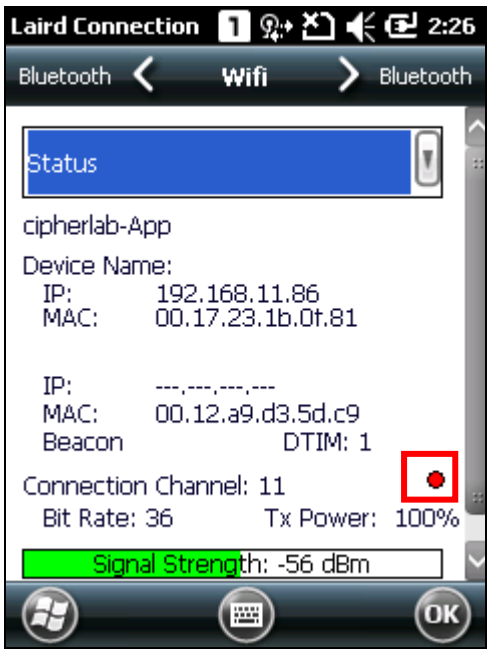
Item	Description
Destination	Enter the address to ping.
Ping	The amount of data to be transmitted on a ping. ▸ Value: 32, 64, 128, 256, 512, 1024 ▸ Default: 32 (bytes)
Ping Delay	The amount of time that elapses between successive ping requests. ▸ Value: 0~7200000 ▸ Default: 1000 (milliseconds)
Timeout	The amount of time that elapses without a response before ping request is considered a failure. ▸ Value: 0~30000 ▸ Default: 5000 (milliseconds)
Start Ping	Enter the address to ping to in the **Destination** field and tap **Start Ping**. A continuous ping will begin until the following happens: **Stop Ping** is tapped, the, the application is exited, or the radio is removed. Activity status will be logged in the output box below.



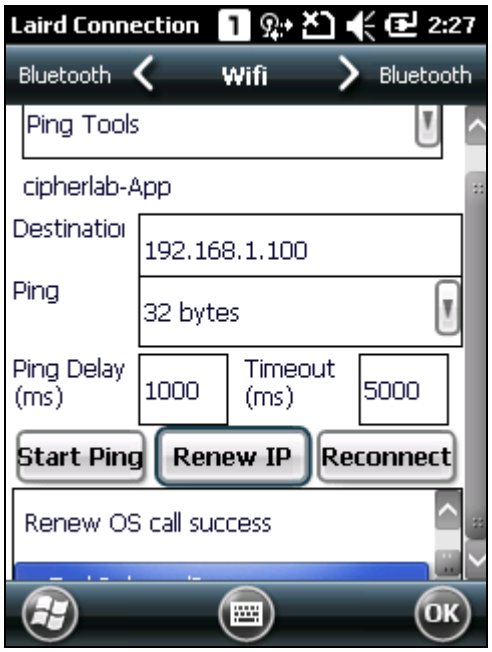
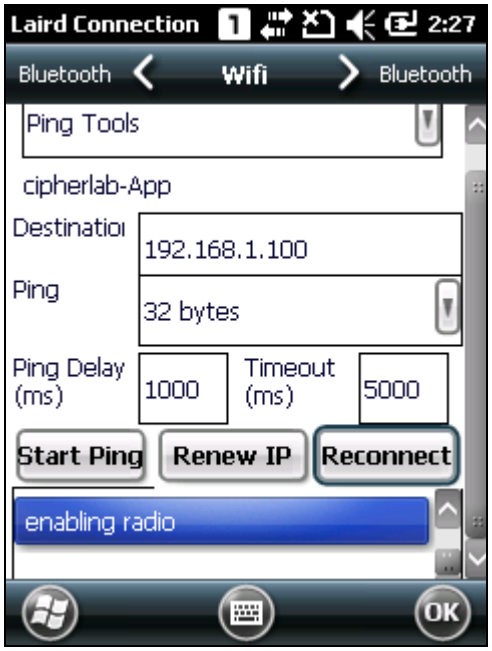


When an active ping is initiated, the screen displays a ping indicator that blinks in green (for a successful ping) or red (for an unsuccessful ping). The ping indicator is hidden when the screen is switched to a tab other than Diags or Status.





Renew	Obtain a new IP address through DHCP release/renew, and log all activity in the output area at the bottom.

	
(Re)connect	Disable and enable the radio, apply or re-apply the current profile, attempt to associate and authenticate to the wireless network, and log all activity in the output area at the bottom. 

USE DEBUG TOOLS

To check debug settings, select **Debug** in the drop-down bar.



Select **Debug** to check debug settings

Item	Description
Driver Debug	Select whether to debug the WLAN driver, and the output mode for driver debug. ▸ Value: Not set, 1-Text(Low), 2-Text, 3-Text(High), 4-Serial(Low), 5-Serial, 6-Serial(High) ▸ Default: Not set ▸ When set as 1-Text(Low), 2-Text, or 3-Text(High), SCU will continue to export debug logs to the mobile computer's internal storage. Do not select any of these options unless necessary.
Reg. Domain	Indicates the regulatory domain or domains for which the radio is configured by default. Default setting is "Worldwide", which means that the radio can be used in any domain.
Dump Location…	Dumps the diagnostics results to a desired location in the form of a .txt file.
Import/Export	Imports/exports SCU settings as a profile (.sdc format). When exporting, you may select to include Global Settings, Third Party Config settings or Profile Settings. When importing, you may select to add to existing settings, or replace the set values in Global Settings, Third Party Config and Profiles.

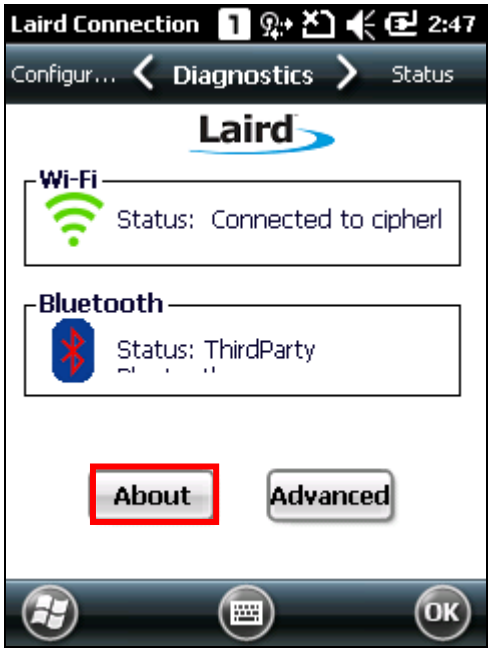
Note: It is recommended that Driver Debug output settings are kept as default and not changed.

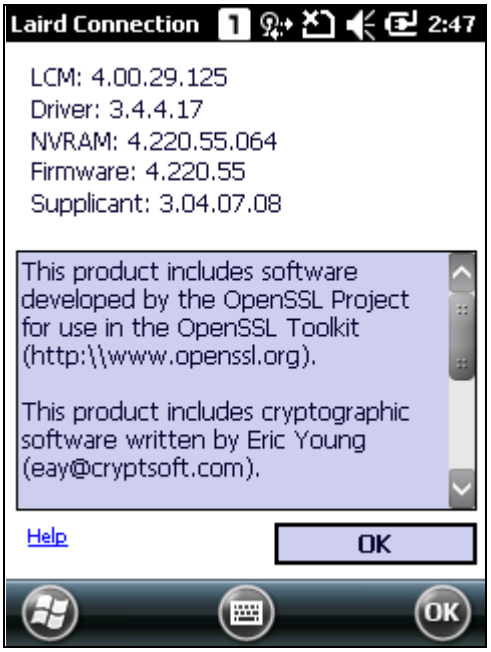
SOFTWARE VERSION INFORMATION

To check software version information:

1) Open Diagnostics Tab page.

2) Tap the **About** button to view information about SCU version, device driver, and software developer.





Chapter 5

USING BLUETOOTH

The 9200 Mobile Computer lets you configure Bluetooth settings and manage Bluetooth services provided on remote devices.

Bluetooth Profiles Supported

Serial Port Profile	(SPP)	supports Server/Client
Object Push Profile	(OPP)	supports Server/Client
Dial-Up Networking Profile	(DUN)	supports Client only
Personal Area Networking Profile	(PAN)	
Human Interface Device Profile	(HID)	supports keyboard and mouse without cursor
Headset Profile	(HSP)	
Hands-Free Profile	(HFP)	
Generic Access Profile	(GAP)	
Generic Object Exchange Profile	(GEOP)	
Advanced Audio Distribution Profile	(A2DP)	
Audio/Video Remote Control Profile	(AVRCP)	
Phone Book Access Profile	(PBAP)	
ActiveSync-Over-Bluetooth		

IN THIS CHAPTER

5.1 Bluetooth Power 110
5.2 Search Devices 112
5.3 Pair Devices 114
5.4 Serial Port Service 117
5.5 Object Push via Beam 121
5.6 ActiveSync via Bluetooth 123

5.1. BLUETOOTH POWER

5.1.1. POWER ON BT VIA WIRELESS MANAGER

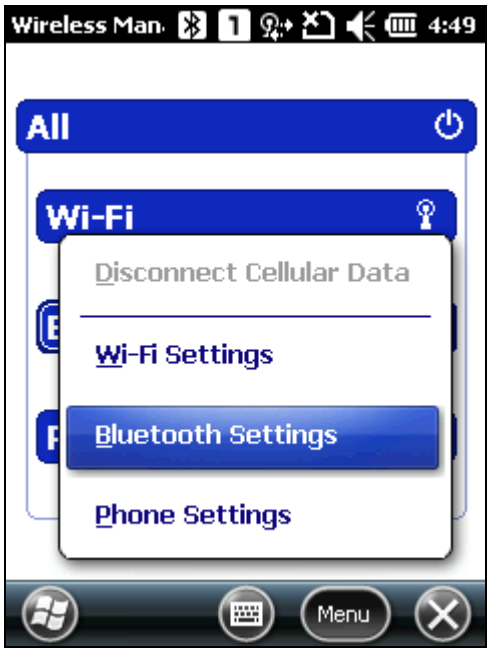
1. Go to **Start Screen** | **Wireless Manager** as shown below.

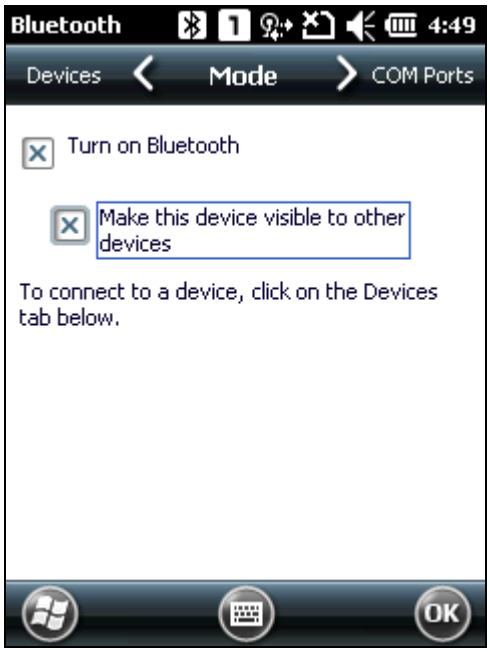


2. Tap **All** or **Bluetooth** to turn on the power.

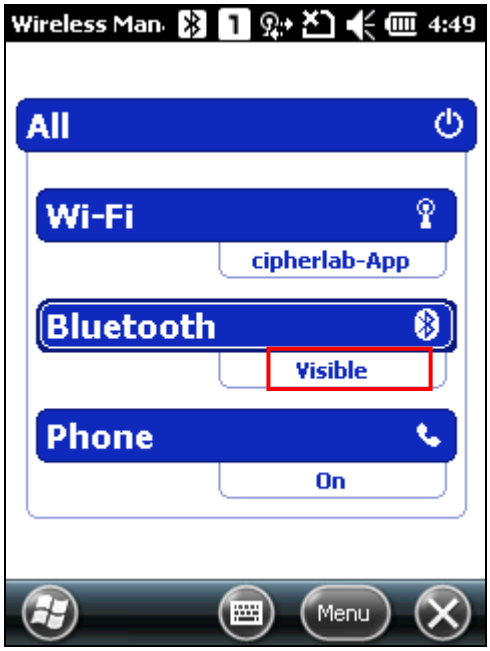


3. To make the mobile computer discoverable to other Bluetooth devices, tap **Menu** | **Bluetooth Settings** | **Mode** tab, and check "Make this device visible to other devices". Tap **OK** to confirm.





4. The Bluetooth status becomes "Visible" under Wireless Manager, meaning Bluetooth is turned on and deployment is enabled.



5.2. SEARCH DEVICES

1. In the Bluetooth configurations screen, on the Devices mode tab you can search for other Bluetooth devices, or go to **Start Screen** | **Settings** | **Bluetooth** for the same settings.



2. Tap **Add new device…** or **Add** on the softkey bar to search for other Bluetooth devices.



3. Wait for a few seconds, and it will list the discovered devices. If you do not see the device that you wish to connect, make sure it is set as “Bluetooth discoverable”. Tap **Refresh** to search again.



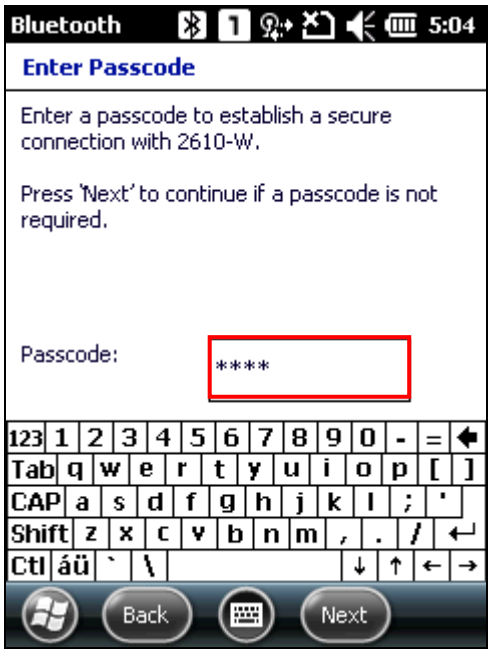
5.3. PAIR DEVICES

5.3.1. PAIR

1. Select a device to connect and tap **Next**.



2. If necessary, enter the password to establish a secure connection. Make sure a consistent password is entered on both devices. Tap **Next**.



3. The two devices become connected via Bluetooth. Tap **Done**.



4. Once paired successfully, the device will appear in the device list. Tap it to view available Bluetooth services or modify its display name.



5.3.2. UNPAIR

On the Devices tab, tap and hold the desired device to select **Delete** from the pop-up menu.



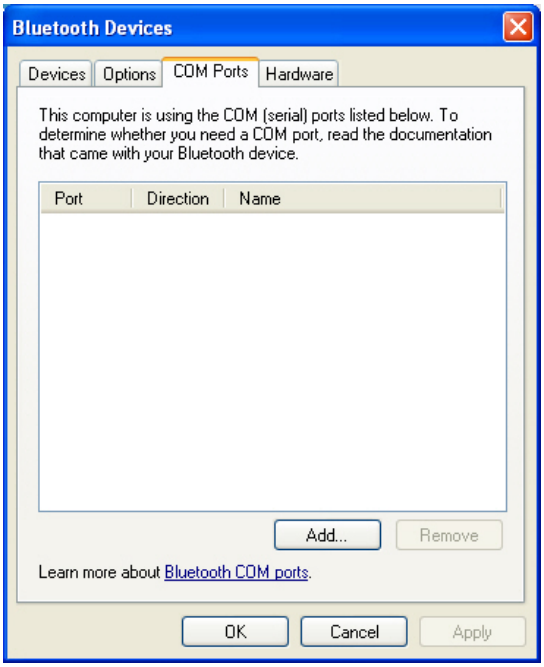
Note: The mobile computer must be unpaired on the remote device as well. Remove it from the device list on the remote device as well. (Both devices must be unpaired and removed!)

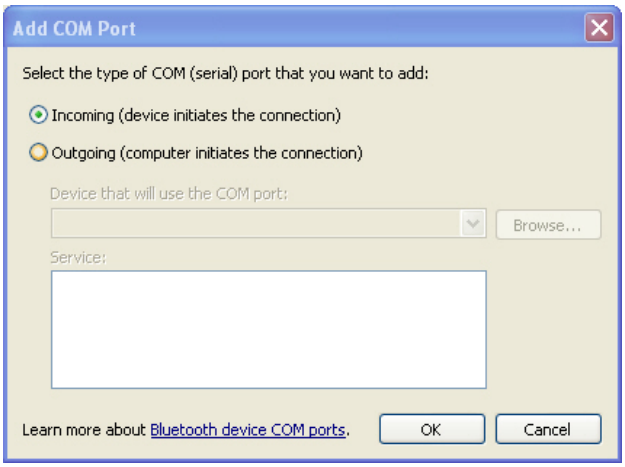
5.4. SERIAL PORT SERVICE

1. On the Devices tab, tap and hold the desired device to select **Edit** from the pop-up menu.



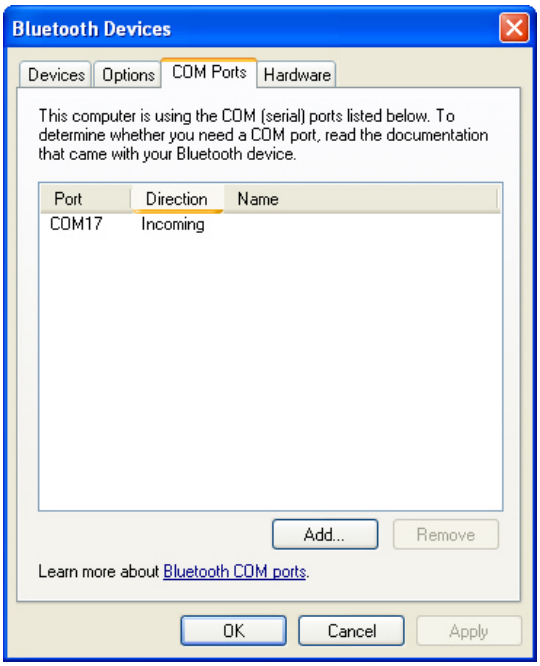
2. Make sure the Serial Port service is enabled for use on the remote Bluetooth device. For PC example, you can launch the Bluetooth Device configuration utility and in the Bluetooth Device configuration screen, tap COM Ports tab, tap **Add** as below. Select "Incoming (device initiates the connection)" item tap **OK**.



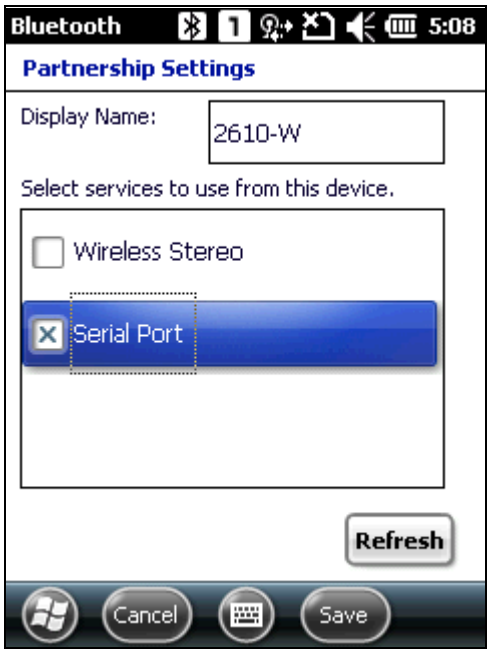


3. The searched COM port will be showed on the screen, select the connected COM port then tap **OK**.

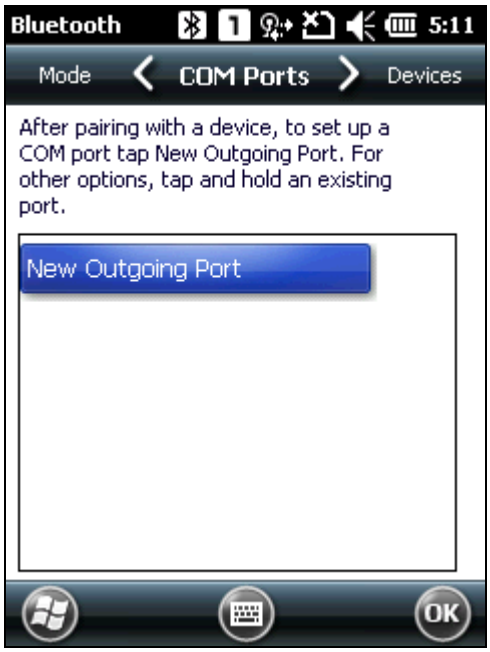
Note: On the PC, you can use applications such as HyperTerminal to confirm the connection between your PC and mobile computer. In HyperTerminal, the COM port No. has to be set exactly as the incoming port No. on your PC.



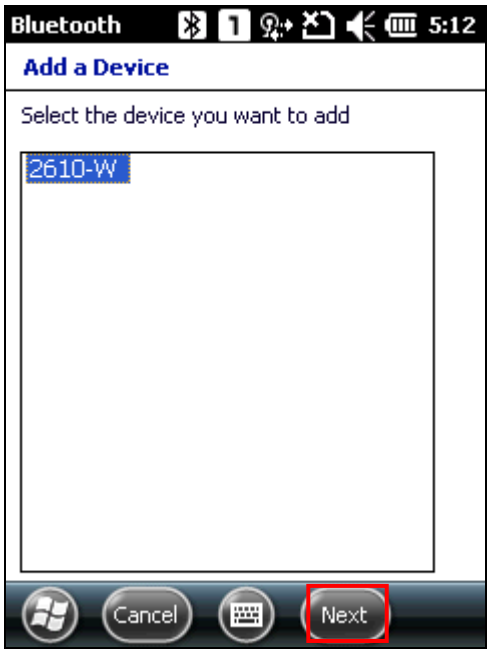
4. On the Bluetooth configuration screen of the mobile computer, tap **Refresh** to select Serial Port check box, click **Save**.



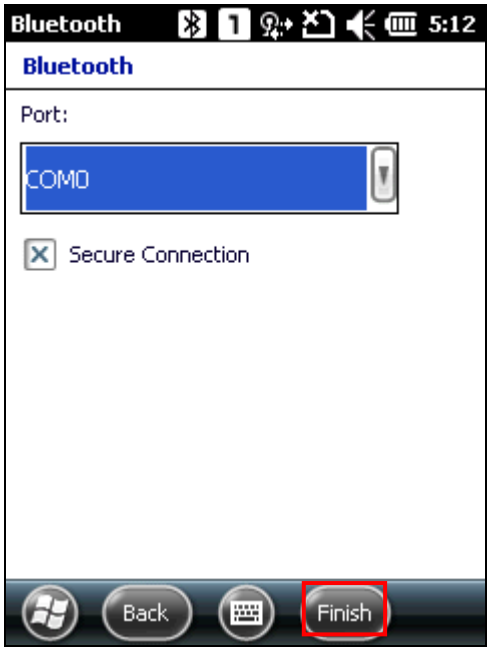
5. On the COM Ports tab, tap **New Outgoing Port**.



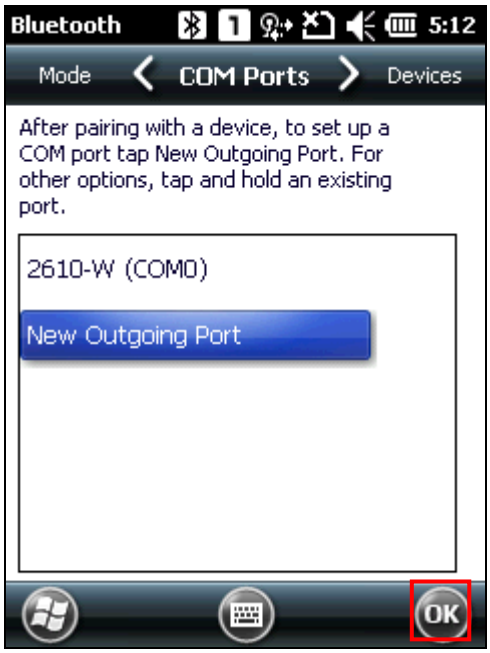
6. Select the remote device, and then tap **Next**.



7. Select a COM port, and then tap **Finish**. (For Bluetooth, please select COM0 or COM3 for connection.



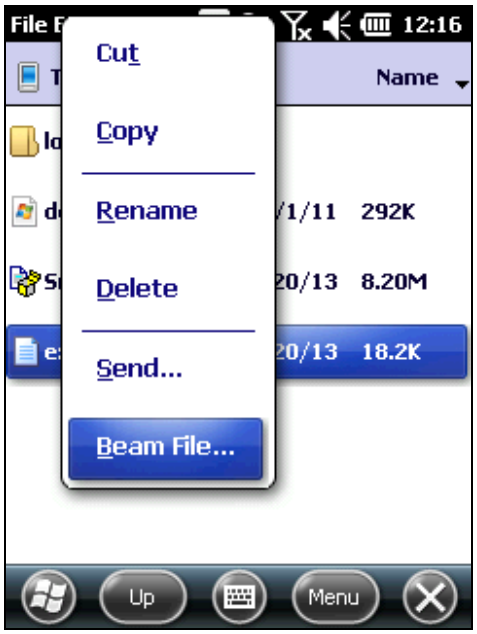
8. A new Bluetooth serial port is created. Tap **OK**. The mobile computer is ready to transmit data via Bluetooth.



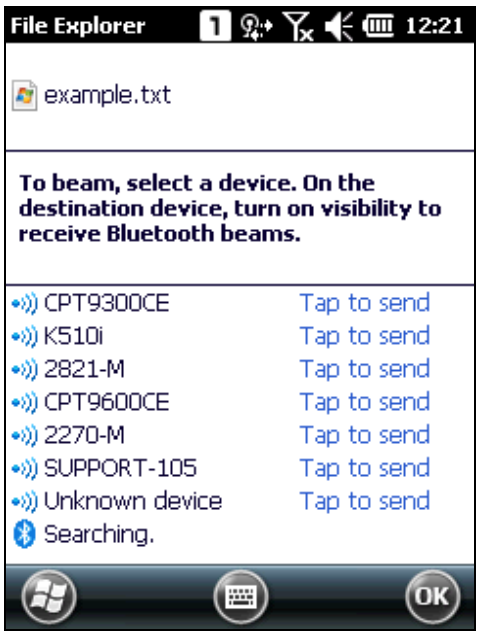
5.5. OBJECT PUSH VIA BEAM

5.5.1. SEND A FILE

1. Tap **Start Screen** | **File Explorer**.
2. Navigate to the folder containing the file you wish to send to the Bluetooth device.
3. Tap and hold the file and select Beam file from the pop-up menu.

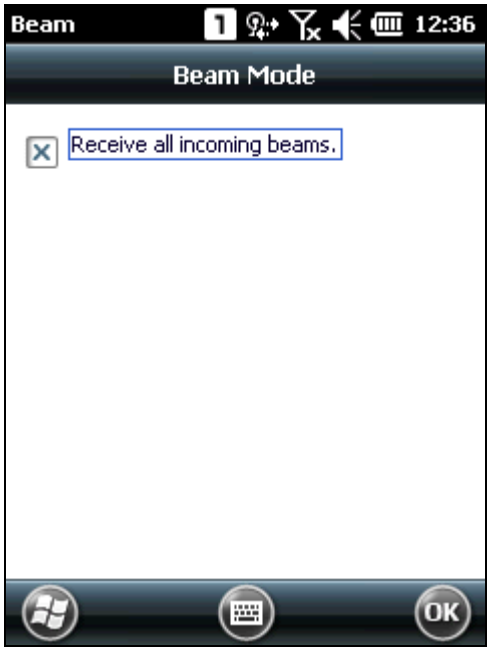


4. Tap the remote device of interest to send the file via Bluetooth. The mobile computer will start uploading the file. The remote device will start receiving the file few seconds later. When file transfer is completed, tap **OK** to exit

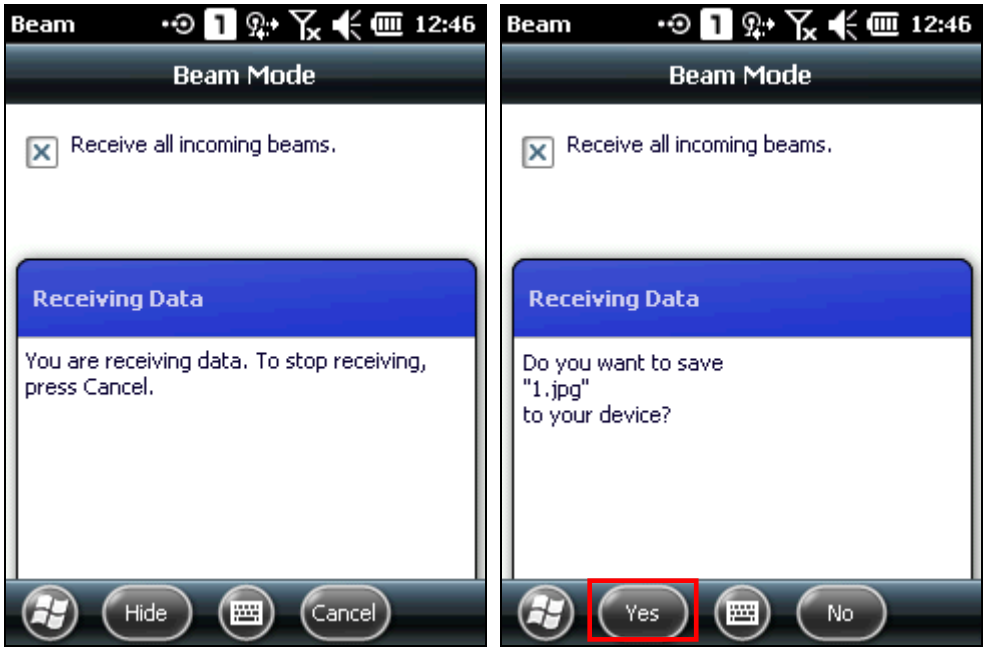


5.5.2. RECEIVE A FILE

1. Pair the mobile computer with the remote device as described in Pair Devices.
2. Tap **Start Screen** | **Settings** | **Connections** | **Beam**, and make sure "Receive all incoming beams" is enabled in order to receive incoming files.



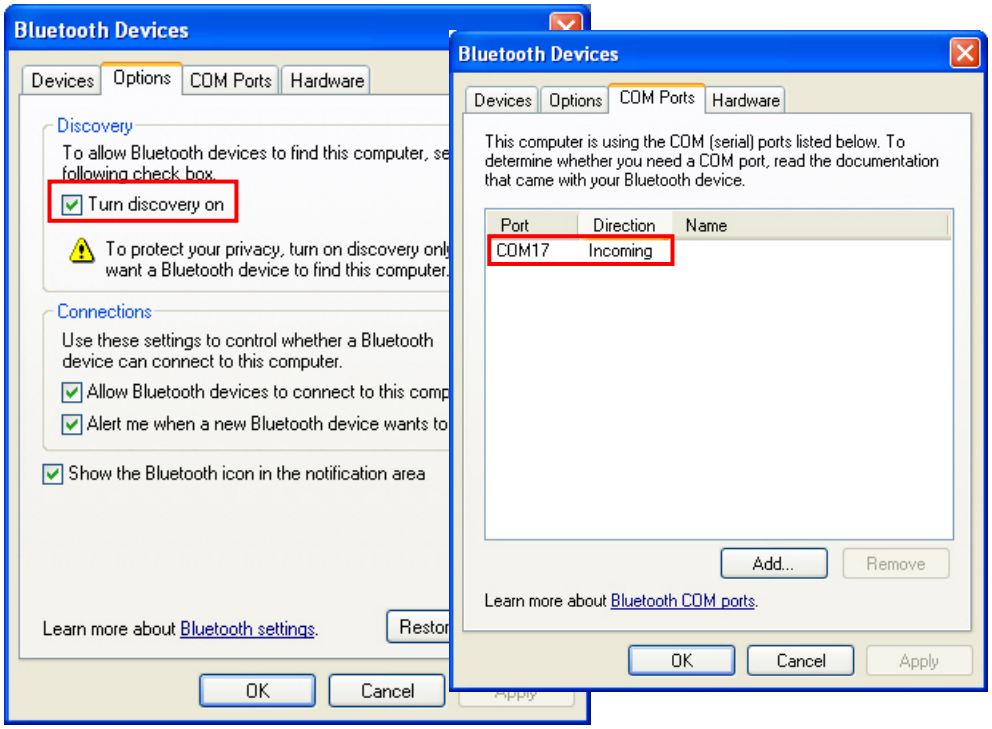
3. On the remote device, send a desired file to the mobile computer via Bluetooth.
4. A "Receiving Data" dialog appears on-screen, first notifying that the mobile computer is receiving data, and then asking for confirmation to save the data. Tap **Yes** to continue. The received data will be stored under **\My Device\My Documents**.



5.6. ACTIVESYNC VIA BLUETOOTH

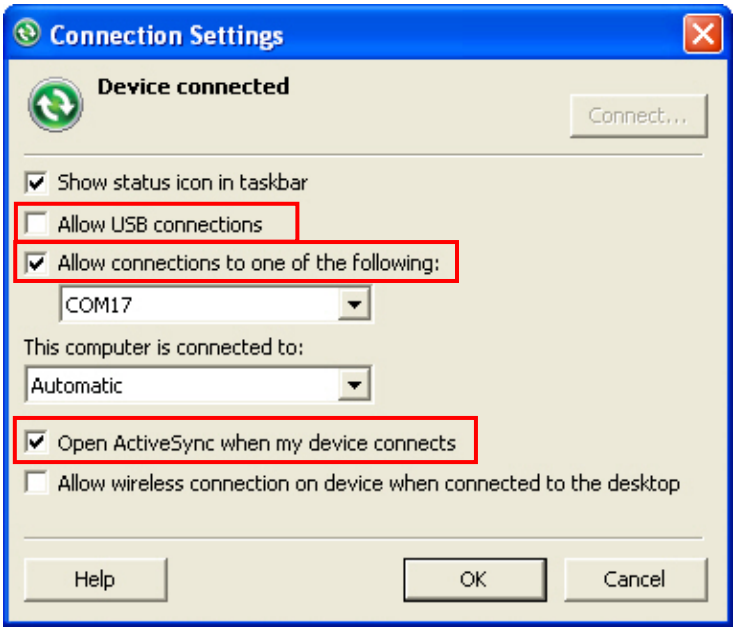
To use Bluetooth via ActiveSync, first configure Bluetooth settings correctly on your computer first.

1. Configure Bluetooth settings for your computer, such as “Turn discovery on” and add a COM port (incoming), the COM port value depending on your computer.



2. Pair the mobile computer with the remote computer via Bluetooth as described in Pair Devices.

3. For Bluetooth connection to work via ActiveSync, either disconnect physically by detaching the mobile computer from the Snap-on Cable or Cradle, or uncheck the “Allow USB connections” option under **ActiveSync** | **File** | **Connection Settings**. In addition, enable COM port connection and specify the correct COM port.



4. After ActiveSync service is set on the remote computer, enable ActiveSync service on the mobile computer's Bluetooth partnership settings. Tap **Refresh** if the option does not appear in the list.



4. On the mobile computer, tap **Start Screen** | **ActiveSync** | **Menu** and select **Connect via Bluetooth** in the option menu. ActiveSync partnership will be established between the remote computer and mobile computer via Bluetooth after a few seconds.

Chapter 6

USING THE PHONE

The 9200 Mobile Computer allows making phone calls and connecting to the network over General Packet Radio Service (GPRS). Insert the SIM card before turning on the power. Refer to Inserting SIM Card.

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

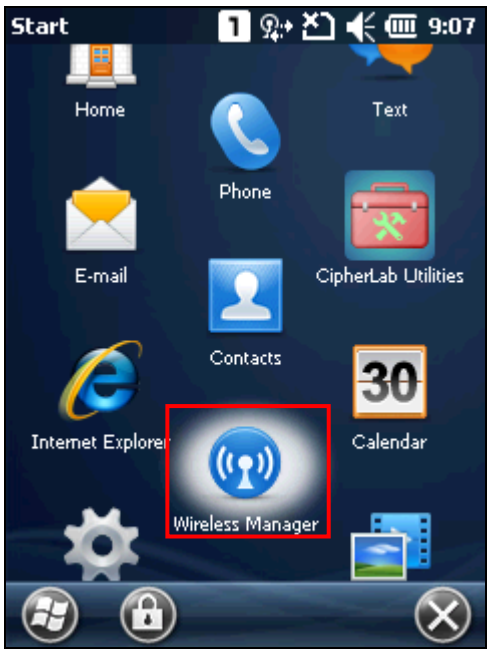
IN THIS CHAPTER

6.1 Phone Power..... 126
6.2 Phone Application..... 129
6.3 Phone Settings..... 132
6.4 Making Phone Calls..... 136
6.5 Configuring GPRS Network 141
6.6 VoIP..... 144

6.1. PHONE POWER

6.1.1. POWER ON PHONE VIA WIRELESS MANAGER

1. Phone power is turned on by default. If not, go to **Start Screen** | **Wireless Manager** to access **Wireless Manager**.



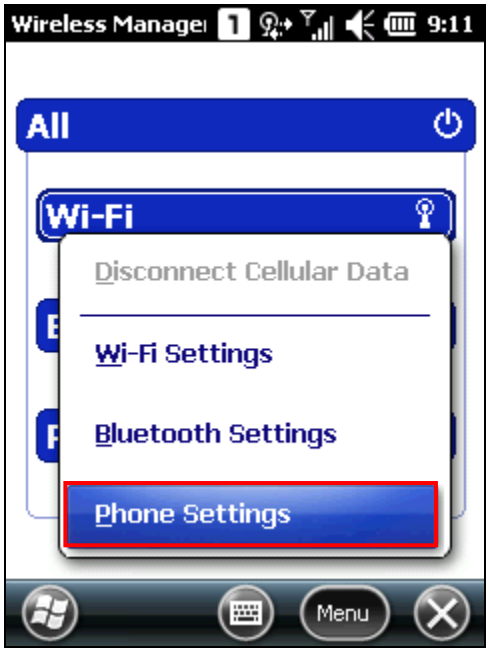
2. Tap **All** or **Phone** to turn on the power.



3. When the power is turned on, the Phone status appears as “On”, and an antenna signal icon will be displayed on the title bar.



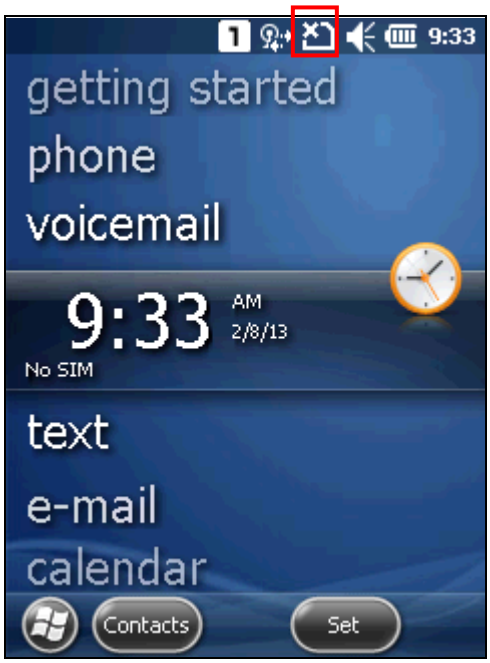
4. Tap **Menu** | **Phone Settings** to configure related settings if necessary.



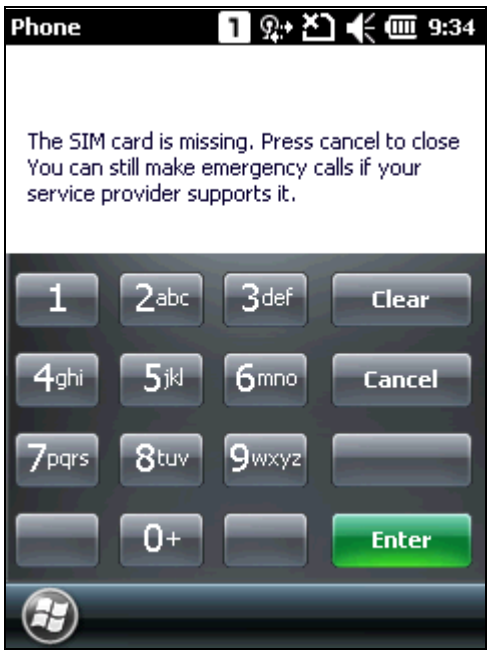
Note: Phone Settings are only available when the phone power has been turned on. You can check the security settings, change the PIN code on your SIM card and so on if necessary.

6.1.2. SIM CARD MISSING

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



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



Note: If your wired headset (CTIA standard) has an integrated hook switch, you may press the hook switch to open the dialer screen.

6.2. PHONE APPLICATION

6.2.1. PHONE INTERFACE

After the phone application is launched, the antenna signal icon  on the title bar indicates whether you are connected to your service provider's network. As the strength of the signal diminishes, so will the number of bars in the icon, which ranges from no signal to excellent signal (four-bars).

The display panel on the top half of the screen is used to show your service provider's name and the contact name and/or phone number when making or receiving a call.

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

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



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

Note: If your wired headset (CTIA standard) has an integrated hook switch, press the hook switch to open the dialer screen.

6.2.2. BUTTONS

The phone keypad features the following buttons:

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

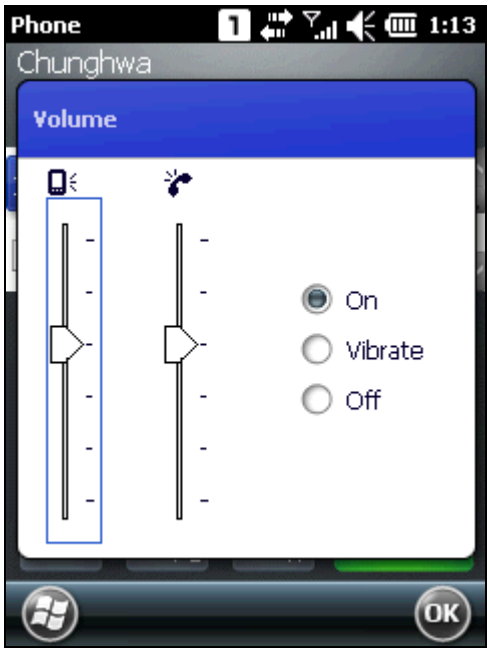
6.2.3. VOLUME

SYSTEM AND RINGER VOLUME

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

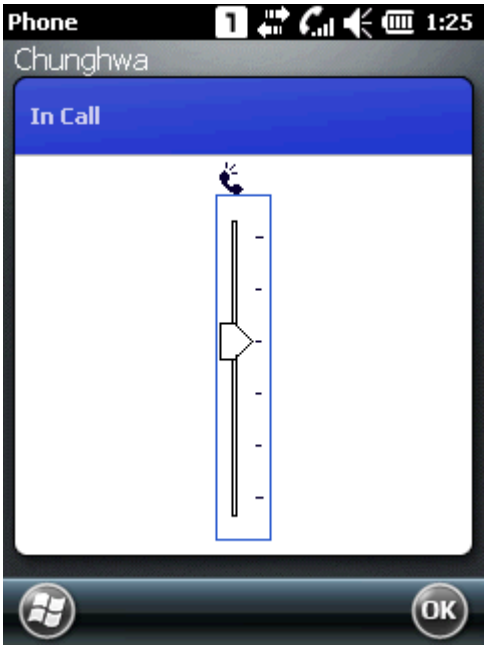
Volume adjustment can also be done by pressing the volume up/down buttons on the right side of the mobile computer.





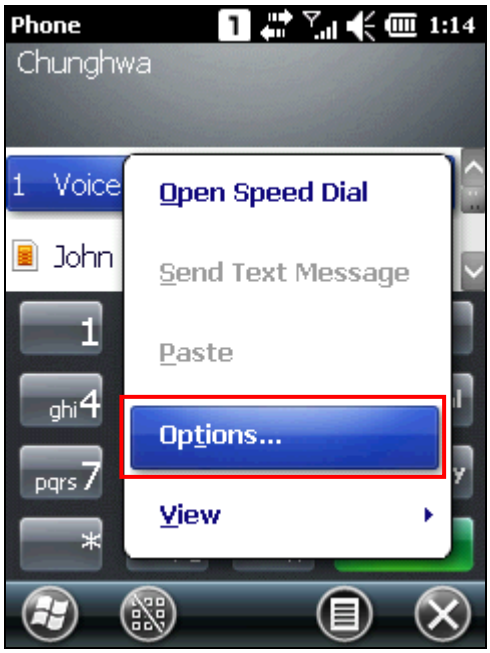
IN-CALL VOLUME

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



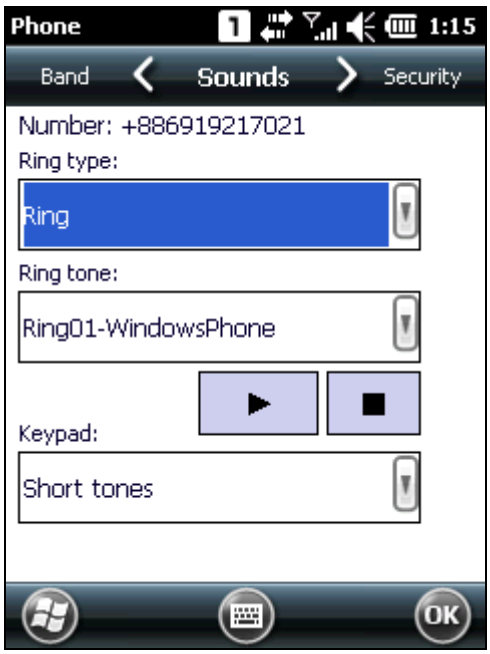
6.3. PHONE SETTINGS

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



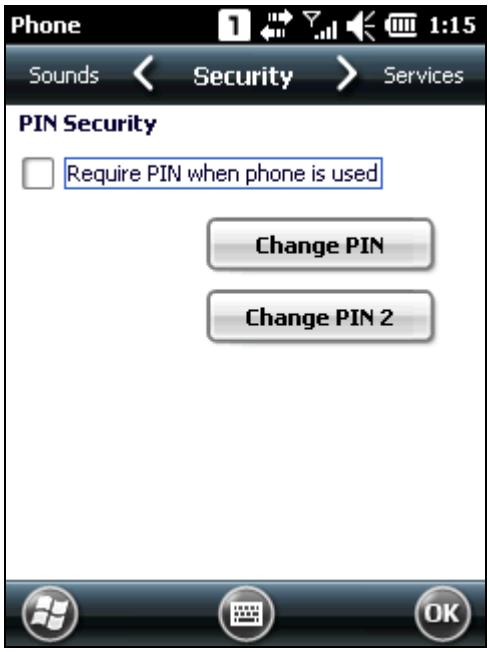
Sounds tab

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



Security tab

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



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

Services tab

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



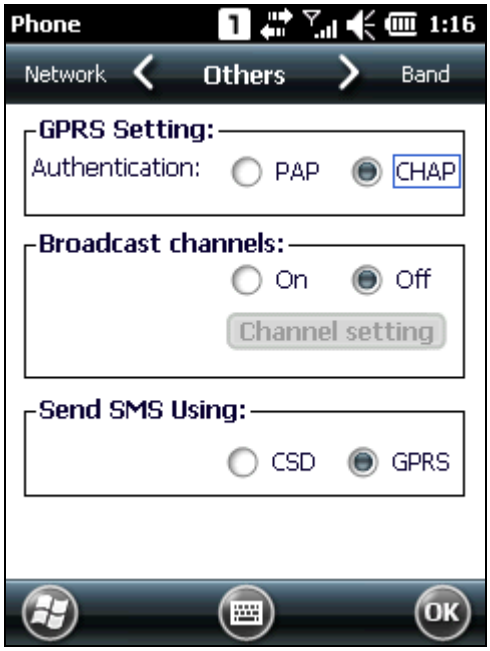
Network tab

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



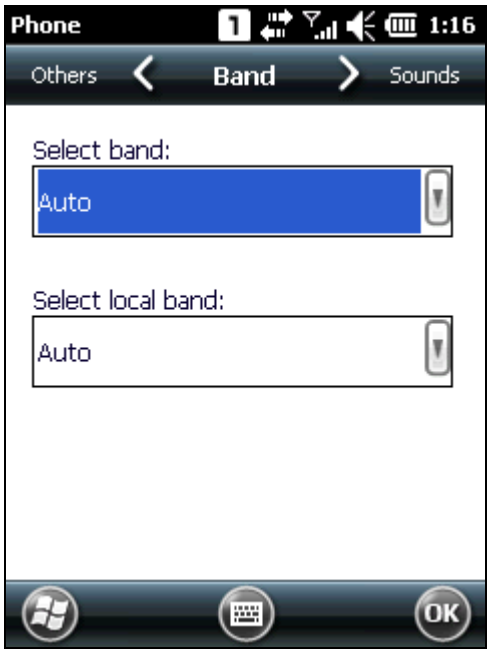
Others tab

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



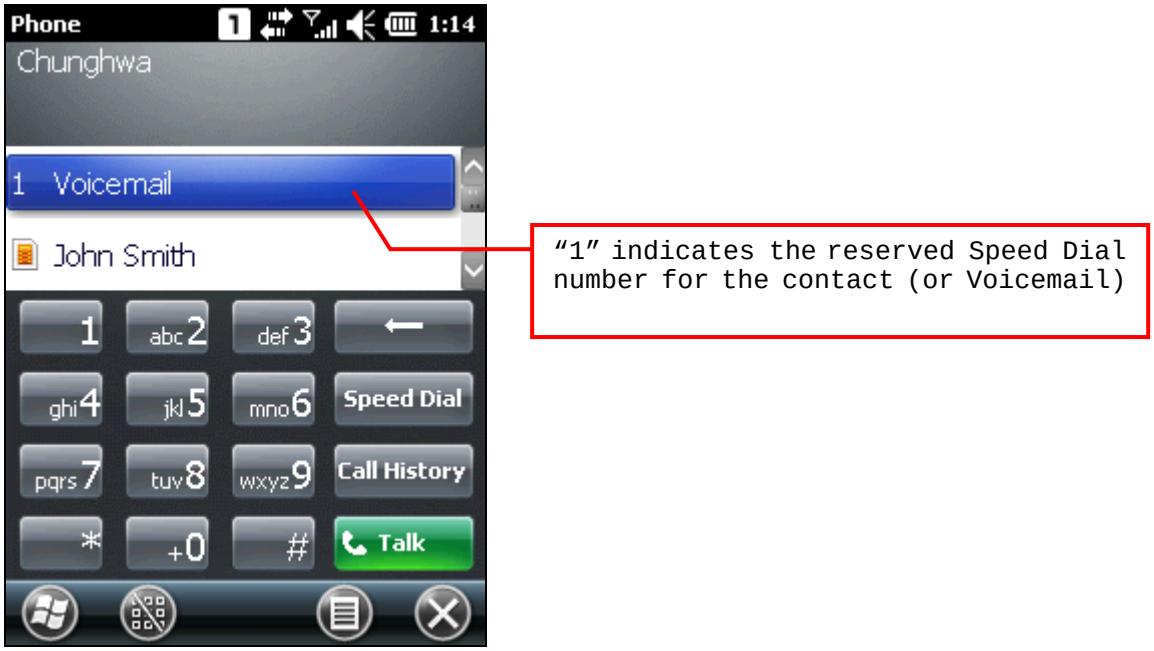
Band tab

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



6.4. MAKING PHONE CALLS

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



6.4.1. DIAL A NUMBER

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

Dialling

Use the dial pad on the screen or the physical keypad – simply enter the number you want to call.

From Contacts

Browse the contact list via the display panel to find the contact or number you want to call.

Using Speed Dial

Enter the speed dial number of the desired contact.

From Call History

Browse call history via the display panel to pick the number you want to call.

6.4.2. MAKE A CALL

Dialling Out

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



Hanging up

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



During a Call

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



6.4.3. ANSWER A CALL

Answering a Call

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



Note: If your wired headset (CTIA standard) has an integrated hook switch, press the hook switch during an incoming call to answer it. When finished with the phone conversation, press the hook switch again to end the call.

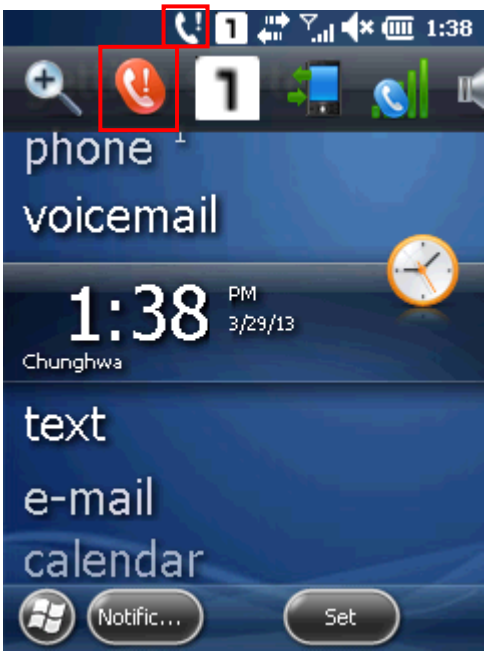
Ignoring a Call

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



Viewing a Missed Call

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

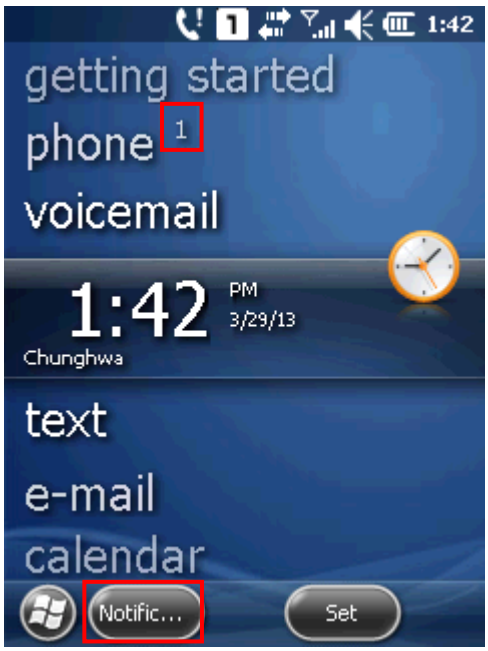


OR

On the Today Screen, an uppercase number “1” will appear next to the “Phone” label to

indicate you have 1 missed call. Tap **Notification** on the softkey bar to view the notification message.

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





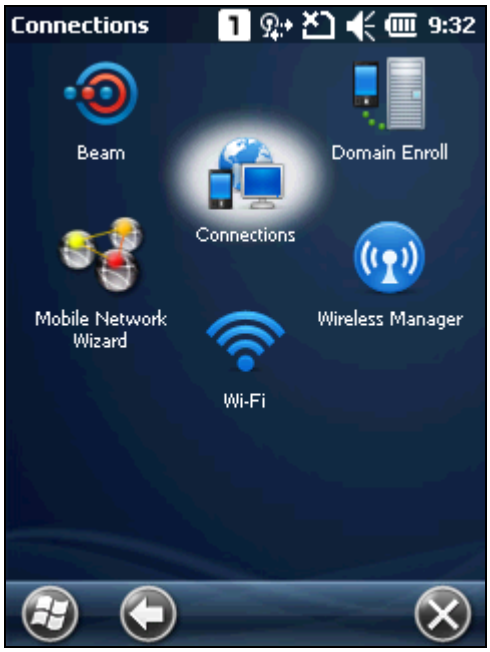
Note: The right LED on top of the mobile computer will also flash red to notify there is a missed call.

6.5. CONFIGURING GPRS NETWORK

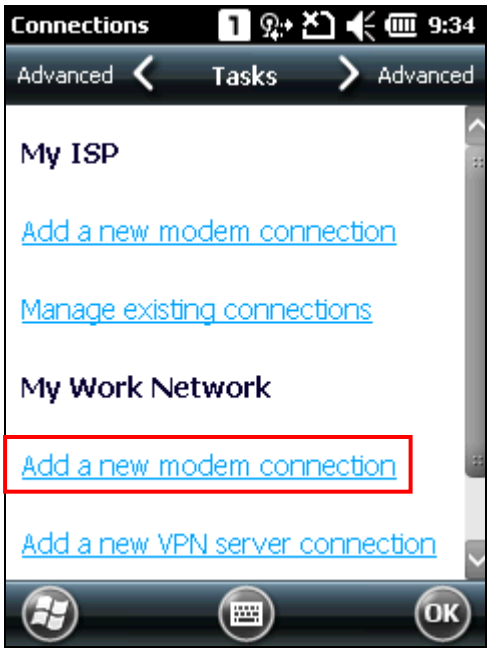
The mobile computer features automatic GPRS network configuring via Mobile Network Wizard. If you would like to manually enter your own network settings, follow the steps below.

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





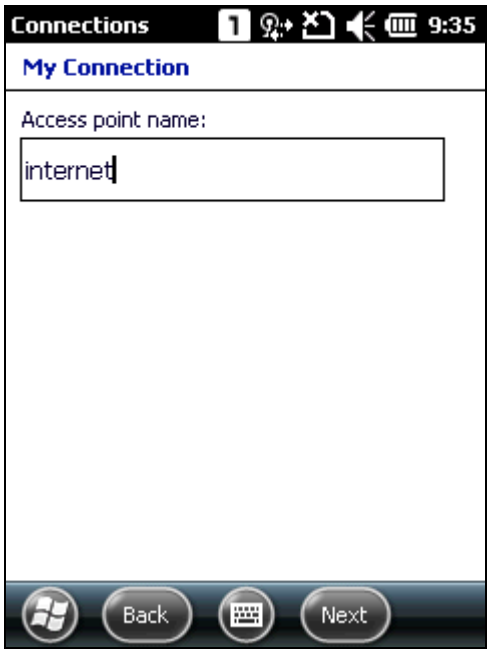
2. Tap **Add a new modem connection** and follow the on-screen instructions to enter the connection name and modem types.



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

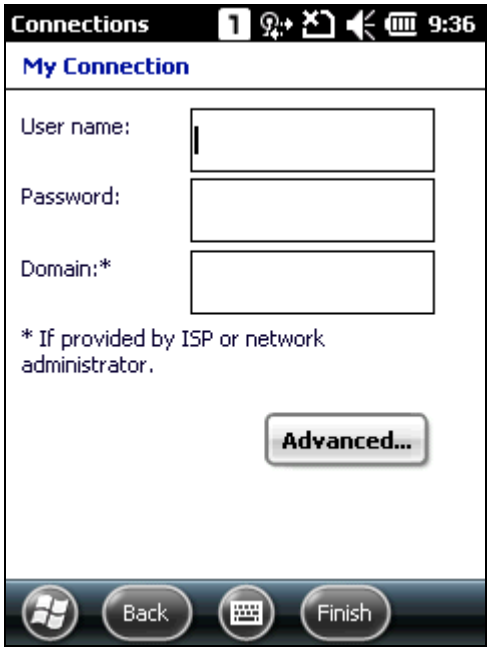


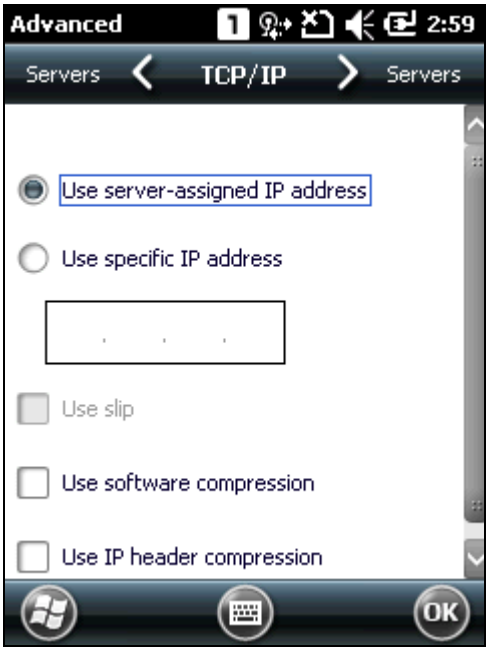
4. Specify the AP name from your service provider, for example, “internet”. Tap **Next**.



5. Enter user name, password and domain information as necessary. Tap **Advanced** to access TCP/IP and server settings.

When all settings are completed, tap **Finish**.





Note:

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

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

6.6. VOIP

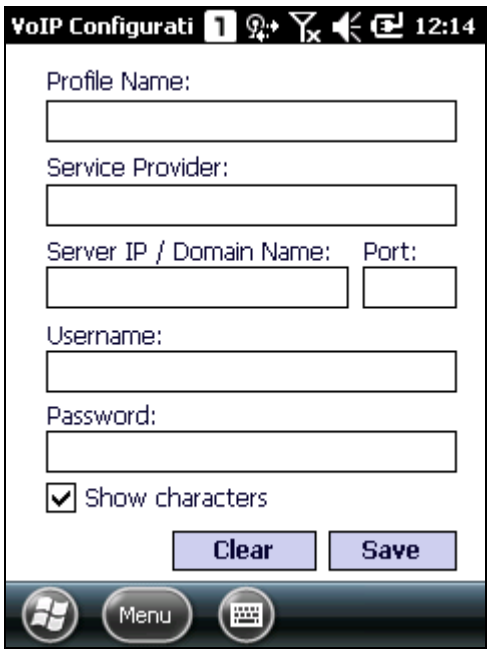
The mobile computer supports VoIP (Voice over Internet Protocol) through connection to a SIP server. VoIP transforms analog voice signals into digital data and transmits them over the Internet in the form of data packets. This allows instant audio communication while maintaining device portability.

Note: To use VoIP, first establish an Internet connection. See Using 802.11 Radio for details.

6.6.1. LAUNCH VOIP

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

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



6.6.2. CREATE VOIP PROFILE

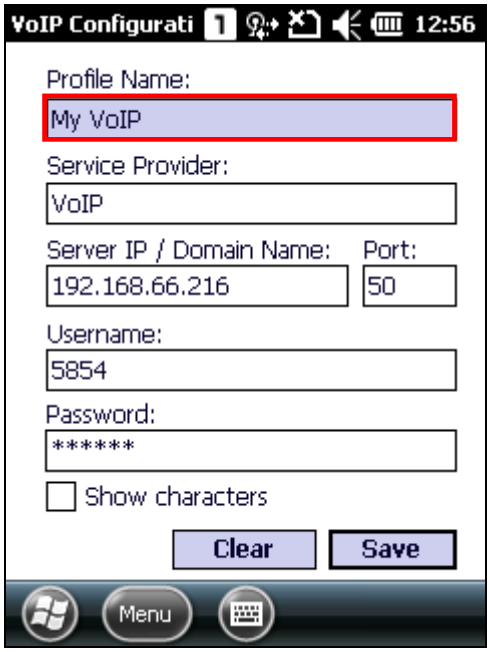
To use VoIP for internet-based mobile communication, you must create a VoIP profile that contains the settings for connecting to a SIP server.

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

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

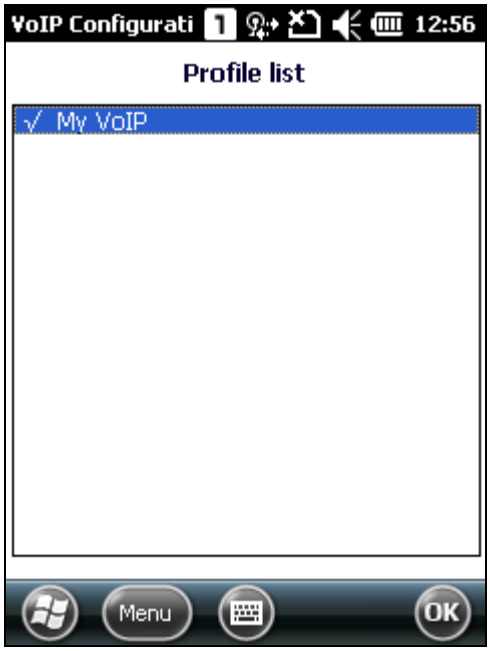
Note: Whether or not a password is required depends on security settings of the VoIP server. If a password is required but not entered, connection to the server will fail.

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



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

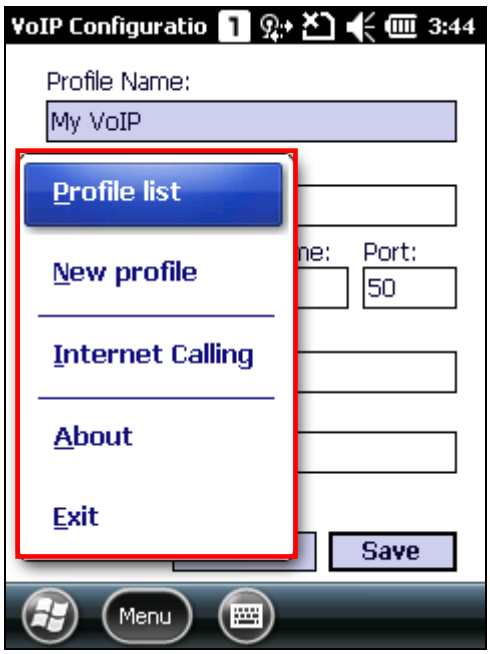
The created profile will be listed on the profile list page, with a tick ✓ in front of it to indicate it is the active profile.

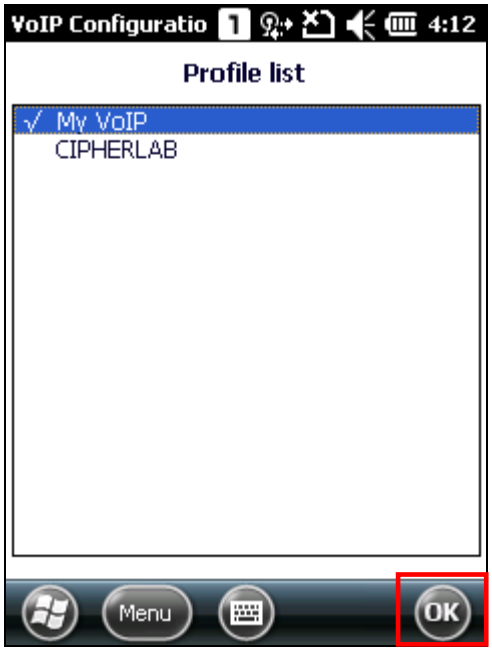


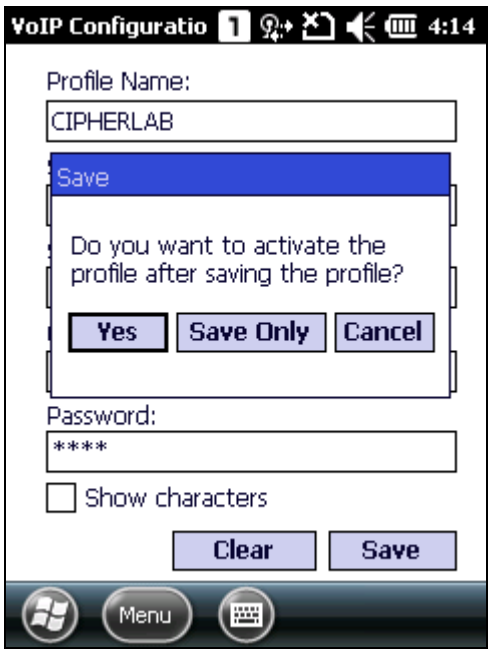
- To take more actions to the profile, see Edit Profile List.
- To add another profile, see New profile.
- To close the profile list and return to the Profile Settings page, tap **OK** on the softkey bar.

6.6.3. VOIP MENU

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



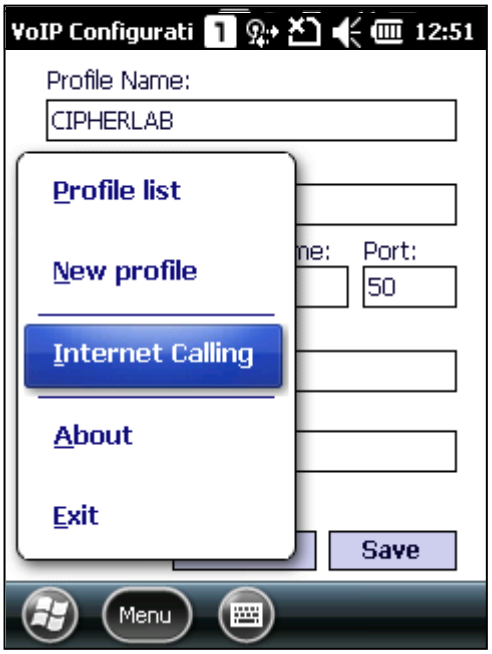
Option	Description
Profile list	Opens **Profile list** page which shows all the existing VoIP profiles created or imported into the VoIP Configuration tool. ▸ Tap **OK** on the softkey bar to open the Profile Settings page and view detailed information about the selected profile or edit its settings. 

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

6.6.4. ACTIVATE VOIP

Follow the steps below to activate VoIP:

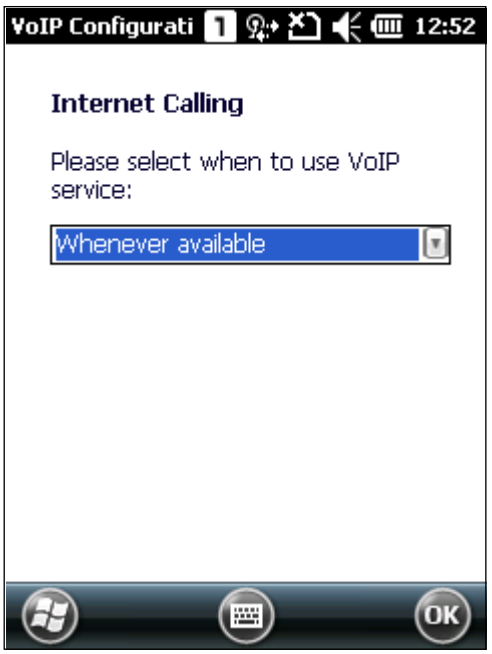
1. Create or import a VoIP profile.
2. Tap **Menu** on the softkey bar and select **Internet Calling** in the pop-up menu.



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

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

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



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

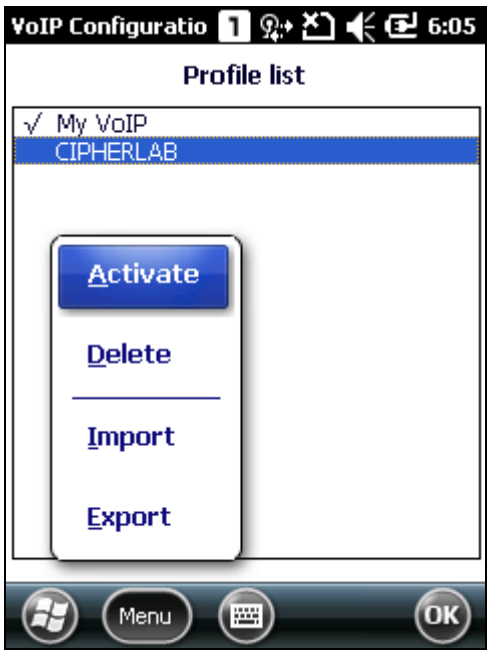


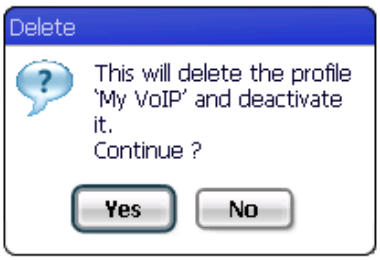
5. Press the [SEND] button on the physical keypad, or tap **Start menu** | **Phone** to open the phone dialing page. The name of the VoIP service provider is shown in the upper left corner. You may now dial the number you would like to call.



6.6.5. EDIT PROFILE LIST

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



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

Chapter 7

USING READER CONFIGURATION UTILITY

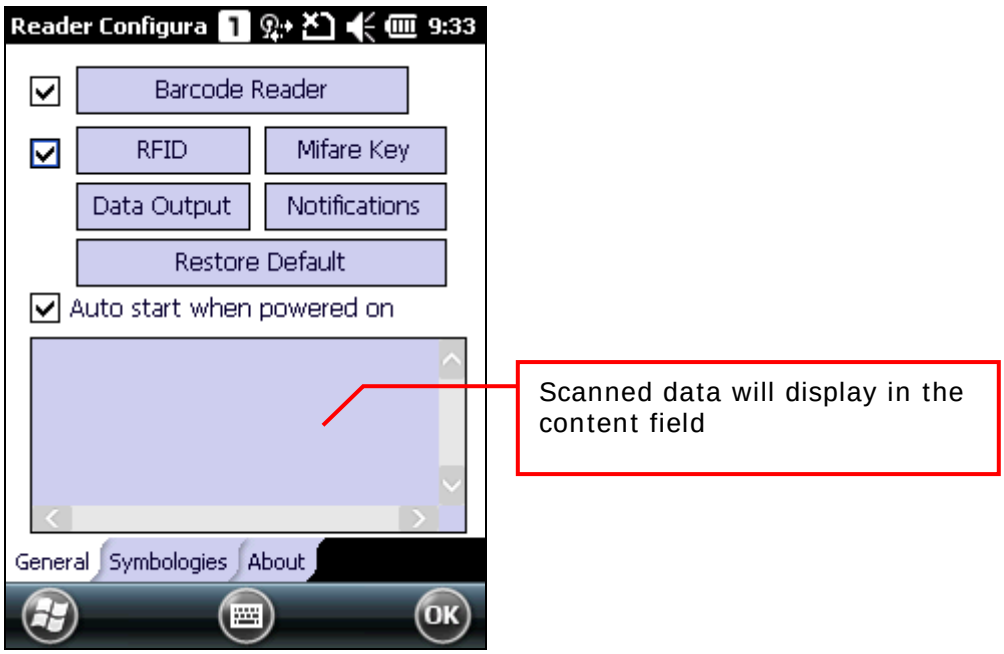
The **Reader Configuration utility** allows you to manage the barcode reader integrated on the mobile computer.

IN THIS CHAPTER

7.1 Launch Reader Configuration 154
7.2 Configure Reader Settings 155

7.1. LAUNCH READER CONFIGURATION

1. Tap **Start Screen** | **Settings** | **System** | **Reader Configuration** to open the Reader Configuration Utility.
2. Configure the associated reader settings and barcode settings on **General** tab page according to your needs. Perform a test scan and view the barcode and decoded data in the content field.



Note:

(1) The Reader Configuration utility automatically detects the scan engine installed on the mobile computer.

(2) If you wish to restore the reader to default settings, delete the ReaderCfgINI.txt file in the Flash storage before enabling the program. Alternatively, tap the **Restore Default** button on the reader settings page.

7.2. CONFIGURE READER SETTINGS

The mobile computer is capable of reading printed barcodes. The reader modules can be either a CCD reader, laser (1D) reader, or 2D imager. The mobile computer is installed with **Reader Configuration** to set the scan engine built within. Use **Reader Configuration** to create a profile of settings that best suit your needs.

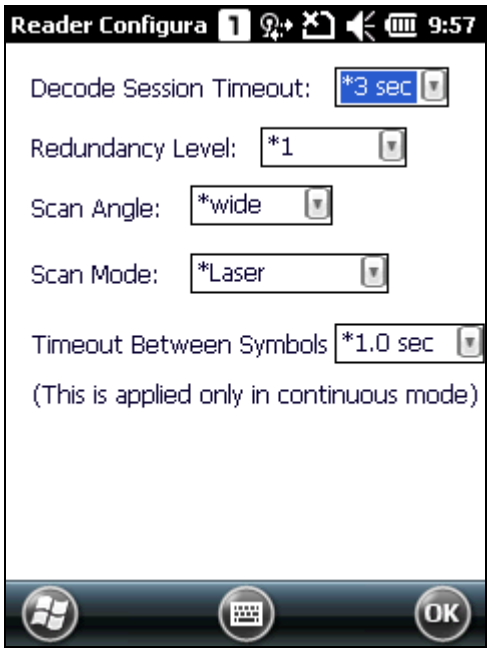
Note: **Reader Configuration** is the preferred method for configuring reader settings. **Reader Configuration** stores these reader settings in the file "ReaderCfgINI.txt". If any changes are made directly to this file (instead of adjusting reader settings through the **Reader Configuration** interface), be sure to restart the mobile computer to allow the modified settings to take effect.

7.2.1. BARCODE READER

Barcode reader configurations depend on the scan engine(s) installed on the mobile computer. Configure timeout, redundancy level and scanning behaviours according to your needs.

To access barcode reader settings:

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap Barcode Reader on General tab page.



CCD READER SETTINGS

Barcode Reader	Description
CCD Reader	Tap the **Barcode Reader** button to configure reader settings for the CCD scan engine. ▸ Refer to the Reader Settings Table in Appendix II - CCD (SM1).
Decode Session Timeout	Sets the maximum time (configurable from 1 to 9 sec) for the decoding process during a scan attempt. The default value is 3 sec.
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available. The readings needed for each level are as follows: Level 1: The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25. Level 2: All barcodes must be successfully read twice before being decoded. Level 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. Level 4: All barcodes must be successfully read three times before being decoded.
Scan Mode	Sets the reader's scanning behavior. Default is "Laser". ▸ "Continuous" to decode the same barcode repeatedly or decode different barcodes in a continuous motion. ▸ "Laser" for scanning by pressing the scan trigger.
Timeout Between Symbols	Only available for Continuous mode. The default value is 1 sec.

1D LASER READER SETTINGS

Barcode Reader	Description
Laser Reader	Tap the **Barcode Reader** button to configure reader settings for the laser scan engine. ▸ Refer to the Reader Settings Table in Appendix III - Laser (SE955).
Decode Session Timeout	Sets the maximum time (configurable from 1 to 9 sec) for the decoding process during a scan attempt. The default value is 3 sec.

<table>
<tr><td>Redundancy Level</td><td>Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.
The readings needed for each level are as follows:<table><tr><td>Level 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>Level 2</td><td>All barcodes must be successfully read twice before being decoded.</td></tr><tr><td>Level 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>Level 4</td><td>All barcodes must be successfully read three times before being decoded.</td></tr></table></td></tr>
<tr><td>Scan Angle</td><td>Select the scan angle for Long Range Laser scan engine. Default is “wide”.
▸ “wide” for 35°
▸ “narrow” for 47°</td></tr>
<tr><td>Scan Mode</td><td>Sets the reader’s scanning behavior. Default is “Laser”.
▸ “Continuous” to decode the same barcode repeatedly or decode different barcodes in a continuous motion.
▸ “Laser” for scanning by pressing the scan trigger.</td></tr>
<tr><td>Timeout Between Symbols</td><td>Only available for Continuous mode. The default value is 1 sec.</td></tr>
</table>

2D IMAGER SETTINGS

Barcode Reader	Description
2D Reader	The 2D scan engine is capable of reading linear and 2D barcodes. Tap the **Barcode Reader** button to configure reader settings for the 2D scan engine. ▸ Refer to the Reader Settings Table in Appendix IV - 2D Imager (SE4500DL).
Decode Session Timeout	Sets the maximum time (configurable from 1 to 9 sec) for the decoding process during a scan attempt. The default value is 3 sec.
Decode Illumination	Decide whether to flash illumination on every barcode capture to aid decoding. ▸ Turn on (internal LED) ▸ Turn off
Aiming Pattern	Decide whether to project the aiming pattern during barcode capture. ▸ Turn on ▸ Turn off

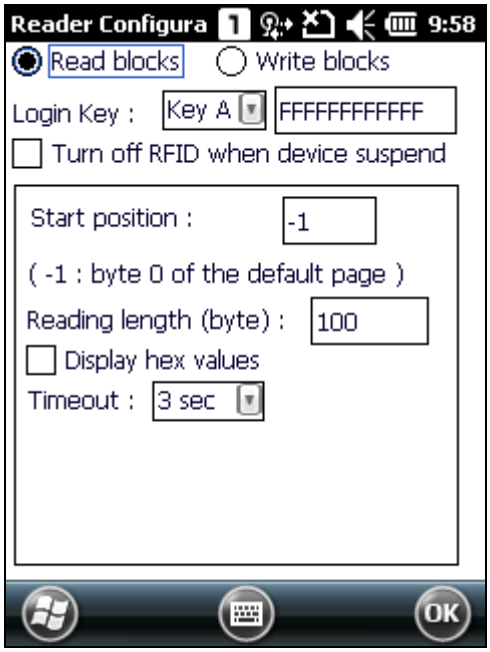
<table>
<tr><td>Redundancy Level</td><td>Sets how many successful readings should be done before certain barcodes are decoded. Levels 1 to 4 available; default setting is Level 1. The readings needed for each level are as follows:
<table>
<tr><td>Level 1</td><td>The following barcodes must be successfully read twice before being decoded:
<table>
<tr><th>Barcode Types</th><th>Code Length</th></tr>
<tr><td>Codabar</td><td>8 characters or less</td></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 2</td><td>All barcodes must be successfully read twice before being decoded.</td></tr>
<tr><td>Level 3</td><td>All barcodes must be successfully read twice before being decoded, except for the following which must be read three times:
<table>
<tr><th>Barcode Types</th><th>Code Length</th></tr>
<tr><td>Codabar</td><td>8 characters or less</td></tr>
<tr><td>MSI</td><td>4 characters or less</td></tr>
<tr><td>Industrial 25 (Discrete 25)</td><td>8 characters or less</td></tr>
<tr><td>Interleaved 25</td><td>8 characters or less</td></tr>
</table></td></tr>
<tr><td>Level 4</td><td>All barcodes must be successfully read three times before being decoded.</td></tr>
</table></td></tr>
<tr><td>Security Level</td><td>Selects the security level to ensure decoding accuracy considering the printed quality of certain barcodes. Default setting is Level 0. The higher the level, the greater the security. Options are:
<table>
<tr><th>Level</th><th>Description</th></tr>
<tr><td>0</td><td>With this default, the scan engine is aggressive enough to decode most “in-spec” barcodes.</td></tr>
<tr><td>1</td><td>Select this level if misdecodes have occurred. It fixes most misdecodes.</td></tr>
<tr><td>2</td><td>Select this level if Level 1 should fail to eliminate misdecodes.</td></tr>
<tr><td>3</td><td>Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of the decoder, a safer solution would be to improve the quality of the bar codes to read.</td></tr>
</table></td></tr>
</table>

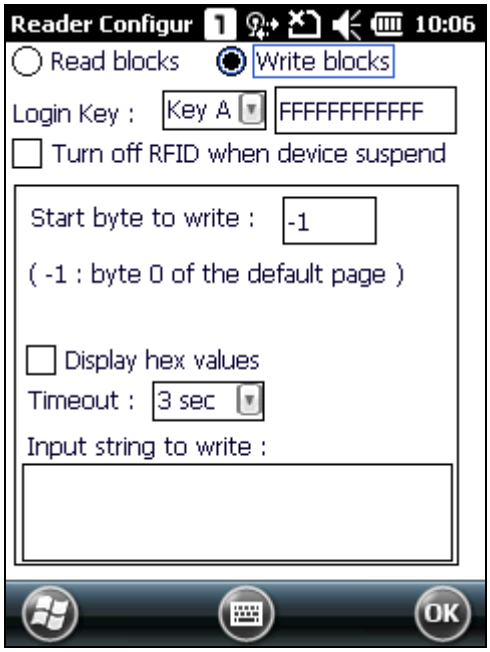
7.2.2. RFID READER

When an RFID reader is detected, the **RFID Reader** option is available on **General** tab of the reader settings page. The **RFID Reader** check box is selected by default. Deselect it to disable the RFID reader on the mobile computer. This is occasionally needed when you only want to read printed barcodes, lest RFID tags are read and decoded.

To access RFID reader settings:

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **RFID** on **General** tab page.





READ BLOCKS SETTINGS

Setting	Descriptions	Default
Read blocks	Reads data from an RFID tag.	Selected
Login Key	Shows what key A and key B currently is. ▸ Keys A and B are what the RFID reader module relies on to access (read or write) an RFID tag. In default state, both keys are a sequence of twelve "F" characters because they are Mifare tag's factory default. Modify these default keys if necessary.	Key A & FFFFFFFFFFFF
Turn off RFID when device suspend	Select this to turn off RFID function when the mobile computer enters suspension. Once the mobile computer is resumed from suspension, RFID function will be automatically restored.	Deselected
Start position	Defines where to start reading data from. ▸ See Appendix V: RFID Tag Default Start Byte .	-1 (default block, byte 0)
Reading length (byte)	Defines how many bytes of data to read.	100

Display hex values	Displays decoded data in hex values. ▸ Generally the readable RFID data lies in a user block. If the data to collect is located in a non-user block such as the lock block, select **Display hex values** in case the data to collect involves any invisible character.	Deselected
Timeout	Sets the maximum time for decoding an RFID Tag during a scan attempt. Configurable from 1-20 sec.	3 sec

WRITE BLOCKS SETTINGS

Setting	Descriptions	Default
Write blocks	Writes data to an RFID tag	Deselected
Login Key	Shows what key A and key B currently is. ▸ Keys A and B are what the RFID reader module relies on to access (read or write) an RFID tag. In default state, both keys are a sequence of twelve "F" characters because they are Mifare tag's factory default. Modify these default keys if necessary.	Key A & FFFFFFFFFFFF
Turn off RFID when device suspend	Select this to turn off RFID function when device enters suspension. Once the mobile computer is resumed from suspension, RFID function will be automatically restored.	Deselected
Start byte to write	Defines where to start writing data to. ▸ See Appendix V: RFID Tag Default Start Byte .	-1 (default block, byte 0)
Display hex values	Writes data in hex values. ▸ Generally an RFID tag's writeable block lies in the user block. However, if the block to write is a non-user block such as the lock block, select **Use hex values** to write data in hex values in case the block to write involves any invisible character.	Deselected
Timeout	Sets the maximum time (configurable from 1 to 20 sec) for the decoding process during a scan attempt.	3 sec
Input string to write	Defines what to write. ▸ Note that different RFID tags may have different default blocks (also "pages"), and different amount of bytes and number of blocks. The data written might be truncated to fit the blocks of the targeted RFID tag. Therefore part of the data may be discarded when it comes to the end of a block end. ▸ See Appendix V: RFID Tag Default Start Byte .	--

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

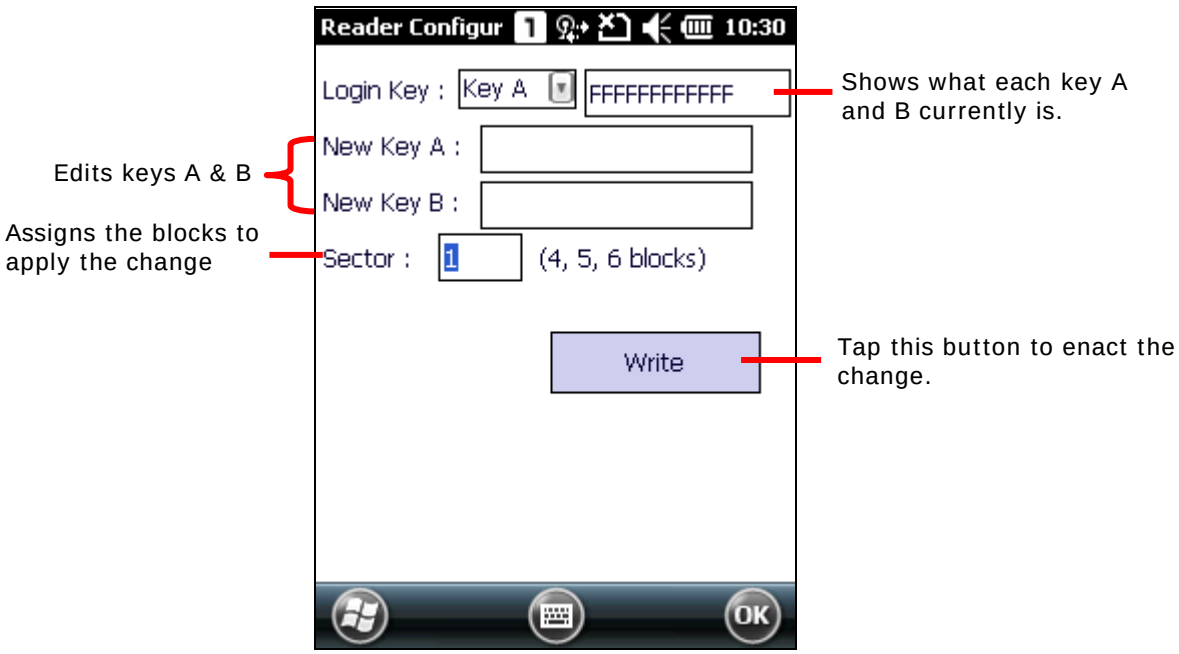
7.2.3. MIFARE KEY

MIFARE KEYS

Mifare Keys setting changes the security keys A and/or B for a Mifare tag's data block. Keys A and B are two keys that enable the RFID reader to access (read or write) a Mifare tag's data block.

To open **Mifare Keys** setting page:

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **Mifare Keys** on **General** tab page.



Settings	Descriptions	Default
Login Key	Select between key A and key B for the login key.	Key A
New Key A	Assigns new key A, which must be a hex string of 12 bytes. ▸ If it is the other key (key B) that you want to change, you still need to assign the current key A here to be able to enact the change.	--
New Key B	Assigns new key B, which must be a hex string of 12 bytes. ▸ If it is the other key (key A) that you want to change, you still need to assign the current key B here to be able to enact the change.	--
Sector	Sets the blocks to apply the change.	1 (blocks 4, 5, & 6)

To change the value of key A and/or B:

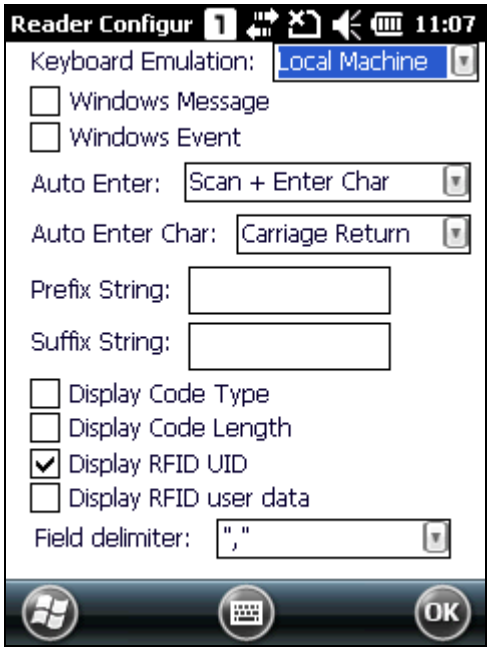
1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **Mifare Keys** on General tab page.
3. Configure which key to change, how it is changed to, and the block to apply the change.
4. Tap (slightly contact) the mobile computer's scanning window with the RFID tag to write the change to.
5. Tap the **Write** button on **Mifare Keys** settings page. The change is written to the RFID tag.

7.2.4. DATA OUTPUT

Tap the **Data Output** button on the **General** tab page to access settings for data output after decoding as well as configure the associated settings.

To access data output settings:

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **Data Output** on **General** tab page.



WHERE TO OUTPUT

Data Output		Default
Keyboard Emulation	Data is emulated as typed text and sent to the active window. ▸ When "Local machine" is selected, simply run your application or built-in program, such as WordPad, to start with data collection. ▸ When "RDP server" is selected, run the Remote Desktop Connection program to connect to a remote computer. Note that this option is unable to emulate double-byte font, such as Big-5 or Unicode characters on the remote PC.	Local Machine
Windows Message	When selected, a Windows message will be broadcasted after decoding. ▸ Intercept the decode message in your application. ▸ Call Windows API (ReadMsgQueue) in your application to retrieve the decoded data.	Disable

Windows Event	When selected, a Windows event will be broadcasted after decoding. ▸ Intercept the decode event in your application. ▸ Call Windows API (ReadMsgQueue) in your application to retrieve the decoded data.	Disable

Note:

(1) Refer to 9200 .NET or C/C++ Programming Guide for details on Windows Message and Windows Event. Sample programs are provided by request.

(2) For the use with a barcode decoding program other than ReaderConfig.exe, a dynamic-link library (DLL) file is provided.

HOW TO OUTPUT

Auto Enter	Adds an Enter character before or after each scanning act. This function spares you the trouble of pressing [Enter] key to confirm each scan. Options are: ▸ None ▸ Scan + Enter Char ▸ Enter Char+Scan	Scan + Enter Char
Auto Enter Char	Adds a key code before or after the decoded data. This setting is available only when “Auto Enter” is enabled. Options are: ▸ None ▸ Carriage return ▸ Tab ▸ Space ▸ Comma ▸ Semicolon	Carriage Return
Prefix String	Affixes 0~10 characters to the left of the output data.	NULL
Suffix String	Affixes 0~10 characters to the right of the output data.	NULL
Display Code Type	Prefixes code type to the decoded data.	Disabled
Display Code Length	Suffixes code length to the decoded data.	Disabled
Display RFID UID	Outputs the UID of the RFID tag to read. ▸ This setting is available only when an RFID reader is integrated on the mobile computer and is enabled.	Enabled
Display RFID user data	Outputs the user data of the RFID tag to read. ▸ This setting is available only when an RFID reader is integrated on the mobile computer and is enabled.	Disabled

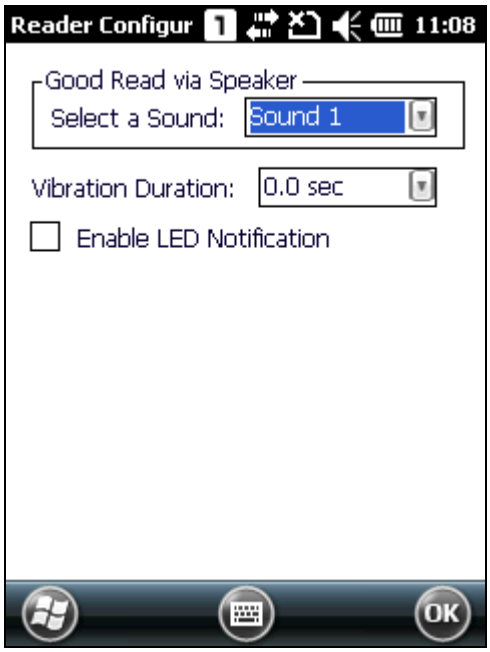
Field delimiter	Adds a field delimiter in the decoded data to separate the data to segments. ▸ For printed barcodes: This delimiter separates code type , decoded data, and code length (if applicable) ▸ For RFID tags: This delimiter separates UID and user data (if both are applicable)	"," (comma)

7.2.5. NOTIFICATIONS

The **Notifications** page allows you to configure how you want to be notified of a successful decoding.

To access notification settings:

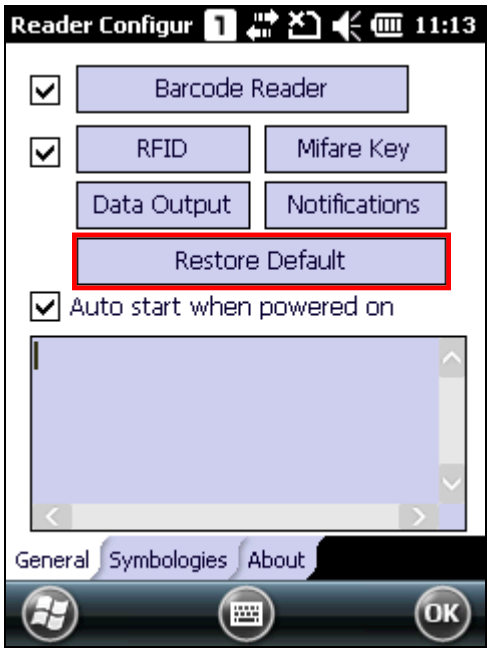
1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **Notifications** on the General tab page.



Sound / Vibration		Default
Good Read via Speaker	Sets the sound for good read. ▸ Select between Mute and sounds 1 through 9.	Sound 1
Vibration Duration	Sets whether to enables tactile feedback (vibration) for good read, and vibration duration. Configurable between 0~5.0 (sec.)	0 (= Disable)
Enable LED Notification	Select the check box to enable Scanner beam LED and Scanner decode (Good Read) LED. The top right LED will light up in orange when the scan key is pressed. The top left LED will flash green to indicate a successful decoding.	Disable

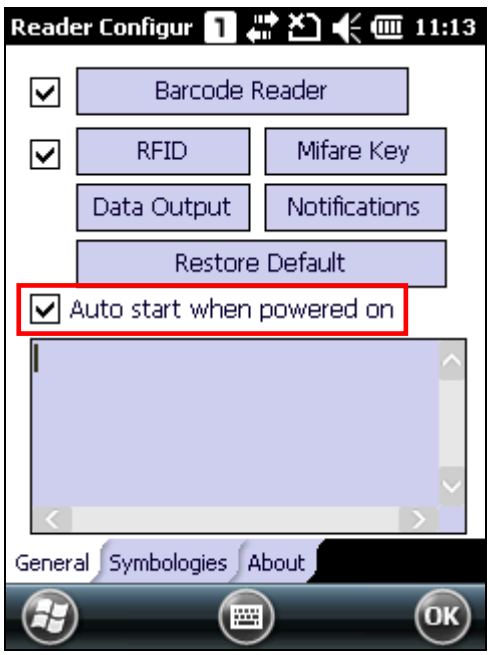
7.2.6. RESET TO DEFAULT

Tap **Restore Default** on the reader settings page to reset all settings back to default.



7.2.7. AUTO-START READER CONFIGURATION

If you would like to auto-start the **Reader Configuration** application next time the mobile computer is powered on, select the "Auto start when powered on" check box. **Reader Configuration** will run in the background once the mobile computer is restarted to facilitate barcode reading.

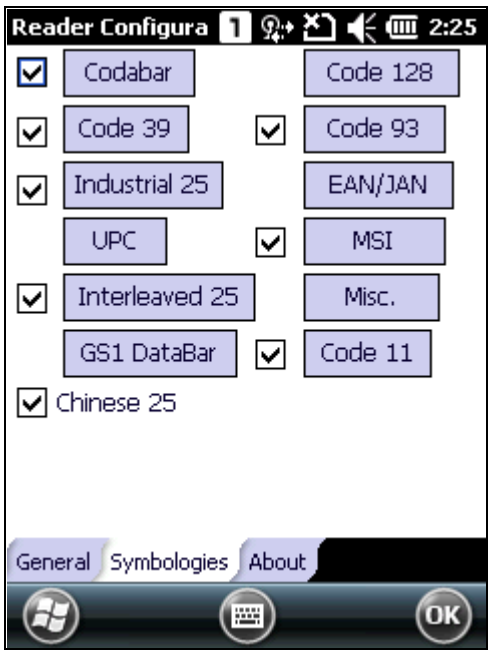


7.2.8. SYMBOLOGY SETTINGS

On the Symbologies tab, determine whether to enable or disable a specific symbology.

Note: The symbology settings vary by the scan engine (CCD, 1D laser or 2D imager) installed.

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **Symbologies** tab page.



- Refer to Appendix I - Scan Engine Settings for the symbologies supported by the installed scan engine.
- Refer to the Symbology Settings Table in Appendix II - CCD (SM1).
- Refer to the Symbology Settings Table in Appendix III - Laser (SE955).
- Refer to the Symbology Settings Table in Appendix IV - 2D Imager (SE4500DL).

7.2.9. ABOUT

This tab page delivers the software version, developer info, and copyright information.

1. Open **Reader Configuration** as described in Launch Reader Configuration.
2. Tap **About** tab page.



Chapter 8

USING CAMERA

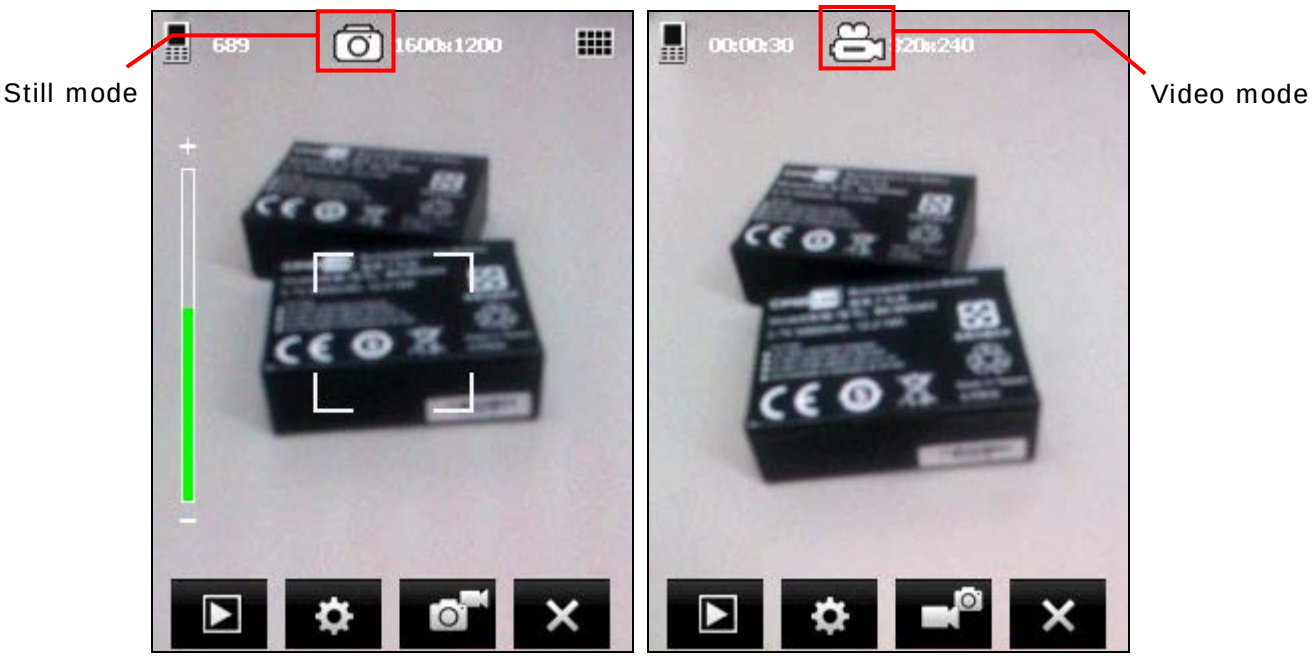
The Camera utility allows taking still images or videos from the built-in digital camera. Tap **Start Screen** | **Camera** to open the Camera utility.

IN THIS CHAPTER

8.1 Camera Interface 170
8.2 Taking a Picture 171
8.3 Shooting a Video 173
8.4 Camera Settings 175
8.5 Pictures & Videos 177

8.1. CAMERA INTERFACE

The Camera application supports still image capturing and video recording.



The icons on top of the screen indicate camera status and image properties.

Icon	Description
	In Still mode: number of pictures that can be taken. In Video mode: available recording time.
	Camera status and information on image resolution. ▸ indicates the camera is in Still mode ▸ indicates the camera is in Video mode

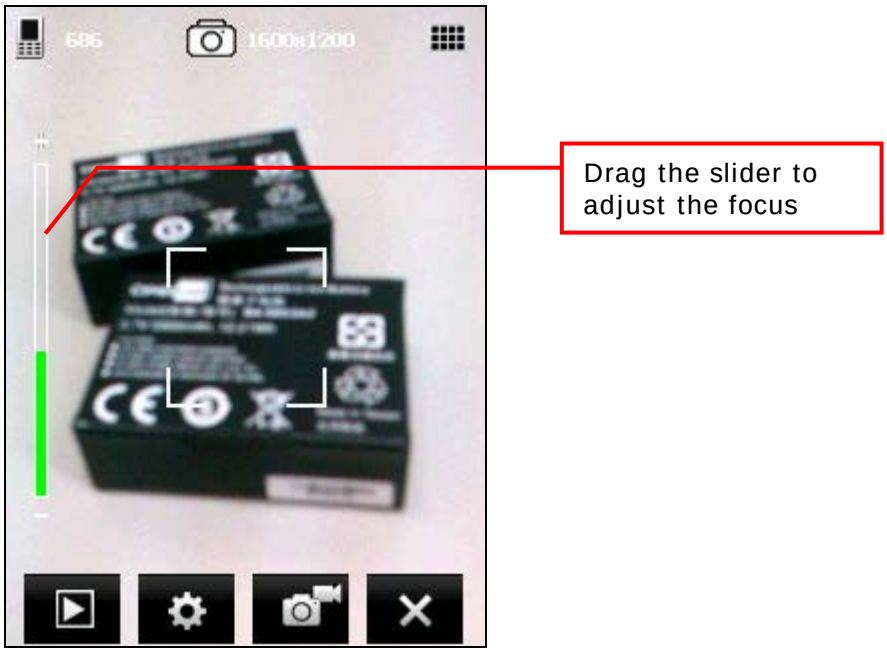
The buttons at the bottom of the screen are described as below.

Button	Description
	Tap to switch between Still and Video modes.
	Tap to open **Pictures & Videos** folder to view images and playback videos. Refer to Pictures & Videos.
	Tap to configure camera settings if necessary. Refer to Camera Settings.
	Exit and turn off the camera.

8.2. TAKING A PICTURE

When launched, the camera is set to Still mode by default for picture taking, and a preview screen is displayed.

1. Aim at the object you want to shoot. Drag the slider to zoom in (+) or zoom out (-) an image.



2. Press [Scan] key or [Enter] on the physical keypad to take a picture.

Each picture will be automatically saved under the designated storage location.



3. Before the camera utility jumps back to the preview screen, you may tap the advanced buttons at the bottom of the review screen, which will be retained for about five seconds.



- Tap  to delete the image file.
- Tap  to send the picture via text message or e-mail.
- Tap  to return to the preview screen.

8.3. SHOOTING A VIDEO

When switching to Video mode, a preview screen will be displayed.

1. Hold still and take aim at the object you want to shoot



2. Press [Scan] or [Enter] on the physical keypad to start recording a video.



3. Press [Scan] or [Enter] on the physical keypad to end recording. Otherwise, it will stop automatically after reaching the time limit. Refer to Advanced Settings.



- Tap  to delete the image file.
- Tap  to send the picture via text message or e-mail.
- Tap  to return to the preview screen.

8.4. CAMERA SETTINGS

On the softkey bar, tap the button  to configure camera settings if necessary.

Brightness, Contrast, Sharpness

 Adjusts brightness, contrast, and sharpness for the picture to take.

Mode

 Sets a scene mode for the picture to take. By default, no special mode is applied. Options are:

Icon	Description
	Backlight
	Night mode
	Stabilize
	Outdoor
	Low light

White Balance

 Tap to select a specific scenario for setting white balance. By default, the camera is set to adjust automatically. Options are:

Icon	Description
	Bright light
	Indoor light
	Sunny light
	Cloudy light

Effect

 Applies a special effect to the picture to take. By default, no special effect is applied. Options are:

- Monochrome, Negative, and Sepia

Timer

 Enables the timer which allows taking the picture a period of time after the [Scan] key or [Enter] is pressed. By default, timer is disabled. Options are:

- 3 seconds, 5 seconds, and 10 seconds
- This is only applicable in Still mode.

GPS tagging



Enables/disables GPS tagging for the picture to take. Options are:

- Enable, Disable

Quality



Sets quality for the picture to take. Options are:

- High, Medium

Size



Select the image size for the picture to take. Options are:

- 320x240, 640x480, 1280x960, 1600x1200, 2048x1536

Storage



By default, the captured pictures are stored on the mobile computer's main memory.

Camera Mode	Store Folder	File Format
Still Mode	\My Device\My Documents \My Pictures\YYMMDD	imgXXXXX.jpg ("XXXXX" stands for 5-digit serial number starting from "00000")
Video Mode	\My Device\My Documents \My Videos\YYMMDD	VideoXXX.3gp ("XXX" stands for 3-digit serial number starting from "000")

- If an SD card is installed and set as the storage location, the icon  on the upper left of the preview screen will change to .

Flash and Audio



Sets whether to flash the light for picture taking, and to include audio for video recording. Options are:

- Audio on, Audio off, Flash on , Flash off

8.5. PICTURES & VIDEOS

Tap **Start Screen** | **Pictures & Videos** to open the default image folder \My Device\My Documents\My Pictures.



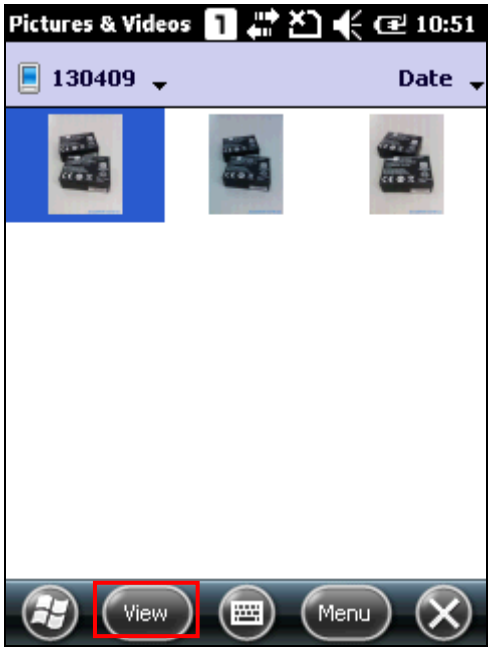
8.5.1. VIEW AN IMAGE

1. Locate the target folder and the desired picture.

The subfolders are named with the date YYMMDD (2-digit year, 2-digit month and 2-digit date) which images were taken.



2. Select a desired picture and tap **View** at the bottom of the screen.



3. Tap **Menu** on the softkey bar to set the picture as background, start a slide show, beam pictures, edit or rotate pictures, etc. Refer to Advanced Settings.

Tap **Send** on the softkey bar to send the picture via text message or e-mail.

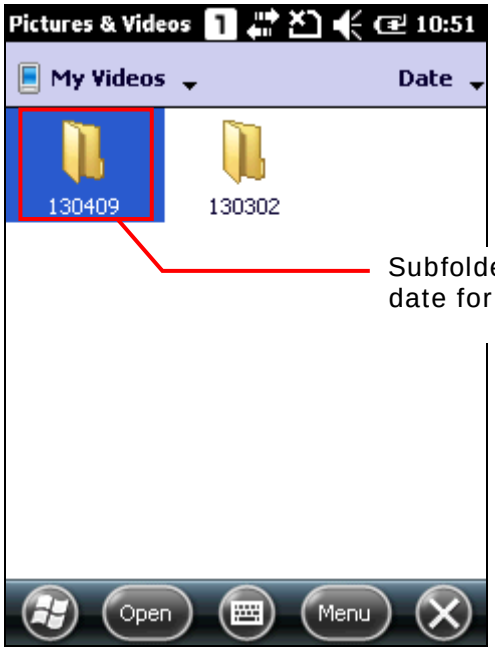


4. Tap **OK** to close the current window.

8.5.2. PLAYBACK A VIDEO

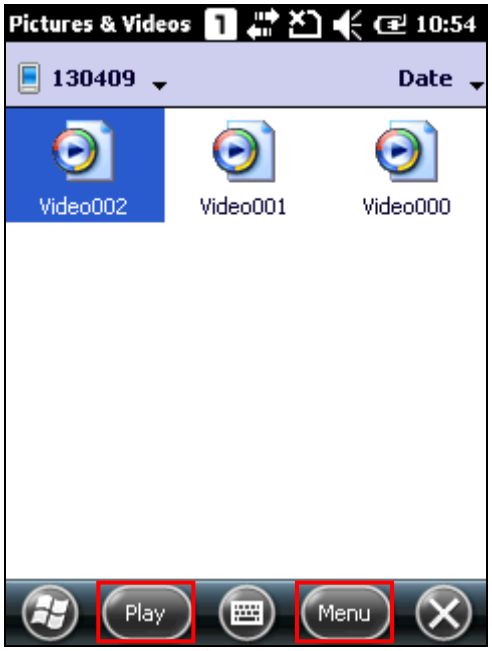
1. Locate the target folder and the desired videos.

The subfolders are named with the date YYMMDD (2-digit year, 2-digit month and 2-digit date) when videos were recorded.



2. Select a desired video and tap **Play** on the softkey bar..

Tap **Menu** on the softkey bar to edit, send or beam videos, etc. Refer to Advanced Settings.



3. The video will be played in Windows Media player. Tap [✕] to end the application.

8.5.3. ADVANCED SETTINGS

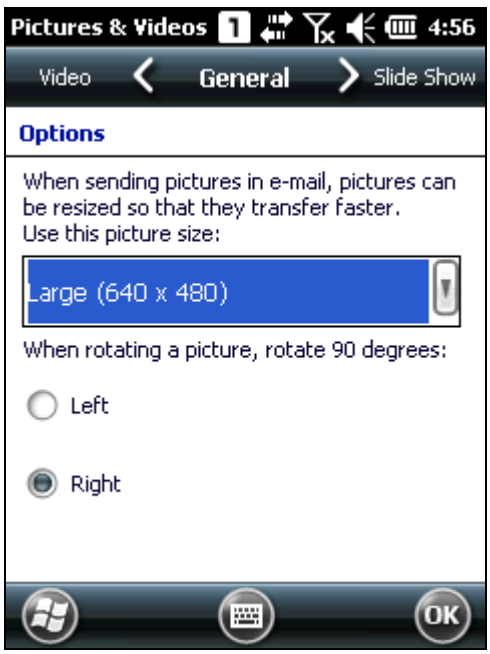
Under My Pictures or My Video screen, tap **Menu** | **Tools** | **Options** to open advanced settings.



General tab

When sending a picture by e-mail, it can be resized in favor of the transfer speed. You may tap the drop-down list to select a desired picture size if necessary.

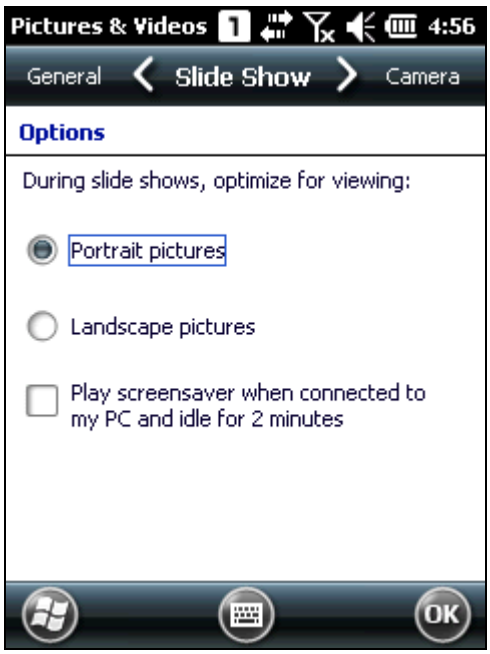
You may also change the rotation direction of the picture in the General tab configuration screen.



Slide Show tab

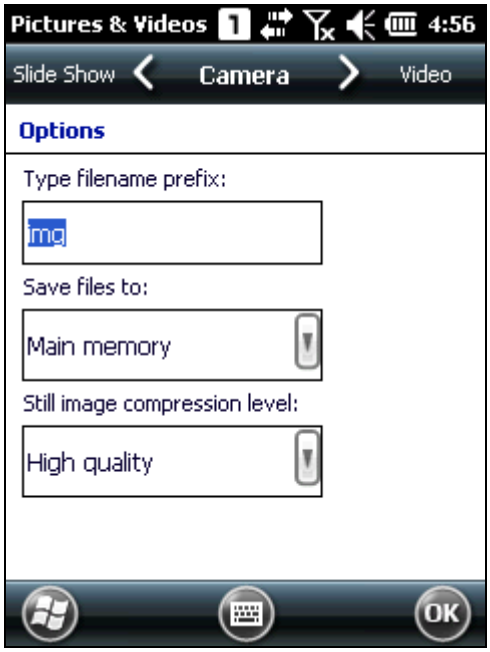
By default, slide shows are played in Portrait view. You may change to use landscape view instead to make pictures properly fit the screen.

If you select “Play screensaver when connected to my PC and idle for 2minutes”, pictures stored in the default image folder “\My Device\My Documents\My Pictures” will be used in a slideshow screensaver on the mobile computer.



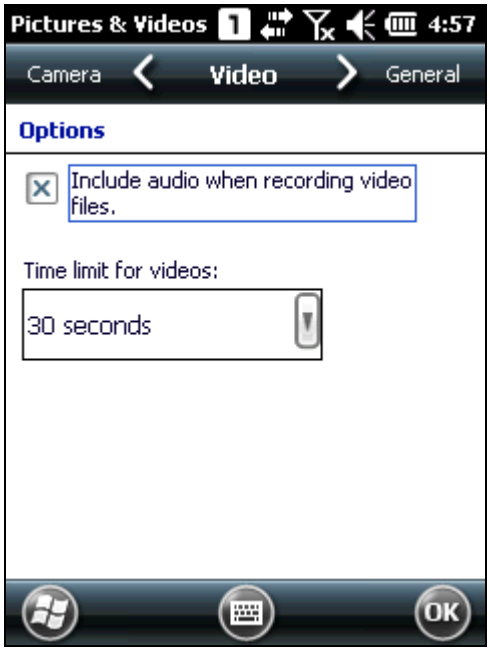
Camera tab

All still images are prefixed with “img” and saved to the main memory at high compression level by default. You may change the prefix, save files to your memory card, or adjust the compression.



Video tab

While recording a video, audio sound will be included. You may disable the check box or set a time limit for videos so that the file size can be reduced.



Tap [**OK**] to save the current settings and return to the previous window.

Chapter 9

MORE APPLICATIONS

This chapter introduces manufacturer-developed applications that are preinstalled on the mobile computer to strengthen system management and make the mobile computer more competent.

IN THIS CHAPTER

9.1 GPS Receiver 184
9.2 Button Assignment 185
9.3 Mobile Ghost 188
9.4 Time Synchronization 192
9.5 Signature Utility 195

9.1. GPS RECEIVER

The 9200 Mobile Computer is equipped with a GPS antenna for obtaining location and time information from the Global Positioning System (GPS). Since the mobile computer does not come with any preinstalled navigation software, you may need to purchase third-party navigation software separately.

The GPS receiver hosted on the mobile computer uses COM 7 to output NMEA messages, as long as the COM port is opened. In your application, open the COM port with the correct configuration.

The table below lists the configuration of the integrated GPS receiver:

Serial Configuration	COM Port Settings
Baud Rate	4800
Data Bits	8
Parity	None
Stop bits	1

Note: For multiple GPS-enabled programs to access GPS data, tap **Start Screen** | **Settings** | **System** and select **External GPS**. Specify a program port and the correct hardware port.

In order to speed up start-up time, we suggest you to download the ephemeris information for initial setup. Go to **Start Screen** | **Settings** | **System** and select **GPS Manager** to update the ephemeris.

9.2. BUTTON ASSIGNMENT

Use Button Assignment to re-define the functions of physical keys to have them trigger different functions. For instance, you can assign a key to simulate another key's behaviour, to launch a specific program, or to deliver effects of a specific key code.

Reassignable keys include:

- Side triggers (Left and right scan keys)
- Application key (App Key)
- [-] (Hyphen) key
- [.] (Period) key.

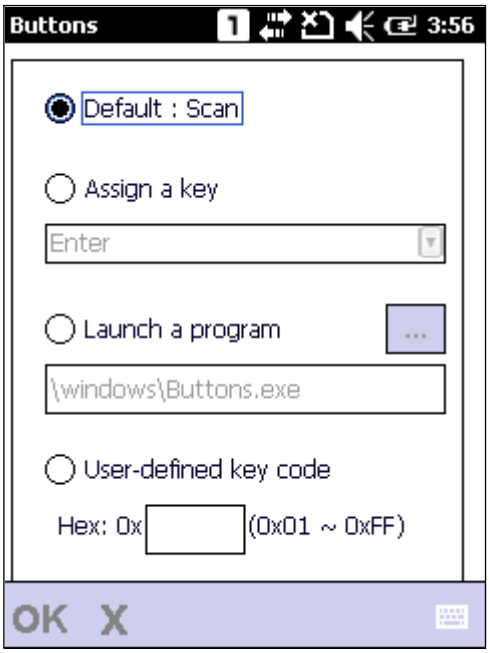
9.2.1. REASSIGN PHYSICAL KEYS

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

A screen shows with a picture of the mobile computer and its reassignable physical keys.



2. Tap the label of the key you wish to reassign.



Available options include:

- Default: Recovers the default settings.
- Assign a key: Defines a certain key to act as another key. Select the desired function in the drop-down list. Options include:
  - Enter
  - Scan
  - Esc
  - Delete
  - Backspace
  - Space
  - Tab
  - F1~12
  - Start Menu
  - Alt
  - OEM_Key1(0xE9)
  - OEM_Key2(0xEA)
  - OEM_Key3(0xEB)
  - OEM_Key4(0XEC)
  - OEM_Key5(0XED)
  - OEM_Key6(0xEE)
  - OEM_Key7(0xEF)
  - OEM_Key8(0xF0)
  - OEM_Key9(0xF1)
  - OEM_Key10(0x2A)
  - *
  - #
  - Send(VK_TTALK)
  - End(VK_END)
  - Up
  - Down
  - Left
  - Right
  - TAB
  - Volume Up
  - Volume Down
  - OK
  - Home(VK_HOME)
  - Home(VK_HOME)
  - Fn+ESC(0xF5)
  - F13~24
  - Home(VK_LWIN+VK_APP)

- -
- .

- Launch a program: Defines a key to quick-launch an application.

Use the Browse button ... to select an executable file to open after pressing the key, or manually enter the path of the desired file.

- User-defined key code: Allows users to change the key function as desired by entering the hex value of the target key.

3. Tap **OK** on the menu bar (located at the bottom of the screen) to apply the changes, or tap **X** to discard the settings.
4. Tap **OK** on the softkey bar to store the settings and exit the application.

9.2.2. RESET PHYSICAL KEYS TO DEFAULT

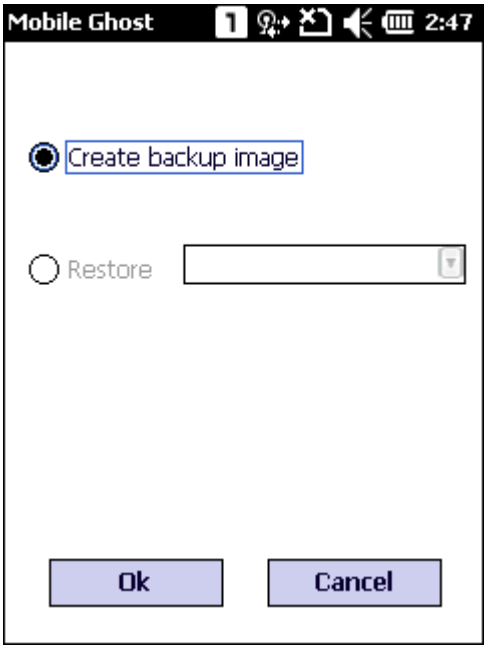
Tap the **Reset** button on the lower right of the screen to change all listed key functions back to default.



9.3. MOBILE GHOST

Mobile Ghost is a system cloning tool that copies registry settings on your mobile computer in the form of a backup image. You may use the created backup images for full restoration of registry settings. Through backup image creation, system configuration and application settings can be reserved at a state when the system is stable. This is especially helpful when the system encounters unexpected crash down or hardware/software error. In addition, you may use this tool to copy system settings on a certain mobile computer and write them to a set of other mobile computers so all resemble the same user environment.

To open the Mobile Ghost, tap **Start Screen** | **CipherLab Utilities** | **Mobile Ghost**. Two screen options show for creating a backup image, or restoring a previously created one.



Note: As long as any changes are made to the system configurations and settings, you must create a new backup image for the system registry to be updated.

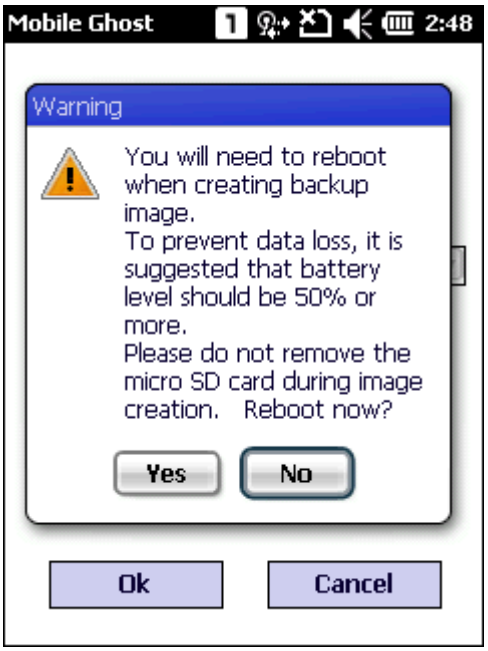
9.3.1. CREATE BACKUP IMAGE

1. To create a backup image for system registry and settings, a memory card is required. Insert a microSD card into the SD card slot as described in Using Memory Card.

2. Open Mobile Ghost by tapping **Start Screen** | CipherLab Utilities | Mobile Ghost.

3. Check Create backup image and tap OK.

A warning message shows notifying that system reboot (restart) is needed for backup image creation. Tap **Yes** to continue and **No** to abort.



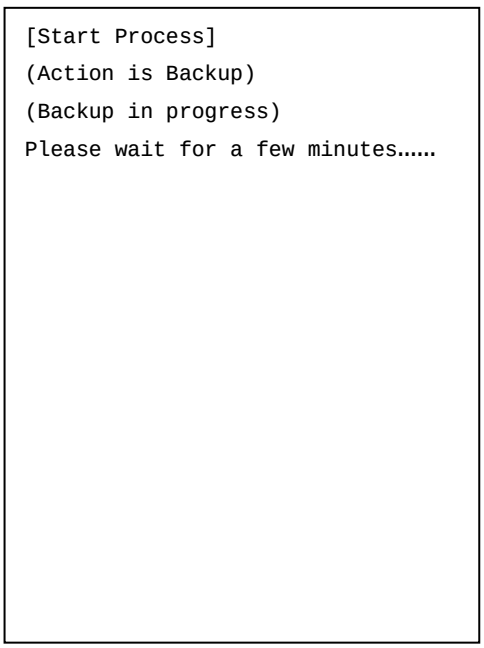
Note:

(1) To prevent data loss during backup, make sure system battery level is sufficient, preferably over 50%, or make sure the mobile computer is connected to external power.

(2) Do not remove the microSD card during backup image creation.

4. The mobile computer restarts, and the backup procedure begins shortly. An on-screen message appears stating that backup is currently under progress.

When backup is completed, a .bgo file named in date format (YYYY-MM-DD_001) will be created on the microSD card. The mobile computer will restart once more.



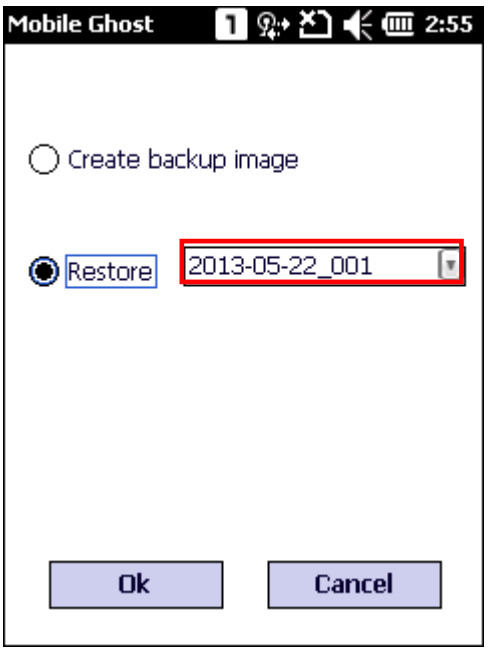
9.3.2. RESTORE BACKUP IMAGE

Restoring a backup image will change system settings back to the conditions when the backup image was created.

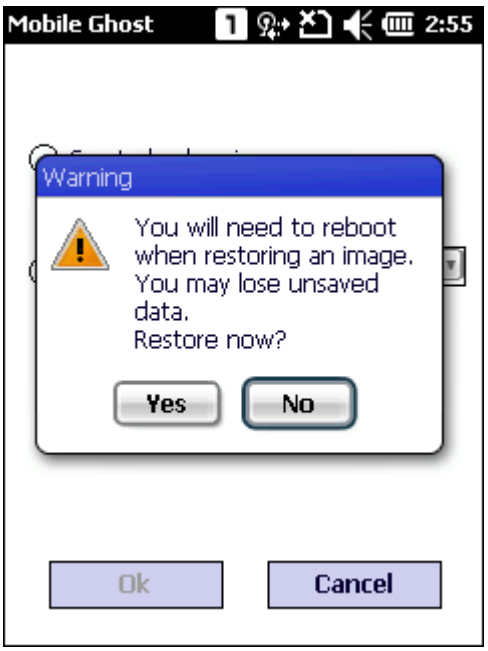
1. To restore a backup image which was previously created, make sure the microSD card containing the desired backup image is inserted on the mobile computer.

2. Open Mobile Ghost by tapping **Start Screen** | CipherLab Utilities | Mobile Ghost.

   Check the **Restore** option and select a backup image in the drop-down list. Tap **OK** to confirm.

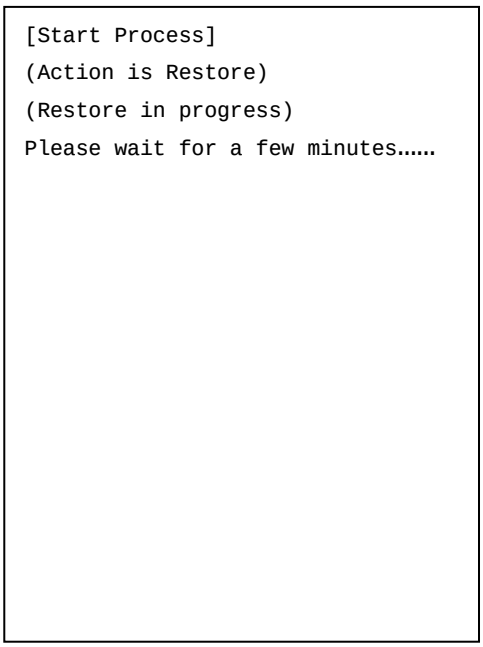


3. A warning message appears reminding that system reboot (restart) is needed for backup image restoration. Make sure all user data and tasks are saved before tapping **Yes** to confirm restoration.



4. Device storage begins formatting. Once completed, restoration starts using the selected backup image.

When restoration is completed, the mobile computer will restart with system registry and settings of the selected backup image applied.



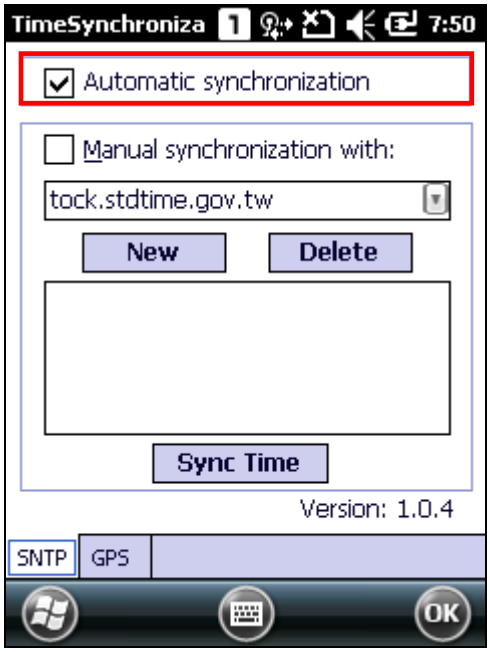
9.4. TIME SYNCHRONIZATION

Use the Time Synchronization utility to synchronize system time on the mobile computer. This can be done in three ways, either by automatically synchronizing with an NTP server, manually synchronizing with an NTP server, or by GPS synchronization.

AUTO SYNC WITH NTP SERVER

1. Open the utility by tapping **Start Screen** | **Settings** | **System** | **Time Synchronization**.
2. On the **SNTP** tabbed page, select "Automatic synchronization". This enables automatic synchronization with an NTP server.

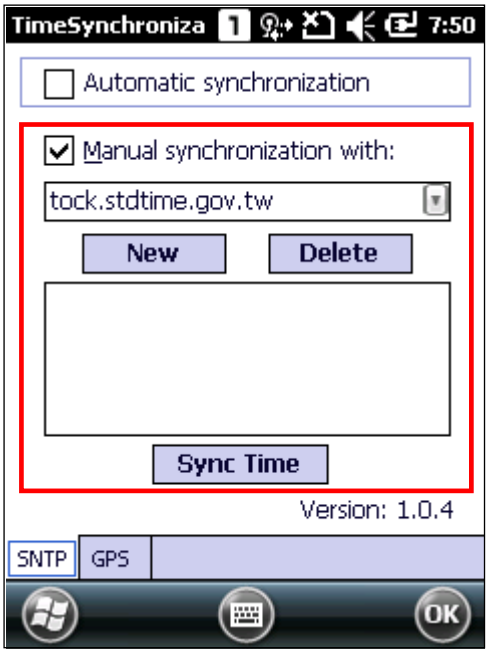
   When selected, the mobile computer will synchronize system time with the NTP server when it restarts and a wireless connection is established for the first time.

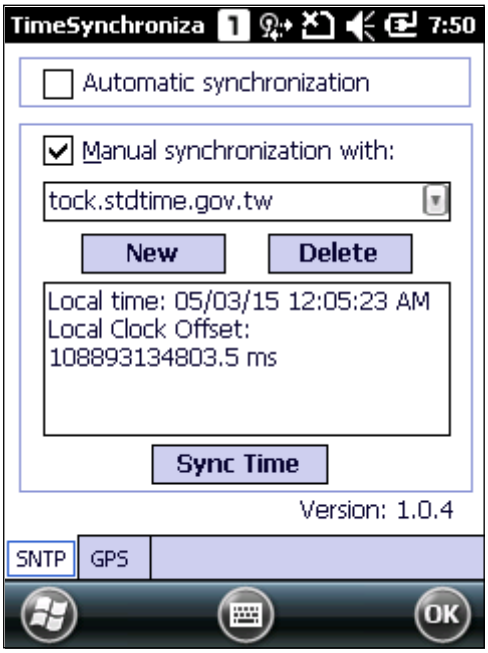


MANUAL SYNC WITH NTP SERVER

1. Open the utility by tapping **Start Screen** | **Settings** | **System** | **Time Synchronization**.
2. To manually synchronize time with an NTP server, select the preferred server in the drop-down bar, and tap **Sync Time**. The sync results will appear in the content field shortly.

> Note: To sync time successfully, make sure your mobile computer is wirelessly connected to the internet, and the "Manual synchronization with" checkbox is selected.





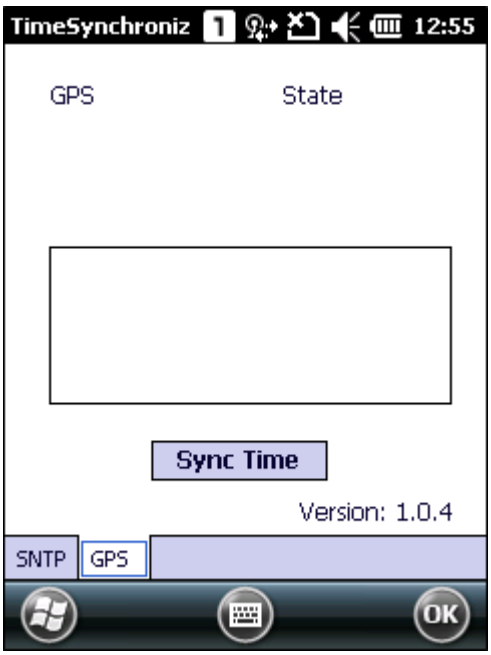
3. Tap **New** to enter a new NTP server, or **Delete** to delete a listed server.

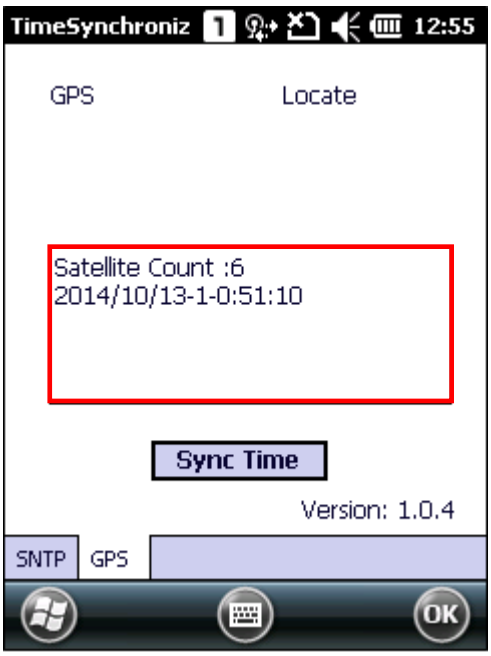
MANUAL SYNC WITH GPS

1. To synchronize time through GPS signal, open **GPS** tab and tap **Sync Time**.

   The mobile computer will start to detect available GPS signals and identify the correct time. Satellite count and time results will appear in the content field below.

Note: To sync time via GPS signal, make sure your mobile computer is located in an open area with a clear view of the sky, and the GPS software port is correctly set under External GPS.





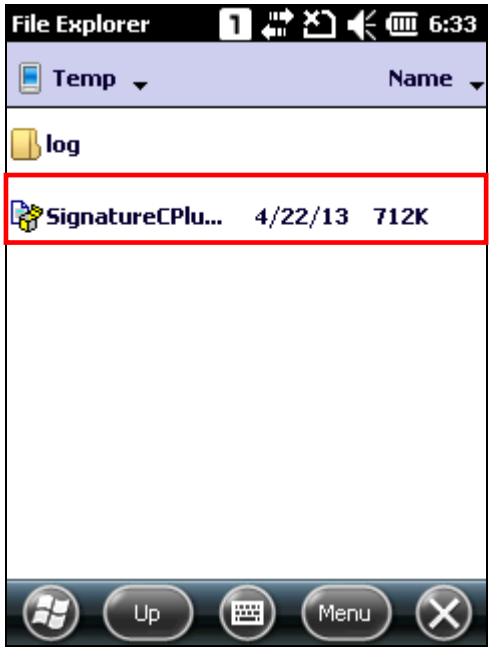
9.5. SIGNATURE UTILITY

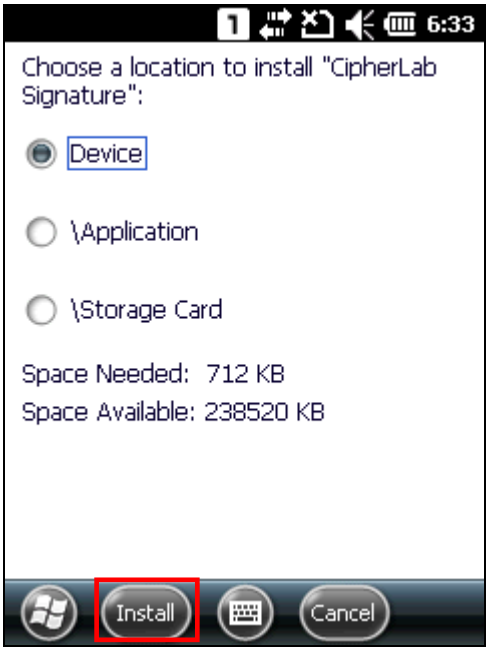
Signature utility captures, views, and edits signature files stored on the mobile computer.

Signature utility is provided in two file formats, .cab and .exe, which are available on the CipherLab Central Service (CCS) platform. See Related Documentation for more information. Install the application on the mobile computer according to your needs.

.CAB FILE INSTALLATION

1. Obtain the **Signature** utility .cab file.
2. Connect the mobile computer with your PC via ActiveSync.
3. Copy the .cab file from your PC to a path of your selection on the mobile computer.
4. On the mobile computer, use **File Explorer** to locate the copied .cab file.
5. Tap the .cab file to start installation. Select the location to store the application and tap **Install**.



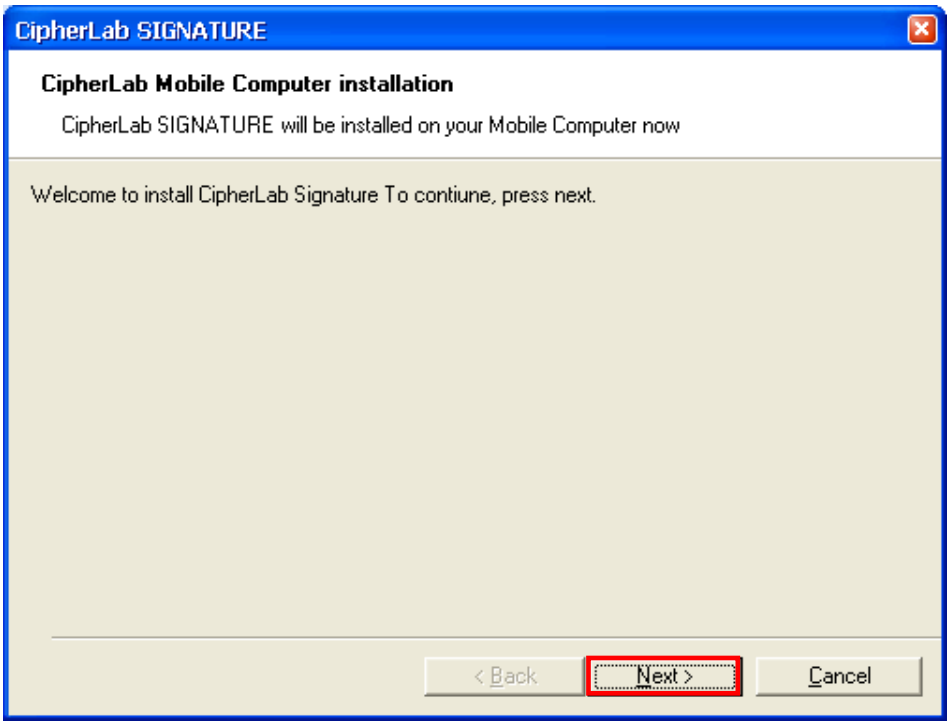


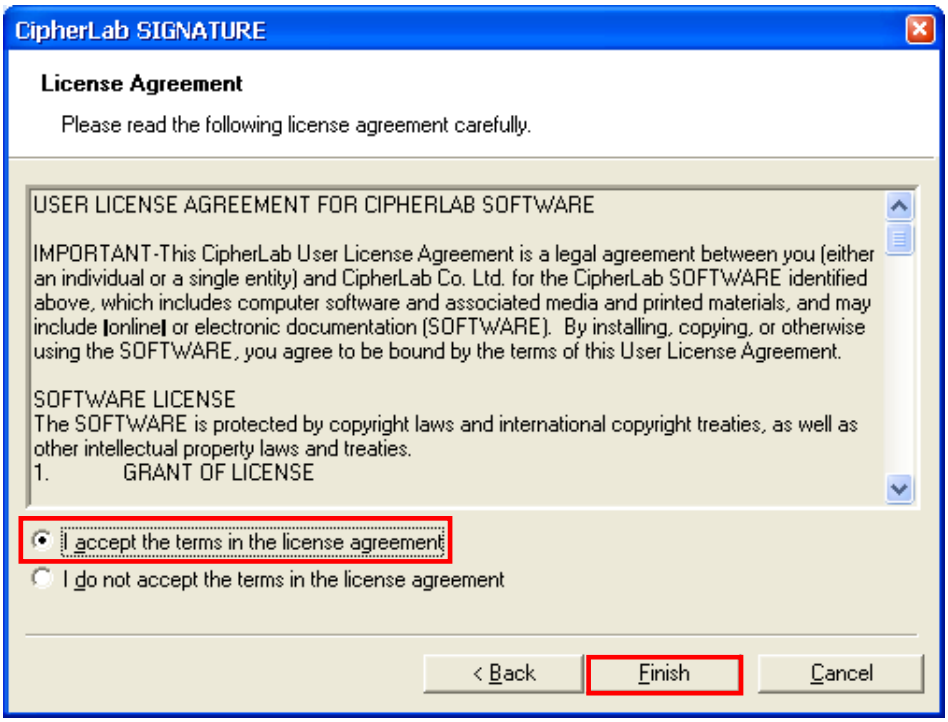


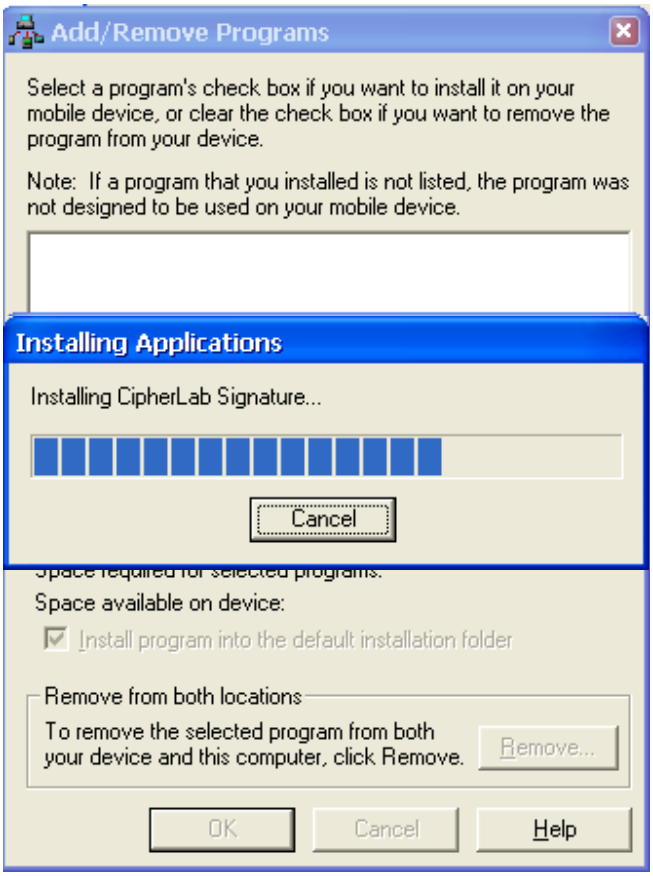
6. **Signature** utility is installed on the mobile computer's Start Screen.

.EXE FILE INSTALLATION

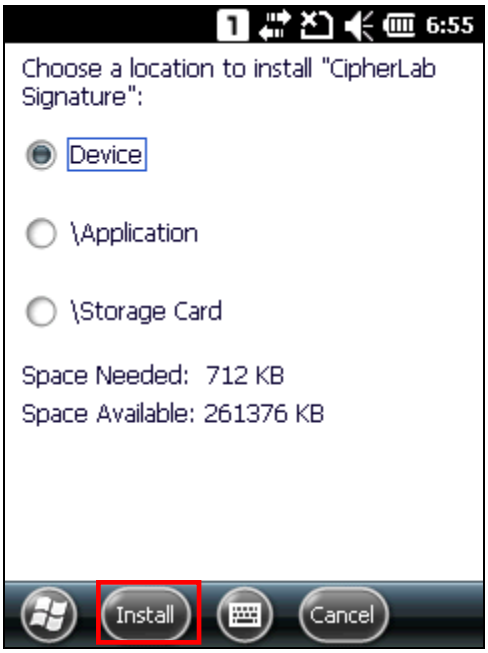
1. Obtain the **Signature** utility .exe file.
2. Connect the mobile computer with your PC via ActiveSync.
3. On your PC, double-click the .exe file to start the installation. An installation wizard appears to guide you through the process.

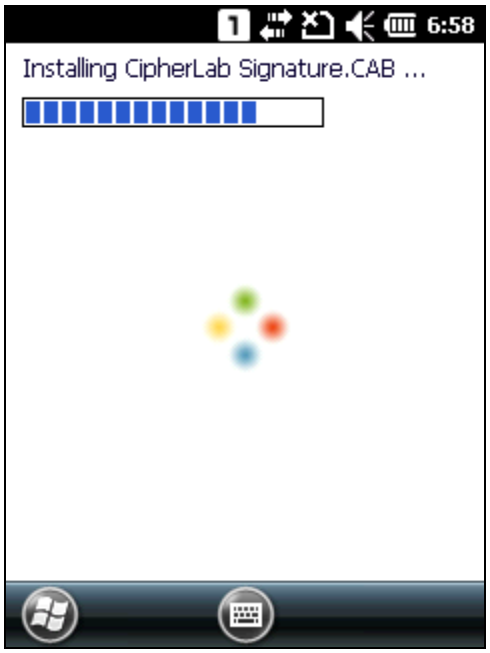






4. On the mobile computer, select where to install the utility, either in one of the device's storage spaces, or on the storage card.

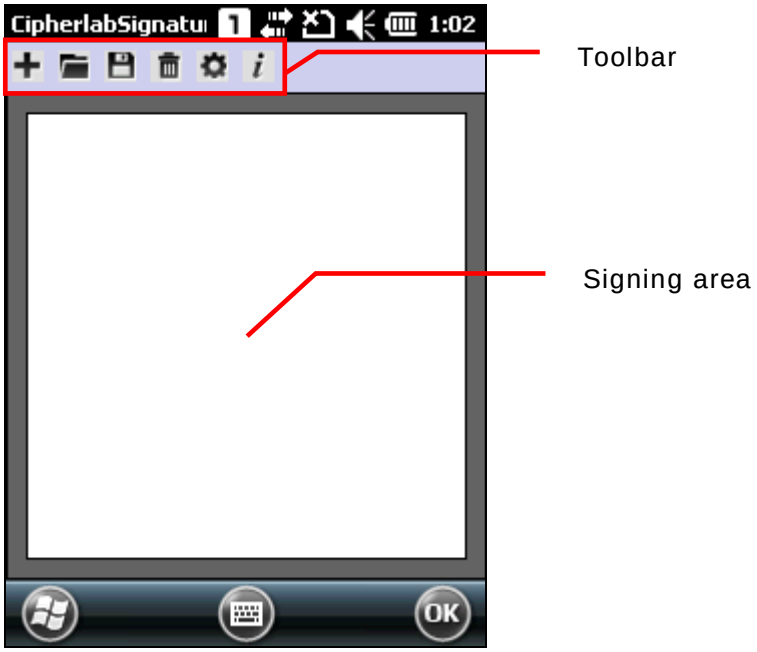




5. **Signature** utility is installed on the mobile computer's Start Screen.

9.5.1. CAPTURING A SIGNATURE

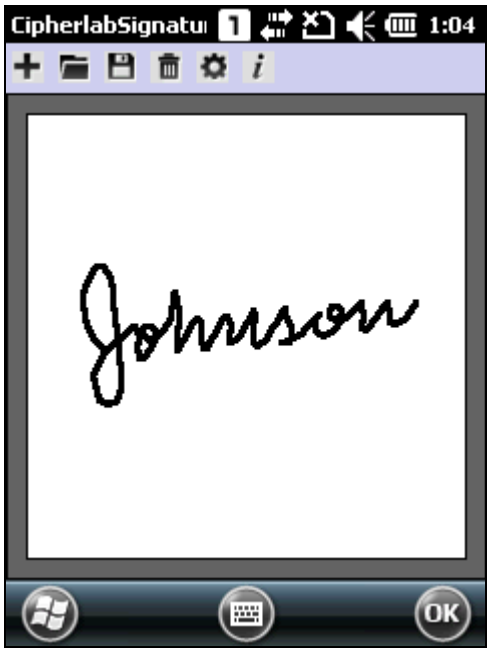
After installing **Signature** utility on your mobile computer, open the application from **Start Screen** | **Signature**. The application opens showing a toolbar and a signing area.



Toolbar functions include:

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

1. Use the stylus to sign your signature in the signing area.



2. Tap  to clear the signature and sign a new one if necessary.

   Tap  to save the signature as an image file.

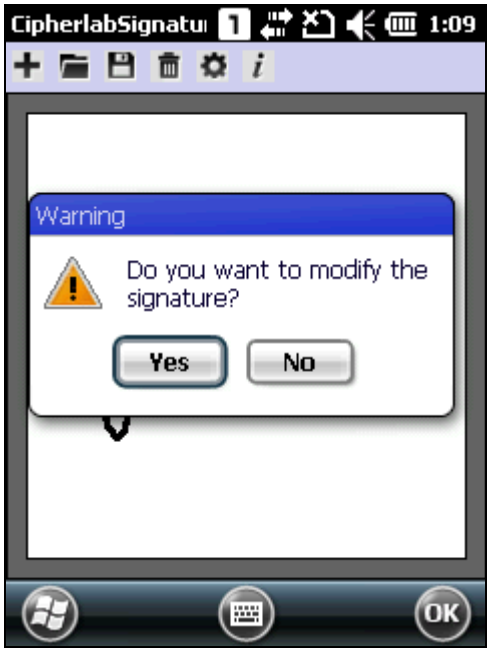
3. Tap **OK** to exit the program.

9.5.2. VIEWING A SIGNATURE

1. To view a signature image, tap  on the menu bar and select an image to load.

   The image will be displayed along with a message asking whether you would like to modify the picture.

2. Tap **Yes** to change the signature if necessary.

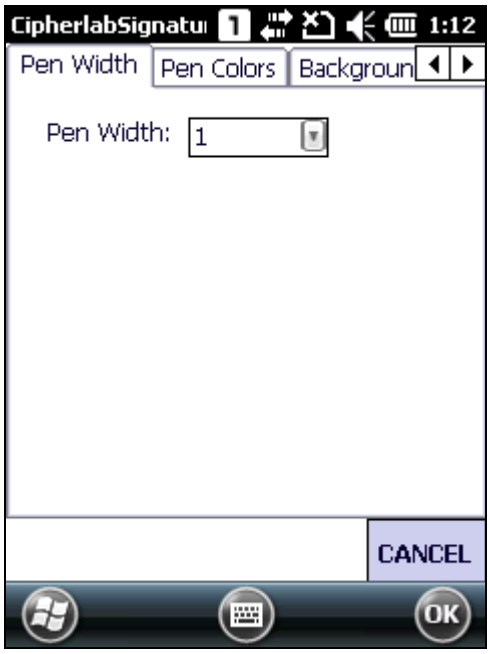


Note: The maximum size for resolution of an image file is 640x480 pixels. Any image larger than this size will be unable to load.

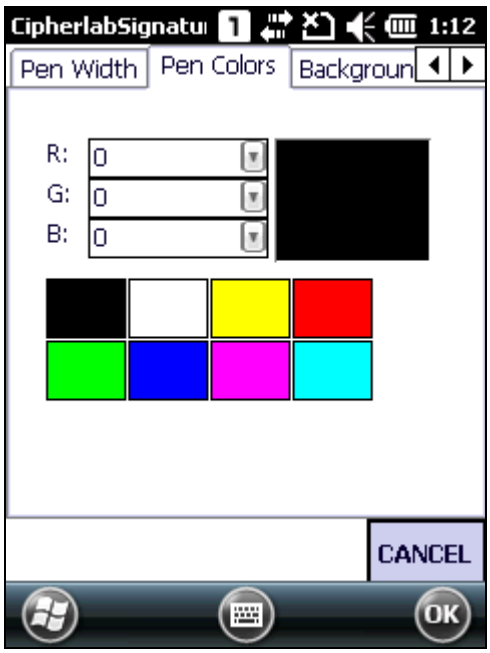
9.5.3. CHANGING SIGNATURE SETTINGS

1. Tap  to configure signature settings if necessary

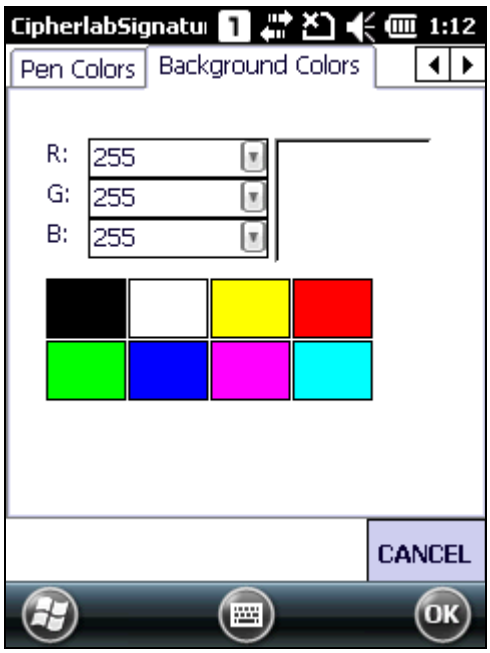
- Pen Width tab: Set the pen width (1-5 pixels) for signing. The default pen width is 1.



- Pen Colors tab: Set the pen color using the available colors, or enter a new color in RGB value (0-255). The default pen color is black



- Background Colors tab: Set the background color using the available colors, or enter a new color in RGB value (0-255). The default background color is white.



2. After done configuring signature settings, tap **OK** on the softkey bar to save the changes.

SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

Windows Version	Microsoft Windows Embedded Handheld 6.5
CPU	Qualcomm MSM7225-1 at 528 MHz

Memory

ROM	512 MB NAND flash memory
RAM	256 MB / 512MB DDR SDRAM
Expansion Slot	One microSD card slot (256MB to 4GB) ▸ SDHC supported (4GB to 32 GB)

COMMUNICATION & DATA CAPTURE

Communication

USB Client	USB Client 2.0 Specification
WPAN	Built-in module for Bluetooth version 2.1 + EDR Class II connectivity
WLAN	Two optional built-in modules for the following functions: ▸ IEEE 802.11b/g networking ▸ CCX v4 certified IEEE 802.11a/b/g/n networking
WWAN	Ordering Option - built-in module for GSM/GPRS/EDGE/WCDMA/HSPA
GPS	Built-in GPS with AGPS support, ephemeris downloadable

Data & Image Capture

Digital Camera	3.0 CMOS with LED flash and auto focus
Barcode Reader	Ordering options include ▸ CCD ▸ 1D Laser ▸ 2D Imager
HF RFID Reader	▸ Supports ISO14443A (Mifare) and B, ISO 15693

ELECTRICAL CHARACTERISTICS

Batteries

Main Battery Pack	Rechargeable Li-ion battery – 3.7 V, 3300 mAh
	Charging time: 4 hours
Backup Battery Pack	Rechargeable Li-ion battery – 4.2 V, 70 mAh
	Data retention for 30 minutes
	Charging time: 3.5 hours

Power Adaptor

Power Supply Cord with	Input	AC 100~240 V, 50/60 Hz
Universal Power Adaptor	Output	DC 5 V, 4 A

Working Time (Laser, testing cycle = 20 seconds)

Conditions include: scanning complete within one second, backlight on during scanning. Scanning, computing and data transfer finished within 20 seconds with GSM and WiFi on. In this mode, battery power will support working time for up to 12 hours.

PHYSICAL CHARACTERISTICS

Color Touch Screen Display

Display	2.8” Transflective/Transmissive TFT-LCD, 65k colors
Resolution	QVGA (240 × 320 pixels)

Keypad

Layout	28-key Alphanumeric keypad with LED backlight

Notifications

Status LED	Two LEDs: ▸ Left: Charging status (Red/Green), Scanner good read (Green, flash once) and Battery replacement (Red, temporarily on) ▸ Right: Scanner Light Beam (Orange)
Audio	Integrated with one speaker, microphone and receiver CTIA Headset jack – for 3.5 mm earphone ▸ Bluetooth headset supported
Vibrator	0.45G force, for scanner Good Read and system notifications

Dimensions & Weight

Dimensions	175 mm (L) x 60 mm (W) x 34 mm (H)
Weight	310 g (Laser, including battery)

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating	SM1	-20 °C to 50 °C
	SE955	-20 °C to 60 °C
	SE4500	-20 °C to 50 °C
Storage		-30 °C to 60 °C (transmissive) / -30 °C to 70 °C (transflective), without battery
Charging		0°C to 40°C

Humidity

Operating	10% to 90% (non-condensing)
Storage	5% to 85% (non-condensing)

Resistance

Impact Resistance	Multiple 1.5 m drops onto concrete
Tumble Test	1000 times at 0.5 m per applicable IEC tumble specifications
Splash/Dust Resistance	IP65 per applicable IEC sealing specifications
Electrostatic Discharge	±15 kV air discharge, ±8 kV contact discharge

PROGRAMMING SUPPORT

Development Environment & Tools

Integrated Development Environment	Visual Studio 2008
	Visual Studio 2005
Software Development Kit	Microsoft SDK
	System API (DLL) for system configuration
	Reader API (DLL) for reader configuration

Software & Utilities

CipherLab Software Package	▸ Reader Configuration
	▸ Signature
	▸ AppLock
	▸ MIRROR Browser for web application
	▸ Terminal Emulation
Third-party Software	▸ SOTI MobiControl for remote device control
	▸ Naurtech CETerm – Terminal emulator (3270, 5250, VT) and industrial web browser
	▸ Wavelink Emulator
	▸ Kalipso

ACCESSORIES

Accessory Options

- LCD Protective Film
- Snap-on Charging & Communication Cable (USB or RS-232)
- Snap-on Car Charger
- Charging & Communication Cradle

Appendix I

SCAN ENGINE SETTINGS

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

- CCD (SM1)
- 1D Laser (SE955)
- 2D Imager (SE4500DL)
- RFID reader

The reader combination on the mobile computer is either 1D+RFID or 2D+RFID. When the physical scan key or side trigger is pressed, the mobile computer will read a printed barcode in position.

Note:

(1) 1D and 2D scan engines don't coexist on the mobile computer because they are both barcode readers and the mobile computer allows one barcode reader only.

(2) Run only one reader-controlling utility or application at a time. For example, while running **Reader Configuration**, avoid running MIRROR Browser, Terminal Emulation, or any other application that uses ReaderDLL.

IN THIS CHAPTER

Symbologies Supported 210
RFID Tags Supported 212

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, III, and IV.

		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	☐	☐	☐
MSI		☐	☐	☐
Postal Codes	Australian Postal	☐	☐	☐
	Japan Postal	☐	☐	☐
	Netherlands KIX Code	☐	☐	☐

	US Postnet	☐	☐	☐
	US Planet	☐	☐	☐
	UK Postal	☐	☐	☐
EAN / UPC	EAN-8	☐	☐	☐
	EAN-8 Extend	☐	☐	☐
	EAN-13	☐	☐	☐
	Bookland EAN (ISBN)	☐	☐	☐
	ISSN EAN	☐	☐	☐
	UPC-A	☐	☐	☐
	UPC-E	☐	☐	☐
	Convert to UPC-A	☐	☐	☐
	UPC-E1	☐	☐	☐
	Convert to UPC-A	☐	☐	☐
2D Symbologies	Aztec	☐	☐	☐
	Data Matrix	☐	☐	☐
	Maxicode	☐	☐	☐
	MacroPDF	☐	☐	☐
	MicroPDF417	☐	☐	☐
	MicroQR	☐	☐	☐
	PDF417	☐	☐	☐
	QR Code	☐	☐	☐

RFID TAGS SUPPORTED

The RFID reader supports both reading and writing RFID data. Supported labels include ISO 14443A (Mifare), 15693 and 18092.

Supported RFID tags include:

ID_MOD_MP_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 DESFire	✓	✓(2)	✓(2)
	Mifare S20 Mini	✓	✓	✓
	SLE66R35	✓	✓	✓
ISO 15693	ICODE SLI	✓	✓	✓
	ICODE SLI-S/L	✓	✓	✓
	ICODE SLIX	✓	✓	✓
	SRF55V10P	✓	✓	✓
	SRF55V02P	✓	✓	✓
	SRF55V02S	✓	✓(2)	✓(2)
	TI Tag-it HF-I Pro/Plus	✓	✓	✓
	LRI2K	✓	✓	✓
ISO 18092	Felica	✓	✓(2)	✓(2)

Note:

(1) Study the specifications of the RFID tags to read.

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

Appendix II

CCD (SM1)

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

SYMBOLOGY SETTINGS

Laser Engine	Description	Default
Codabar		**Enable**
CLSI editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS editing	Sets whether to include start/stop characters in the transmitted data. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 128		**Enable**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable
Code 39		**Enable**
Convert Code 39 to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character “A” to Code 32 barcodes. ▸ “Convert to Code 32” must be enabled for this to function properly.	No
Check digit verification	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit check digit	Decide whether to include the check digit in the data being transmitted. ▸ “Check digit verification” must be enabled.	No
Full ASCII conversion	Code 39 Full ASCII includes all alphanumeric and special characters (full ASCII character set).	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55

Code 93		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Industrial 25 (Discrete 25)		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
EAN/JAN		**---**
Enable EAN-8		Enable
Enable EAN-13		Enable
Bookland EAN (ISBN)	EAN-13 barcodes starting with 978 will be converted to ISBN.	Enable
Enable Addons	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore Addons
Addons redundancy	When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding of the same barcode that makes a valid reading.	10 times
EAN-8 extend	Convert EAN-8 to EAN-13 format.	No
UPC		**---**
UPC-A/UPC-E/UPC-E1	For the default value, the UPC-A and UPC-E are enabled.	Enable
Enable Addons	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore Addons
Addons redundancy	When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding the same barcode that makes a valid reading.	10 times
Transmit check digit	Decide whether to include the UPC-A/UPC-E/UPC-E1 check digit in the data being transmitted.	Yes
Convert UPC-E0/ UPC-E1 to UPC-A	The UPC-E0/UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
Transmit preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted.	System Character
MSI		**Enable**

Check digit verification	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digit is incorrect, the barcode will not be accepted. If Two Check Digits option is selected, select one of the algorithms below. ▸ Mod 10/Mod 11 ▸ Mod 10/Mod 10	Mod 10/Mod 10
Transmit check digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Interleaved 25		**Enable**
Check digit verification	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ Disable ▸ USS check digit ▸ OPCC check digit	Disable
Transmit check digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
GS1 DataBar (RSS)		**---**
GS1 DataBar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 DataBar Limited		Enable
GS1 DataBar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable

Appendix III

LASER (SE955)

The tables below list the symbologies settings for 1D laser scan engine (SE955).

SYMBOLOGY SETTINGS

Laser Engine	Description	Default
Codabar		**Enable**
CLSI editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS editing	Sets whether to include start/stop characters in the transmitted data. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 128		**Enable**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable
Code 39		**Enable**
Trioptic	Decide 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.	No
Convert Code 39 to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character “A” to Code 32 barcodes. ▸ “Convert to Code 32” must be enabled for this to function properly.	No
Check digit verification	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit check digit	Decide whether to include the check digit in the data being transmitted. ▸ “Check digit verification” must be enabled.	No

Full ASCII conversion	Code 39 Full ASCII includes all alphanumeric and special characters (full ASCII character set).	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Code 93		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Industrial 25 (Discrete 25)		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
EAN/JAN		**---**
Enable EAN-8		Enable
Enable EAN-13		Enable
Bookland EAN (ISBN)	EAN-13 barcodes starting with 978 will be converted to ISBN.	Enable
Enable Addons	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore Addons
Addons redundancy	When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding of the same barcode that makes a valid reading.	10 times
EAN-8 extend	Convert EAN-8 to EAN-13 format.	No
UCC coupon extended code	Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.	No

<table>
<tr><td>EAN security level</td><td>Sets the security level to ensure decoding accuracy considering the printed quality of the barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are:<table><tr><th>Level</th><th>Description</th></tr><tr><td>0</td><td>With this default, the scan engine is aggressive enough to decode most “in-spec” barcodes.</td></tr><tr><td>1</td><td>Select this level if misdecodes have occurred. It fixes most misdecodes.</td></tr><tr><td>2</td><td>Select this level if Level 1 should fail to eliminate misdecodes.</td></tr><tr><td>3</td><td>Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of scan engine, it would be better to improve the barcode’s print quality if this level should be needed.</td></tr></table></td><td>2</td></tr>
<tr><td>UPC</td><td></td><td>---</td></tr>
<tr><td>UPC-A/UPC-E/UPC-E1</td><td>For the default value, the UPC-A and UPC-E are enabled.</td><td>Enable</td></tr>
<tr><td>Enable Addons</td><td>Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5).
Ignore Addons
Decode Only With Addons
Auto-discriminate</td><td>Ignore Addons</td></tr>
<tr><td>Addons redundancy</td><td>When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding the same barcode that makes a valid reading.</td><td>10 times</td></tr>
<tr><td>Transmit check digit</td><td>Decide whether to include the UPC-A/UPC-E/UPC-E1 check digit in the data being transmitted.</td><td>Yes</td></tr>
<tr><td>Convert UPC-E0/ UPC-E1 to UPC-A</td><td>The UPC-E0/UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.</td><td>No</td></tr>
<tr><td>UCC coupon extended code</td><td>Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes.
UPC-A, EAN-13, and GS1-128 must be enabled first!
Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.</td><td>No</td></tr>
<tr><td>Transmit preamble</td><td>Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted.</td><td>System Character</td></tr>
</table>

<table>
<tr><td>UPC security level</td><td>Sets the security level to ensure decoding accuracy considering the printed quality of the barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are:<table><tr><th>Level</th><th>Description</th></tr><tr><td>0</td><td>With this default, the scan engine is aggressive enough to decode most “in-spec” barcodes.</td></tr><tr><td>1</td><td>Select this level if misdecodes have occurred. It fixes most misdecodes.</td></tr><tr><td>2</td><td>Select this level if Level 1 should fail to eliminate misdecodes.</td></tr><tr><td>3</td><td>Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of scan engine, it would be better to improve the barcode’s print quality if this level should be needed.</td></tr></table></td><td>2</td></tr>
<tr><td colspan="2">MSI</td><td>Enable</td></tr>
<tr><td>Check digit verification</td><td>One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digit is incorrect, the barcode will not be accepted.
If Two Check Digits option is selected, select one of the algorithms below.
▸ Mod 10/Mod 11
▸ Mod 10/Mod 10</td><td>Mod 10/Mod 10</td></tr>
<tr><td>Transmit check digit</td><td>Decide whether to include the check digit in the data being transmitted.</td><td>No</td></tr>
<tr><td>Select Length (min/max)</td><td>▸ One or two fixed lengths
▸ Range (1~55)</td><td>4~55</td></tr>
<tr><td colspan="2">Interleaved 25</td><td>Enable</td></tr>
<tr><td>Check digit verification</td><td>Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted.
▸ Disable
▸ USS check digit
▸ OPCC check digit</td><td>Disable</td></tr>
<tr><td>Transmit check digit</td><td>Decide whether to include the check digit in the data being transmitted.</td><td>No</td></tr>
<tr><td>Convert Interleaved 25 to EAN-13</td><td>Convert a 14-character barcode into EAN-13 if the following requirements are met:
▸ The barcode must have a leading 0 and a valid EAN-13 check digit.</td><td>No</td></tr>
<tr><td>Select Length (min/max)</td><td>▸ One or two fixed lengths
▸ Range (1~55)</td><td>4~55</td></tr>
</table>

GS1 DataBar (RSS)		**---**
GS1 DataBar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 DataBar Limited		Enable
GS1 DataBar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable
Convert GS1 DataBar To UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
Code 11		**Enable**
Check digit verification	Decide whether to verify check digits. If the check digit is incorrect, the barcode will not be accepted. ▸ Disable ▸ One Check Digit ▸ Two Check Digits	Disable
Transmit check digit	Decide whether to include check digits in the transmitted data. ▸ "Check digit verification" must be enabled.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Chinese 25		**Enable**

MISCELLANEOUS

Laser Engine	Description	Default
Miscellaneous Options		---
Transmit Code ID character	Decide whether to include AIM Code ID in the beginning of data. ▸ none ▸ AIM code ID character Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	none

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

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 1 and 4.
	7	Result of option values 3 and 4.
Code 128	0	Standard data packet. No Function Code 1“FNC1” in the first character position.
	1	Function Code 1“FNC1” in the first character position.
	2	Function Code 1“FNC1” in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	3	Standard data packet with two-digit or five-digit addons.
	4	EAN-8 data packet.
	A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 18-character string, **]E3**001234567890510.	
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.
Code 11	0	Single check digit (has been verified.)
	1	Two check digits (has been verified.)
	3	Check digit has been verified but not transmitted.
GS1 DataBar (RSS)	0	Always transmit 0.
	RSS-14 and RSS Limited will be transmitted with an Application Identifier “01”. For example, an RSS-14 barcode, 10012345678902, is transmitted as **]e0**0110012345678902.	

Note: In GS1-128 emulation mode, RSS is transmitted using Code 128 rules (= “]C1”).

EAN.UCC Composites (RSS, GS1-128, 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.
	GS1-128 emulation	
	1	Data packet is a GS1-128 barcode (= data is preceded with "]JC1").

Note: UPC portion of composite is transmitted using UPC rules.

PDF417, Micro PDF417	0	Scan engine is set to conform to protocol defined in 1994 PDF417 symbology specifications. ▸ When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92_{DEC} has been doubled in transmission.
	1	Scan engine is set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92_{DEC} are doubled.
	2	Scan engine is set for Basic Channel operation (no escape character transmission protocol). Data characters 92_{DEC} are not doubled. ▸ When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The barcode contains a GS1-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a GS1-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a GS1-128 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, 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

Note: For JPEG files, these BPP settings are ignored for it always uses 8 bits per pixel!

Appendix IV

2D IMAGER (SE4500DL)

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

SYMBOLOGY SETTINGS

1D SYMBOLOGIES

2D Engine	Description	Default
Codabar		**Enable**
CLSI editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. ▸ The 14-character barcode length does not include start/stop characters.	No
NOTIS editing	Sets whether to include start/stop characters in the transmitted data. ▸ NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Intercharacter Gap Size	The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to “Large Intercharacter Gaps” to tolerate these out-of-specification barcodes. ▸ Normal intercharacter gaps ▸ Large intercharacter gaps	Normal
Code 128		**Enable**
Code 128	Read standard Code 128 barcodes (= without leading FNC1 character).	Enable
GS1-128 (UCC/EAN-128)	Read GS1-128 barcodes with leading FNC1 character.	Enable
ISBT 128	Read ISBT 128 barcodes.	Enable

ISBT Concatenation	Decide whether to decode and concatenate pairs of ISBT barcodes. ▸ Disable ▸ Enable – When this option is selected, there must be two ISBT barcodes for the reader to decode and perform concatenation. ▸ Auto-discriminate – When this option is selected, the reader decodes and concatenates pairs of ISBT barcodes immediately. If only a single ISBT barcode is present, the reader must decode 10 times before transmitting its data to confirm that there is no additional ISBT barcode.	Disable
ISBT Concatenation Redundancy	When "Auto-discriminate" is applied, decide the concatenation redundancy (2~20 times).	10 times
Code 39		**Enable**
Trioptic	Decide 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.	No
Convert Code 39 to Code 32	Convert to Italian Pharmacode.	No
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. ▸ "Convert to Code 32" must be enabled for this to function properly.	No
Check digit verification	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Transmit check digit	Decide whether to include the check digit in the data being transmitted. ▸ "Check digit verification" must be enabled.	No
Full ASCII conversion	Code 39 Full ASCII includes all alphanumeric and special characters (full ASCII character set).	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Intercharacter Gap Size	The Code 39 and Codabar symbologies have an intercharacter gap that is typically quite small. Due to various barcode printing technologies, this gap can grow larger than the maximum size allowed, preventing the scan engine from decoding a barcode. If this problem occurs, set it to "Large Intercharacter Gaps" to tolerate these out-of-specification barcodes. ▸ Normal intercharacter gaps ▸ Large intercharacter gaps	Normal
Code 93		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55

Industrial 25 (Discrete 25)		**Enable**
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
EAN/JAN		**---**
Enable EAN-8		Enable
Enable EAN-13		Enable
Bookland EAN (ISBN)	EAN-13 barcodes starting with 978 will be converted to ISBN.	Enable
Enable Addons	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore Addons
Addons redundancy	When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding of the same barcode that makes a valid reading.	10 times
EAN-8 extend	Convert EAN-8 to EAN-13 format.	No
UCC coupon extended code	Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.	No
UPC		**---**
UPC-A/UPC-E/UPC-E1	For the default value, the UPC-A and UPC-E are enabled.	Enable
Enable Addons	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1, UPC-A with addons (including Addon 2 and 5). ▸ Ignore Addons ▸ Decode Only With Addons ▸ Auto-discriminate	Ignore Addons
Addons redundancy	When “Auto-discriminate” is applied, decide the number of times (2~30) of supplementary decoding the same barcode that makes a valid reading.	10 times
Transmit check digit	Decide whether to include the UPC-A/UPC-E/UPC-E1 check digit in the data being transmitted.	Yes
Convert UPC-E0/ UPC-E1 to UPC-A	The UPC-E0/UPC-E1 barcode will be expanded into UPC-A, and the next processing will follow the settings configured for UPC-A.	No
UCC coupon extended code	Read UPC-A barcodes starting with digit "5", EAN-13 barcodes starting with digits "99", and UPC-A/GS1-128 Coupon Codes. ▸ UPC-A, EAN-13, and GS1-128 must be enabled first! ▸ Use “Addon Redundancy” to control auto-discrimination of the GS1-128 (right half) of a coupon code.	No

Transmit preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted.	System Character
Code 11		**Enable**
Check digit verification	Decide whether to verify check digits. If the check digit is incorrect, the barcode will not be accepted. ▸ Disable ▸ One Check Digit ▸ Two Check Digits	Disable
Transmit check digit	Decide whether to include check digits in the transmitted data. ▸ "Check digit verification" must be enabled.	No
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55
Interleaved 25		**Enable**
Check digit verification	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. ▸ Disable ▸ USS check digit ▸ OPCC check digit	Disable
Transmit check digit	Decide whether to include the check digit in the data being transmitted.	No
Convert Interleaved 25 to EAN-13	Convert a 14-character barcode into EAN-13 if the following requirements are met: ▸ The barcode must have a leading 0 and a valid EAN-13 check digit. ▸ "Check digit verification" must be disabled.	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55
MSI		**Enable**
Check digit verification	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digit is incorrect, the barcode will not be accepted. If Two Check Digits option is selected, select one of the algorithms below. ▸ Mod 10/Mod 11 ▸ Mod 10/Mod 10	Single Modulo 10
Transmit check digit	Decide whether to include the check digit in the data being transmitted.	No
Select Length (min/max)	▸ One or two fixed lengths ▸ Range (1~55)	4~55

GS1 DataBar (RSS)		**---**
GS1 DataBar-14	GS1 DataBar-14 is short for GS1 DataBar Omnidirectional. This group consists of (1) GS1 DataBar Omnidirectional, (2) GS1 DataBar Truncated, (3) GS1 DataBar Stacked, and (4) GS1 DataBar Stacked Omnidirectional.	Enable
GS1 DataBar Limited		Enable
GS1 DataBar Expanded	This group consists of (1) GS1 DataBar Expanded, and (2) GS1 DataBar Expanded Stacked.	Enable
Convert GS1 DataBar To UPC/EAN	"Convert to UPC/EAN" only applies to GS1 Databar-14 and GS1 Databar Limited barcodes not decoded as part of a Composite barcode. **Convert to EAN-13** Strip the leading "010" from barcodes. ▸ "01" is the Application ID and must be followed by a single zero (the first digit encoded) **Convert to UPC-A** Strip the leading "0100" from barcodes. ▸ "01" is the Application ID and must be followed by two or more zeros (but not six zeros)	No
Composite Codes		**---**
Composite CC-C	Enable or disable Composite bar codes of type CC-C.	Enable
Composite CC-A/B	Enable or disable Composite bar codes of type CC-A/B.	Disable
Composite TLC-39	Enable or disable Composite bar codes of type TLC-39.	Disable
UPC Composite Mode	UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode. **UPC Never Linked** Transmit UPC barcodes regardless of whether a 2D barcode is detected. **UPC Always Linked** Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted. ▸ CC-A/B or CC-C must be enabled! **Auto-discriminate UPC Composites** Transmit UPC barcodes as well as the 2D portion if present.	UPC Always Linked
GS1-128 Emulation Mode for UCC/EAN Composite Codes	Transmit UCC/EAN Composite Code data as if it was encoded in GS1-128 barcodes.	Disable
Postal Codes		**---**
US Postnet		Enable

Transmit US Check Digit	US Postnet must be enabled first!	Enable
US Planet		Enable
UK Postal		Enable
Transmit UK Postal Check Digit	UK Postal must be enabled first!	Enable
Japan Postal		Enable
Australian Postal		Enable
Dutch Postal		Enable
Macro PDF		**Enable**
Macro PDF is a special feature for concatenating multiple PDF barcodes into one file, known as Macro PDF417 or Macro MicroPDF417.		
Transmit/Decode Mode	Decide how to handle Macro PDF decoding. **Buffer All Symbols / Transmit Macro PDF When Complete** Transmit all decoded data from an entire Macro PDF sequence only when the entire sequence is scanned and decoded. If the decoded data exceeds the limit of 50 symbols, no transmission because the entire sequence was not scanned! **Transmit Any Symbol in Set / No Particular Order** Transmit data from each Macro PDF symbol as decoded, regardless of the sequence. **Passthrough All Symbols** Transmit and decode all Macro PDF symbols and perform no processing. In this mode, the host is responsible for detecting and parsing the Macro PDF sequences.	Passthrough All Symbols
ESC Characters	When enabled, it uses the backslash "\" as an Escape character for systems that can process transmissions containing special data sequences. It will format special data according to the Global Label Identifier (GLI) protocol, which only affects the data portion of a Macro PDF symbol transmission. The Control Header, if enabled, is always sent with GLI formatting.	None

Note: When printing barcodes, keep each Macro PDF sequence separate, as each has a unique identifier. Do not mix barcodes from several Macro PDF sequences, even if they encode the same data. When you scan Macro PDF sequences, scan the entire Macro PDF sequence without interruption!

Chinese 25	**Enable**

Matrix 25		**Enable**
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	No
Check digit verification	Decide whether to verify the check digit. If the check digit is incorrect, the barcode will not be accepted.	No
Redundancy	Decide whether to enable decode redundancy.	Disable
Select Length	▸ One or two fixed lengths ▸ Range (1~55)	4~55

2D SYMBOLOGIES

2D Engine	Description	Default
2D Symbologies		---
PDF417		Enable
MicroPDF417		Disable
MicroPDF417 Code 128 Emulation	Transmit data from certain MicroPDF417 barcodes as if it was encoded in Code 128 barcodes. ▸ Transmit AIM Code Identifier in **Miscellaneous Options** must be enabled first! When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-907, 912, 914, 915:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
Data Matrix		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. **Autodetect** Decode both regular and inverse Data Matrix barcodes.	Regular Only
Maxicode		Enable
QR Code		Enable
QR Code Inverse	Decide whether to decode QR Code Inverse. **Regular Only** Decode regular QR Code only. **Inverse Only** Decode inverse QR Code only.	Regular Only

	Autodetect Decode both regular and inverse QR Code.	
MicroQR		Enable
Aztec		Enable
Aztec Inverse	Decide whether to decode Aztec Inverse. **Regular Only** Decode regular Aztec barcodes only. **Inverse Only** Decode inverse Aztec barcodes only. **Autodetect** Decode both regular and inverse Aztec barcodes.	Regular Only

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		---
Transmit Code ID character	Decide whether to include AIM Code ID in the beginning of data. ▸ None ▸ AIM code ID character (Refer to AIM Code ID – Code Characters) Each AIM Code ID contains the three-character string "**]cm**" – ▸] = Flag Character (ASCII 93) ▸ c = Code Character (see below) ▸ m = Modifier Character (see below)	none

Appendix V

HF RFID READER

HF RFID reader supports ISO 14443A (Mifare), 15693 and 18092.

RFID TAG DEFAULT START BYTE

Tag Type	Standard	Default Start Byte
Mifare Classic S20/S50/S70	ISO 14443A	64
Mifare Ultralight	ISO 14443A	16
SLE 66R35	ISO 14443A	64
SRF 55VxxP	ISO 15693	0
SRF 55V02S	ISO 15693	0
ICODE	ICODE® (Phillips)	0
Tag-it	Tag-it® (TI)	0
LRI2K	ISO 15693	0
Felica	ISO 18092	0