User Manual

RS31

BHT-1600

Mobile Computer

(Android™ 6.0, Marshmallow)

Version 1.02

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IMPORTANT NOTICES

FOR USA

FCC ID : Q3N-MR00002

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.

FOR HAC AND ACOUSTIC INFORMATION

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

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-MR00002) are M4 and T4.

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.

Warning statement:

A pleine puissance, l’écoute prolongée du baladeur peut endommager l’oreille de l’utilisateur.
To prevent possible hearing damage, do not listen at high volume levels for long periods.

FOR CANADA

This digital apparatus does not exceed the Class B limits for radio noise emissions from digital apparatus as set out in the interference-causing equipment standard entitled "Digital Apparatus," ICES-003 of Industry Canada.

Cet appareil numerique respecte les limites de bruits radioelectriques applicables aux appareils numeriques de Classe B prescrites dans la norme sur le material brouilleur: "Appareils Numeriques," NMB-003 edictee par l'Industrie.

IC : 5121A-MR00002

This device complies with Industry Canada's licence-exempt RSSs. Operation is subject to the following two conditions:
(1) This device may not cause interference; and
(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Le présent appareil est conforme aux CNR d'Industrie Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes :
(1) l'appareil ne doit pas produire de brouillage;
(2) l'utilisateur de l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

The device meets the exemption from the routine evaluation limits in section 2.5 of RSS 102 and compliance with RSS-102 RF exposure, users can obtain Canadian information on RF exposure and compliance.

Le dispositif rencontre l'exemption des limites courantes d'évaluation dans la section 2.5 de RSS 102 et la conformité à l'exposition de RSS-102 rf, utilisateurs peut obtenir l'information canadienne sur l'exposition et la conformité de rf.

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 be such that the equipment still complies with the e.i.r.p. limit;

(iii) the maximum antenna gain permitted for devices in the band 5725-5850 MHz shall be such that the equipment still complies with the e.i.r.p. limits specified for point-to-point and non-point-to-point operation as appropriate; and

(iv) the worst-case tilt angle(s) necessary to remain compliant with the e.i.r.p. elevation mask requirement set forth in Section 6.2.2(3) shall be clearly indicated.

(v) 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 5150-5250 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 de 5250 à 5 350 MHz et de 5470 à 5725 MHz doit être conforme à la limite de la p.i.r.e;

(iii) le gain maximal d'antenne permis (pour les dispositifs utilisant la bande de 5 725 à 5 850 MHz) doit être conforme à la limite de la p.i.r.e. spécifiée pour l'exploitation point à point et l’exploitation non point à point, selon le cas;

(iv) les pires angles d’inclinaison nécessaires pour rester conforme à l’exigence de la p.i.r.e. applicable au masque d’élévation, et énoncée à la section 6.2.2 3), doivent être clairement indiqués.

(v) 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 5250-5350 MHz et 5650-5850 MHz et que ces radars pourraient causer du brouillage et/ou des dommages aux dispositifs LAN-EL.

FOR PRODUCT WITH LASER

- This laser component emits FDA / IEC Class 2 laser light at the exit port. Do NOT STARE INTO BEAM DIRECTLY.
- Do not aim the beam at the eyes.
- Any adjustments or performance excluding those specified may result in hazardous laser light exposure.

ENVIRONMENT

- Operate the handy terminal at ambient temperatures from -20 °C to 50 °C and with humidity range from 10% to 90%.
- Store the device at ambient temperatures from -30 °C to 70 °C and with humidity range from 5% to 95%.
- Charge the device at ambient temperatures from 0°C to 35°C.
- This device is built with a dust-proof and splash-proof structure that conforms to protection class IP67.

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.

For body-worn operating conditions please use belt-clips, holsters, and/or accessories that have no metallic component in the assembly and must provide at least 1cm separation between the device and the user's body.

A minimum separation distance of 0.5 cm must be maintained between the user's body and the device, including the antenna during body-worn operation to comply with the RF exposure requirements in Europe.
To compliance with RF Exposure requirements in Europe, third-party belt-clips, holsters or similar accessories used by this device should not contain any metallic components. The use of accessories that do not satisfy these requirements may not comply with RF exposure requirements, and should be avoided.

CE SAR Value (Standard limit is 2 W/Kg)

EU (10g): Max. 1.32 W/Kg

SAFETY PRECAUTIONS

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

- For people's safety

- Do not listen at high volume levels for long periods to prevent possible hearing damage.
- Do not operate this device while walking, cycling or car driving.
- For the equipment
- Do not use any batteries or charging devices which are not originally sold
- Do not replace the battery with an incorrect type, to avoid the risk of heat generation, fire, or explosion.
- Do not disassemble, incinerate or short circuit the battery.
- Do not touch the contact pins of the battery pack.
- Do not expose the handy terminal or battery to any flammable sources.
- Do not expose the handy terminal to extreme temperatures or soak it in water.
- Do not use any pointed or sharp objects against the screen surface.
- Do not use the styluses which are not supplied, to prevent possible scratches to the touch screen.
- Water residue on the touch screen may cause abnormal behaviors or the fall of its sensitivity levels.
- On the surface of the terminal and the barcode reading window, the fog or water drops caused by low temperatures may influence barcode reading.
- Do not use bleaches or cleaners to clean the device. Use a clean, wet cloth instead.

BATTERY

- The main battery may not be charged to full for shipment. Charge the main battery to full before using the handy terminal for the first time.
- Main battery: The main battery powers the handy terminal to work. It takes approximately 4 hours to charge an empty main battery to full. The charging LED above the screen 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 for at least 30 minutes.
- Backup battery: The backup battery is mounted on the main board. Its role is to temporarily keep the handy terminal 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.
- 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.
- In order to prevent system from shutting down after the battery is drained out, keep a fresh battery for replacement at all times, or connect the handy terminal to an external power.
- If there are drippings or dust on the device or battery pack, wipe them away with a soft clean cloth before battery replacement.
- Turn off the power before battery replacement.
- If you want to put away the handy terminal for a period of time, remove the battery pack from the handy terminal’s battery compartment. Store the handy terminal and battery pack separately.
- Recycle batteries in a proper way for the green-environment issue.

SCANNER

- Scan a 1D barcode
- 1) Open ReaderConfig and tap **Scan Test** on the menu bar.
- 2) Aim the scanning window at the barcode to read. Move the device, having the barcode located in the center of the scanning area.
- 3) Press any of the two side triggers. The scanning light beams to read the printed barcodes. The buzzer beeps after scanning. The scanning light goes off once the data is decoded, or when the decode timeout period has passed.
- Scan a 2D barcode
- 1) Open ReaderConfig and tap **Scan Test** on the menu bar.
- 2) Aim the scanning window at the barcode to read. Move the device, having the barcode located in the center of the scanning area.
- 3) Press any of the two side triggers. The scanning light beams to read the printed barcodes. The buzzer beeps after scanning. The scanning light goes off once the data is decoded, or when the decode timeout period has passed.

CONNECTION

- Via Bluetooth or WLAN
- Connection may fail when the handy terminal is around other wireless machines or power cables as the radio frequencies of those may cause interferences.
- If communication fails, move the devices much closer to each other, and try to communicate again
- After turning on, Bluetooth power is sustained even when the handy terminal is suspended. However, if the power mode is switched to Airplane Mode, Bluetooth power will be turned off regardless of the settings.
- Not Charging could be the result of battery damage, battery's failure to touch the connector or AC plug coming off.
- Charging error could be due to high battery temperature.

CARE & MAINTENANCE

- This handy terminal is intended for industrial use. The handy terminal is rated IP67, however, damage may be done to the handy terminal if it is exposed to extreme temperatures or soaked in water.
- When the body of the handy terminal 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 handy terminal for a period of time, download the collected data to a host computer, and then remove the battery pack from the handy terminal's battery compartment. Store the handy terminal and battery pack separately.
- If you encounter malfunction on the handy terminal, write down the specific scenario and consult your local sales representative.

Find the certificate information from :

Setup → About Phone → Certificate

USA AND CANADA E-LABEL

Mobile Computer
Model : RS31

US

FCC ID : Q3N-MR00002

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.

CA

IC : 5121A-MR00002

Complies with Canadian ICES-003 Class B.
Conforme a la NMB-003 classe B du Canada.

This device complies with ISED's licence-exempt RSSs.
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.

TW

CCAI17Z10020T0

減少電磁波影響,請妥適使用

JP

R 201-170050

T AD 17 0018 201

電波法により W52 , W53 は屋内使用限定

EUROPE - EU DECLARATION OF CONFORMITY

CIPHER LAB

CE

Declaration of Conformity

Manufacturer
CIPHERLAB Co., Ltd.
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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
RS31 / BHT-1600
Initial Year of Manufacture **2017**

Reference to the specification under which conformity is declared in accordance with Council Directive- 2014/30/EU (EMC), 1999/5/EC (R&TTE), 2014/35/EU (LVD), 1999/519/EC (EMF),

EN 300 328 V1.9.1
EN 300 440-2 V1.4.1
EN 301 489-17 V2.2.1
EN 301 489-3 V1.6.1
EN 301 511 V12.1.1
EN 301 908-2 V7.1.1
EN 50566:2013 AC:2014
EN 61000-3-2 :2006/A1:2009/A2:2009
EN 55024 : 2010
EN 302 291-1 V1.1.1
EN 301893 V1.8.1
EN 301908-13 V7.1.1
EN 300 440-1 V1.6.1
EN 301 489-1 V1.9.2
EN 301 489-24 V1.5.1
EN 301 489-7 V1.3.1
EN 301 908-1 V7.1.1
EN 62479:2010
EN 60950-1 : 2006+A11:2009+A1:2010+A12:2011+A2:2013
EN 61000-3-3 :2013
EN 55032 : 2012+AC:2013
EN 50360:2001 A1:2012
EN 302 291-2 V1.1.1
EN 300330 V1.6.1
EN 300330 V1.8.1

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*

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.

INTRODUCTION

The **RS31/BHT-1600** handy terminal, powered by Android™ 6.0 Marshmallow, is light-weight, easy to use, providing powerful and handy tools for the purpose of delivering flexibility in customization.

Specifically designed to work as an industrial PDA, it provides rich options of data collection, voice and data communication, long-lasting working hours, and so on. Its large color transmissive display guarantees ease in reading in all lighting conditions. Integrated with Bluetooth v4.1, v2.1+EDR and 802.11a/b/g/n technologies, the handy terminal also includes a GSM/GPRS/EDGE/WCDMA/UMTS/HSDPA/HSUPA/HSPA+/LTE 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 handy terminal. The Care & Maintenance section is specifically crucial for those who are in charge of taking care of the handy terminal.

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.

FEATURES

- Built tough to survive drop test and sealed against moisture/dust to industrial standard IP67.
- Android™ 6.0 Marshmallow operating system with a powerful Cortex 1.3 GHz Quad-Core processor
- 16GB eMMC flash memory to store OS and software programs
- 2GB LPDDR3 SDRAM to store and run programs, as well as store program data
- One expansion slot for microSDHC memory card up to 32GB (SDXC supported)
- Built-in 8.0 Megapixel rear camera with white LED for flash and auto focus and 2.0 Megapixel front camera (optional).
- Left and right side triggers for ambidextrous scanning
- Total wireless solution — connectivity includes Bluetooth v4.1 and v2.1+EDR, 802.11 a/b/g/n, GSM/GPRS/EDGE/WCDMA/UMTS/HSDPA/HSUPA/HSPA+/LTE, and near field communication (NFC)
- A 4.7" color transmissive display with 720x1280 pixels to deliver excellent visibility in all lighting conditions
- Configurable feedback indicators including speaker and vibrator
- Built-in scan engine setting tool Reader Configuration which serves out-of-the-box keyboard wedge functionality
- Accessories and peripherals include USB Charging and Data Transfer Cable, Direct Cable

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 handy terminal.

- RS31/BHT-1600 Handy terminal
- Rechargeable Li-ion battery pack
- Hand Strap
- Micro USB Charging and Data Transfer Cable
- Direct Cable
- AC Power Adaptor
- Quick Guide

ACCESSORIES

- Hardshell
- Handbelt
- Direct Cable
- AC Power Adapter

Chapter 1

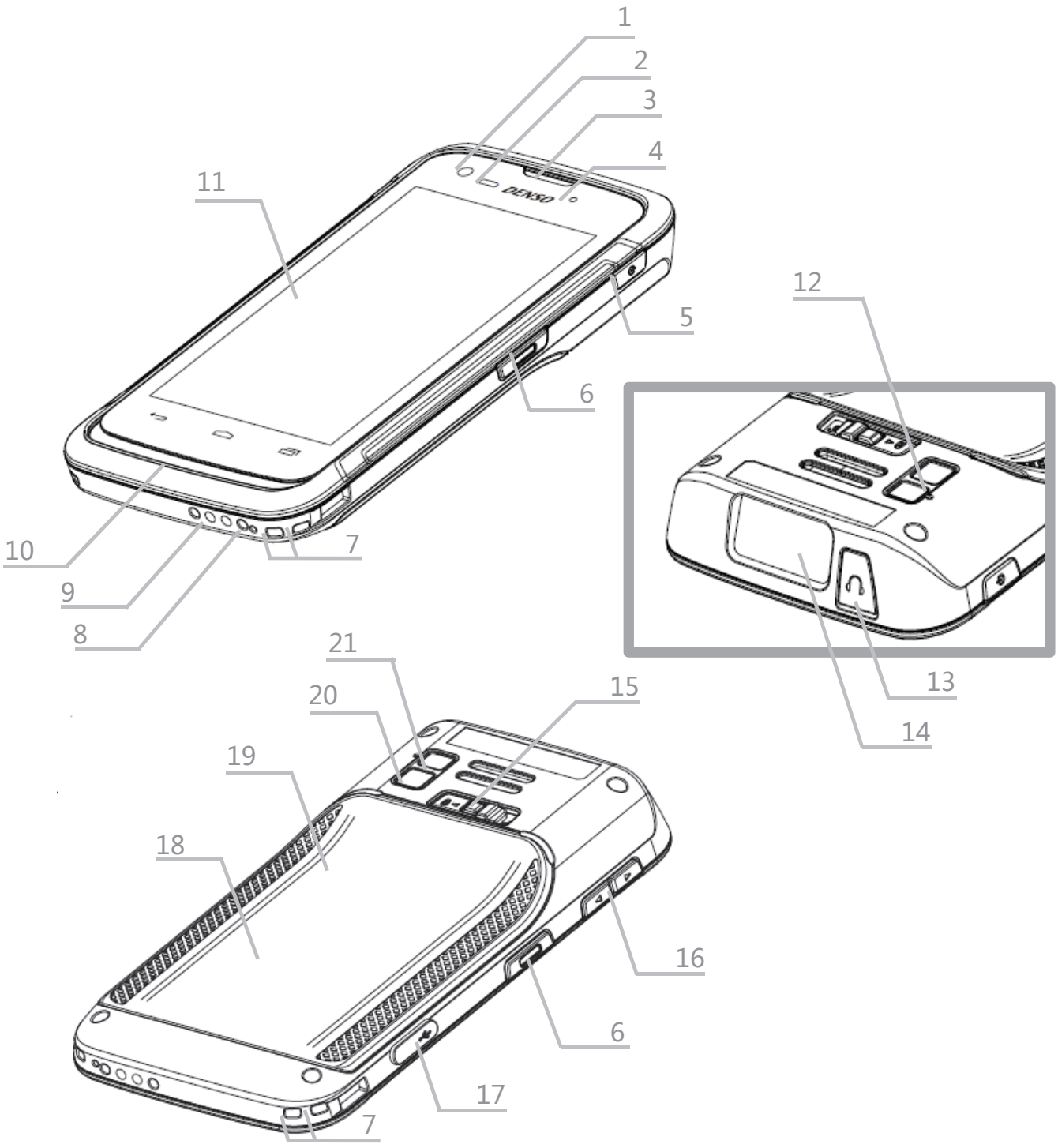
QUICK START

This chapter helps you get ready for starting using the handy terminal.

IN THIS CHAPTER

1.12.1 Overview 16
1.2 Charging & Communication 25

1.1. OVERVIEW



No.	Description	No.	Description
1	Front Camera	2	Proximity+ALS Sensor Hole
3	Receiver	4	Status LED
5	Power Button	6	Side Key

7	Hand Strap Slot	8	Microphone
9	Charging Pins	10	Speaker
11	Touchscreen	12	Sub Microphone
13	Headset Jack	14	Scan Window
15	Battery Cover Latch and Lock	16	Volume Buttons
17	Micro USB Port	18	NFC Detection Area
19	Battery Cover	20	Rear Camera
21	Camera Flash		

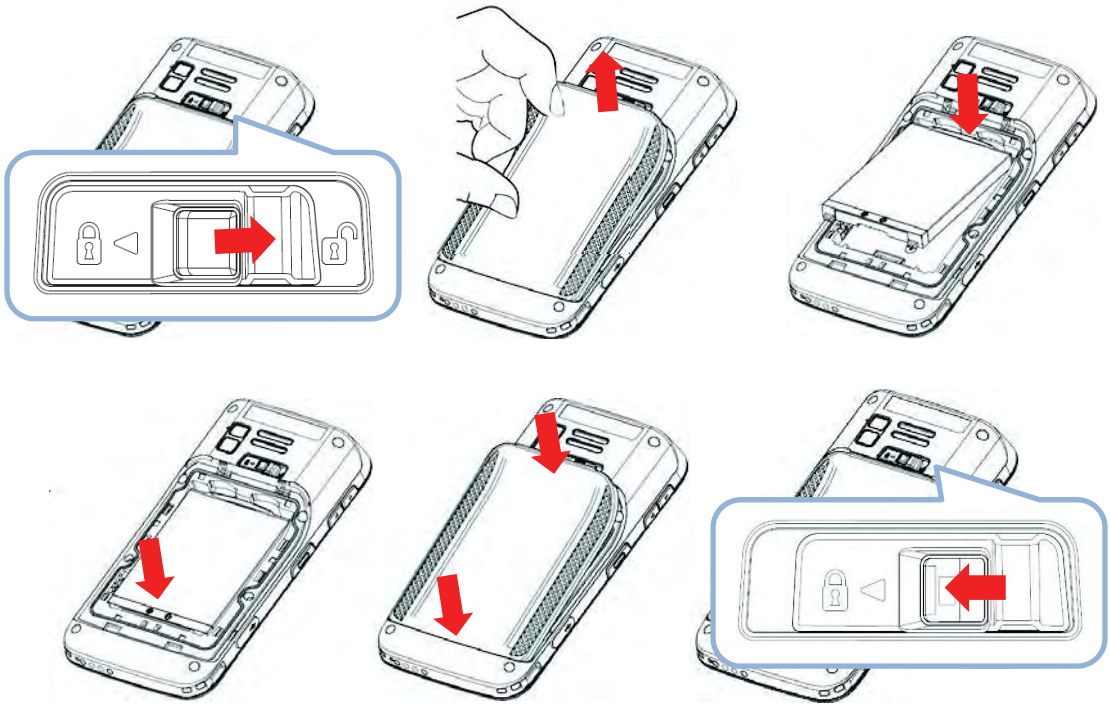
1.1.1. INSTALLING BATTERY

For shipping and storage purposes, the handy terminal and the main battery are saved in separate packages.

Note:
Any improper handling may reduce the battery life.

To install the main battery:

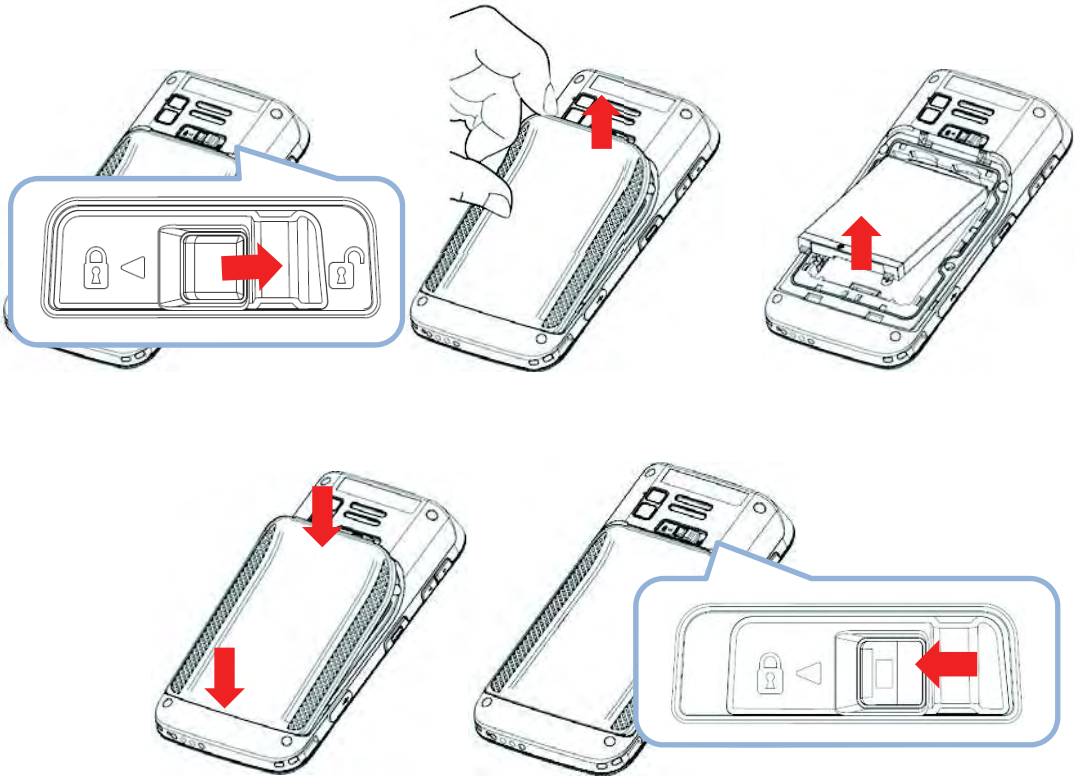
1) Press down the lock button and slide it right to the "**Unlock**" position.
2) Insert your fingernail into the groove between the case and the top of the cover, with a little force, lift the battery cover up and away from the device.
3) Insert the main battery with the contact pins facing the lower end. Fix the top edge of the battery first.
4) Press down the lower edge of the battery.
5) Fix the lower edge of the battery cover, and then push the upper end in. Please make sure that the battery lock is in "**Unlock**" state before replacing the battery cover.
6) Slide the battery lock to the left to the "**Lock**" position.



Warning
1) Make sure the battery lock is at the "**Lock**" position before powering on the device.
2) For initial use, insert a charged battery, lock the battery cover in place, then press the Power key to power on the handy terminal.

REMOVE BATTERY

1) Press down the lock button and slide it right to the "**Unlock**" position.
2) Insert your fingernail into the groove between the case and the top of the cover, with a little force, lift the battery cover up and away from the device.
3) Lift the battery up from its lower end.
4) Replace the battery cover and slide the battery lock to the left to the "**Lock**" position.

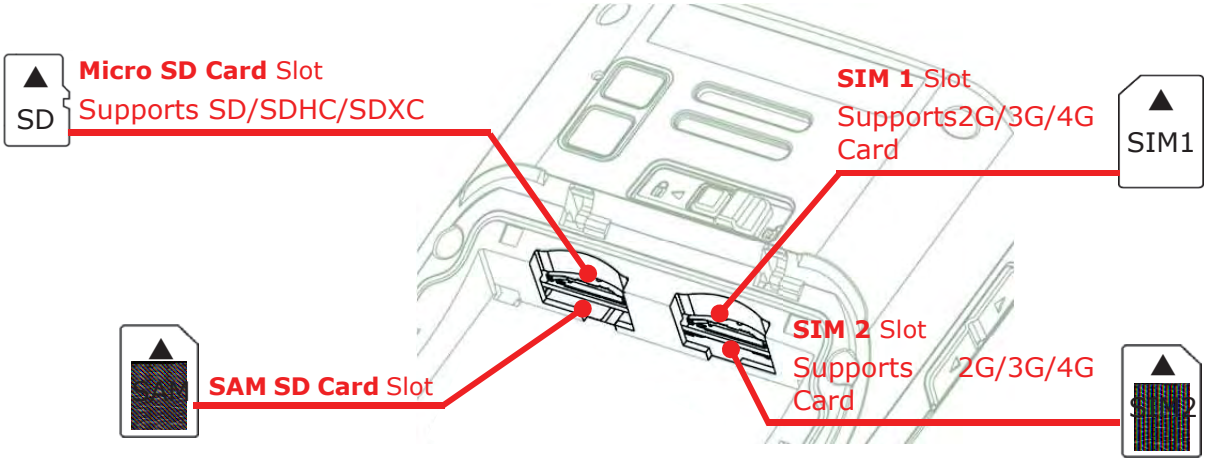


1.1.2. INSTALLING SIM CARD, SAM CARD AND MEMORY CARD

The RS31/BHT-1600 handy terminal is equipped with two SIM card slots, one SAM card slot and one memory card slot.

To insert the cards:

1) Remove the battery cover as described in Remove Battery.
2) Insert the cards into their respective slots according to the directions indicated. Push the cards to lock them in. Please note that when you insert the cards into their slots, the metal contact sides of **SD** card and **SIM1** card should be facing downwards, while those of **SIM2** card and **SAM** card should be facing upwards.



3) Replace the battery cover and push the battery lock back to the lock position.

Note:
Both SIM1 and SIM2 card slots support 2G/3G/4G cards. However, you can have 3G/4G data transmission on either SIM but not on both at the same time. Refer Phone Power for details on managing dual SIM cards.

REMOVE CARDS

1) Remove the battery cover as described in steps 1-3 of Remove Battery.
2) Push the SIM cards, SAM card and SD card to eject them from their slots.
3) Replace the battery cover and push the battery lock back to the lock position.

1.1.3. INSTALLING HARDSHELL

The hardshell is a protective cover that shields the handy terminal from impact due to bumps, drops and scratches.

To fit the handy terminal in the hardshell:

1) Fix the upper end of the handy terminal in at a 45 degree angle.
2) Press the two lower corners of the handy terminal down to secure it inside the shell.

1.1.4. POWER ON/OFF HANDY TERMINAL

POWER ON

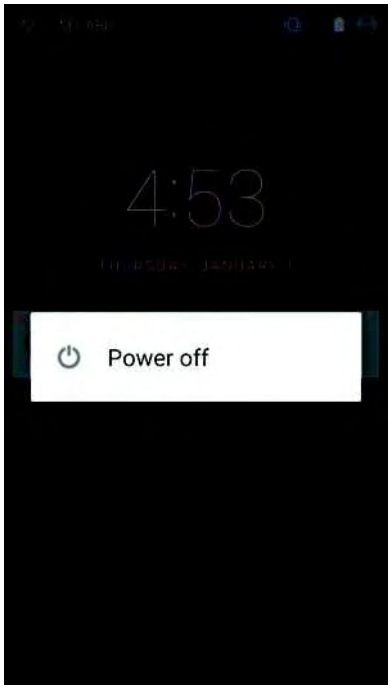
To power on the handy terminal, press and hold the power button located on the upper right side of the device. The handy terminal opens to show the Home Screen.

Note:

For the handy terminal to power on, the battery cover must be secured in place.

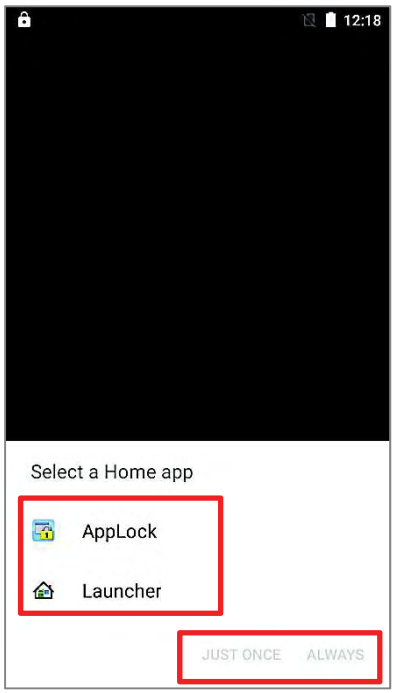
POWER OFF

To power off the handy terminal, press and hold the power button for more than three seconds. A menu will appear on-screen which allows you to power off the device. Make sure all user data and tasks have been stored before tapping **Power off**.



1.1.5. HOMESCREEN SELECTION

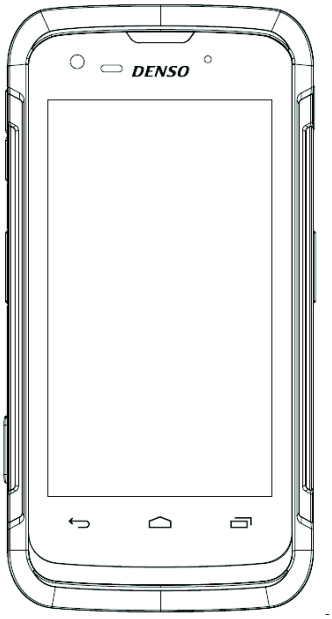
Upon the first time you launch the system, a **Select Home app** window will pop up to request your immediate choice of home screen. By selecting "**AppLock**", you will directly enter AppLock application (please refer to *AppLock User Guide* for detailed instructions on AppLock settings) to start configuring the interface provided to normal users of this device; by selecting "**Launcher**", you will enter the default Android™ 6.0 home screen.



1.1.6. USING HARDWARE BUTTONS

On the bottom of the handy terminal are three hardware buttons that deliver the following functions:

Button	Function	Description
	Back button	Returns to the previous screen or closes the active window or keyboard.
	Home button	Displays the Home screen.
	Recent apps button	Opens a list of recently used applications.



1.1.7. CONNECTING HEADSET

The headset jack is located on the top of the handy terminal. 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.

1.2. CHARGING & COMMUNICATION

1.2.1. CHARGE HANDY TERMINAL

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 handy terminal. You may use the Direct Cable with a power adapter to charge the handy terminal.

Your device can be charged as well when connected to a computer via USB cable; however, charging from a USB port on a computer is slower than charging using a supplied Direct Cable because the voltage and amperage the computer provides is lower than in the case of using a normal charging method.

CHARGING TIME

Main battery: The main battery powers the handy terminal 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 for at least 30 minutes.

Backup battery: The backup battery is mounted on the main board. Its role is to temporarily keep the handy terminal 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.

Please note that battery charging stops when ambient temperature drops below 0°C or exceeds 40°C.

OPERATION ON BATTERY POWER

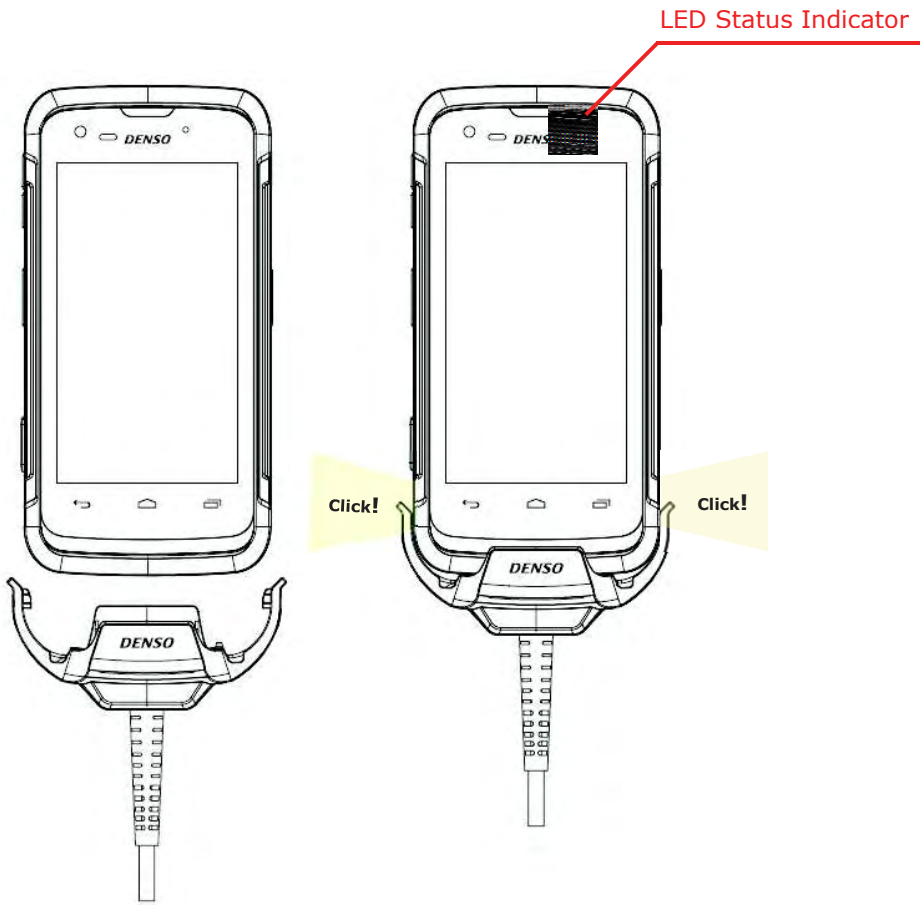
When 802.11a/b/g/n, GSM/GPRS/EDGE/WCDMA/UMTS/HSDPA/HSUPA/HSPA+/LTE, Bluetooth v4.1 & v2.1+EDR and GPS are all enabled on battery power, the main battery level will drop down substantially. Prolonged use of the display and continued scanning of barcodes will also affect battery level.

In order to prevent system from shutting down after the battery is drained out, we suggest that you keep a fresh battery for replacement at all times, or connect the handy terminal to an external power.

USE DIRECT CABLE

The Direct Cable provides a convenient way to charge your handy terminal.

1) Fasten the Direct Cable to the lower end of the handy terminal.
2) Connect the other end of the cable to the adapter.
3) Fix the adapter plug onto the adapter, and plug in into an electrical outlet.



While the device battery is being charged, the LED on handy terminal will indicate charging status.

LED Indicator	Status	Description
Charging	Red, solid	Charging the handy terminal
	Red, blink	Charging error
	Green, solid	Charging complete
	No light	Charging error (charging will stop)

Note:

The Direct Cable is for charging only. For data communication, use the micro USB cable to connect the handy terminal to your PC or laptop.

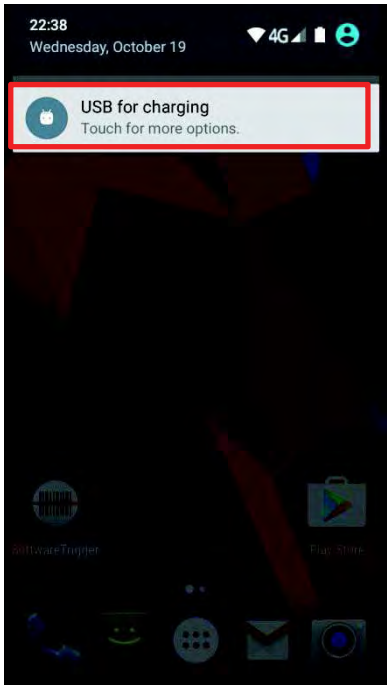
1.2.2. WIRED DATA TRANSMISSION

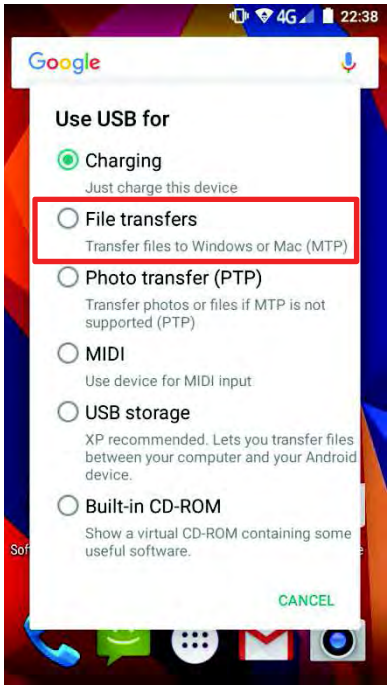
Use the micro USB cable to connect the handy terminal to your PC for data transmission.

1) *Connect your device to the computer with supplied USB cable.*

2) Swipe down from the status bar to reveal Notifications Panel.

3) Tap "**USB for Charging**" to enter USB options. By default, the device will be in charging mode, in which you are unable to access the files on this device from the PC client. To transfer all types of files between your device and PC, choose "**File transfers**". To transfer videos and photos, you can select "**Photo transfer (PTP)**, in which your device will share only videos and photos in *DCIM* and *Pictures* folders.





1.2.3. USING WIRELESS NETWORKS

The handy terminal supports widely applied wireless technologies including Bluetooth v4.1 & v2.1+EDR, 802.11 a/b/g/n and NFC, and is able to send/receive data in real time in an efficient way. Select GSM/GPRS/EDGE/WCDMA/UMTS/HSDPA/HSUPA/HSPA+/LTE modules embedded for a total wireless solution for data and voice communication.

Chapter 2

USING THE RS31/BHT-1600 HANDY TERMINAL

This chapter walks you through the fundamental usage and features of this device.

IN THIS CHAPTER

2.1 Battery 29
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2.4 Notifications 55
2.5 Date and Time 57
2.6 Language & Keyboard Input 58
2.7 Sound and Volume 66
2.8 Programmable Keys 67
2.9 Data Capture 73

2.1. BATTERY

- Main Battery

The handy terminal is powered by a rechargeable 3.85V / 2960 mAh Li-ion battery pack, and it takes approximately 4 hours to charge it to full from the power adaptor. However, the charging time may vary by your 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 handy terminal in suspension when the main battery is depleted. The backup battery is a 60 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 handy terminal 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.

Warning:

(1) The battery cover must be secured in position. If not, the handy terminal cannot turn on by pressing the power key.

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

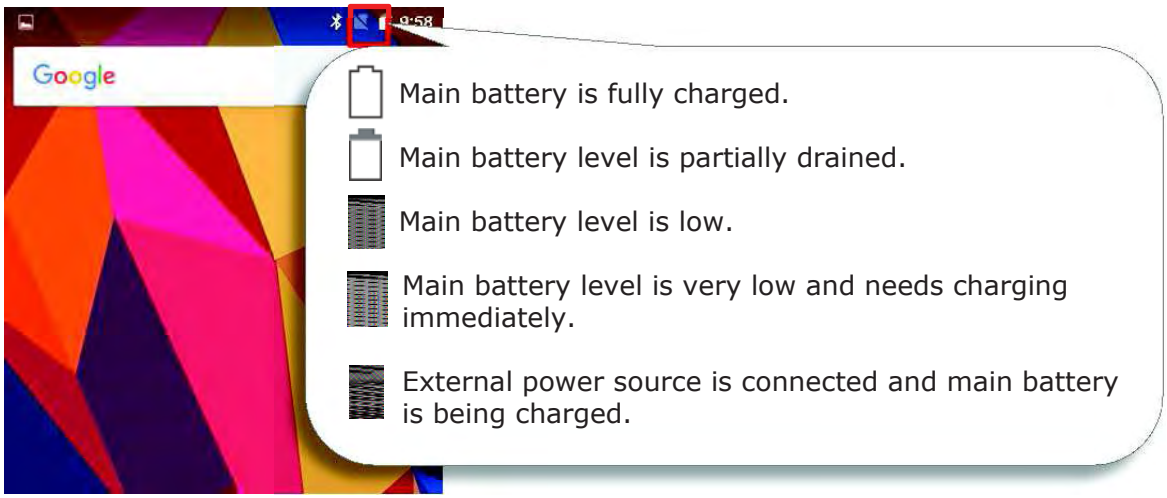
(3) To avoid data loss, when replacing the main battery, make sure you replace it with a well-charged spare battery pack. Always prepare a spare battery at hand, especially when you are on the road.

(4) When the handy terminal has been on backup battery for 30 minutes, the system will shut down. Be sure to replace the main battery as soon as possible in order to avoid data loss.

2.1.1. BATTERY STATUS INDICATORS

The main battery pack is the only power source for the handy terminal 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.

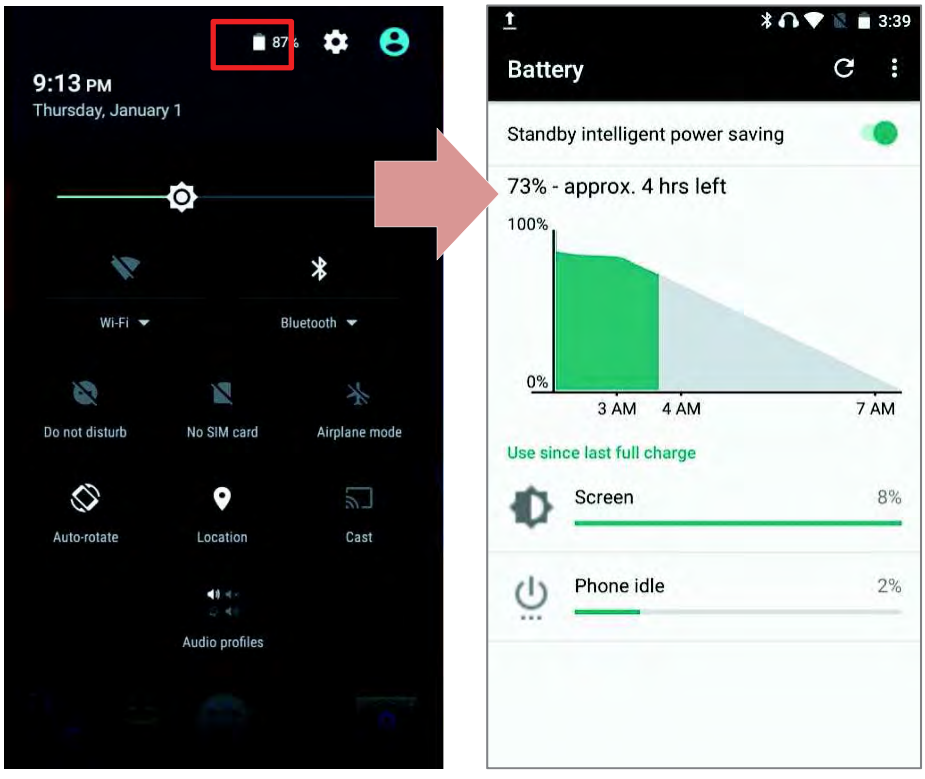
By checking the battery status icon on **Status Bar**, you can tell the battery level remaining in the main battery.



To check the exact remaining percentage of power and battery life:

1) Use two fingers to swipe down from the top of the screen to open **Quick Settings**.

2) The percentage of remaining battery power is shown beside the battery icon; you can tap on it to enter **Battery Settings** for more details and configurations.



Note:

When the handy terminal 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 15%, 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 handy terminal 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.

2.1.2. MONITOR BATTERY LEVEL

MAIN BATTERY LEVEL

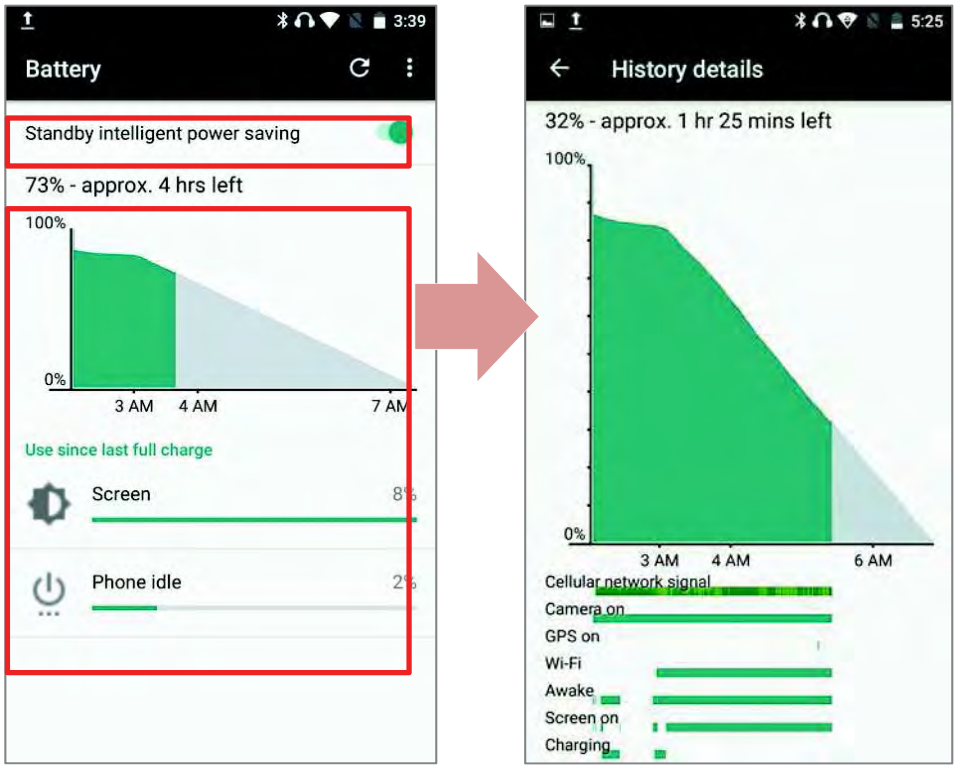
The main battery is the only source that feeds the handy terminal to work. It also supplies the backup battery on the main board in order to retain the data stored in DRAM. When main battery level gets low, recharge it or replace it as soon as possible. Most critically, back up the important data from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

To check main battery level:

Tap **All Apps** | **Settings** | **Battery** .

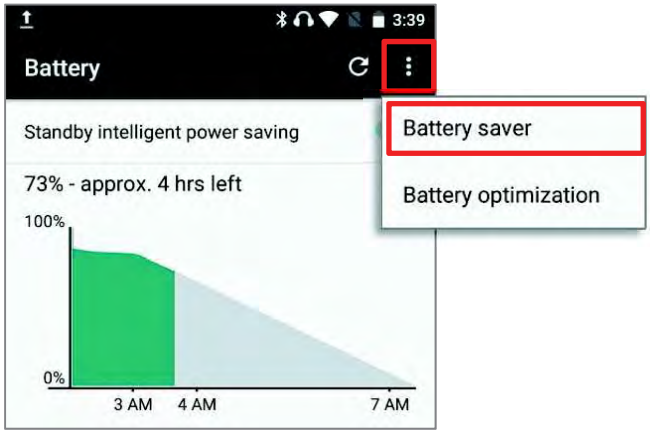
Battery level percentage is also shown to provide a clear grasp of the remaining battery power. The screen also shows the rate of battery discharge since the last battery charging session, how long the device has been running on battery power, and which applications are consuming the most battery power.

- To enable Android's smart power saving feature, activate the **Standby Intelligent power saving function**, which intelligently manages the background tasks as this device is powered on.
- To look at the timeline of each application that drained or has been draining the battery power, tap on the chart; with this, you can diagnose any serious power drains.

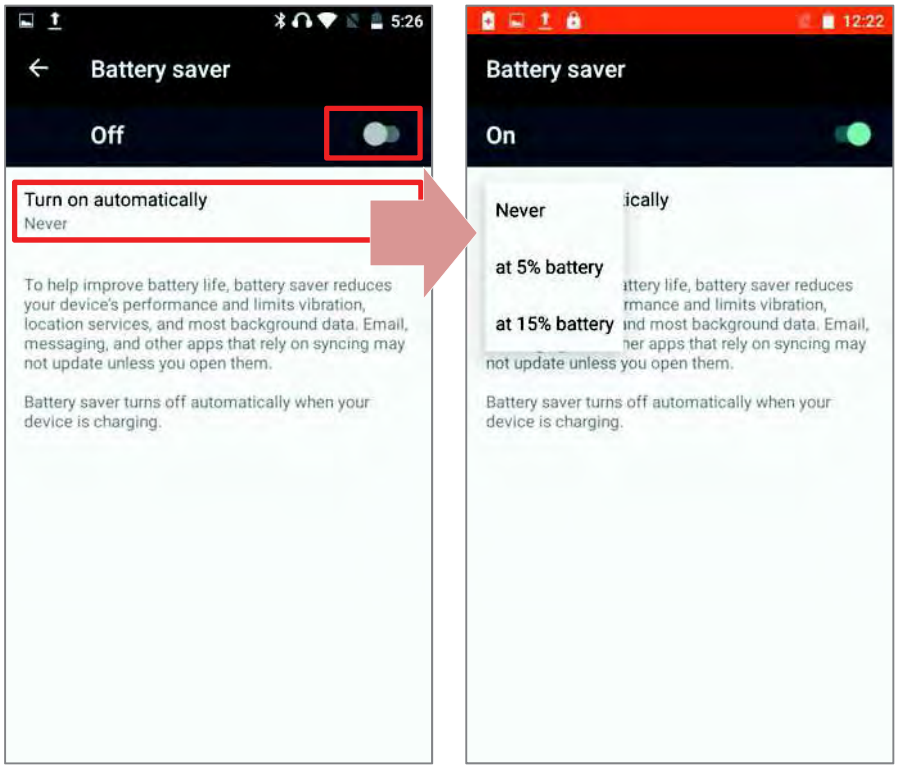


BATTERY SAVER MODE

You can have the **Battery Saver Mode** automatically turned on when the main battery gets low or have activated the whole time. This mode will limit the use of location services, vibration and most background processing data. On **Battery Settings** screen, tap on **More** ⋮ and then select "**Battery saver**".

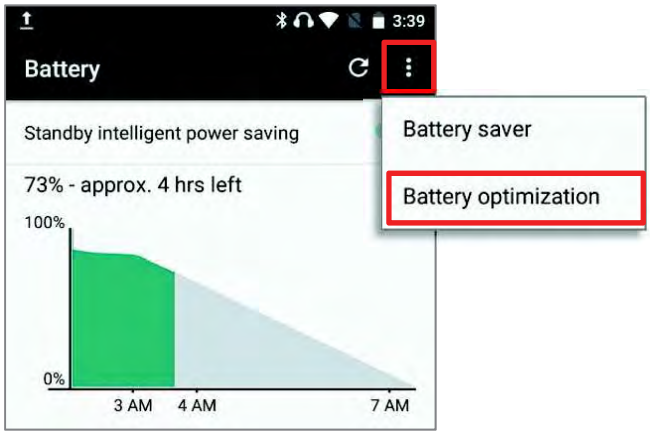


Switch on the function and choose when to have this mode automatically activated. After enabling this function, the title bar of your screen will turn orange.

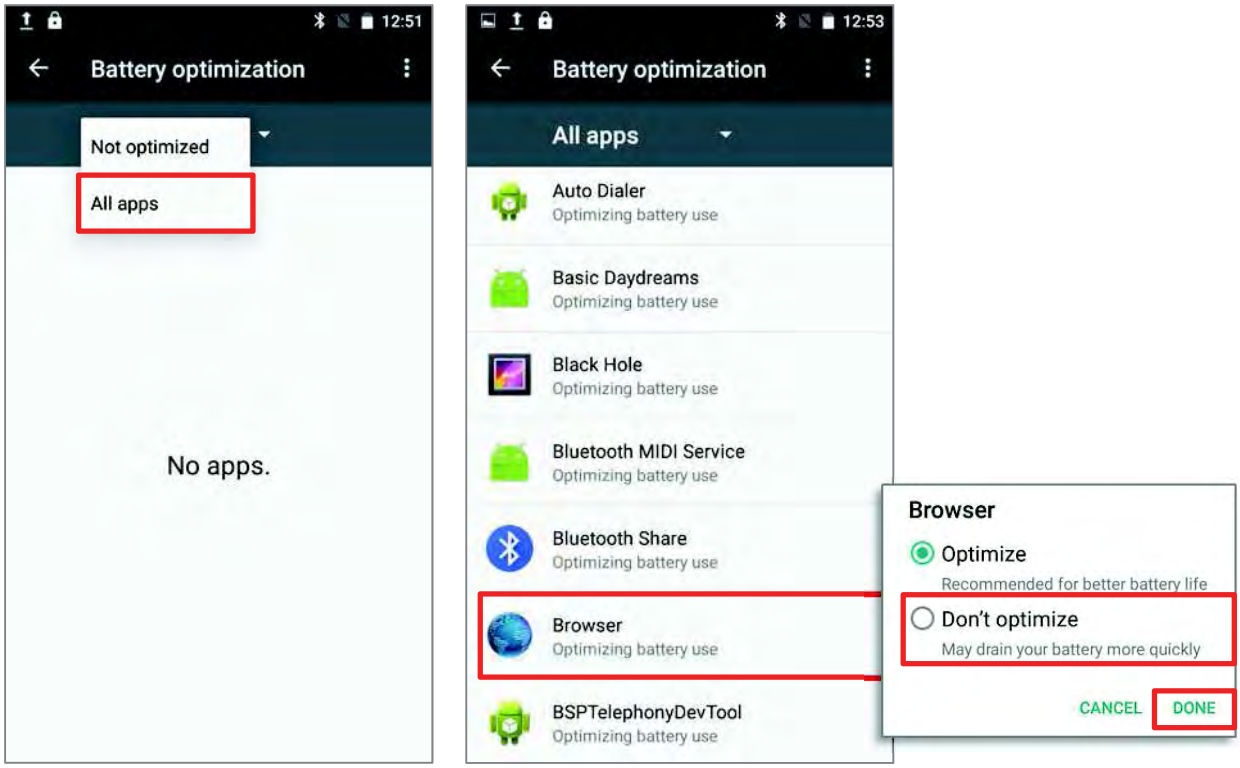


BATTERY OPTIMIZATION

Having **Battery optimization on** for the applications, you can make sure they stay inactive until you start using your device. On **Battery Settings** screen, tap **More** ⋮ and then select "**Battery optimization**".



On dropdown list, select "**All apps**", all the applications will be optimized by this function by default. You can individually turn off the optimization mode of a certain app if you would like it always activated by tapping on the app name and select "**Don't optimize**" and then "**DONE**"



LOW BATTERY ALERT

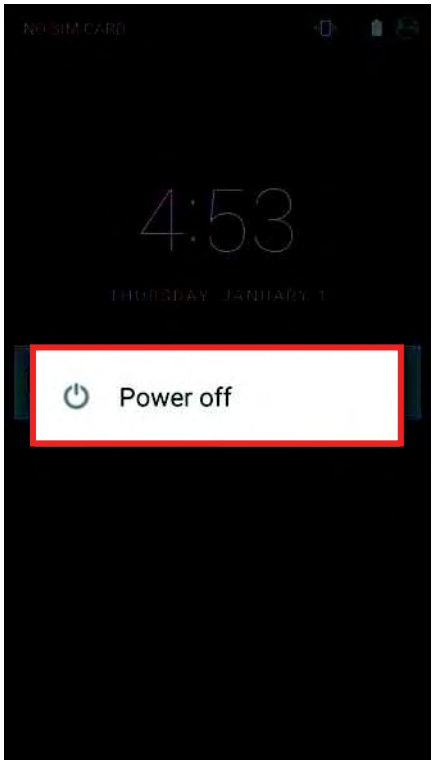
When the main battery level drops to 15%, the handy terminal prompts a warning reminding you to charge the main battery. Connect the handy terminal to an external power source, or replace the main battery pack as soon as possible.

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

2.1.3. REPLACE MAIN BATTERY

When main battery level is low, follow the steps below to replace the main battery.

1) Press and hold the power button on the side of the handy terminal.
2) Tap "**Power off**" in the pop-up menu. The handy terminal will power off.



3) Open the battery cover and insert a charged main battery as in Installing Battery.
4) Press the power button to power on the handy terminal.

Note:

Before replacing the main battery, make sure the backup battery is well-charged in order to avoid unnecessary data loss. After removing the main battery, insert a well-charged battery as soon as possible.

BATTERY HOT SWAP

Backup battery supplies system power during battery hot swap.

When battery cover is removed, the system will enter suspend mode and not wake up until battery cover is put back and the power button is pressed.

To perform a battery hot swapping:

1) Make sure the new battery is fully-charged.

2) Follow **Step1~2** in Installing Battery to remove the battery cover. Upon the removal of the cover, the system will prepare to enter suspend mode with the red light lit, which will last for 3 to 5 seconds.

3) Flip the device over to observe the Status LED on the front panel. As the red light goes off, the device is in complete suspend mode and Main battery is ready to be replaced. Remove the battery and replace it with the new one.

Note:

When main battery is removed, the system will stay in suspend mode for 30 minutes. To avoid system being shut down without warning, please replace the main battery within the 30 minutes.

2.1.4. 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.

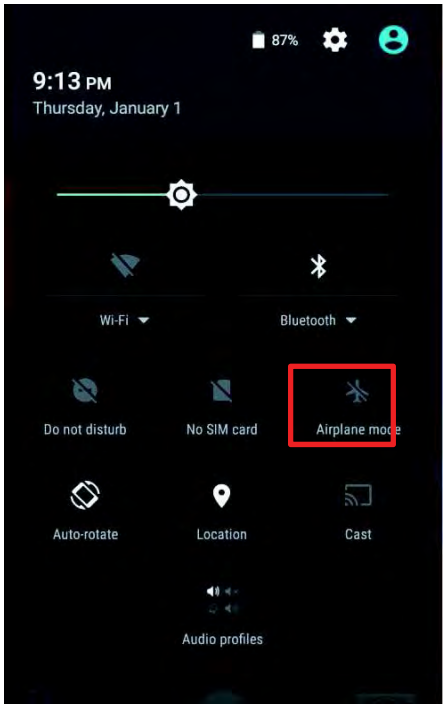
- Bring an additional main battery pack with you on the road.
- End wireless connections (such as Bluetooth transmission, wireless connection, NFC and GPS) which are not in use.
- Shorten the screen turn off time. See Screen Timeout Settings.
- Reduce the screen brightness level, see Screen Brightness.
- Shut down automatic data syncing of applications (such as Email, Calendar, and Contacts).
- Enable **Battery saver** mode and **Battery optimization** mode. See Battery Saver Mode and Battery Optimization.

ENTER AIRPLANE MODE

You can enable **Airplane** mode to have all the wireless radios (including call functions, data connections such as Bluetooth, Wi-Fi and 3G/4G) on your handy terminal turned off, which will considerably reduce the power consumption of your battery.

1) To enter **Airplane** mode, use two fingers to swipe down from the top of the screen to open **Quick Settings**.

2) Tap on the **Airplane** mode icon to enable/disable the mode.



2.2. MEMORY

- Flash Memory (ROM)

16GB flash memory for storing the OS (Android™ 6.0 Marshmallow and custom application programs.

- Random-access Memory (RAM)

2GB RAM for storing and running programs, as well as storing program data.

- Expansion Slot

The handy terminal is equipped with one microSDHC card slot which accommodates an SD card up to 32 GB (microSDXC is supported as well).

CAUTION OF DATA LOSS

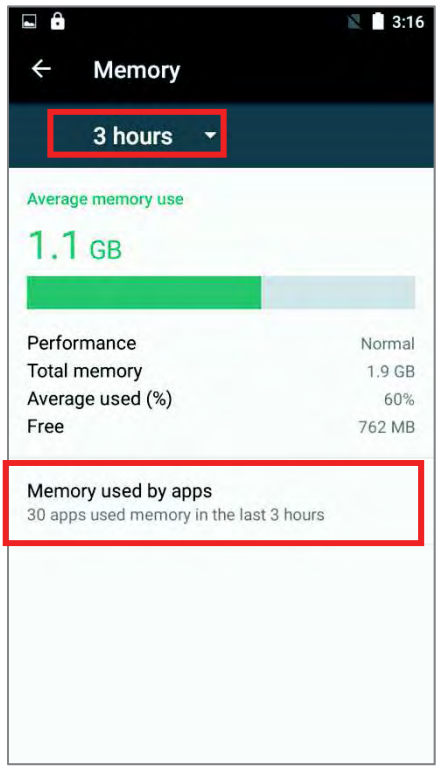
When the main battery is removed or drained, the backup battery on the main board takes over to supply the handy terminal and keep it in suspension. A fully charged backup battery will retain the data in the RAM for 30 minutes. When the backup battery is drained out as well, the handy terminal will shut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

If you want to put away the handy terminal 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 handy terminal.

2.2.1. CHECK MEMORY USAGE

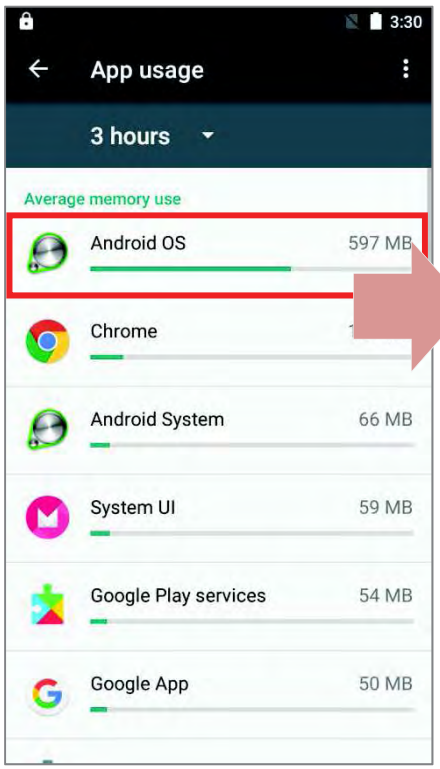
The memory manager can offer a glance of how the device is using its RAM.

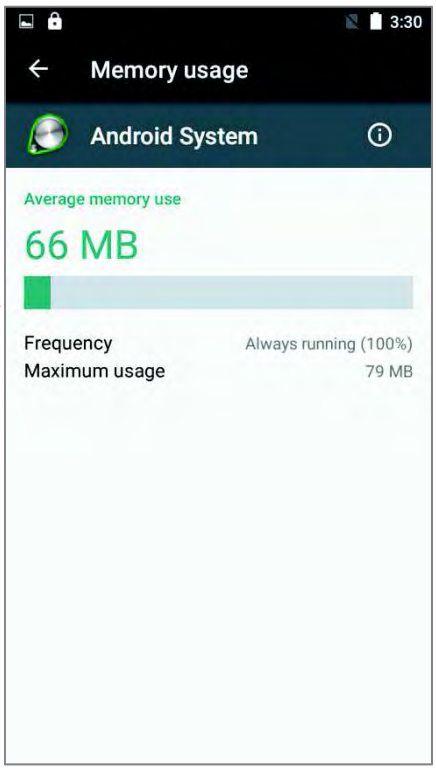
Tap **All Apps** | **Settings** | **Memory** to enter memory manager screen.



On the main screen, it tells you not only the used and free memory space of the RAM, but how your pattern of usage has impacted the device's overall performance. To figure out how the system and apps have been taking up the memory over a longer period, tap the dropdown list to choose a different time span.

To look at how individual apps are consuming the memory space, tap "**Memory used by apps**" to get a breakdown of memory usage by apps.





Tap an application name to check its memory usage. This allows you to make sense of how much memory a newly-installed application can potentially consume your RAM.

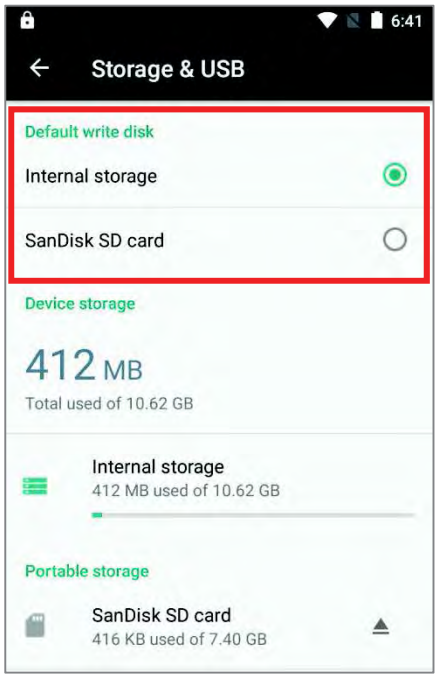
2.2.2. MANAGE STORAGE SPACE

To your Android device, the SD card can serve as an extension of your device's internal storage (which comes as 16 GB of flash memory to store the OS, applications and files) other than a portable storage place.

Tap **All Apps** | **Settings** | **Storage & USB** to check usage of the internal and external storage spaces.

CHOOSE DEFAULT STORAGE

By default, all the videos, photos and downloaded files are directly saved to the device's internal storage. If you have previously inserted and mounted an SD card as portable storage, this external storage will appear selectable below the option **Internal Storage**, and you can choose it as the **Default write disk**.

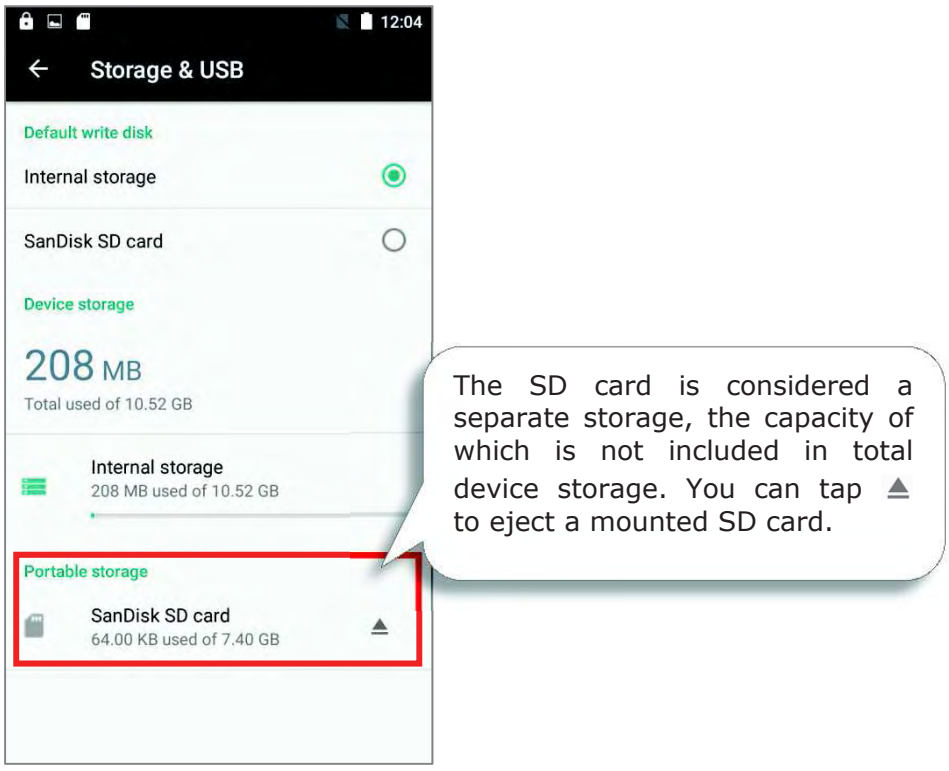


SET UP SD CARD AS PORTABLE STORAGE

Using SD card as a portable device allows you to treat it as a USB disk, by swapping it between your Android device and the computer to easily transfer files. This is quite handy when there is a need to offload files that are taking up too much storage space.

The disk content is readable on PC client:

On **Storage & USB** screen, this disk can be managed separately.



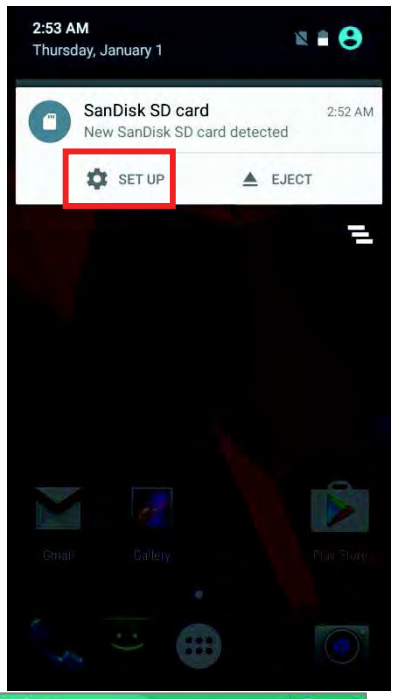
To start:

1) Connect your handy terminal with PC with supplied USB cable, swipe down from the status bar to reveal Notifications Panel, tap "**USB for Charging**" to enter USB options and then choose "**File transfers**".

2) Insert the SD card. A notification will pop up indicating that an SD card is detected tap "**SET UP**".

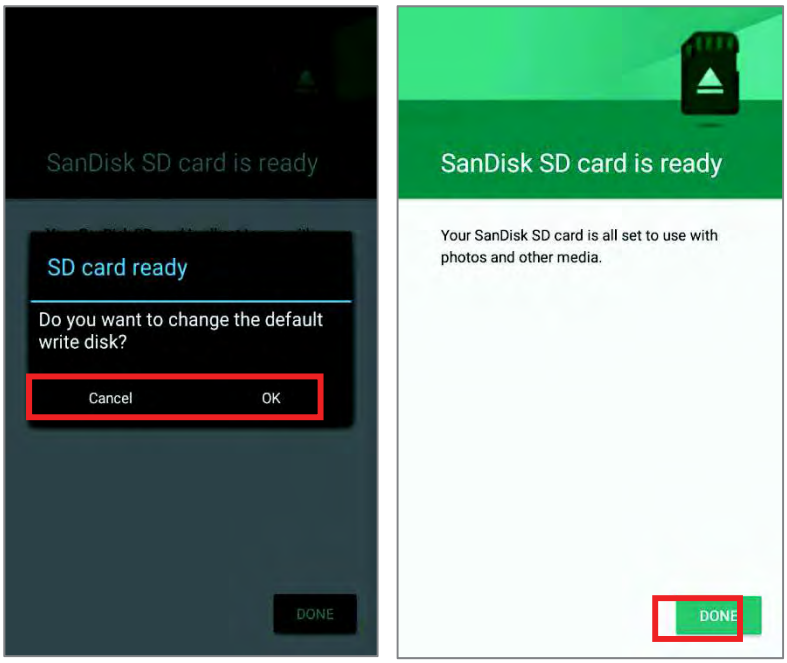
3) Tap "**Use as portable storage**" and then "**NEXT**"

4) Tap "**ERASE & FORMAT**" to format this card. The file format allows the card to be readable on other devices such as PC or a digital camera.



5) At the window asking you whether to change the write disk from internal storage (default) to the SD card, tap "**OK**" to do so or "**Cancel** " to stay with the default setting.

6) When the setting is completed, tap "**DONE**".



Note:

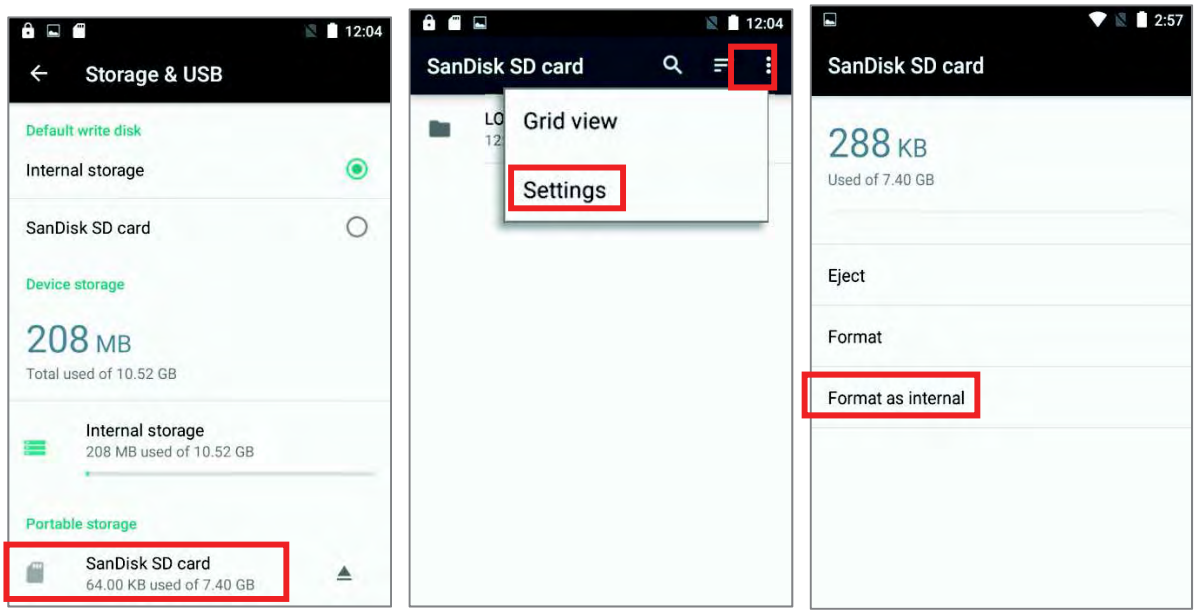
Please make sure the USB cable is properly connected while transferring files over USB connection.

CONVERT THE SD CARD TO INTERNAL STORAGE

1) You can always convert the SD Card from portable storage to internal storage. On **Storage & USB** screen, tap the SD card. Before you start, make a backup of the files on this disk if you would like to keep them.

2) On SD card content screen, tap **Mo** and then tap "**Settings**".

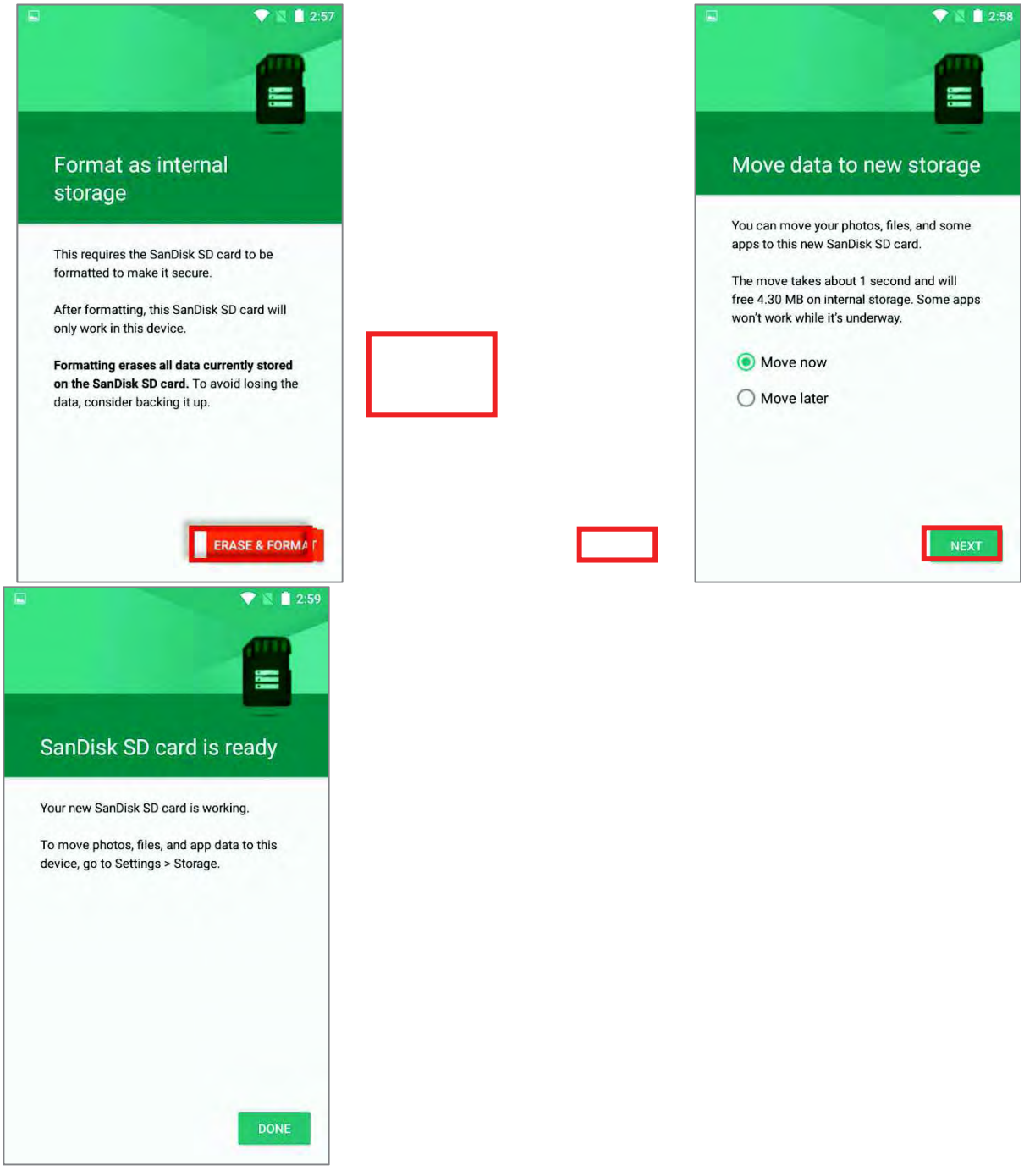
3) By selecting "**Format as internal**", the device will eventually format this SD card into a specific file format only readable by this device.



4) On Format as internal storage screen, tap "**ERASE & FORMAT**" to format the card.

5) You will then be asked to whether to move media files to this new SD card right away or later, make your choice and then tap "**Next**".

6) When the formatting is completed, tap "**DONE**".

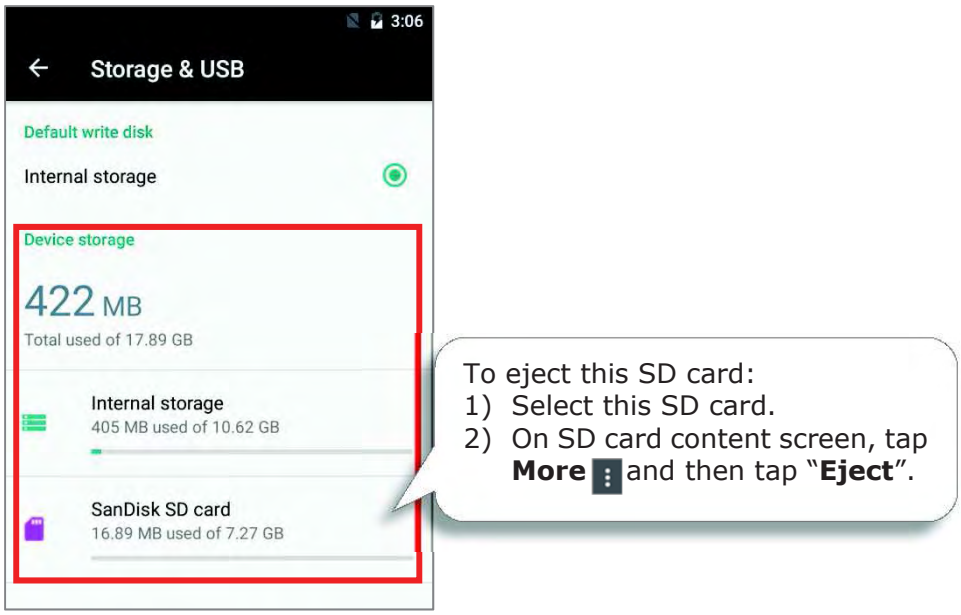


SET UP SD CARD AS INTERNAL STORAGE

Using SD card as internal storage allows you to extend your existing device storage and to store huge applications. This SD card will be reformatted and encrypted with a file format that is not readable by another device. Therefore, it is essential that you back up important files on this SD card in advance of formatting.

The disk content is not seen from PC client.

On **Storage & USB** screen, the capacity of this SD card is merged into the total device storage. Please note that. In this setting, you will have no control of which files to be stored on SD card.



Warning:

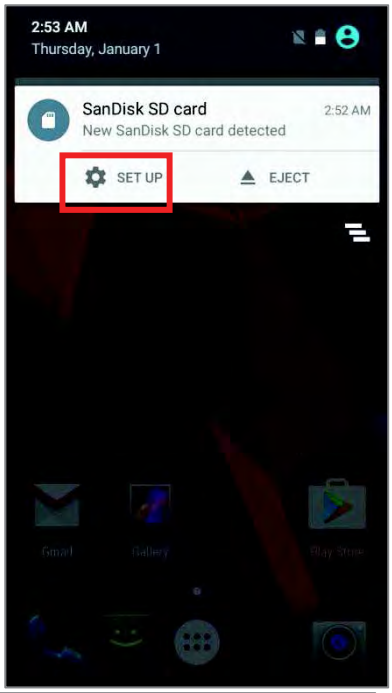
Do not physically remove the SD card from the device without ejecting this card in advance.

To start:

1) Insert the SD card. A notification will pop up indicating that an SD card is detected tap "**SET UP**".

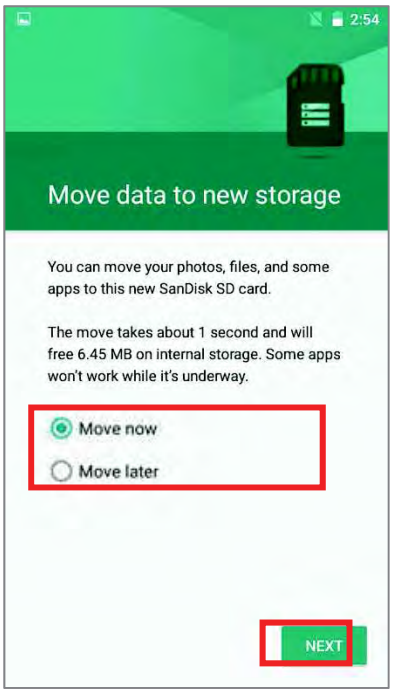
2) Tap "**Use as internal storage**" and then "**NEXT**".

3) Tap "**ERASE & FORMAT**" to format this card.



4) You will then be asked to whether to move media files to this new SD card, make your choice and then tap "**Next**".

5) When the setting is completed, tap "**DONE**".



Note:

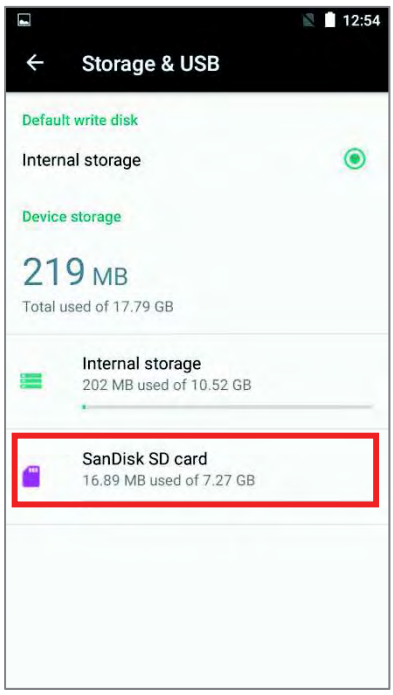
It is recommended that you select "**Move now**" at **Step 4** to have the device immediately start making use of SD card space. If you select "**Move later**", the device will continue to consider device's original storage the primary location to save files.

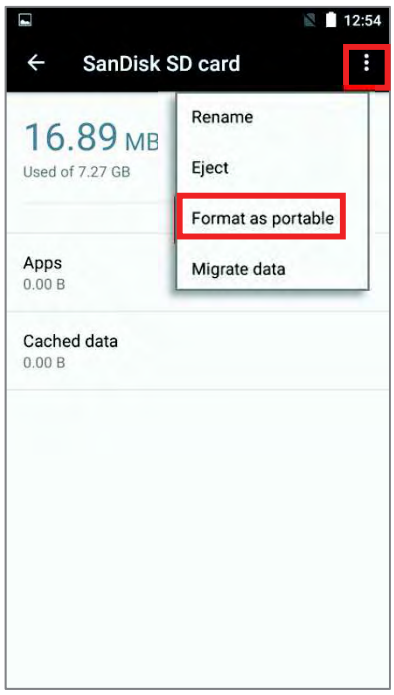
CONVERT THE SD CARD TO PORTABLE STORAGE

1) You can always convert the SD Card from internal storage to portable storage. On **Storage & USB** screen, tap the SD card. Before you start, make a backup of the files on this disk if you would like to keep them.

2) On SD card content screen, tap **Mo** and then tap "**Format as portable**".

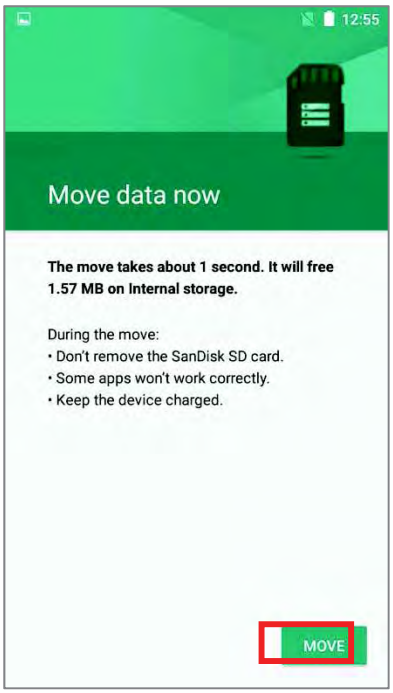
3) Tap "**Format**" to have this SD card re-formatted into a file type inaccessible by other devices.

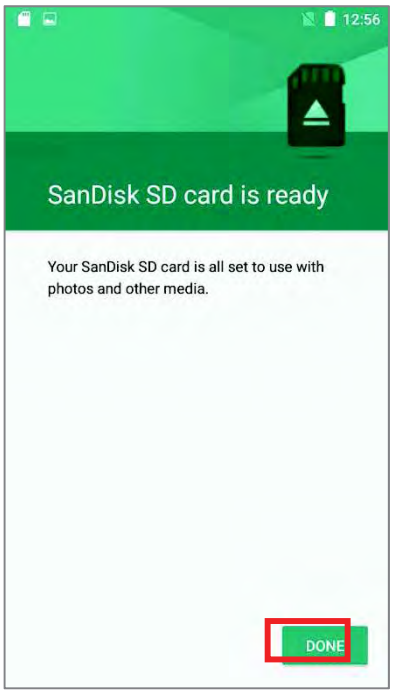




4) On **Move data now** screen, tap "**MOVE**" to migrate data from the device's storage to SD card and have the SD card become the primary storage location.

5) When the formatting is completed, tap "**DONE**".


12:55
Move data now
The move takes about 1 second. It will free 1.57 MB on Internal storage.
During the move:
• Don't remove the SanDisk SD card.
• Some apps won't work correctly.
• Keep the device charged.
MOVE


12:56
SanDisk SD card is ready
Your SanDisk SD card is all set to use with photos and other media.
DONE

2.3. TOUCH SCREEN

The handy terminal comes with a 4.7” transmissive LCD with 1280 by 720 pixels resolution (HD). The LED backlight of the screen, which helps ease reading under dim environments, can be controlled manually and automatically.

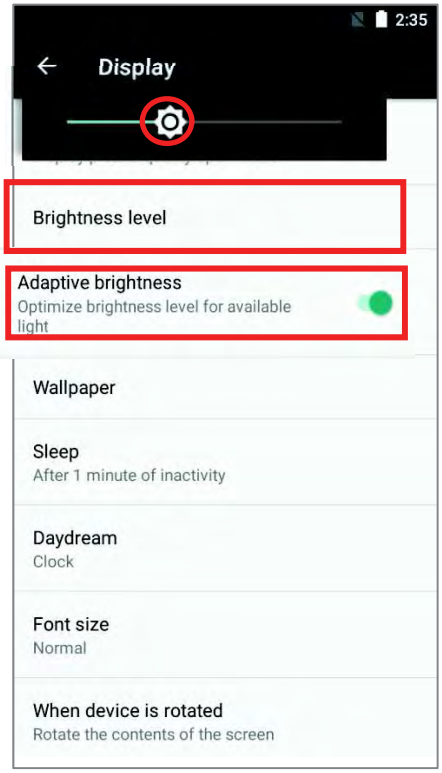
Warning:

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

2.3.1. SCREEN BRIGHTNESS

Tap **All Apps** | **Settings** | **Display** | **Brightness**.

Adjust screen brightness by dragging the slider to the right (to increase brightness) or left (to reduce brightness). Switch on the **Adaptive brightness** to enable automatic backlight adjustment with the handy terminal’s built-in sensor. You can also use the shortcut button on **Quick Settings** menu to adjust the brightness level.



Note:

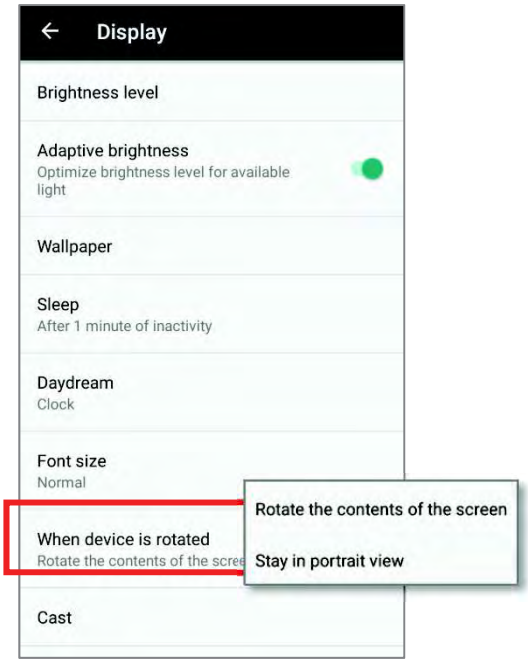
To save battery power, dim the screen brightness while working in a well-lit area, or set a shorter sleeping plan for the screen backlight to go off.

2.3.2. SCREEN ROTATION

By default, the device automatically rotates the screen to when you turn the device sideways. To switch this function on or off:

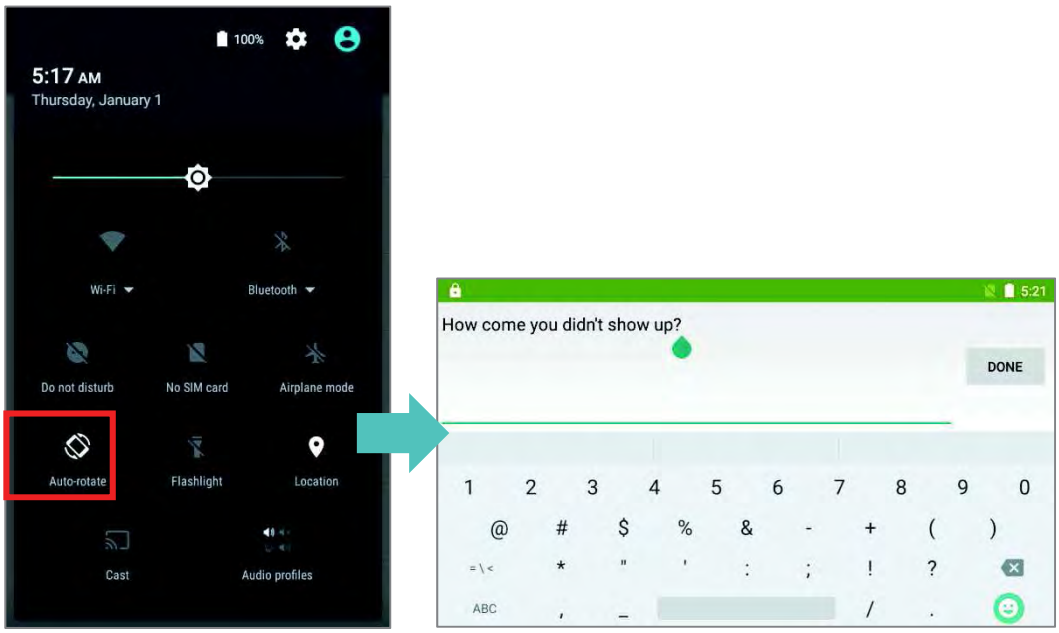
1) Tap **All Apps** | **Settings** | **Display** .

2) Tap When device is rotated and them select Stay in portrait view to turn the rotation function off or tap "**Rotate the contents of the screen**" to enable it.



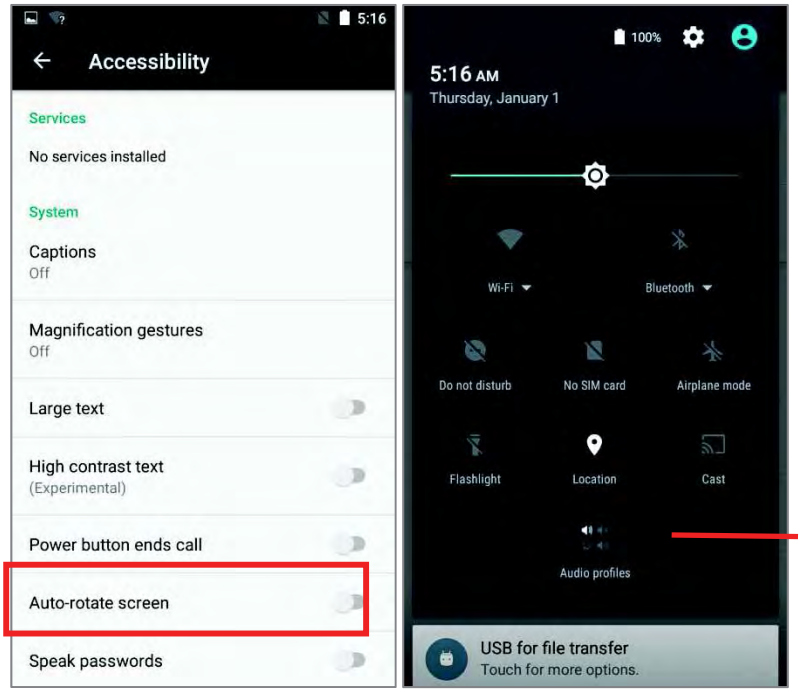
OR

Use two fingers to swipe down from the top of the screen to open **Quick Settings** and tap the **Auto rotate** status icon. This quick setting method allows you to temporarily enter landscape mode to enhance your typing experience by using a wide keyboard.



You can entirely disable the switch on the interface to minimize the possibility of accidentally turning on the auto-rotation function.

Tap **All Apps** | **Settings** | **Accessibility** and switch off **Auto-rotate screen**. By doing so, the auto-rotation option will be hidden on **Quick Settings** menu as well as in **Settings** | **Display** .



The Auto-rotate status icon is absent.

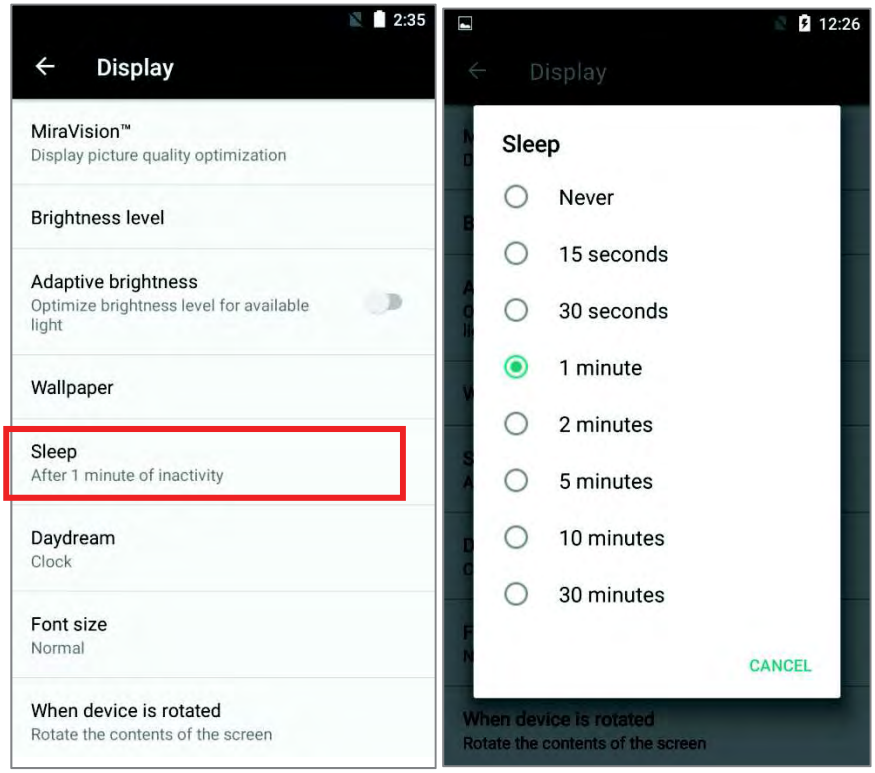
Note:

Auto-rotation is not supported in **Home** Screen, **All apps** list and certain applications.

2.3.3. SCREEN TIMEOUT SETTINGS

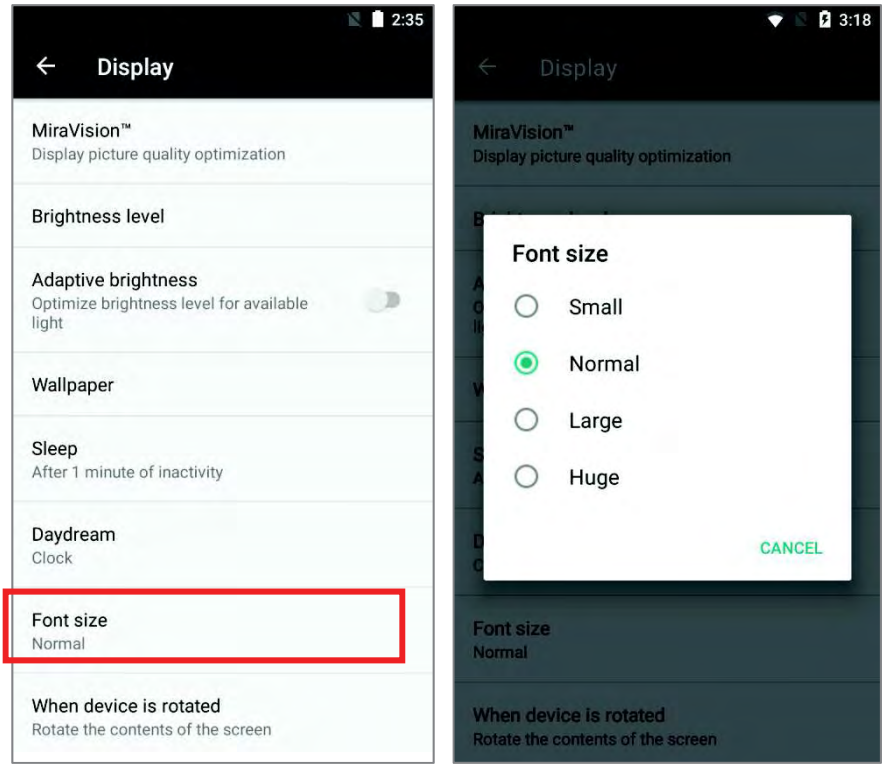
Tap **All Apps** | **Settings** | **Display** | **Sleep**.

Select the time lapse for screen timeout.



2.3.4. TEXT SIZE

Tap **All Apps** | **Settings** | **Display** | **Font size**. Select the font size between **Small**, **Normal**, **Large** and **Huge**.



2.4. NOTIFICATIONS

2.4.1. STATUS LED

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

Indicator	Status	Description
Charging	Green, solid	Charging complete
	Red, solid	Charging the handy terminal
	Red, blinking	Charging error (for instance, battery not in place)
Barcode or RFID tag decode	Green, flash once	Good read
The device is on backup battery power (the battery cover is removed)	Red, solid	Upon the removal of the battery cover, the red light is on for a while and then goes off to signal that the main battery is ready to be removed. Please refer to Battery Hot Swap to perform a successful battery hot-swapping.

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

2.4.2. AUDIO

The speaker is used to play sounds for events in windows and programs, or play audio files. In addition, it can be programmed for status feedback. In noisy environments, you may consider connecting a headset instead. A headset jack is provided on the top of the handy terminal, which is a 3.5 mm DIA stereo earphone jack. The handy terminal also supports using Bluetooth headsets.

Supported audio file formats include: WAV, MP3, AAC, AAC+, Enhanced AAC+, AU (including ADPCM), Midi, XMF, AMR (NB and WB).

Use the volume buttons on the side of the handy terminal to adjust the system volume.

2.4.3. SOUNDS AND VIBRATION

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

You may also set the handy terminal to vibrate only, in which all system sounds will be muted and replaced by the vibrator.

On any screen, press down **Volume Up** or **Volume Down** key to open quick sound menu. Tap to switch this device to Vibration mode. To modify specific sound settings, tap to access more settings.

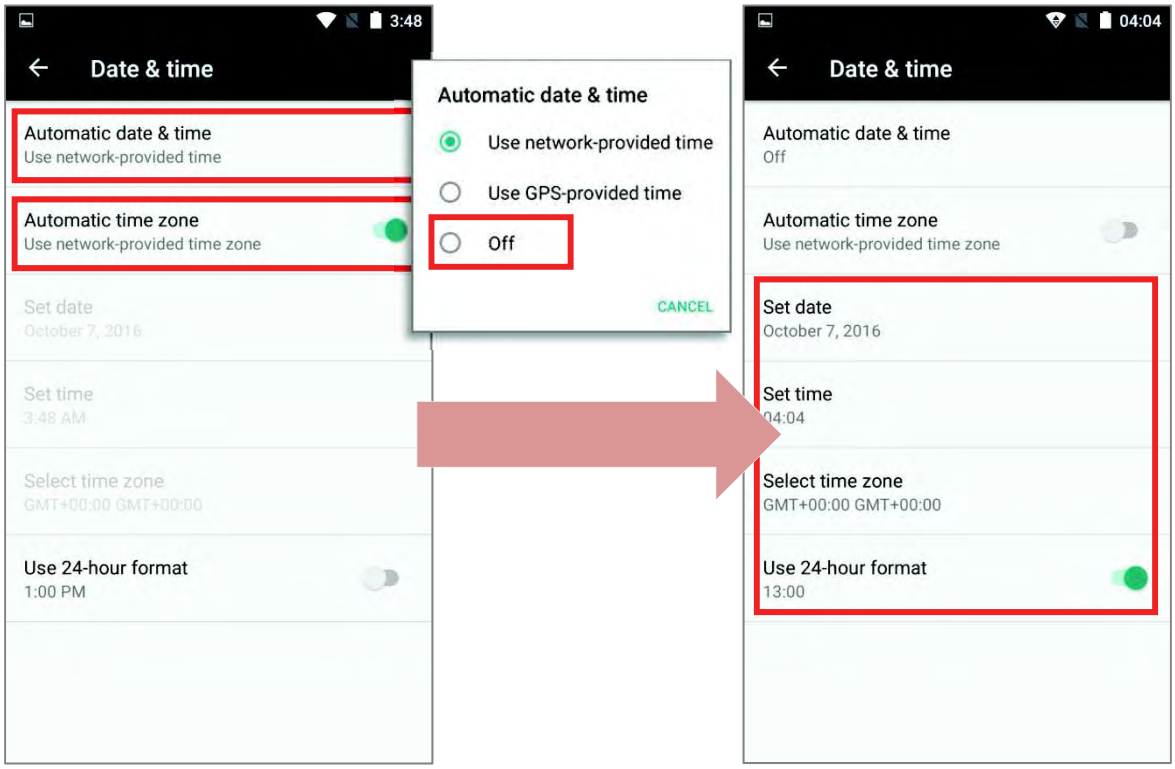
2.5. DATE AND TIME

2.5.1. SET DATE, TIME AND TIME ZONE

By default, the handy terminal automatically synchronizes the date and time to the WWAN network (if connected).

To set the date and time manually:

1) Tap **All Apps** | **Settings** | **Date & ti** .
2) Tap **Automatic date & time** and select **Off** to disable using network-provided time.
3) Deselect Automatic time zone.
4) Tap **Set date**. Use the sliders to select the correct month, date and year. Tap **OK** to save.
5) Tap **Set time**. Use the sliders to select the correct time. Tap **OK** to save.
6) Tap **Select time zone**. Select the correct time zone from the list.

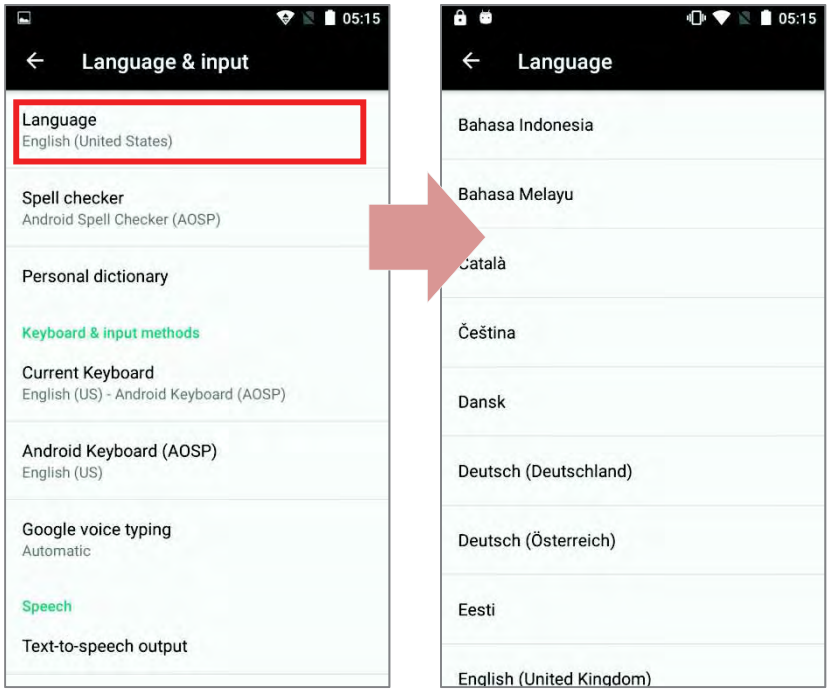


2.6. LANGUAGE & KEYBOARD INPUT

Tap **All Apps** | **Settings** | **Language & input** to change the system language, default keyboard type, and configure keyboard input and speech settings.

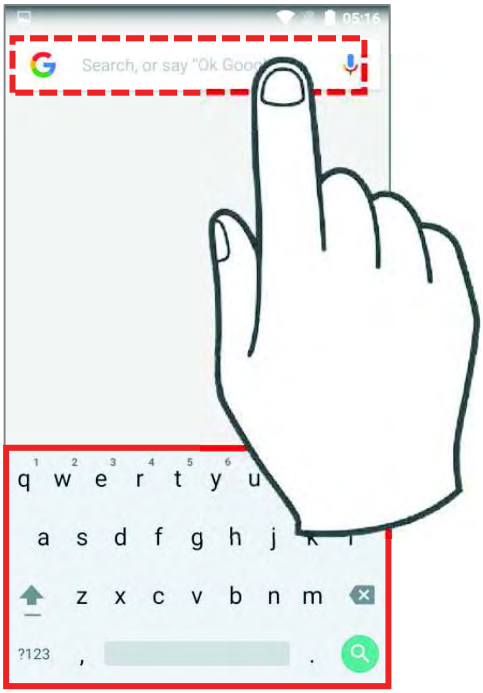
2.6.1. CHANGE DISPLAY LANGUAGE

On **Language & input** screen, tap **Language** and then select your desired system language, the new setting will immediately be applied after your selection.



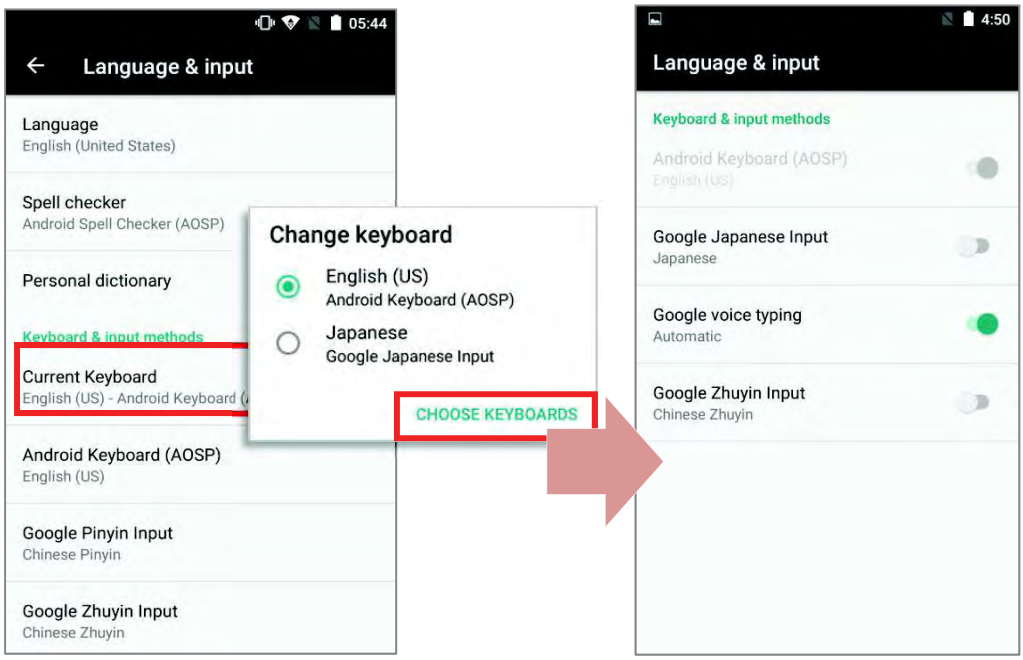
2.6.2. ON-SCREEN KEYBOARD

Tap a text input field to automatically open an on-screen keyboard. The virtual keyboard will vary depending on the data type (text or numbers) this field requires.



SELECT KEYBOARD (INPUT METHOD)

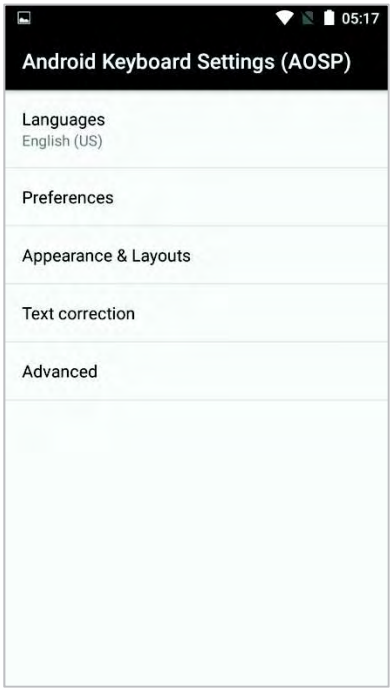
On **Language & input** screen, select **Current Keyboard** to change your current keyboard or manage the selectable keyboards by entering "**CHOOSE KEYBOARDS**" and enable the input methods you need.



ADJUST KEYBOARD SETTINGS

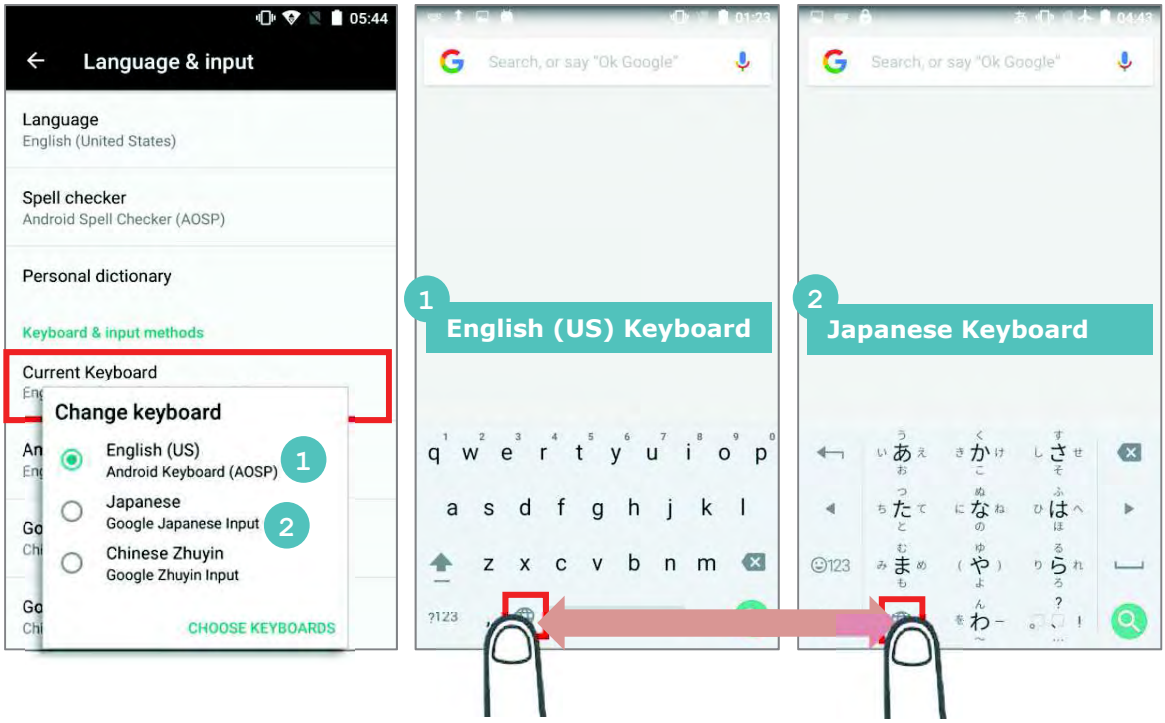
To configure keyboard settings, tap and hold the comma button , until a settings button appears. A menu will open, allowing you to adjust input language (if you would like to use an input language different from the system language) or keyboard settings.

By tapping **Android Keyboard Settings (AOSP)**, you can further adjust the settings to suit your needs.



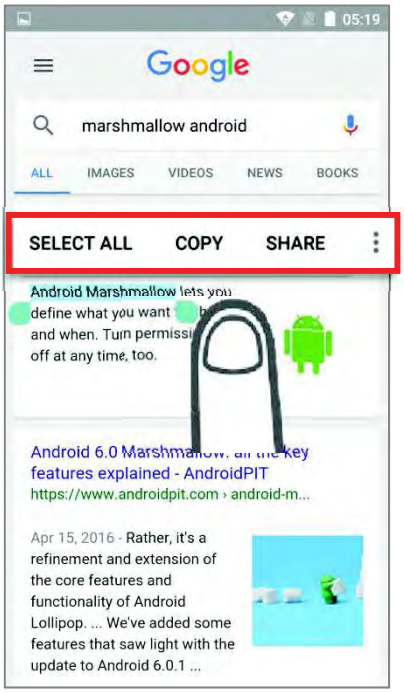
CHANGE KEYBOARD (INPUT METHOD)

The input methods you enabled in **Current Keyboard** under **Language & input** are available by tapping ⊕ on the on-screen keyboard, to use other input methods, simply tap it to cycle through the options.



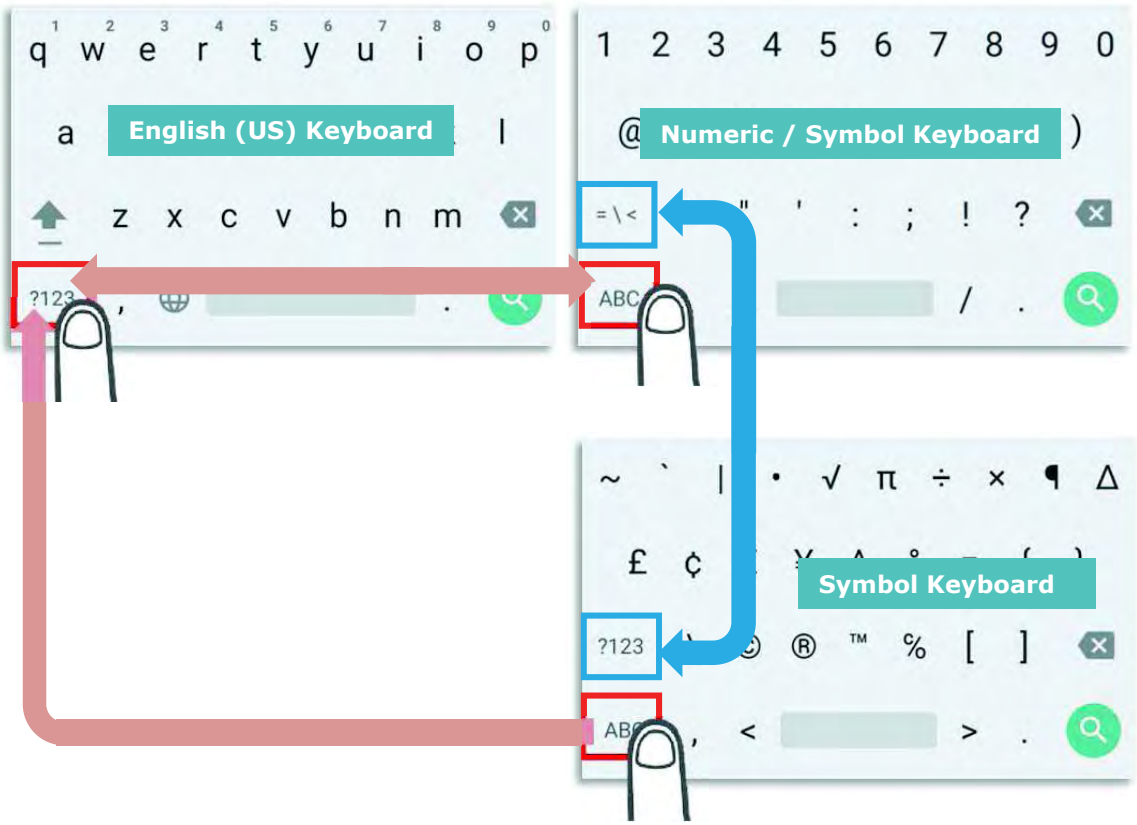
EDIT TEXT

Tap and hold text on the screen to enable a text editing menu for selecting all text, or copying and pasting text within or across applications. Some applications may use different ways to select or edit text.



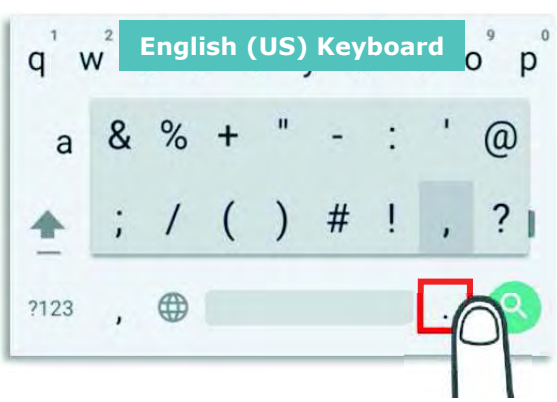
ENTER NUMBERS AND SYMBOLS

The appearance of the switch button to numeric or symbol keyboard may vary; the example below demonstrates how to use the switch key to access your desired numeric or symbol keyboards from the default **Android English (US)** keyboard. To enter **Numeric / Symbol** keyboard, tap ?123 .On **Numeric / Symbol** keyboard, tap =\< to access more symbols or tap ABC to return to **Android English (US)** keyboard



On **Android English (US)** keyboard, you can input number or symbols without switching to **Numeric / Symbol** keyboard.

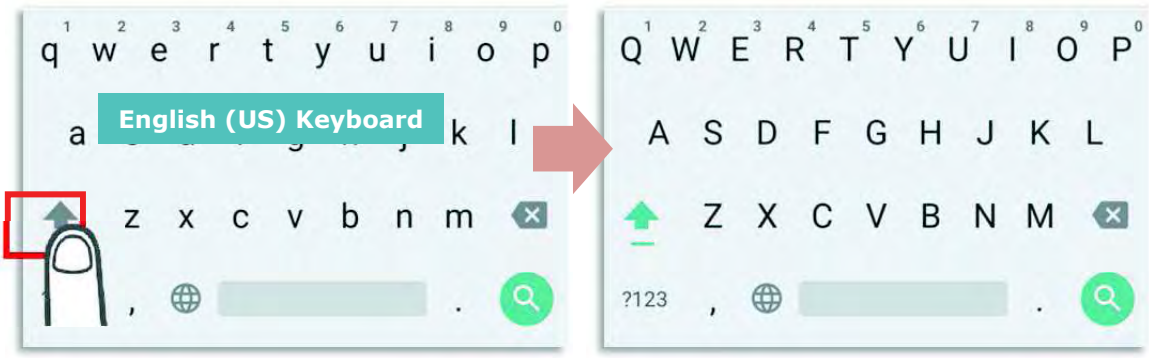
- Tap and hold the period button . to open quick symbol keyboard.
- Tap and hold a letter from **q~p** on the top row to bring up the specific number key.


English (US) Keyboard
q w o p
a & % + " - : ' @
; / ( ) # ! , ?
?123 ,

q w e r t y u i o p
a s d f g j k l
z x c v b n m
?123 ,

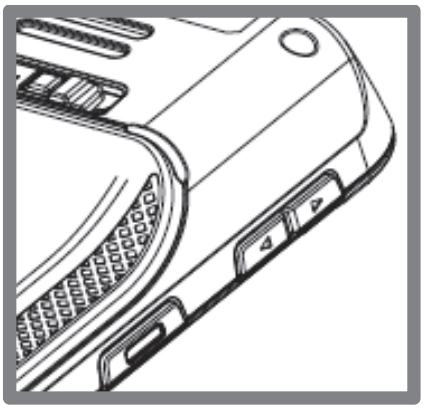
ENTER UPPERCASE LETTERS

Tap and hold the Shift key , and tap a character key to enter an uppercase letter. The letters will return to lower case once an uppercase letter is entered.



2.7. SOUND AND VOLUME

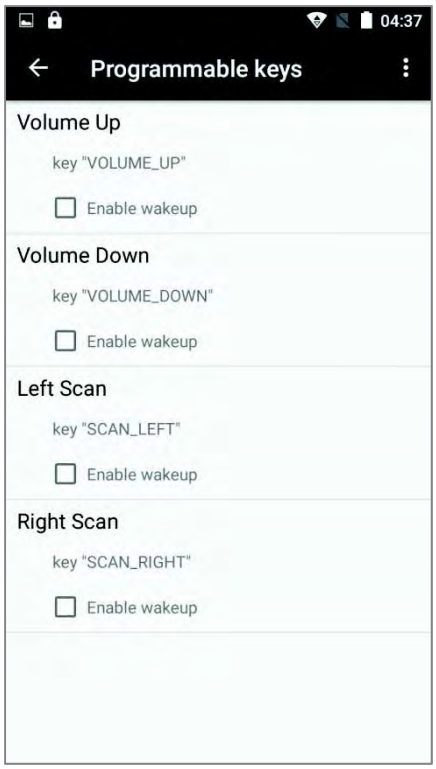
Use the volume buttons on the left side of the handy terminal to adjust system and ringer volume.



2.8. PROGRAMMABLE KEYS

Use the volume buttons on the left side of the handy terminal to adjust system and ringer volume.

Tap **All Apps** | **Settings** | **Programmable Keys** to assign specific functions to the four programmable keys: volume up, volume down, and the left and right function keys (side keys).



After redefining the programmable keys, the changes will immediately take effect.

ENABLE WAKEUP

Select the **Enable wakeup** checkbox to enable pressing the key to wake the handy terminal from suspend mode.

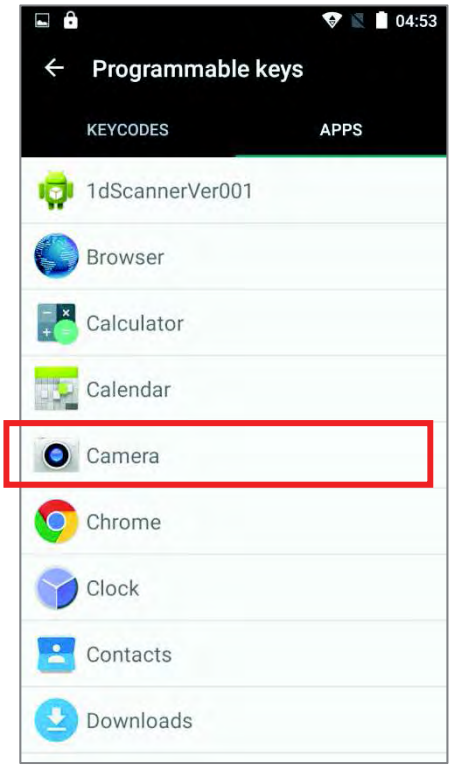
Note:
This checkbox is automatically disabled if an application is selected for the key on the **Apps** tab page.

ASSIGN KEYCODE

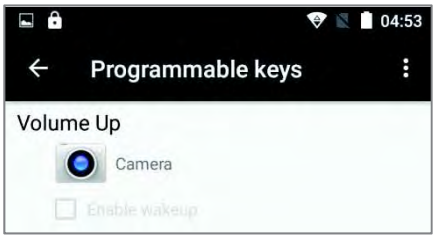
Tap the key you would like to assign. A screen opens showing a list of available keycodes or applications. On the **Keycodes** tab page, scroll down to view the entire list of keycodes, and tap a keycode to apply.

ASSIGN APPLICATION

Tap the key you would like to assign. Tap the **Apps** tab page to open a list of available applications. Scroll down to view the entire list of applications, and tap an application to apply.

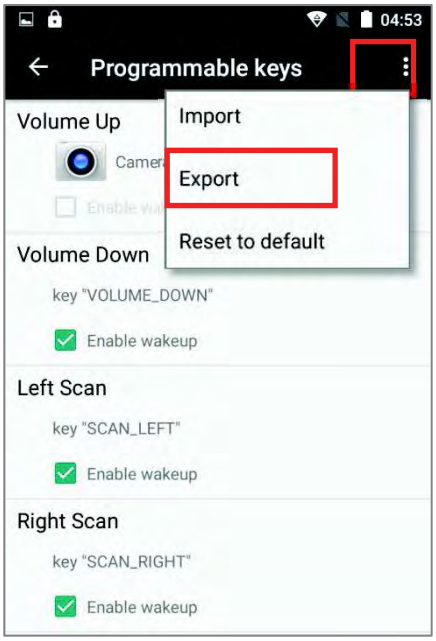


After an application is selected, an icon will appear next to the assigned key. Also, the **Enable wakeup** checkbox will be automatically disabled.

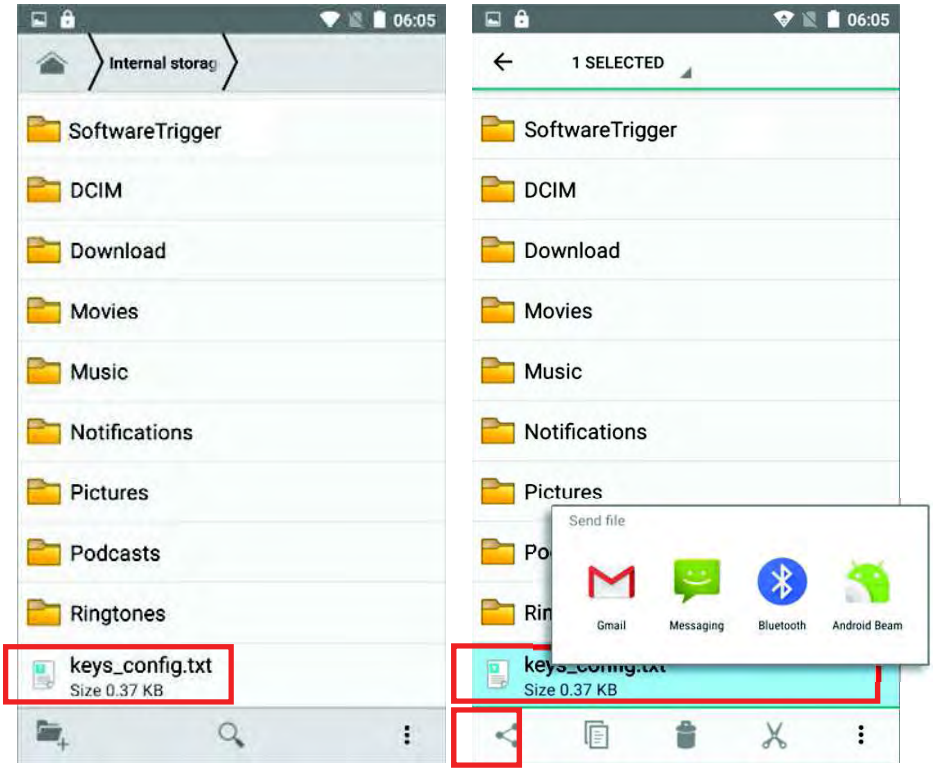


IMPORT AND EXPORT SETTING

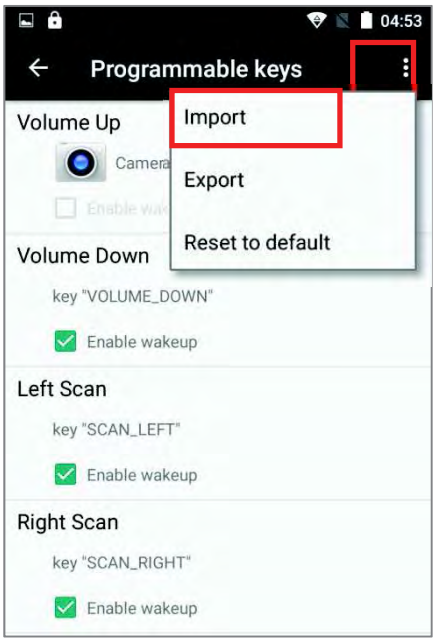
After finishing configuring the keys, you can save the setting to a **txt** file, allowing you to apply the same setting to other devices. To do this, tap **More** ⋮ and then "**Export**".



This configuration file will be saved in the internal storage as **keys_config.txt**. To share it with other devices, tap and hold the file name, tap are to select a file-sharing method from **Send file** menu. Please make sure the filename is not renamed.

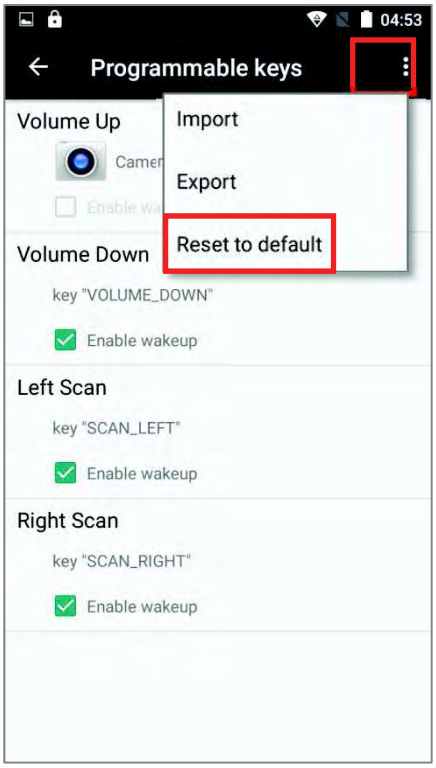


To import the configuration file to be used in **Programming Keys**, make sure the file is saved in the phone's internal storage with the file name **keys_config.txt**. On **Programming Key** screen, tap **More** ⋮ and then "**Import**". The new setting will be immediately applied to the keys.



RESTORE FUNCTION

To restore a key to its previously assigned function, tap menu key and then tap "**Reset to default**".



2.9. DATA CAPTURE

2.9.1. BARCODE READER

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

2.9.2. DIGITAL CAMERA

An integrated 8 megapixel rear camera in the handy terminal is specifically designed for collecting image data. You may use the image capture utility to turn on the camera and capture images. By default, the images taken by this camera application are saved as JPG files in **DCIM** folder in the device's primary storage.

Chapter 3

BASIC OPERATION

This chapter describes the basic skills to work with the RS31/BHT-1600 handy terminal, for instance how to operate the home screen, check system statuses and manage notifications. The add-on utilities for applications regarding data collection, processing, and transmission are introduced in the following chapters.

IN THIS CHAPTER

3.1 Home Screen 75
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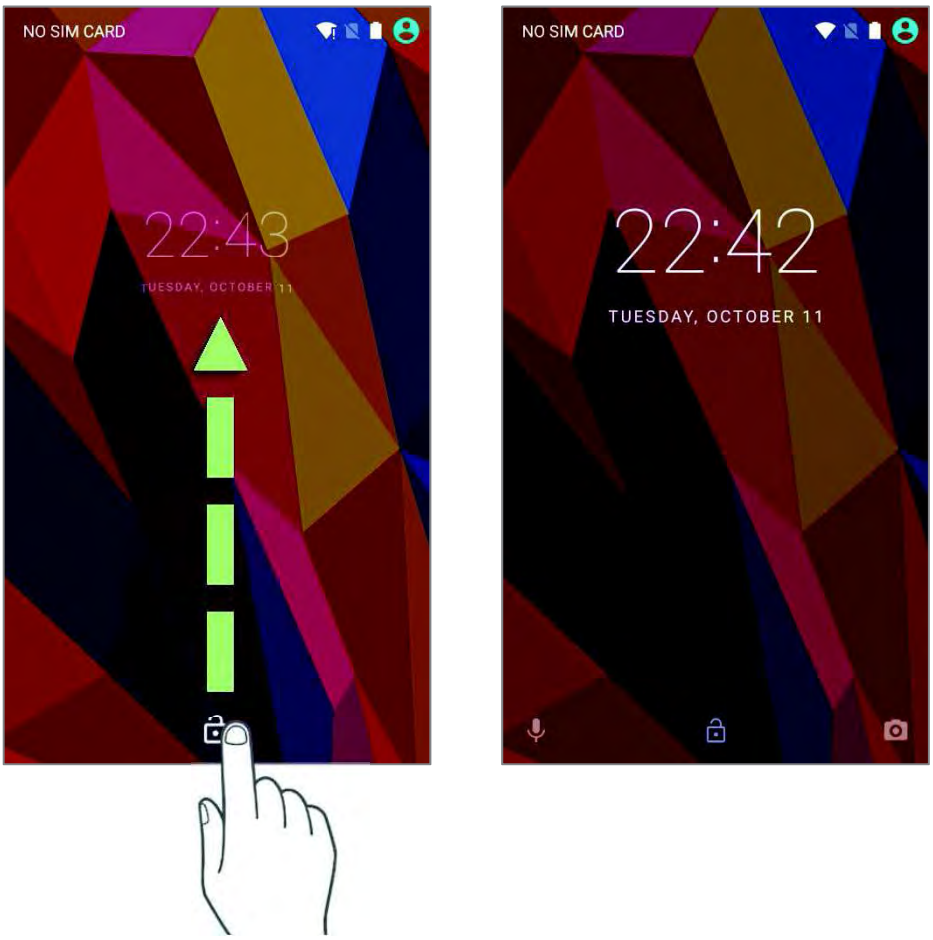
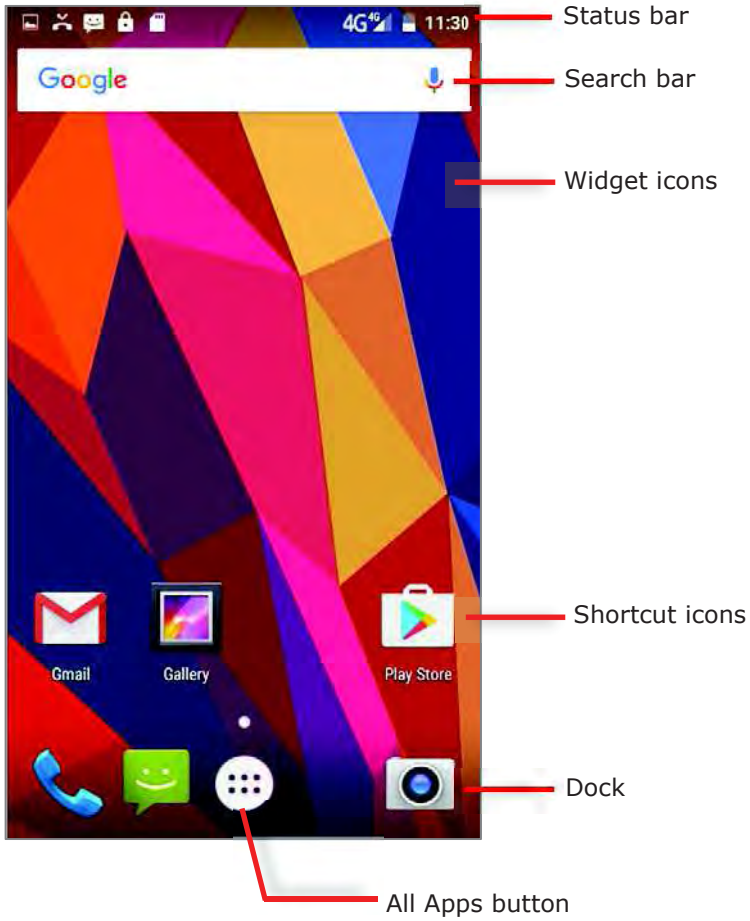
3.6 Back up Your Data 96
3.7 Reset to Factory Default 97

3.1. HOME SCREEN

When the handy terminal is fully charged, press the Power key for three seconds to turn on the handy terminal. A locked screen will appear. Slide the lock button in either direction to unlock the screen.



The **Home Screen** appears showing a status bar, shortcut icons, and a dock bar containing an All Apps button. The home screen allows multiple pages for placing shortcut icons and widgets. You may customize the home screen according to your preferences.



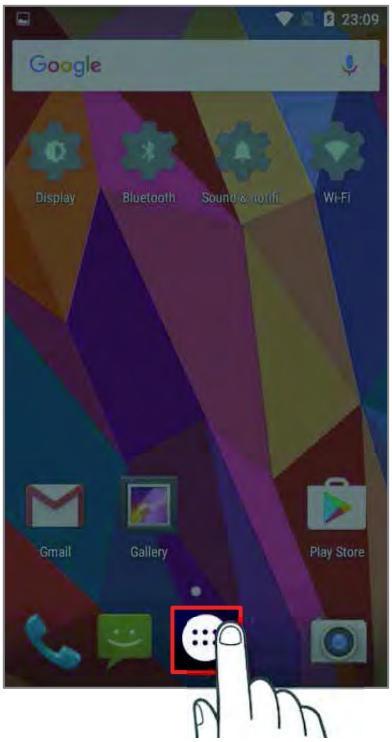
3.1.1. CUSTOMIZE HOME SCREEN

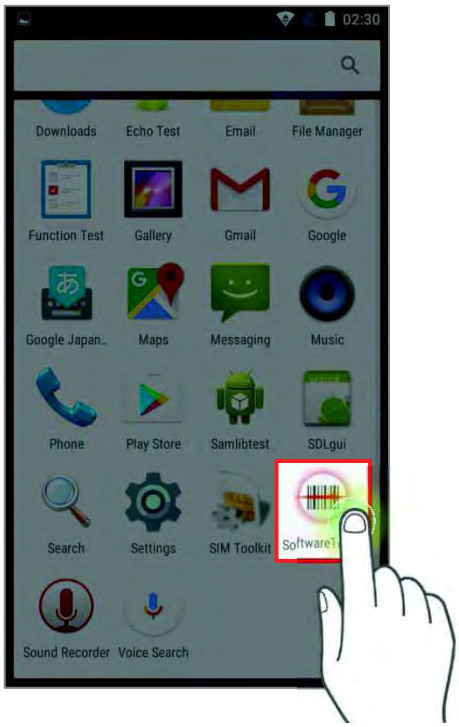
ADD APPLICATION SHORTCUT TO HOME SCREEN

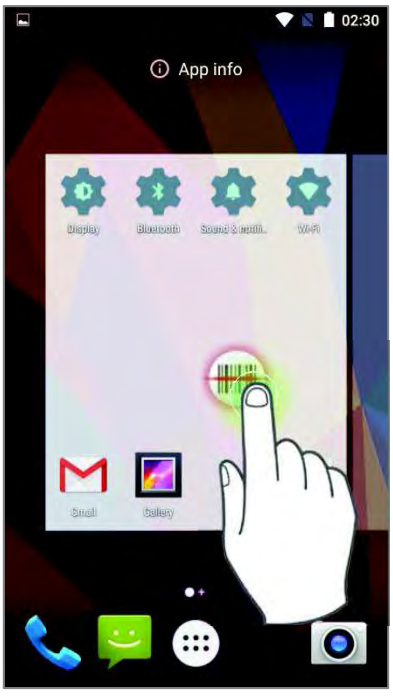
1) On the home screen you would like to customize, tap **All Ap**.

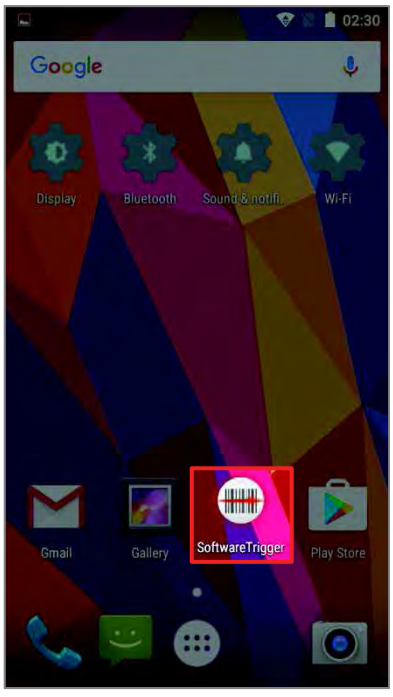
2) Locate the application to add, tap and hold the application icon.

3) The home screen will appear. Drag the application icon to your preferred position and release to have it placed.









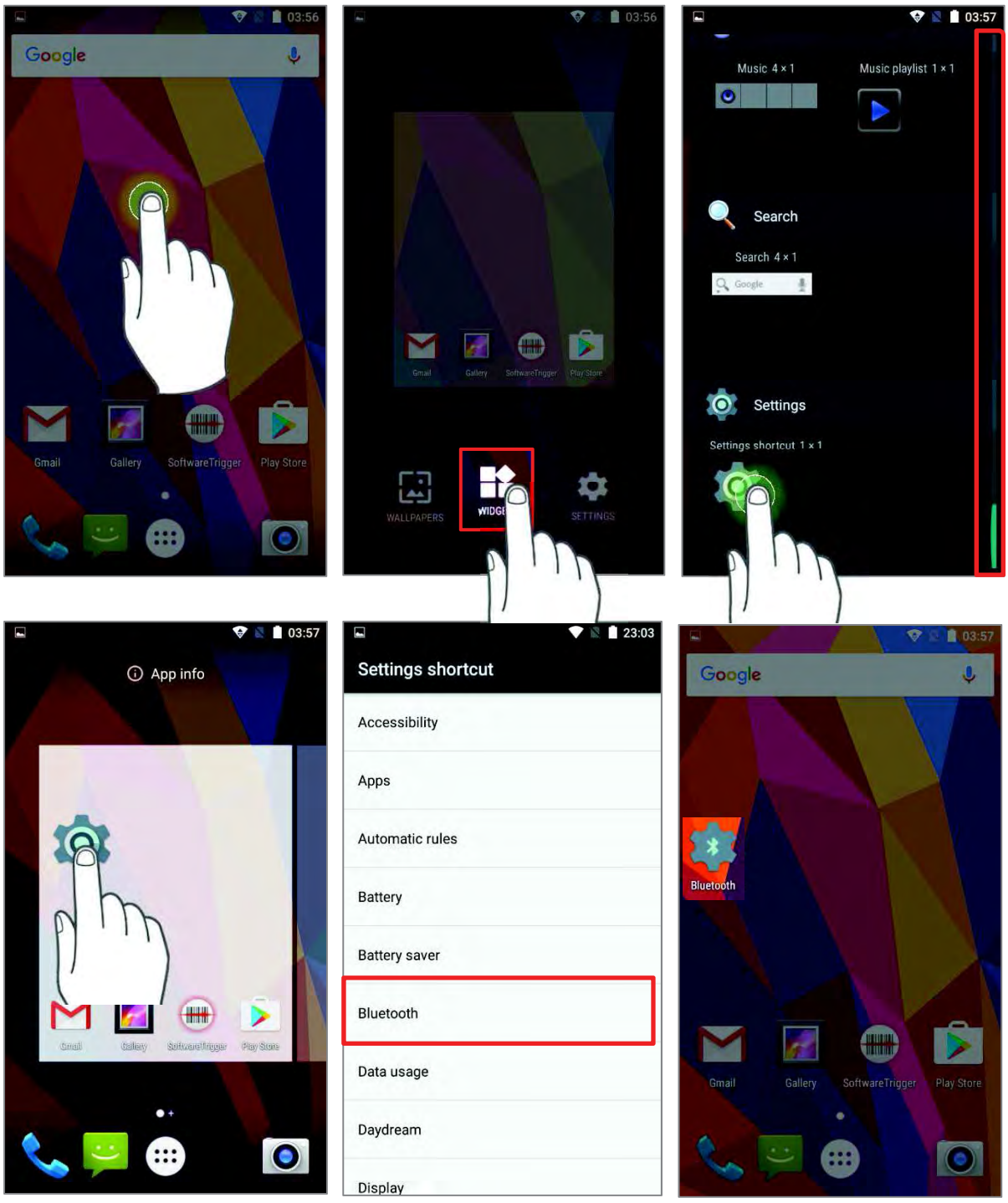
ADD WIDGET TO HOME SCREEN

1) Tap and hold any empty spot on the home screen.

2) The current layout will shrink, and the available options related to home screen appear on the bottom. Tap **Widgets** to enter the widget selection list.

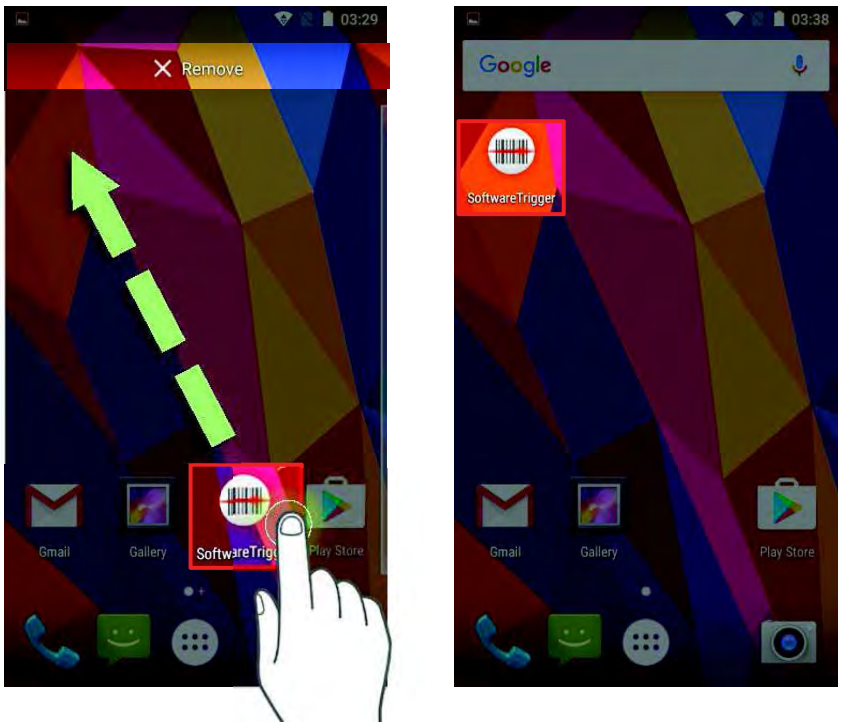
3) In the widget selection list, scroll to locate your desired widget.

4) Tap and hold the widget until the home screen layout appears. Drag the widget to your preferred position and release to have it placed. For a setting shortcut, you will have to select a specific setting from the shortcuts list.

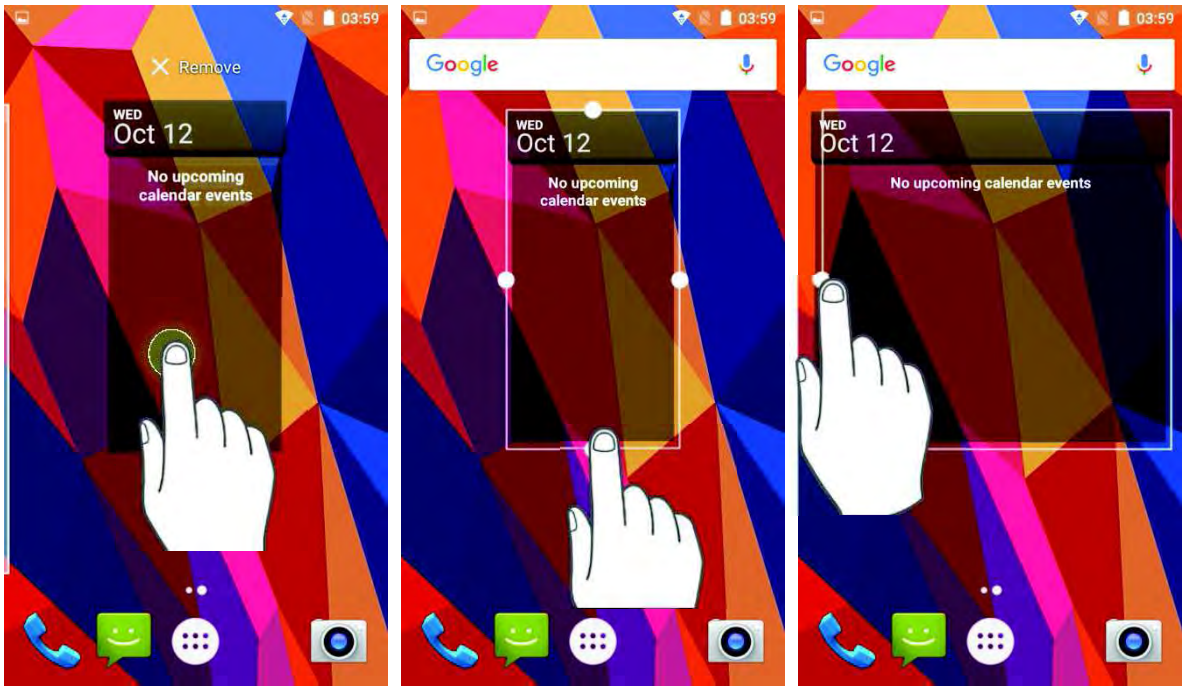


ARRANGE THE SHORTCUTS AND WIDGETS ON HOME SCREEN

1) To move or remove a shortcut / widget, on the home screen you would like to customize, tap and hold it to enter layout edit mode, a floating option **"X Remove"** will appear on top of the screen, to which you can drag the unwanted shortcut to remove it. Drag the icon to the preferred position and release it to have it placed.

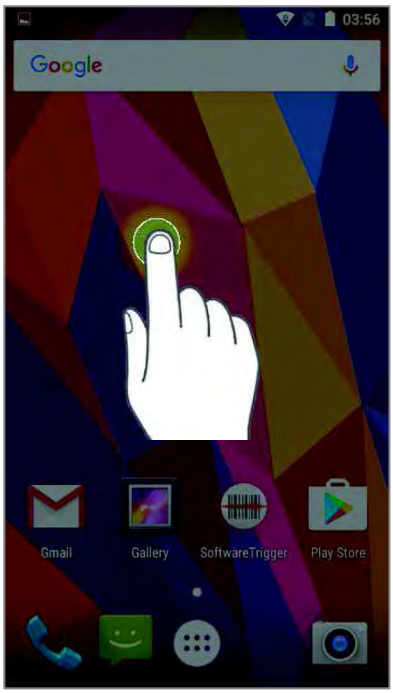


2) To resize a widget, tap and hold it until a white frame appears. Tap and drag a white dot to re-scale the widget.



CHANGE HOME SCREEN WALLPAPER

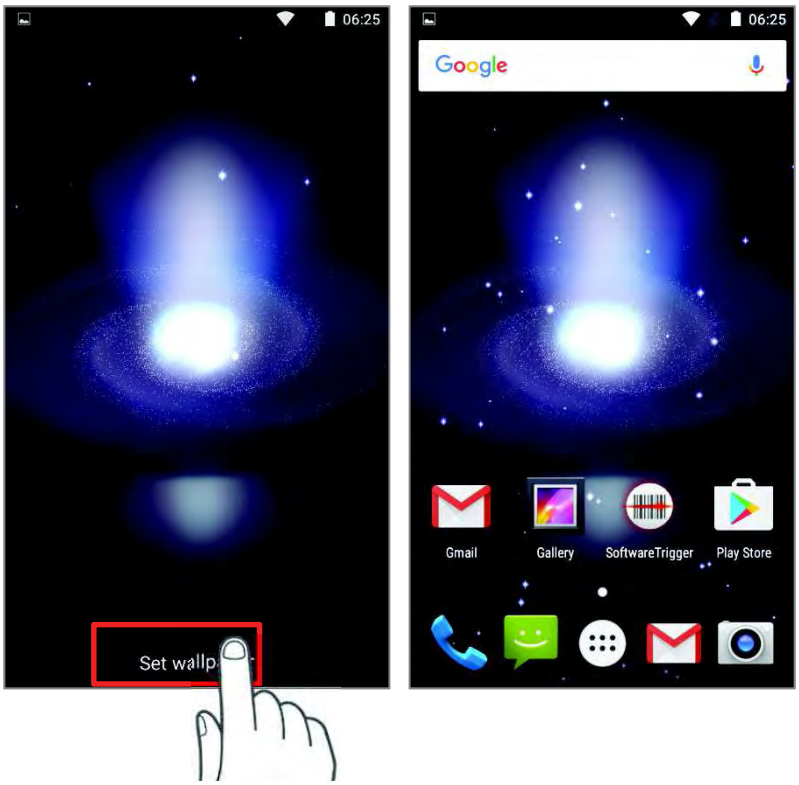
1) Tap and hold any empty spot on the home screen.
2) Tap **Wallpapers** in the menu that appears.
3) Select an image to apply as the wallpaper.
4) Tap **Set wallpaper** at the bottom of the wallpaper preview screen to apply it.


03:56
Google
Gmail
Gallery
SoftwareTrigger
Play Store

WALLPAPE

03:56
My photos

Set wallpaper
My photos
Black Hole

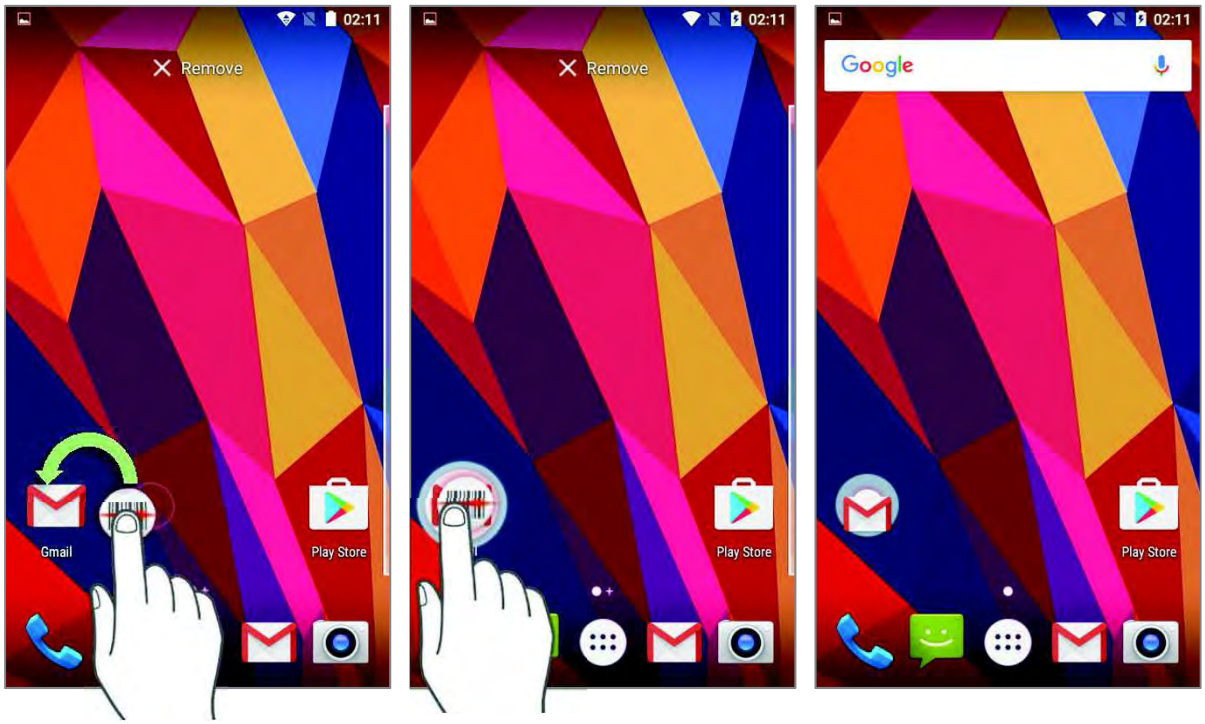

06:25
Set wallp
06:25
Google
Gmail
Gallery
SoftwareTrigger
Play Store

CREATE FOLDER

1) On the home screen you would like to customize, tap and hold the application shortcut you would like to move, drag the icon on the top of another icon to create a folder.

2) As these icons overlap, a folder is created.

3) After you let go your finger, these icons are enclosed in a circle.



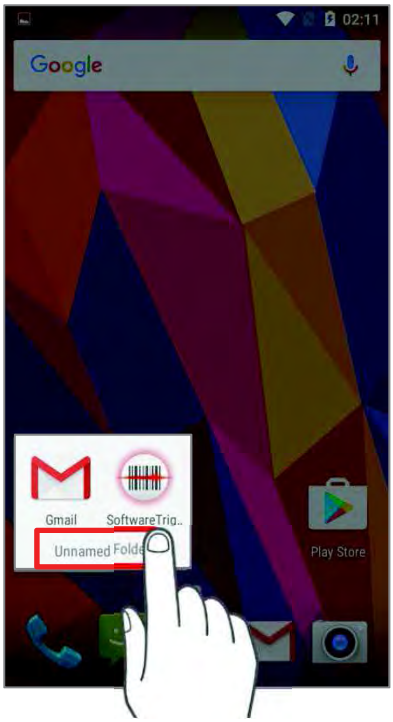
NAME FOLDER

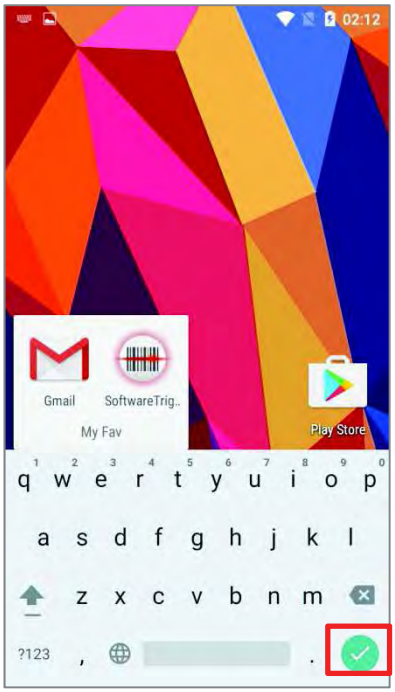
1) Tap the folder you would like to name.

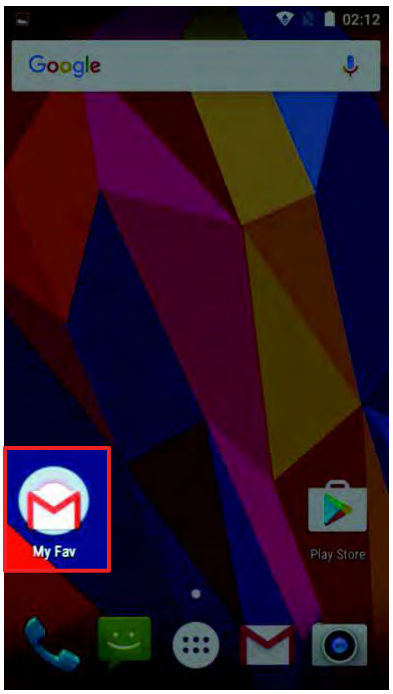
2) The folder will expand from a small circle to a full rectangle to show all the shortcuts in it. Tap "**Unnamed Folder**" and edit the folder name.

3) Tap **Done** on the on-screen keyboard.

4) Tap elsewhere on the screen, the folder will shrink to a small circle with its new name.

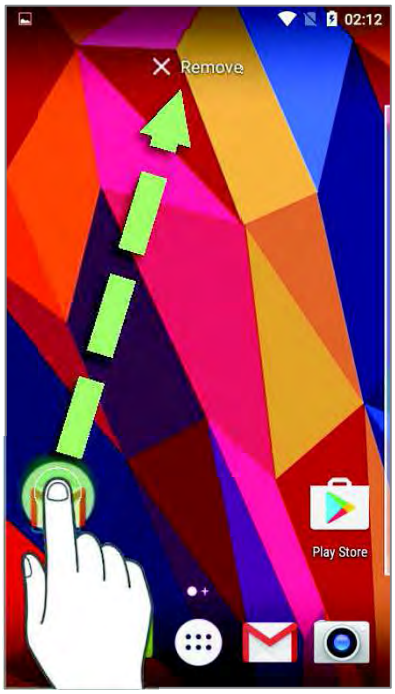


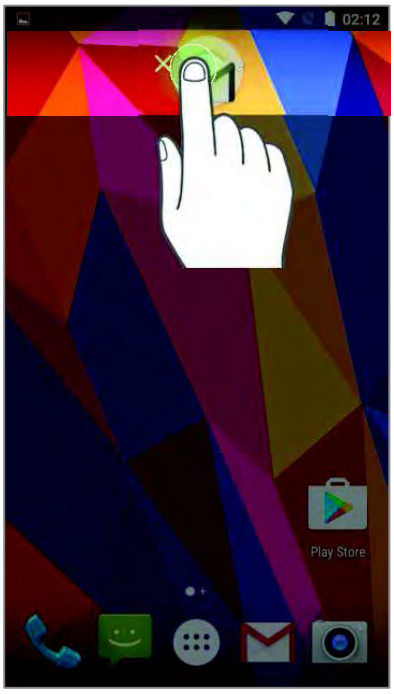




REMOVE FOLDER

1) Tap and hold the folder you would like to remove.
2) Drag the folder to the top of the screen where the option **"X Remove**" is located.



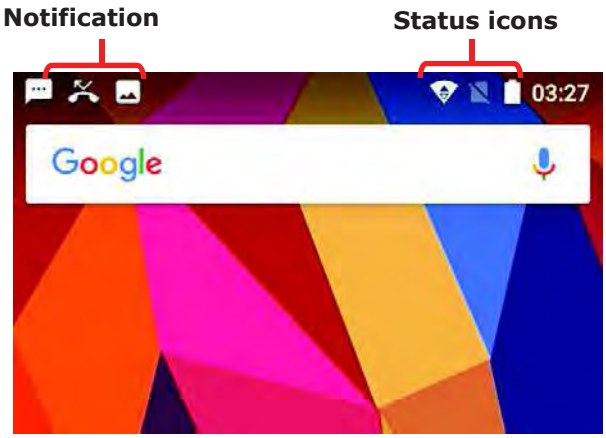


Note:

Please note that, when you remove a folder, the shortcuts contained in it will be removed as well.

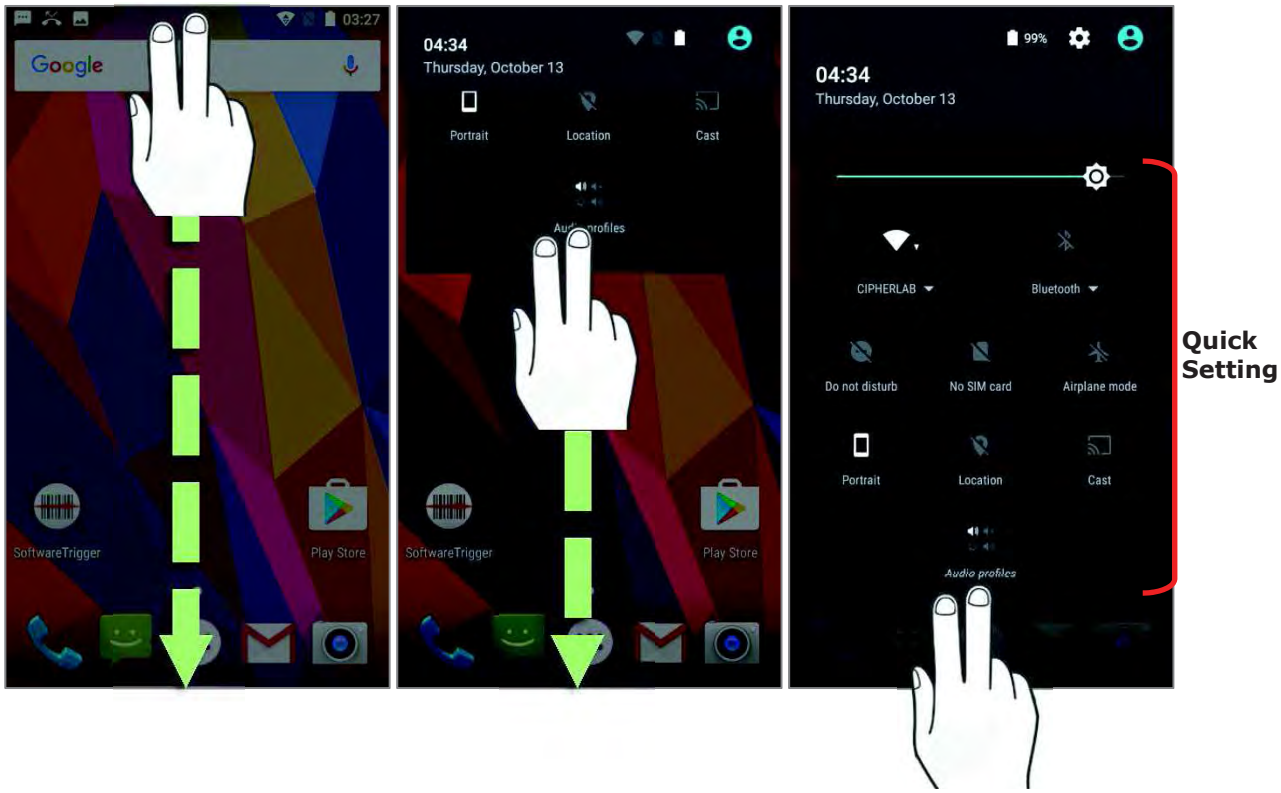
3.2. STATUS BAR

The left side of the status bar shows **notification icons**, and the right side of the status bar shows **status icons**.



3.2.1. OPEN QUICK SETTING MENU

The **status icons** are related to essential settings regarding the device's remaining power, Bluetooth status or Wi-Fi connectivity status. The status bar offers a quick access for you to easily make adjustments of the settings. To open **Quick Setting** menu, use you two fingers, swipe from the top to the bottom of the screen. You can tap on each status icon on the menu to switch among different modes or enter the settings.

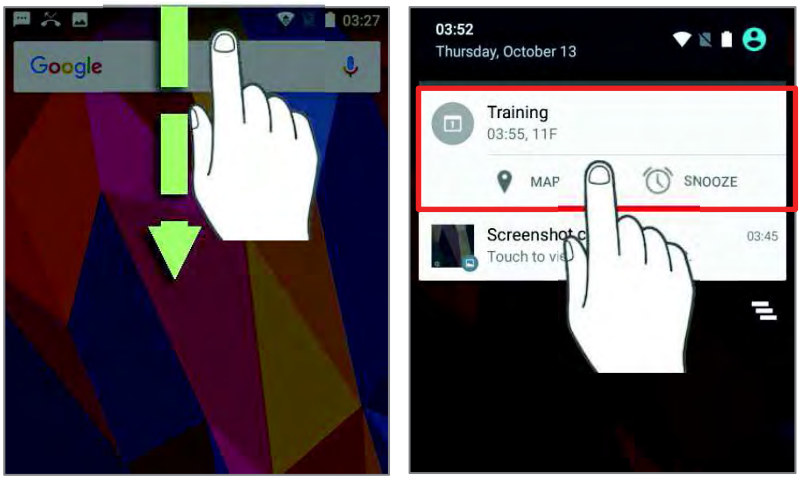


3.2.2. OPEN NOTIFICATIONS PANEL

The **notifications icons** on status bar inform you of the new events such as incoming calls, messages or USB connection.

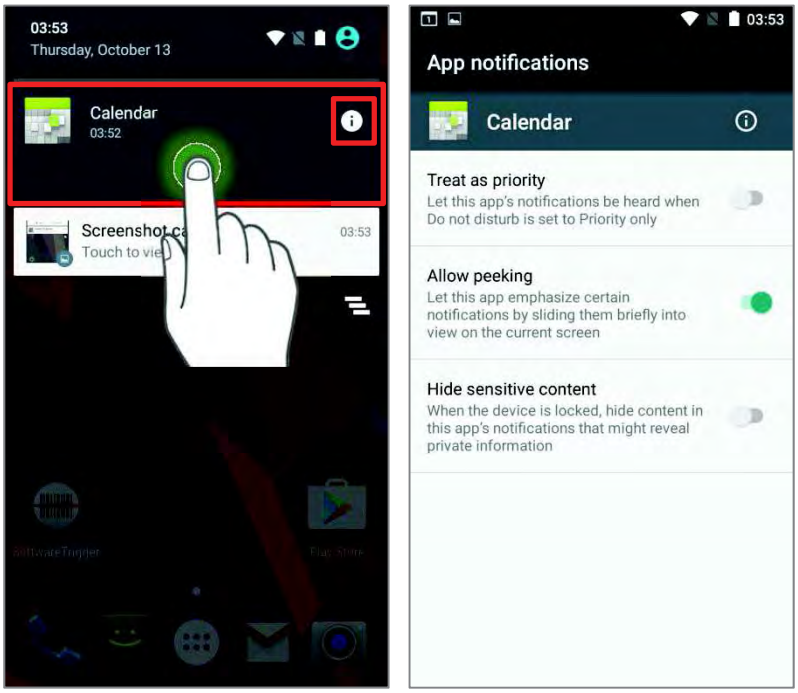
CHECK OUT NOTIFICATION

To check out details of the events, swipe down from the status bar to open **Notifications Panel**. Tap on the individual notification card to carry our immediate action or to open the corresponding application.



DISABLE NOTIFICATION

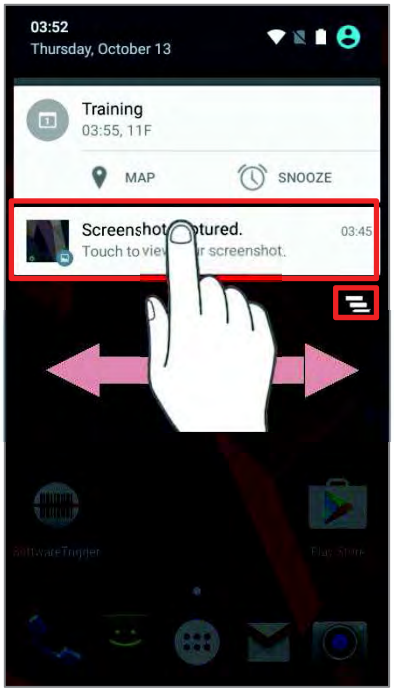
You can change or turn off the notification of a specific app by tapping and holding on the notifications card until the corresponding app name reveals along with an ⓘ icon, tap it to modify the notification-related setting.



ⓘ

CLEAR NOTIFICATION

To dismiss a single notification, simply swipe the notification card right or left. You can also dismiss all notifications at a time by tapping . Ongoing notifications and notifications that require subsequent activity to be cleared will remain on the list.



3.3. MANAGE APPLICATIONS

3.3.1. APPLICATION MENU

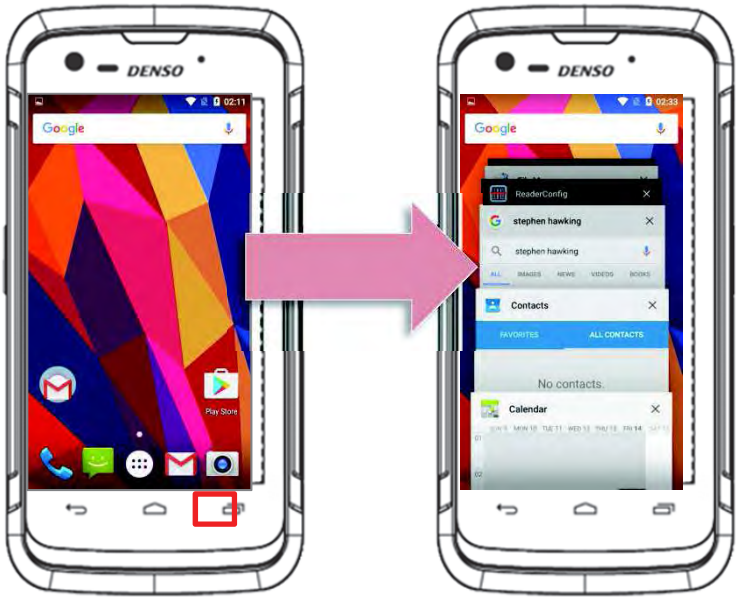
Tap **All Apps** on the **Home** screen to open the applications menu.

Icon	Name	Description
	AppLock	An application used to limit the system resources made available to Users
	Browser	Accesses the internet or intranet.
	Calculator	Performs mathematical calculations.
	Calendar	Creates and manages events, meetings and appointments.
	Camera	Takes pictures and shoots videos.
	Chrome	An Android built-in browser application developed by Google.
	Clock	Sets date, time, time zone according to your locale, and sets and manages alarms.
	Contacts	Manages contact information, and shares or exports/imports the information to other devices or SD card.
	Downloads	List all files downloaded on the handy terminal.
	Drive	An Android built-in application for a file storage and synchronization service created by Google.
	File Manager	Browses and manages files on the local storage and storage card.
	Gallery	Views photos and videos stored on the handy terminal.
	Gmail	An Android built-in application for Gmail, a free email service provided by google.
	Google	An Android built-in application providing you easy access to handy services provided by Google such as searching for nearby restaurants or updates on traffic alerts.
	Hangout	An Android built-in application for a communication platform developed by Google.

Maps	An Android built-in app developed by Google.
Messaging	Sends SMS and MMS messages.
Phone	Places and receives calls, accesses voicemail, views call history, manages phone contacts and adjusts phone settings.
Photos	An Android built-in application for a photo and video sharing and storage service developed by Google.
Play Movies & TV	An Android built-in application for an online video on demand service operated by Google.
Play Music	An Android built-in application for a music streaming service and online music locker operated by Google.
Play Store	An Android built-in application providing access to a digital distribution service, including a digital media store, the **Google Play Store**, operated and developed by Google.
Reader Config	Sets scanner preferences, data output format and destination, symbology settings, and reads barcodes.
Search	Searches the internet and handy terminal with the Google search engine.
Settings	Opens settings to configure the handy terminal.
SoftwareTrigger	An application serving as a real trigger key, floating on top of all other programs for convenient trigger control of the bardcode scanner.
Sound Recorder	Records and plays audio information.
Voice Search	An Android built-in Google product allowing users to use Google Search by speaking on a mobile phone.
YouTube	An Android built-in application for a video-sharing service.

3.3.2. CURRENT APPLICATIONS

Tap the **Recent Apps** button . The screen will show a list of recently used applications.



On this screen, you can:

SWITCH BETWEEN APPLICATIONS

Swipe up or down to cycle through the listed applications, tap on your desired one to open it on the screen.

END APPLICATION

Slide an application to the left or right, or tap the **X** on top right to close it.

Note:

Close unused applications in order to release RAM. Remember to save your data or settings before closing any application.

3.4. SUSPEND & LOCK

3.4.1. SUSPEND DEVICE

The handy terminal operates continuously once it is powered on. To minimize power consumption and prevent unintended operation, suspend the handy terminal if you are not actively using it. The handy terminal can be quickly awoken from suspend mode to operate as needed. When the handy terminal enters suspend mode, the system is in a power-saving status, meaning the device will not respond to screen touch, and volume keys and side buttons will also be unavailable until the device is unlocked.

SUSPEND RS31/BHT-1600

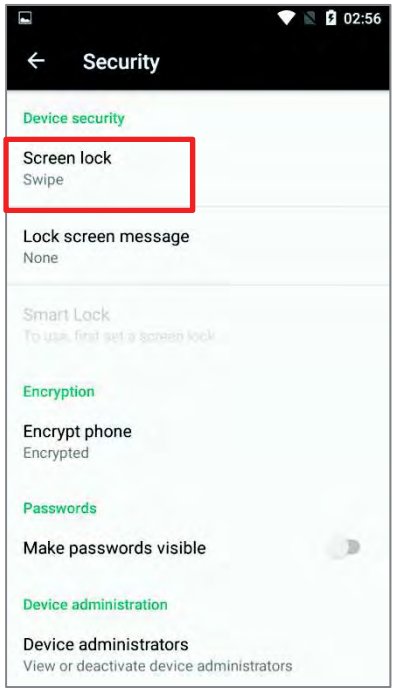
Press the power button to suspend the handy terminal. The handy terminal will automatically suspend when the time period set in Screen Timeout Settings has passed without any activity.

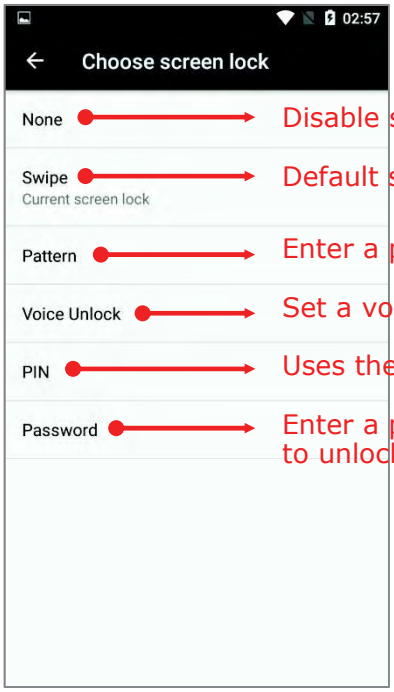
3.4.2. LOCK DEVICE

Setting a screen lock allows you to protect your personal data on this device while the device is not at your hand. With various types of screen lock available and Smart Lock, you can not only enjoy the benefits of this function but also great convenience.

LOCK RS31/BHT-1600

Tap **All Apps** | **Settings** | **Security** | **Screen lock** to change the lock method.





Disable screen lock

Default slide gesture

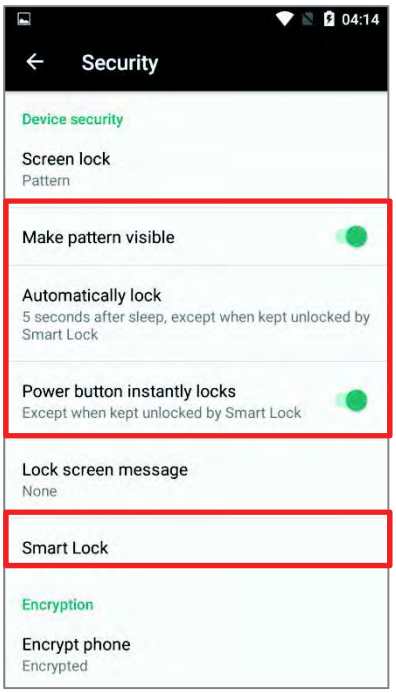
Enter a pattern to unlock

Set a voice command to unlock

Uses the PIN code to unlock

Enter a password of at least 4 characters to unlock.

By selecting a pattern, Voice Unlock, Pin or Password method, you can access advanced settings and **Smart Lock** to customize personal lock settings.



Warning:

To save battery power, suspend the handy terminal when not in use.

3.5. OS UPDATE

Updating the operating system on the handy terminal helps maintain it at an optimized state. You may choose to update the system by establishing a wireless network connection to the Internet and downloading the update file from the OTA server.

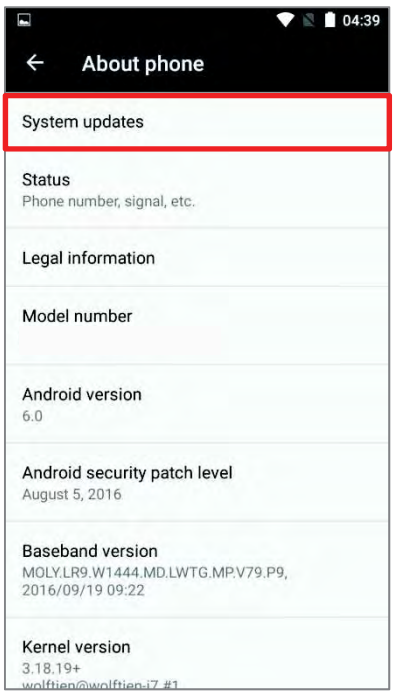
Note:
The handy terminal will shut down during system update. Save any unfinished tasks and data before updating the system in order to avoid data loss.

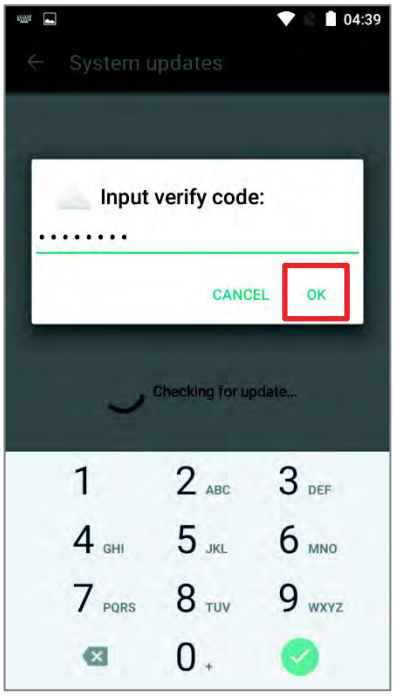
NETWORK UPDATE

In order to check for and download the latest system update file on the server, make sure a wireless network connection to the Internet is established on the handy terminal.

Note:
To avoid any additional charges to your wireless data plan, Wi-Fi connection to the Internet is recommended for downloading the file.

1) Tap **All Apps** | **Settings** | **About phone** | **System updates**. A window pops up asking you to input the password for system update. Please contact manufactory for the password. Enter the password and tap **OK**.





2) The handy terminal searches for the latest system update file on the server. Tap **DOWNLOAD AND INSTALL** to download the update file.

3) When a new system update file is detected on the server, a notification icon will appear on the status bar, and a text notification will pop up in the notifications panel.

SD CARD UPDATE

1) Obtain the latest system update file, and copy the file onto the root storage of your SD card.

2) Insert the SD card into the memory card slot on the handy terminal. Press the power button to power it on.

3) Tap **All Apps** | **Settings** **About phone** | **System updates**.

A window pops up asking you to input the password for system update. Please contact manufactory for the password. Enter the password and tap **OK**.

4) The handy terminal searches for an available system update file on the SD card.

Note:
Make sure the SD card is inserted in the handy terminal. If not, the screen will show that your system is currently up to date.

If there is a later version of the system update file available on the server, it will be listed on the screen along with the update file found on the SD card. Tap the update file you would like to use and proceed.

5) Tap **INSTALL** to open an "**Install update**" confirmation window. Tap **Install** in the confirmation window to begin the installation.

Once complete, a notification will appear showing that the system has been updated successfully. Tap **OK** to show the Home screen.

3.6. BACK UP YOUR DATA

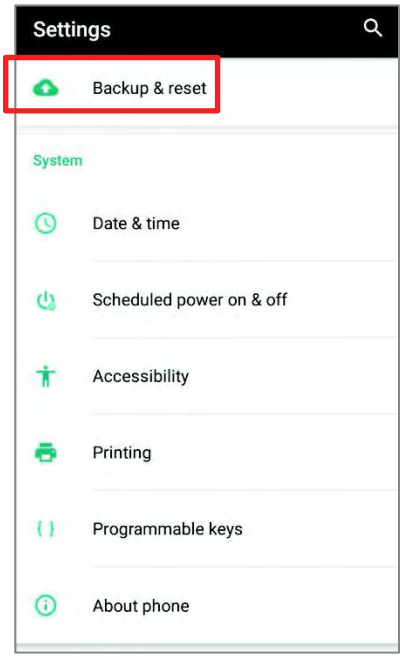
With **Android Backup Service**, you can have your personal data (Google calendar settings, Google contacts, Chrome browser data and Gmail settings) and certain system settings under your Google account backed up (over network connection) on the cloud. This allows you to easily restore the settings on this device after a Factory Reset (refer to Reset to Factory Default).

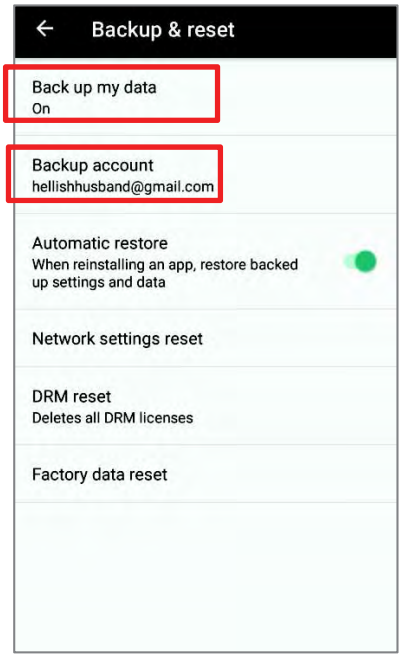
Note:

1) To back up your photos and videos, Tap **All Apps** | **Photos** to sync the files on your device with Google Photo Library.
2) To back up other documents such as audio or video files on the device's storage, you can make use of Google Drive service.
3) **Android Backup Service** does not handle SMS messages and certain app progress data and settings.

To start:

1) Make sure you device is connected with network.
2) Tap **All Apps** | **Backup & re** and enable **Back up my data**.
3) Tap **Backup Account** to log in to your Google account.





To restore your backed up personal data of a Google Account, just add that account to the device.

3.7. RESET TO FACTORY DEFAULT

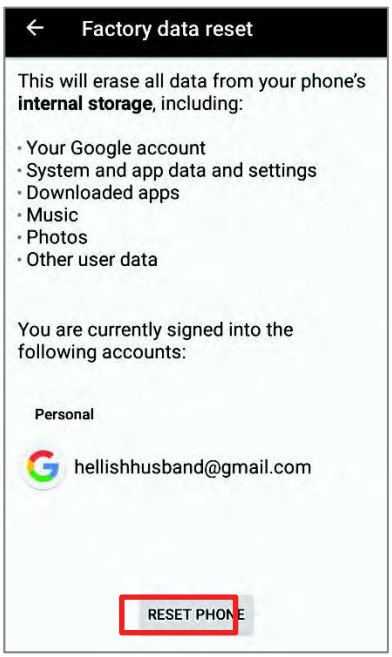
Performing a factory reset will erase all data on your handy terminal (including call logs, messages, files as well as your installed apps and their associated data) and revert the device back to its original state in which it is powered on by you for the first time.

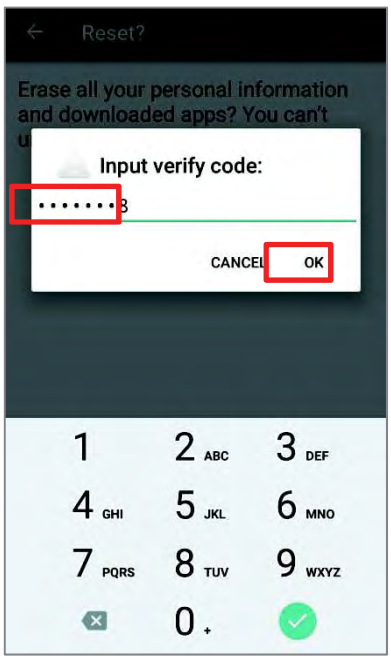
It is strongly recommended that you follow the instructions in Back up Your Data to back up important data before performing a factory reset.

To start:

1) Tap **All Apps** | **Settings** | **Backup & re** and **Factory data reset.**

Confirm the action by tapping on the buttons and input the verification code. Finally, tap **OK** to perform a factory reset.





Chapter 4

WIRELESS RADIOS

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

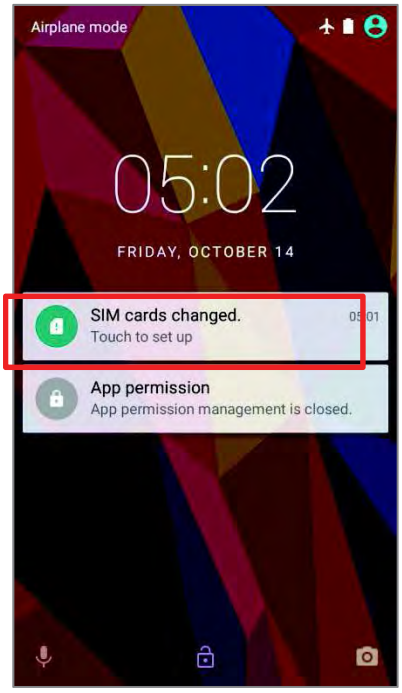
IN THIS CHAPTER

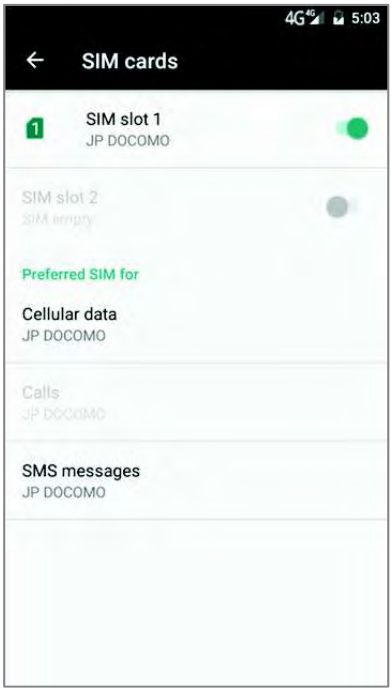
4.1 Use Wireless Wide Area Network 99
4.2 Use Wireless Local Area Network (Wi-Fi) 109
4.3 Use Bluetooth.....115
4.4 Use Near Field Communications 119

4.1. USE WIRELESS WIDE AREA NETWORK

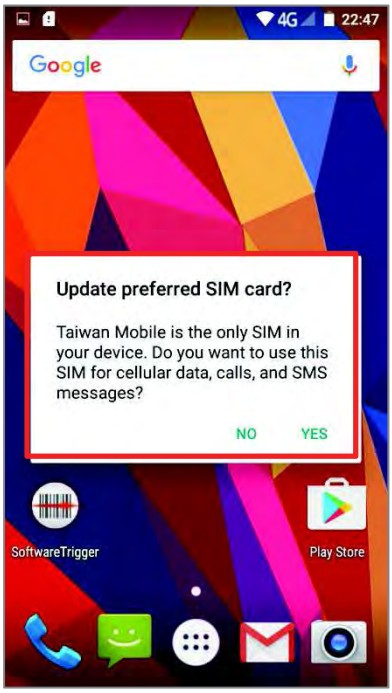
The handy terminal will be automatically configured to connect to your wireless service provider's network when you insert a SIM card and turn on data connection for the first time.

1) When a SIM card is inserted, a dialog will appear confirming the mobile carrier detected, you may tap "**Touch to set up**" to enter the settings page.





2) If the SIM card you inserted is the only SIM in your device, you will be prompted to confirm that this SIM used for all data services.



EDIT ACCESS POINT NAME

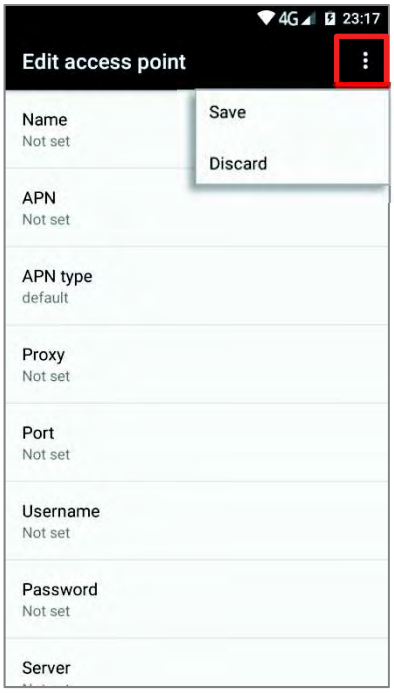
You may need to change the access point name according to the information obtained from your mobile carrier.

1) Tap **All Apps** | **Settings** | **More** | **Cellular networks** | **Access Point Names**.

2) Tap the button , and tap each field to input the APN name and settings obtained from your mobile carrier.

3) When finished, tap the settings button and tap **Save**.

4) Back to **APNs** page, Tap the radio button next to the APN you would like to apply.



4.1.1. SHARE WWAN DATA

The WWAN connection on the handy terminal can be shared to other devices. You may share internet connection with a computer or device through USB or Bluetooth tethering, or share with a maximum of eight devices by turning the handy terminal into a Wi-Fi hotspot.

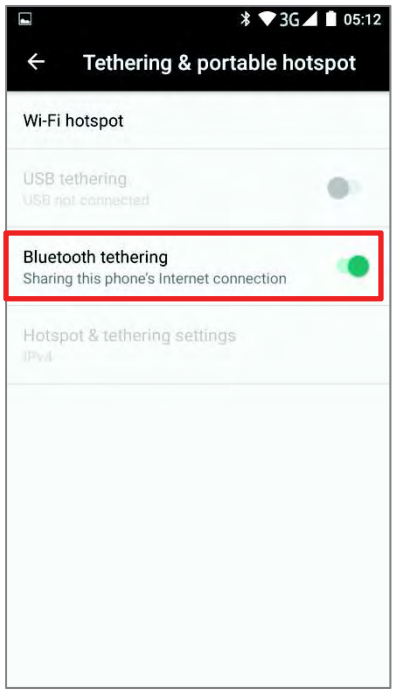
BLUETOOTH TETHERING

To share data connection through Bluetooth tethering:

1) Pair the handy terminal with the device of interest.

2) Tap **All Apps** | **Settings** | **More** | **Tethering & portable hotspot**.

3) Tap **Bluetooth tethering**. The handy terminal will share its WWAN network with Bluetooth-connected devices through Bluetooth sharing.



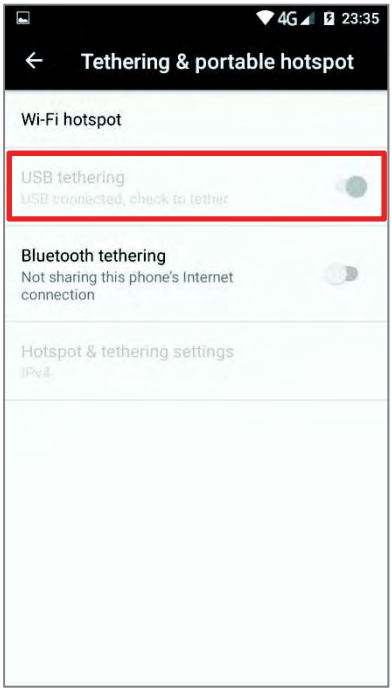
USB TETHERING

To share data connection through USB tethering:

1) Connect the handy terminal with a USB cable. A USB icon will appear at the top of the screen, and in the Notifications panel, a description "**Connected as USB Storage**" will appear.

2) Tap **All Apps** | **Settings** | **More** | **Tethering & portable hotspot**.

3) Tap **USB tethering**. The handy terminal will share its WWAN network with the connected host computer.

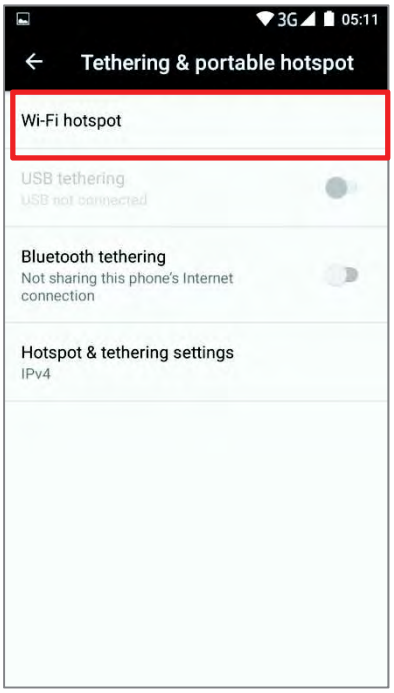


WI-FI HOTSPOT

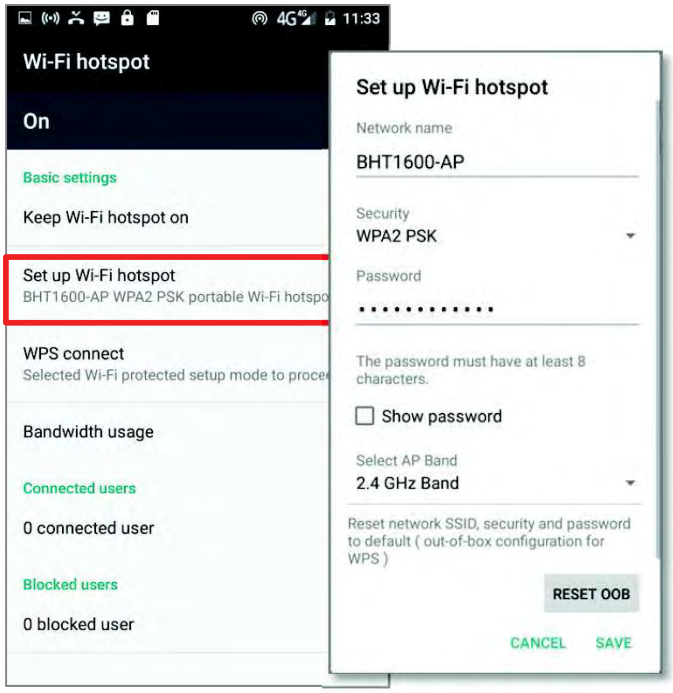
To share data connection in the form of a Wi-Fi hotspot:

1) Tap **All Apps** | **Settings** | **More** | **Tethering & portable** hotspot.

2) Tap the **Wi-Fi hotspot** switch to enable data sharing through Wi-Fi. The handy terminal will start broadcasting its SSID for other devices to connect.



3) Tap the **Wi-Fi hotspot** label to manage Wi-Fi hotspot settings: set when to turn the Wi-Fi hotspot off, change SSID and security settings, select whether to minimize battery usage when Wi-Fi hotspot is enabled, enable WPS mode and adjust bandwidth, and view connected users.



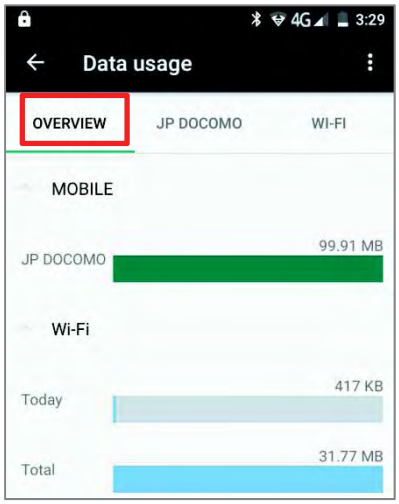
DATA USAGE

Data usage is the amount of data uploaded or downloaded on the handy terminal. Managing the data usage amount within a certain period of time is a recommended task, as an excess amount of data usage might incur additional fees from your service provider.

To check wireless data usage:

1) Tap **All Apps** | **Settings** | **Data usage** .

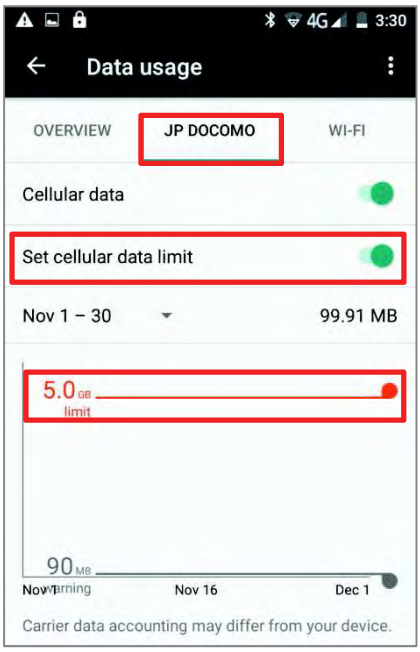
2) The **Overview** tab page opens showing a summary of data usage for your mobile network and Wi-Fi connection. Open the tab page of your mobile carrier to view a chart of data usage on a monthly cycle.



SET DATA USAGE LIMIT

1) On the data usage tab page for your mobile carrier. Enable **Set mobile data limit**.

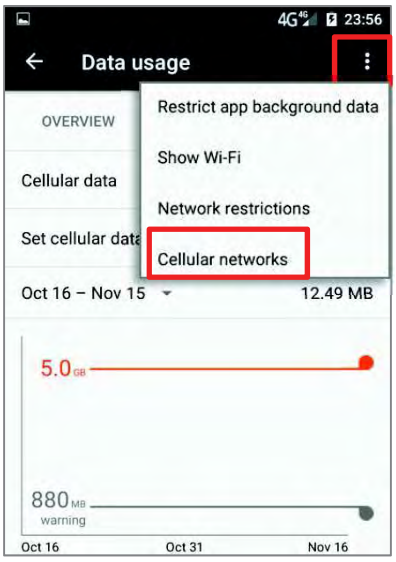
2) To adjust the limit level, tap the limit value on the chart. If a limit is set, when the data usage amount reaches the limit, mobile data connection will be automatically disabled.

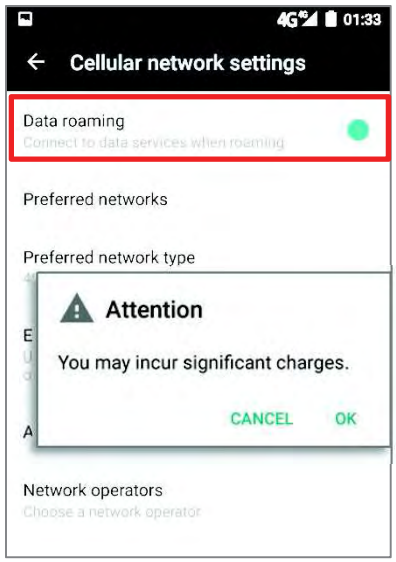


ENABLE DATA USAGE DURING ROAMING

1) On the data usage tab page for your mobile carrier, tap **More** .

2) Select **Cellular network**, and enable **Data roaming** checkbox for your mobile carrier. A dialog box appears confirming whether you would like to enable data roaming. Tap **OK** to confirm.



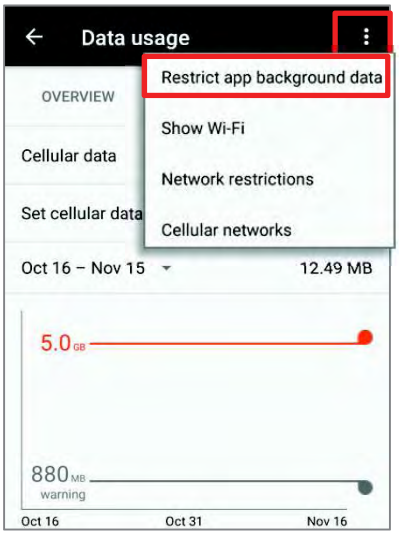


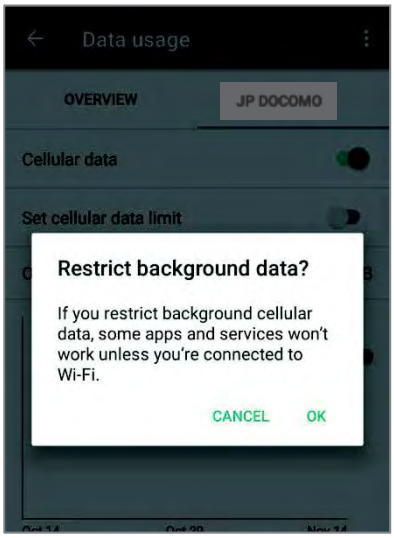
RESTRICT BACKGROUND DATA

1) On the data usage tab page for your mobile carrier, tap **More** , and select the **Restrict background data checkbox**.

2) A dialog box appears confirming whether you would like to enable data restriction. Tap **OK** to confirm.

The handy terminal conserves data usage by restricting background mobile data. Certain applications and services will be disabled unless the handy terminal is connected to a Wi-Fi network.





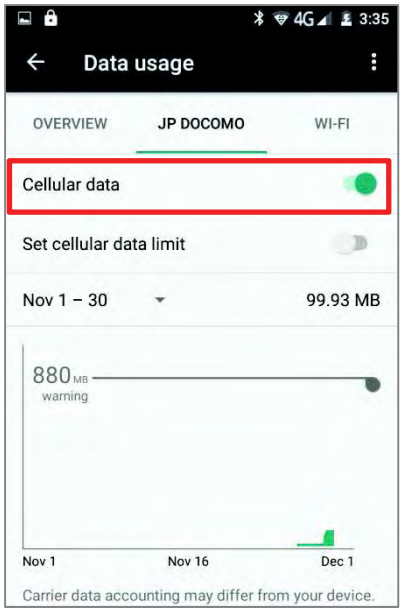
4.1.2. DATA CONNECTION SETTINGS

TURN ON/OFF DATA CONNECTION

To manually turn on/off mobile data connection:

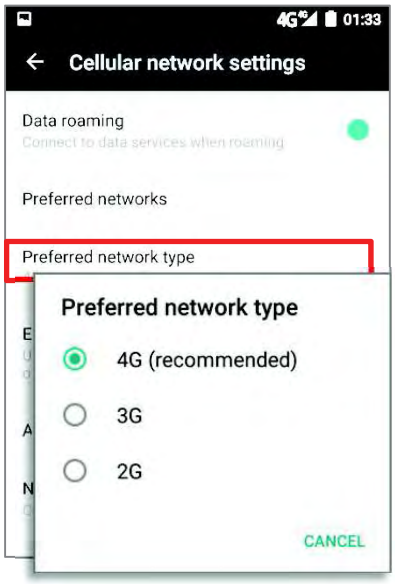
1) Tap **All Apps** | **Settings** | **Data usage** .

2) Select your data usage tab page for your mobile carrier. To turn on/off data connection, switch the **Cellular data** to the corresponding position.



SELECT DATA CONNECTION TYPE

Tap **All Apps** | **Settings** | **More** | **Cellular network**, tap **Preferred network type** to select.

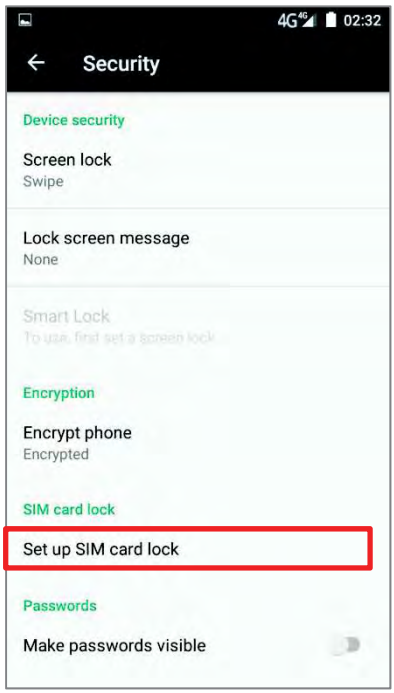


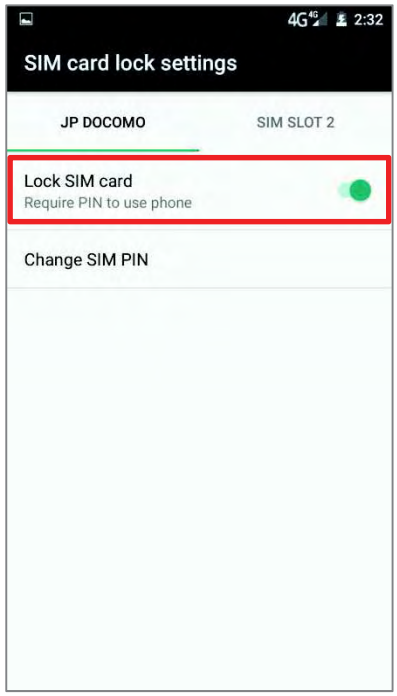
4.1.3. SIM CARD SETTINGS

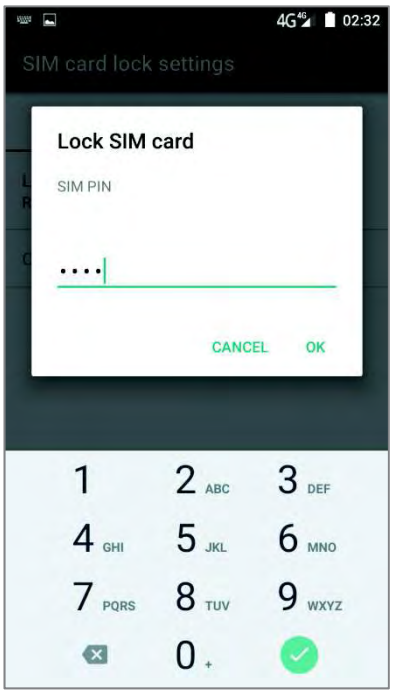
LOCK SIM CARD

To lock the SIM card:

1) Tap **All Apps** | **Settings** | **Security** , tap Set up SIM card lock.
2) Enable Tap Lock SIM card.
3) Enter the PIN to enable SIM card lock. Once enabled, you are required to enter the PIN code in order to use the phone



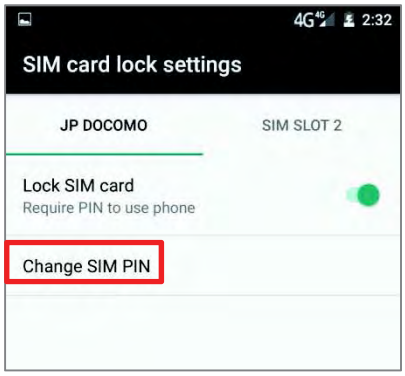




CHANGE PIN CODE

To change the PIN code:

1) Tap **All Apps** | **Settings** | **Security** , tap **Set up SIM card lock**.
2) Tap **Change SIM PIN**.
3) Enter your old PIN code to confirm your identity, and then input a new PIN code.

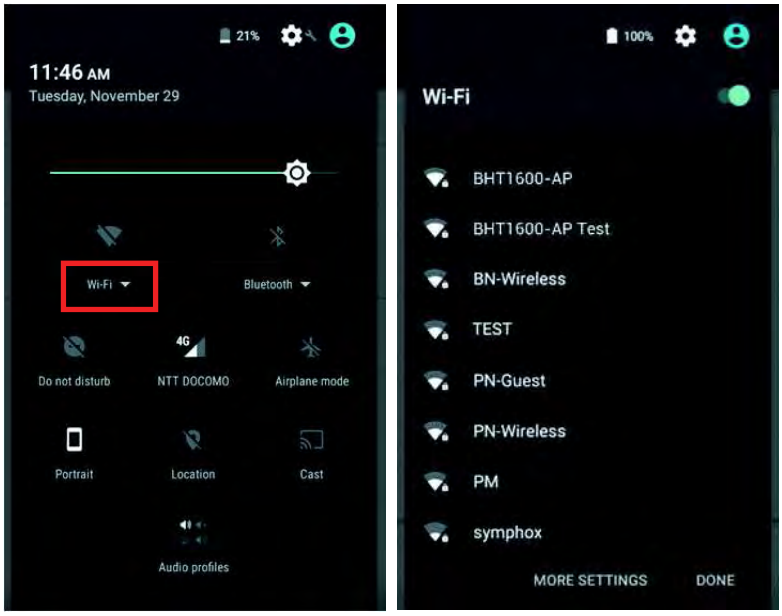


4.2. USE WIRELESS LOCAL AREA NETWORK (WI-FI)

4.2.1. CONNECT TO WI-FI NETWORK

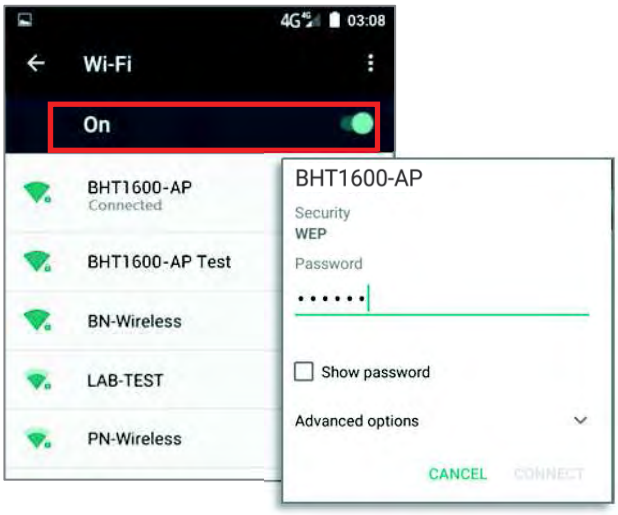
To power on Wi-Fi:

1) Use two fingers to swipe down from the top of the screen to open **Quick Settings**.
2) Tap **Wi-Fi** ▾ to scan for available networks. Select a network to connect.



OR

1) Tap **All Apps** | **Settings** | **Wi-Fi** .
2) Tap the Wi-Fi switch to scan for available networks. Select a network to connect. If the network is an open one, the handy terminal will attempt to connect to it directly. When connected, the status will change to show "**Connected**". If the network is a secured one, the handy terminal prompts a dialog to enter the password for the connection.



4.2.2. MANUALLY ADD WI-FI NETWORK

If the network you would like to connect to does not broadcast its SSID, or if the network is out of range, you may add it manually.

1) Tap **All Apps** | **Settings** | **Wi-Fi** .

2) Tap the Wi-Fi switch to enable this function, and then tap **More** and select "**Add network**".

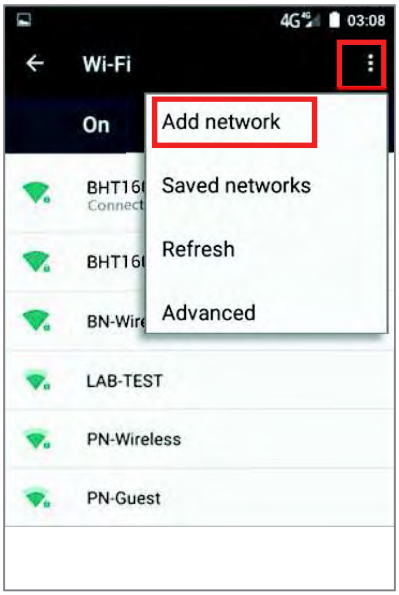
3) In the dialog box, enter the name of the network in the **Network name** field, and select a security method in the **Security** field (None, WEP, WPA/WPA2 PSK, 802.1x EAP).

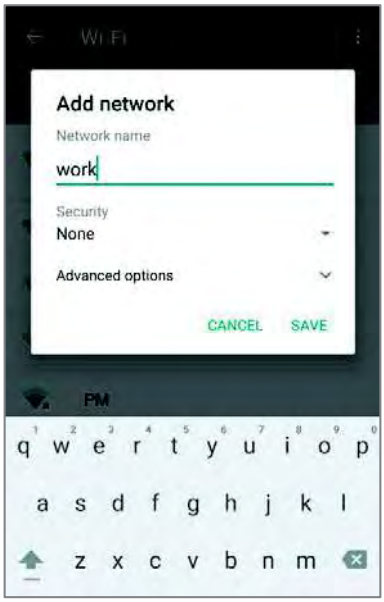
- For WEP/WPA/WPA2 PSK connections: Enter the required password and tap **Save**.
- For 802.1x EAP connections: Tap **Advanced options** and select the **EAP method** in the drop-down box (PEAP, TLS, TTLS, PWD, SIM, AKA), and the **Phase 2 authentication** in the drop-down box (None, MSCHAPV2, GTC). Select a **CA certificate** and **User certificate** if required (certificates may be installed under **All Apps** | **Settings** | **Security** | **Install from SD card** **OR** **All Apps** | **Settings** | **Wi-Fi** | **More** | **Advanced** | **Install Certificates**.) Enter your username in the **Identity** box and the password in the **Password** box if required.

The handy terminal supports the following certificate file extensions:

File Extension Type	Standard certificate	Key store
Description	DER-encoded X.509 certificates saved in .crt or .cer files.	X.509 certificates saved in PKCS#12 key store files with a .p12 or .pfx extension.
How to install	change the extension to .crt or .cer.	Change the extension to .p12 or .pfx.

4) If necessary, select the **Proxy** server and **IPv4** settings. By default, no proxy is set and IP settings are set to **DHCP**.


03:08
Wi-Fi
On
Add network
Saved networks
Refresh
Advanced
LAB-TEST
PN-Wireless
PN-Guest


Wi-Fi
Add network
Network name
work
Security
None
Advanced options
CANCEL
SAVE
PM

4.2.3. ADVANCED WI-FI SETTINGS

To configure advanced Wi-Fi settings:

1) On the **Wi-Fi** screen, tap **More** .
2) Select **Advanced** in the pop-up menu. Available settings are as below:

Item	Description
Network notification	Notifies when an open network is available.
Keep Wi-Fi on during sleep	Sets when to turn Wi-Fi on during sleep.
Install certificates	Installs certificates recently downloaded or placed on the internal storage.
Wi-Fi Direct	Enables your device to connect with a Wi-Fi Direct-capable device.
MAC address	Displays the MAC address of the device when connecting to Wi-Fi-networks.
WPS Push Button	Initialize the Wi-Fi protected setup (WPS) for a WPS-capable network. You will also have to press down the WPS button on your router.
WPS in Entry	Enter the personal identification number (PIN) for Wi-Fi protected setup (WPS) process.
IPv6 address	Displays the IPv6 address of the device.
IPv4 address	Displays the IPv4 address of the device.

4.2.4. CONFIGURE PROXY SERVER

A proxy server acts as an intermediary between an endpoint device and another server from which the device is requesting a service.

To change the proxy settings for a connection:

1) Tap a network in the available Wi-Fi hotspot list.
2) Tap **Advanced** options.
3) Tap **Proxy** and select **Manual** in the pop-up menu.
4) Enter the address of the proxy server in the **Proxy hostname** field. Enter the port number for the proxy server in the **Proxy port**. Enter the addresses of websites which are allowed to bypass the proxy server in the **Bypass proxy for** field. (Use the separator | between addresses.)
5) Tap **CONNECT**.

4.2.5. USE STATIC IP ADDRESS

By default, the device uses DHCP to assign an IP address when connecting to a wireless network. You may set for the device to connect to a network using a static IP address.

1) Tap a network in the available Wi-Fi hotspot list.
2) Tap **Advanced** options
3) Tap **IPv4 settings** and select **Static** in the pop-up menu.
4) Enter the IP address, gateway, network prefix length, DNS 1 address and DNS 2 address in the fields provided.
5) Tap **CONNECT**.

4.2.6. CONNECT WITH WI-FI PROTECTED SETUP (WPS)

Wi-Fi protected setup (WPS) allows easy establishment of a secure wireless network. The handy terminal supports WPS through push button configuration.

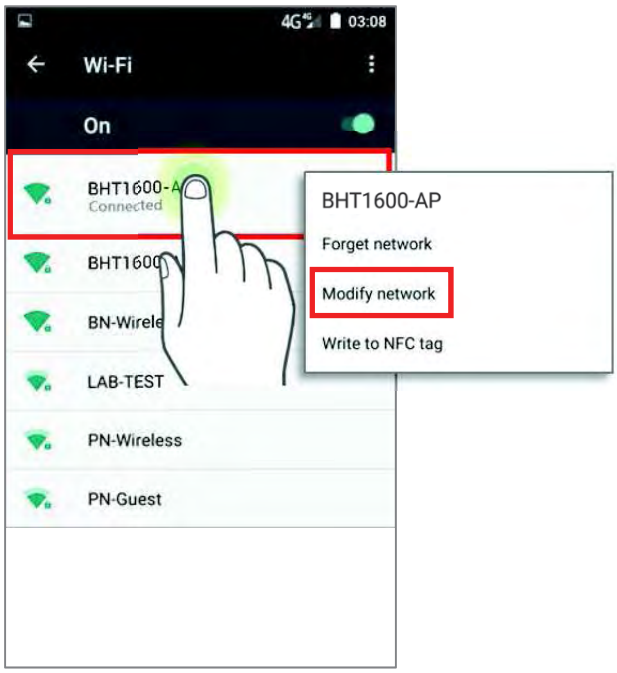
1) On the Wi-Fi hotspot scanning screen, tap **More** , select **Advanced** and then **WPS Push Button**.
2) A dialog will pop-up on the screen showing the remaining time allowed for pressing the WPS button on the router.

3) On your wireless router, press the WPS button. The device will connect to your router.

4.2.7. MODIFY WI-FI NETWORK

To change the settings for a connected network:

1) Tap and hold a connected network in the Wi-Fi hotspot list.
2) Tap **Modify network** in the pop-up menu.
3) In the dialog box that opens, modify the network settings, and tap **Save**.



4.2.8. DISCONNECT WI-FI NETWORK

To disconnect a connected network:

1) Tap and hold a connected network in the Wi-Fi hotspot list.
2) Tap **Forget network** in the pop-up menu.

4.3. USE BLUETOOTH

The RS31/BHT-1600 handy terminal lets you configure Bluetooth settings and manage Bluetooth services provided on remote devices.

4.3.1. BLUETOOTH PROFILES

Bluetooth Profiles Supported

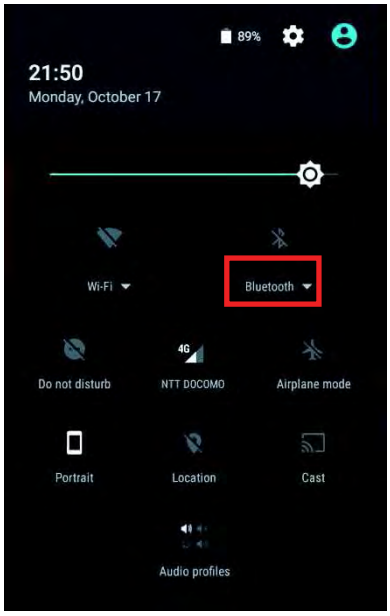
Generic Access Profile	(GAP)	For device discovery and authentication.
Service Discovery Access Profile	(SDAP)	Discovers services on remote devices.
Headset Profile	(HSP)	Describes how a Bluetooth enabled headset should communicate with a Bluetooth enabled device
Serial Port Profile	(SPP)	Sets up a virtual serial port to connect two Bluetooth devices.
Human Interface Device Profile	(HID)	Provides a low latency Bluetooth connection with keyboards, pointing devices, etc.
Object Push Profile	(OPP)	Pushes and pulls objects to and from a push server.
Hands-Free Profile (AG1.5)	(HFP)	Allows using a hands-free device to place and receive calls.
Advanced Audio Distribution Profile	(A2DP)	Streams stereo-quality audio to a wireless headset or speaker.
Audio/Video Remote Control Profile	(AVRCP)	Allows controlling of television and Hi-Fi equipment.
Generic Object Exchange Profile	(GOEP)	Provides a basis for other data profiles.
Personal Area Networking Profile	(PAN)	Uses Bluetooth Network Encapsulation Protocol for Bluetooth transmission.
General Audio/Video Distribution Profile	(GAVDP)	Provides a basis for A2DP and VDP.
Phone Book Access Profile	(PBAP)	Transfers Phone Book Objects to a car kit to display the information of an incoming call received on the handy terminal, or initiate a call.

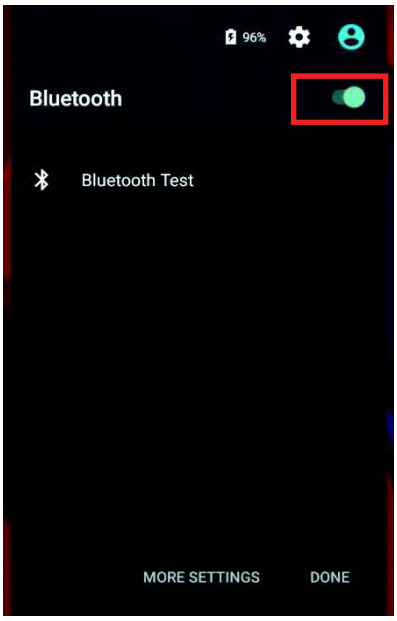
4.3.2. TURN ON BLUETOOTH

By default, Bluetooth is turned off, to turn it on:

1) Use two fingers to swipe down from the top of the screen to open **Quick Settings**.

2) Tap **Bluetooth** ▾ to turn on this function while enabling the Bluetooth visibility of this device.

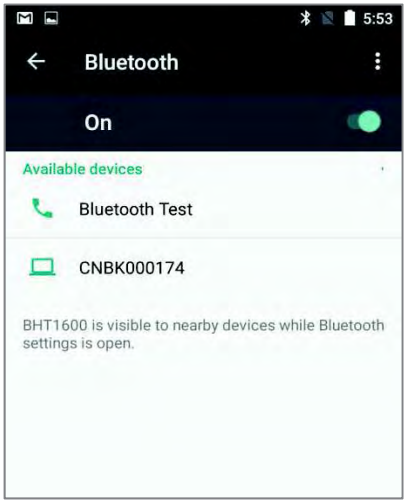




OR

1) Tap **All Apps** | **Settings** | **Bluetooth**.

2) Tap the switch to turn on this function while enabling the Bluetooth visibility of this device.



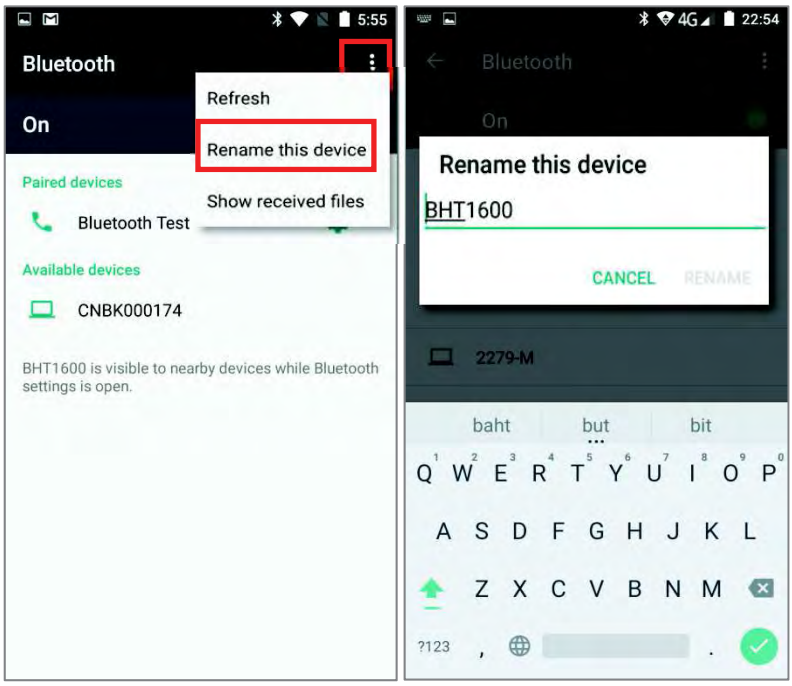
Note: After turning on, Bluetooth power is maintained even when the handy terminal is suspended. However, if the power mode is switched to Airplane Mode, Bluetooth power will be turned off regardless of the settings.

4.3.3. CHANGE BLUETOOTH NAME

To change the Bluetooth name of this handy terminal:

1) On the available Bluetooth devices screen, tap **More** and select **Rename this device** in the pop-up menu.

2) Type a new name in the field and tap **RENAME**.

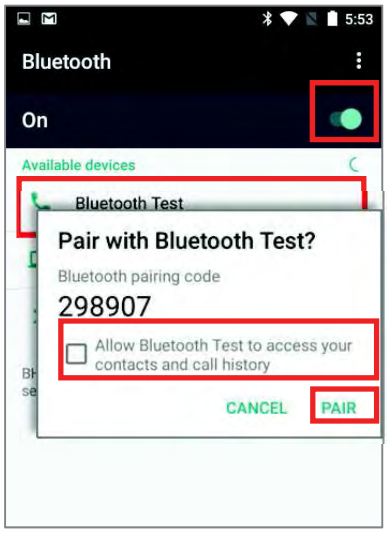


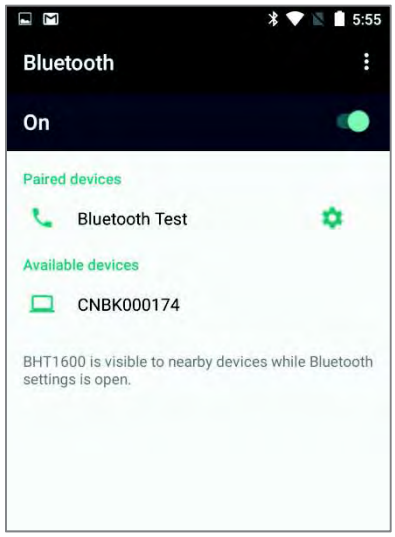
4.3.4. PAIR BLUETOOTH DEVICES

1) Tap **All Apps** | **Settings** | **Bluetooth**.Tap the switch to **On** position to scan for available Bluetooth devices nearby. Scroll through the list and tap the device you would like to pair.

2) The **Bluetooth pairing request** window opens. Depending on the pairing settings of the Bluetooth device, you may need to enter a passkey, or confirm the assigned passkey on the device to pair if a smart pairing method is applied. Enter/confirm the passkey on the device to pair.

3) Once pairing is done, the Bluetooth device will be listed in the **Paired Devices** list.



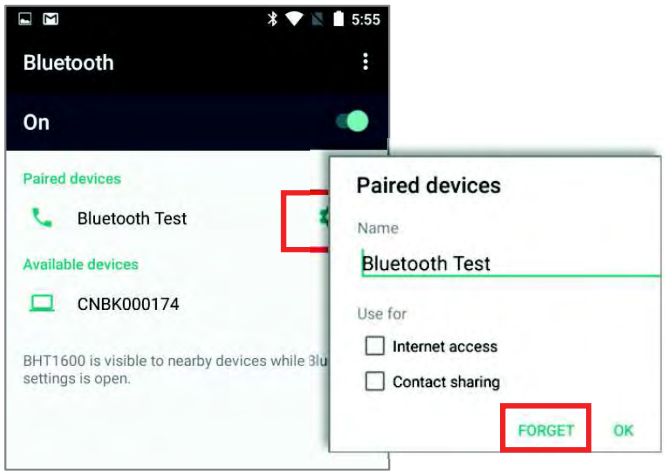


Note:
If the device you would like to pair with is not listed, make sure Bluetooth visibility is enabled on the device.

4.3.5. UNPAIR BLUETOOTH DEVICE

To unpair a paired device:

1) In the **Paired Devices** list, tap the settings button next to the paired device.
2) On the **Paired device** screen, tap **FORGET**.

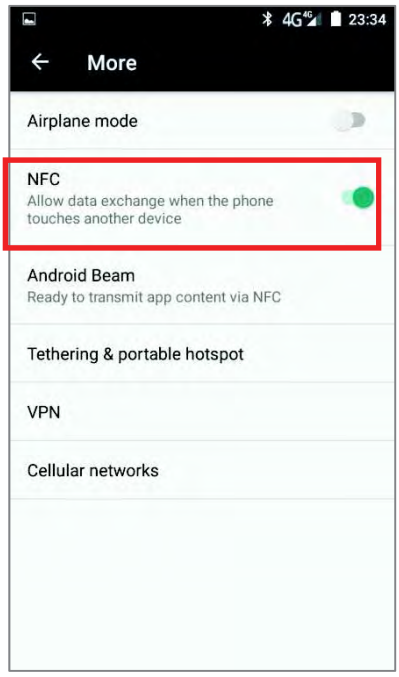


4.4. USE NEAR FIELD COMMUNICATIONS

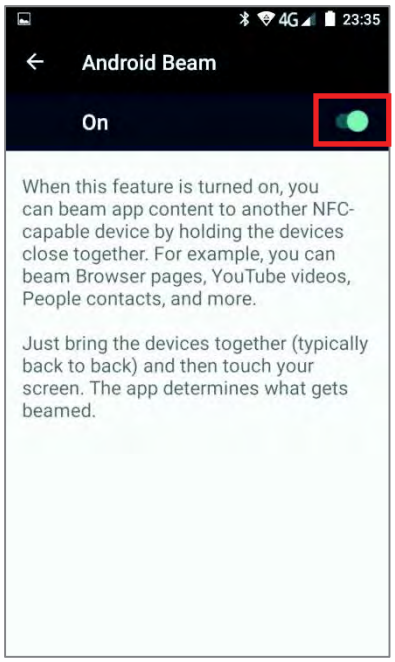
Near field communications (NFC) uses close proximity (4 cm or less) to establish radio communication through electromagnetic fields. With NFC enabled, the handy terminal can collect information from NFC tags, exchange information with other NFC supported devices, and even change information on the NFC tag if authorized.

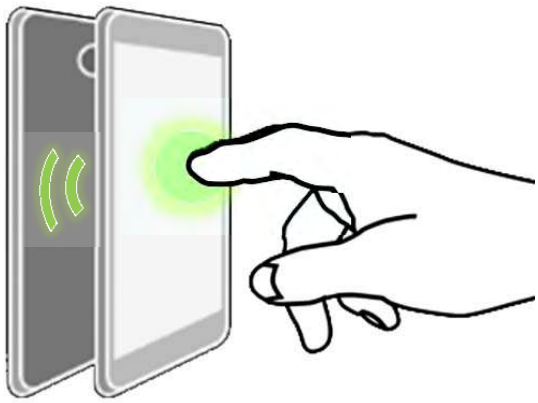
Before starting to communicate through NFC, perform the following:

1) On the handy terminal, tap **All Apps** | **Settings** | **More** .
2) On the Wireless & networks page, make sure the **NFC** switch is enabled.



3) Tap **Android Beam** and enable it.

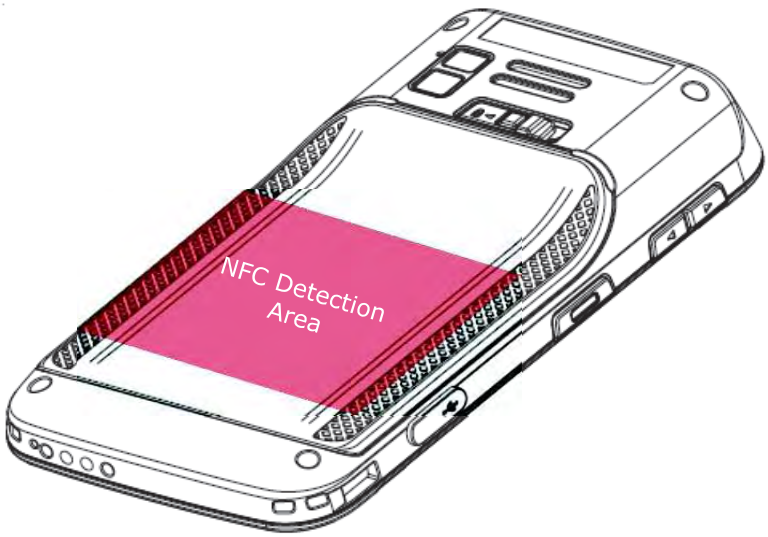




PAIR WITH NFC ENABLED BLUETOOTH DEVICES

1) On the device you would like to pair with, make sure NFC is enabled and Bluetooth discovery is enabled.

2) Hold the handy terminal without covering the antenna area at the lower end of the battery cover.



3) Move the handy terminal in proximity with the device. A screen notification will appear to indicate that pairing is successful.

SHARE INFORMATION

1) Open the web page, video, photo or contact info page you would like to transfer.

2) Place the back of the handy terminal in close proximity with the other device you would like to share data with.

3) When the two devices connect, a "**Touch to beam**" notification will appear on the screen.

4) Touch the screen to initiate data transfer.

Note:

Once the data begins to transfer, the two devices only need to be held within a 10 m (32.8 ft.) range; they no longer have to be held within close range in order to transfer successfully.

COMMUNICATION WITH NFC

1) On the handy terminal, launch an NFC enabled application.

2) Hold the handy terminal without covering the antenna area at the lower end of the battery cover.

3) Place the handy terminal close to the NFC tag or device until the application indicates data transfer is complete.

Chapter 5

USING THE PHONE

The RS31/BHT-1600 handy terminal allows making phone calls and connecting to the network over Wideband Code Division Multiple Access (WCDMA). Insert the SIM card before turning on the power. Refer to Installing SIM Card, SAM Card and Memory Card.

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

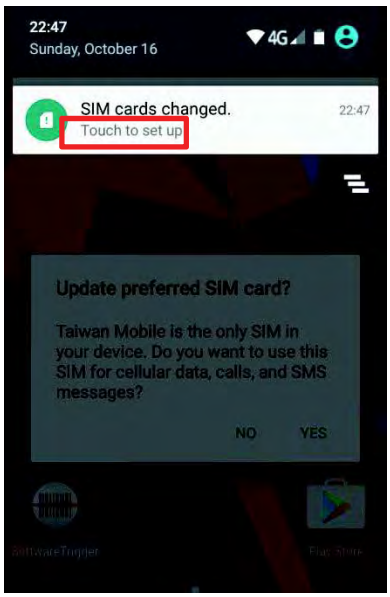
IN THIS CHAPTER

5.1 Phone Power 122
5.2 Phone Application 123

5.1. PHONE POWER

The handy terminal accommodates two SIM cards and supports dual standby of two different networks. Both networks will be monitored at the same time, and the phone will dynamically switch between the two networks during usage. Calls will be placed with either one of the networks; you cannot switch networks in the middle of a received call or placed call, or receive or place calls with both networks at the same time.

When a SIM card is installed for the first time, the phone power is turned on automatically when the handy terminal is powered on. A dialog box pops-up when the handy terminal is powered on notifying that a SIM card is detected.



1) Tap **Touch to set up**.

2) The **SIM cards** screen opens showing the name of the mobile carrier and the current phone settings.

3) To open the **SIM management** screen from other screens, tap **All Apps** | **Settings** | **SIM cards**

4) If you already have both **SIM1** and **SIM2** cards inserted, enable these cards on **SIM cards** screen and respectively select the **Preferred SIM** for Cellular data, Calls and SMS messages.

Note:
When both SIM cards are both inserted and enables, they are both active and ready to receive an incoming call but not able to be connected at the same time.

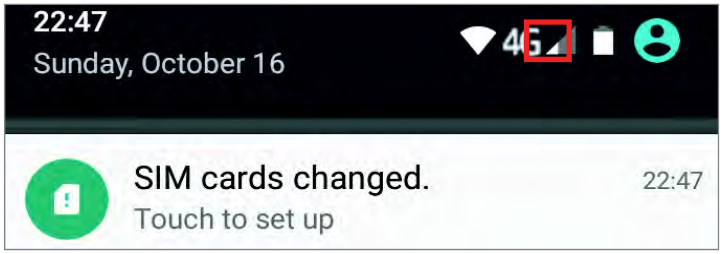
EMERGENCY CALLS

Depending on your service provider, the handy terminal might support making emergency phone call when the SIM card is locked, or even when no SIM card is inserted. Emergency phone numbers will vary by country.

5.2. PHONE APPLICATION

5.2.1. PHONE INTERFACE

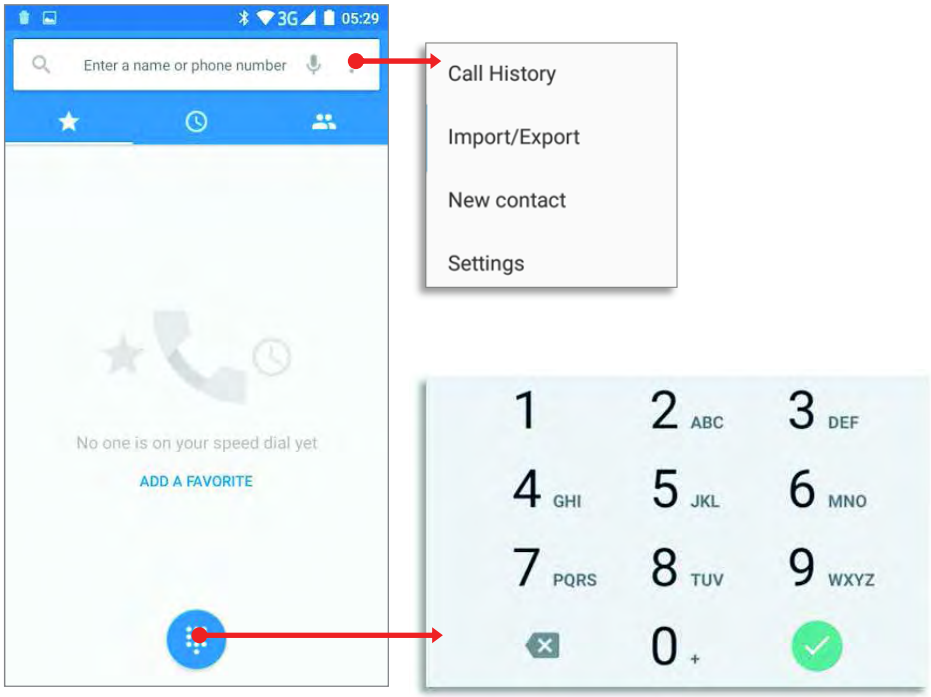
1) When a SIM card is installed on the handy terminal and the Phone Power is on, a signal icon appears on the status bar. The number of bars indicates the strength of the connection.



2) Tap **All Apps** | **Phone** . The Phone application opens.

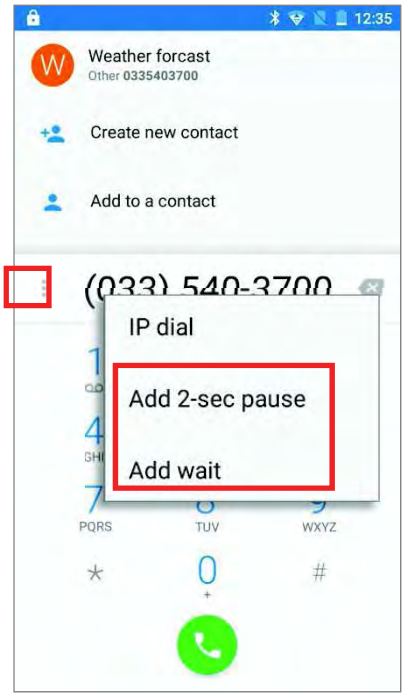
3) Tap the settings button to open the phone settings menu for adding a new contact, opening the People application.

4) Tap to open the dial pad.



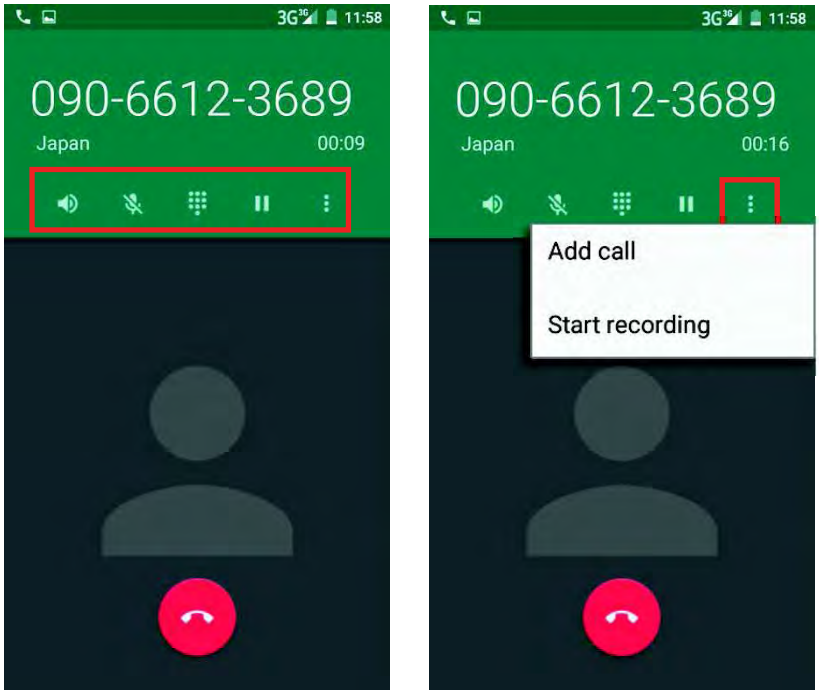
5.2.2. PLACE CALL

Enter the phone number in the dial pad and tap to initiate the call. If you need to frequently make calls to an interactive voice system, you may tap next to the number and select Add 2-sec pause for soft pause (a pause of 2 seconds to the buttons) or a hard pause (a pause that will wait for your confirmation to send the following digits).



5.2.3. DURING A CALL

When a call is connected, the phone keypad features the following buttons:

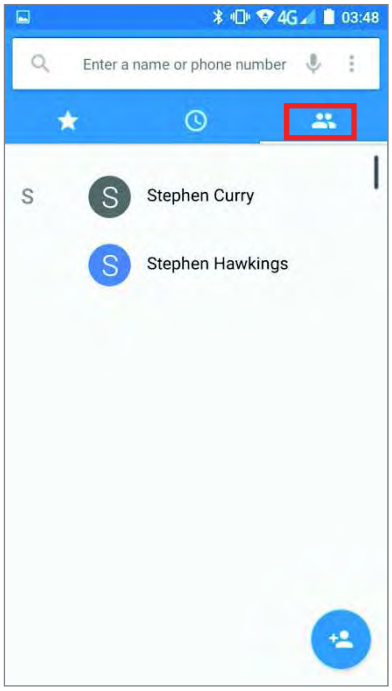


Button	Description
	Opens the dial pad.
	Turns on the speaker.
	Mutes the call.
	Places the call on hold.
	Add call: Adds another person to the call. **Start/Stop recording**: Record this conversation to your device's **internal storage/PhoneRecord** as *.3gp file.

PLACE CALL USING CONTACTS

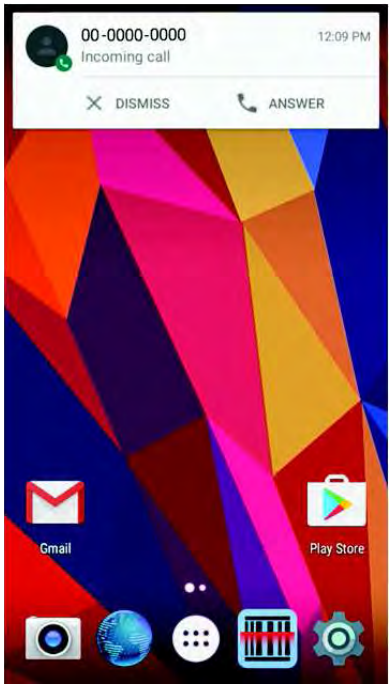
To make a call using contacts:

1) In the phone application page, tap .
2) Tap a contact to initiate a call.



5.2.4. RECEIVE INCOMING CALL

When a call is incoming on the handy terminal, tap ANSWER to pick it up.

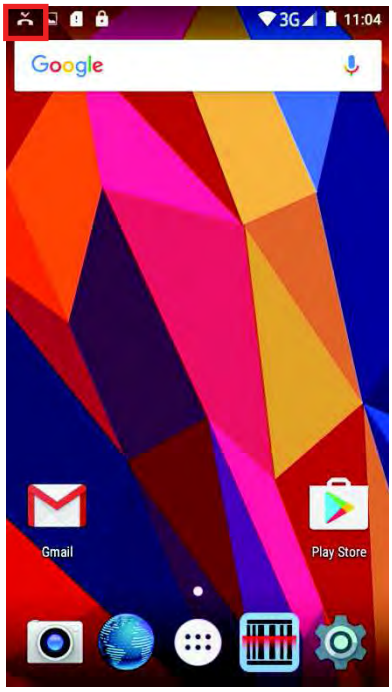


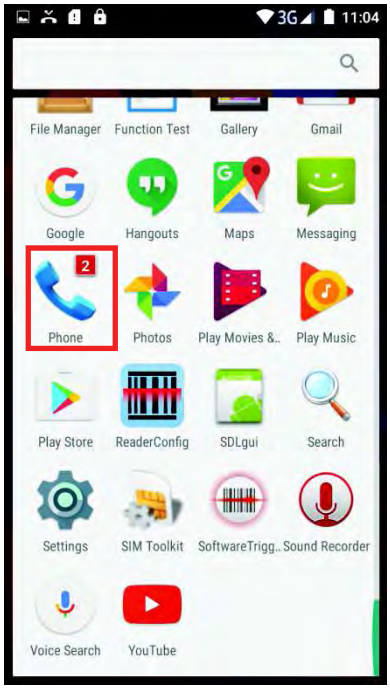
Incoming calls will be logged in the **Phone** application; in the case of a missed call, a notification will be displayed. See Check Missed Calls.

To mute the ringtone of an incoming call, press the volume down button.

5.2.5. CHECK MISSED CALLS

If you have a missed call, a notification icon will appear on the status bar; the LED on the top of the screen will also blink red for notification. The number of missed calls will also be displayed next to **Phone** icon.

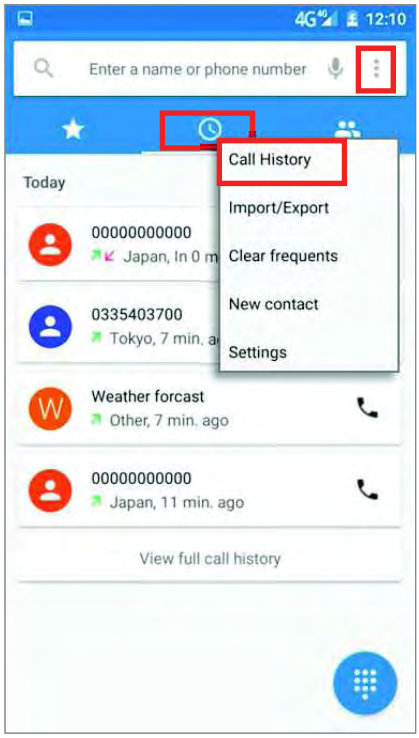


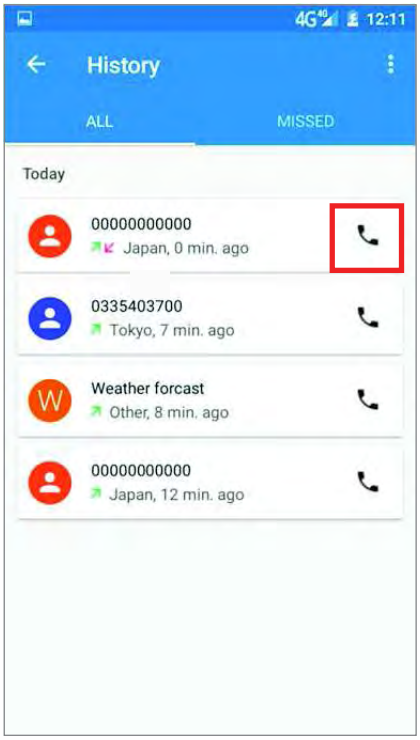


Unlock the screen and use the Open Notifications Panel to manage the missed call.

5.2.6. CALL HISTORY

1) On the Phone application page, tap the History button to open a list of history calls. Or you can tap settings button and then **Call History**.





Button	Description
↙ ↗	Connected calls.
↙ ↗	Missed calls.

2) Tap the phone icon next to a call record to place back the call.

5.2.7. MAKE MULTI-PARTY CALLS

- To make multi-party conference calls:

1) On the Phone application page, enter the first number to call and tap to initiate the call.

2) After the call has begun, tap and then **Add call** to add another member. The first call will be put on hold.

3) Enter the second number to call and tap to initiate the call.

4) When the second call is connected, the first call will continue to be on hold. Tap the merge call button to add the first call to the conversation. A three-party conference call is initiated.

- To add a fourth member, tap . The three-party call will be put on hold. Enter another number to call and tap to initiate the call. When the call is connected, the three-party call will continue to be on hold. Tap the merge call button to add the three-party call to the conversation. A four-party conference call is then initiated.

- Tap **Manage Conference** to view all members of the call.

- To remove a member, tap next to the member.

- To speak with a member in private, tap the member, and the conference call will be put on hold. Tap to return back to the conference call.

5.2.8. AUDIO MODES

The handy terminal offers three different audio modes for phone calls:

HANDSET MODE

This is the default audio mode which uses the receiver above the touchscreen for audio output during calls.

SPEAKER MODE

This mode uses the built-in speaker for audio output during calls.

HEADSET MODE

Connect a Bluetooth headset or a wired headset to the handy terminal for audio output during calls.

USE BLUETOOTH HEADSET

See Pair Bluetooth Devices to connect the handy terminal to a Bluetooth device. The speaker phone becomes muted when a Bluetooth headset is connected.

USE WIRED HEADSET

Insert a wired headset in the Headset Jack. The speaker phone becomes muted when a wired headset is connected.

5.2.9. IN-CALL VOLUME

Use the Volume Buttons to adjust the ringer volume and system sound level. When in the middle of a call, use the volume buttons to adjust in-call conversation volume.

Chapter 6

USING READER CONFIGURATION UTILITY

The **Reader Configuration** utility allows you to manage the barcode reader integrated on the handy terminal.

IN THIS CHAPTER

6.1 Configure Reader.....133
6.2 Read Printed Barcodes.....150

6.1. CONFIGURE READER

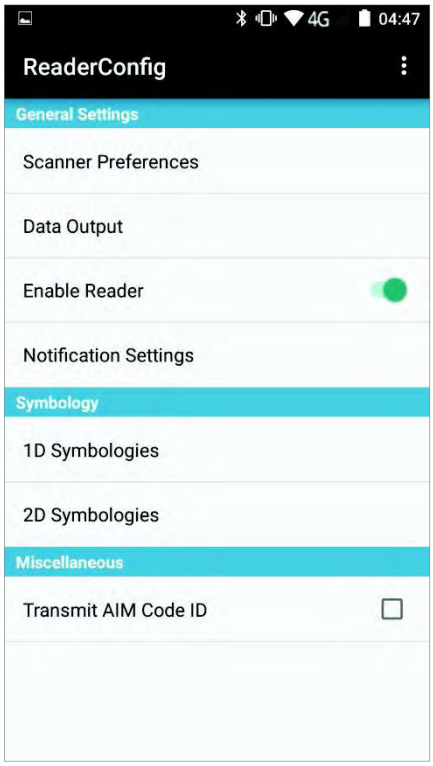
The handy terminal is capable of reading printed barcodes. The reader module can be either a (laser) 1D reader or a 2D imager. The handy terminal is installed with a Reader Config to configure the scan engine built inside. Use it to create a profile of settings that best suits your needs.

LAUNCH READER CONFIG

To launch Reader Config:

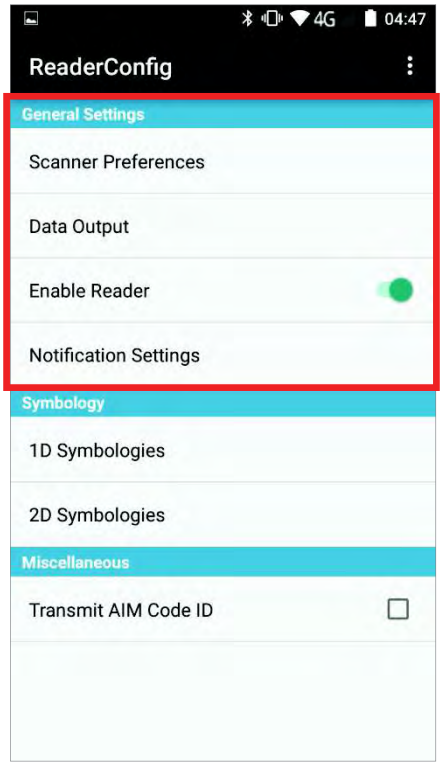
1) Tap **Apps** | **Reader Config** to open the Reader Configuration Utility.

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



6.1.1. GENERAL SETTINGS

General Settings is where all reader settings are accessed from. Tap each item to enter its sub-menu.



The functions under **General Settings** include:

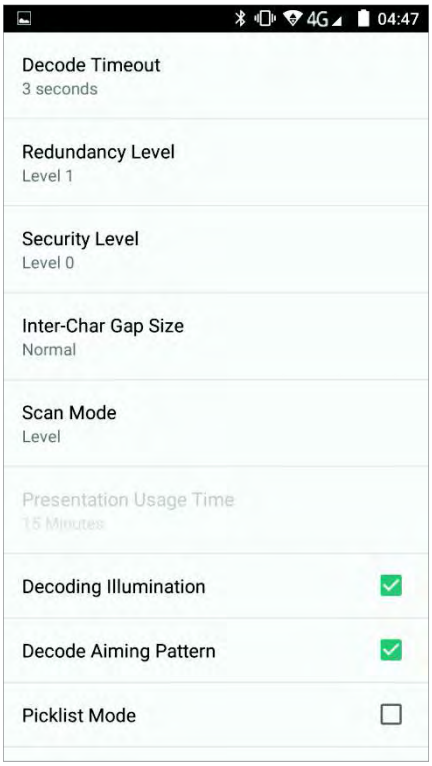
- Scanner Preferences
- Data Output
- Enable Reader (enabled by default)
- Notification Settings

SCANNER PREFERENCES

Options on the **Scanner Preferences** page differ according to the type of scan engine built within the handy terminal.

To open **Scanner Preferences** page:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap **Scanner Preferences**.



2D IMAGER SETTINGS

<table>
<tr><th>Setting</th><th>Description</th><th>Default</th></tr>
<tr><td>Decode Timeout</td><td>Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.</td><td>3 sec.</td></tr>
<tr><td>Redundancy Level</td><td>Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.</td><td>Level 1</td></tr>
<tr><td>Security Level</td><td>Sets the security level to ensure decoding accuracy considering the printed quality of barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are:
<table>
<tr><th>Level</th><th>Description</th></tr>
<tr><td>0</td><td>With this default, the scan engine is aggressive enough to decode most “in-spec” barcodes.</td></tr>
<tr><td>1</td><td>Select this level if misdecodes have occurred. It fixes most misdecodes.</td></tr>
<tr><td>2</td><td>Select this level if Level 1 should fail to eliminate misdecodes.</td></tr>
<tr><td>3</td><td>Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of the decoder, a safer solution would be to improve the quality of the bar codes to read.</td></tr>
</table></td><td>Level 0</td></tr>
<tr><td>Inter-Char Gap Size</td><td>Sets the intercharacter gap size for Code 39 and Codabar. Switch between Normal and Large.</td><td>Normal</td></tr>
<tr><td>Scan Mode</td><td>Sets the reader’s scanning behavior.
Level: The decoding process is activated by a trigger event, and continues until the trigger event ends, a valid decode happens or decode session time-out is reached.
Presentation Mode: The imager engine attempts to decode when an object appears in its field of view. When this device is executing Barcode reader service under this mode, it will stay active and never go into sleep mode.</td><td>Level</td></tr>
<tr><td>Presentation Usage Time</td><td>This option is available when Presentation is selected as the scan mode. This defines the duration of how long Presentation mode stays active, after which the laser light beam will automatically be disabled.</td><td></td></tr>
<tr><td>Decoding Illumination</td><td>Enables an LED light beam to aid barcode reading.</td><td>Selected (Enabled)</td></tr>
<tr><td>Decode Aiming Pattern</td><td>Projects a crosshair at the center of the laser light beam to facilitate barcode reading.</td><td>Selected (Enabled)</td></tr>
<tr><td>Picklist Mode</td><td>When selected, only barcodes aligned at the crosshair of the laser light beam will be decoded.</td><td>Deselected (Disabled)</td></tr>
<tr><td>Display Mode</td><td>Enable improved performance for reading barcodes on electronic displays and mobile phones.</td><td>Deselected (Disabled)</td></tr>
</table>

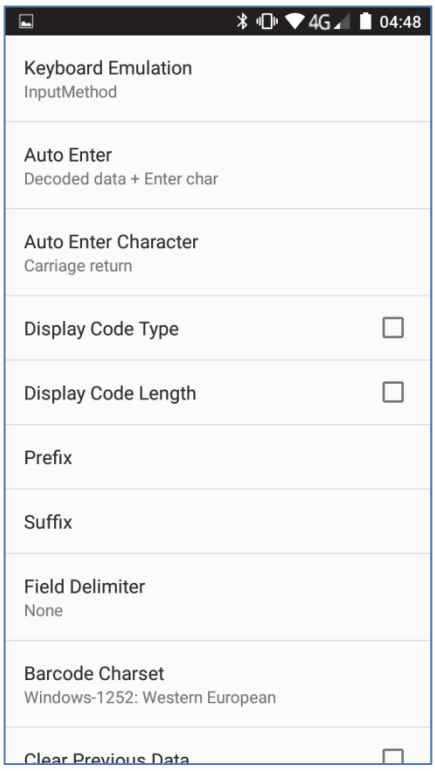
Inverse Type	Decide whether to disable or enable decoding inverse barcodes, or set as auto.	Regular only
Addon Redundancy	Functions when "auto-discriminate" is applied for UPC/EAN addons. Decides the number of times of supplemental decoding of the same barcode in order to count as a valid read. Configurable between 2 and 30.	10

DATA OUTPUT

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

To open **Data Output** settings page:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap **Data Output**.



WHERE TO OUTPUT

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

Setting	Descriptions	Default
Keyboard Emulation	▸ Tap the switch to enable. When enabled, the reader module treats decoded data as typed text and outputs it to the active application on the handy terminal. Options are: ▸ None ▸ InputMethod ▸ KeyEvent	InputMethod

HOW TO OUTPUT

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

Setting	Description	Default
Auto Enter	Adds an ENTER character before or after each string of decoded data. The ENTER character can be defined in the "Auto Enter character" field below. This function saves the trouble of pressing a confirmation key to accept each string of decoded data. Options are: ▸ Disable ▸ Decoded data + Enter char ▸ Enter char + Decoded data	Decoded data + Enter char
Auto Enter character	Adds a key code before or after the decoded data. If [Auto Enter] is enabled, select the ENTER character to send. Options are: ▸ None ▸ Carriage Return ▸ Tab ▸ Space ▸ Comma ▸ Semicolon	Carriage Return
Display Code Type	Prefixes the output data with code type information.	Deselected (Disabled)
Display Code Length	Suffixes the output data with code length information.	Deselected (Disabled)
Prefix	Affixes 0 to 10 characters to the left of the output data. Tap the label to open a character table for entering the prefix. ▸ Prefixes containing invisible characters are supported.	--
Suffix	Affixes 0 to 10 characters to the right of the output data. Tap the label to open a character table for entering the suffix. ▸ Suffixes containing invisible characters are supported.	--
Field Delimiter	Sets the delimiter to separate the output barcode data to the following pieces: code type, decoded barcode data, and code length (if applicable). Options are: ▸ None ▸ Comma ▸ Semicolon ▸ Full stop	None

ENABLE READER

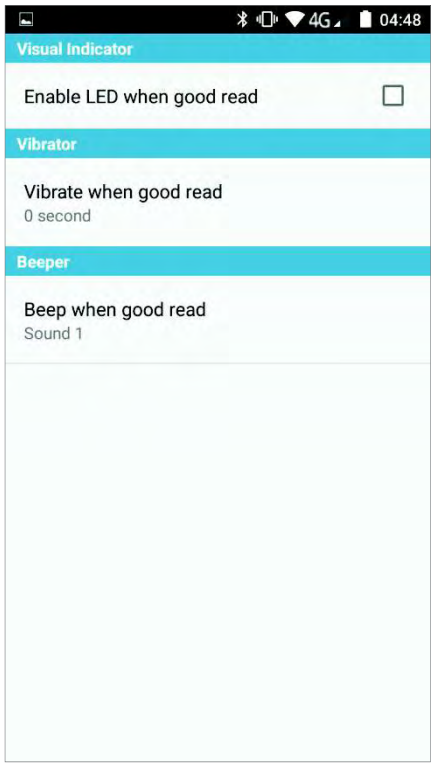
Features a switch to enable or disable reader scanning ability. When enabled, a light beam will be sent out from the scanning window each time the trigger (scan key) is pressed.

NOTIFICATION SETTINGS

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

To open **Notification Settings** page:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap **Notification Settings**.

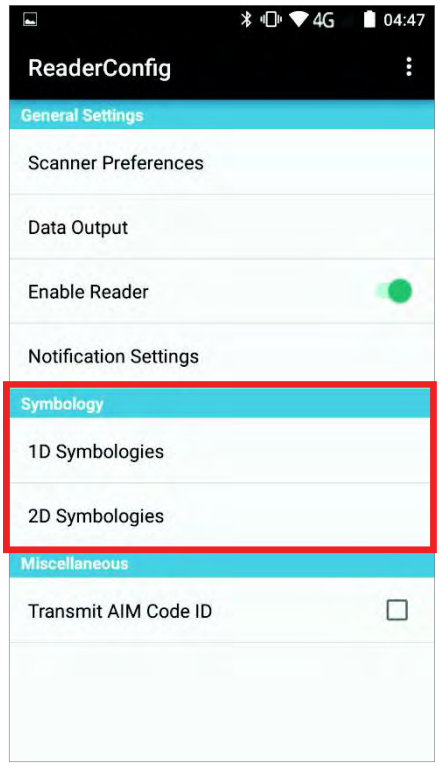


Setting		Description	Default
LED	Enable LED when good read	Selects to enable/disable LED light (left) for scanning good read. See Status LED for details.	Deselected (Disabled)
Vibrator	Vibrate when good read	Enables/disables tactile feedback (vibration) for good read and sets the duration to vibrate.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

6.1.2. SYMBOLOGY

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

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

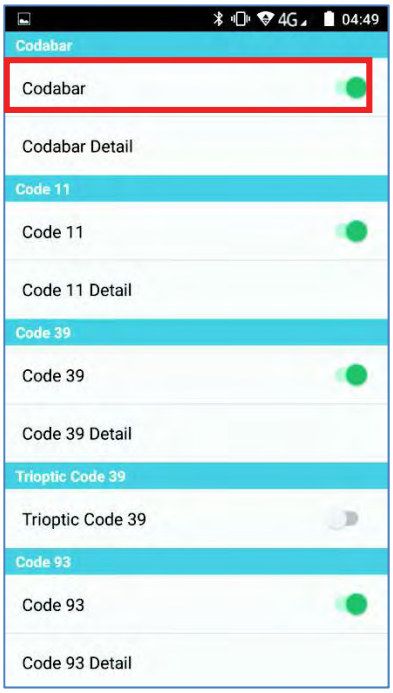


To open **Symbology** settings page:

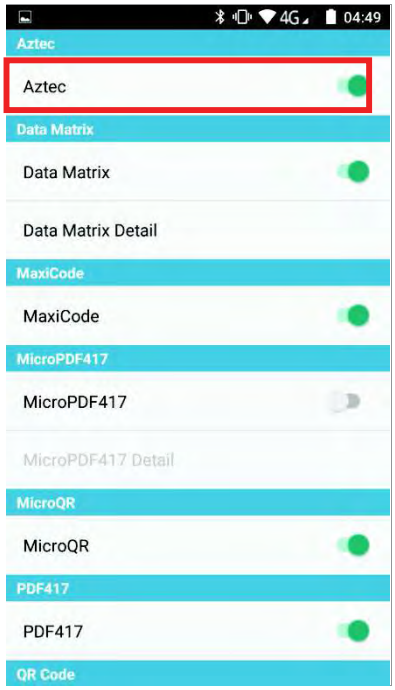
1) Open **Reader Config** as described in Launch Reader Config.

2) Tap **1D Symbologies** or **2D Symbologies** (in case of a 2D imager) to list all symbologies which can be decoded.

1D Symbologies



2D Symbologies

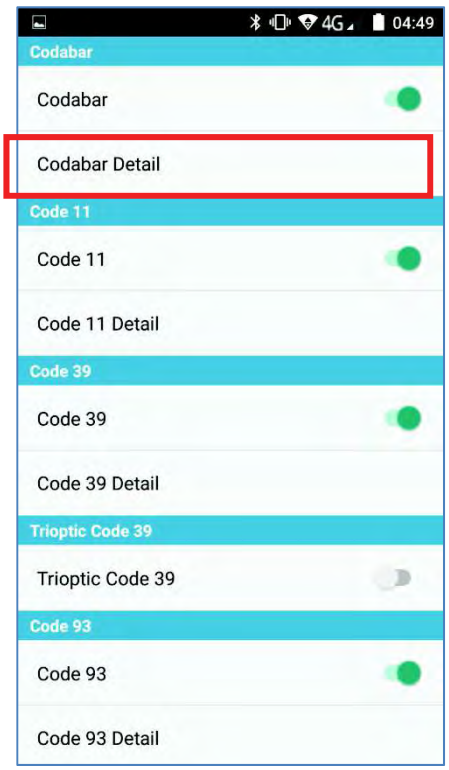


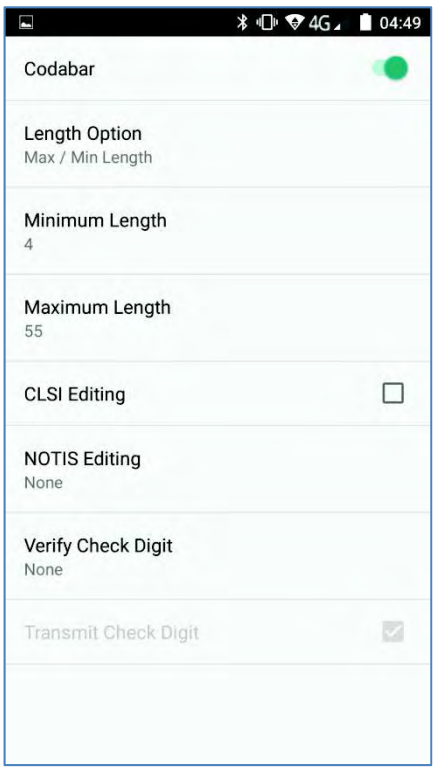
ENABLE/DISABLE SYMBOLOGY

Tap the label of each symbology to enable or disable it.

SYMBOLOGY SETTINGS

Tap the **Detail** label below each symbology to access detailed settings for the specific symbology.



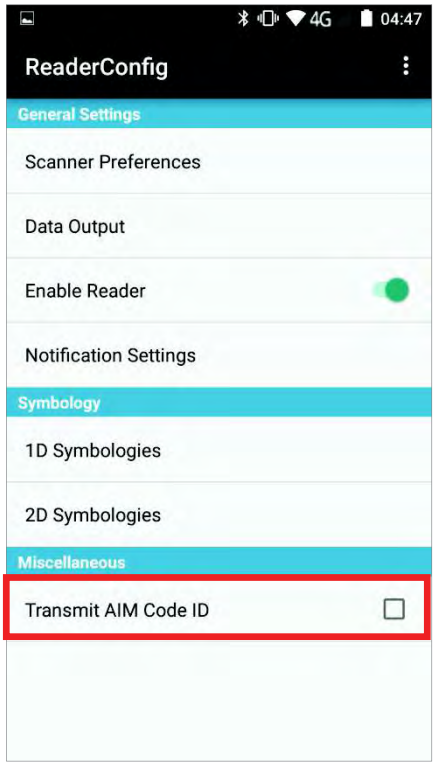


For details about the featured settings:

- See 2D Imager 錯誤! 找不到參照來源。.

6.1.3. MISCELLANEOUS

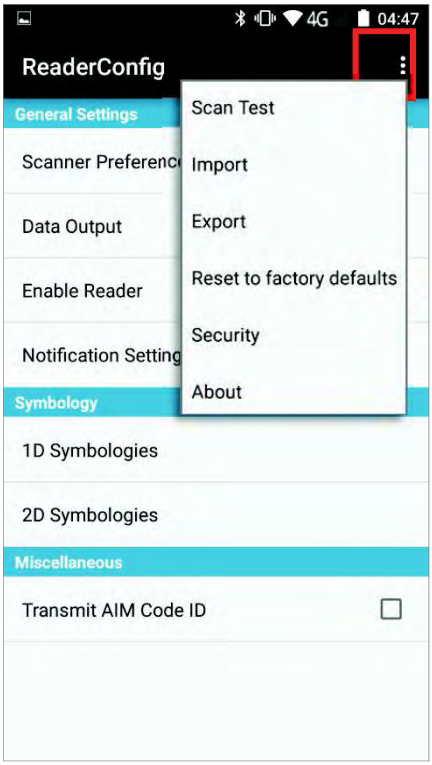
This section allows enabling code ID transmission for easy identification of the scanned barcode.



Setting	Description	Default
Transmit AIM Code ID	Sets whether to include AIM code ID character in the decoded data. For AIM code ID, see the following: ▸ 2D Imager 錯誤! 找不到參照來源。.	Deselected (Disabled)

6.1.4. READER CONFIG OPTION MENU

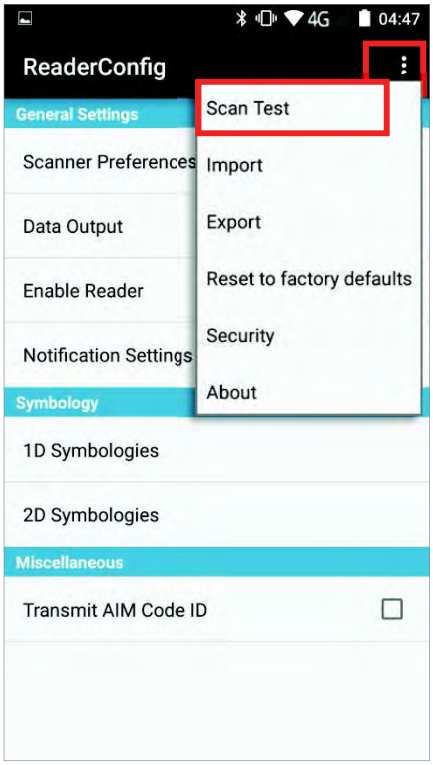
Reader Config provides an option menu which is accessible on the menu bar of the main settings page. This menu allows you to test scan barcodes, import/export all settings in a re-usable format, reset all settings back to factory default, and view copyright and version information.

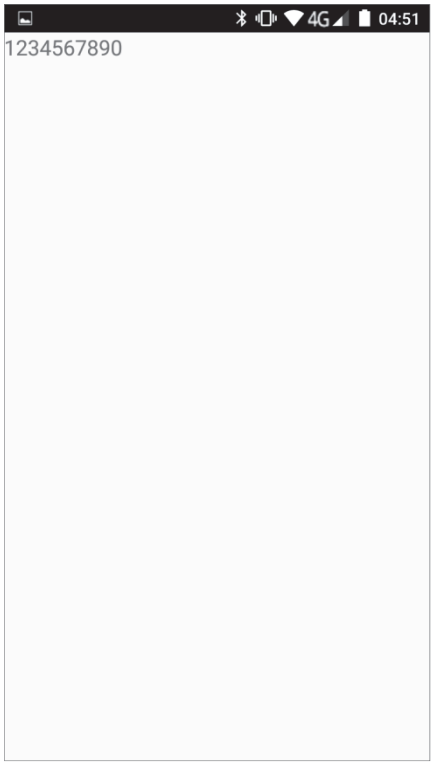


SCAN TEST

To test scan a barcode:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap the settings button ⋮ on the menu bar to open the option menu.
3) Tap **Scan Test** in the option menu. A page opens for test scanning.





IMPORT AND EXPORT

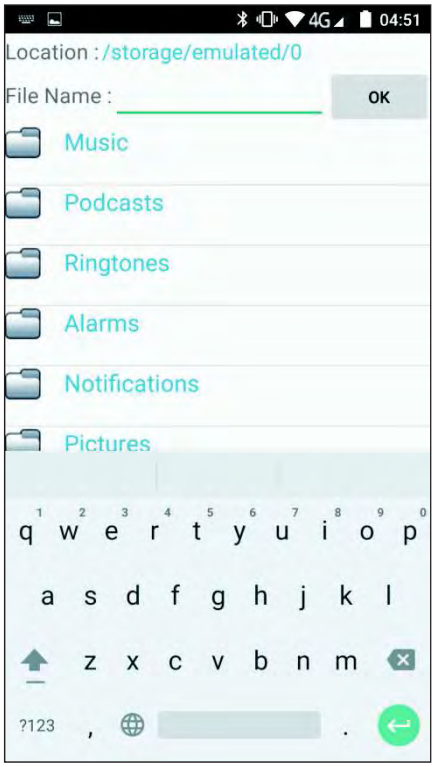
Reader Config supports saving the settings and exporting them as an .xml file.

Previously exported symbology and scanner settings can be imported again on the handy terminal. This can also be used to implement identical Reader Config settings on multiple devices.

To import settings:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap the settings button on the menu bar to open the option menu.
3) Tap **Import** in the option menu.

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

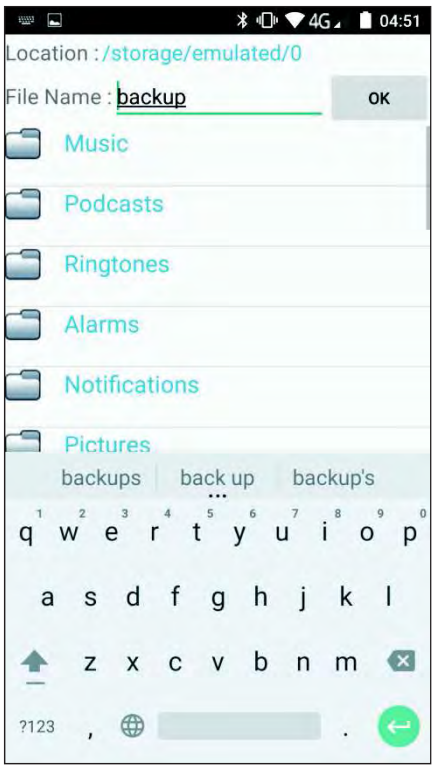


4) Tap **OK**. In a few seconds a prompt will appear on the handy terminal to indicate settings have been imported successfully.

To export settings:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap the settings button on the menu bar to open the option menu.
3) Tap **Export**.

An export page opens allowing you to enter the name and location of the profile to save.



4) Tap **OK** to export. A prompt will appear on-screen to notify that settings have been exported.

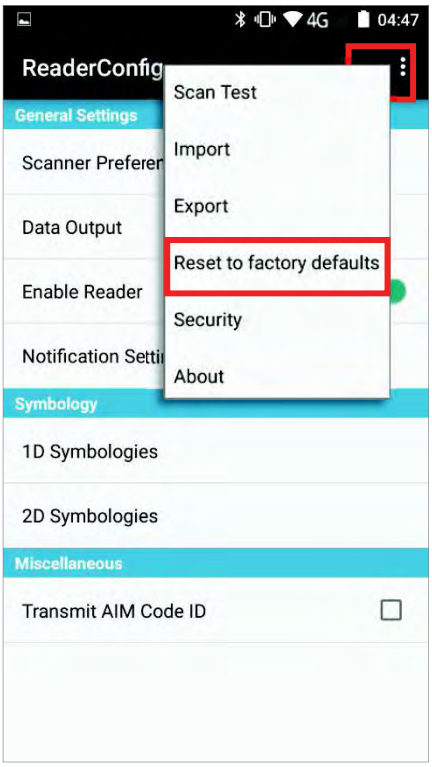
RESET TO FACTORY DEFAULTS

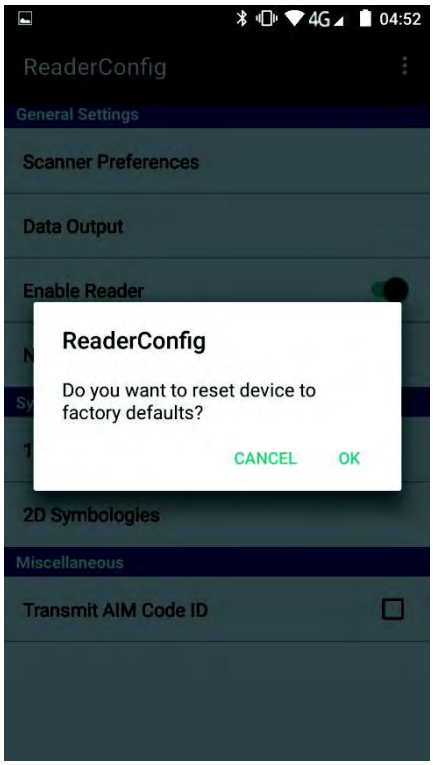
This function restores all settings in the **Reader Config** application to default.

To enable Factory Reset:

1) Open **Reader Config** as described in Launch Reader Config.
2) Tap the settings button on the menu bar to open the option menu.
3) Tap Reset to Factory defaults.

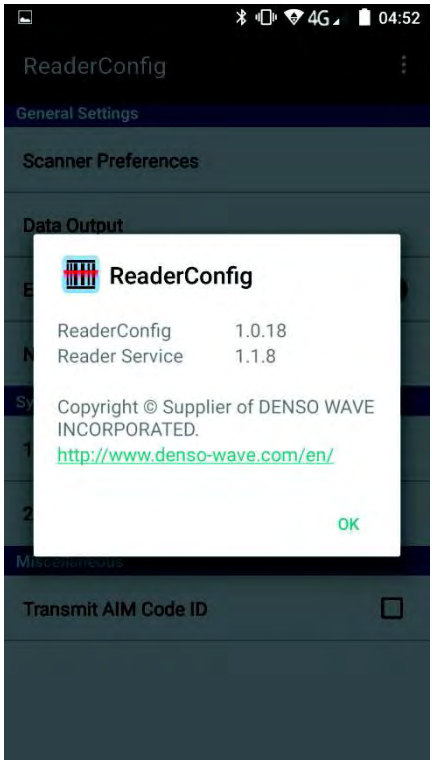
A warning dialog appears confirming whether to restore all application settings back to default. Tap **OK** to reset or **Cancel** to close the dialog.





ABOUT

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



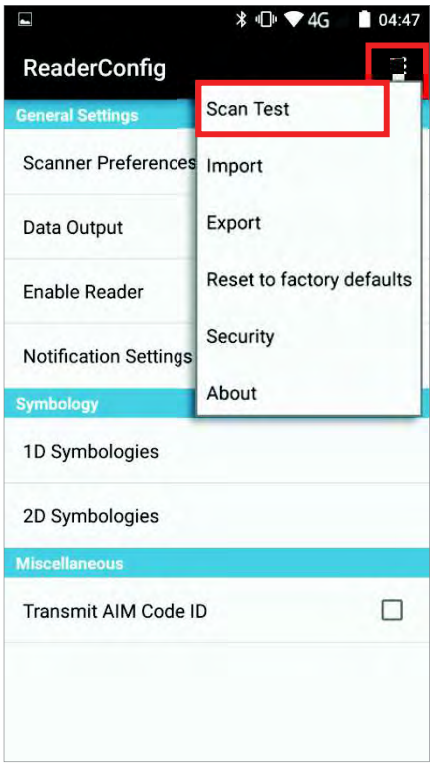
6.2. READ PRINTED BARCODES

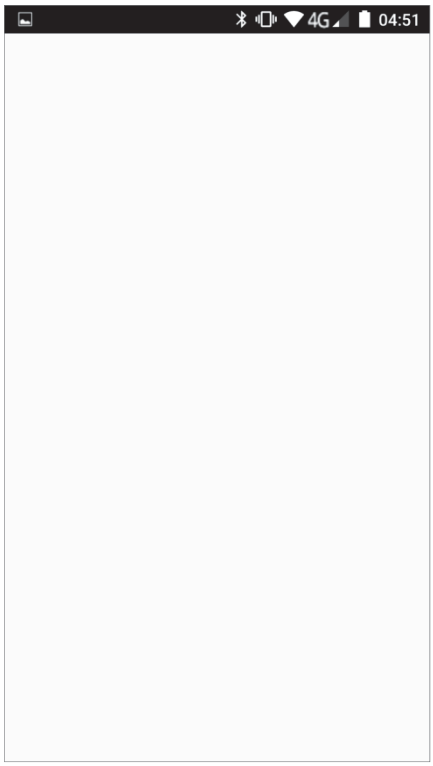
Aside from output to destinations as per Keyboard Emulation settings, Reader Config provides a **Scan Test** feature for quick viewing of decoded data.

To perform test scanning of barcodes:

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

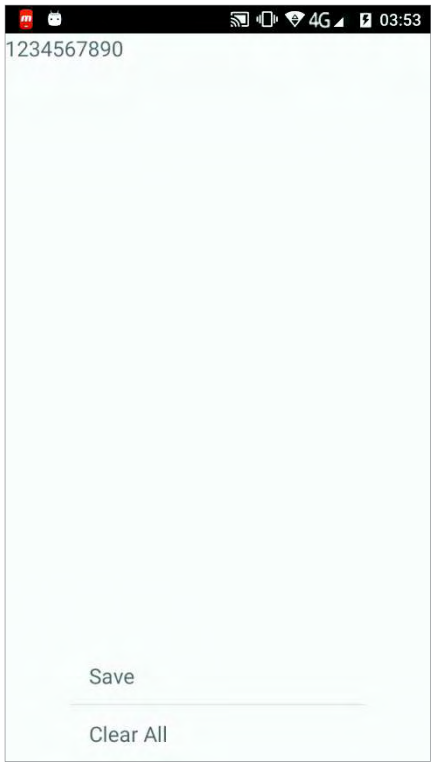
A Test Scan Form opens for displaying the scanned data.





3) Aim the scanning window at the barcode to read and press any of the two side triggers. The scanning light beams to read the printed barcodes. The scanning light goes off once the data is decoded, or when the decode timeout period has passed.

The decoded data will appear on the page. When finished viewing, tap to leave the test scan page; or to save the decoded data as a .txt file or clear all data on the screen.



SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

OS Version	Android™ 6.0 Marshmallow with GMS Certified
CPU	Cortex A53 Quad-core1.3GHz
Memory	
ROM	16GB eMMC(MLC) / User data 10GB
RAM	2GB LPDDR3 SDRAM
Expansion Slot	One microSDHC card slot (up to 32GB) SDXC supported Micro SIM socket x2 Micro SAM socketx1

COMMUNICATION & DATA CAPTURE

Communication

USB Client	USB 2.0 OTG
WPAN	Bluetooth Class II, v4.1 and v2.1+EDR
WLAN	IEEE 802.11 a/b/g/n networking
WWAN	Built-in WWAN modem for Quadband GSM, UMTS, LTE functions: GSM/GPRS/EDGE/WCDMA/UMTS/HSDPA/HSUPA/HSPA+/LTE Frequency band GSM/GPRS/EDGE: WCDMA/UMTS/HSDPA/HSUPA:B1(2100),B2(1900),B6(800),B8(900) LTE bands FDD:B1(2100),B3(1800),B7(2600),B8(900),B19(800),B20(800)
GPS	Built-in GPS with AGPS support, ephemeris downloadable, supports GLONASS.

Data & Image Capture

Digital Camera	Rear: 8 Mega pixels with user-controllable flash Front: 2 Mega pixels (Front camera is optional)
Barcode Reader	2D Imager
HF RFID Reader	ISO14443A/B (Mifare), ISO15693 (Felica) Supports NFC (Peer-to-peer, Card reader, Card emulation)

ELECTRICAL CHARACTERISTICS

Batteries

Main Battery Pack	Rechargeable Li-ion battery: 3.85V, 2960 mAh Cell 3.85V, 3000mAh Charging temperature: 0-35℃ Minimum charging time: 4 hours @25℃ Please Charge batteries in temperatures from 0 °C to 35 °C. To ensure that the battery is being charged under a safe condition, the battery may disable charging when ambient temperature drops below 0°C or exceeds 40°C, and resume charging after its temperature falls within the acceptable range.
Backup Battery	Rechargeable Li-ion battery: 3.7V, 60 mAh Data retention for 30 minutes Charging time: 4 hours

Power Adaptor

Power Supply Cord with Universal Power Adaptor	Input	AC 100~240 V, 50/60 Hz
	Output	DC 5V, 2A BSMI, CCC, FCC, CE, RCM, PSE, PSB

Working Time

Supports working time for up to 12 hours at 25 degrees

PHYSICAL CHARACTERISTICS

Color Touch Screen Display

Display	4.7” Transmissive IPS LCD, Dragontrail Glass
Resolution	HD (720x 1280 pixels)

Notifications

Status LED	Single LED which lights red when charging, green when charging is complete, and blue when wireless radio is on
Audio	Integrated with one speaker, dual array digital microphones with echo and noise cancellation, HD voice support

Dimensions & Weight

Dimensions	159 mm (L) x 80mm (W) x 17.3mm (H)
Weight	Under 260 g (2D Reader, including battery)

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating	-20 °C to 50 °C
Storage	-30 °C to 70 °C
Charging	0°C to 35°C

Humidity

Operating	10% to 90% (non-condensing)
Storage	5% to 95% (non-condensing)

Resistance

Impact Resistance	Multiple drops onto concrete at 1.2 m (4 ft.) on all six sides
Tumble Test	150 tumbles (300 drops) at 0.5 m per applicable IEC tumble specifications
Splash/Dust Resistance	IP67 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 2015 Visual Studio 2008 Visual Studio 2005
Software Development Kit	Android™ 6.0 Marshmallow SDK Reader API (JAR) for reader configuration SAM API (JAR) for SAM controller

Software & Utilities

Software Package	Reader Configuration Software Trigger Key Button Assignment MDS Server MDS Client App Lock Xamarin Binding Zetakey Browser
Third-party Software	Kalipso SoTi Mobicontrol Installer