CipherLab
Reference Manual

9700A Mobile Computer

Android™ 6.0, Marshmallow

Version 1.00

CIPHERLAB

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

IMPORTANT NOTICES

FOR HAND-HELD PRODUCT WITH RF FUNCTIONS

This equipment complies with FCC radiation exposure limits set forth for an uncontrolled environment. This equipment should be installed and operated with minimum distance 20 cm between the radiator and your body.

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.

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.

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.

FOR UNITED STATES

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

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

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

FOR PRODUCT WITH LASER

 CAUTION

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

SAFETY PRECAUTIONS

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

The use of any batteries or charging devices which are not originally sold or manufactured by CipherLab will void your warranty and may cause damage to human body or the product itself.

DO NOT disassemble, incinerate or short circuit the battery.

DO NOT expose the scanner or the battery to any flammable sources.

For green-environment issue, it's important that batteries should be recycled in a proper way.

Under no circumstances, internal components are self-serviceable.

The charging and communication cradle uses an AC power adapter. A socket outlet shall be installed near the equipment and shall be easily accessible. Make sure there is stable power supply for the mobile computer or its peripherals to operate properly.

CARE & MAINTENANCE

This mobile computer is intended for industrial use. The mobile computer is rated IP65, however, the mobile computer can get damaged when being exposed to extreme temperatures or soaked wet.

When the enclosure of the mobile computer gets dirty, use a clean and wet cloth to wipe off the dust. DO NOT use/mix any bleach or cleaner. Always keep the LCD dry.

For a liquid crystal display (LCD) or touch screen, use a clean, non-abrasive, lint-free cloth to wipe dust off the screen. DO NOT contact the surface with any pointed or sharp object.

If you want to put away the mobile computer for a period of time, download the collected data to a host computer, and then take out the battery pack. Store the mobile computer and battery pack separately.

When the mobile computer resumes its work, it takes some time for the main and backup batteries to become fully charged.

If you shall find the mobile computer malfunctioning, write down the specific scenario and consult the sales representative in your local area.

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

CIPHER LAB

Declaration of Conformity

CE

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Type of Equipment

Mobile Computer

Model(s) Declared

9700; 9700A

Initial Year of Manufacture   **2017**

Reference to the specification under which conformity is declared in accordance with Council Directive- 2014/30/EU(EMC) , 2014/35/EU(LVD), 2011/65/EU (RoHS), 1999/519/EC (EMF) ,1999/5/EC (R&TTE)

EN 300 328 V1.9.1	EN 301 489-1 V1.9.2
EN 300 440-2 V1.4.1	EN 301 489-17 V2.2.1
EN 61000-3-3 :2013	EN 55024 :2010
EN 62479:2010	EN 61000-3-2 :2014 classA
EN 301 893 V1.8.1	EN 55022: 2010+AC:2011
EN 62311:2008	EN 60950-1：A2:2013

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

Manufacturer Signature

Vicky Chiang

Full Name : Vicky Chiang

Title : Senior Engineer

Date: 2017.01.14

RELEASE NOTES

Version	Date		Notes
1.00	Apr. 07, 2017	▶	First Release

CONTENTS

INTRODUCTION

Thank you for choosing CipherLab products. CipherLab welcomes another Android product by introducing 9700A Mobile Computer. Powered by Android 6.0 Marshmallow, the mobile computer delivers better user experience and advances enterprise mobile computing.

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

The series sports satisfactory data connections by integrating a communication port for direct data exchange. For wireless data connection, it hosts a Bluetooth and 802.11a/b/g/n/ac module.

Dedicated to data capture, the mobile computer has essential 1D (laser) reader or 2D imager. Rated with IP65, the rugged 9700A is light-weighted and easy to cradle in your hand, and will be your good help on field works.

ABOUT THIS DOCUMENT

This guide distills the information about 9700A mobile computer. Subjects discussed include the mobile computer's physical features, platform basics, software and applications, and part of the accessories to boost the mobile computer's performance.

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

RELATED DOCUMENTATION

Log in to GoBetween to access related documentation about the 9700A mobile computer from the CipherLab Central Service (CCS) platform. Download the GoBetween desktop or mobile device application, or launch the GoBetween Lite web application from the following site: http://ccs.cipherlab.com/.

FEATURES

- Rugged yet smoothened outlined, with hand strap for secure hold
- IP65-rated tough form to survive drop, shock, heat, cold, and impervious to moisture/dust
- Android 6.0 Marshmallow OS, MT6755 A53 Octa-core 2GHz CPU
- 2GB LPDDR3 RAM to run application programs
- 16GB NAND flash to store OS, applications, settings and so on
- Storage expansion: Up to 128 GB MicroSDHC
- Sunlight-readable screen to enhance the viewability of outdoor use
- Ambient light sensor to enable supplementary backlight for LCD and keypad
- G-sensor for power management and screen orientation
- 2 symmetric side-triggers for ambidextrous scanning
- Total data solution — supports Bluetooth, 802.11a/b/g/n/ac

INSIDE THIS PACKAGE

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

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

ACCESSORIES

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

- Snap-on Charging and Communication Cable (USB or RS-232)
- Charging & Communication Cradle
- Pistol Grip
- Snap-On Car Charger
- 4-Slot Charging Cradle
- 4-Slot Battery Charger
- Vehicle Cradle
- Belt Holster

Chapter 1

USE MOBILE COMPUTER

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

1. IN THIS CHAPTER

1.1 TAKE A TOUR

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

1.1.1   OVERVIEW
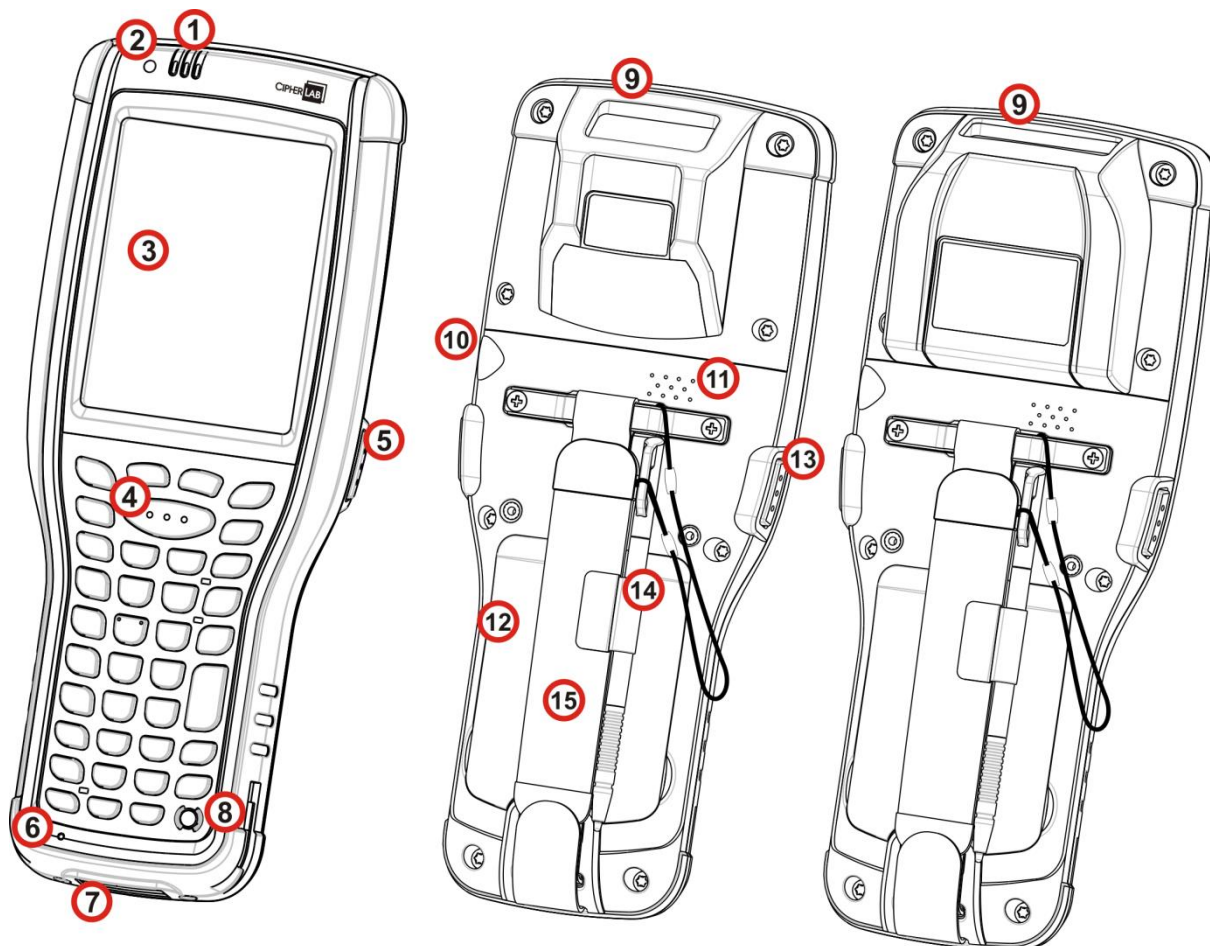
No.	Description	No.	Description
1	Status LED (refer to Notifications)	2	Light sensor
3	Touch screen	4	Scan key
5	Side-trigger (user definable)	6	Microphone
7	Direct charging & communication port	8	Power key
9	Scan window	10	Headset jack
11	Speaker	12	Battery
13	Side-trigger (user definable)	14	Stylus (with attaching cord)
15	Handstrap		

1.2 POWER ON/OFF MOBILE COMPUTER

POWER ON

To power on the mobile computer, press and hold the power button ⏻ located on the upper right side of the device. The mobile computer will turn on and show the Home screen after splash screen.

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

POWER OFF

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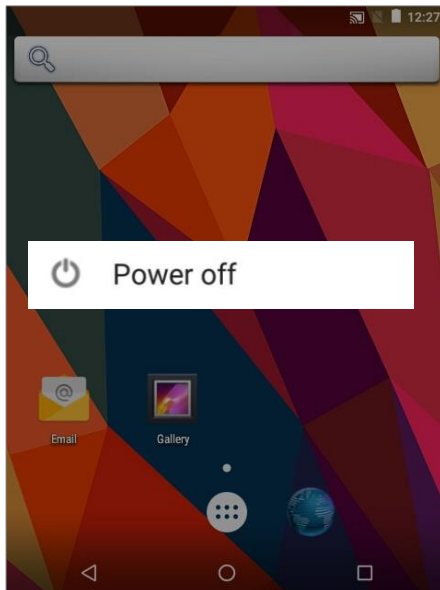
1.2.1 HOMESCREEN SELECTION

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.
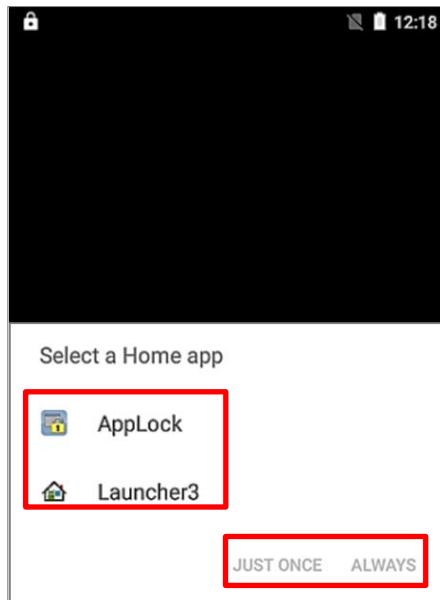
1.3 NOTIFICATIONS

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

STATUS LED

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

Matter	LED Color	Action	Description
Battery Charging (Left)	Green, Orange, Red	Green, solid	Battery is fully charged.
		Orange, solid	Battery is being charged, and the battery level is sufficient to power on the mobile computer.
		Red, solid	Battery is being charged, however the battery level is insufficient to power on the mobile computer.
		Red, blinking fast	Battery charging error has occurred, for instance, charging temperature is below 0°C or above 35°C, or adapter is plugged in but no battery is present.
Radios (Middle)	Blue	Blue, blinking	Wi-Fi or Bluetooth in use.
Scanning Good Read (Right)	Green	Green, flashes once	Indicates good reading of the scanned barcode. Enable/Disable this LED light on the Reader Config Notification Settings page. To set the good read LED via API deployment, see the 9700A Programming Guide for details.

SPEAKER

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

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

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

VIBRATOR

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

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

Same as the speaker and LED light, the vibrator also works for good barcode reading. Enable/disable vibration and set its duration on the Reader Config Notification Settings page. Alternatively, program the vibrator through API deployment to have it vibrate when a successful reading occurs. See the 9700A Programming Guide for details.

1.4 BATTERY

The 9700A mobile computer is fed by two batteries, main battery pack and backup battery. The main battery is removable and replaceable from the battery chamber while the backup battery is mounted on the main board inside the mobile computer.

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

MAIN BATTERY

The main battery is a Li-ion battery pack which comes in two different capacities, a 3.7V, 3600mAh battery which takes approximately 4 hours to charge to full, and a 3.7V, 5400mAh battery which takes around 6 hours to charge to full. The working time of the mobile computer varies by its working states. A battery icon seated on the taskbar will show the remaining main battery level.

See also Install/Remove Main Battery for installing the main battery.

BACKUP BATTERY

The backup battery is settled on the main board inside the mobile computer. It is a 3.7V, 200mAh rechargeable Li-Polymer battery. When the main battery is absent or depleted, the backup battery takes over to feed the mobile computer. Without the main battery, a fully charged backup battery retains the data in the DRAM and holds the system in suspension for 30 minutes (as long as the wireless modules are inactive).

The backup battery is rechargeable by the main battery pack. It takes 8 hours to charge it to full.

Note:

(1)   On initial use of the mobile computer, it is recommended that a fully charged main battery is placed in the main battery compartment for at least three days, in order to allow the backup battery to charge to a full state.

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

1.4.1   INSTALL/REMOVE MAIN BATTERY

Follow the steps below to install the main battery:

1) The handstrap is installed over the battery chamber. You do not need to remove the handstrap to install the battery; simply lift up the handstrap to allow enough space to insert the battery.

Place the main battery pack into the battery chamber with the contact pins facing down. Fix the upper end first, and press the lower end down until the battery "clicks" into place.
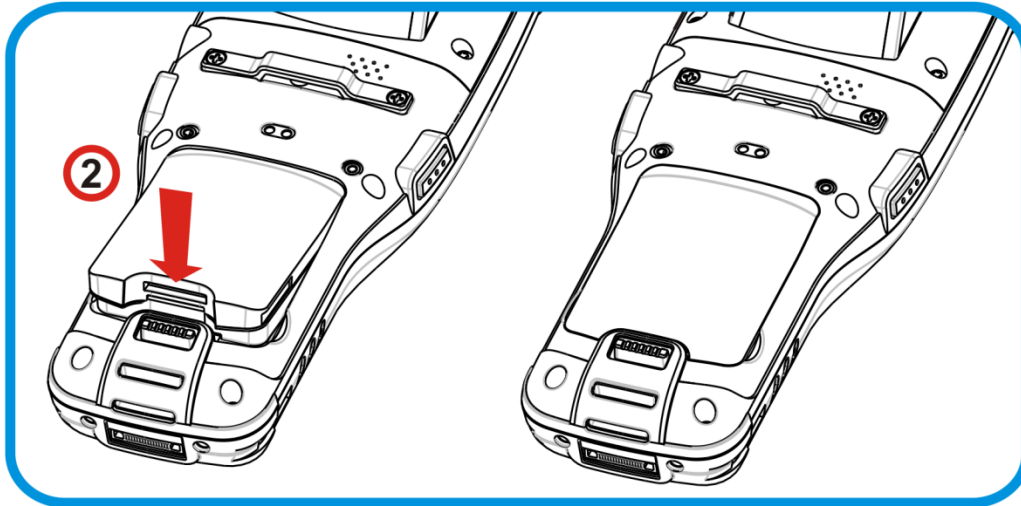
Follow the steps below to remove the main battery:

1) A battery latch is located at the lower end of the main battery. Push the latch down and the battery will be released.
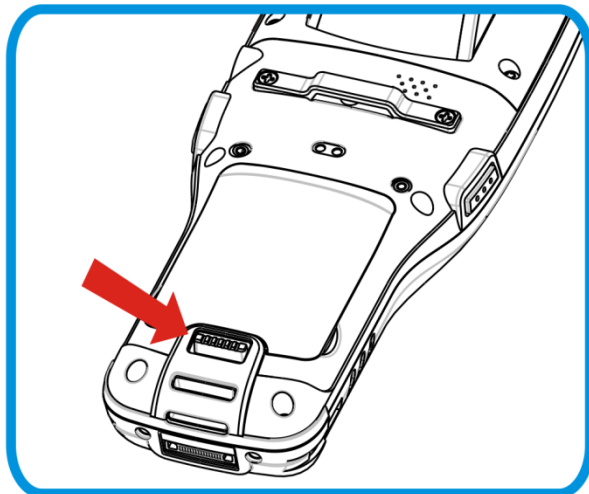
Note: (1) When main battery level drops to low level, charge it ASAP or replace it with a charged battery.
(2) Always turn off the mobile computer to replace the main battery pack.
(3) Any improper handling may reduce battery life.

1.4.2 CHARGE BATTERIES

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

Some key facts about charging batteries:

Charging Time

Main battery: It takes approximately 4 hours to charge the 3.7V, 3600mAh main battery, and approximately 6 hours to charge the 3.7V, 5400mAh main battery. The battery charging LED above the touch screen lights red or orange during charging (depending on the battery level at the moment), and lights green when the mobile computer is completely charged. See Status LED for details about the LED indicator.

Backup battery: The backup battery is a 3.7V, 200mAh Li-Polymer battery which is rechargeable by the main battery. It takes around 8 hours to charge it to full, however it does not need to be fully charged for the mobile computer to work.

Charging Temperature

It is recommended that batteries be charged at room temperature (18°C~25°C) for optimal performance.

Charging stops when temperature drops below 0°C or exceeds 35°C. In this case the battery charging LED will be continuously blinking in red.

Power Consumption

When all radios (802.11 a/b/g/n/ac, Bluetooth) are active on battery power, main battery level will drop substantially.

In order to prevent the system from shutting down due to depletion of the main battery, we suggest that you keep a fully charged battery for replacement or have the mobile computer access the radios on external power.

The following guides how to charge batteries:

DIRECT CHARGING USING SNAP-ON CABLE

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

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

1) Attach the Snap-On cable to the mobile computer.

Plug the head of the power adapter cord into the power jack located on the Snap-On cable's connector.

Connect the power adapter to a power outlet.

To output data to your PC or laptop, connect the Snap-On cable (either through USB or RS-232 connection) to it. For more details, please see Direct Data Communication

To transmit data, connect the other end of the Snap-on Cable to your PC

DIRECT CHARGING USING CRADLE

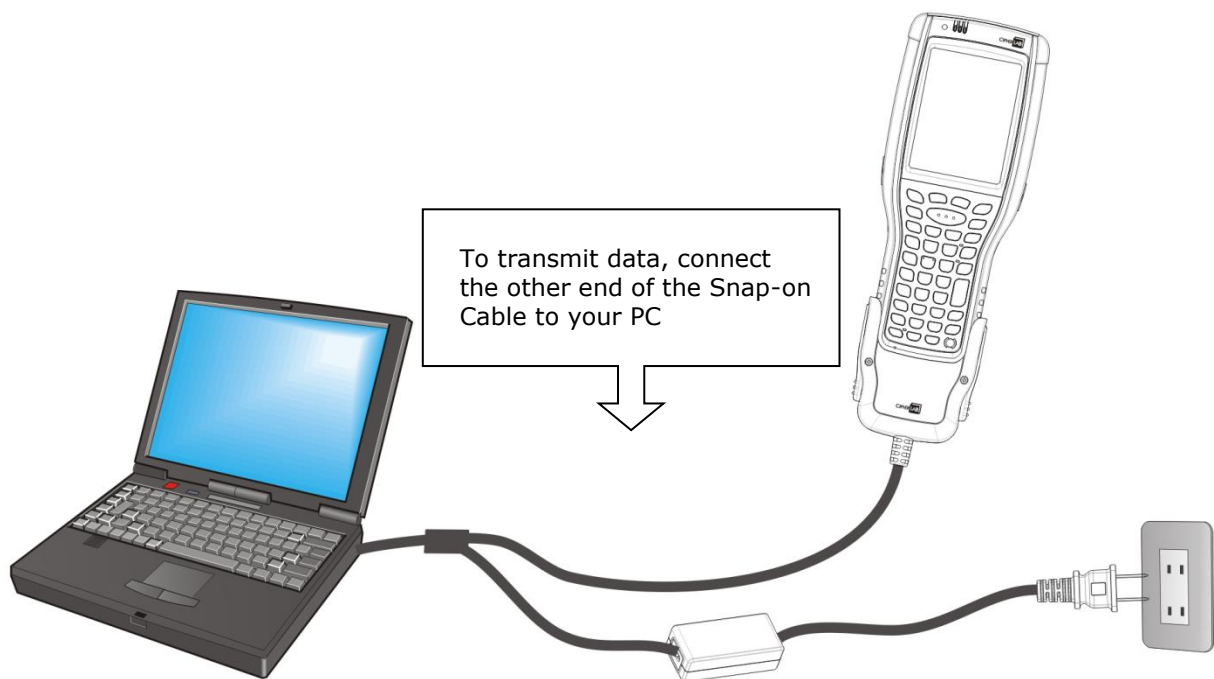Direct cradle charging makes use of a Charging & Communication Cradle (hereinafter "cradle"). The cradle is one of the accessories you can opt for.

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

1) Seat the mobile computer onto the cradle.

Connect the cradle to an external power source using the power adapter.

To output data to your PC or laptop, connect the mobile computer and your PC with a microUSB cable. For more details, please see Direct Data Communication

To transmit data, use the microUSB cable to connect the Cradle to your PC
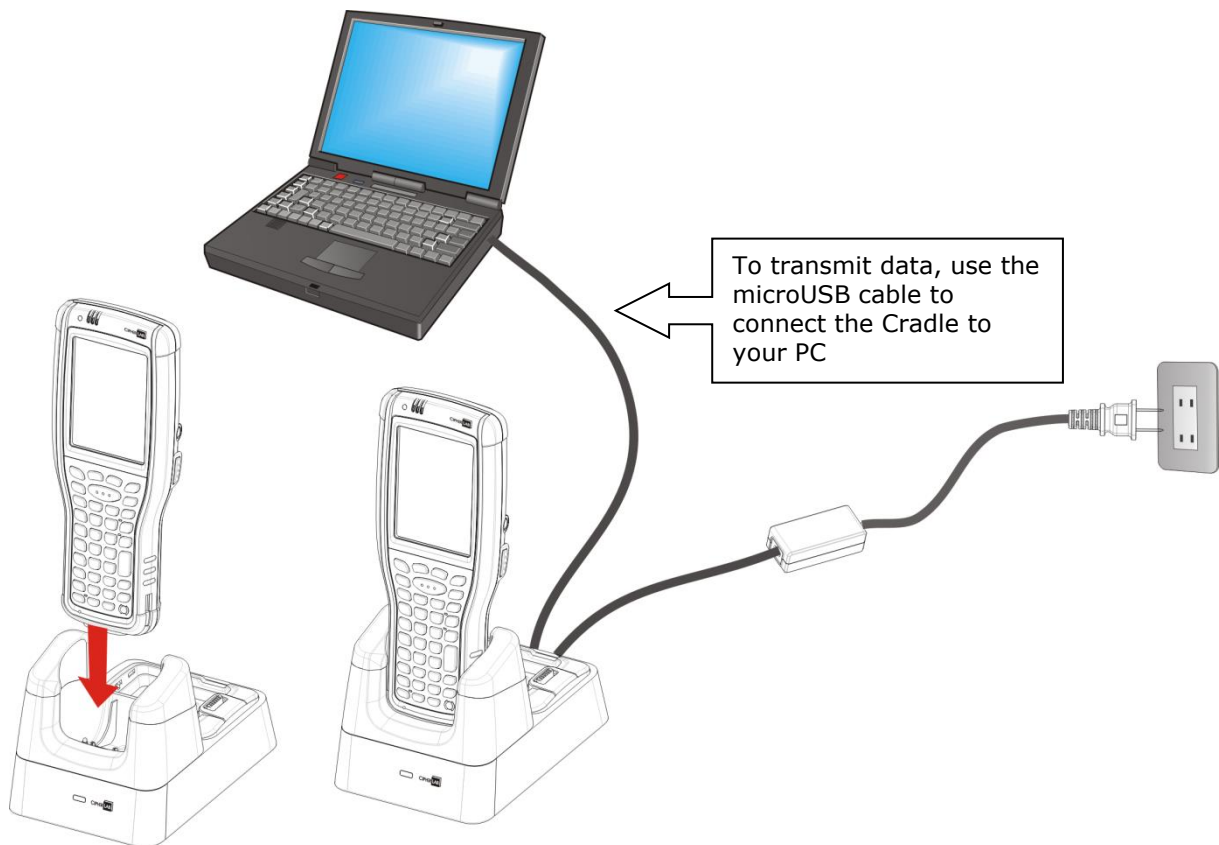
REPLACE MAIN BATTERY PACK

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

Before replacing the main battery pack, turn off the mobile computer. Insert a charged main battery pack as shown in Install/Remove Main Battery and power on the mobile computer.

1.4.3   BATTERY STATUS INDICATORS

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

By checking the battery status icon on **Status Bar**, you can tell the battery level remaining in the main battery.
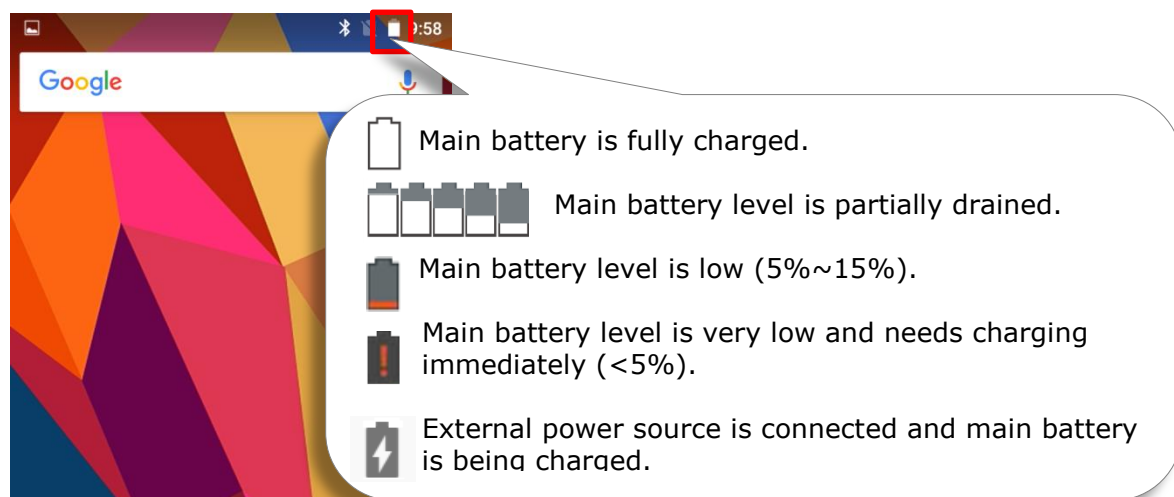
To check the exact remaining percentage of power and battery life:

1) Use a stylus to swipe down from the top of the screen and then tap on the status bar 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.
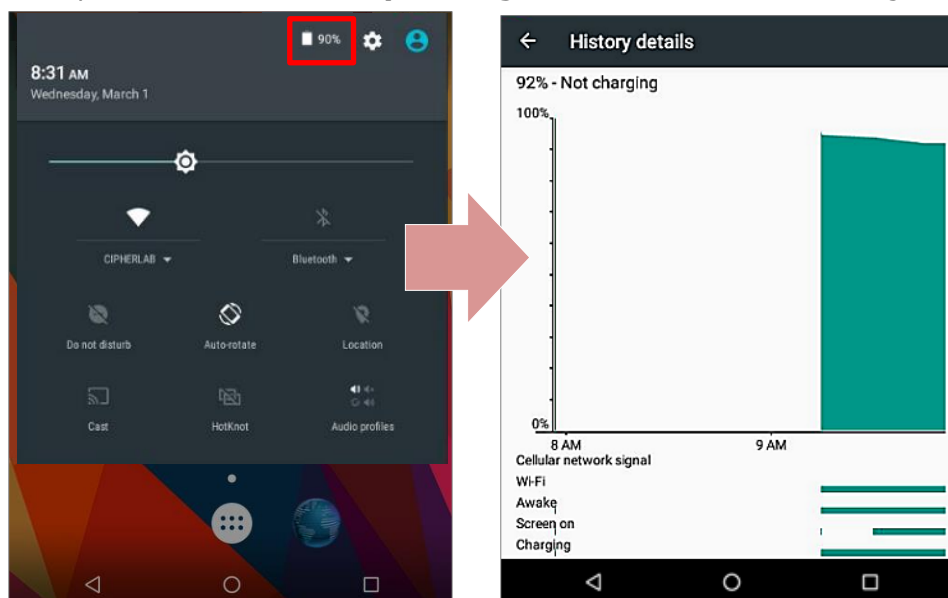
Note:

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

Warning:

(1) Once the battery level drops below 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 mobile computer at low battery level can affect battery life. For maximum performance, recharge the battery periodically to avoid battery drain out and maintain good battery health.

1.4.4   MONITOR BATTERY LEVEL

MAIN BATTERY LEVEL

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

To check main battery level:

Tap **All apps** ⊞| **Settings** ⚙ | **Battery** 🔋 .

Battery level percentage is 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.
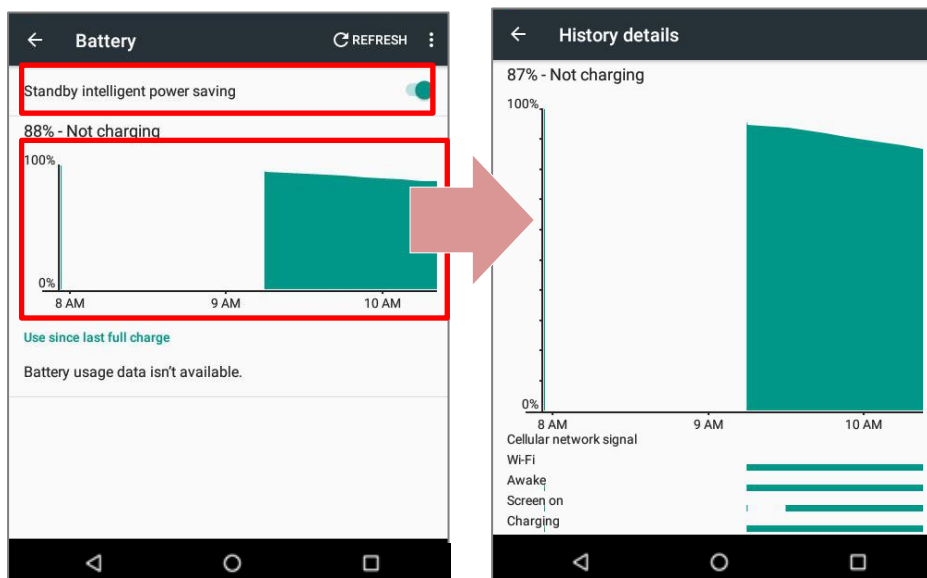
BATTERY SAVER MODE

You can have the **Battery saver** mode automatically turned on when the main battery gets low. This mode will limit the use of location services, vibration and most background processing data. On **Battery** screen, tap on **More** and then select "**Battery saver**".
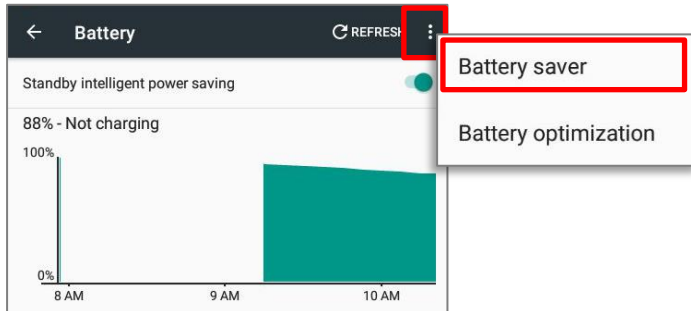
Switch the function **On** and choose when to have this mode automatically activated.
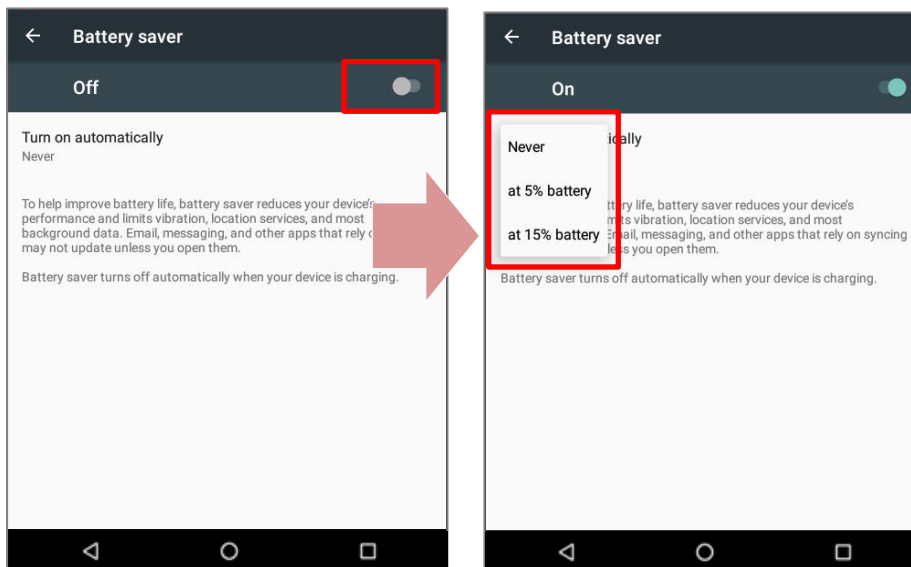
Note:

This mode will automatically become inactive when your device is being charged.

BATTERY OPTIMIZATION

With **Battery optimization enabled** for the applications, you can make sure they stay inactive when your device is idle or when they have not been used for days.

1) On **Battery** screen, tap **More** ⋮ and then select "**Battery optimization**".
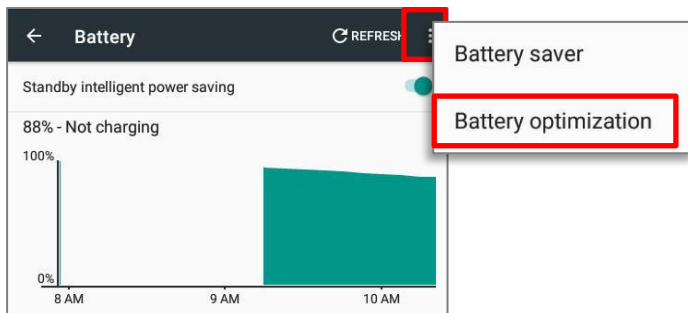
2) On drop-down list, select "**All apps**", all the applications will be optimized by this function by default. You can individually turn off the optimization mode of a certain app if you would like it always activated by tapping on the app name and select "**Don't optimize**" and then "**DONE**"
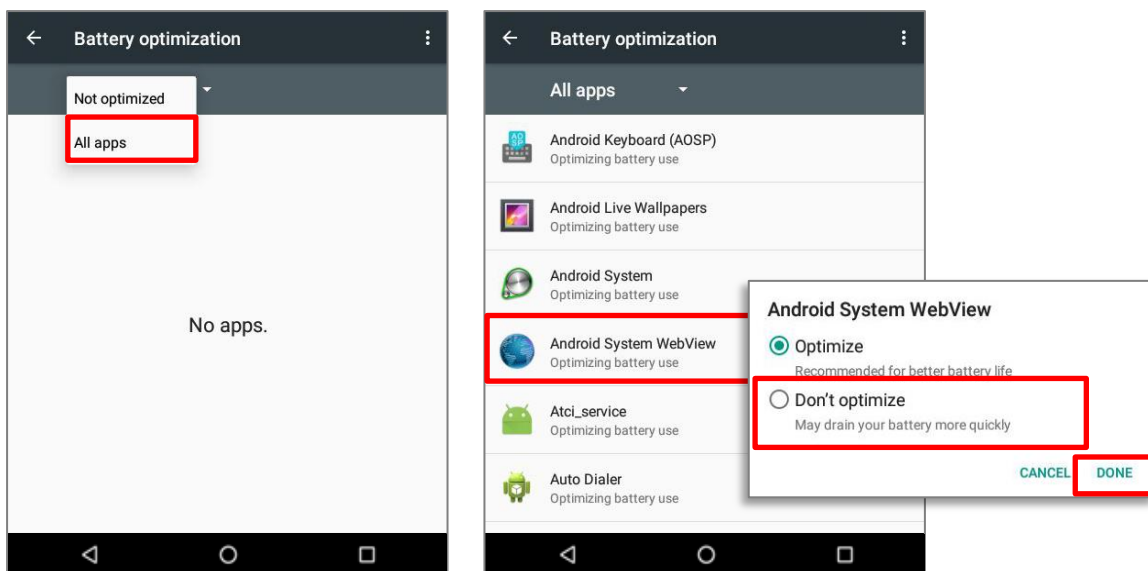
LOW BATTERY ALERT

The mobile computer prompts a warning notification reminding you to charge the main battery when the main battery level drops to **15%** and **5%**. In the meantime, the device's status LED indicator will blink red.

Opening Notifications Drawer, you will also see this warning appearing on the notifications list; you may turn on Battery Saver Mode, connect the mobile computer to an external power source, or replace the main battery pack as soon as possible. To replace the main battery pack, see Replace Main Battery Pack.
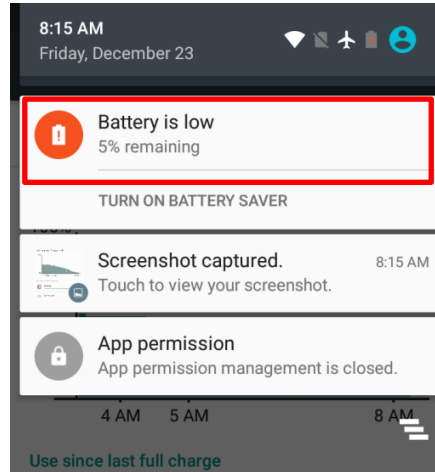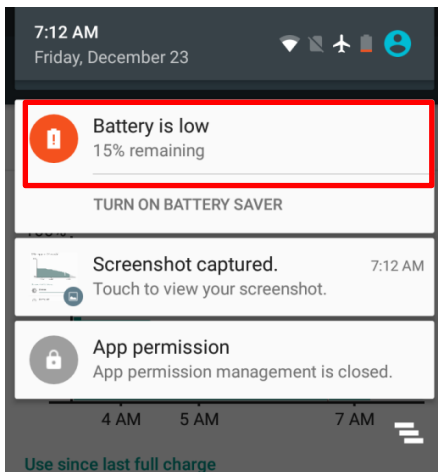
1.4.5   REPLACE MAIN BATTERY

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

1) Make sure the new battery is fully-charged.
2) Press and hold the power button on the side of the mobile computer.
3) Tap "**Power off**" in the pop-up menu. The mobile computer will power off.
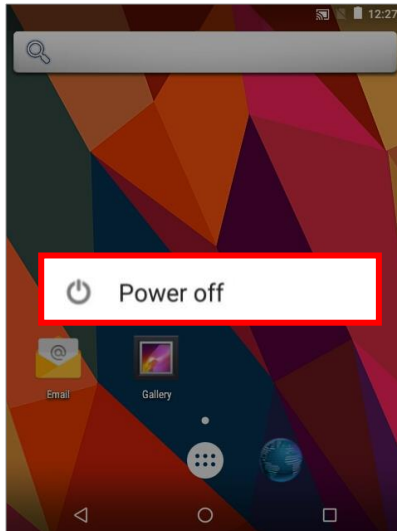
4) Follow the steps described in <u>Install/Remove Main Battery</u> to remove the battery cover.
5) Remove the battery and replace it with the new one.
6) Install the battery cover and press the power button to power on the mobile computer.

1.4.6 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, 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.
▶ Enable **Battery saver** mode and **Battery optimization** mode. See Battery Saver Mode and Battery Optimization.
▶ If Wi-Fi or Bluetooth isn't in use, turn it off.

1.5 LANGUAGE & KEYPAD

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

1.5.1   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.
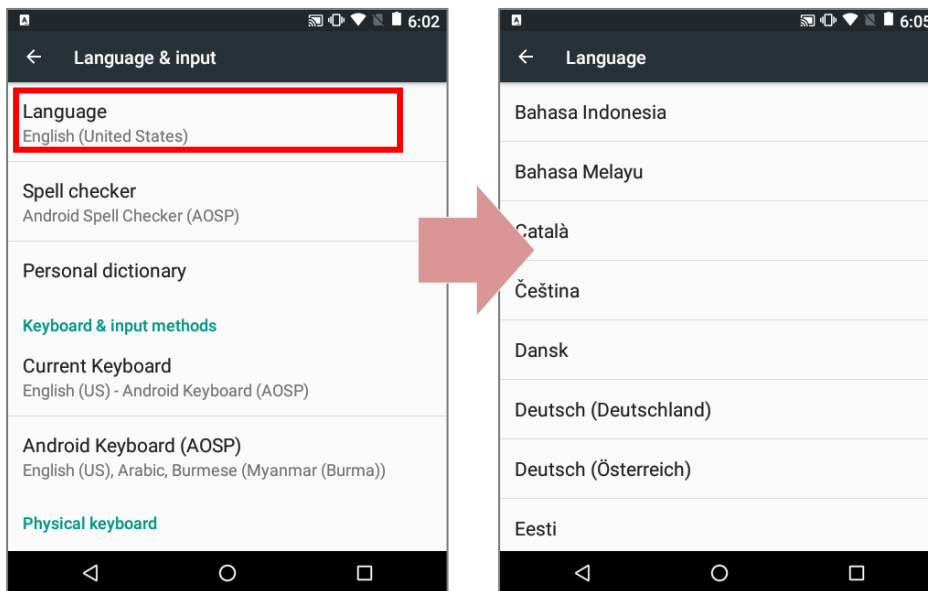
1.5.2 FLOATING SOFTWARE KEYS 23

On the bottom of the handy terminal are three hardware
buttons that deliver the following functions
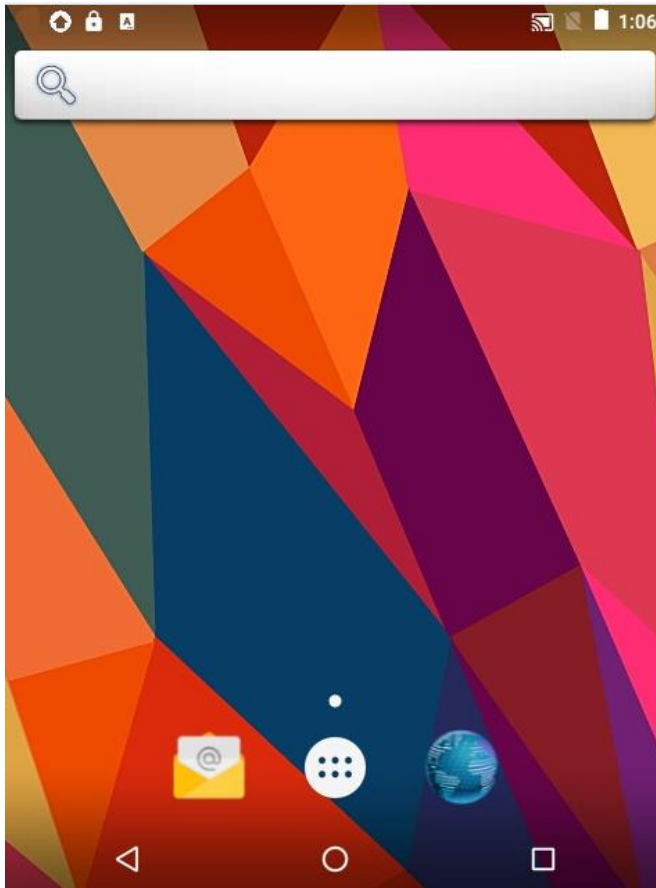
Button	Function	Description
◁	**Back** button	Returns to the previous screen or closes the active window or keyboard.
○	**Home** button	Displays the Home screen.
◻	**Recent apps** button	Opens a list of recently used applications.

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1.5.3 PHYSICAL KEYPAD

The physical keypad, which receives supplementary backlight along with the screen, comes in three formats: 30-key, 38-key and 53-key. Each type of keypad wedges a set of "enhanced keys" along the top and a set of character keys at the lower half. All keypads support multi-key operation, which normally requires two keys hit simultaneously, one of which is a modifier key. The keypads are equally capable of entering numbers, letters, symbols and punctuation marks, and delivering function keys.

30-key numeric keypad   *38-key numeric & function keypad*   *53-key alphanumeric keypad*

NUMERIC KEYPAD (30-KEY)

The numeric keypad possesses 30 keys, including the number keys 0-9, and Esc, Ctrl, Space, Backspace, Enter and period key (.). Also featured are function keys F1 to F4. The power key is seated at the lower right corner of the keypad.

The orange Function key and blue Alpha key are modifier keys located under the Basic keys, and can be used to change the keypad input mode. The Alpha key can be used to enter numbers 2-9 or letters A-Z, or trigger the Shift key, and the Function key , with accompanied use of other keys, can be used to produce function keys (F5 to F12), adjust volume and touch screen backlight, or lock the keypad.

NUMERIC & FUNCTION KEYPAD (38-KEY)

The numeric and function keypad possesses function keys (F1 to F10) which can assist usage in special applications. The keypad provides number keys 0-9, as well as Esc, Ctrl, Space, Backspace, Enter key, period key (.) and comma key (,).The power key is also seated at the lower right corner of the keypad.

The numeric and function keypad also features a blue Alpha key , Shift key and orange Function key . When triggered, the Alpha key can be used to enter letters A-Z . The Shift key is located right below the Alpha key, and is used to change alphabetic input to uppercase. The Function key is seated on the lower end of the keypad, and extends the number of Fn keys to F14. It can also be used with other keys to produce function keys (F11 to F14), adjust volume and touch screen backlight, or lock the keypad.

ALPHANUMERIC KEYPAD (53-KEY)

The 53-key alphanumeric keypad features three available configurations which can be applied in connection sessions to different host terminals. All three keypad configurations feature the letter keys A-Z and number keys 0-9, Esc key, Ctrl key, Backspace key, Shift key, Enter key, period key (.) and comma key (,). The power key is located near the upper right corner of the keypad.

As for modifier keys, the alphanumeric keypads are equipped with a blue Alpha key

and Shift key . The Alpha key combined with other keys on the keypad can enter a variety of symbols, or adjust volume and touch screen backlight. It can also be used to trigger the Alt key, function keys F1-F10, and enter other text editing keys (tab leftward and rightward). As for the Shift key, it allows entering of Shift+1, 2, 3…10. In addition, it locks the keypad when used with the Backspace key.

Note: The three configurations of the 53-key keypad are functionally identical. However when CipherLab's Terminal Emulation or other terminal emulation software is running on the device, each of the three configurations features different commands for application during host sessions.

53-key VT keypad	53-key 3270 keypad	53-key 5250 keypad

BASIC KEYS

These are a set of keys kept at the top of the keypad throughout all three keypad types.
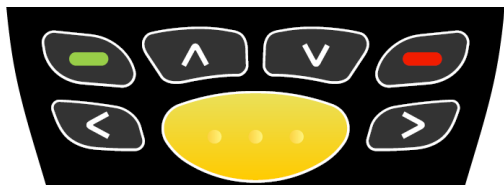
Basic keys

Basic keys deliver the following functions:

Key	Description
SCAN KEY	Press the scan key to read a barcode in place.
ARROW KEYS	The arrow keys are circled around the center scan key. These can be used to move the cursor up, down, left or right during text input, or move between items in certain applications.
GREEN/RED KEY	By default, these two keys input the functions F14 and F15. You may also define their new key functions using CipherLab's Button Assignment.

MODIFIER KEYS

The keypads have five different modifier keys integrated on it. The key trigger and recovery methods differ slightly according to keypad type.

Key	Keypad	Key Location	How to enter	How to resume
Alpha (Blue)	30-key	Available on keypad	Press Alpha key once to enter Alpha Lock mode	Press Alpha key once more to return to default input mode
	38-key	Available on keypad		
	53-key	Available on keypad	Press Alpha key once to enter Alpha mode	Keypad returns to default input mode upon pressing any button
Function (Orange)	30-key	Available on keypad	Press Fn key once to enter Fn mode	Keypad returns to default input mode upon pressing any button engraved in orange. If Alpha key is pressed, keypad will return to Alpha mode until Alpha key is pressed again
	38-key	Available on keypad		
	53-key	Not available	--	--
Shift	30-key	Available under Alpha mode	Under Alpha mode, press the period key (.) once to enter Shift mode. Under Alpha mode, press the period key (.) twice to enter Shift Lock mode	Under Shift mode, keypad returns to default input mode upon pressing any button. Under Shift Lock mode, keypad returns to default input mode upon pressing Shift key once more, or upon pressing Ctrl or Alt key
	38-key	Available on keypad	Press Shift key once to enter Shift mode. Press Shift key twice to enter Shift Lock mode	
	53-key	Available on keypad		
Ctrl	30-key	Available on keypad	Press Ctrl key once to enter Ctrl mode. Press Ctrl key first, then press the key to deliver the Ctrl function to.	Keypad returns to default input mode upon pressing any button
	38-key	Available on keypad		
	53-key	Available on keypad		
Alt	30-key	Available under Alpha mode	Press Alt key once to enter Alt mode. Press Alt key first, then press the key to deliver the Alt function to.	Keypad returns to default input mode upon pressing any button
	38-key	Available under Fn mode		
	53-key	Available under Alpha mode		

ALPHA KEY

The Alpha key is equipped with an LED indicator. When the Alpha key is pressed, the LED will light up in blue to indicate that Alpha key is activated. The 30-key and 38-key keypads enter Alpha lock mode when Alpha key is pressed, and only when Alpha key is pressed once more will the LED go off, and thus the keypad returns to default input mode. The 53-key keypad enters Alpha mode when Alpha key is pressed, and the Alpha key LED goes off and the keypad returns to default input mode once another key is pressed.

The Alpha key delivers the following functions on each of the keypads:

Keypad	Alpha key	Key Function
30-key		Under Alpha mode, press number keys 2-9 to enter lowercase letters a-z Under Alpha mode, press number keys 0 and 1 to enter punctuation marks Under Alpha mode, press period key to enter Shift mode, in which pressing number keys 2-9 enters uppercase letters A-Z, and pressing arrow keys moves the cursor up, down, left and right
38-key		Under Alpha mode, press arrow keys, number keys 0-9, Function keys F1-F10 and punctuation keys to enter lowercase letters a-z Under Alpha mode, press Shift key to enter Shift mode, in which pressing arrow keys, number keys 0-9, Function keys F1-F10 and punctuation keys enters uppercase letters A-Z
53-key		Under Alpha mode, press letter keys A-Z to enter symbols, adjust volume or touch screen backlight Under Alpha mode, press Ctrl key to trigger Alt mode Under Alpha mode, press Space/Backspace key to Insert/Delete Under Alpha mode, press number keys 0-9 to trigger function keys F1-F10 Under Alpha mode, press period key (.) or asterisk key (*) to move to the previous or next tab spot

Note: Alpha mode can coexist with Function mode. When both modes are active, the dominant mode depends on the last pressed key. If you press Function key and then press Alpha key, Alpha mode will be the effective for the next pressed key.

SHIFT KEY

The Shift key is equipped with an LED indicator. When the Shift key is pressed once, the LED will light up in green to indicate that Shift mode is activated. The LED goes off when another key is pressed and the keypad returns to default input mode. When the Shift key is pressed twice, the keypad will enter Shift lock mode and the LED will stay lit until Shift key is pressed once more.

The Shift key delivers the following functions on each of the keypads:

Keypad	Shift key	Key Function
30-key	(Alpha mode)	Under Alpha mode, press Shift key to enter Shift mode, and press number keys 2-9 to enter uppercase letters A-Z
		Under Alpha mode, press Shift key to enter Shift mode, and press arrow keys to move the cursor up, down, right or left
		Under Alpha mode, press Shift key to enter Shift mode, and press F1 +F4 to enter Shift+F1 to F4
38-key		Under Shift mode, press number keys 0-9 to enter Shift+0-9
		Under Shift mode, press arrow keys to move the cursor up, down, right or left
		Under Shift mode, press Green key/Red key to enter Shift+F14/F15
		Under Shift mode, press F1 to F10 to enter Shift+F1 to F10
		Under Alpha mode, press Shift key to enter Shift mode, and press arrow keys, number keys 0-9, function keys F1 to F10, period key and comma key to enter uppercase letters A-Z
53-key		Under Shift mode, press letter keys a-z to enter uppercase letters A-Z
		Under Shift mode, press 0-9 to trigger function keys F11 to F20
		Under Shift mode, press Backspace key to lock the keypad

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

FUNCTION KEY

The Function key is equipped with an LED indicator. When the Function key is pressed, the LED will light up in orange to indicate that Function key is activated. When Function key is pressed once more, the LED will go off and the keypad will return to default input mode.

The Function key delivers the following functions on each of the keypads:

Keypad	Fn key	Key Function
30-key		Under Function mode, press number keys 1-4 and function keys F1-F4 to enter function keys F5-F12 Under Function mode, press other number keys to adjust volume, touch screen backlight or enter a hyphen (-) Under Function mode, press arrow keys to deliver Home, End, Page Up, Page Down Under Function mode, press Ctrl key to activate Alt key Under Function mode, press Backspace to lock the keypad Under Function mode, press space key to open the Start menu
38-key		Under Function mode, press number keys 1-4 and function keys F1-F4 to enter function keys F11-F14 Under Function mode, press other Fn keys to adjust volume, touch screen backlight Under Function mode, press arrow keys to deliver Home, End, Page Up, Page Down Under Function mode, press Ctrl key to activate Alt key Under Function mode, press Backspace to lock the keypad Under Function mode, press space key to open the Start menu
53-key	Not available	None

Note: Function mode can coexist with Alpha mode. When both modes are active, the dominant mode depends on the last pressed key. If you press Alpha key and then press Function key, Function mode will be the effective for the next pressed key.

KEYPAD LOCK

All three keypads feature a keypad lock mode, which can be triggered by pressing a hot key combination. When the keypad lock mode is triggered, all keys on the keypad will become locked to prevent any accidental pressing of keys. A keypad lock icon will appear on the taskbar to indicate keys are currently locked.

To release the keypad lock mode, press the keypad lock hot key combination again. The input mode on the mobile computer will return to default state.

To trigger or release keypad lock mode:

▸   On the 30-key keypad, press the **Function** key followed by the **backspace** key
▸   On the 38-key keypad, press the **Function** key followed by the **backspace** key
▸   On the 53-key keypad, press the **Shift** key followed by the **backspace** key

Note: Under keypad lock mode, the only available keys aside from the keypad lock button itself are the power key and scan keys.

INPUT MODE ICONS

When the Shift key, Alpha key and Function key are pressed, corresponding icons will appear on the taskbar to indicate the current input mode.
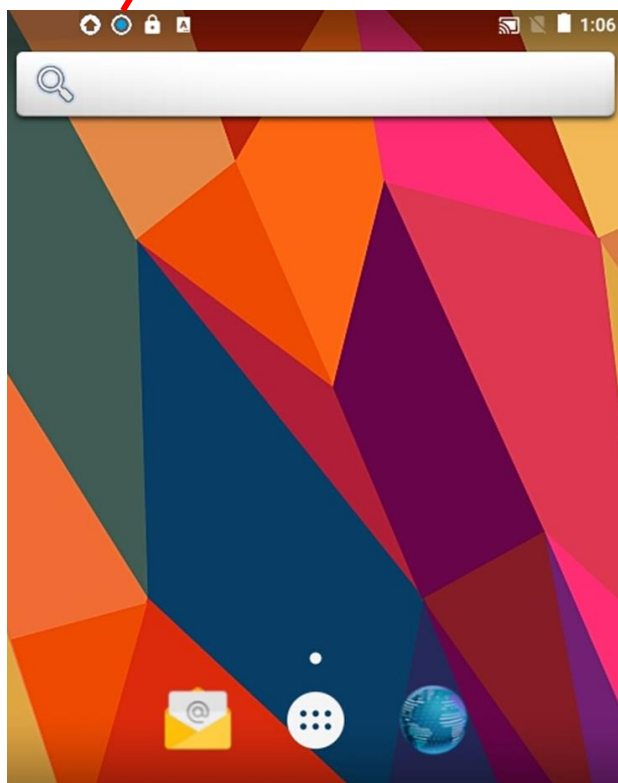
When the input mode is changed, a corresponding icon will appear on the taskbar

The table below describes how to enter specific input mode on different keyboards.

Mode	Trigger and Withdrawal	Description
Default Mode	Default mode is not changed until Alpha key, Shift key or Function key is pressed.	30-key keypad enters numbers 0-9 and function keys F1-F4 38-key keypad enters numbers 0-9 and Function keys F1-F10 53-key keypad enters numbers 0-9 and lowercase letters a-z
1	On the 30-key keypad, press Alpha key to enter Alpha mode, then press the period key [.] On the 38-key keypad and 53-key keypad, press Shift key once to enter this mode (Returns to default input mode once a key is pressed.)	30-key keypad enters one uppercase letter A-Z 38-key keypad enters one symbol. When Alpha key is pressed, 38-key keypad enters one uppercase letter A-Z 53-key keypad enters one uppercase letter A-Z. When Alpha key is pressed, 53-key keypad enters one symbol
2	On the 30-key keypad, press the Alpha key to enter Alpha mode, then press the period key [.] On the 38-key keypad and 53-key keypad, press Shift key twice to enter this mode	30-key keypad enters uppercase letters A-Z 38-key keypad enters symbols. When Alpha key is pressed, 38-key keypad enters uppercase letters A-Z 53-key keypad enters uppercase letters A-Z. When Alpha key is pressed, 53-key keypad enters symbols
3	On the 30-key keypad, press the period key [.] once more to return to Alpha mode, or press the Alpha key to return to default input mode On the 38-key keypad and 53-key keypad, press Shift key once more to return to default input mode	
4	On the 30-key and 38-key keypad, press the Alpha key once more to return to default input mode The 53-key keypad returns to default input mode once a key is pressed	30-key keypad enters lowercase letters a-z engraved in blue 38-key keypad enters lowercase letters a-z engraved in blue 53-key keypad enters symbols or key values engraved in blue
Function Mode	Press Function key once to enter this mode. When Function mode is on, Shift mode and Alpha Key mode are both retained (Returns to default input mode once a key is pressed. If the Alpha key is pressed next, the system will enter Alpha input mode)	30-key keypad enters F5-F12 and the key values engraved in orange 38-key keypad enters F11-F14 and the key values engraved in orange
5	Press Ctrl key once to trigger this mode. Returns to default input mode once a key is pressed.	The function of the Alt key is delivered along with another key. For instance, press Ctrl and then press the letter a in order to deliver Ctrl+a.

| 6 | On the 30-key and 38-key keypad, press the Function key first, then press the Ctrl key

On the 53-key keypad, press the Shift key first, then press the Ctrl key

(Returns to default input mode once a key is pressed.) | The function of the Alt key is delivered along with another key. For instance, press Alt and then press the letter a in order to deliver Alt+a. |

1.5.4 ON-SCREEN KEYBOARD

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

To bring up the 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.
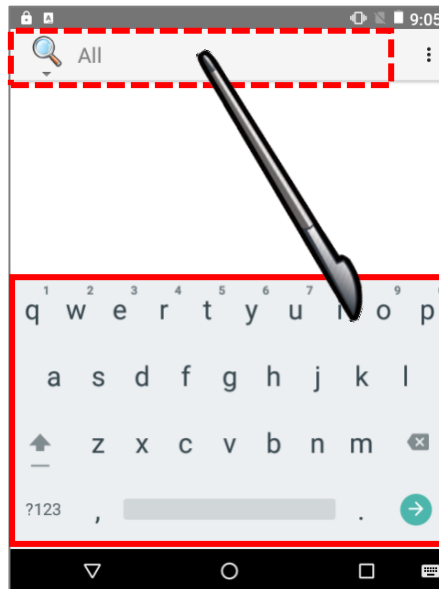
KEYBOARD & INPUT METHODS

CURRENT KEYBOARD

On **Language & input** screen, select **Current Keyboard**. Tap "**CHOOSE KEYBOARDS**". And then tap "**keypad_matrix**" to choose keyboard layout.
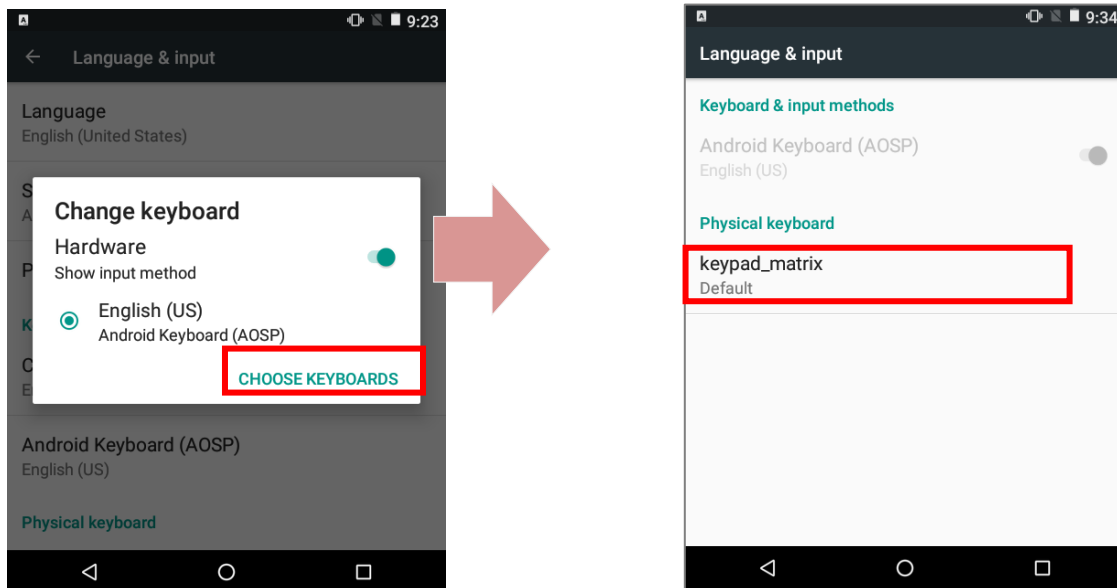
Tap "**SET UP KEYBOARD LAYOUTS**" to bring up the keyboard layout menu. Select the target keyboard layout.
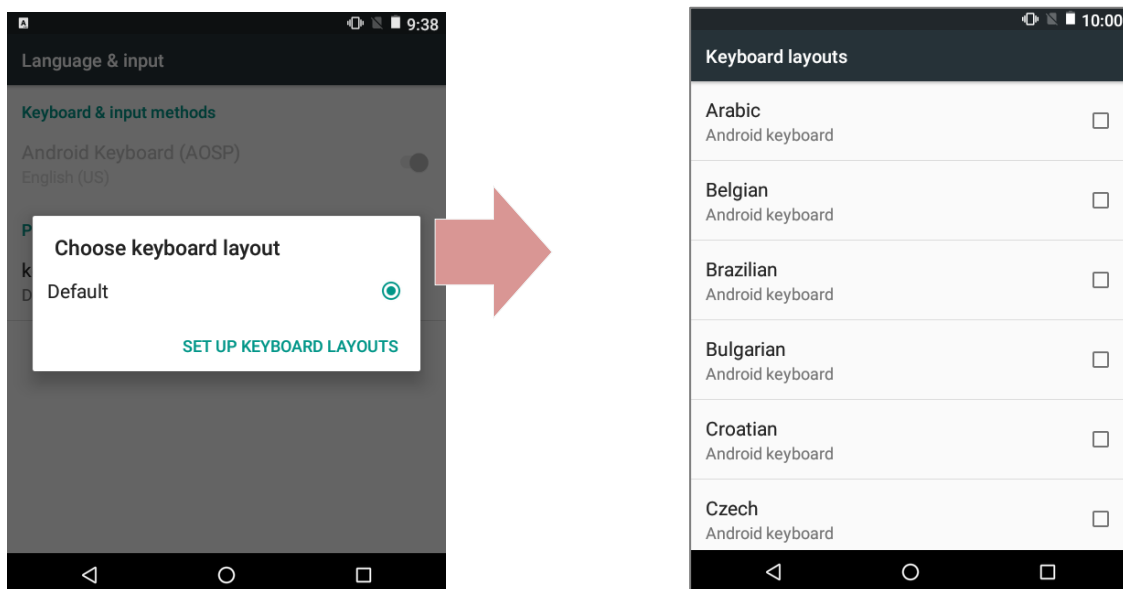
ANDROID KEYBOARD (AOSP)

Tap Android Keyboard (AOSP) to proceed with further details.
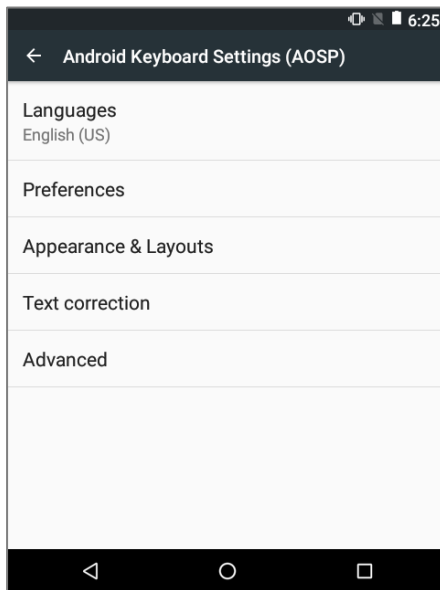
Language – By default, it uses system language. Users can determine to select active input methods.

Preferences –

▶ **Auto-capitalization:** Swipe the control to determine whether to capitalize the first word of each sentence.

▶ **Double-space period:** Swipe the control to determine whether to enable inserting a period followed by a space when double-tapping on spacebar.

▶ **Vibrate on keypress:** Swipe the control to enable/disable vibration on keypress.

▶ **Sound on keypress:** Swipe the control to enable/disable sound on keypress.

▶ **Popup on keypress:** Swipe the control to enable/disable key popup on keypress.

Appearance & Layouts –

▶ **Theme**: Theme options include Material Light, Material Dark, Holo White, and Holo Blue.

▶ **Custom Input Style**: Add or configure the custom input style of a particular language.

    ▶ **Text Correction** – Tap to proceed with further details for text correction.

    ▶ **Advanced** – Tap to proceed with further details for advanced settings.

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.
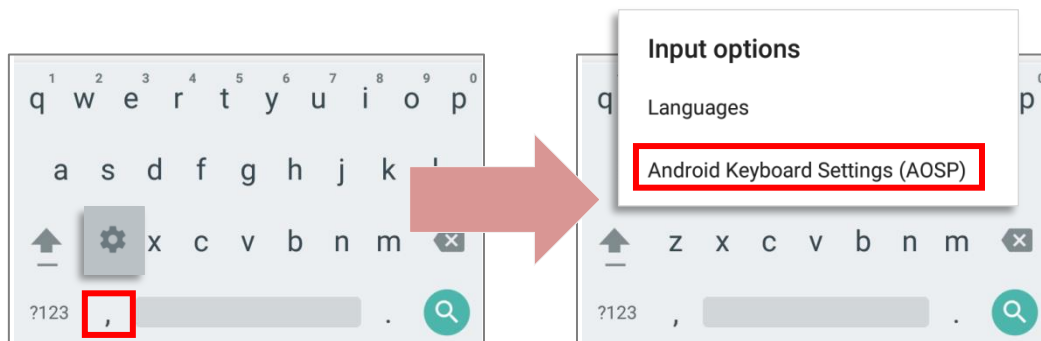
By tapping **Android Keyboard Settings (AOSP)**, you can further adjust the settings to suit your needs. See further information mentioned above.
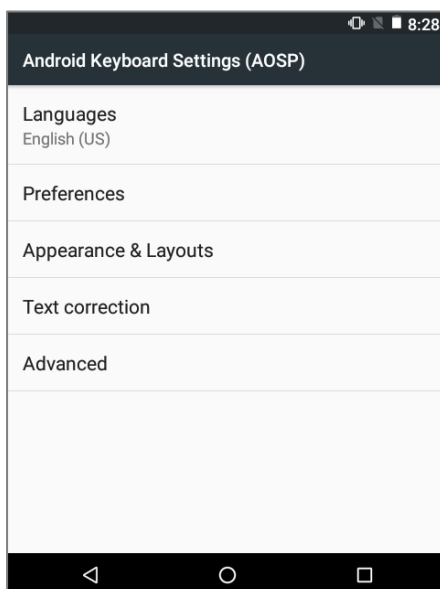
CHANGE KEYBOARD (INPUT METHOD)

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.
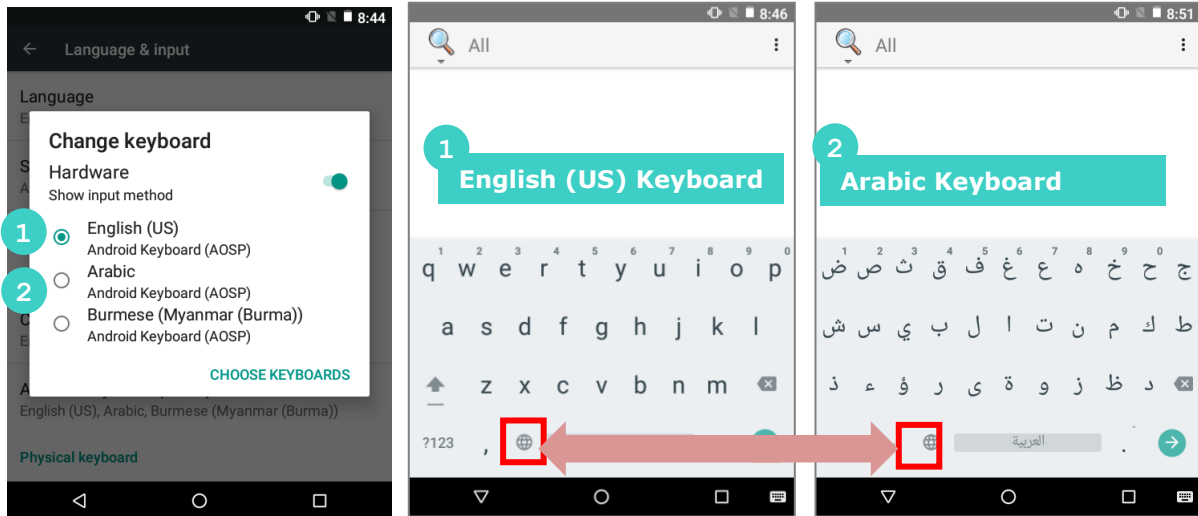
EDIT TEXT

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.
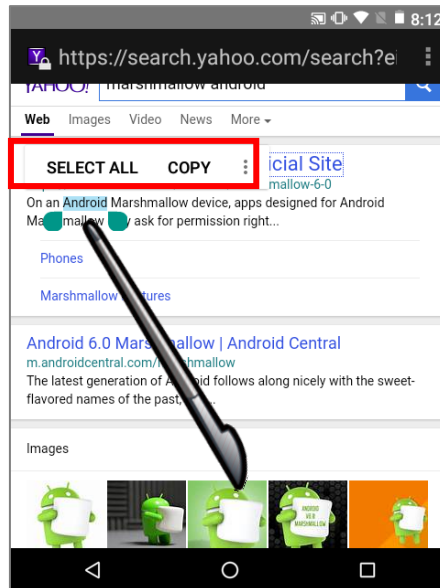
ENTER NUMBERS AND SYMBOLS

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 [=\<] access more symbols or tap [ABC] to return to **Android English (US)** keyboard
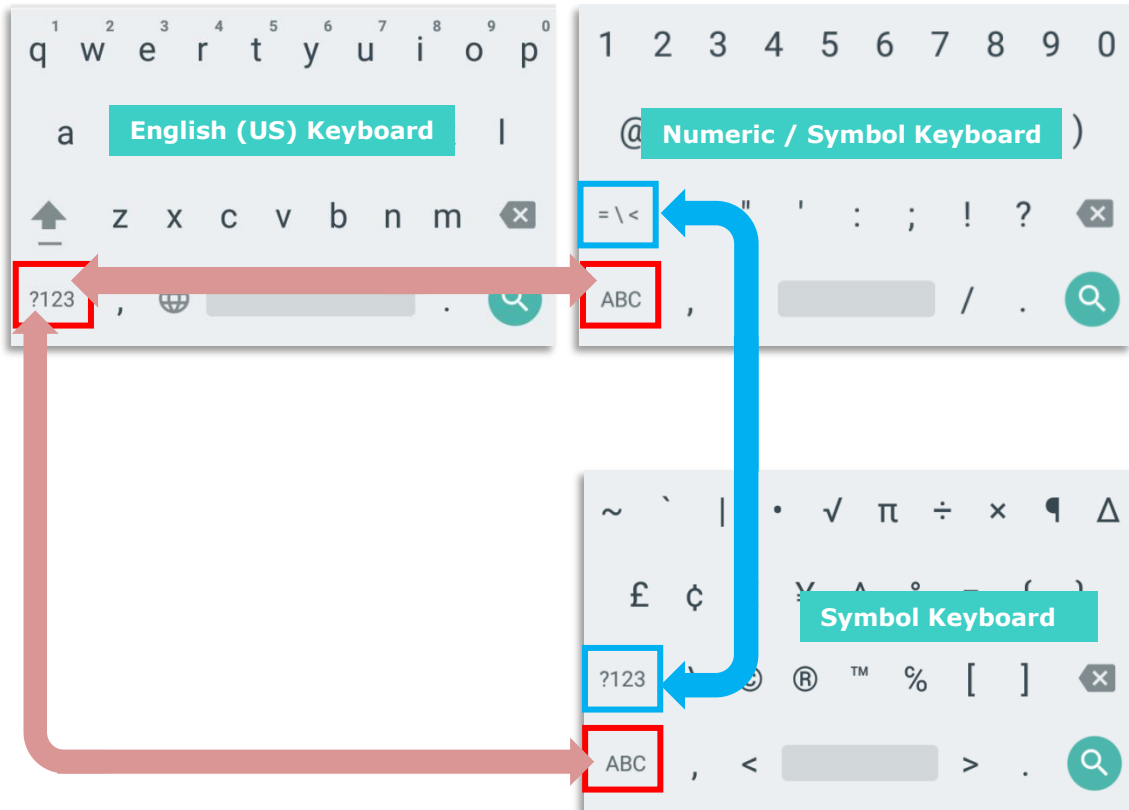
On **Android English (US)** keyboard, you can input number or symbols without switching to **Numeric / Symbol** keyboard.

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.
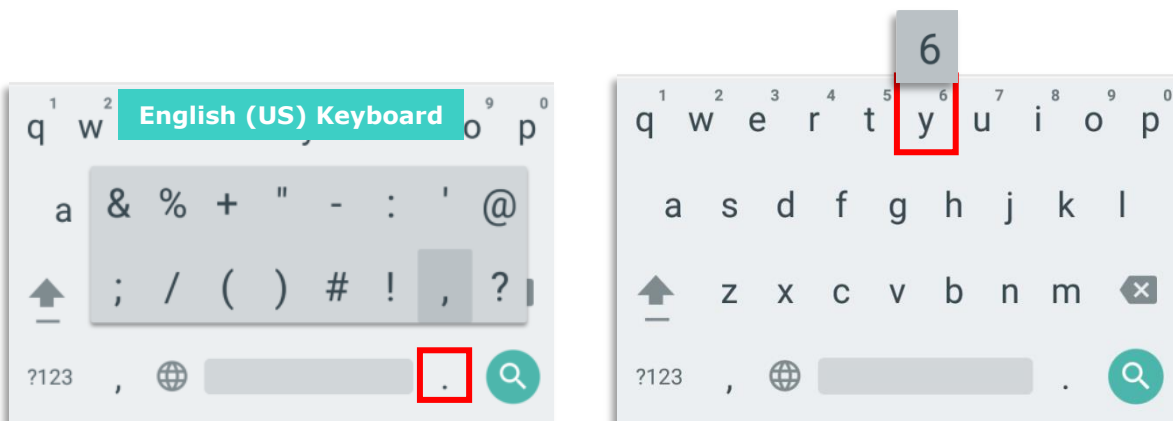
ENTER UPPERCASE LETTERS

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.
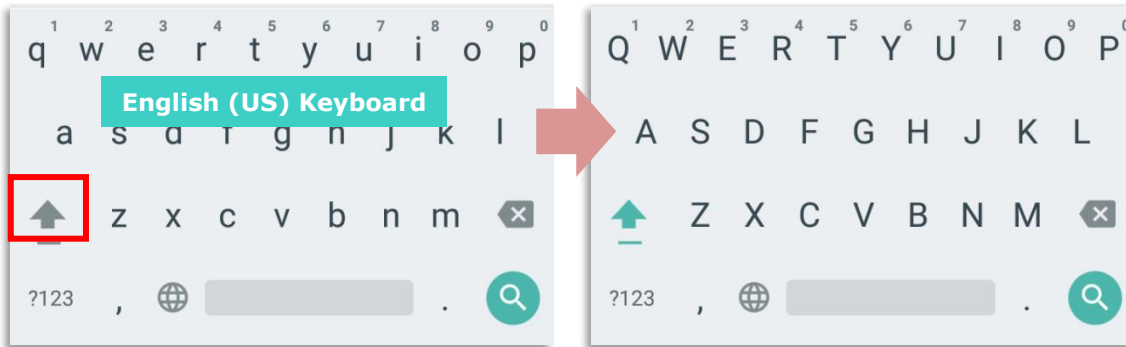
1.6 TOUCH SCREEN

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

Touch control is one of the main ways to interact with the mobile computer. It provides the ability to manipulate icons, buttons, menu commands, the on-screen keyboard, or any on-screen items.

1.6.1 USE TOUCH SCREEN

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

Tap – Touch any item on the screen such as an application icon or a setting icon to work on it, or touch any key on the on-screen keyboard to type it.

Tap and hold – Touch an item on the screen and do not release until an action occurs.

Drag – Touch and hold an item for a moment and then, without release, move the item on-screen until you reach the target.

Double-tap – Touch quickly twice on certain screens to zoom. For example, double-tap a section of a webpage in a web browser to zoom that section so it fits the width of the screen. Some applications such as map-info applications support picture zooming with double-tap.

Rotate screen – On most screens, the screen rotates as the mobile computer changes its orientations between upright and sideways.

1.6.2   SCREEN BRIGHTNESS

Tap **All apps** ⊕ | **Settings** ⚙ | **Display** ☀ | **Brightness level**.

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 mobile computer's built-in sensor. You can also use the shortcut button on **Quick Settings** menu to adjust the brightness level.
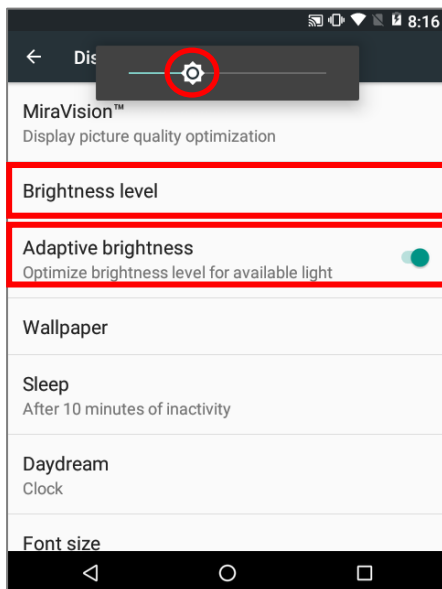
Note:

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.

On any screen, you can bring up quick brightness adjustment bar by pressing down the **Backlight Increase** or **Backlight Decrease** key (To correctly trigger these key functions, you will have to hit another specific key for the said functions to become on standby, refer to Function Key for 30-key keypad and 38-key keypad, or Alpha Key for 53-key keypad).

On the adjustment bar, you can change the brightness level by dragging on it, or pressing down the **Backlight Increase** or **Backlight Decrease** key again to change the scale one step at a time.
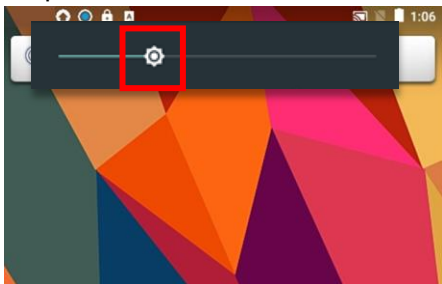
1.6.3 SCREEN ROTATION

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 then select "**Stay in current view**" to turn the rotation function off or tap "**Rotate the contents of the screen**" to enable it.
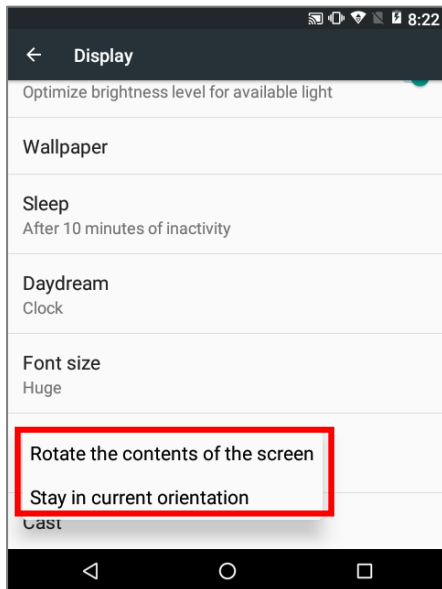
OR

2) Use a stylus to swipe down from the top of the screen and then tap on the status bar to open **Quick Settings**, 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.
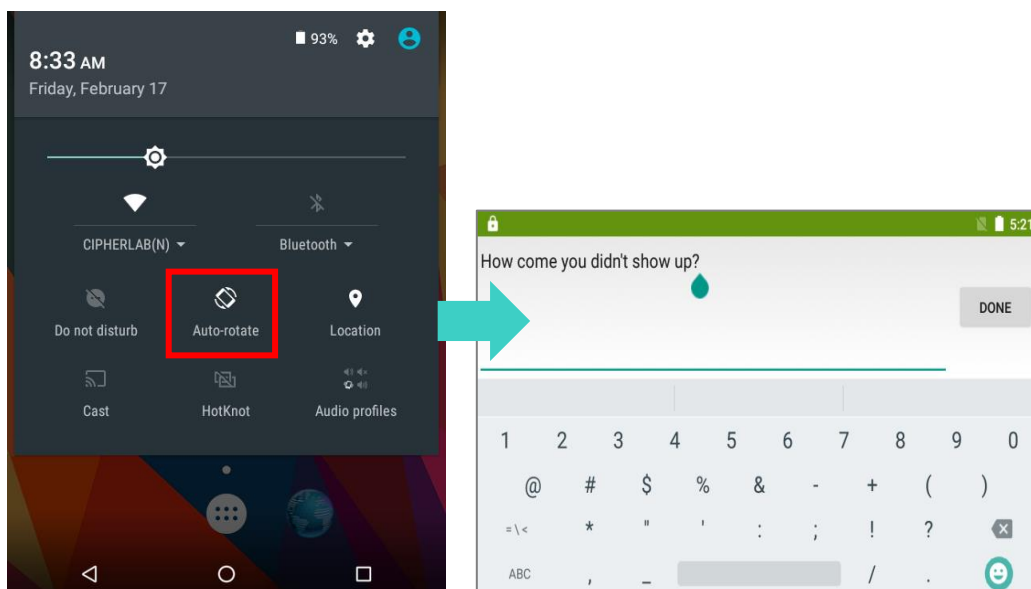
You can entirely disable the switch on the interface to minimize the possibility of accidentally turning on the auto-rotation function.

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** 🔆 .
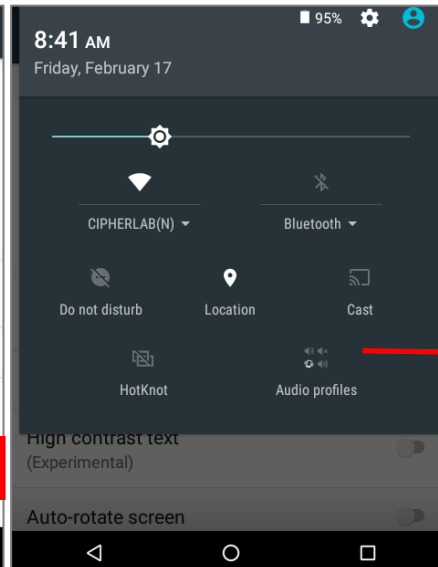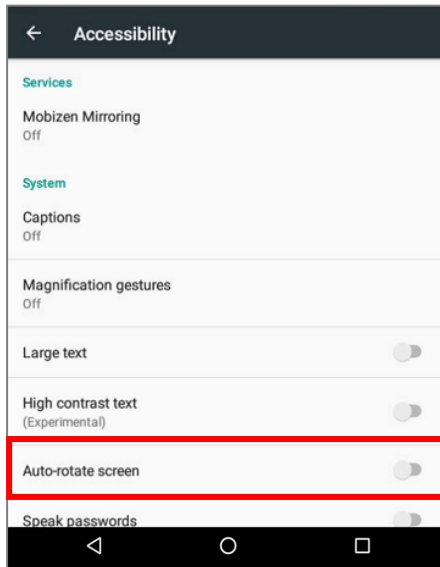
The Auto-rotate status icon is absent.

Note:

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

1.6.4   SCREEN TIMEOUT SETTINGS   47

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

Select the time lapse for screen timeout.
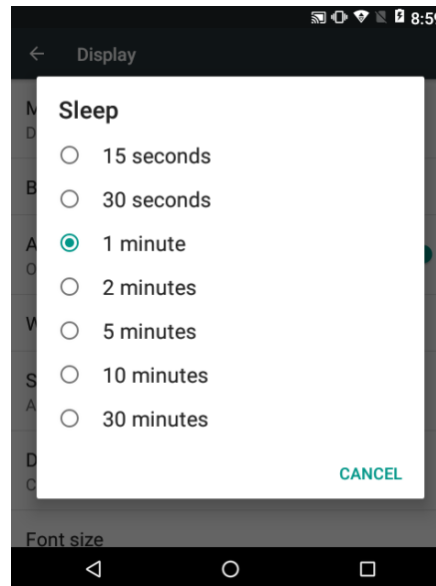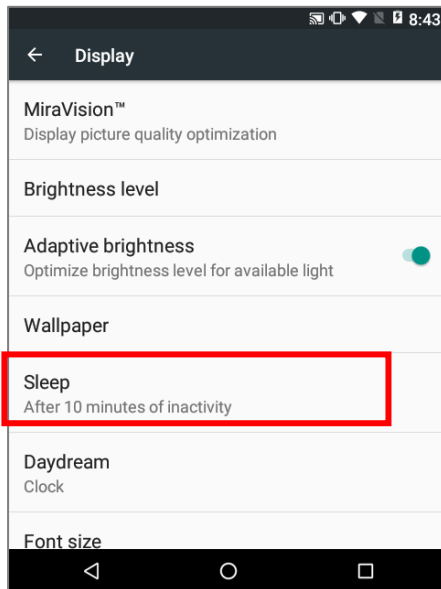
1.6.5   TEXT SIZE

Tap **All apps** ⊞ | **Settings** ⚙ | **Display** 🔅 | **Font size**. Select the font size between **Small**, **Normal**, **Large** and **Huge**.
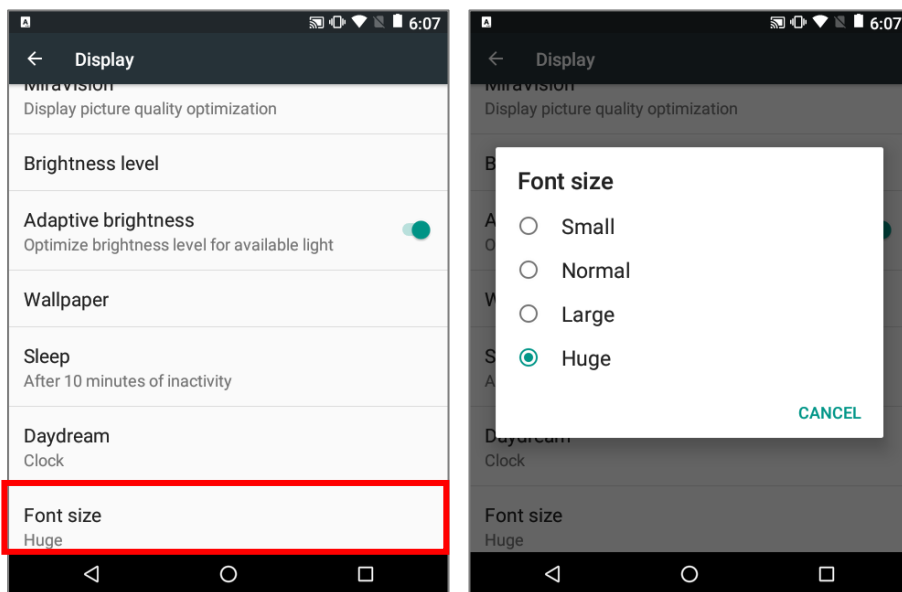
1.7 MEMORY

▸ **Flash Memory (ROM)**

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

▸ **Random-access Memory (RAM)**

2GB LPDDR3 RAM for storing and running programs, as well as storing program data.

▸ **Expansion Slot**

The mobile computer is equipped with one SD card slot which can accommodate a micro SD card, a microSDHC or a microSDXC card. When choosing an SD card for best compatibility and performance with 9700A, please make sure of the capacity you need. For the use of SDXC card, please use a new card and make sure it has not been used in other host devices (computers, cameras, or readers).

CAUTION OF DATA LOSS

When the main battery is removed or drained, the backup battery on the main board takes over to supply the mobile computer and keep it in suspension. A fully charged backup battery will retain the data in the RAM for **30 minutes**. When the backup battery is drained out as well, the mobile computer 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 mobile computer for a couple of days, you should be aware that data loss occurs when the main battery and backup battery discharges completely. Therefore, it is necessary to backup data and files before putting away the mobile computer.

1.7.1   INSERT SD CARD

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

Follow the steps below to install a SD card:

1) Power off the mobile computer.
2) Place the mobile computer face-down on a flat and soft surface.
3) Lift up the handstrap slightly to remove the main battery pack as described in Install/Remove Main Battery.
4) The SD card socket is equipped with a hinged cover. Push the hinged cover right and lift the cover up to open the card socket. Insert your SD card in the indicated direction ▢.
5) Close the hinged cover and push the cover left to have it locked.
6) A plastic cover is provided for the SD card socket to prevent moisture accumulation. Press the plastic cover down to secure it on top of the SD card socket.
7) Replace the main battery pack.
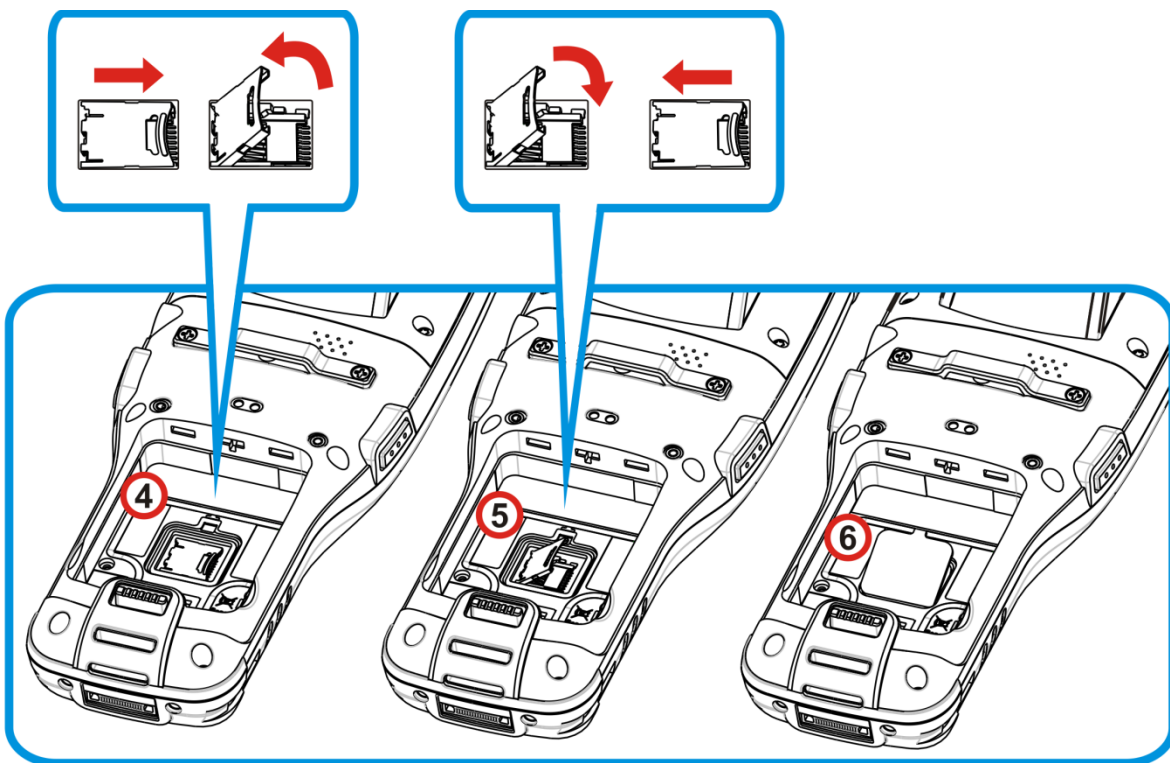
1.7.2 CHECK MEMORY USAGE

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.
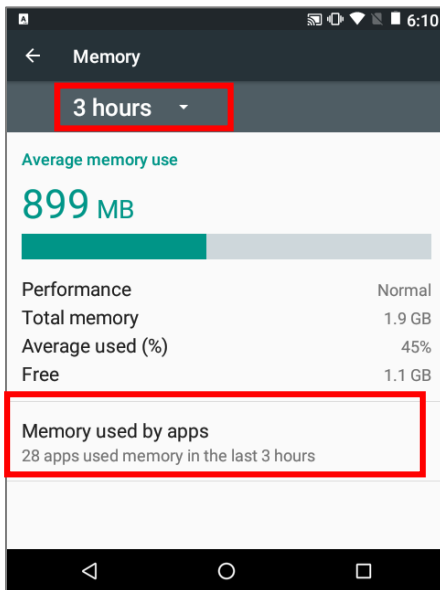
On the main screen, it tells you not only the used and free memory space of the RAM, but how your pattern of usage has impacted the device's overall performance. To figure out how the system and apps have been taking up the memory over a longer period, tap the dropdown list to choose a different time 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.
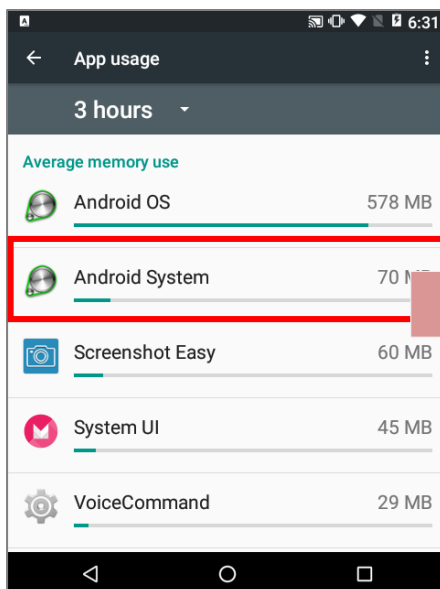
Tap an application to check its memory usage. This allows you to make sense of how much memory a newly-installed application can potentially consume your RAM.

1.8 DIRECT DATA COMMUNICATION

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

1.8.1 CONNECT SNAP-ON CABLE

Direct data communication using a cable:

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

2) To charge the mobile computer, connect an external power source to the Snap-on Cable.

Direct Data Communication Using Snap-on Cable

Note: The 9700A mobile computer uses COM9 for serial transmission via RS-232.

3) On the device's screen, swipe down from the status bar to reveal Notifications Panel

4) 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 "**Transfer files (MTP)**". To transfer videos and photos, you can select "**Transfer photos (PTP)**", in which your device will share only videos and photos in *DCIM* and *Pictures* folders.
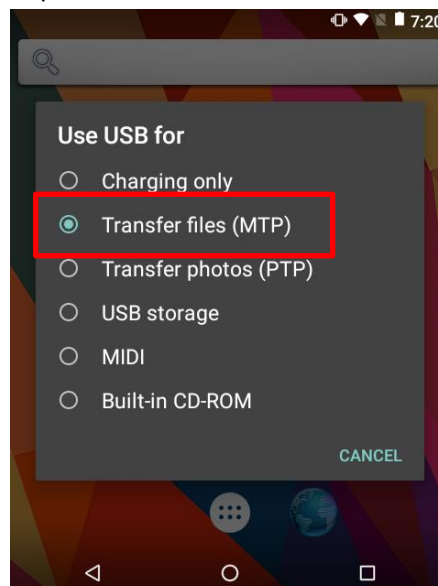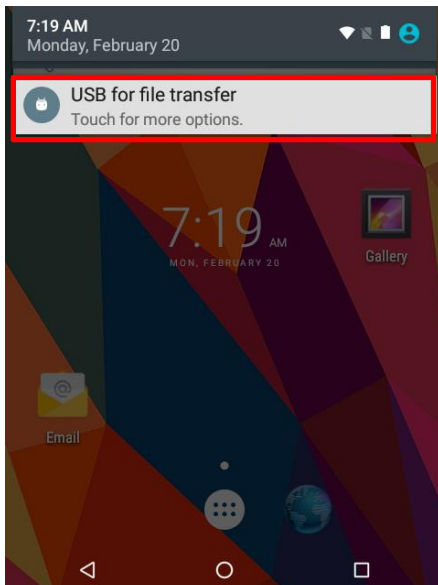
1.8.2 USE CRADLE

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

Prior to charging, install main battery as described in [Install/Remove Main Battery](#). Then follow the steps below:

1) Seat the mobile computer into the cradle. Connect one end of the USB cable to the Cradle and the other end to the PC.

2) To charge the mobile computer, connect the cradle to an external power source using the power adapter.
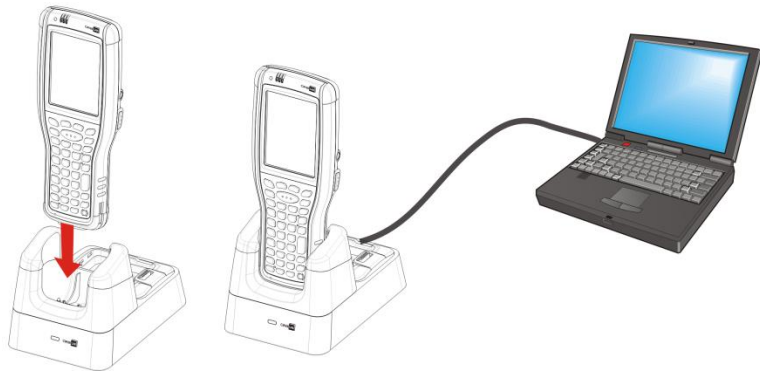
Direct Data Communication Using Cradle

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

3) On the device's screen, swipe down from the status bar to reveal Notifications Panel
4) 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 "**Transfer files (MTP)**". To transfer videos and photos, you can select "**Transfer photos (PTP)**", in which your device will share only videos and photos in *DCIM* and *Pictures* folders.
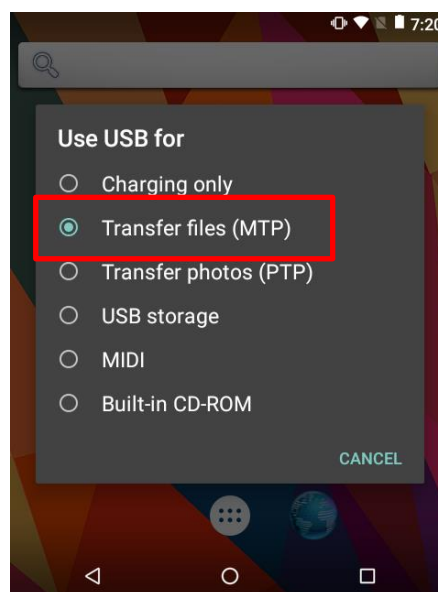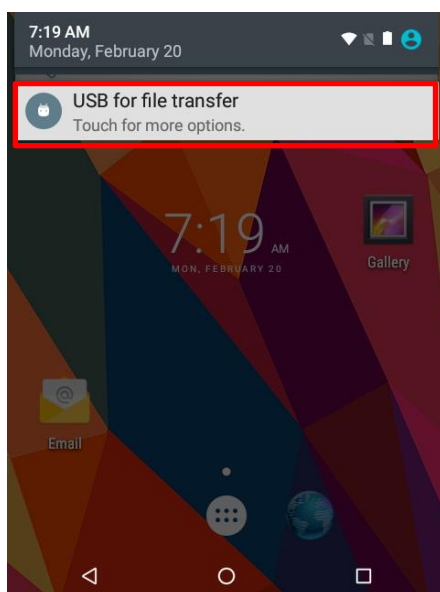
1.9 VOLUME AND AUDIO

1.9.1 AUDIO PLAYBACK

The speaker is used to play sounds for events in the O/S 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. Use a headset for audio playback and hands-free telephone communication.

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

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

Headset jack
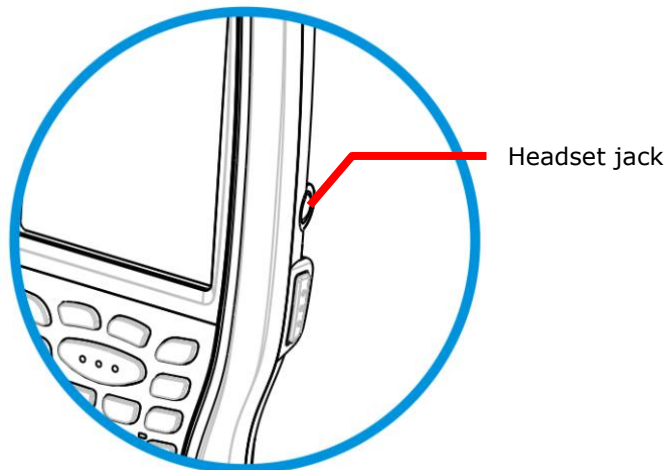
1.9.2   SOUNDS AND VIBRATION

The mobile computer 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 mobile computer to vibrate only, in which all system sounds will be muted and replaced by the vibrator.

On any screen, you can bring up quick sound menu by pressing down the **Volume Up** or **Volume Down** key (To correctly trigger these key functions, you will have to hit another specific key for the said functions to become on standby, refer to Function Key for 30-key keypad and 38-key keypad, or Alpha Key for 53-key keypad).

On the quick menu, you can tap 🔔 to switch this device to **Vibration** mode. To modify specific sound settings, tap ⌄ to access more settings. You can adjust the scale of each setting by dragging on the bar, or pressing down the **Volume Up** or **Volume Down** key again to change the scale one step at a time.
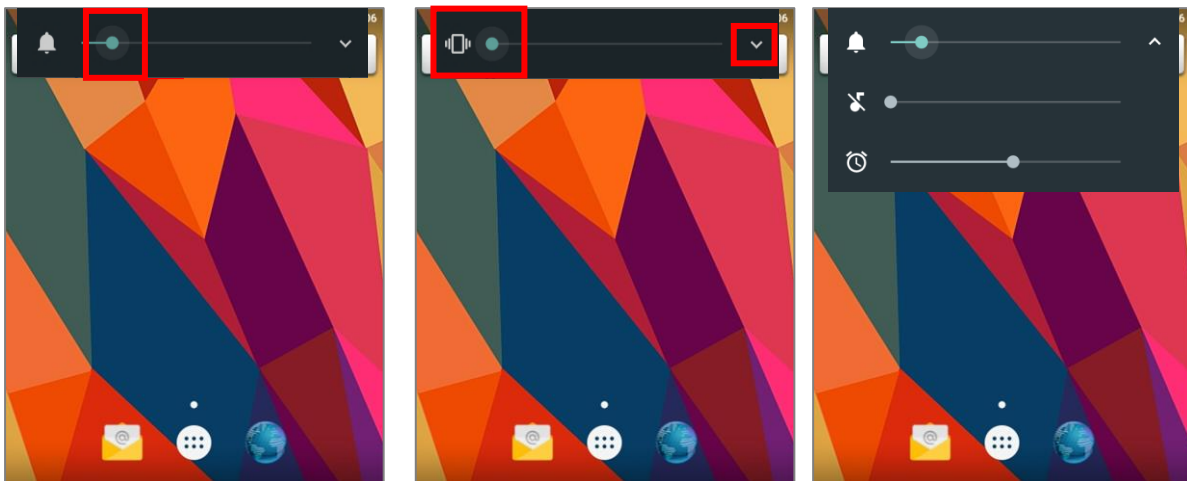
Chapter 2

BASIC OPERATION

This chapter describes the basic skills to work with this mobile computer, 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

2.1. DATE AND TIME

2.1.1. SET DATE, TIME AND TIME ZONE

By default, the mobile computer 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 & time** .
2) **Automatic date & time** is enabled by default. Tap **Automatic date & time** to switch between on and off to use network-provided time.
3) When **Automatic date & time** is disabled, tap **Set date** to bring up the calendar to select the correct month, date and year. Tap **OK** to save.
4) Tap **Set time** to bring up the clock to set the correct time. Tap **OK** to save.
5) Tap **Select time zone**. Select the correct time zone from the list.
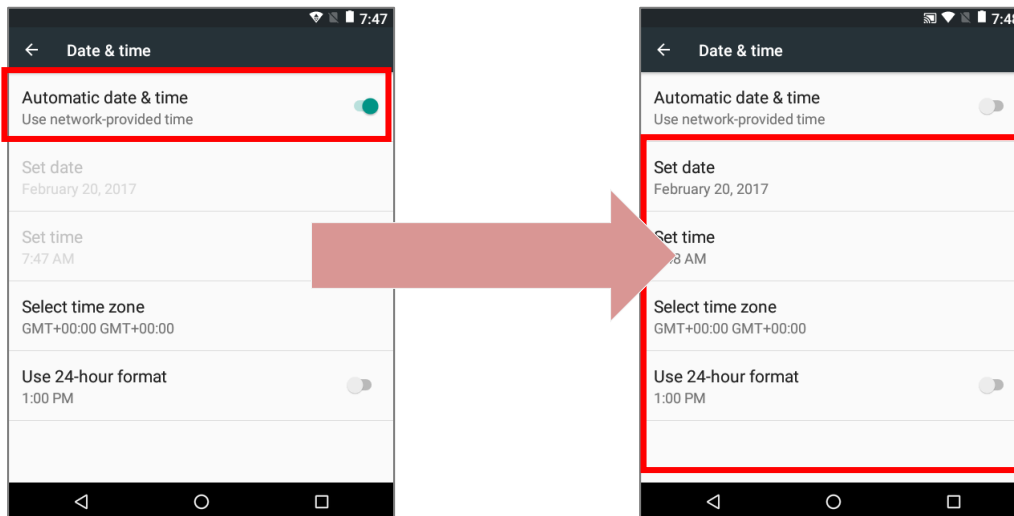
2.2. DATA CAPTURE

2.2.1. BARCODE READER

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

2.3. HOME SCREEN

When the mobile computer is fully charged, press the Power key for three seconds to turn on the mobile computer. A locked screen will appear. Swipe the lock button ⊕ up to unlock the screen.
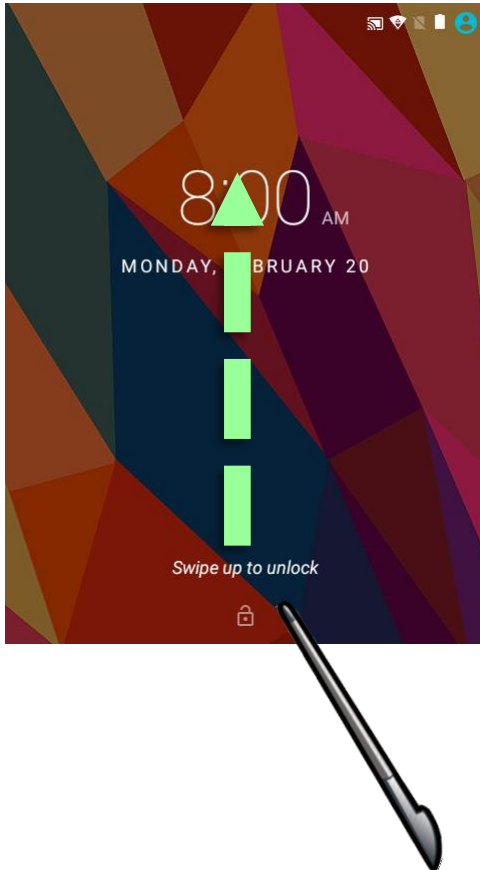
The **Home Screen** appears showing a status bar, shortcut icons, and a dock bar containing an All Apps button. The home screen allows multiple pages for placing shortcut icons and widgets. You may customize the home screen according to your preferences.
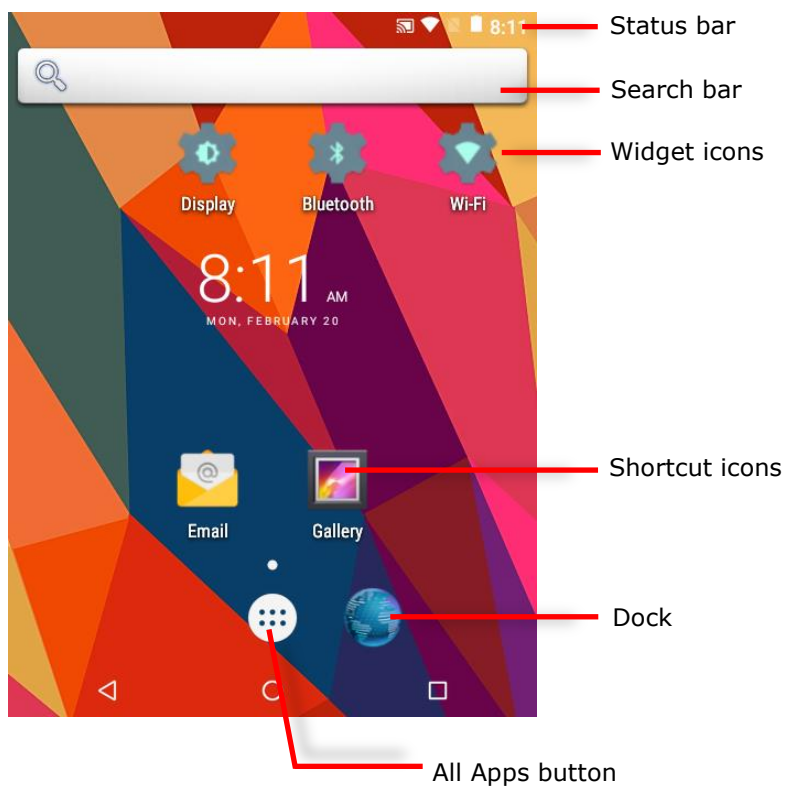
2.3.1. CUSTOMIZE HOME SCREEN

ADD APPLICATION SHORTCUT TO HOME SCREEN

1) On the home screen you would like to customize, tap ⊕ .
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.
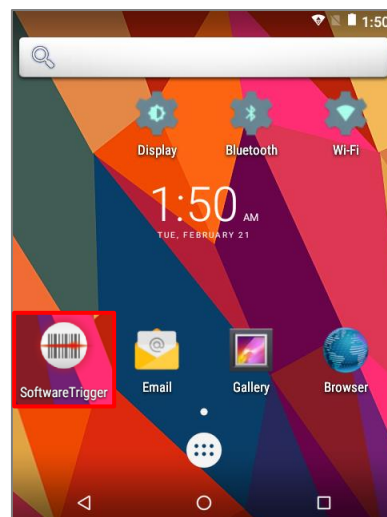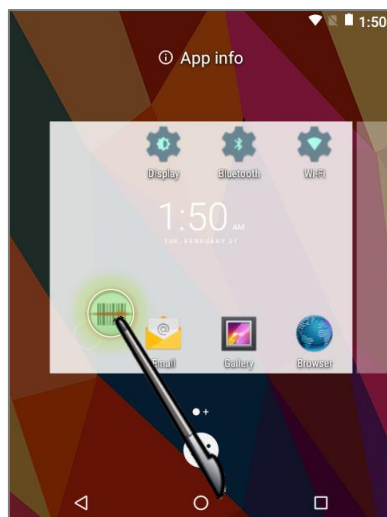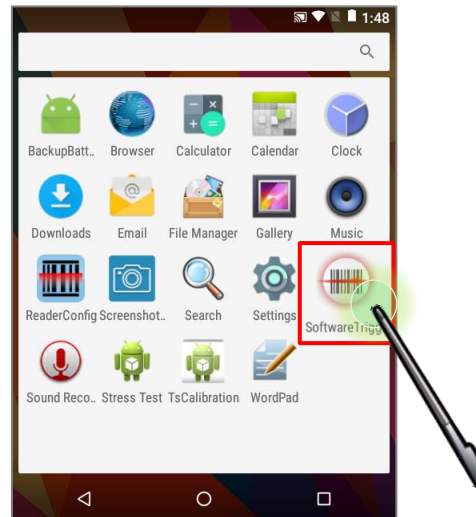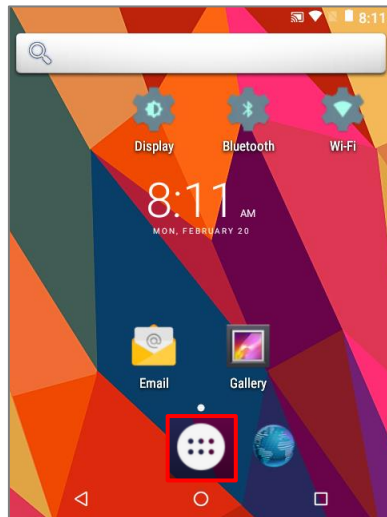
ADD WIDGET TO HOME SCREEN

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.
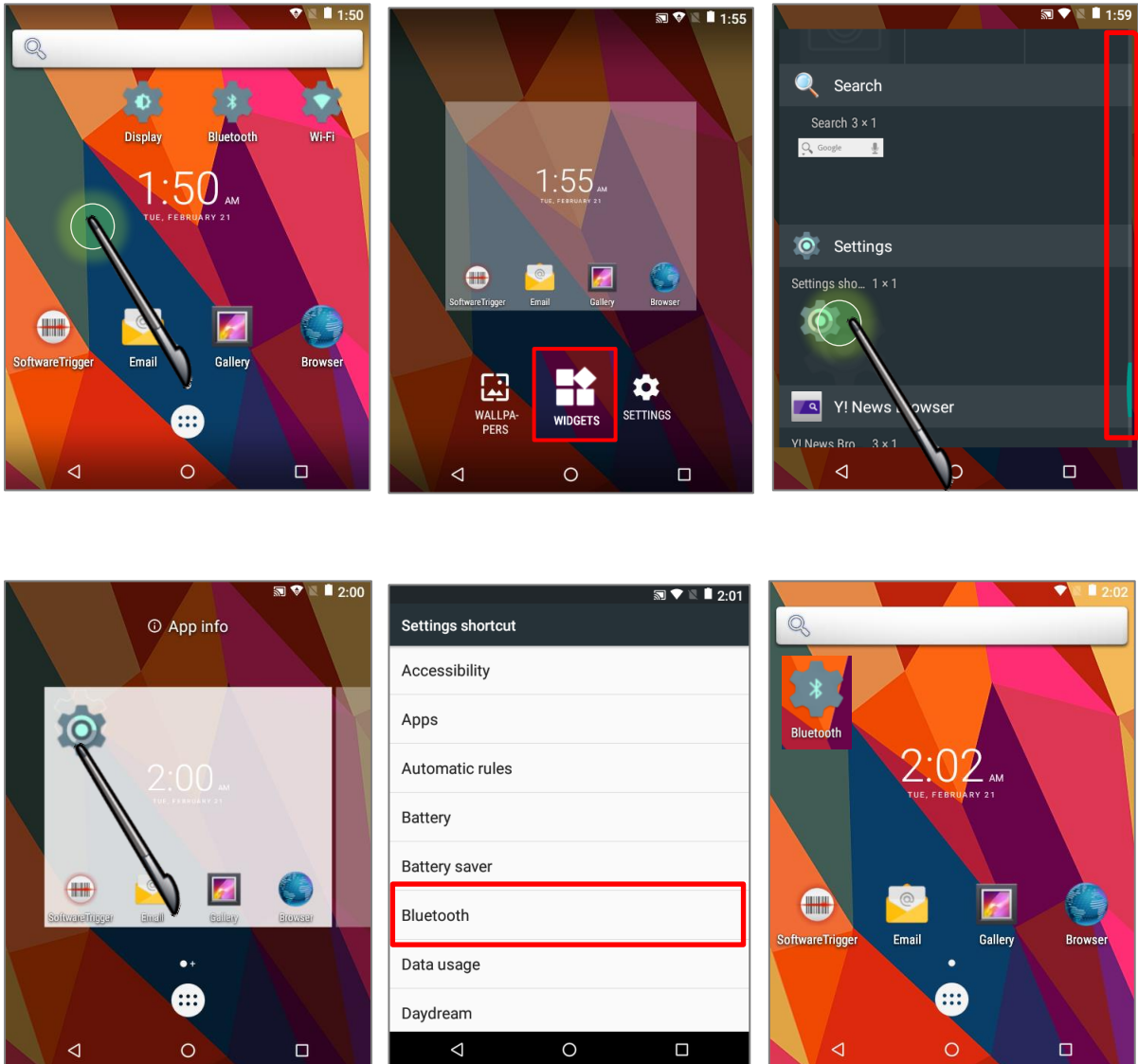
ARRANGE THE SHORTCUTS AND WIDGETS ON HOME SCREEN

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.
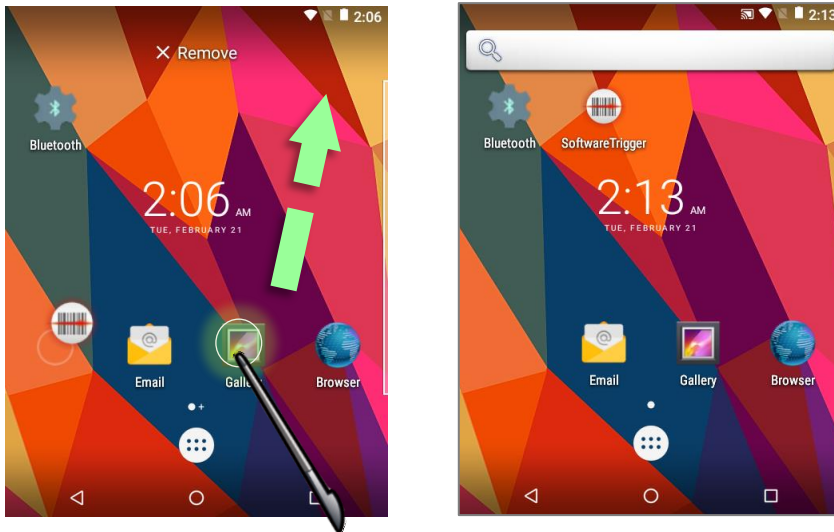
To resize a widget, tap and hold it until a white frame appears. Tap and drag a white dot to re-scale the widget.
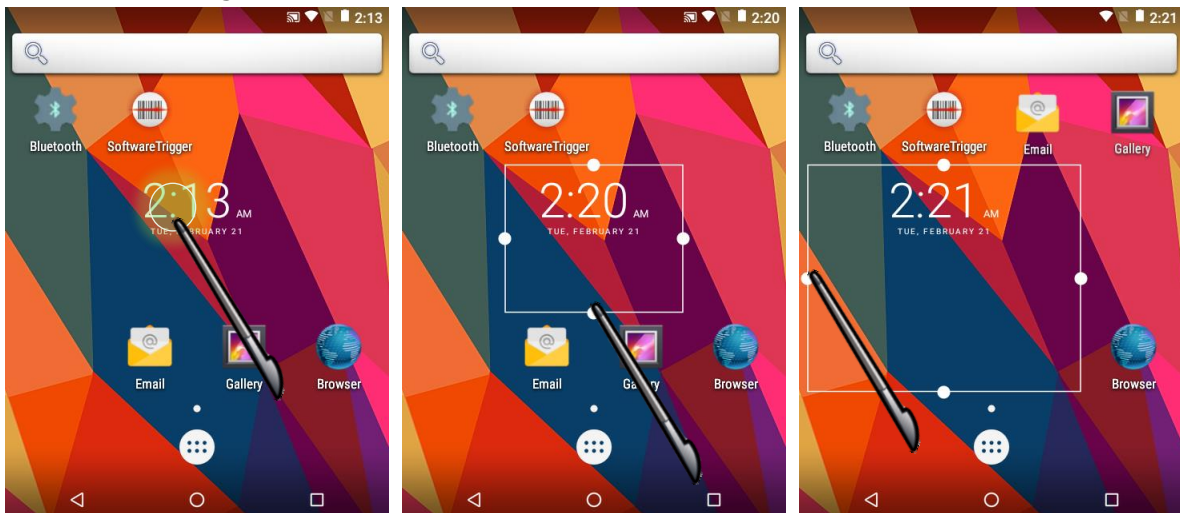
CHANGE HOME SCREEN WALLPAPER

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.
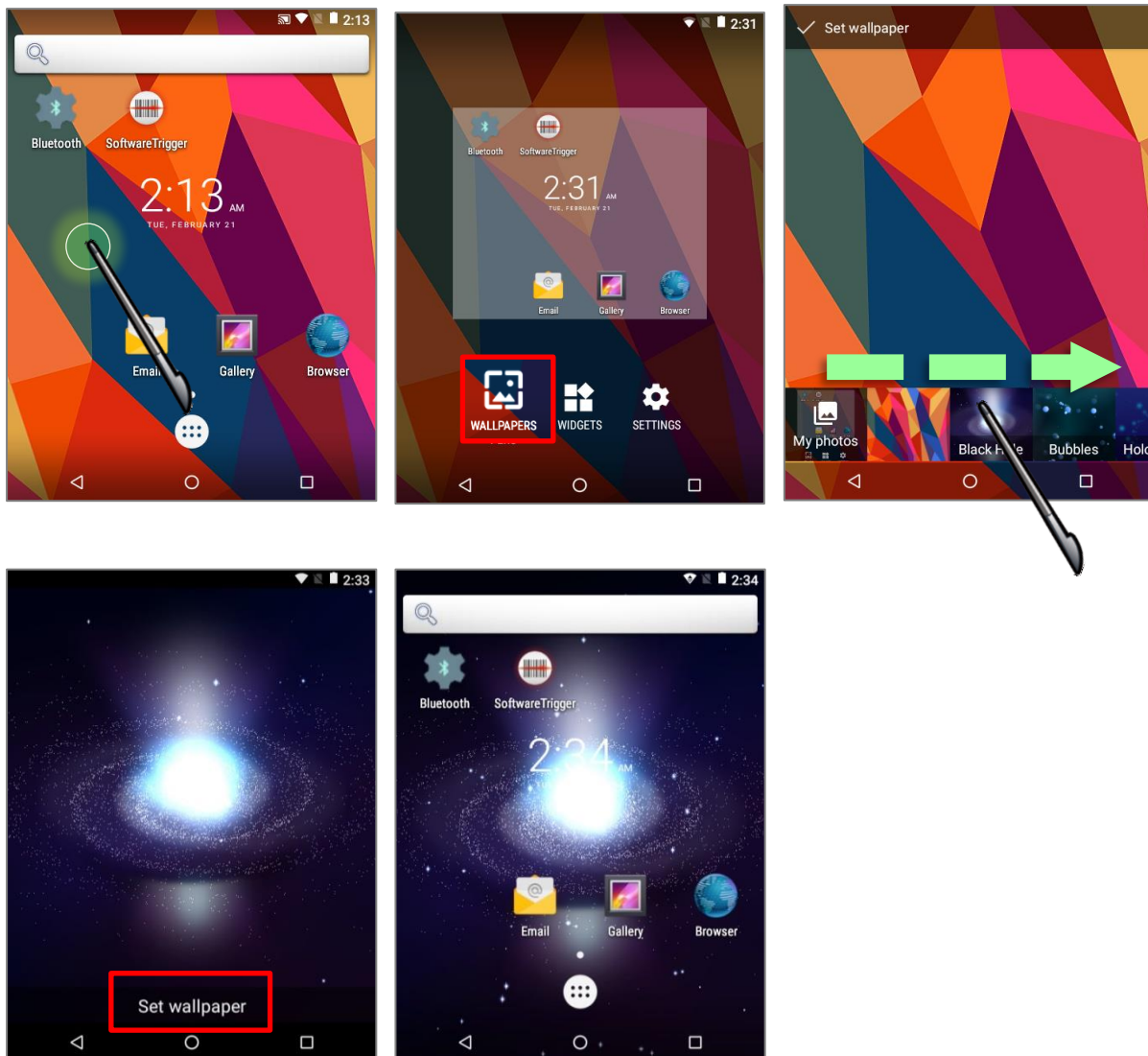
CREATE FOLDER

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 the stylus, these icons are enclosed in a circle.
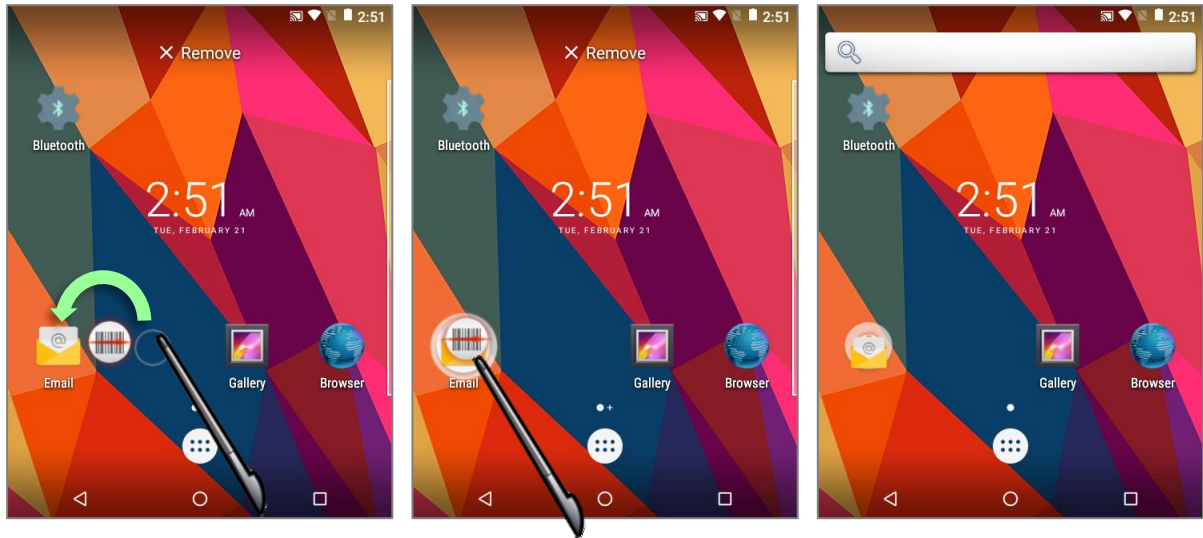
NAME FOLDER

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.
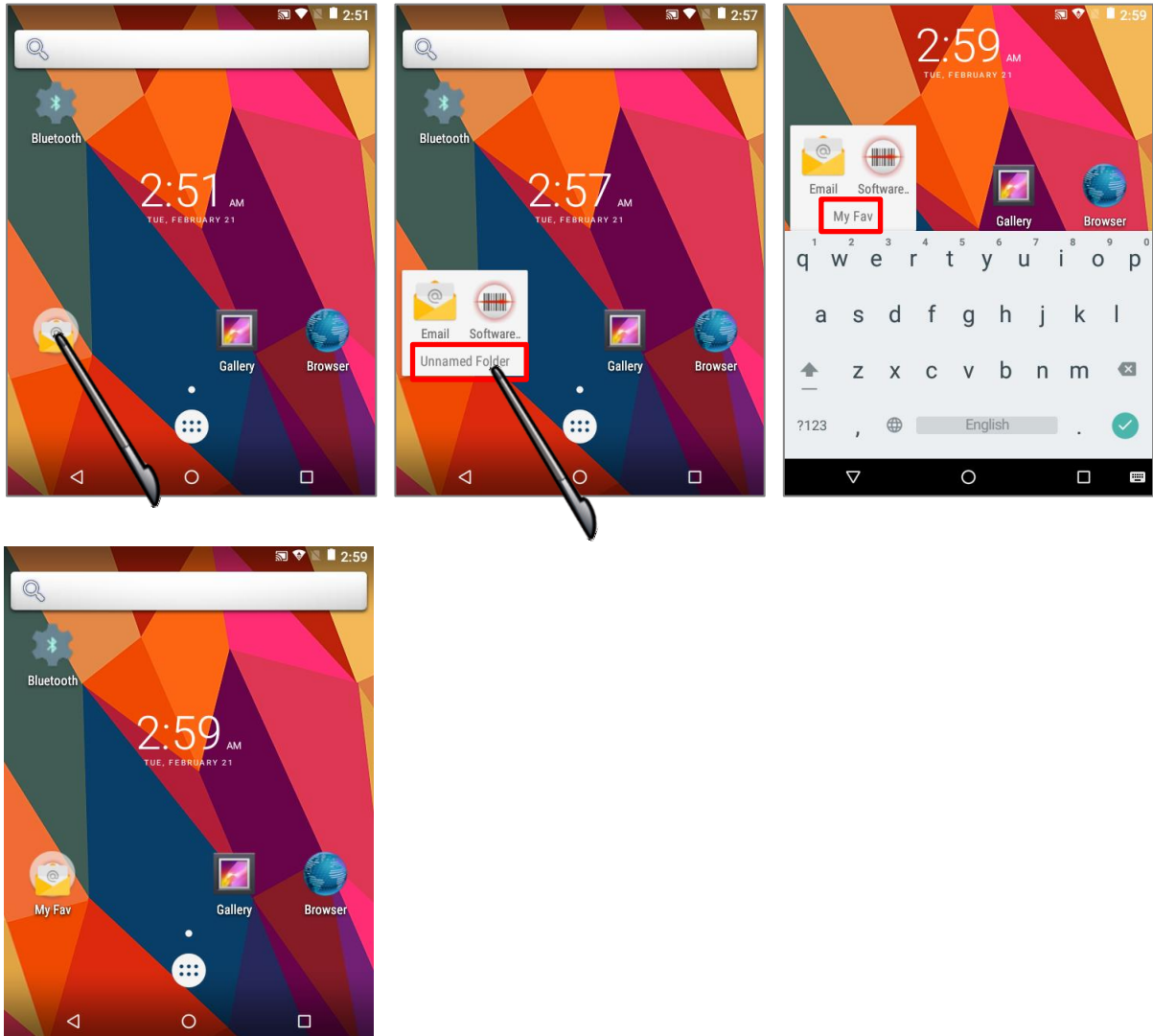
REMOVE FOLDER

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.
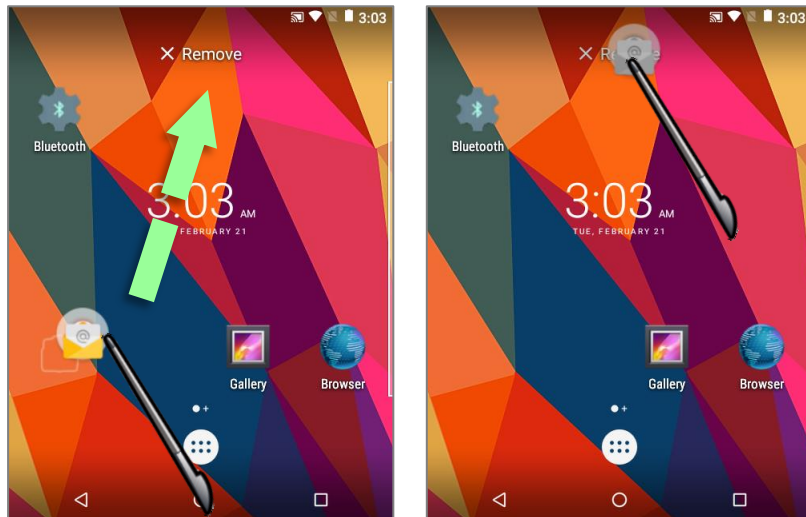
Note:

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

2.4. STATUS BAR

The left side of the status bar shows **notification icons**, and the right side of the status bar shows **status icons**.
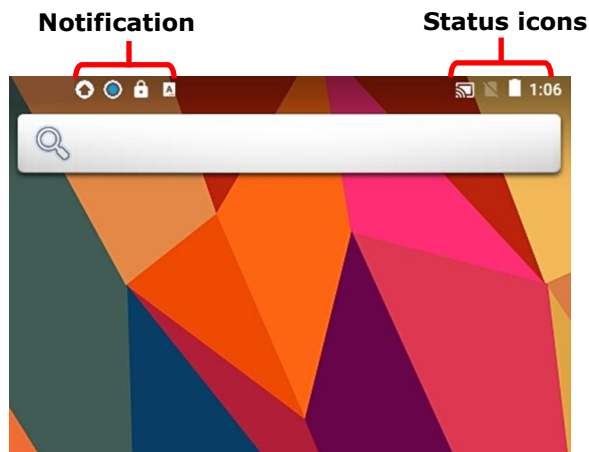
2.4.1. ICONS ON STATUS BAR

STATUS ICONS

Icon	Description
	Bluetooth is on.
	The device has been connected to a Bluetooth device.
	The device is currently connected to a Wi-Fi network and performing data transmission.
	An open Wi-Fi network is available.
	Alarm is active.
	All sounds are silent except for alarms (Vibration mode).
	The main battery is fully charged.
	The main battery is partially drained.
	Main battery level is very low and needs charging immediately (<5%).

| | External power source is connected and main battery is being charged. |

NOTIFICATION ICONS

Icon	Description
	USB debugging mode is enabled on this device
	There is an upcoming event.
	The device is downloading data.
	The device is uploading data.
	There has been a problem. Open **Notifications Drawer** for more details.
	The headset has been inserted.
	Wi-Fi hotspot is active.

2.4.2. 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 a stylus to swipe down from the top to the bottom of the screen and then tap on the status bar, the menu will be revealed. You can tap on each status icon on the menu to switch among different modes or enter the settings.
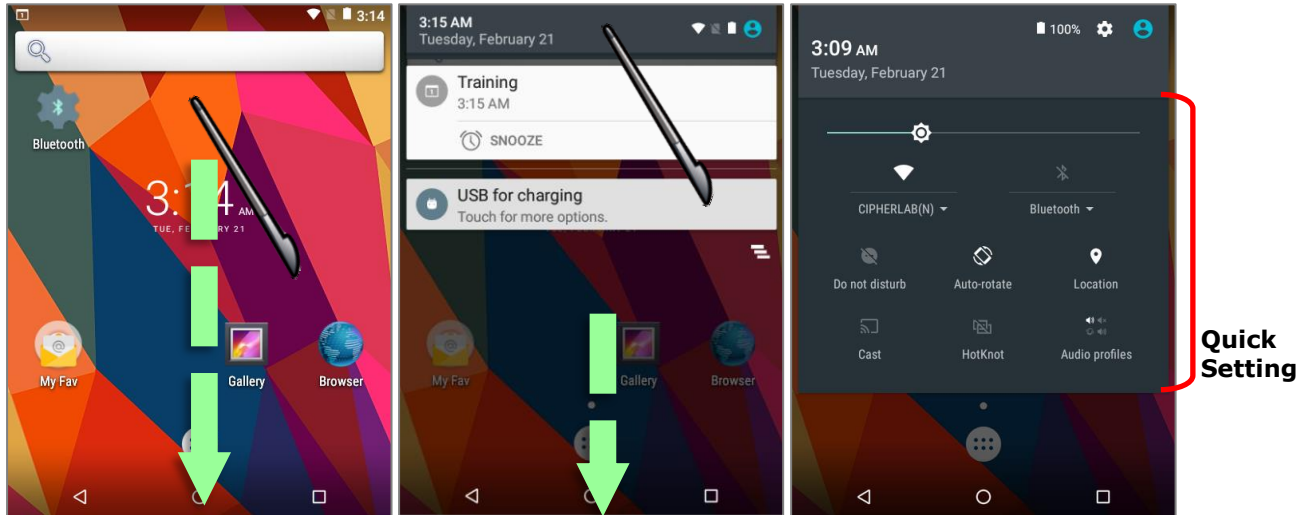
2.4.3. OPEN NOTIFICATIONS PANEL

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.
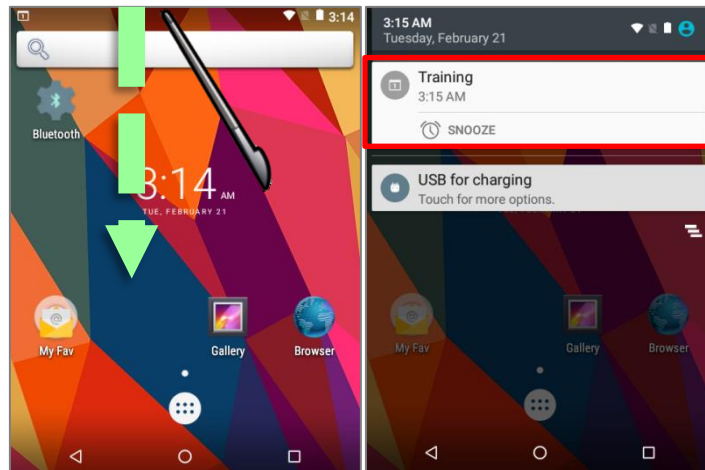
DISABLE NOTIFICATION

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 a (i) icon, tap it to modify the notification-related setting.
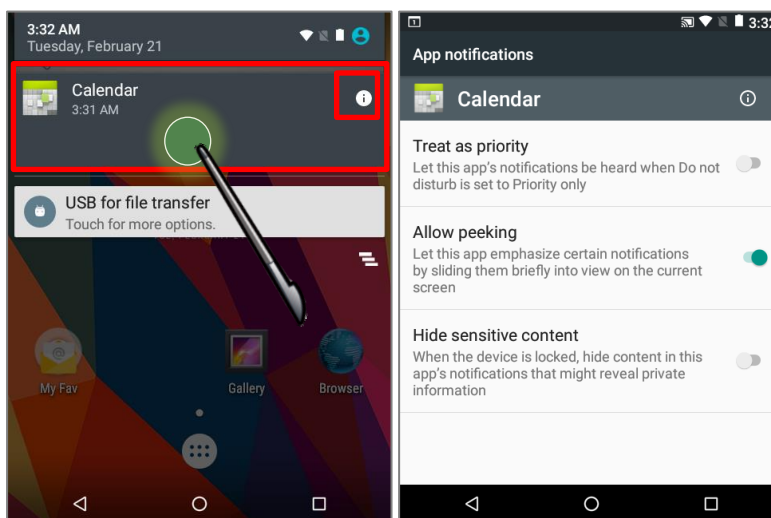
CLEAR NOTIFICATION

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.
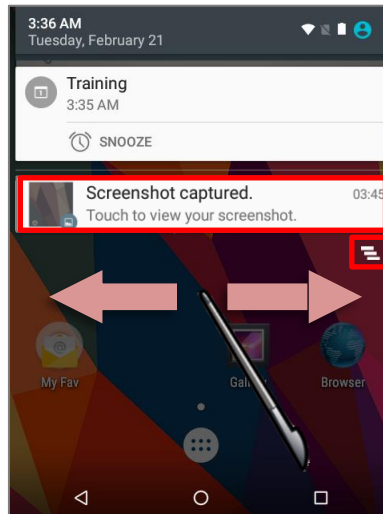
2.5. MANAGE APPLICATIONS

2.5.1. APPLICATION MENU

Tap ⠿ 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.
	Button Assignment	Allows users speed up process with quick access to function keys and specific programs.
	Calculator	Performs mathematical calculations.
	Calendar	Creates and manages events, meetings and appointments.
	Clock	Sets date, time, time zone according to your locale, and sets and manages alarms.
	Downloads	List all files downloaded on the mobile computer.
	Email	An app that provides fundamental functions for you to easily manage your emails.
	File Manager	Browses and manages files on the local storage and storage card.
	Gallery	Views photos and videos stored on the mobile computer.
	Music	A compact built-in music player that allows you to manage and play your music files stored in your device, featuring an Equalizer which can enhance your audio experience.
	Reader Config	Sets scanner preferences, data output format and destination, symbology settings, and reads barcodes.
	Search	Searches the internet and mobile computer with the search engine.
	Settings	Opens settings to configure the mobile computer.
	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.
	Terminal Emulation	An telnet application that allows users to connect to applications running on IBM 3270, IBM 5250, AS/400 and VT host from an Android mobile computer over a wireless TCP/IP data network.

2.5.2. CURRENT APPLICATIONS

Tap the **Recent Apps** button . The screen will show a list of recently used applications.
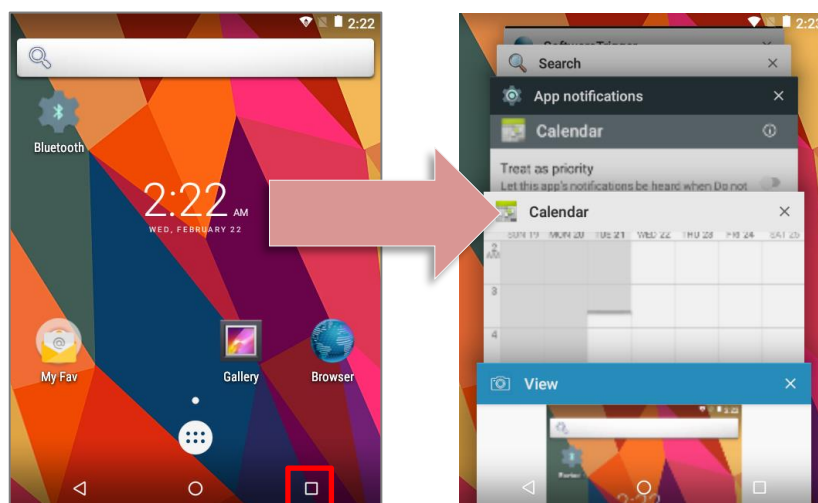
Actions to take on this screen include the following:

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.

2.6. SUSPEND & LOCK

2.6.1. SUSPEND DEVICE

The mobile computer operates continuously once it is powered on. To minimize power consumption and prevent unintended operation, suspend the mobile computer if you are not actively using it. The mobile computer can be quickly awoken from suspend mode to operate as needed. When the mobile computer 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 THIS DEVICE

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

2.6.2. 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 THIS DEVICE

Tap **All Apps** ⊞ | **Settings** ⚙ **Security** 🔒 | **Screen lock** to change the lock method.
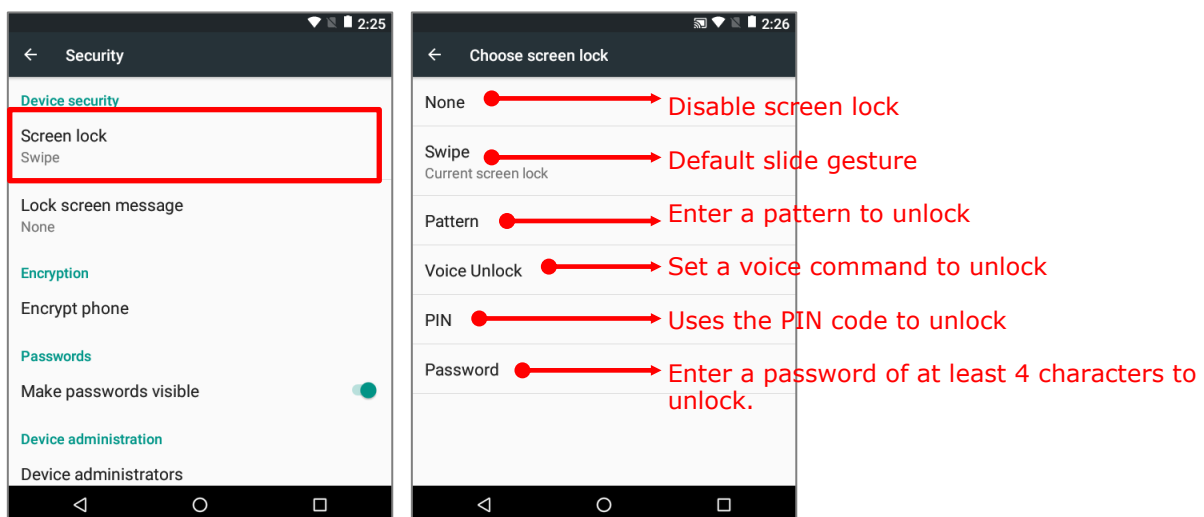
By selecting a pattern, Voice Unlock, Pin or Password method, you can access advanced settings to customize personal lock settings.
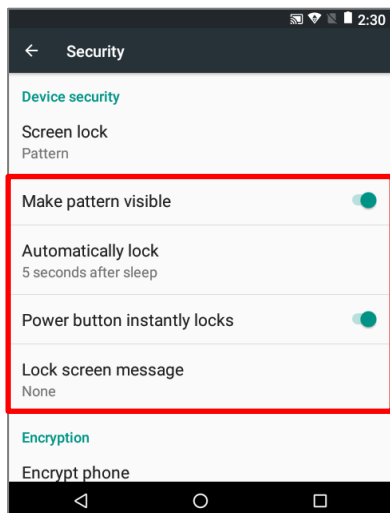
Warning:

To save battery power, suspend the mobile computer when not in use.

2.7. OS UPDATE

Updating the operating system on the mobile computer 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 mobile computer 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 mobile computer.

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 with support@cipherlab.com.tw for the password. Enter the password and tap **OK**.
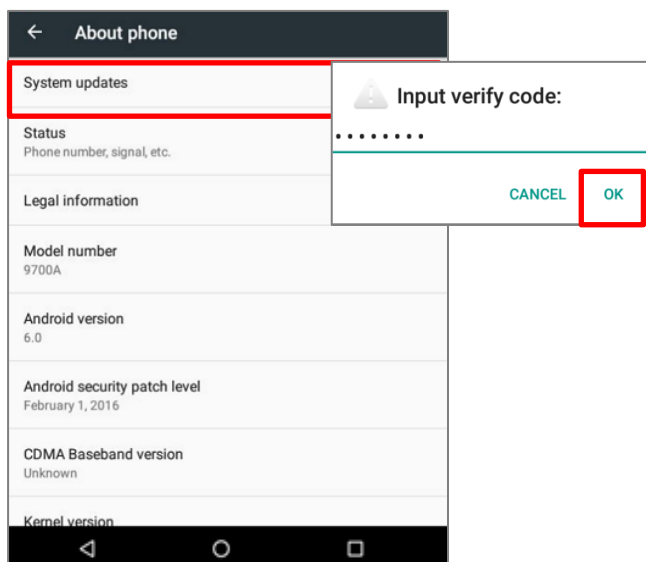
2) The mobile computer searches for the latest system update file on the server. Tap **DOWNLOAD AND INSTALL** to download the update file.

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.
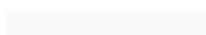
SD CARD UPDATE

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 mobile computer. 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 with support@cipherlab.com.tw for the password. Enter the password and tap **OK**.

4) The mobile computer searches for an available system update file on the SD card.

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

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.

Chapter 3

WIRELESS RADIOS

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

IN THIS CHAPTER

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

3.1.1. CONNECT TO WI-FI NETWORK

To power on Wi-Fi:

1) Use a stylus to swipe down from the top of the screen and then tap on the status bar to open **Quick Settings**.

2) Tap **Wi-fi** ▼ to scan for available networks. Select a network to connect.
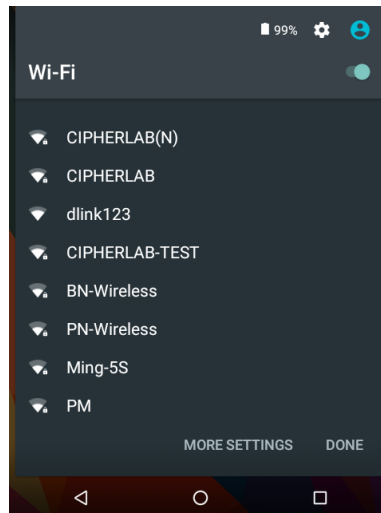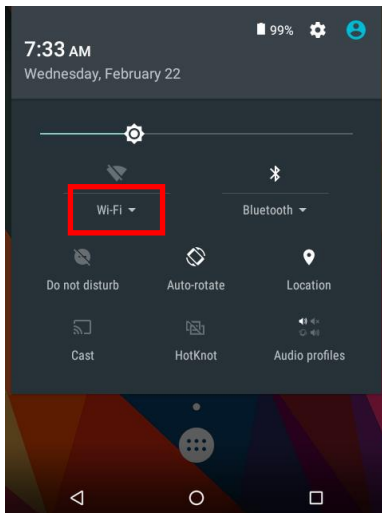
OR

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 mobile computer will attempt to connect to it directly. When connected, the status will change to show "**Connected**". If the network is a secured one, the mobile computer prompts a dialog to enter the password for the connection.
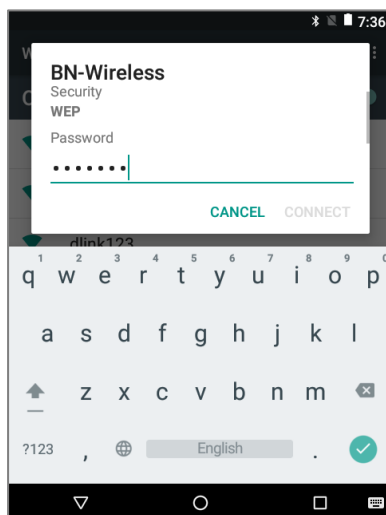
3.1.2. MANUALLY ADD WI-FI NETWORK

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 mobile computer supports the following certificate file extensions:

File Extension Type	Standard Certificate	Key Stored
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**.
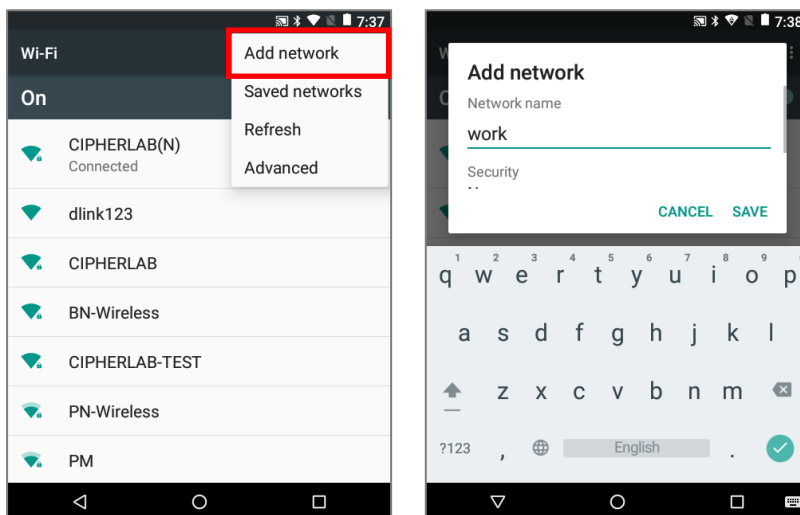
3.1.3. ADVANCED WI-FI SETTINGS

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:
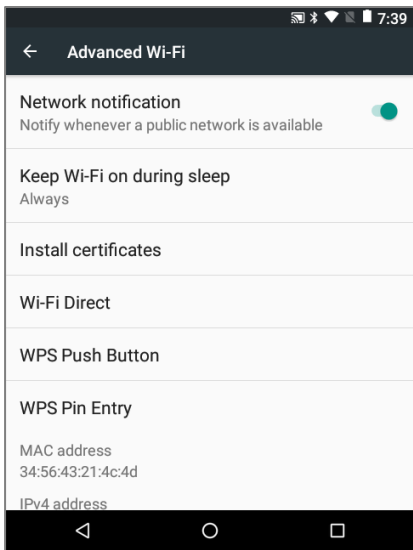
Item	Description
Network notification	Notifies when an open network is available.
Keep Wi-Fi on during sleep	Sets when to turn Wi-Fi on during sleep.
Install certificates	Installs certificates recently downloaded or placed on the internal storage.
Wi-Fi Direct	Enables your device to connect with a Wi-Fi 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.

3.1.4.   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**.

3.1.5.   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**.

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

Wi-Fi protected setup (WPS) allows easy establishment of a secure wireless network. The mobile computer 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.
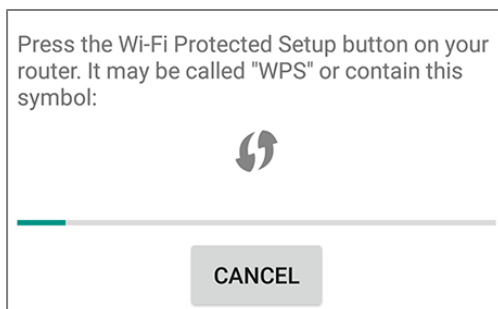
3) On your wireless router, press the WPS button. The device will connect to your router.

Chapter 3 Wireless Radios

3.1.7. 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**.
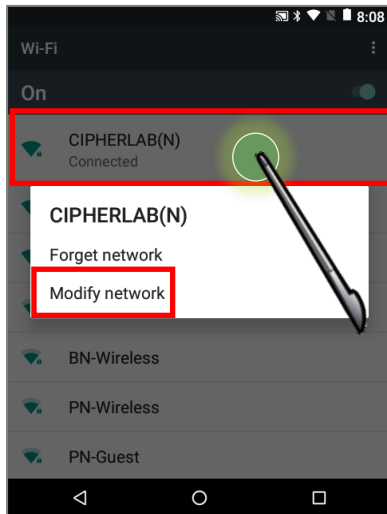
3.1.8. DISCONNECT WI-FI NETWORK

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.

3.2. USE BLUETOOTH

The mobile computer lets you configure Bluetooth settings and manage Bluetooth services provided on remote devices.

3.2.1. 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 mobile computer, or initiate a call.

3.2.2. TURN ON BLUETOOTH

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

1) Use a stylus to swipe down from the top of the screen and then tap on the status bar to open **Quick Settings**.

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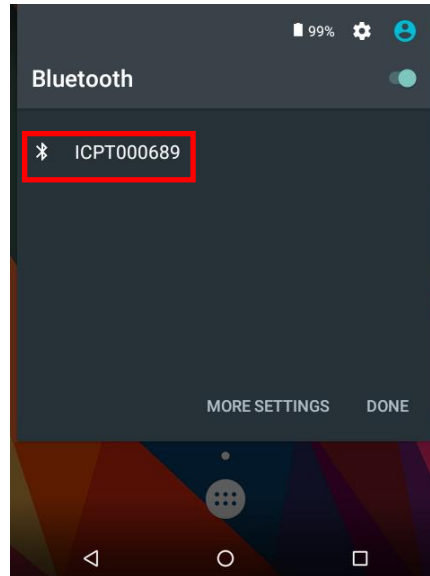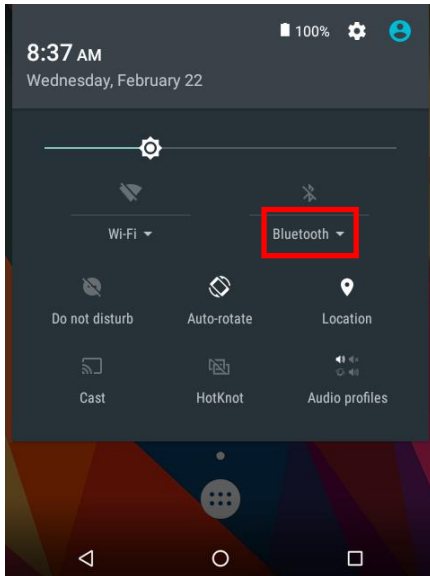
OR

Tap **All Apps** ⊞ | **Settings** ⚙ | **Bluetooth** ✳ .

3) Tap the switch to turn on this function while enabling the Bluetooth visibility of this device.
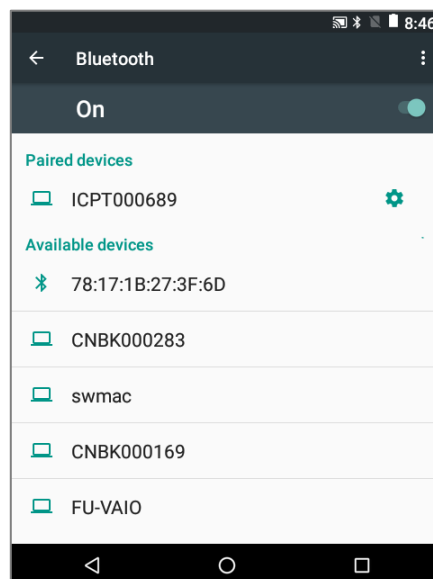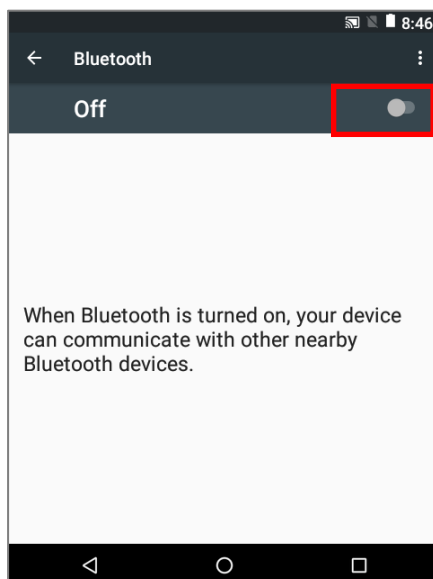
Note: After turned on, Bluetooth power is maintained even when the mobile computer is suspended. However, if the power mode is switched to Airplane Mode, Bluetooth power will be turned off regardless of the settings.

3.2.3. CHANGE BLUETOOTH NAME

To change the Bluetooth name of this mobile computer:

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**.
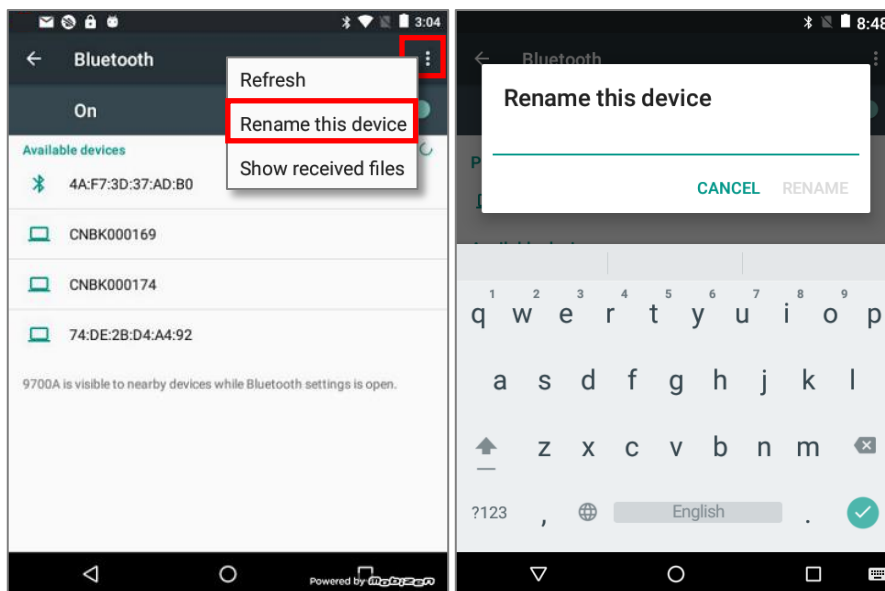
3.2.4. PAIR BLUETOOTH DEVICES

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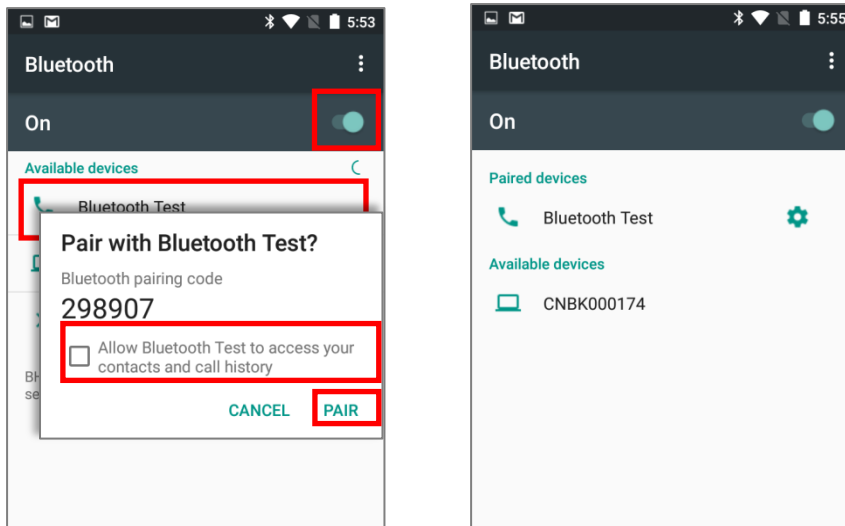
Note: If the device you would like to pair with is not listed, make sure Bluetooth visibility is enabled on the device.

3.2.5. 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**.
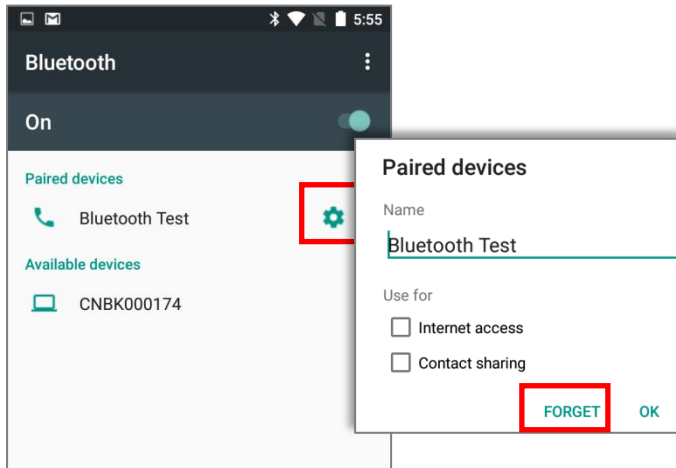
Chapter 4

USING READER CONFIGURATION UTILITY

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

IN THIS CHAPTER

4.1 CONFIGURE READER

The mobile computer is capable of reading printed barcodes. The reader module can be either a (laser) 1D reader or a 2D imager. The mobile computer is installed with a 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) ![home] | **All Apps** ![apps] | **Reader Config** ![icon] to open the Reader Configuration Utility.

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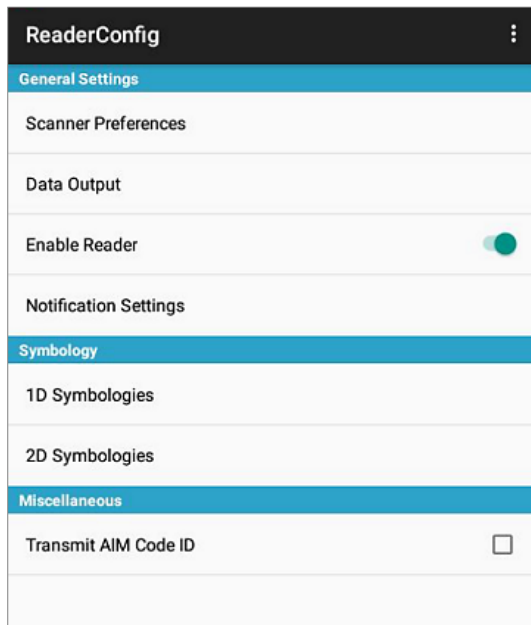
4.1.1 GENERAL SETTINGS

General Settings is where all reader settings are accessed from. Tap each item to enter its sub-menu.
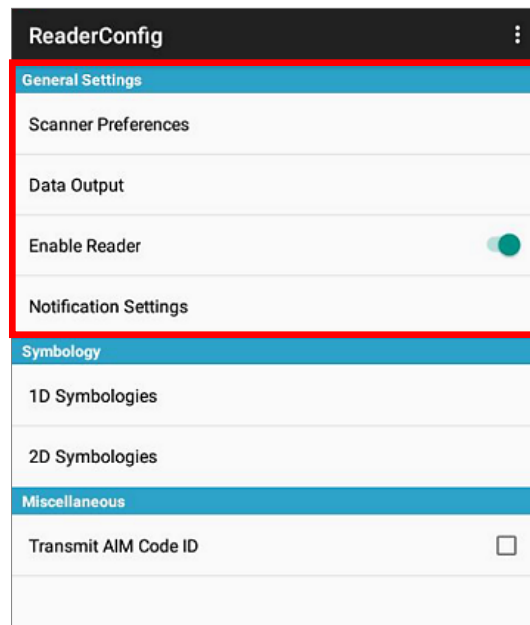
The functions under **General Settings** include:

▸ 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 mobile computer.

To open **Scanner Preferences** page:

1) Open **Reader Config** as described in <u>Launch Reader Config</u>.
2) Tap **Scanner Preferences**.

1D LASER READER SETTINGS

Setting	Description	Default
Decode Timeout	Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.	3 sec
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available. The readings needed for each level are as follows: **Level 1**: The following barcodes must be successfully read twice before being decoded: Codabar, MSI, Industrial 25 (Discrete 25), Interleaved 25. **Level 2**: All barcodes must be successfully read twice before being decoded. **Level 3**: All barcodes must be successfully read twice before being decoded, except for the following which must be read three times: MSI, Industrial 25 (Discrete 25), Interleaved 25. **Level 4**: All barcodes must be successfully read three times before being decoded.	Level 1
Scan Angle	Sets the scan angle for laser scan engine. **Wide Angle**: 47° (Extended range laser reader is fixed at Wide Angle) Narrow Angle: 35°	Wide Angle
Scan Mode	Sets the reader's scanning behavior. Options available are **Continuous** and **Level** modes. **Continuous: Used for continuous reading of barcodes. The scan engine remains on when this mode is activated. Level: Reads a barcode when the trigger is pressed.**	Level
Timeout Between Symbols	Sets the time for the barcode reader to resurrect its ability to once more decode the barcode it just decoded. Only applied in **Continuous** mode	1 sec
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

2D IMAGER SETTINGS

Setting	Description	Default
Decode Timeout	Sets the maximum time for the decoding process during a scan. Configurable between 1 sec to 9 sec.	3 sec.
Redundancy Level	Sets how many successful readings should be done before linear barcodes such as Codabar, MSI, and Interleaved 2 of 5 can be decoded. Levels 1 to 4 available.	Level 1
Security Level	Sets the security level to ensure decoding accuracy considering the printed quality of barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are: <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>	Level 0
Inter-Char Gap Size	Sets the intercharacter gap size for Code 39 and Codabar. This option is to allow the digital scanner to adjust its decoding standard so as to tolerate out-of-specification bar codes that are improperly printed out (which may cause the intercharacter size to become larger). Switch between **Normal** and **Large**.	Normal
Scan Mode	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**: When this device is executing Barcode reader service under this mode, the reader module will stay active and automatically turn off after the user-defined period of time (Presentation Usage Time).	Level
Presentation Usage Time	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.	15 Minutes
Decoding Illumination	Enables an LED light beam to aid barcode reading.	Selected (Enabled)
Decode Aiming Pattern	Projects a crosshair at the center of the laser light beam to facilitate barcode reading.	Selected (Enabled)
Picklist Mode	When selected, only barcodes aligned at the crosshair of the laser light beam will be decoded.	Deselected (Disabled)
Display Mode	Enable improved performance for reading barcodes on electronic displays and mobile phones.	Deselected (Disabled)

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 <u>Launch Reader Config</u>.
Tap **Data Output**.

| Keyboard Emulation |
InputMethod
Auto Enter
Decoded data + Enter char
Auto Enter Character
Carriage return
Display Code Type ☐
Display Code Length ☐
Prefix
Suffix
Field Delimiter
None
Barcode Charset
Windows-1252: Western European

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 mobile computer. 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 <u>Launch Reader Config</u>.

Tap **Notification Settings**.

Setting		Description	Default
LED	Enable LED when good read	Selects to enable/disable LED light (left) for scanning good read.	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

4.1.2   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
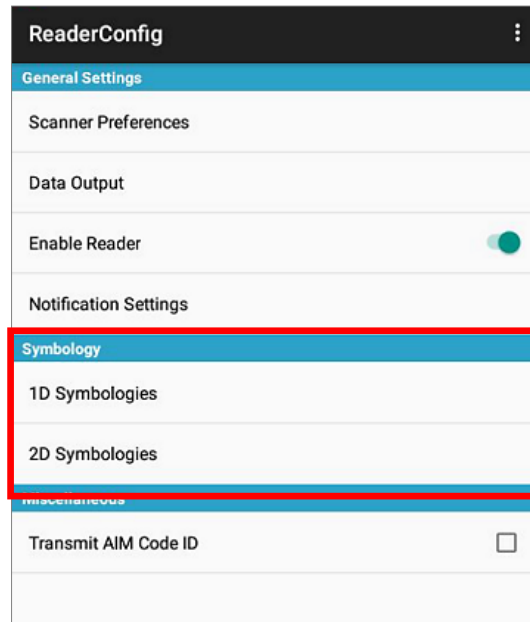
To open **Symbology** settings page:

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 1D Laser Reader Settings for 1D Laser reader settings
- ▶ See 2D Imager Settings for 2D Imager settings.

4.1.3 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: ▸ See 1D Laser Reader Settings for 1D Laser reader settings ▸ See 2D Imager Settings for 2D Imager settings.	Deselected (Disabled)

4.1.4   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.
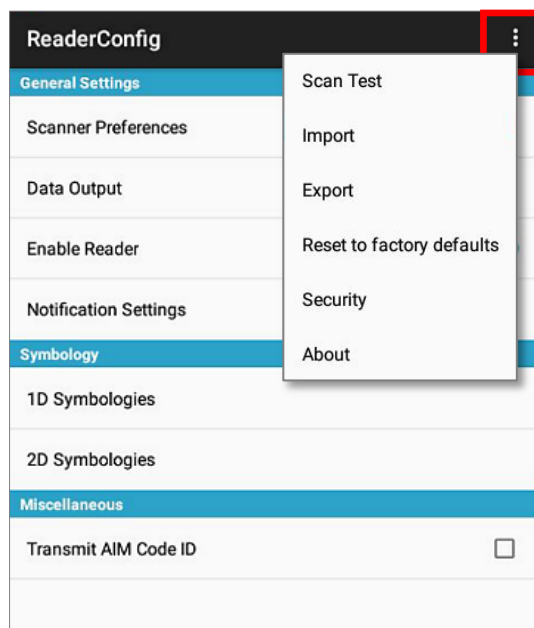
SCAN TEST

To test scan a barcode:

1) Open **Reader Config** as described in <u>Launch Reader Config</u>.

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.
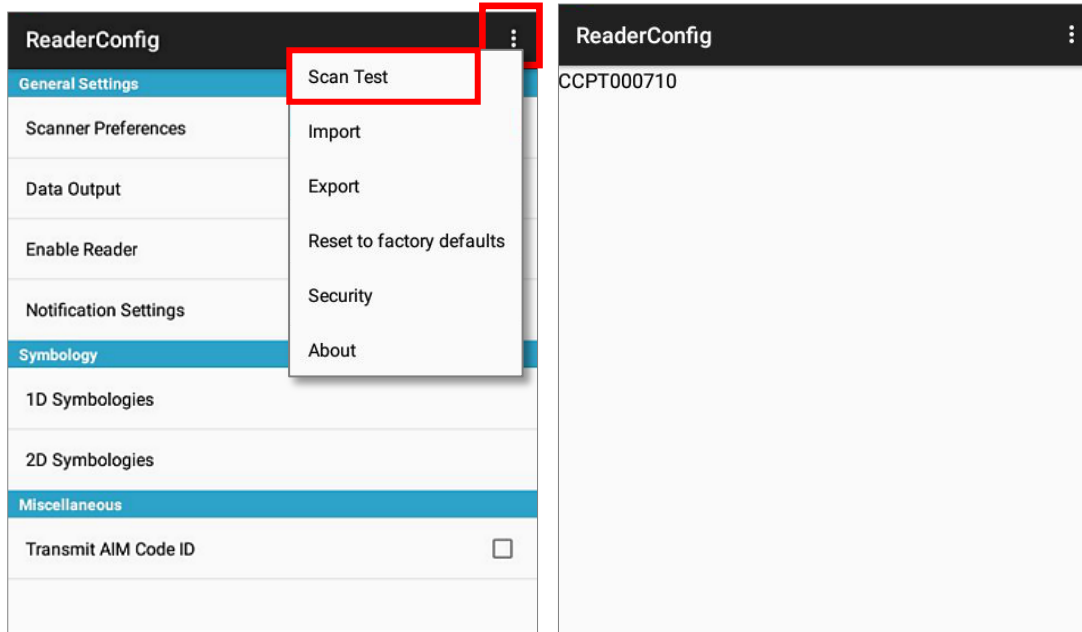
IMPORT AND EXPORT

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 mobile computer. This can also be used to implement identical Reader Config settings on multiple devices.

To import settings:
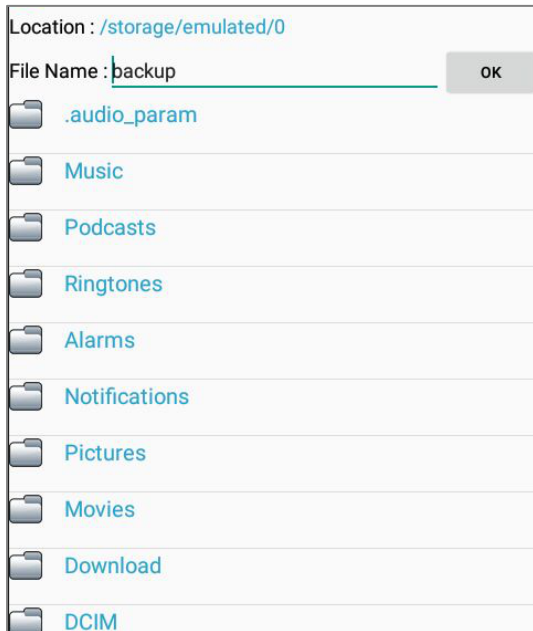
1) Open **Reader Config** as described in <u>Launch Reader Config</u>.

2) Tap the settings button [icon] on the menu bar to open the option menu.

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

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

Location : /storage/emulated/0

File Name : _____   OK

    📁 .audio_param

    📁 Music

    📁 Podcasts

    📁 Ringtones

    📁 Alarms

    📁 Notifications

    📁 Pictures

    📁 Movies

    📁 Download

    📁 DCIM
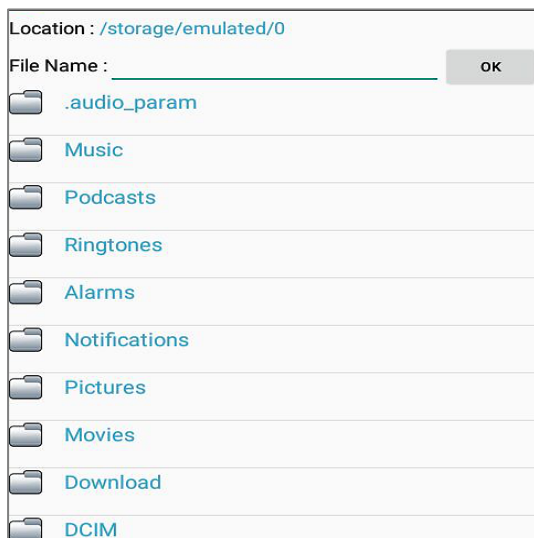
4) Tap **OK**. In a few seconds a prompt will appear on the mobile computer to indicate settings have been imported successfully.

To export settings:

1) Open **Reader Config** as described in <u>Launch Reader Config</u>.

2) Tap the settings button ⬛ on the menu bar to open the option menu.

3) Tap **Export**.

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

Location : /storage/emulated/0

File Name : backup   OK

📁 .audio_param

📁 Music

📁 Podcasts

📁 Ringtones

📁 Alarms

📁 Notifications

📁 Pictures

📁 Movies

📁 Download

📁 DCIM

5) 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.

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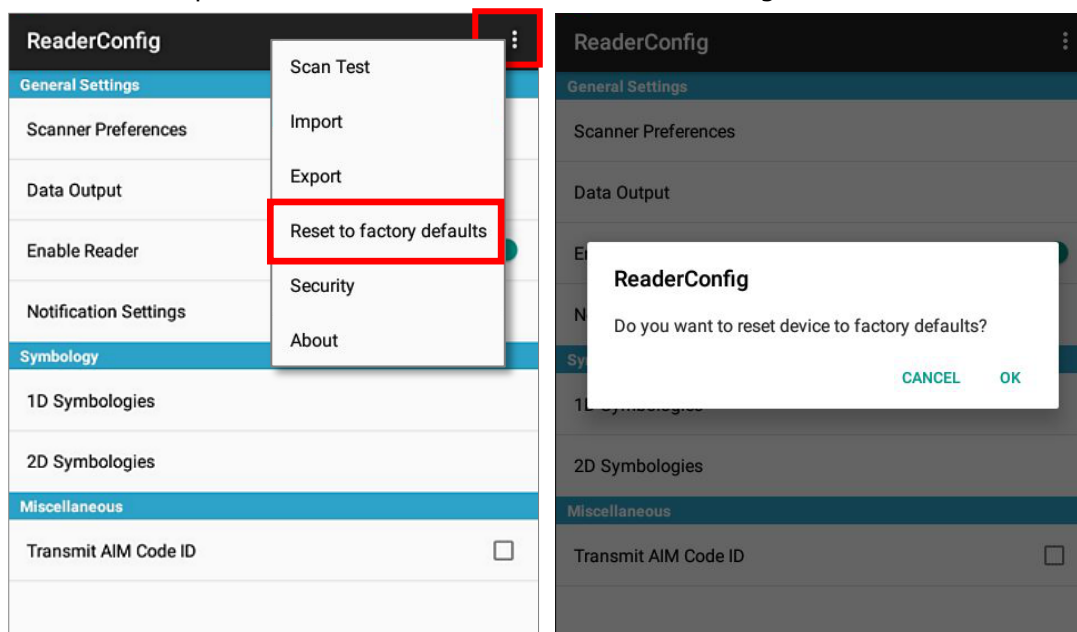
SECURITY

You can set a password to restrict other users of this mobile computer from changing certain configurations or accessing certain functions in Reader Config.

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 Security.

4) Enter and confirm a password (up to 32 characters, containing at least 1 digit or 1 alphabetic letter).

5) Check the items that will be protected by this password.

(2)
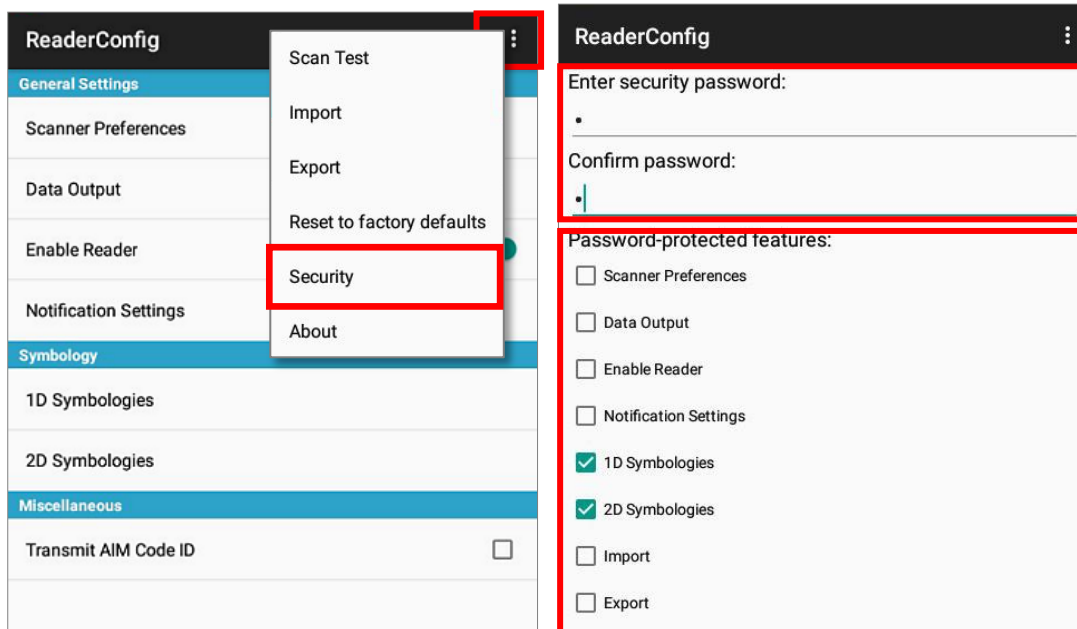
ABOUT

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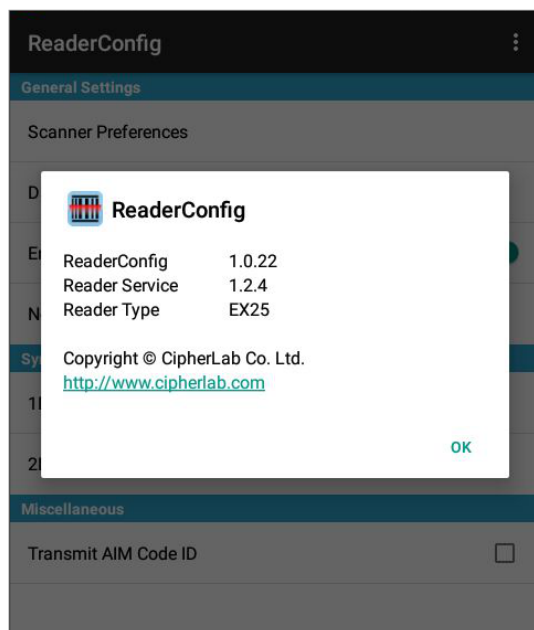
4.2   READ PRINTED BARCODES

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.
(3)   A Test Scan Form opens for displaying the scanned data.
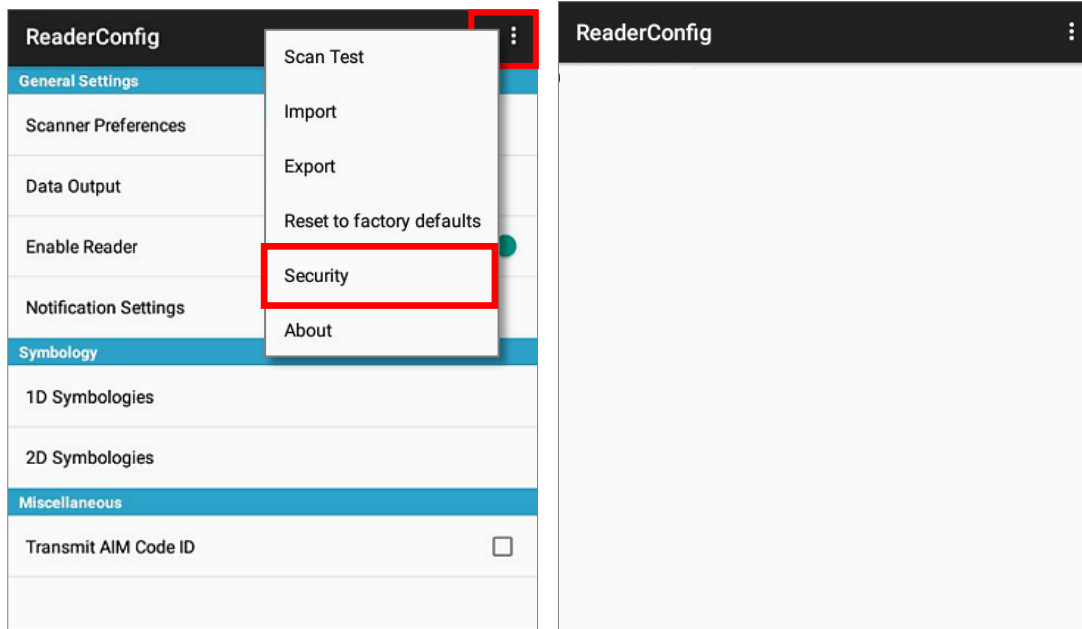
3) Aim the scanning window at the barcode to read and press any of the two side triggers. The scanning light beams to read the printed barcodes. The scanning light goes off once the data is decoded, or when the decode timeout period has passed.
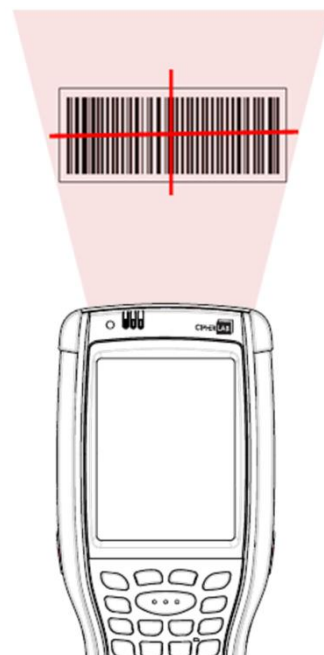
4) The decoded data will appear on the page. When finished viewing, tap ◁ to leave the test scan page; or tap the settings button ⋮ and tap **Save** to save the decoded data as a .txt file or clear all data on the screen.

ReaderConfig	Save
CCPT000710	Clear All
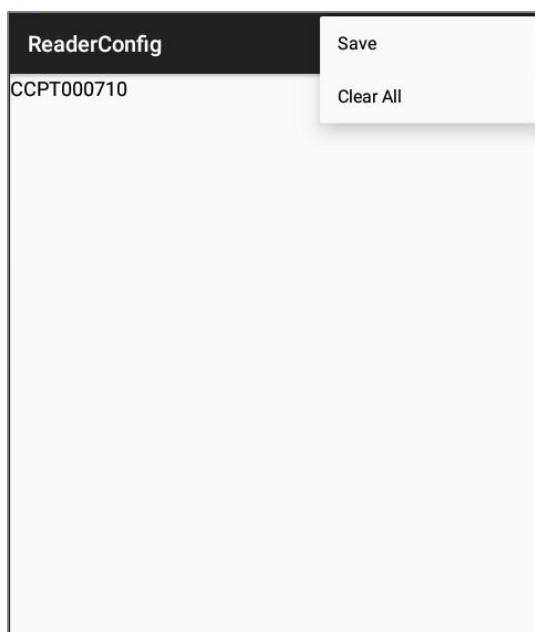
SPECIFICATIONS

PLATFORM, PROCESSOR & MEMORY

Operating System & CPU

OS Version	Android 6.0 Marshmallow
CPU	MT6755 A53 Octa-core 2GHz Processor

Memory

RAM	2GB LPDDR3
Flash	16GB Flash ROM
Expansion Slot	One expansion slot, supports MicroSDHC up to 128 GB

COMMUNICATIONS & DATA CAPTURE

Communications

USB Host/Client	USB 2.0
WPAN	Built-in module for Bluetooth version 2.1 + EDR Class II connectivity + Bluetooth 4.1 BLE
WLAN	802.11 a/b/g/n/ac networking

Data & Image Capture

Barcode Reader	Ordering options include	**STANDARD READER UNIT** Laser (Symbol SE955) 2D imager (Symbol SE4500) **LARGE READER UNIT** 2D imager with decoder board (Symbol SE4500+PL4507) Extended range laser (Symbol SE1524) Near/far 2D imager (Intermec EX25)

ELECTRICAL CHARACTERISTICS

Batteries

Main Battery Pack	Standard capacity battery: 3.7V, 3600 mAh
	Large capacity battery: 3.7V, 5400 mAh
	Rechargeable Li-ion battery
	Charging time: approximately 4 hours for standard battery / 6 hours for large capacity battery
Backup Battery	3.7V, 200 mAh
	Rechargeable Li-Polymer battery (charged via main battery)
	Data retention for 30 minutes
	Charging time: approximately 8 hours

Power Adapter

Power Supply Cord for Snap-on Cable	Input	AC 100~240V, 50/60 Hz
	Output	DC 5V, 4A
Power Supply Cord for Cradle	Input	AC 100~240V, 50/60 Hz
	Output	DC 12V, 3.3A

Operating Time

Minimum 13 hours for standard capacity battery/19 hours for large capacity battery performing scanning once per 20 seconds, with LCD at 50% backlight and speaker on (at default volume) at 25°C, Bluetooth off and IEEE 802.11 a/b/g/n/ac on.

PHYSICAL CHARACTERISTICS

Color Tap Screen Display

Display	3.5" Transflective TFT-LCD
Resolution	VGA 640 (W) x 480 (H)

Keypad

Layout	Numeric keypad (30-key), Numeric & Function keypad (38-key), or Alphanumeric keypad (53-key)
Backlight	White LED backlight for display and keypad

Notifications

Status LED	Two LEDs for showing scanning good read, battery charging status and system notifications.
Audio	Integrated with speaker and microphone 2.5mm 4-ring headset jack Bluetooth headset supported
Vibrator	0.45G force

Sensors

Built-in Sensors	G-sensor

Enclosures

Materials	Plastic & metal
Dimensions	214 mm (L) x 89 mm (W) x 47 mm (H) with battery
Weight	450~670g (depending on SKU type and battery type)

ENVIRONMENTAL CHARACTERISTICS

Temperature

Operating^{Note}	-20 °C to 50 °C / -4°F to 122°F
Storage	-30 °C to 70 °C / -22°F to 158°F (without battery)
	-30 °C to 60 °C / -22°F to 140°F (with battery)
Charging	0 °C to 35 °C / 32°F to 95°F (with battery)

Humidity

Operating	5% to 95%, non-condensing (Max 60°C / 140°F)
Storage	5% to 95%, non-condensing (Max 60°C / 140°F)

Resistance

Impact Resistance	Multiple 1.8 m (5.9 ft.) drops to concrete, meets and exceeds applicable MIL-STD 810G specifications
Tumble Test	500 tumbles (1,000 drops) at 1 m (1.6 ft) and 1,000 tumbles (2,000 drops) at 0.5 m (0.8 ft.) per applicable IEC tumble specifications
Splash/Dust Resistance	IP65 per applicable IEC 529(BS EN 60529:1992) sealing specs
Electrostatic Discharge	± 15 kV air discharge, ± 8 kV direct/indirect discharge

Note: CipherLab will not be held responsible for the mobile computer's malfunction incurred by the operation outside operating temperature range.

PROGRAMMING SUPPORT

Development Environment & Tools

Integrated Development Environment	Android Studio
Software Development Kit	DLL
	Reader API (JAR) for reader configuration

Software & Utilities

CipherLab software package	Reader Config Button Assignment AppLock Terminal Emulation

ACCESSORIES 117

Accessory Options

- Snap-on Charging and Communication Cable (USB or RS-232)
- Charging & Communication Cradle
- Pistol Grip
- Snap-on Car Charger
- 4-Slot Battery Charger
- 4-Slot Charging Cradle
- Vehicle Cradle
- Belt Holster

SCAN ENGINE SETTINGS

9700A Mobile Computer supports the following reader types. Reader availability depends on the hardware integrated on the mobile computer.

Scan Engine		ID
1D	Laser	SE955
1D	Extended Range Laser (ER Laser)	SE1524
2D	2D Imager	SE4500
		SE4500 + PL4507
2D	Near/far 2D Imager (N/F 2D)	EX25

Reader combination allowed is either 1D or 2D. When you hit a physical scan key, the mobile computer reads a printed barcode which is in position.

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

IN THIS CHAPTER

SYMBOLOGIES SUPPORTED

Depending on the scan engine integrated on the mobile computer, supported symbologies will differ as listed below.

		Laser	ER Laser	2D	N/F 2D
Codabar		✔	✔	✔	✔
Code 11		✔	✘	✔	✔
Code 39	Code 39	✔	✔	✔	✔
	Trioptic Code 39	✔	✔	✔	✔
	Italian Pharmacode (Code 32)	✔	✔	✔	✘
Code 93		✔	✔	✔	✔
Code 128	Code 128	✔	✔	✔	✔
	GS1-128 (EAN-128)	✔	✔	✔	✔
	ISBT 128	✔	✔	✔	✔
Code 2 of 5	Chinese 25	✔	✘	✔	✘
	Industrial 25 (Discrete 25)	✔	✔	✔	✔
	Interleaved 25	✔	✔	✔	✔
	Convert Interleaved 25 to EAN-13	✔	✔	✔	✘
	Matrix 25	✘	✘	✔	✔
Composite Code	Composite CC-A/B	✘	✘	✔	✔
	Composite CC-C	✘	✘	✔	✔
	Composite TLC 39	✘	✘	✔	✘
GS1 DataBar (RSS)	GS1 DataBar-14 (RSS-14)	✔	✔	✔	✔
	GS1 DataBar Limited (RSS Limited)	✔	✔	✔	✔
	GS1 DataBar Expanded (RSS Expanded)	✔	✔	✔	✔
	Convert to UPC/EAN	✔	✔	✔	✘
Inverse	Inverse 1D barcodes	✘	✘	✔	✘
Korean 3 of 5		✘	✘	✔	✘
MSI		✔	✔	✔	✔
Postal Codes	Australian Postal	✘	✘	✔	✔

		SE955	Se4500	EX25	SE1524
	Japan Postal	✖	✖	✔	✔
	Netherlands KIX Code	✖	✖	✔	✔
	US Postnet	✖	✖	✔	✔
	US Planet	✖	✖	✔	✔
	UK Postal	✖	✖	✔	✖
EAN/UPC	EAN-8	✔	✔	✔	✔
	EAN-8 Extend	✔		✔	✖
	EAN-13	✔	✔	✔	✔
	Bookland EAN (ISBN)	✔	✔	✔	✔
	ISSN EAN	✖	✖	✔	✔
	UPC-A	✔	✔	✔	✔
	UPC-E	✔	✔	✔	✔
	Convert UPC-E to UPC-A	✔	✔	✔	✔
	UPC-E1	✔	✔	✔	✔
	Convert UPC-E1 to UPC-A	✔	✔	✔	
2D Symbologies	Aztec	✖	✖	✔	✔
	Data Matrix	✖	✖	✔	✔
	Maxicode	✖	✖	✔	✔
	MicroPDF417	✖	✖	✔	✔
	MicroQR	✖	✖	✔	✖
	PDF417	✖	✖	✔	✔
	QR Code	✖	✖	✔	✔

CONFIGURABLE PROPERTIES SUPPORTED

Depending on the reader types, supported configurable properties of symbologies will differ as listed below.

Symbologies	Properties	SE955	Se4500	EX25	SE1524
Codabar	transmitCheckDigit	✔	✔	✔	✔

	verifyCheckDigit	✔	✔	✔	✔
	notisEditingType	✔	✔	✔	✔
	enable	✔	✔	✔	✔
	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
	clsiEditing	✔	✔	✔	✔
	notisEditing				
Code11	enable	✔	✔	✔	
	length1	✔	✔	✔	
	length2	✔	✔	✔	
	numberOfCheckDigits	✔	✔	✔(1)	
	transmitCheckDigit	✔	✔	✔	
Code39	enable	✔	✔	✔	✔
	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
	checkDigitVerification	✔	✔	✔	✔
	transmitCheckDigit	✔	✔	✔	✔
	fullASCII	✔	✔	✔	✔
	convertToCode32	✔	✔		✔
	convertToCode32Prefix	✔	✔		✔
TriopticCode39	enable	✔	✔	✔	✔
Korean3Of5	enable		✔		
Code93	enable	✔	✔	✔	✔
	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
Code128	enable	✔	✔	✔	✔
GS1128	enable	✔	✔	✔	✔
	fieldSeparator	✔	✔	✔	✔
ISBT128	enable	✔	✔	✔	✔
	concatenation		✔	✔	
	concatenationRedundancy		✔		
Chinese2Of5	enable	✔	✔		
Industrial2Of5	enable	✔	✔	✔	✔
	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
Interleaved2Of5	enable	✔	✔	✔	✔

	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
	checkDigitVerification	✔	✔	✔(5)	✔
	transmitCheckDigit	✔	✔	✔	✔
	convertToEan13	✔	✔		✔
Matrix2Of5	enable		✔	✔	
	length1		✔	✔	
	length2		✔	✔	
	redundancy		✔		
	checkDigitVerification		✔		
	transmitCheckDigit		✔		
UccCoupon	enable	✔	✔		✔
	enable	✔	✔	✔	✔
	convertToUpcEan	✔	✔		✔
	securityLevel		✔		
GS1DataBarLimited	enable	✔	✔	✔	✔
	convertToUpcEan	✔	✔		✔
	securityLevel		✔		
GS1DataBarExpanded	enable	✔	✔	✔	✔
	fieldSeparator	✔	✔	✔	✔
	securityLevel		✔		
Msi	enable	✔	✔	✔	✔
	length1	✔	✔	✔	✔
	length2	✔	✔	✔	✔
	checkDigitOption	✔	✔	✔	✔
	transmitCheckDigit	✔	✔	✔	✔
	checkDigitAlgorithm	✔	✔		✔
Ean8	enable	✔	✔	✔	✔
	addon2	✔	✔	✔	✔
	addon5	✔	✔	✔	✔
	transmitCheckDigit	✔	✔	✔	✔
	convertToEan13	✔	✔	✔	
Ean13	enable	✔	✔	✔	✔
	addon2	✔	✔	✔	✔
	addon5	✔	✔	✔	✔
	convertToISBN	✔	✔	✔	✔
	convertToISSN		✔	✔	
	booklandISBNFormat	✔	✔		✔
	transmitCheckDigit	✔	✔	✔	✔

UpcA	enable	✔	✔	✔	✔
	addon2	✔	✔	✔	✔
	addon5	✔	✔	✔	✔
	transmitCheckDigit	✔	✔	✔	✔
	transmitSystemNumber	✔	✔	✔(2)	✔
	convertToEan13	✔	✔	✔	✔
UpcE	enable	✔	✔	✔	✔
	addon2	✔	✔	✔	✔
	addon5	✔	✔	✔	✔
	transmitCheckDigit	✔	✔	✔	✔
	transmitSystemNumber	✔	✔	✔(3)	✔
	convertToUpcA	✔	✔	✔	✔
UpcE1	enable	✔	✔	✔	✔
	addon2	✔	✔	✔	✔
	addon5	✔	✔	✔	✔
	transmitCheckDigit	✔	✔		✔
	transmitSystemNumber	✔	✔		✔
	convertToUpcA	✔	✔		✔
Composite	enableCc_C		✔	✔	
	enableCc_AB		✔	✔	
	enableTlc39		✔		
	enableUpcMode		✔		
	enableEmulationMode		✔		
USPostal	enablePlanet		✔	✔	
	enablePostnet		✔	✔	
	transmitCheckDigit		✔	✔	
UKPostal	enable		✔		
	transmitCheckDigit		✔		
JapanPostal	enable		✔	✔	
AustralianPostal	enable		✔	✔	
DutchPostal	enable		✔	✔	
USPSPostal	enable		✔		
UPUFICSPostal	enable		✔		
PDF417	enable		✔	✔	
	transmitMode				
	escapeCharacter				
	transmitControlHeader				
MicroPDF417	enable		✔	✔	
	code128Emulation		✔	✔	
DataMatrix	enable		✔	✔	

	fieldSeparator		✔	✔	
	mirrorImage		✔	✔(4)	
MaxiCode	enable		✔	✔	
QRCode	enable		✔	✔	
MicroQR	enable		✔		
Aztec	enable		✔	✔	
Plessey	enable			✔	
	unconventionalStop			✔	
	transmitCheckDigit			✔	
	length1			✔	
	length2			✔	
Telepen	enable			✔	
	format			✔	
	length1			✔	
	length2			✔	
All	addonSecurityLevel	✔	✔		✔
	displayMode		✔		
	laserOnTime	✔	✔		✔
	negativeBarcodes		✔		
	pickListMode		✔		
	redundancyLevel	✔	✔		✔
	scanAngle	✔			
	securityLevel	✔	✔		✔
	timeoutBetweenSameSymbol	✔	✔	✔	✔
	transmitCodeIdChar	✔	✔	✔	✔
	triggerMode	✔	✔	✔	✔
	decodingIllumination		✔	✔	
	decodingAimingPattern		✔		
	interCharGapSize		✔		
	timeoutPresentationMode		✔	✔	
	decodingIlluminationPowerLevel		✔		

Remarks
(4) EX25 not support Zero number.
(5) EX25 only support Preamble.None and Preamble.SysNumAndCtyCode.
(6) EX25 only support Preamble.None and Preamble.SysNumAndCtyCode.
(7) EX25 only support Never and Auto.

LASER (SE955)

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

SYMBOLOGY SETTINGS

Symbology	Description	Default
CODABAR		
CodaBar		Enable
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. The 14-character barcode length does not include start/stop characters.	Disable
NOTIS Editing	Sets whether to include start/stop characters in the transmitted data. NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 11		
Code 11		Enable
Code 11	Checkbox to enable Code 11 decoding.	Enable
Check Digit Option	Sets whether to verify check digits according to the selected option. If the check digits are incorrect, the barcode will not be accepted. Disable One Check Digit Two Check Digits	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. Check Digit Option" must be enabled.	Disable
Length option	Sets the length of the Code 11 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 39

Code 39		Enable
Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Convert to Code 32	Selects whether to convert decoded data to Italian Pharmacode.	Disable
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. "Convert to Code 32" must be enabled for this to function properly.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. "Verify Check Digit" must be enabled.	Disable
Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set.	Disable
Length option	Sets the length of the Code 39 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 93

Code 93		Enable
Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 93 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 128

Code 128		Enable
GS1-128		Enable
ISBT 128		Enable

CODE 2 OF 5

Chinese 25		Enable
Discrete 25		Enable
Discrete 25	Checkbox to enable Discrete 25 decoding.	Enable
Length option	Sets the length of the Discrete 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

Interleaved 25		Enable
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Enable
Length option	Sets the length of the Interleaved 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. Disable USS Check Digit OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Convert To EAN-13	Convert a 14-character Interleaved 25 barcode into EAN-13 if the following requirements are met: The barcode must have a leading 0 and a valid EAN-13 check digit.	Disable
GS1 DATABAR		
GS1 DataBar-14		Enable
GS1 DataBar Limited		Enable
GS1 DataBar Expanded		Enable
GS1 DataBar Convert to UPC/EAN		Disable
MSI		
MSI		Enable
MSI	Checkbox to enable MSI decoding.	Enable
Length option	Sets the length of the MSI symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. One Check Digit Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Algorithm	When two check digits are set for verification, two choices are available for the pair of check digits. Modulo10 / Modulo11 Double Modulo 10	Double Modulo 10
UPC/EAN		

EAN-8		Enable
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		Enable
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Disable
Bookland ISBN Format	Select to decode Bookland data starting with 978 as 10-digit format along with the Bookland check digit, or decode Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-A		Enable
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		Enable
UPC-E	Checkbox to enable UPC-E decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E1		Disable
UPC-E1	Checkbox to enable UPC-E1 decoding.	Disable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character

Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC/EAN General Preference		
Support Coupon Code	Reads UPC-A barcodes starting with "5", EAN-13 barcodes starting with "99", and UPC-A/EAN-128 Coupon Codes. UPC-A, EAN-13, and GS1-128 must be enabled first! Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.	Disable
UPC/EAN Addon Option	Decide whether to decode EAN-8, EAN-13, UPC-E0, UPC-E1 or UPC-A with addons (including Addon 2 and 5). Ignore Addon Decode only with addons Auto-discriminate	Ignore Addon
UPC/EAN Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10
UPC/EAN Security Level	Sets the security level to ensure decoding accuracy considering the printed quality of the barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are: | Level	Description
---	---
0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.
1	Select this level if misdecodes have occurred. It fixes most misdecodes.
2	Select this level if Level 1 should fail to eliminate misdecodes.
3	Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of scan engine, it'd be better to improve the barcode's print quality if this level should be needed.		Level 0

MISCELLANEOUS

Laser Engine	Description	Default
Miscellaneous Options		
Transmit AIM Code ID	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "**]cm**":] = Flag Character (ASCII 93) c = Code Character (see below) m = Modifier Character (see below)	Disable

AIM CODE ID – CODE CHARACTERS

Code Character	Code Type
A	Code 39, Code 39 Full ASCII, Code 32
C	Code 128, Coupon (Code 128 portion)
d	Data Matrix
E	UPC/EAN, Coupon (UPC portion)
e	GS1 DataBar (RSS)
F	Codabar
G	Code 93
H	Code 11
I	Interleaved 25
L	PDF417, Macro PDF417, Micro PDF417
M	MSI
Q	QR Code, MicroQR
S	Industrial 25 (Discrete 25), IATA 2 of 5
U	Maxicode
X	Code 39 Trioptic, Bookland EAN, Matrix 25, US Postnet, US Planet, UK Postal, Japan Postal, Australian Postal, Dutch Postal
z	Aztec

AIM CODE ID – MODIFIER CHARACTERS

Code Type	Option Value	Option
Code 39	0	No check character or Full ASCII processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
	4	Full ASCII conversion has been performed.

	5	Result of option values 4 and 1.
	7	Result of option values 4 and 3.
Code 128	0	Standard data packet. No Function Code 1"FNC1" in the first character position.
	1	Function Code 1"FNC1" in the first character position.
	2	Function Code 1"FNC1" in the second character position.
Interleaved 25	0	No check digit processing.
	1	Check digit has been verified.
	3	Check digit has been verified and stripped.
Codabar	0	No check digit processing.
Code 93	0	Always transmit 0.
MSI	0	Modulo 10 check digit verified and transmitted.
	1	Modulo 10 check digit verified but not transmitted.
Industrial 25 (Discrete 25)	0	Always transmit 0.
UPC/EAN	0	Standard data packet in full EAN country code format, which is 13 digits for UPC-A and UPC-E (not including addons).
	3	Standard data packet with two-digit or five-digit addons.
	4	EAN-8 data packet.
		A UPC-A with Addon 2 barcode, 012345678905-10, is transmitted to the host as a 18-character string,]E3001234567890510.
Bookland EAN	0	Always transmit 0.
Trioptic Code 39	0	Always transmit 0.
Code 11	0	Single check digit (has been verified.)
	1	Two check digits (has been verified.)
	3	Check digit has been verified but not transmitted.
GS1 DataBar (RSS)	0	Always transmit 0.
		RSS-14 and RSS Limited will be transmitted with an Application Identifier "01". For example, an RSS-14 barcode, 10012345678902, is transmitted as]e00110012345678902.

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

EAN.UCC Composites (RSS, EAN-128, 2D portion of UPC composite)	Native mode transmission	
	0	Standard data packet
	1	Data packet containing the data following an encoded symbol separator character.
	2	Data packet containing the data following an escape mechanism character. The data packet does not support the ECI protocol.
	3	Data packet containing the data following an escape mechanism character. The data packet supports the ECI protocol.

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

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

PDF417, Micro PDF417	0	Scan engine is set to conform to protocol defined in 1994 PDF417 symbology specifications. When this option is transmitted, the receiver cannot reliably determine whether ECIs have been invoked or whether data byte 92_{DEC} has been doubled in transmission.
	1	Scan engine is set to follow the ECI protocol (Extended Channel Interpretation). All data characters 92_{DEC} are doubled.
	2	Scan engine is set for Basic Channel operation (no escape character transmission protocol). Data characters 92_{DEC} are not doubled. When decoders are set to this mode, unbuffered Macro symbols and symbols requiring the decoder to convey ECI escape sequences cannot be transmitted.
	3	The barcode contains a EAN-128 symbol, and the first codeword is 903-907, 912, 914, 915.
	4	The barcode contains a EAN-128 symbol, and the first codeword is in the range 908-909.
	5	The barcode contains a EAN-128 symbol, and the first codeword is in the range 910-911.
	A PDF417 barcode, ABCD, with no transmission protocol enabled, is transmitted as]L2ABCD.	
Data Matrix	0	ECC 000-140, not supported.
	1	ECC 200.
	2	ECC 200, FNC1 in first or fifth position.
	3	ECC 200, FNC1 in second or sixth position.
	4	ECC 200, ECI protocol implemented.
	5	ECC 200, FNC1 in first or fifth position, ECI protocol implemented.
	6	ECC 200, FNC1 in second or sixth position, ECI protocol implemented.
Maxicode	0	Mode 4 or 5
	1	Mode 2 or 3
	2	Mode 4 or 5, ECI protocol implemented.
	3	Mode 2 or 3, ECI protocol implemented in secondary message.
QR Code	0	Model 1
	1	Model 2 / MicroQR ECI protocol not implemented.
	2	Model 2, ECI protocol implemented.

	3	Model 2, ECI protocol not implemented, FNC1 implied in first position.
	4	Model 2, ECI protocol implemented, FNC1 implied in first position.
	5	Model 2, ECI protocol not implemented, FNC1 implied in second position.
	6	Model 2, ECI protocol implemented, FNC1 implied in second position
Aztec	0	Aztec symbol.
	C	Aztec Rune symbol.

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

Appendix III

EXTENDED RANGE LASER (SE1524)

The tables below list the symbology settings for the 1D extended range laser scan engine (SE1524).

SYMBOLOGY SETTINGS

Symbology	Description	Default
CODABAR		
CodaBar		Enable
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. The 14-character barcode length does not include start/stop characters.	Disable
NOTIS Editing	Sets whether to include start/stop characters in the transmitted data. NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 39		
Code 39		Enable
Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Convert to Code 32	Selects whether to convert decoded data to Italian Pharmacode.	Disable
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. "Convert to Code 32" must be enabled for this to function properly.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. "Verify Check Digit" must be enabled.	Disable

Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set.	Disable
Length option	Sets the length of the Code 39 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 93

Code 93		Enable
Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 93 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 128

Code 128		Enable
ISBT 128		Enable
GS1-128		Enable

CODE 2 OF 5

Discrete 25		Enable
Discrete 25	Checkbox to enable Discrete 2 of 5 decoding.	Enable
Length option	Sets the length of the Discrete 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Interleaved 25		Enable
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Enable
Length option	Sets the length of the Interleaved 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. Disable USS Check Digit OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Convert To EAN-13	Convert a 14-character Interleaved 25 barcode into EAN-13 if the following requirements are met: The barcode must have a leading 0 and a valid EAN-13 check digit.	Disable

GS1 DATABAR

GS1 DataBar-14		Enable
GS1 DataBar Limited		Enable
GS1 DataBar Expanded		Enable
GS1 DataBar Convert to UPC/EAN		Disable

MSI

MSI		Enable
MSI	Checkbox to enable MSI decoding.	Enable
Length option	Sets the length of the MSI symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. One Check Digit Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Algorithm	When two check digits are set for verification, two choices are available for the pair of check digits. Modulo10 / Modulo11 Double Modulo 10	Double Modulo 10

UPC/EAN

EAN-8		Enable
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		Enable
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Disable
Bookland ISBN Format	Select to decode Bookland data starting with 978 as 10-digit format along with the Bookland check digit, or decode Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable

EAN-8		Enable
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		Enable
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Disable
Bookland ISBN Format	Select to decode Bookland data starting with 978 as 10-digit format along with the Bookland check digit, or decode Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-A		Enable
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		Enable
UPC-E	Checkbox to enable UPC-E decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E1		Disable
UPC-E1	Checkbox to enable UPC-E1 decoding.	Disable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character

Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC/EAN General Preference		
Support Coupon Code	Reads UPC-A barcodes starting with "5", EAN-13 barcodes starting with "99", and UPC-A/EAN-128 Coupon Codes. UPC-A, EAN-13, and GS1-128 must be enabled first! Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.	Disable
UPC/EAN Addon Option	Decide whether to decode EAN-8, EAN-13 with addons (including Addon 2 and 5). Ignore Addon Decode only with addons Auto-discriminate	Ignore Addon
UPC/EAN Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10
UPC/EAN Security Level	Sets the security level to ensure decoding accuracy considering the printed quality of the barcodes such as Code 128, Code 93, and UPC/EAN. The higher the level is, the more security is ensured. Options are: | Level	Description
---	---
0	With this default, the scan engine is aggressive enough to decode most "in-spec" barcodes.
1	Select this level if misdecodes have occurred. It fixes most misdecodes.
2	Select this level if Level 1 should fail to eliminate misdecodes.
3	Select this level if Security Level 2 should fail to prevent misdecodes. However, as this level actually impairs the decoding ability of scan engine, it'd be better to improve the barcode's print quality if this level should be needed.		Level 0

MISCELLANEOUS

Laser Engine	Description	Default
Miscellaneous Options		
Transmit AIM Code ID	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "**]cm**":] = Flag Character (ASCII 93) c = Code Character (see below) m = Modifier Character (see below)	Disable

2D IMAGER (SE4500DL)

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

SYMBOLOGY SETTINGS

1D SYMBOLOGIES

Symbology	Description	Default
CODABAR		
CodaBar		Enable
Codabar	Checkbox to enable Codabar decoding.	Enable
Length option	Sets the length of the Codabar symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. The 14-character barcode length does not include start/stop characters.	Disable
NOTIS Editing	Sets whether to include start/stop characters in the transmitted data. NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 11		
Code 11		Enable
Code 11	Checkbox to enable Code 11 decoding.	Enable
Check Digit Option	Sets whether to verify check digits according to the selected option. If the check digits are incorrect, the barcode will not be accepted. Disable One Check Digit Two Check Digits	Disable
Transmit Check Digit	Selects whether to include check digits in the transmitted data. Check Digit Option" must be enabled.	Disable
Length option	Sets the length of the Code 11 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 39

Code 39		Enable
Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters.	Disable
Convert to Code 32	Selects whether to convert decoded data to Italian Pharmacode.	Disable
Code 32 Prefix	Prefix character "A" to Code 32 barcodes. "Convert to Code 32" must be enabled for this to function properly.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. "Verify Check Digit" must be enabled.	Disable
Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set.	Disable
Length option	Sets the length of the Code 39 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 93

Code 93		Enable
Code 93	Checkbox to enable Code 93 decoding.	Enable
Length option	Sets the length of the Code 93 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)

CODE 128

Code 128		Enable
GS1-128		Enable
ISBT-128		Enable
ISBT 128	Checkbox to enable ISBT 128 decoding.	Enable
Concatenation	Sets whether to enable decoding ISBT-128 by performing concatenation of ISBT data Disable: Does not perform concatenation Enable: Performs concatenation on all ISBT-128 barcodes. Auto-discriminate: Auto-discriminates between the ISBT-128 barcodes which require concatenation and those which do not need concatenation.	Auto

Concatenation Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 20	10

CODE 2 OF 5		
Chinese 25		Enable
Discrete 25		Enable
Discrete 25	Checkbox to enable Discrete 2 of 5 decoding.	Enable
Length option	Sets the length of the Discrete 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Interleaved 25		Enable
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Enable
Length option	Sets the length of the Interleaved 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. Disable USS Check Digit OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Convert To EAN-13	Convert a 14-character Interleaved 25 barcode into EAN-13 if the following requirements are met: The barcode must have a leading 0 and a valid EAN-13 check digit.	Disable
Matrix 25		Enable
Matrix 25	Checkbox to enable Matrix 2 of 5 decoding.	Enable
Length option	Sets the length of the Matrix 2 of 5 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Redundancy	Sets read redundancy	Disable
Verify Check Digit	Select whether to verify the check digit, which is the last character of the barcode. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable

COMPOSITE		
Composite CC-A/B		Disable

Composite CC-C	Enable
Composite TLC 39	Disable
Composite General Preference	Enable

UPC Composite Mode	UPC barcodes can be "linked" with a 2D barcode during transmission as if they were one barcode. **UPC Never Linked** Transmit UPC barcodes regardless of whether a 2D barcode is detected. **UPC Always Linked** Transmit UPC barcodes and the 2D portion. If the 2D portion is not detected, the UPC barcode will not be transmitted. CC-A/B or CC-C must be enabled. **Auto-discriminate** Transmit UPC barcodes as well as the 2D portion if present.	UPC always Linked
GS1-128 Emulation Mode	Sets GS1-128 emulation mode for UCC/EAN Composite Codes.	Disable

<div style="color:#1a5276">GS1 DATABAR</div>

GS1 DataBar-14	Enable
GS1 DataBar Limited	Enable
GS1 DataBar Expanded	Enable
GS1 DataBar Convert to UPC/EAN	Disable

<div style="color:#1a5276">KOREAN 3 OF 5</div>

Korean 3 of 5	Disable

<div style="color:#1a5276">INVERSE</div>

Inverse	Disable

<div style="color:#1a5276">MSI</div>

MSI	Enable

MSI	Checkbox to enable MSI decoding.	Enable
Length option	Sets the length of the MSI symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Max / Min Length (4-55)
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. One Check Digit Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable

Algorithm	When two check digits are set for verification, two choices are available for the pair of check digits. Modulo10 / Modulo11 Double Modulo 10	Double Modulo 10

POSTAL CODE		
Australian Postal		Enable
Japan Postal		Enable
Netherlands KIX Code		Enable
US Postnet		Enable
US Planet		Enable
UK Postal		Enable
Postal General Preference		Enable
US Postal Check Digit	Decide whether to transmit check digit for US Postnet or US Planet.	Enable
UK Postal Check Digit	Decide whether to transmit check digit for UK Postal.	Enable

UPC/EAN		
EAN-8		Enable
EAN-8	Checkbox to enable EAN-8 decoding.	Enable
EAN-8 Extend	Checkbox to enable converting EAN-8 to EAN-13 format.	Disable
EAN-13		Enable
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Disable
Bookland ISBN Format	Decodes Bookland data starting with 978 in 10-digit format along with the Bookland check digit, or Bookland data starting with 978/979 as EAN-13 format.	Bookland ISBN-10
Transmit Check Digit	Decide whether to include the EAN-13 check digit (the last character in the barcode) in the data being transmitted.	Enable
ISSN EAN	Checkbox to enable ISSN EAN decoding.	Disable
UPC-A		Enable
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		Enable
UPC-E	Checkbox to enable UPC-E decoding.	Enable

Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E1		Disable
UPC-E1	Checkbox to enable UPC-E1 decoding.	Disable
Preamble	Decide whether to include the UPC-A/UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. No transmit: transmits none of the above Transmit System Character: transmits system number only Transmit Sys. Character and Country Code: transmits system number and country code	Transmit System Character
Convert to UPC-A	The UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC/EAN **General Preference**		
Support Coupon Code	Reads UPC-A barcodes starting with "5", EAN-13 barcodes starting with "99", and UPC-A/EAN-128 Coupon Codes. UPC-A, EAN-13, and GS1-128 must be enabled first! Use "Addon Redundancy" to control auto-discrimination of the GS1-128 (right half) of a coupon code.	Disable
UPC/EAN Addon Option	Decide whether to decode EAN-8, EAN-13 with addons (including Addon 2 and 5). Ignore Addon Decode only with addons Auto-discriminate	Ignore Addon
UPC/EAN Addon Redundancy	When "Auto-discriminate" is applied, decide the number of times of supplementary decoding the same barcode to count as a valid read. Configurable between 2 and 30.	10
Separator Character (FNC1)		
Enable separator char	Enable the function code character separator, which is used to separate data fields of variable length and application identifiers of subsequent data fields in concatenated data strings. Applicable for EAN-128/GS1-128, Coupon code, GS1 DataBar, Composite Component barcodes	Disable
Separator char replace by	Tap the keyboard icon to open a mapping table for selecting a separator character to replace with. Enable separator char must be selected	None

2D SYMBOLOGIES

Symbology	Description	Default
Aztec		Enable
Aztec	Selects whether to enable Aztec decoding.	Enable
Data Matrix		Enable
Data Matrix	Selects whether to enable Data Matrix decoding.	Enable
Decode Mirror Image	Selects whether to enable decode mirror images. **Never** Does not decode Data Matrix barcodes that are mirror images. **Always** Decodes Data Matrix barcodes that are mirror images. **Auto** Decodes both mirrored and unmirrored Data Matrix barcodes.	Never
Maxicode		Enable
MicroPDF417		Disable
MicroPDF417	Selects whether to enable MicroPDF417 decoding.	Disable
Code 128 Emulation	Transmit data from certain Micro PDF 417 barcodes as if it was encoded in Code 128 barcodes. Transmit AIM code ID character in **Miscellaneous** options must be enabled first. When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-905:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
MicroQR		Enable
PDF417		Enable
QR Code		Enable

QR Code	Selects whether to enable QR Code decoding.	Enable

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		
Transmit AIM Code ID	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "**]cm**": ▶] = Flag Character (ASCII 93) ▶ c = Code Character ▶ m = Modifier Character For detailed descriptions of code types, please refer to AIM Code ID – Code Characters	Disable

NEAR/FAR 2D IMAGER (EX25)

The tables below list the symbology settings for the near/far 2D imager (EX25).

SYMBOLOGY SETTINGS

1D SYMBOLOGIES

Symbology	Description	Default
CODABAR		
CodaBar		Disable
Codabar	Checkbox to enable Codabar decoding.	Disable
Length option	Sets the length of the Codabar symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 6 Length 2: 0
CLSI Editing	When applied, the CLSI editing strips the start/stop characters and inserts a space after the first, fifth, and tenth characters of a 14-character Codabar barcode. The 14-character barcode length does not include start/stop characters.	Disable
NOTIS Editing	Sets whether to include start/stop characters in the transmitted data. NOTIS Editing is to strip the start/stop characters, i.e. to disable "Transmit Start/Stop Characters".	Disable
CODE 11		
Code 11		Enable
Code 11	Checkbox to enable Code 11 decoding.	Disable
Check Digit Option	Sets whether to verify check digits according to the selected option. If the check digits are incorrect, the barcode will not be accepted. One Check Digit Two Check Digits	* 1 (One Check Digit)
Transmit Check Digit	Selects whether to include check digits in the transmitted data. Check Digit Option" must be enabled.	Enable

Length option	Sets the length of the Code 11 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length When setting data length for Code 11, you must include both check digits in the specified string length for the reader to decode successfully.	Any Length Length 1: 0 Length 2: 0

CODE 39

Code 39		Enable
Code 39	Checkbox to enable Code 39 decoding.	Enable
Trioptic Code 39	Selects whether to decode Trioptic Code 39. Trioptic Code 39 is a variant of Code 39 used in the marking of computer tape cartridges. It always contains six characters. When a Trioptic Code 39 barcode is decoded, the code type will be displayed as Code 39.	Disable
Verify Check Digit	Selects whether to verify the Modulo 43 check digit. If the check digit is incorrect, the barcode will not be accepted.	Disable
Transmit Check Digit	Decide whether to include the check digit in the data to transmit. "Verify Check Digit" must be enabled.	Disable
Support Full ASCII	Selects whether to enable Code 39 Full ASCII decoding. Characters are paired to encode the full ASCII character set. When a Code 39 full ASCII barcode is decoded, the code type will be displayed as Code 39.	Disable
Length option	Sets the length of the Code 39 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	Any Length Length 1: 0 Length 2: 0

CODE 93

Code 93		Enable
Code 93	Checkbox to enable Code 93 decoding.	Disable
Length option	Sets the length of the Code 93 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 1 Length 2: 0

CODE 128

Code 128		Enable
GS1-128		Enable
ISBT 128		Enable
ISBT 128	Checkbox to enable ISBT 128 decoding. When enabled, the reading range of Code 128 barcodes will decrease from 10m to 6-7m.	Enable

Concatenation	Sets whether to enable decoding ISBT-128 by performing concatenation of ISBT data Disable: Does not perform concatenation Enable: Performs concatenation on all ISBT-128 barcodes. Auto-discriminate: Auto-discriminates between the ISBT-128 barcodes which require concatenation and those which do not need concatenation.	0: Disable (only those specified by datasheet)
CODE 2 OF 5		
Discrete 25		Enable
Discrete 25	Checkbox to enable Discrete 25 decoding.	Disable
Length option	Sets the length of the Discrete 25 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 6 Length 2: 0
Interleaved 25		Enable
Interleaved 25	Checkbox to enable Interleaved 2 of 5 decoding.	Disable
Length option	Sets the length of the Interleaved 25 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 6 Length 2: 0
Verify Check Digit	Decide whether to verify the check digit. If desired, select one of the algorithms below. If the check digit is incorrect, the barcode will not be accepted. Disable USS Check Digit OPCC Check Digit	Disable
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
Matrix 25		Enable
Matrix 25	Checkbox to enable Matrix 2 of 5 decoding.	Disable
Length option	Sets the length of the Matrix 25 symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 6 Length 2: 0
COMPOSITE		
Composite CC-A/B		Disable
Composite CC-C		Disable
GS1 DATABAR		
GS1 DataBar-14		Disable
GS1 DataBar Limited		Disable
GS1 DataBar Expanded		Disable
MSI		

MSI		Enable
MSI	Checkbox to enable MSI decoding.	Disable
Length option	Sets the length of the MSI symbols to decode. One Fixed length (Length 1) Two Fixed lengths (Length 1>Length 2) Max / Min Length (range: 0-55; Length 1<Length 2) Any Length	One Fixed length Length 1: 6 Length 2: 0
Check Digit Option	One check digit is mandatory for decoding MSI barcodes. Select whether a second check digit should be verified. If the check digits are incorrect, the barcode will not be accepted. One Check Digit Two Check Digits	One Check Digit
Transmit Check Digit	Decide whether to include the check digit in the data being transmitted.	Disable
POSTAL CODE		
Australian Postal		Disable
Japan Postal		Disable
Netherlands KIX Code		Enable
US Postnet		Disable
US Planet		Disable
Postal General Reference		
US Postal Check Digit	Decide whether to transmit check digit for US Postnet or US Planet.	Enable
UPC/EAN		
EAN-8		Enable
EAN-13		Enable
EAN-13	Checkbox to enable EAN-13 decoding.	Enable
Bookland EAN	Checkbox to enable ISBN decoding. If enabled, select Bookland ISBN Format in the drop-down box below.	Enable
Transmit Check Digit	(Reserved)	Enable
ISSN EAN	Checkbox to enable ISSN EAN decoding.	Disable
UPC-A		Enable
UPC-A	Checkbox to enable UPC-A decoding.	Enable
Preamble	Decide whether to include the UPC-A preamble System Character (and Country Code) in the data being transmitted. Enable Disable	Enable
Transmit Check Digit	Decide whether to include the UPC-A check digit (the last character in the barcode) in the data being transmitted.	Enable
UPC-E		Enable
UPC-E	Checkbox to enable UPC-E/UPC-E1 decoding.	Enable

Preamble	Decide whether to include the UPC-E/UPC-E1 preamble System Character (and Country Code) in the data being transmitted. Enable Disable	Enable
Convert to UPC-A	The UPC-E/UPC-E1 barcode will be expanded into UPC-A format, and the next process will follow the settings configured for UPC-A.	Disable
Transmit Check Digit	Decide whether to include the UPC-E/UPC-E1 check digit (the last character in the barcode) in the data being transmitted.	Enable
Separator Character (FNC1)		Enable
Enable separator char	Enable the function code character separator, which is used to identify and separate fields for variable length application identifiers. Applicable for EAN-128/GS1-128, Coupon code, GS1 DataBar, Composite Component barcodes.	Disable
Separator char replace by	Tap the keyboard icon to open a mapping table for selecting a separator character. Enable separator char must be selected	None

2D SYMBOLOGIES

Symbology	Description	Default
Aztec Detection of inverse Aztec barcodes is enabled automatically when *enableAztec* is enabled.		Disable
Data Matrix Detection of inverse DataMatrix barcodes is enabled automatically when *enableDataMatrix* is enabled.		Enable
Maxicode		Disable
MicroPDF417		Disable
MicroPDF417	Selects whether to enable MicroPDF417 decoding.	Disable
Code 128 Emulation	Transmit data from certain Micro PDF 417 barcodes as if it was encoded in Code 128 barcodes. Transmit AIM code ID character in **Miscellaneous** options must be enabled first. When applied, the MicroPDF417 barcodes are transmitted with one of these prefixes: **The first codeword of MicroPDF417 is 903-905:** The original Code ID "]L3" will be changed to "]C1". **The first codeword of MicroPDF417 is 908 or 909:** The original Code ID "]L4" will be changed to "]C2". **The first codeword of MicroPDF417 is 910 or 911:** The original Code ID "]L5" will be changed to "]C0".	Disable
PDF417		Enable
QR Code		Disable

MISCELLANEOUS

2D Engine	Description	Default
Miscellaneous Options		
Transmit AIM Code ID	Decide whether to include AIM Code ID in the data. Each AIM Code ID contains a three-character string "**]cm**": ▶] = Flag Character (ASCII 93) ▶ c = Code Character ▶ m = Modifier Character For detailed descriptions of code types, please refer to AIM Code ID – Code Characters	Disable

PHYSICAL KEYPAD REFERENCE TABLE

NUMERIC KEYPAD (30 KEYS)

Numeric keypad layout:

USING ALPHA, SHIFT & FN KEYS

Key	Normal Mode	[α] Mode				[α] + ⇧ Mode				[Fn] Mode
		1st press	2nd press	3rd press	4th press	1st press	2nd press	3rd press	4th press	
1	1	@	;	:		@	;	:		F9
2	2	a	b	c		A	B	C		F10
3	3	d	e	f		D	E	F		F11
4	4	g	h	i		G	H	I		F12
5	5	j	k	l		J	K	L		Backlight Increase
6	6	m	n	o		M	N	O		Volume Up
7	7	p	q	r	s	P	Q	R	S	-
8	8	t	u	v		T	U	V		Backlight Decrease
9	9	w	x	y	z	W	X	Y	Z	Volume Down
0	0	,	\	/		,	\	/		0
Up	Up	Up				Highlight Up				Page Up
Down	Down	Down				Highlight Down				Page Down
Left	Left	Left				Highlight Left				Home

Right	Right	Right	Highlight Right	End
Enter	Enter	Enter	Enter	Enter
Backspace	Backspace	Backspace	Backspace	Keypad Lock
Esc	Esc	Esc	Esc	Esc
.	.	Shift	Shift	.
Space	Space	Space	Space	
Ctrl	Ctrl	Ctrl	Ctrl	Alt
Green	F14	F14	F14	F14
Red	F15	F15	F15	F15
F1	F1	F1	Shift+F1	F5
F2	F2	F2	Shift+F2	F6
F3	F3	F3	Shift+F3	F7
F4	F4	F4	Shift+F4	F8

Note: Although keys 0-9 allow up to four presses to input different values, the function of Ctrl and Alt can only be delivered to the value entered at the first press of each key. For instance, the keypad can deliver the functions Ctrl+a and Alt+a, but not Ctrl+c and Alt+c, since the letter "c" will require three presses of the number key "2".

NUMERIC & FUNCTION KEYPAD (38 KEYS)

Numeric and Function keypad layout:

USING ALPHA, SHIFT & FN KEYS

Key	Normal Mode	[α] Mode	[α] + ⇧ Mode	⇧ Mode	[Fn] Mode
1	1	e	E	Shift+1	1
2	2	f	F	Shift+2	2
3	3	g	G	Shift+3	3
4	4	h	H	Shift+4	4
5	5	i	I	Shift+5	5
6	6	j	J	Shift+6	6
7	7	k	K	Shift+7	7
8	8	l	L	Shift+8	8
9	9	m	M	Shift+9	9
0	0	o	O	Shift+0	0
Up	Up	b	B	Highlight Up	Page Up
Down	Down	c	C	Highlight Down	Page Down
Left	Left	a	A	Highlight Left	Home
Right	Right	d	D	Highlight Right	End
Enter	Enter	Enter	Enter	Enter	Enter
Backspace	Backspace	Backspace	Backspace	Backspace	Keypad Lock
Esc	Esc	Esc	Esc	Esc	Esc
.	.	n	N	.	.
,	,	p	P	,	,
Space	Space	Space	Space	Space	
Ctrl	Ctrl	Ctrl	Ctrl	Ctrl	Alt
Green	F14	F14	Shift+F14	Shift+F14	F14
Red	F15	F15	Shift+F15	Shift+F15	F15
F1	F1	q	Q	Shift+F1	F11
F2	F2	r	R	Shift+F2	F12

F3	F3	s	S	Shift+F3	F13
F4	F4	t	T	Shift+F4	F14
F5	F5	u	U	Shift+F5	F5
F6	F6	v	V	Shift+F6	Backlight Increase
F7	F7	w	W	Shift+F7	Volume Up
F8	F8	x	X	Shift+F8	F8
F9	F9	y	Y	Shift+F9	Backlight Decrease
F10	F10	z	Z	Shift+F10	Volume Down
Shift	Shift	Shift	Shift	N/A	Shift

ALPHANUMERIC KEYPAD (53 KEYS)

Alphanumeric keypad layout:

VT emulator keypad	TN3270 emulator keypad	TN5250 emulator keypad

Note: All three configurations of the 53-key keypad deliver the same functions. However, certain key functions may differ according to the application in use, for instance when terminal emulation software is running.

USING ALPHA, SHIFT & FN KEYS

Key	Normal	⇧ Mode	[α] Mode	[Ctrl] Mode
1	1	Shift+1	F1(VK_F1)	Ctrl+1
2	2	Shift+2	F2(VK_F2)	Ctrl+2
3	3	Shift+3	F3(VK_F3)	Ctrl+3
4	4	Shift+4	F4(VK_F4)	Ctrl+4
5	5	Shift+5	F5(VK_F5)	Ctrl+5
6	6	Shift+6	F6(VK_F6)	Ctrl+6
7	7	Shift+7	F7(VK_F7)	Ctrl+7
8	8	Shift+8	F8(VK_F8)	Ctrl+8
9	9	Shift+9	F9(VK_F9)	Ctrl+9
0	0	Shift+0	F10(VK_F10)	Ctrl+0
*	*	*	Page Down (VK_NEXT)	Ctrl+^ ^^
Up	Up	Highlight Up	UP	Ctrl+Up
Down	Down	Highlight Down	DOWN	Ctrl+Down
Left	Left	Highlight Left	LEFT	Ctrl+Left
Right	Right	Highlight Right	RIGHT	Ctrl+Right
Enter	Enter	Enter	INSERT	Enter

Backspace	Backspace	Keylock	END	Ctrl+\ ^\
Esc	Esc	Esc	Esc	Esc
.	.	> (Shift+.)	Page Up (VK_PRIOR)	Ctrl+] ^]
Space	Space	Space	TAB	Ctrl+_ ^_
Ctrl	Ctrl	Ctrl	Alt	N/A
Shift	Shift	N/A	Shift	N/A
Green	F14	Shift+F14	F14(VK_F14)	N/A
Red	F15	Shift+F15	F15(VK_F15)	N/A
A	a	A	, (COMMA)	Ctrl+a
B	b	B	. (PERIOD)	Ctrl+b
C	c	C	`(VK_APOSTROPHE)(0xDE)	Ctrl+c
D	d	D	Backlight +	Ctrl+d
E	e	E	[(VK_LBRACKET)(0xDB)	Ctrl+e
F	f	F	] (VK_RBRACKET)(0xDD)	Ctrl+f
G	g	G	\ (VK_BACKSLASH)(0xDC)	Ctrl+g
H	h	H	Vol+	Ctrl+h
I	i	I	Backlight -	Ctrl+i
J	j	J	0xC0	Ctrl+j
K	k	K	F12(VK_F12)	Ctrl+k
L	l	L	F11(VK_F11)	Ctrl+l
M	m	M	Vol -	Ctrl+m
N	n	N	- (VK_HYPHEN)(0xBD)	Ctrl+n
O	o	O	F13(VK_F13)	Ctrl+o
P	p	P	F14(VK_F14)	Ctrl+p
Q	q	Q	F15(VK_F15)	Ctrl+q
R	r	R	;(VK_SEMICOLON)(0xBA)	Ctrl+r
S	s	S	+ (VK_ADD)	Ctrl+s
T	t	T	-(VK_SUBTRACT)	Ctrl+t
U	u	U	* (VK_MULTIPLY)	Ctrl+u
V	v	V	/ (VK_SLASH)	Ctrl+v
W	w	W	= (VK_EQUAL)	Ctrl+x
X	x	X	: (VK_COLON)	Ctrl+w
Y	y	Y	Y (VK_Y)	Ctrl+y
Z	z	Z	N/A	Ctrl+z