



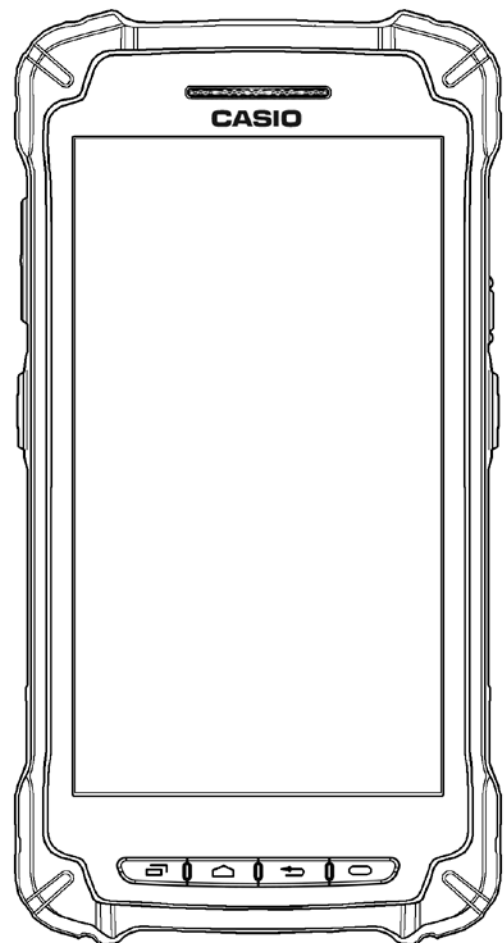
IT-G400 Series

Android 6.0 Software Manual

This manual describes the IT-G400 software and specifications of the installed application.

Cautions!

"Phone", "SIM", "GPS" described in this document applies only to models with telephone functions.



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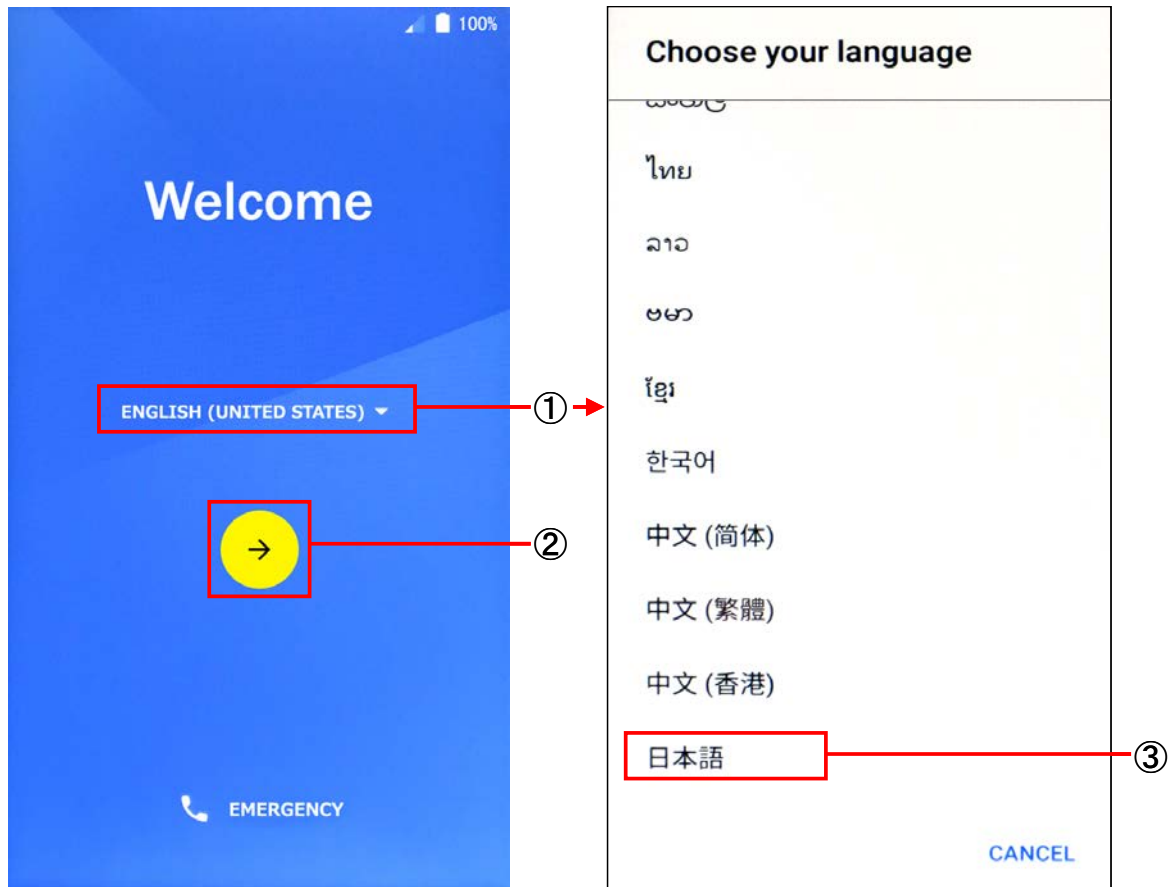
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1. Introduction

In the factory default state, the language selection screen is displayed in English.



When ① is pressed, a list of selectable languages is displayed, so select the language to use. This ensures that the initial settings after that will be displayed in the language selected.

Cautions!

- Emergency call button in the above figure is displayed only with the model with the phone function.
- "Phone", "SIM", "GPS" and "Mobile Network" described on this document apply only to models with telephone functions.

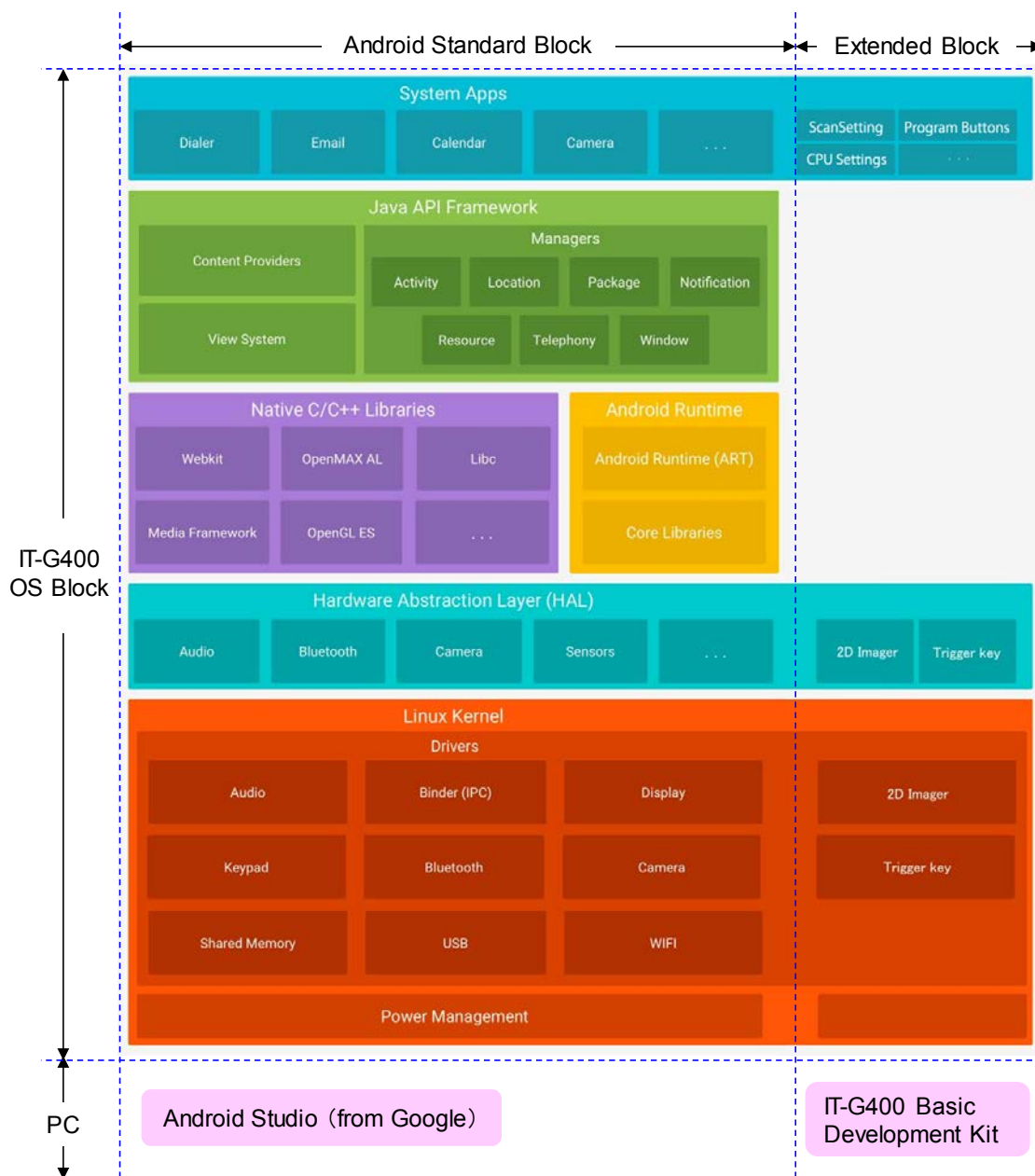
2. Basic Functions

2.1 Android 6.0

IT-G400 is equipped with Android 6.0.1.

Software Architecture

The software architecture of the IT-G400 is shown below. IT-G400 consists of barcode scanners, keys, and tools (extended block) that effectively utilize these functions, in addition to the same function as Android installed on smartphones (Android standard part). Applications that use the Android standard block can be developed with Android Studio (Android SDK), but in order to use the extended block it is necessary to use "IT-G400 Basic Development Kit".



2.2 Languages

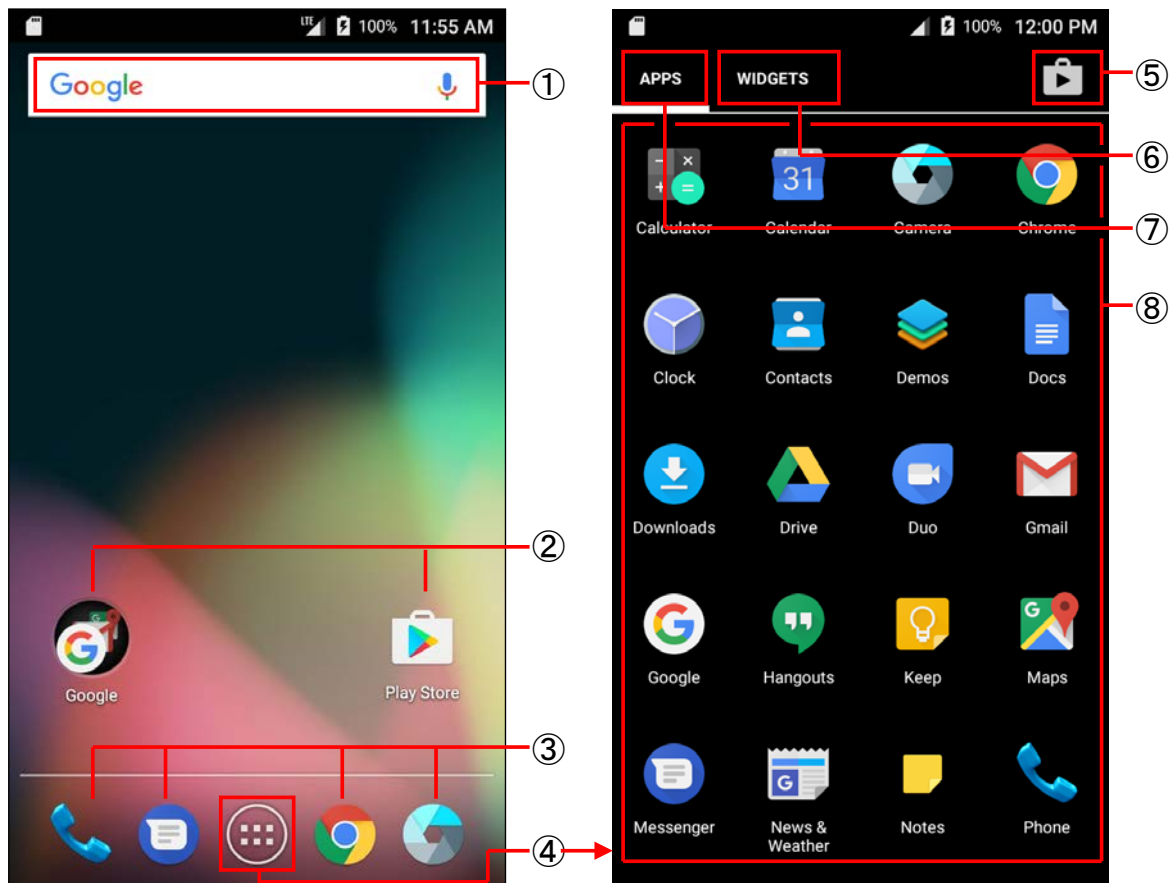
2.2.1 List of supported languages

Afrikaans	Français (Canada)	Slovenčina	العربية
Bahasa Indonesia	Français (France)	Slovenščina	(XB) العربية
Bahasa Melayu	Hrvatski	Suomi	فارسی
Català	IsiZulu	Svenska	አማርኛ
Čeština	Italiano	Tiếng Việt	हिन्दी
Dansk	Kiswahili	Türkçe	ไทย
Deutsch	Latviešu	Ελληνικά	ລາວ
Eesti	Lietuvių	Български	ខ្មែរ
English (Australia)	Magyar	Монгол	한국어
English (India)	Nederlands	Русский	中文 (简体)
English (United Kingdom)	Norsk bokmål	Српски	中文 (繁體)
English (United States)	Polski	Українська	日本語
English (XA)	Português (Brasil)	ქართული	
Español (España)	Português (Portugal)	Հայերեն	
Español (Estados Unidos)	Română	עברית	

2.3 Home screen

When you turn on the Android phone, the lock screen will be displayed. Sliding this lock screen will bring up the home screen for selecting and starting the application. You can also move to the Home screen by pressing [Home] key.

The program responsible for processing the home screen is called as “home application”, or simply the “launcher”.



- ① Search panel
- ② Shortcut
- ③ Favorite tray
- ④ Apps list
- ⑤ Play store
- ⑥ Widgets list
- ⑦ Apps list
- ⑧ Apps/Widgets select

2.3.1 Status bar and icons

A bar with icons at the top of the screen is called a status bar. The status bar displays various "Status icons" indicating the status of the system and "Notification icon" for notifying the operator.



























① Status icons

② Notification icons










The following is a part of the icon displayed on IT-G400.

Icons related to the phone function displays only on the WAN models.

Status icons

	GPRS connected		Battery is low
	EDGE connected		Battery is very low
	3G connected		GPS is on
	LTE connected		Alarm is set
	No signal		Bluetooth is on
	Signal strength		Connected to a bluetooth device
	Roaming		Speakerphone is on
	WLAN connected		Headset connected
	Airplane mode		No SIM card inserted
	Battery is charging		Vibrate mode / Mute
	Battery is full		Microphone is mute
	Battery is partially drained		Barcode scanner is enable

Notification icons

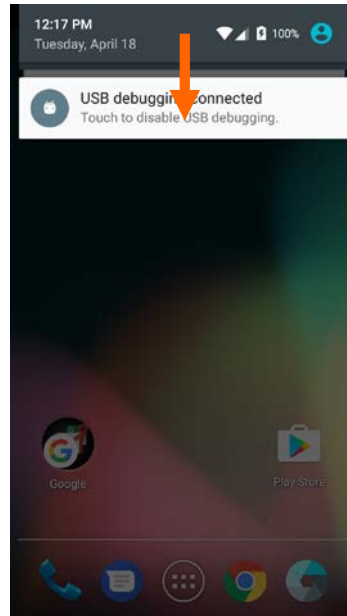
	NewGmail™ message		Missed call
	New Email message		Connected to VPN
	New text or multimedia message		More notifications are hidden
	Problem with SMS or MMS delivery		microSD is mounted
	New Google Hangouts™ message		

2.3.2 Notification panel and Quick setting panel

Drag the status bar downward to open the notification panel. Drag further downward in this state to open the quick setting.

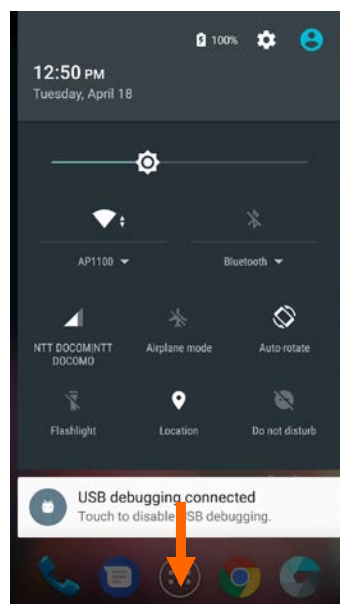
Notification panel

Notification Panel uses to read details of the notification. Touch the status bar and drag it downward to open it.



Quick setting panel

Quick setting panel provides easy access to settings. Touch the notification panel and drag downward to open the quick setting panel. By touching the icon displayed on the quick setting panel, you can enable / disable the function and change the mode.



2.4 Media format

IT-G400 carries all encoders and decoders supported by Android.

Audio

Supported audio encoders and decoders are as follows.

Format	Encoder	Decoder
AAC	○	○
MP3		○
MIDI		○
WAVE		○

Libraries related to this function are as follows.

Android Standard library ※

Android.media This class provides various interfaces related to audio and video.

Android.media.MediaPlayer This class plays audio / video / still images.

For details of the Android standard library, refer Android official website such as "Android Developers".

Image

Encoders and decoders of supported images are as follows.

Format	Encoder	Decoder
JPEG	○	○
GIF		○
PNF	○	○
BMP		○
WEBP	○	○

Libraries related to this function are as follows.

Android standard library ※

Android.media This class provides various interfaces related to audio and video.

Android.media.MediaPlayer This class plays audio / video / still images.

For details of the Android standard library, refer Android official website such as "Android Developers".

Video

Encoders and decoders of supported videos are as follows.

Format	Encoder	Decoder
H263	○	○
H264	○	○
MPEG4		○

Libraries related to this function are as follows.

Android standard library ※

Android.media	This class provides various interfaces related to audio and video.
Android.media.MediaPlayer	This class plays audio / video / still images.
Android.widget.VideoView	This class plays video.

For details of the Android standard library, refer Android official website such as "Android Developers".

2.5 Power management

2.5.1 Power status

IT-G400 has following power states.

No	State	Display	RAM	CPU	Description
1	ON	ON	ON	ON	Terminal is in operation
2	Early suspend	OFF	ON	ON	Only the screen is OFF.
3	Suspend ※1	OFF	ON	OFF	Nearly all devices except RAM are in OFF state. OS and applications remain in RAM, but application programs are stopped except some.
4	Hot Swap ※2	OFF	ON	OFF	Ultra low power consumption mode prepared for replacing the battery pack.
5	OFF / Shutdown	OFF	OFF	OFF	All devices are in the OFF state.

※1 Depending on the application on Android it is sometimes written as "sleep".

※2 For the detail, refer "2.5.5 Hot swap (p.13)".

The change of state from 5 to 1 is called "BOOT", and the state change from 3, 4, 2 to 1 is called "RESUME".

2.5.2 Suspend and Resume

When the device is in ON state, short pressing power key suspends the device. (Note! This behavior can be disabled by using 'Casio Android Add-ons'. For detail, refer 'Casio Android Add-ons Manual'.)

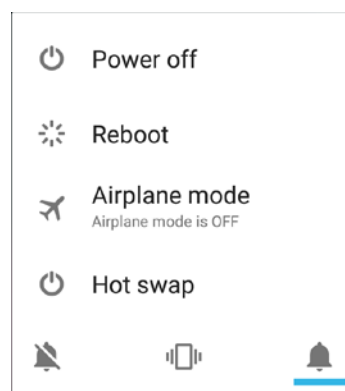
Conversely, when the device is in Suspend or Early Suspend state, pressing power key resumes the device immediately.

2.5.3 Power on and suspend

When the device is in the OFF state, to turn it on, power key must be pressed for several seconds. This is the specification to prevent unintentional turning on of power.

2.5.4 Turn off / Shutdown

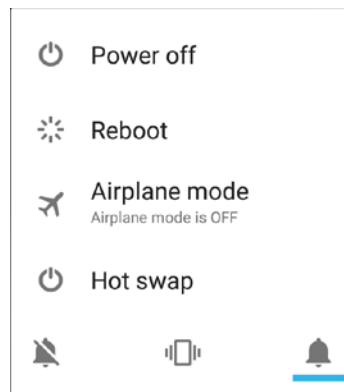
Press and hold the power key for 1 second, then power menu pops up. If you select "Power off" from the menu, it goes into OFF (Shutdown) state. Also this operation is called as "Shutdown".



2.5.5 Hot swap

Many smartphones in recent years can not exchange batteries to realize small size and light weight. On the other hand, IT-G400 is compatible with battery replacement in preparation for lower battery during work. Furthermore, in the case of a normal smartphone, rebooting occurs only by removing and inserting the battery, but IT-G400 implements Hot swap function to reduce the time required for rebooting.

Press and hold the power key for 1 second, then power menu pops up.



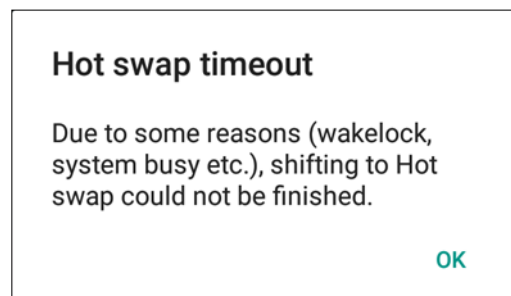
When "Hot Swap" is selected from the menu, the LED will light red and the transition to the hot swap state will begin. When the transition is completed, the red LED goes out.

In the hot swapped state, the power key is disabled. This is to avoid accidentally resuming the operation during battery exchange.

The Hot Swap state continues until finishing the battery replacement.

Cautions!

It is not guaranteed that hot swap will always succeed. For example, if the transition to the hot swap state is blocked for 90 seconds due to the occupation of system resources by the application, migration to hot swap fails with the following error message.



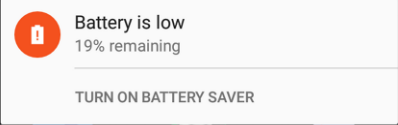
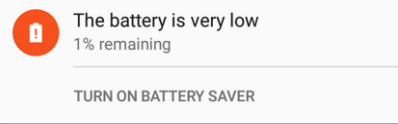
Cautions!

Do not remove the SIM card in the Hot Swap state. In case the SIM card needs to be removed, shutdown the device first.







Do not remove the microSD card in the Hot Swap state. In case the microSD card needs to be removed, shutdown the device first.

2.5.6 Remaining battery level and Operation restriction

The table below summarizes the relationship between remaining battery level, notification, and operation restriction. For example, if the remaining battery level is 20% or less, the LED will light red and a warning of low battery will be issued. At this time, "the battery level is low" notification is also issued. When the battery level drops below 10%, the LED will change to blinking red. Also, a notification of "The battery is very low" is issued and LED lights and cameras are disabled.

Remaining battery level	Status	Notification (LED)	Notification (Notification)	Operation restriction
100%	Full charge	Lit green	none	none
99% ~ 21%	Regular use	OFF	none	none
20% ~ 11%	Battery low warning (Low)	Lit red	 Battery is low 19% remaining TURN ON BATTERY SAVER	none
10% ~	Very low warning (Critical)	Blinking red	 The battery is very low 1% remaining TURN ON BATTERY SAVER	LED flashlight and Camera Flash are restricted to use
11% ~ 100%	Charging (Critical 以上)	Lit red	none	none
~ 10%	Charging (Critical)	Blinking red	none	LED flashlight and Camera Flash are restricted to use

The table below summarizes the relationship between remaining battery level and battery icon.

Remaining battery level	icon
100% ~ 16%	
15% ~ 11%	
10% ~	
Unknown	
Charginig (32% ~ 100%)	
Charging (~ 31%)	

2.6 Memory management

2.6.1 eMMC partition

IT-G400 has a 16GB eMMC (Embedded MultiMediaCard).

The inside of the eMMC is divided into a boot area to be used at booting, a system area used by the OS, and a user area to be used as Internal Storage.

Figure 2-1

boot area : Approx.100MB
System area : Approx.6GB
User area : Approx. 9GB

2.6.2 External storage

A microSD card slot is equipped to use external memory.



When inserting microSD card, insert it with the contact terminal face down.

Also, when removing, follow the procedure below.

- (1) Unmount by [Unmount SD card] from [Settings] → [Storage]
- (2) Change to shutdown state (refer to "2.5.4 Turn off / Shutdown (p.12)")
- (3) Remove battery and remove the microSD card
- (4) Install the battery

2.6.3 Drive specification

mount point	Storage
/storage/emulated/0	Internal storage
/storage/sdcard1	microSD card ※1

※1 It supports microSD and microSDHC. Transfer speed is up to CLASS 10.

2.7 Display

Hardware specification

type	TFT
LCD Size	5.0 inch
number of dots	W 720 x H 1280 (HD)
Dot pitch	W 0.08625 mm x H 0.08625 mm
Color	16 M Colors
Backlight	LED backlight

How to detect the resolution

To obtain the screen resolution from the application program, use DisplayMetrics.









```
DisplayMetrics metrics = new DisplayMetrics();  
getWindowManager().getDefaultDisplay().getMetrics(metrics);
```

For details of the Android DisplayMetrics, refer Android official website such as "Android Developers".

2.8 Key

Key assignment







The assignment of function buttons is as follows.

KEY	Function	Android Key Event
	Switching Applications ● Touch to switch to the recent used applications. This key is also called as "Recent Apps key".	KEYCODE_APP_SWITCH
	Home key ● From any application or screen, touch to return to the Home screen. ● Touch and hold to open "Now on Tap".	KEYCODE_HOME
	Back Key ● Touch to go back to the previous screen, or to close a dialog box, options menu, the notification panel, etc.	KEYCODE_BACK
	Function key ● Touch to select the function you want to set as the shortcut of program buttons.	KEYCODE_FUNCTION
	Power key ● Press: Lock the screen/Light up the screen. ● Press and hold: Show the pop-up menu to select from Power off/Reboot/Airplane mode/Hot Swap. ● Press the Power key and Volume down key for more than 12s to reset. ● Press the Power key and Volume down key to capture a screenshot.	KEYCODE_POWER
	Volume Up key / Volume Down key ● In call mode, adjusts the headset volume. ● In Music/Video/Streaming mode, adjusts the media volume. ● In general mode, adjusts the ringtone volume. ● Mutes the ringtone of an incoming call. ● In camera preview mode, press Volume up or down key to enter burst shoot.	KEYCODE_VOLUME_UP KEYCODE_VOLUME_DOWN
	Left Trigger key	
	Right Trigger key	

For details of the Android standard library, refer Android official website such as "Android Developers".

2.9 Touch panel

IT-G400 equips with a capacitive touch panel. Define terms related to touch panel operation as follows.

Touch 	To access an application, touch it with your finger.
Touch and Hold 	Touch and hold the item to enter the available options.
Drag 	Place your finger on the screen to drag an object to another location.
Slide / Swipe 	Slide the screen up and down to scroll through the applications, images, web pages, etc. The device also supports one finger zoom (Messaging, Browser, Email, Camera and Gallery) by double tapping the screen then sliding with one finger to zoom in/out).
Flick 	Similar to swiping, but flicking makes it move quicker.
Pinch / Spread 	Place your fingers of one hand on the screen surface and draw them apart or together to scale an element on the screen.

2.10 LED

IT-G400 has two LEDs, one for charging status and the other for Android's notification. Android notification LED can be controlled with Android standard API.

Libraries related to this function are as follows.

Android standard library ※

<code>android.app.NotificationManager</code>	Class that controls event notification to users. It includes LED control function.
<code>android.app.Notification</code>	Class for making various settings for event notifications. It includes LED control function.

For details of the Android standard library, refer Android official website such as "Android Developers".

The Android notification LED can use two colors, red and blue.

Cautions!

In the Android standard library, you can specify colors with red and blue emission ratios, so you can logically mix colors. However, for the actual use, CASIO guarantees only red and blue.

2.11 GPS

IT-G400 equips GPS.

Libraries related to this function are as follows.

Android standard library ※

`android.location.GpsStatus`

Class that provides GPS engine function.

`android.location.GpsSatellite`

Class that gets the current state of GPS satellites.

Used in conjunction with `android.location.GpsStatus`.

For details of the Android standard library, refer Android official website such as "Android Developers".

2.12 Sensors

IT-G400 has following sensors.

- Illuminance sensor
- Proximity sensor
- Acceleration sensor
- Gyro sensor

Libraries related to this function are as follows.

Android standard library ※

<code>android.hardware.Sensor</code>	Class that provides sensor information.
<code>android.hardware.SensorManager</code>	Class used to access sensor devices.
<code>android.hardware.SensorEvent</code>	Class that provides sensor event and information according to the type of sensor.

For details of the Android standard library, refer Android official website such as "Android Developers".

By using each sensor, IT-G400 supports the following functions.

- Automatic screen brightness adjustment
- Automatic screen rotation
- Touch panel invalidation during call

2.13 Bluetooth

Communication profile

IT-G400 supports the following Bluetooth profiles.

Function	Purpose
A2DP	Profile for streaming delivery of audio data of stereo sound quality used between digital audio player and headphone.
AVRCP	Profile for remotely operating the operation target device from the remote control used between the digital audio player and the remote controller.
GAP	Profile for device connection / authentication / encryption
GAVDP	Profiles that serve as the basis for A2DP and VDP
HFP	A profile used to make and receive calls and calls, used between a mobile phone and a headset.
HSP	Profile for voice input / output, used between mobile phone and headset etc.
OPP	Profile used for exchanging objects between the mobile phone and the mobile phone (for example, phone book data and schedule data).
PAN	Profile for a plurality of PCs (slaves) to make radio connection with one PC (master) as the center.
PBAP	Profile for transferring phone book data.
SPP	Profile used to create virtual serial port and connect devices.
GATT	Profile used for exchanging attribute information with power saving Bluetooth.
HOGP	Profile for connecting mouse and keyboard.
HID	Provides support for devices such as mice (pointing device), keyboads.

The following table shows correspondence between Bluetooth communication devices and usage and profiles.

Bluetooth device	Usage	Profile and application
Bluetooth access-point (PAN-NAP Profile compatible)	LAN connection Tethering device	PAN-PANU Profile OS standard settings app + TCP/IP application. [Attention] When PAN-PANU Profile is used, it's not possible to communicate via Proxy.
PAN-PANU Profile compatible PDA、PC, etc.	LAN connection Tethering master	PAN-NAP Profile OS standard settings app
Bluetooth printer	Print to printer	SPP Profile Application for printing
Bluetooth compatible PDA、 Bluetooth compatible PC etc	File transfer among Bluetooth devices	OPP Profile OS standard photo app
Bluetooth headset	Voice communication	HFP Profile OS standard phone app
Bluetooth headphone	Play music	A2DP Profile OS standard music app
G-SHOCK watch that supports Bluetooth ("GB-6900AA" series, "GB-5600AA" series)	To make device ring by watch	FMP CASIO application to configure Bluetooth watch(G-SHOCK+)
	To notify device of receiving SMS (and so on) by watch	ANP CASIO application to configure Bluetooth watch (G-SHOCK+)
	To stop ringing of device that is notified ANP by watch	PASP CASIO application to configure Bluetooth watch(G-SHOCK+)
	Synchronize the time of device with the time of watch	TIP CASIO application to configure Bluetooth watch

Note: Please use certified Bluetooth device.

Libraries related to this function are as follows.

Android standard library ※

android.bluetooth

Class for controlling Bluetooth function.

※ For details of the Android standard library, refer Android official website such as "Android Developers".

2.14 WLAN

IT-G400 equips WLAN module.

Libraries related to this function are as follows.

Android standard library ※

android.net.wifi	Class for accessing Wi-Fi network
android.net.wifi.p2p	Class for creating P2P connection in Wi-Fi Direct.

※ For details of the Android standard library, refer Android official website such as "Android Developers".

[Remark]

IT-G400 does not support CCX and Fast Transition (FT).

2.15 Speaker

IT-G400 equips speaker.

Libraries related to this function are as follows.

Android standard library ※

android.media.AudioManager

Classes that control volume etc

For the audio function, refer to "2.4 Media format (p.10)".

※ For details of the Android standard library, refer Android official website such as "Android Developers".

2.16 Mic

IT-G400 equips microphone.

Libraries related to this function are as follows.

Android standard library ※

`android.media.MediaRecorder` Class for using recording and recording functions. For the audio function, refer to "2.4 Media format (p.10)".

※ For details of the Android standard library, refer Android official website such as "Android Developers".

2.17 Clock

2.17.1 Overview

The smart phone secures the accuracy of the clock by synchronizing the time with the mobile phone network (NITZ synchronization). However, in the case of models that do not have a phone function, it is common to use the Internet and time synchronization (NTP synchronization) because there is no time synchronization function with the mobile phone network. However, it is not unusual to operate without connecting to the Internet when using terminal for business use.

We recommend that you install an NTP server in your company if your operation is as follows.

- ① Using a model without telephone function
- ② Using WiFi, but not connecting to the Internet
- ③ Clock accuracy is important

In case not possible to connect to the internal NTP server, set clock manually.

2.17.2 Time synchronization

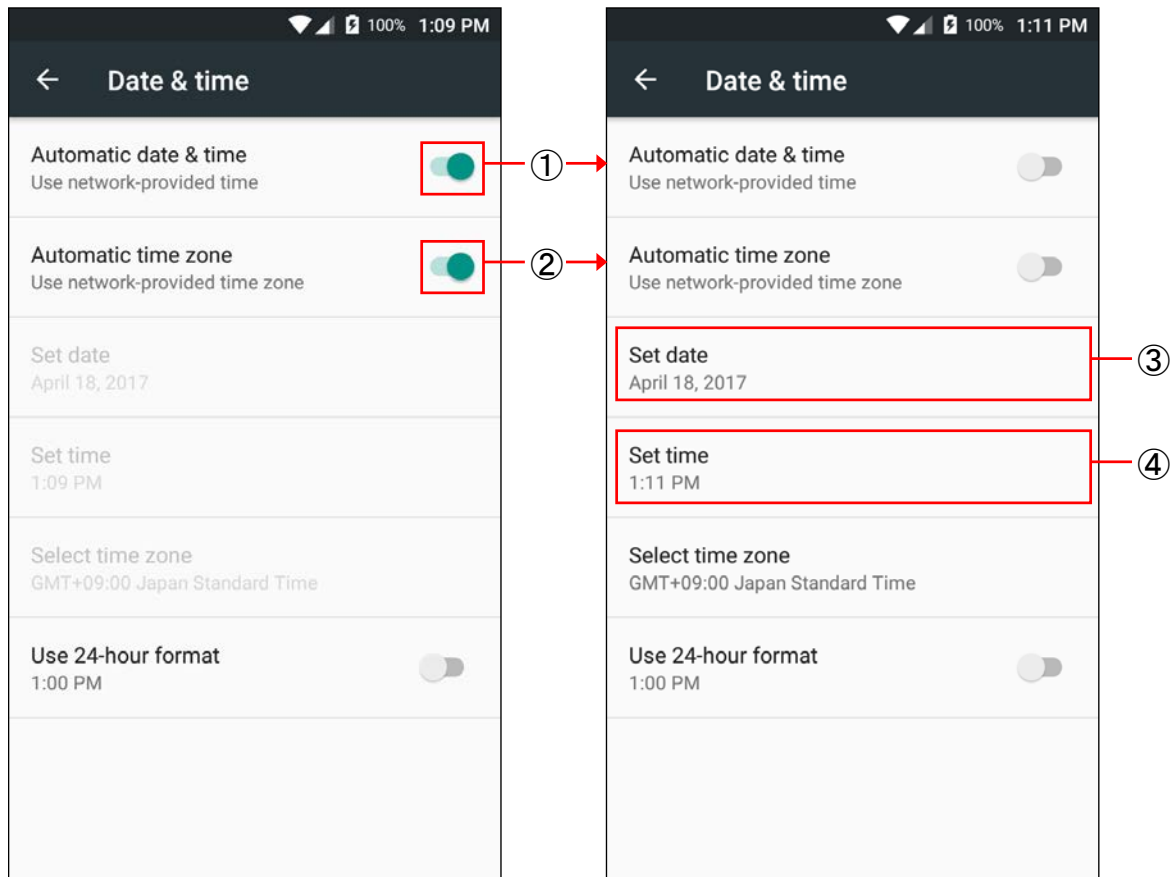
Since the setting of "Synchronize time with network" is enabled in the default of IT-G400, it is not necessary to change this setting if you use the mobile phone network or the Internet.

On the other hand, if using the above network time synchronization is not possible in any reason, it is common to set up an NTP server inside the company, but there is no "NTP server address setting" in Android standard function.

In case of IT-G400, NTP server address can be set by using the Kitting Tool included in this basic development kit or the Settings.

NTP server address can be set also by using MDM software (such as mobicon).

If you do not synchronize the time using the network, disable "Automatic date & time" and "Automatic time zone" from [Settings] → [Date & time].



- ① Disable "Automatic date & time"
- ② Invalidate "Automatic time zone"
- ③ Open [Set date] and adjust the date manually.
- ④ Open [Set time] and adjust the clock manually.

2.18 Vibrator

IT-G400 equips vibrator

Libraries related to this function are as follows.

Android standard library ※

`android.os.Vibrator`

Class for vibrating the vibrator.

※ For details of the Android standard library, refer Android official website such as "Android Developers".

2.19 NFC

By communicating with the contactless IC card or RFID tag, it is possible to read and write them.

2.19.1 List of useable card

The types and commands of supported IC cards are as follows.

ISO/IEC14443 TypeA

Card type	Supported command
MIFARE Standard 1K	Authentication, Read, Write, Increment, Decrement, Transfer, Restore
MIFARE Ultralight	Read, Write4
MIFARE Ultralight C	Read, Write4, Authentication

ISO/IEC14443 TypeB

Card type	Supported command
JICSAP	SELECT FILE, UPDATE BINARY, READ BINARY,

FeliCa

Card type	Supported command
FeliCa, FeliCa Lite	Read Without Encryption, Write Without Encryption

Card type	Supported command
ICODE SLI	Read Single Block, Write Single Block, Lock Block, Read Multiple Blocks, Write AFI, Lock AFI, Write DSFID, Lock DSFID, Get System Information, Get Multiple block Security Status
ICODE SLI-L, ICODE SLI-S	Read Single Block, Write Single Block, Lock Block, Write AFI, Lock AFI, Write DSFID, Lock DSFID, Get System Information
my-d V 10 Plain	Read Single Block, Write Single Block, Lock Block, Read Multiple Blocks, Write AFI, Lock AFI, Get Multiple block Security Status
my-d Light	Read Single Block, Write Single Block, Write AFI, Lock AFI,
Tag-it HF-I Plus ※ ¹	Read Single Block, Write Single Block, Lock Block, Read Multiple Blocks, Write AFI, Write DSFID, Get System Information, Get Multiple block Security Status
Tag-it HF-I Pro, Tag-it HF-I Standard ※ ¹	Read Single Block, Write Single Block, Lock Block

※¹ When using the Write Single Block / Lock Block / Write AFI / Write DSFID command for tags of the Tag-it series, it is necessary to retry the command in the application.
For details, refer to the NFC library manual.

2.20 Barcode scanner

2.20.1 Barcode reading specification

The barcodes supported by the barcode scanner are shown below.

(1) 1D barcode

Code	Reading digits	Check character	Check character output	Other functions
EAN8/JAN8	8 (+2/5)	Always enabled	Enable/ Disable	2 digits / 5 digits add ons
EAN13/JAN13	13 (+2/5)	Always enabled	Enable/ Disable	2 digits / 5 digits add ons
UPC-A	12 (+2/5)	Always enabled	Enable/ Disable	NS output 2 digits / 5 digits add ons
UPC-E	6 (+2/5)	Always enabled	Enable/ Disable	NS output 2 digits / 5 digits add ons UPC-A conversion
Code39	0~48	Enable/ Disable	Enable/ Disable	Start/Stop code output Full ASCII conversion
Codabar(NW7)	2~60	Enable/ Disable	Enable/ Disable	Start/Stop code output
ITF(Interleaved 2 of 5)	2~80	Enable/ Disable	Enable/ Disable	—
Code93	0~80	Always enabled	Always disabled	—
Code128	0~80	Always enabled	Always disabled	—
GS1 128(EAN128)	0~80	Always enabled	Always disabled	—
MSI	4~48	Always enabled	Enable/ Disable	—
GS1 DataBar(RSS)	1~80 (※2)	Always enabled	Always disabled	GS1 DataBar-14 reading GS1 DataBar-Limited reading GS1 DataBar-Expanded reading
ISBT	(※3)	Always enabled	Always disabled	—
Code32 (※1)	9	Always enabled	Always disabled	—

(※1) In case of reading Code32, enable both Code39 and Code32 to read.

(※2) GS1 DataBar-14 and GS1 DataBar Limited are fixed to 14 digits of reading digits.

(※3) The reading digits setting of ISBT refers the setting of Code128.

■ About the number of reading digits

The "number of reading digits" is the number of digits that can be set in the barcode scanner, depends on the print quality of the barcode and environmental conditions whether the barcode can be read.

(2) 2D code (Stacked code)

Code	Reading digits	Check character	Check character output	Other functions
PDF417	1~2750	Always enabled	Always disabled	
MicroPDF	1~2750	Always enabled	Always disabled	
Codablock F (※1)	0~2048	Always enabled	Always disabled	
Composite	1~300	Always enabled	Always disabled	Composite compatibility (EAN8/EAN13/UPC-A/UPC-E/ GS1 DataBar/EAN128)
GS1 DataBar(RSS) Stacked type (※2)	1~80 (※3)	Always enabled	Always disabled	GS1 DataBar-14/GS1 DataBar Expanded

(※1) Codablock F is a vertically stacked Code 128. So, if reading of Code 128 is enabled, a part of Codablock F may be read as Code 128.

(※2) Standard Omnidirectional type is included.

(※3) Reading digits of GS1 DataBar-14 Stacked type is fixed to 14 digits.

■ About the number of read digits

The "number of reading digits" is the number of digits that can be set in the barcode scanner, depends on the print quality of the barcode and environmental conditions whether the barcode can be read.

(3) 2D barcode (Matrix code)

Code	Reading digits	Check character	Check character output	Other functions
Aztec	1~3832	Always enabled	Always disabled	
QR Code / Micro QR Code	1~7089	Always enabled	Always disabled	Model2 only(※1)
Maxicode	1~150	Always enabled	Always disabled	
DataMatrix	1~3166	Always enabled	Always disabled	ECC000/050/080/100/140/200
Han Xin(Chinese Sensible Code)	1~6000	Always enabled	Always disabled	

(※1) Model 1 is not supported.

■ About the number of read digits

The "number of reading digits" is the number of digits that can be set in the barcode scanner, depends on the print quality of the barcode and environmental conditions whether the barcode can be read.

2.20.2 Reading type

(1) Normal reading

Barcode scanning performs every time when the trigger key is pressed. It reads one bar code, then outputs data.

(2) Continious reading

Repeat barcode scanning while the trigger key is pressed. Reads multiple barcodes and outputs data each time the reading is successful.

2.20.3 Reading condition

(1) Specify the type of readable bar code

You can specify the type of barcode to enable or disable reading. By setting only the bar code that you want to read validly, you can shorten the reading time.

(2) Specifying the number of read digits

For each bar code, you can specify the minimum number of digits and the maximum number of digits to be read. By setting the number of read digits according to the barcode to be used, the misreading rate can be reduced.

For the minimum number of digits and the maximum number of digits, refer to “2.20.1 Barcode reading specification (p.33)”.

(3) Check Character Calculation, Check Character Output

For some barcodes, you can toggle validity / invalidation of "check character calculation".

You can also specify whether to add "check character" to the read character string. By performing "check character" calculation, misreading rate can be reduced. Refer to "check character" and "check character output" of “2.20.1 Barcode reading specification (p.33)”.

2.20.4 Read result notification

It is a function to notify completion of barcode reading.

(1) Notification by LED

When reading is completed or failed (reading is canceled), notification LED is turned on. The following patterns can be set.

Notification device	Setting	Scan success	Scan failed	Remark
Notification LED	LED_OFF	None	None	
	LED_ON	Blue	Red	default

(2) Notification by audio

When reading is completed or failed (reading is canceled), notification audio is played. The following patterns can be set.

Notification device	Setting	Scan success	Scan failed	Remark
Audio	SOUND_ALL_OFF	None	None	
	SOUND_FAIL_ON	None	Sound for faile	
	SOUND_SUCCESS_ON	Sound for success	None	
	SOUND_ALL_ON	Sound for success	Sound for fail	default

(3) Notification by vibrator

When reading is completed or failed (reading is canceled), vibrator vibrates. The following patterns can be set.

Notification device	Setting	Scan success	Scan failed	Remark
Vibrator	VIBRATOR_ALL_OFF	None	None	default
	VIBRATOR_FAIL_ON	None	Vibrate	
	VIBRATOR_SUCCESS_ON	Vibrate	None	
	VIBRATOR_ALL_ON	Vibrate	Vibrate	

2.20.5 Expanded functions

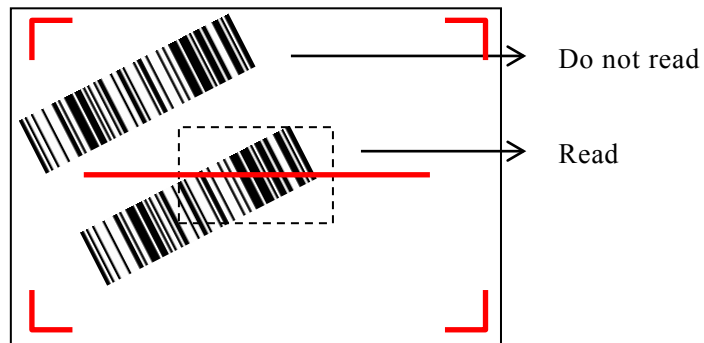
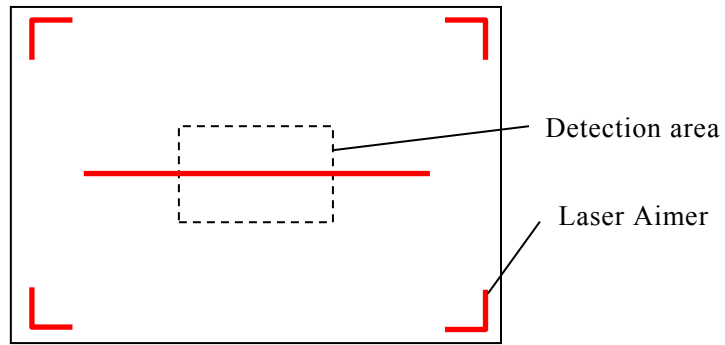
The following functions are available as an extension function of barcode scanning.

(1) Centering window mode

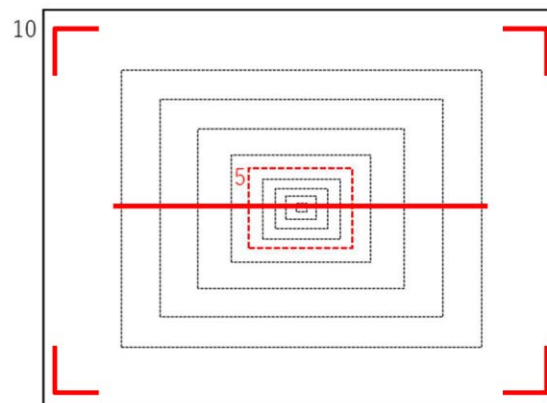
It limits the detection area to the center of the laser aimer. This is useful when you want to read only the barcode at the center in a situation with multiple bar codes.

Setting	Description	Remark
Disable	Disable "Center reading mode"	default
Enable	Enable "Center reading mode"	

Refer to the figure below for the barcode that can be read while the centering window mode is in effect. If part of the barcode is included in the detection area, read the barcode.



Specify the size of detection area 0 to 10. Please change the value according to the actual use environment. The irradiation position of the laser aimer will change depending on the distance and angle of the terminal and the bar code.



Detection area size as a guide.

(2) Black/White reverse mode

It is a function to read a barcode (white-black reversal barcode) printed in white on a black background.

Setting	Description	Remark
Normal barcode	Only normal bar code (barcode printed in black on white background) is read.	default
Black/White reversed barcode	Only black-and-white reversed barcode (barcode printed in black on black background) is read.	
Normal and Black/White reversed barcode	Read normal barcode and black-and-white reversing bar code.	

[Remarks]

For QR, DataMatrix, Aztec, you can read both normal bar code and black-and-white reversed bar code regardless of this setting.

(3) Automatic linking of combined symbols

It supports combination barcodes. When reading combination barcode below, all the data is combined and output after reading all the connected barcodes.

Symbol type		
QR Code	QR Code containing the combination identifier	Scan so that all combination QR codes fit into the aimer frame. The decoder combines QR code data in the order specified by their combination identifier, and outputs them.

[Remarks]

When reading combination barcodes, set reading method to "Normal reading". If read combination barcode with "Multiple reading", it may not be scanned correctly.

2.20.6 Image capturing

(1) Shooting still images

It is a function to shoot still images. It is output as grayscale image data of 256 gradations. The image size is as shown in the table below.

Function	Specification
Image size	832 x 640 pixel
Tone	256 gray scale

(2) Stream capturing

It is a function to continuously acquire the streaming image of the barcode scanner. It can be used for preview or image analysis.

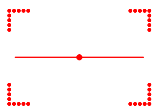
Function	Specification
Image size	416×320 pixel
Tone	256 gray scale
Frame rate	< 15fps (※1)

(※1) The frame rate varies depending on the ambient brightness and the system load.

2.20.7 Common Functions

(1) Illumination aimer

Barcode scanner is equipped with an illumination LED and an aimer to indicate the scan position. When scanning barcodes, the illumination and the aimer light alternately.

Type	Aimer shape	Description
Red Laser		Marks showing the angle of view of the barcode scanner are displayed on four corners, and the horizontal bar and the center point are displayed at the center.


(2) Barcode scanner auto power off (APO)




























This function automatically turns off the barcode scanner when the barcode scanner function is not used for a certain period of time. Even after turning off the bar code scanner, the power is turned on automatically when you use the bar code scanner. The APO time can be set in the range of 0 to 65535 seconds. You can also disable barcode scanner APO.

Power consumption is reduced while the bar code scanner is off. However, it takes several tens to several hundred milliseconds to turn on the bar code scanner, so setting the APO time shorter may cause poor response. The default imager APO time is 60 seconds.

3. Standard applications

3.1 List of applications

The table below shows a list of applications displayed in the “ application list”.

	Camera		Clock		Calculator
	Calendar		Drive		Phone
	Chrome		Downloads		GMail
	Maps		Contacts		YouTube
	Messenger		Notes		Play Store
	Photos		Sheets		Slides
	Docs		News & Weather		Hangouts
	Voice Search		Duo		Google
	Keep		Play Music		Play Movies & TV

Cautions!

"Phone", and "Messenger" are only for the models with telephone function

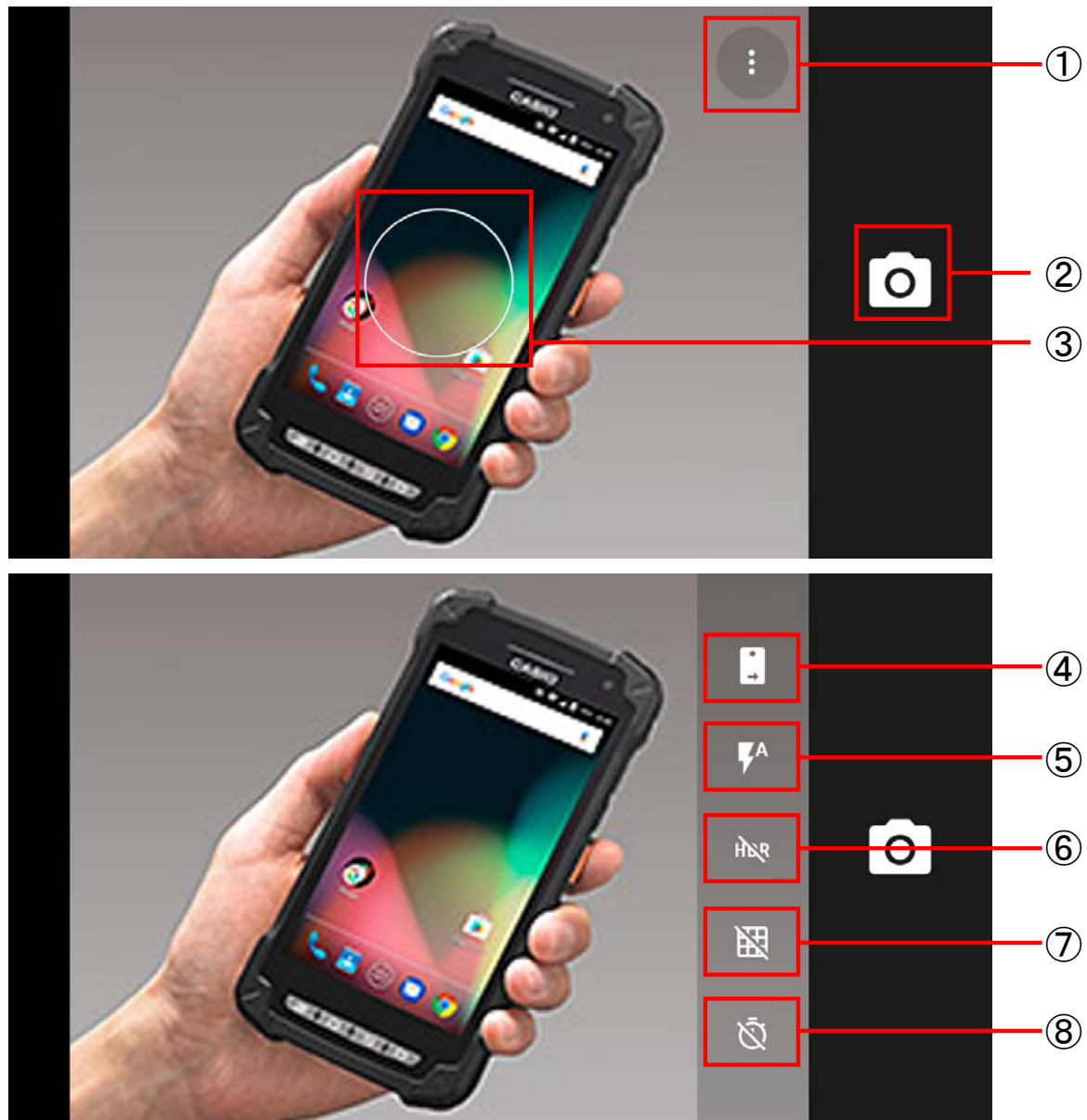
Cautions!

From next page, briefly explain how to use items that are particularly important among the standard applications. However, since standard applications are frequently updated via the Google Play store, understand that the explanation of this manual is to understand the outline of each software.

Example: The above "Messenger" is changed to "Message" by updating.

3.2 Camera

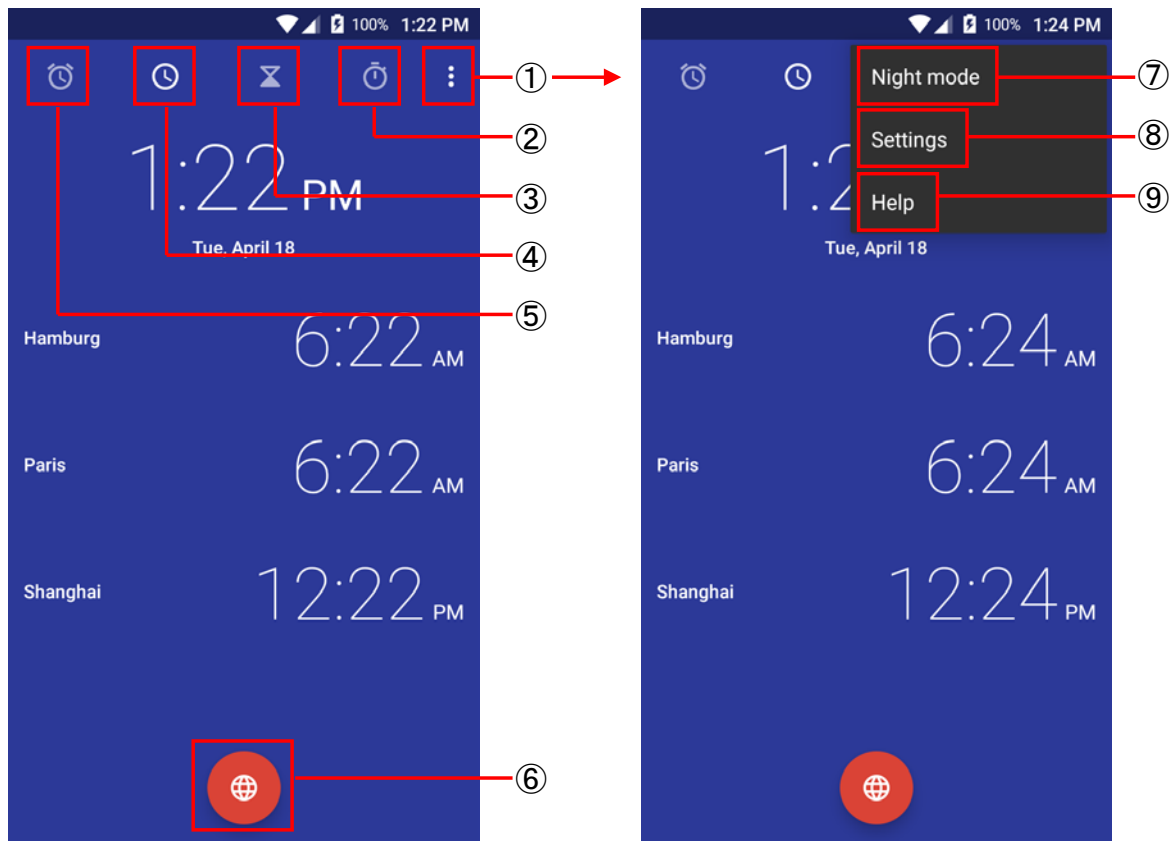
Shoot still images and movies.



- ① Display option panel
- ② Shutter
- ③ Focus position (Focus on where touched)
- ④ Change front camera / rear camera
- ⑤ Flash switching
- ⑥ Enable / disable switching of HDR (High Dynamic Range)
- ⑦ Switch grid display
- ⑧ Timer setting

3.3 Clock

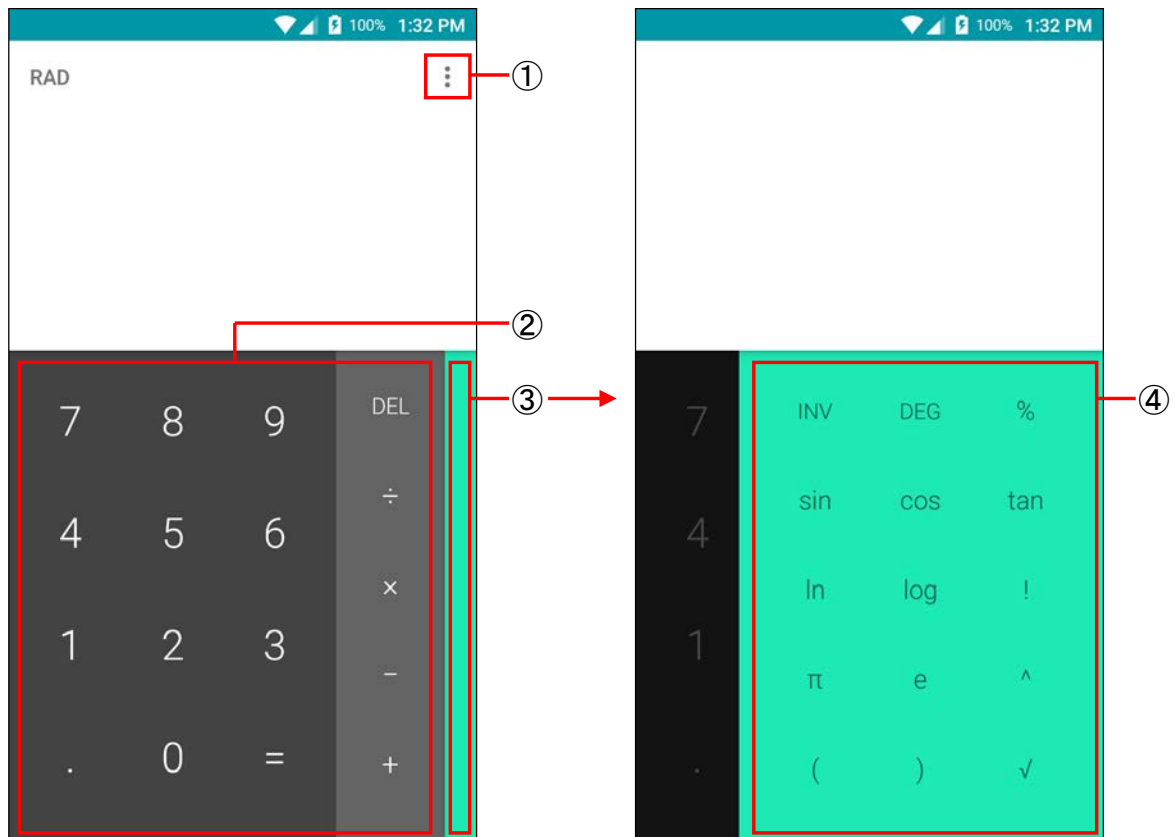
Set clock display and alarm setting.



- ① Display option
- ② Stopwatch
- ③ Countdown
- ④ Watch (possible to add other cities)
- ⑤ Alarm setting
- ⑥ Add other cities to be displayed
- ⑦ Switch to night mode
- ⑧ Settings
- ⑨ Display help

3.4 Calculator

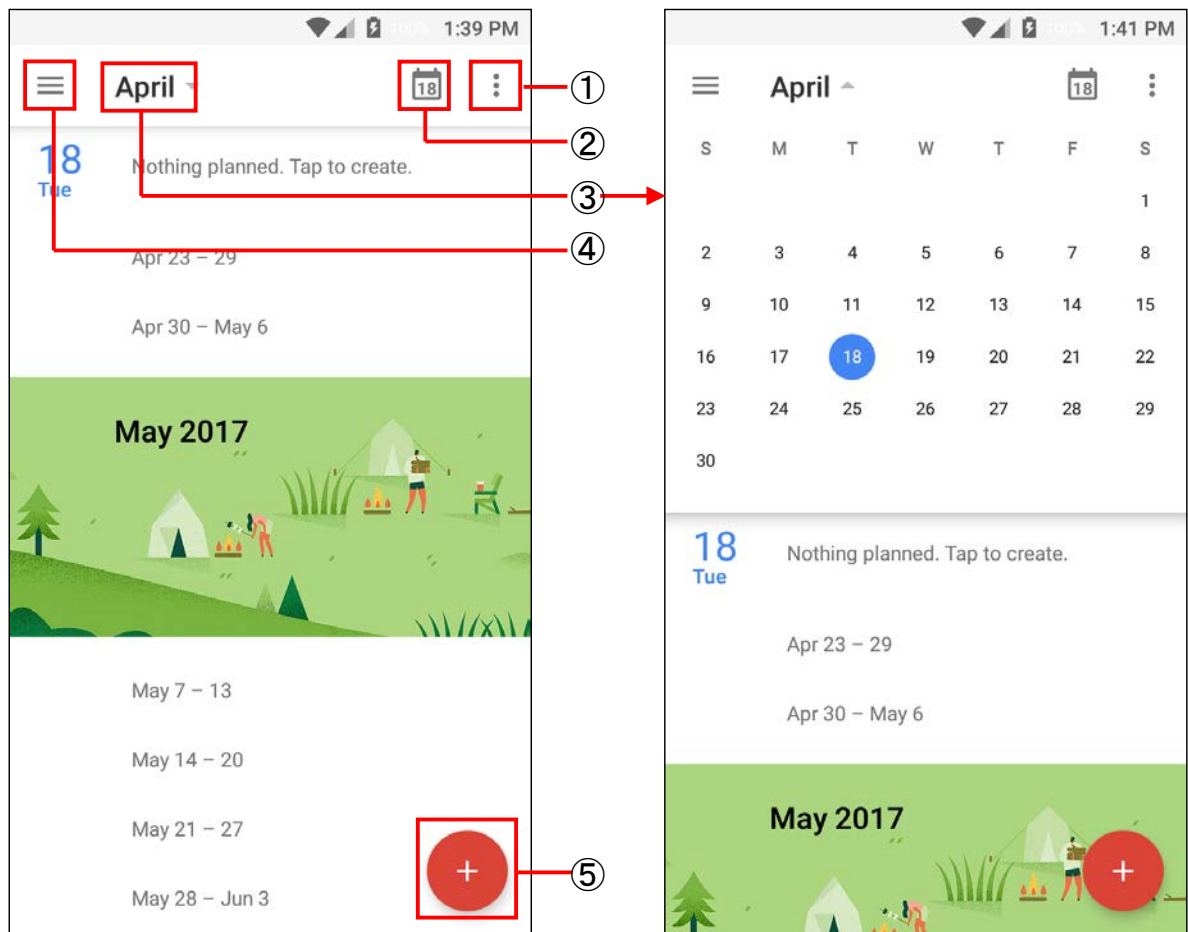
Calculator for numerical calculation and function calculation.



- ① Display help etc.
- ② Numerical operation panel
- ③ Open the function operation panel
- ④ Function operation panel

3.5 Calendar

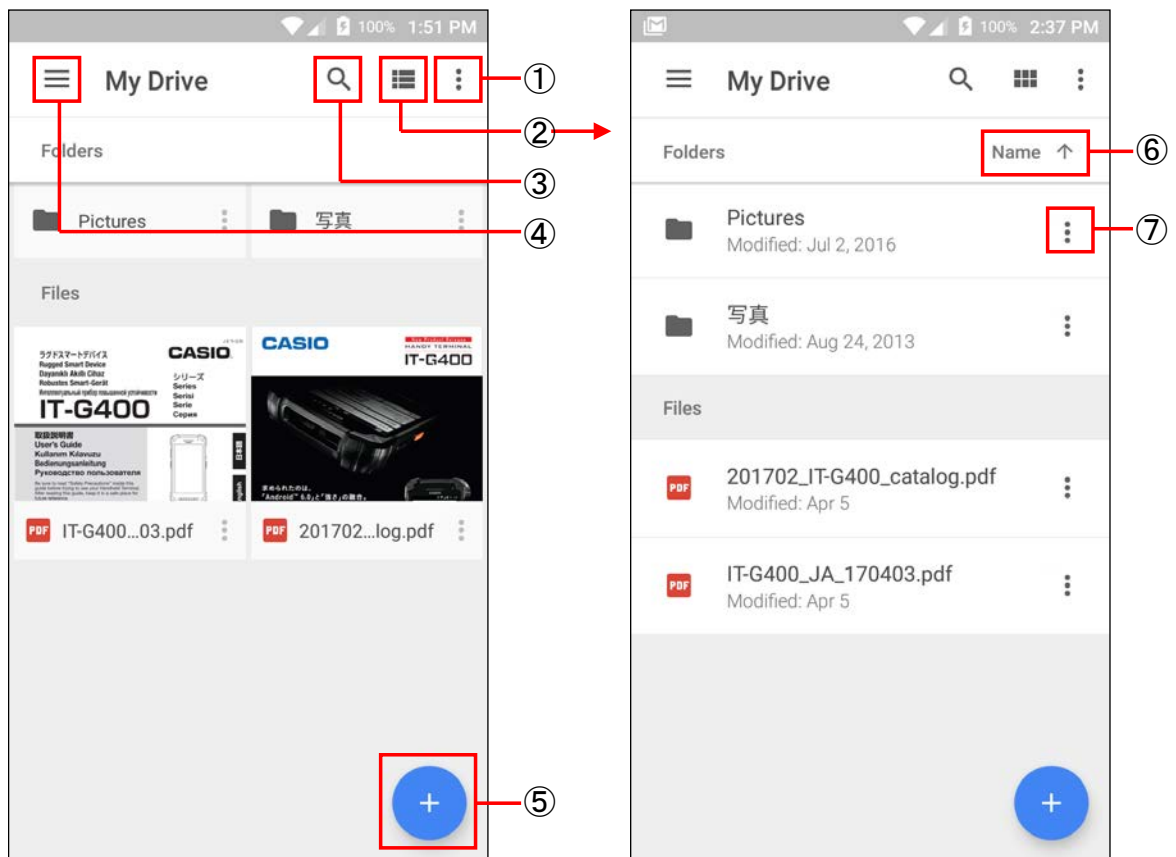
Manages events with Google Calendar. You can synchronize, display, and register schedules.



- ① Sync with Google Calendar
- ② Move to today
- ③ Move to specific date
- ④ Settings
- ⑤ Registration of Schedule, Reminder, Goal setting

3.6 Drive

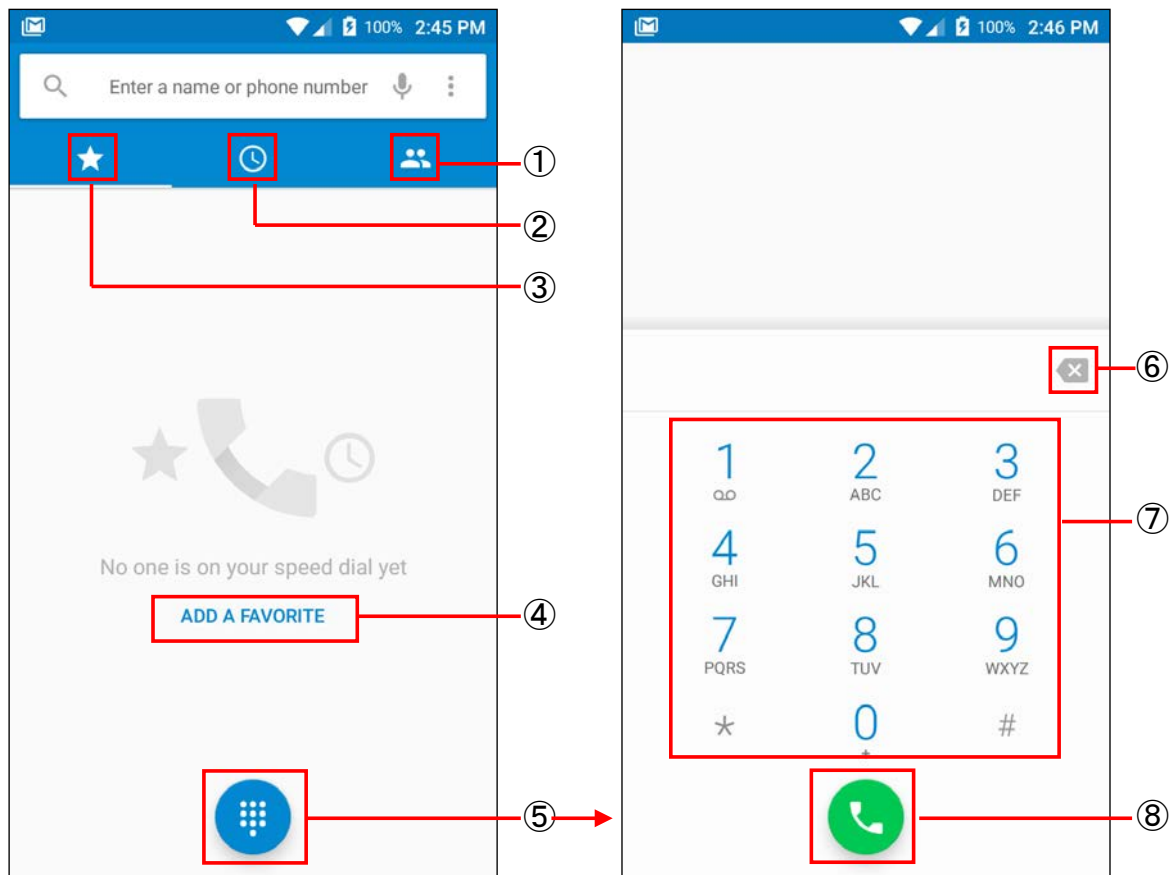
Accesses Google Drive, then search, view, edit photos and files on it.



- ① Sort, select
- ② Switch between List display and Grid display
- ③ Search
- ④ Settings
- ⑤ Register new data to drive
- ⑥ Sort order
- ⑦ File operation

3.7 Phone

Make and receive phone calls.



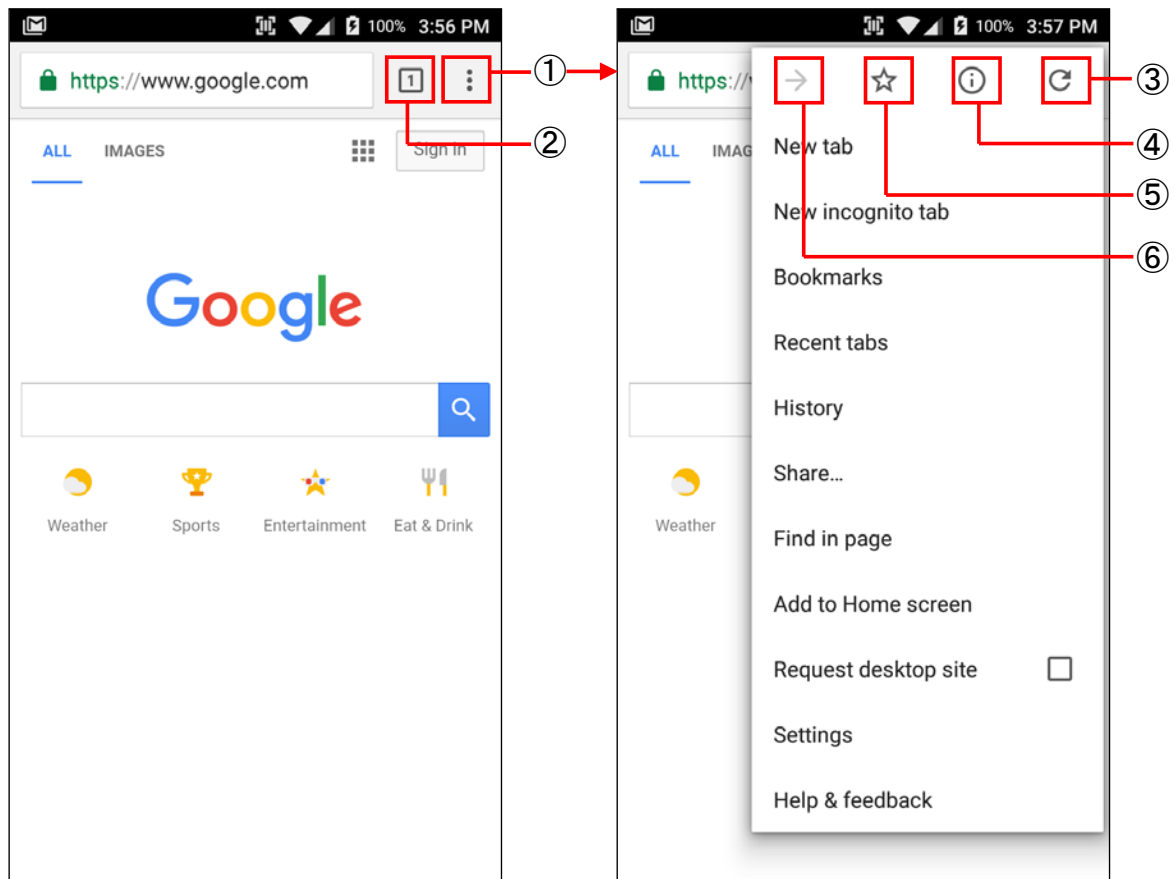
- ① Contacts
- ② Call log
- ③ Quick access screen
- ④ Add to Quick Access
- ⑤ Dial display
- ⑥ Edit dial number (delete)
- ⑦ Input phone number
- ⑧ Outgoing

Cautions!

This application is available only on the models with telephone function.

3.8 Chrome

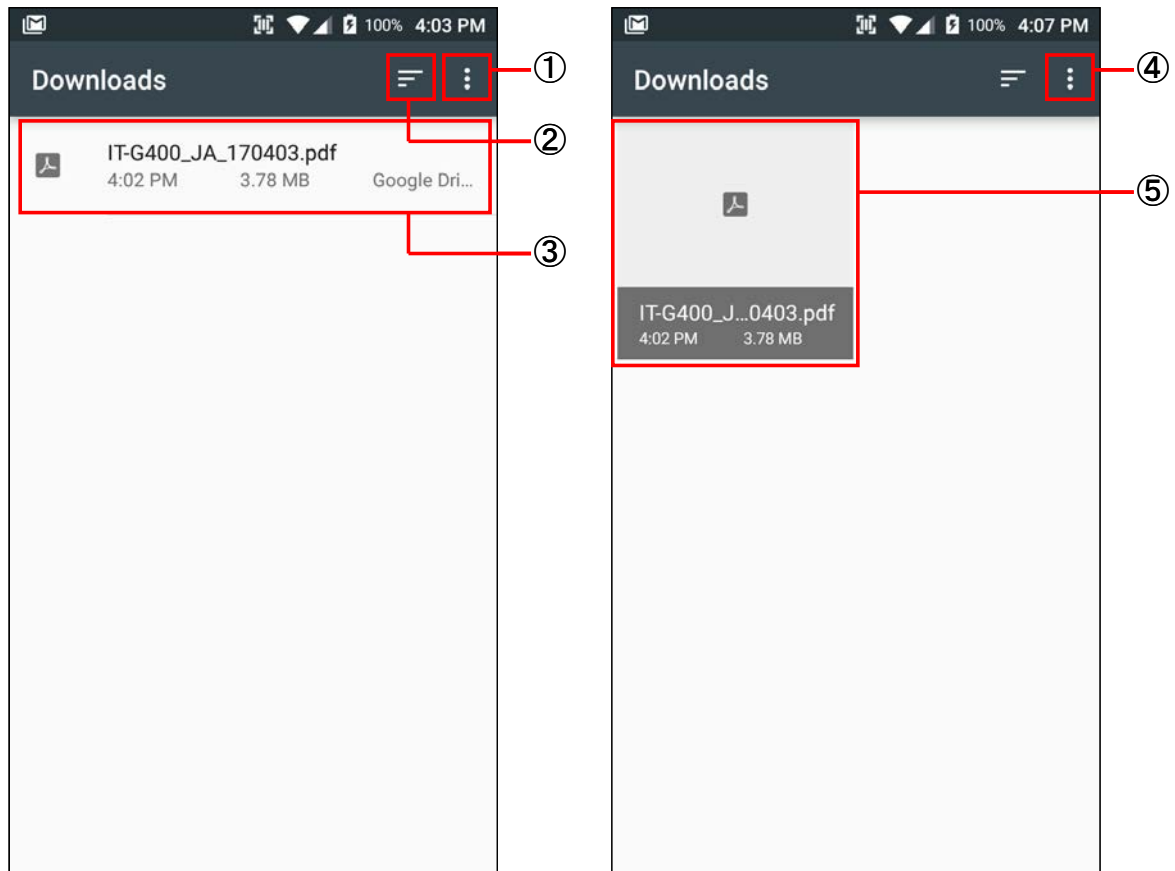
Browse web pages.



- ① Options
- ② Switching Tabs
- ③ Reloading page
- ④ Site information
- ⑤ Add to bookmark
- ⑥ Go forward

3.9 Downloads

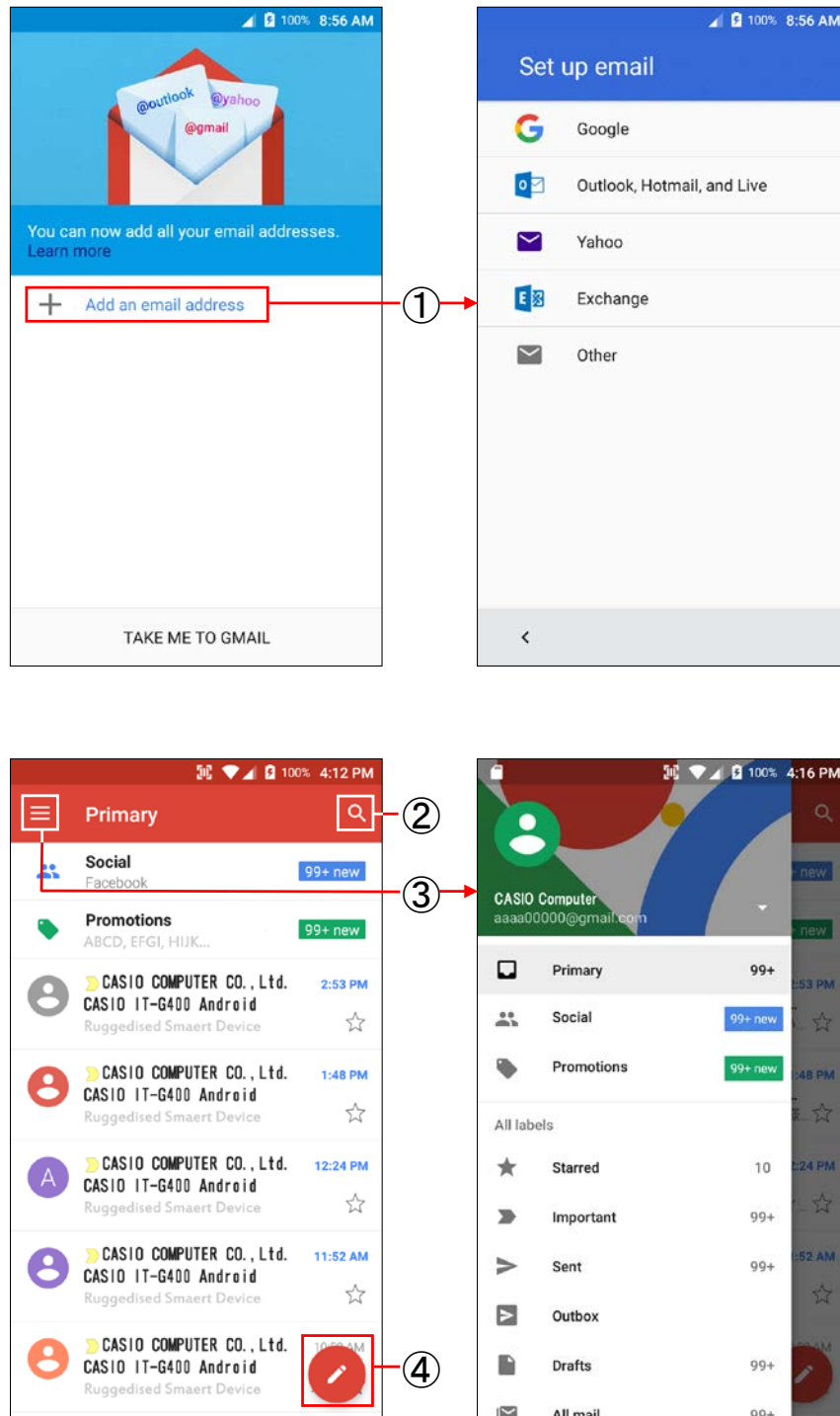
Download files by request of mailer or browser. And also used to refer to the downloaded file.



- ① Switch to grid display
- ② Switching sort order
- ③ File open
- ④ Switch to list view mode
- ⑤ Open files

3.10 Gmail

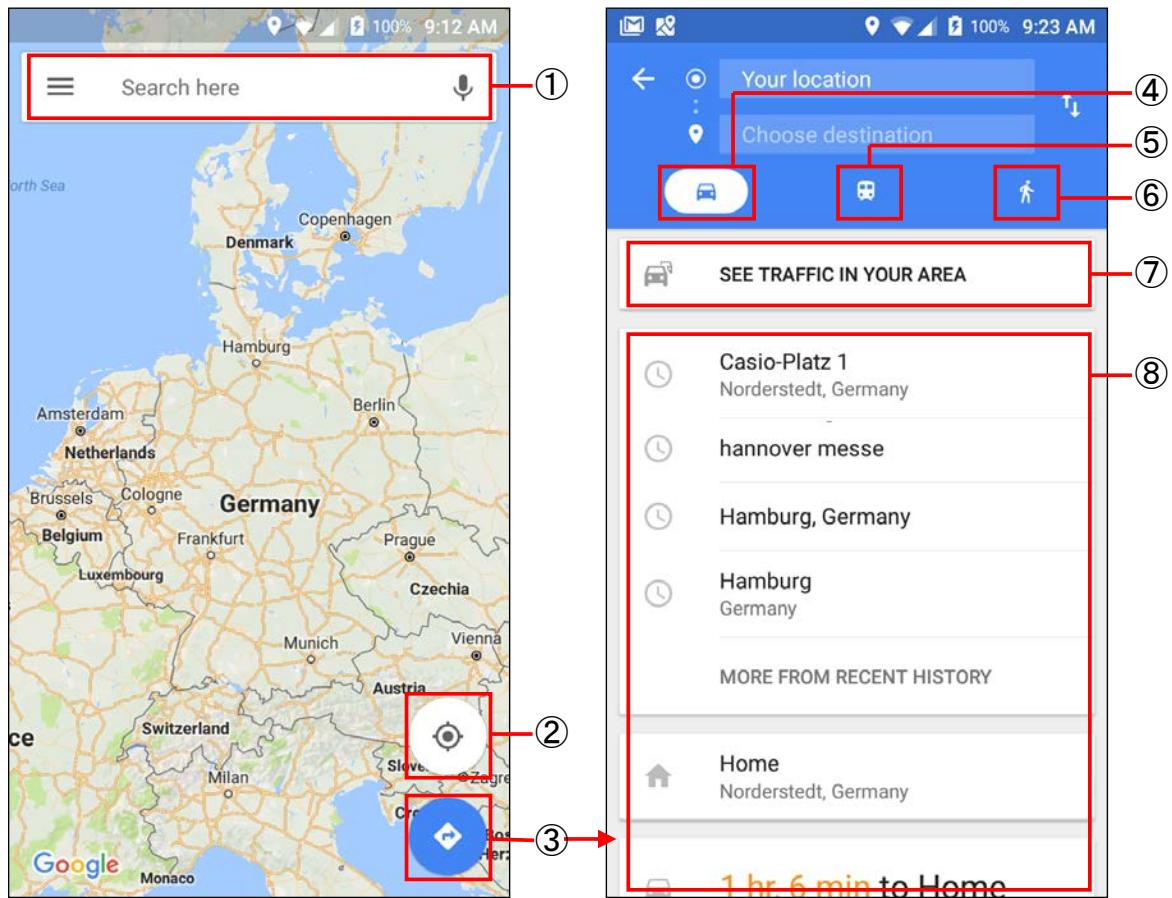
Send and receive Google and other emails.



- ① Adding mail address
- ② Searching mail history
- ③ Move to mail tray
- ④ Creating new mail

3.11 Maps

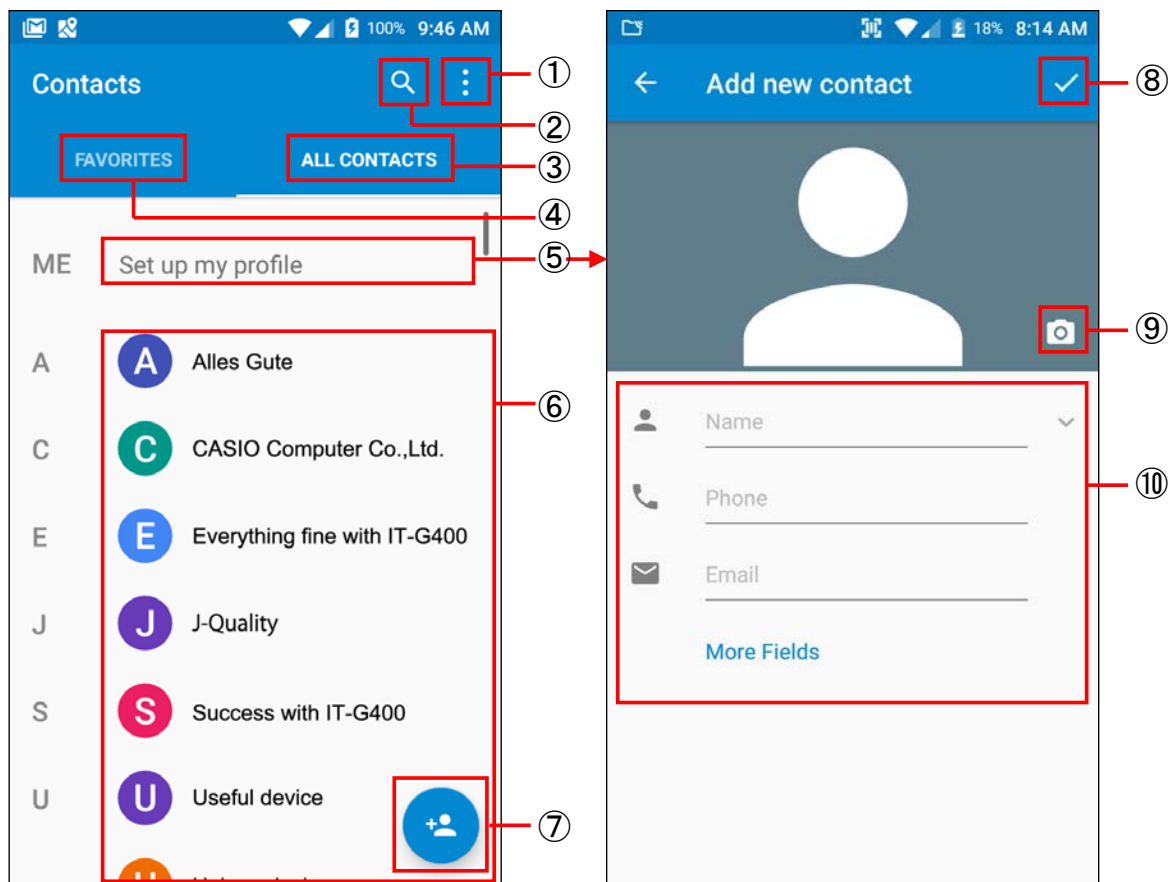
Display map and navigate to the destination.



- ① Enter destination
- ② Move to current position
- ③ Navigation
- ④ By car
- ⑤ By train
- ⑥ By foot
- ⑦ Display nearby traffic situation
- ⑧ Select destination

3.12 Contacts

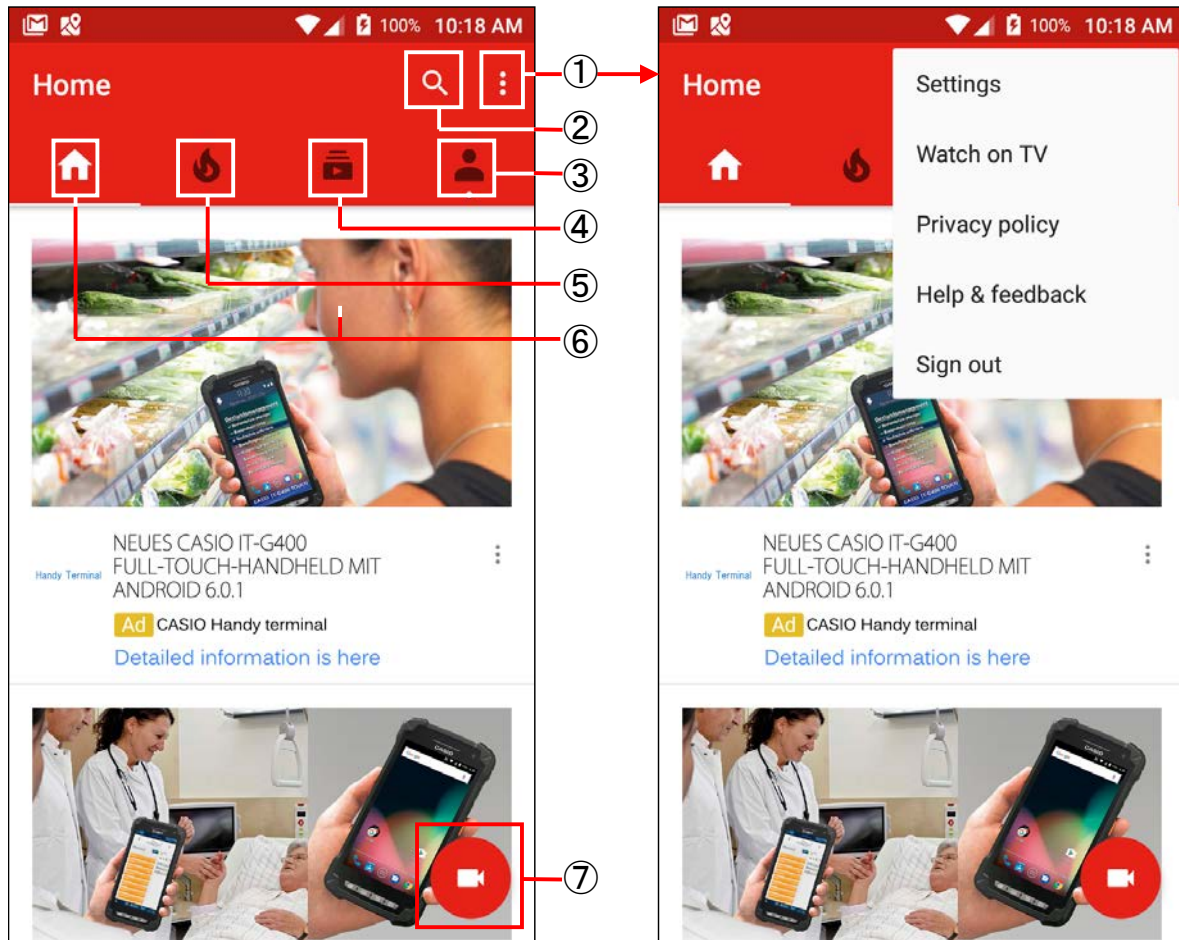
View and edit contacts, and sync with Google contacts.



- ① Display options, import / export
- ② Search contact
- ③ All contacts
- ④ Favorite
- ⑤ Profile input
- ⑥ Open contacts
- ⑦ Add new contact
- ⑧ Decide to add new contact
- ⑨ Input image with camera
- ⑩ Profile data input

3.13 YouTube

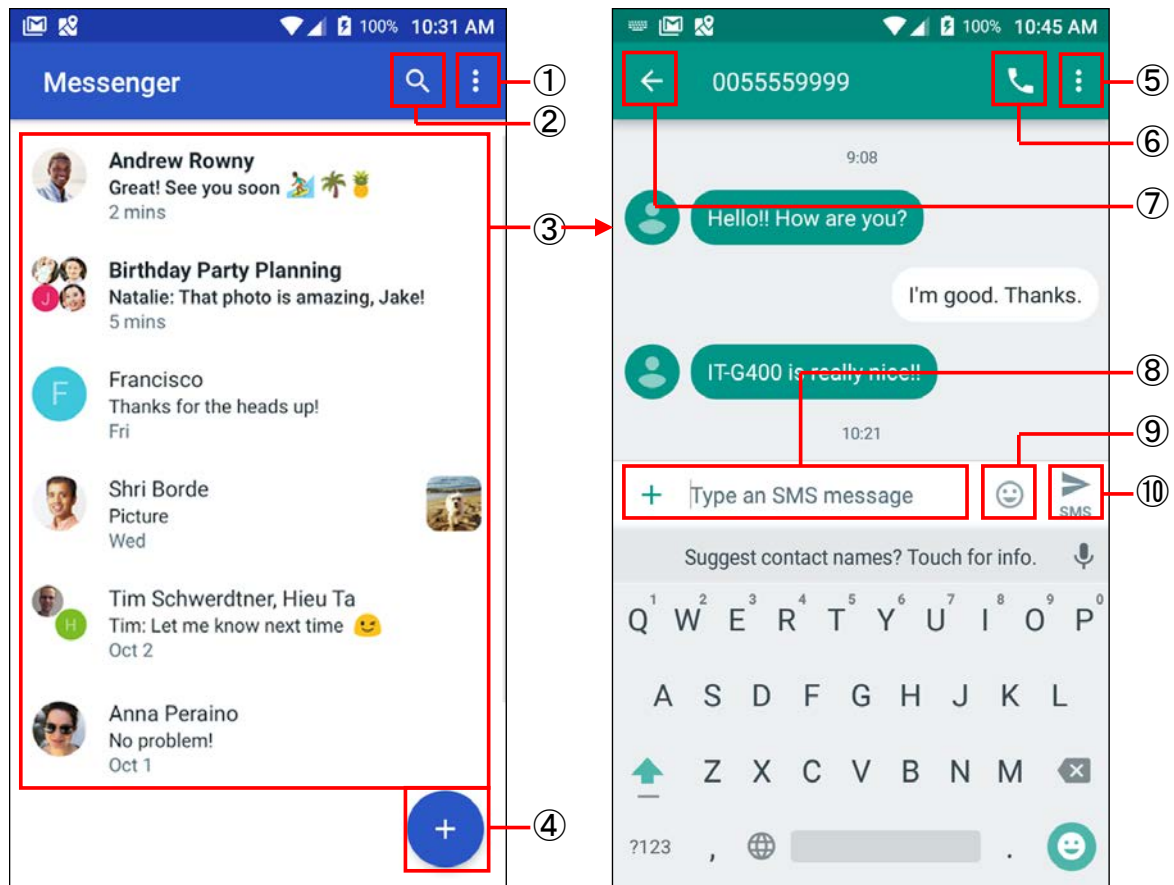
Play, create and upload Youtube videos.



- ① Settings, Others
- ② Search video
- ③ Account screen
- ④ Channel screen
- ⑤ Trending video screen
- ⑥ Home screen
- ⑦ Creating and uploading Youtube videos

3.14 Messenger

Sending and receiving SMS.



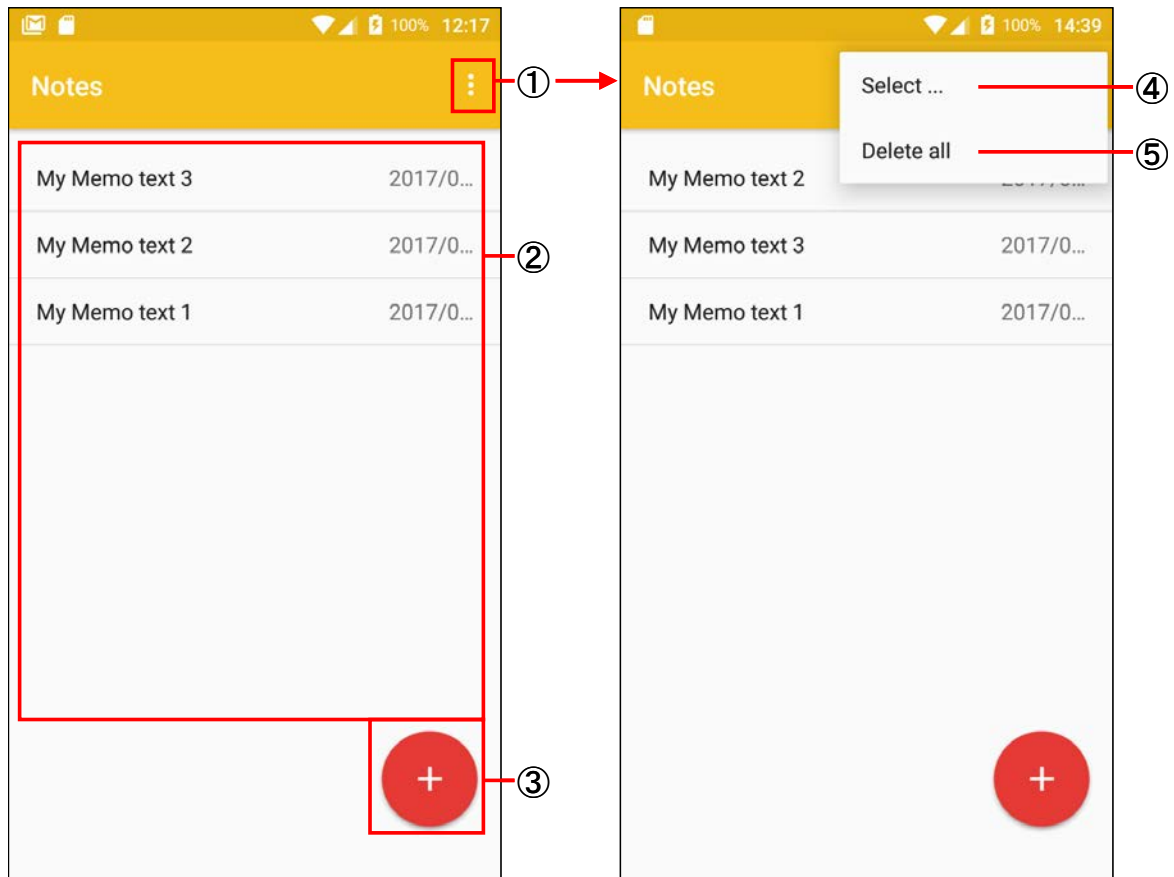
- ① Option, Others
- ② Search messages
- ③ Open message history
- ④ Create new message
- ⑤ Option, Others
- ⑥ Phone call
- ⑦ Return to message screen
- ⑧ Enter SMS message
- ⑨ Select Emoji
- ⑩ Message sending

Cautions!

This application is available only on the models with telephone function.

3.15 Notes

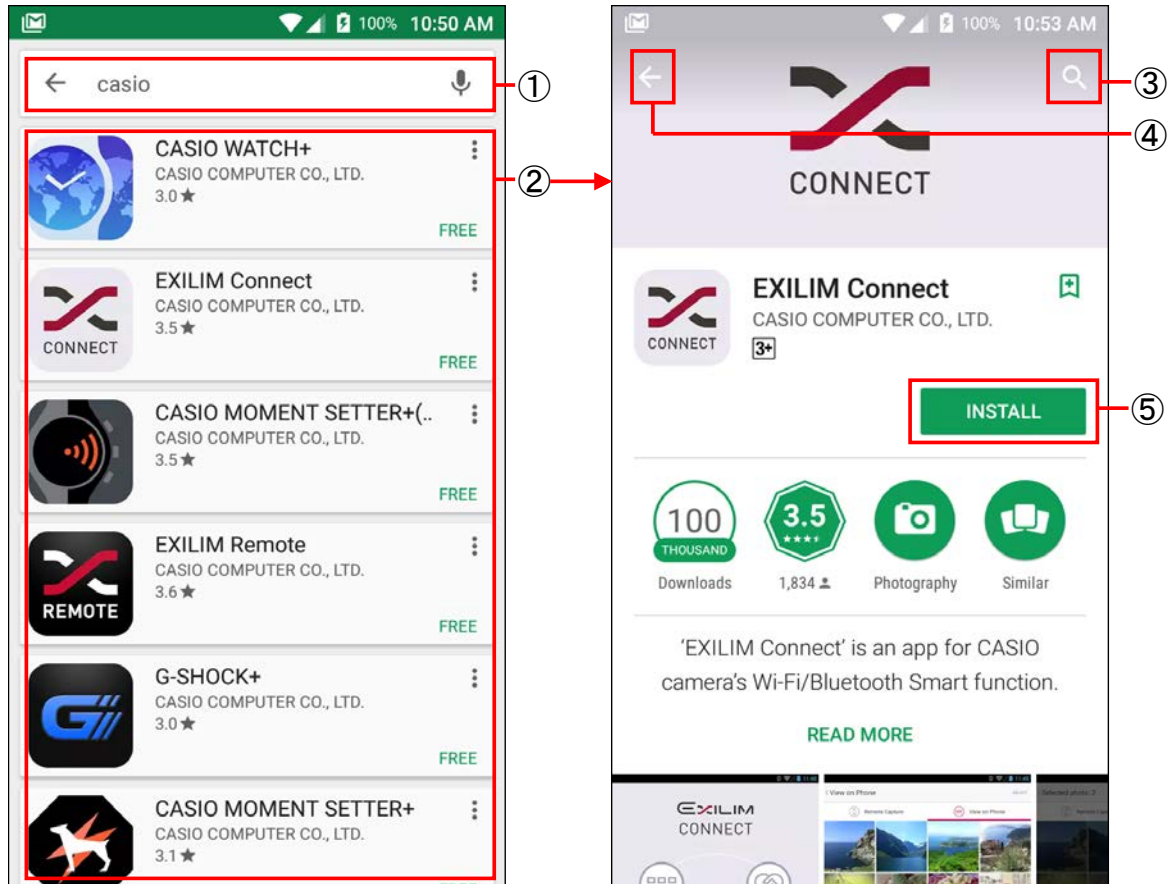
Notepad.



- ① Delete menu
- ② Open created note
- ③ Create new note
- ④ Select note to be deleted
- ⑤ Delete all notes

3.16 Play Store


Installing applications from Google Play store.



- ① Searching applications
- ② Selection of retrieved applications
- ③ Searching applications
- ④ Return to search screen
- ⑤ Application installation

4. Settings

4.1 List of softwares

Icon	Software name
	Settings

This chapter describes the outline of representative setting items.

4.2 Wireless & networks

You can manage the network using Wi-Fi, Bluetooth, mobile network, USB connection and connection settings to the device.

In addition, used for setting up the connection between the terminal and the virtual private network (VPN), for connecting to the Internet with another device via the data communication of the terminal, and for turning off all wireless communication by switching to flight mode.

Table 4-1

Items		Description
WLAN		Setting WLAN enabled / disabled, selecting Access point to connect. For details on the settings, refer to “4.2.1 WLAN(p.58)”.
Bluetooth		Bluetooth enable / disable
Data usage		Restricting of the data communication quantity and to enable / disable data communication by mobile network.
Ethernet		Setting network parameters for Ethernet cradle.
More	Airplane mode	Enable / disable Airplane mode
	NFC	Enable / disable NFC
	Android Beam	Configure data transmission / reception between NFC compatible terminals.
	Tethering	Enable /disable of Tethering
	VPN	Setting of VPN connection
	Cellular networks ※1	Configure cellular network settings. For details, refer to “4.2.4 More > Cellular network(p.64)”.
	Emergency broadcasts	Setting of Emergency broadcasting.

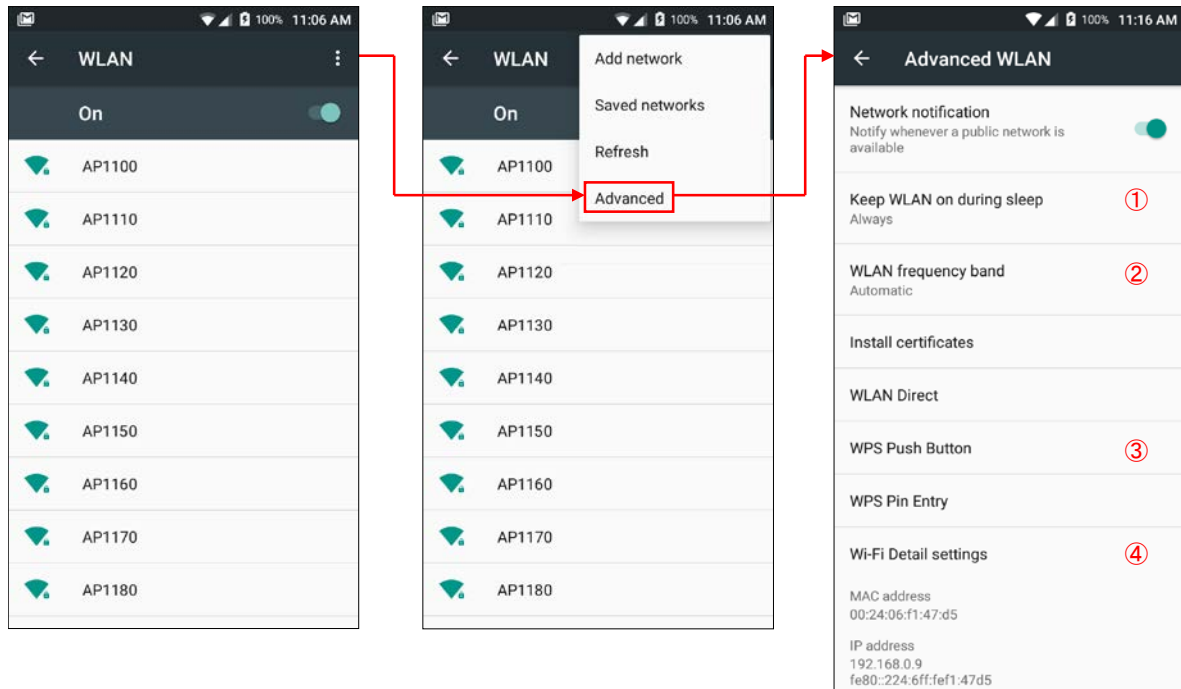
※1 Settings of Cellular networks are available only on the models with telephone function.

4.2.1 WLAN

Toggle between enabling / disabling wireless network and connecting to specified access point.

Advanced Settings

Sets communication standard of wireless network, roaming, priority frequency band setting. To display the setting screen, select "Advanced settings" from the Wi-Fi pull-down menu.



① Keeping WiFi connection while sleeping

Set whether to keep WiFi connection when the terminal is in sleep state. If you want to access the terminal from the server in the night, enable "Always" or "Only when plugged in".

Keep WLAN on during sleep

☒ Always

☐ Only when plugged in

☐ Never

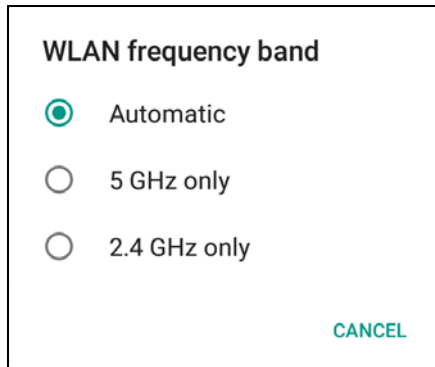
CANCEL

Cautions!

When "Always" is selected, wireless LAN is operating even the terminal is in sleep state, so the battery is consumed.

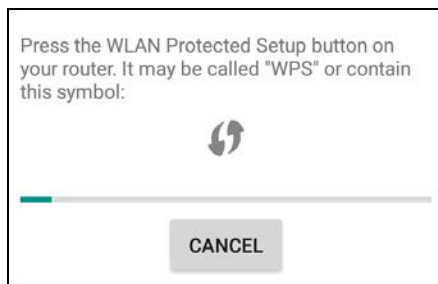
② WLAN frequency band

Set the frequency to be used with WLAN.

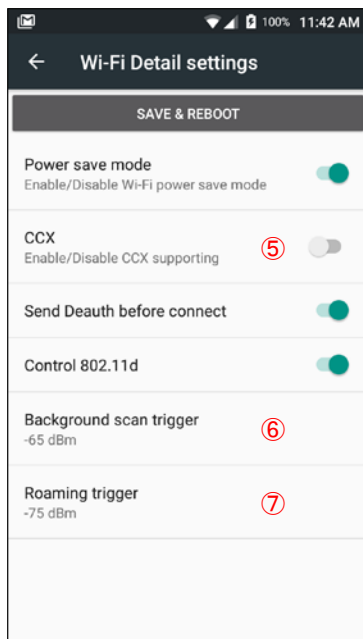


③ WPS push button

Used when setting using "WLAN Protected Setup" function.



④ WLAN advanced settings



⑤ CCX

Although IT-G400 does not support CCX, this setting enables you to enable or disable some of the functions required for CCX.

⑥ Background scan trigger

Set the trigger (threshold) for starting searching for the surrounding access point.

Background scan trigger

- ☐ -50 dBm
- ☐ -55 dBm
- ☐ -60 dBm
- ☒ -65 dBm
- ☐ -70 dBm
- ☐ -75 dBm
- ☐ -80 dBm
- ☐ -85 dBm
- ☐ -90 dBm

CANCEL

⑦ Roaming trigger

Set the trigger (threshold) for actually roaming.

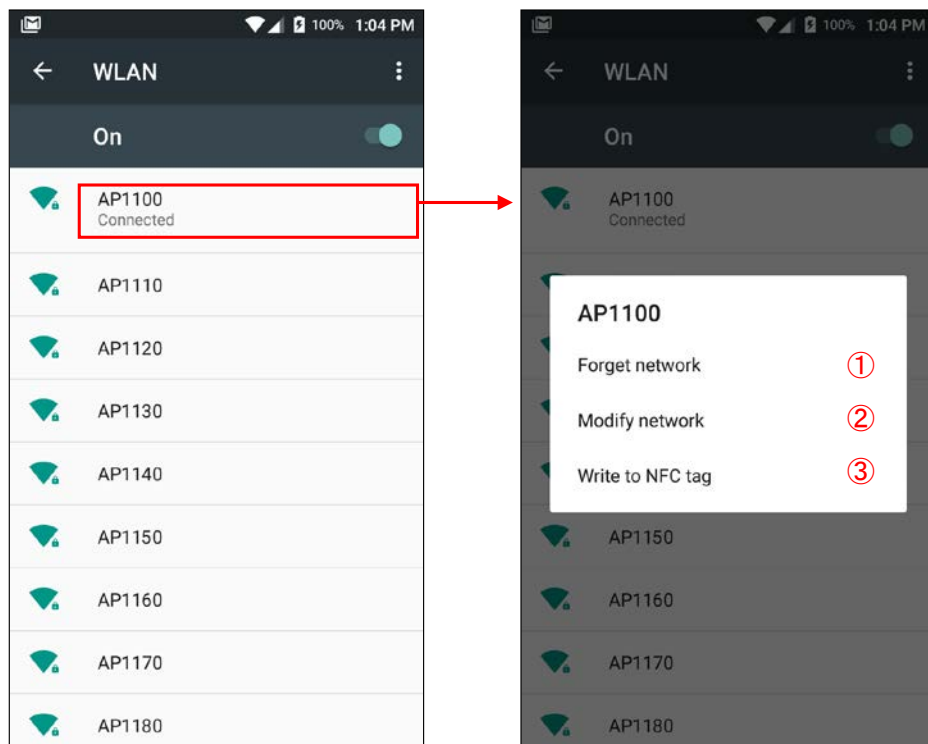
Roaming trigger

- ☐ -50 dBm
- ☐ -55 dBm
- ☐ -60 dBm
- ☐ -65 dBm
- ☐ -70 dBm
- ☒ -75 dBm
- ☐ -80 dBm
- ☐ -85 dBm
- ☐ -90 dBm

CANCEL

Modify / Forget connected network

Modifies the setting contents and forgets the connected network. If you touch and hold the connected network from the access point list, a menu pops up.

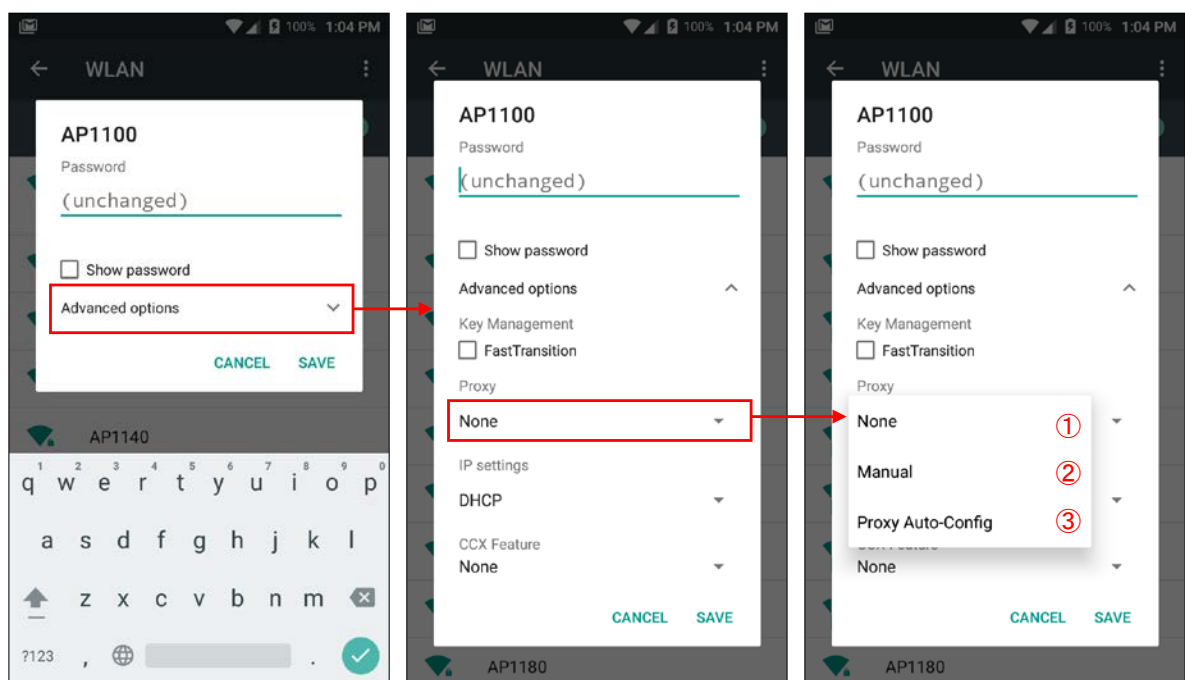


① Forget network

② Modify network

Configure proxy and DHCP settings.

■ Proxy settings



Touch [Advanced options] to display the pop-up. By defaults, the proxy is set to "None", so long press this to see the choices.

a) Proxy setting ① - None

Select "None" if you do not want to use a proxy.

b) Proxy setting ② - Manual

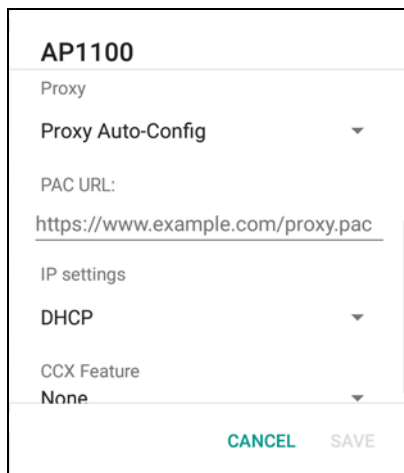
Set proxy host name, port number and so on.



The screenshot shows the 'AP1100' settings window with the 'Proxy' dropdown set to 'Manual'. Below this, a note states: 'The HTTP proxy is used by the browser but may not be used by the other apps.' The 'Proxy hostname' field contains 'proxy.example.com', the 'Proxy port' field contains '8080', and the 'Bypass proxy for' field contains 'example.com,mycomp.test.com,l'. The 'IP settings' dropdown is set to 'DHCP', and the 'CCX Feature' dropdown is set to 'None'. At the bottom, there are 'CANCEL' and 'SAVE' buttons.

c) Proxy setting ③ – Proxy Auto-config

Set URL of "Proxy PAC".

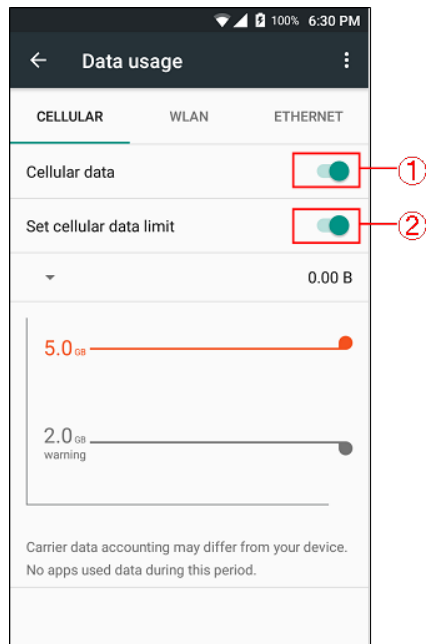


The screenshot shows the 'AP1100' settings window with the 'Proxy' dropdown set to 'Proxy Auto-Config'. The 'PAC URL:' field contains 'https://www.example.com/proxy.pac'. The 'IP settings' dropdown is set to 'DHCP', and the 'CCX Feature' dropdown is set to 'None'. At the bottom, there are 'CANCEL' and 'SAVE' buttons.

② Write to NFC tag

Write the access point setting to the NFC tag.

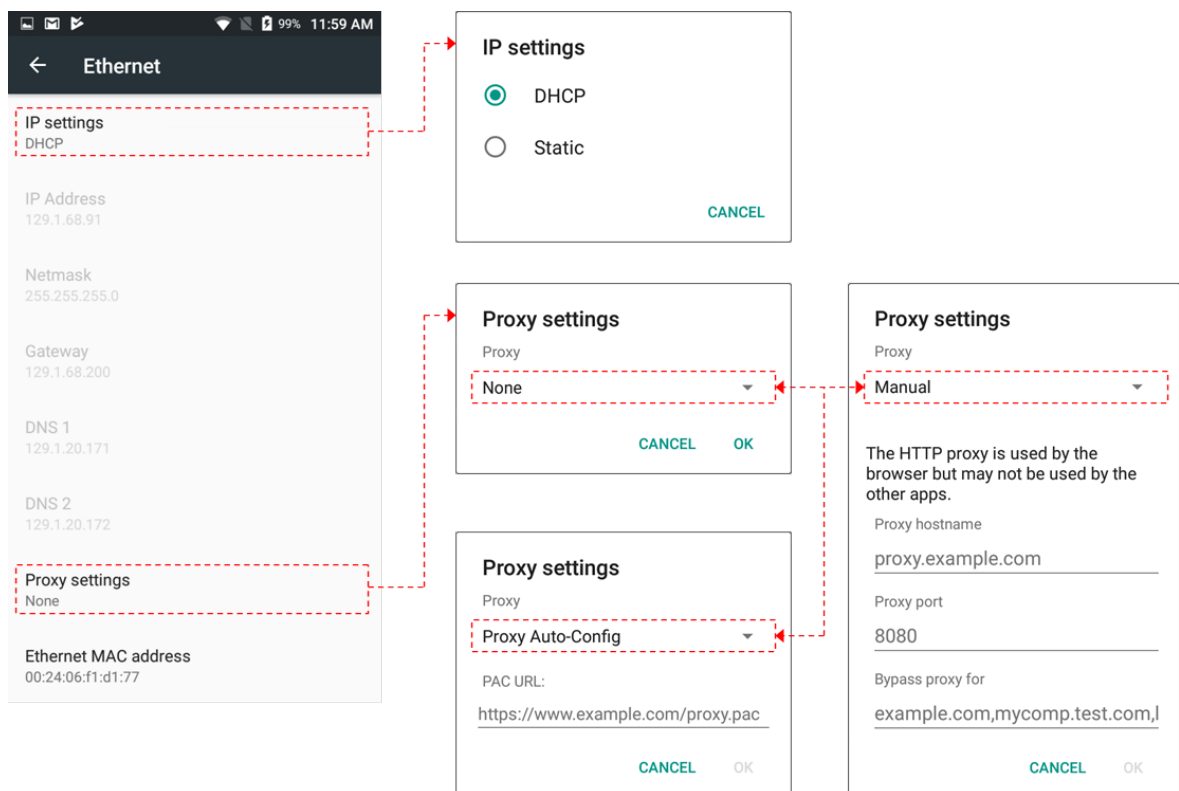
4.2.2 Data usage (Enable/Disable of Cellular data)



- ① Switch enable / disable of cellular data communication.
- ② Set cellular data limit.

4.2.3 Ethernet

Setting network parameters for Ethernet cradle.



4.2.4 More > Cellular networks

Table 4-2

Item		Description
Cellular network		
	Data Roaming	Set enable / disable of data roaming
	Preferred network type	Set the type of network to be connected with priority. For details, refer to “Preferred network type (p.64)”.
	Access Point Names (APN)	Edit Access point name. For details, refer to “Access Point Names (p.65)”.
	Network operators	Select network operator.

Preferred network type

Following selections are possible.

Preferred network type

☒ LTE/WCDMA/GSM auto

☐ WCDMA/GSM auto

☐ WCDMA only

☐ GSM only

CANCEL

Access Point Names

Touch the plus button at the top right to display the screen for editing the access point.

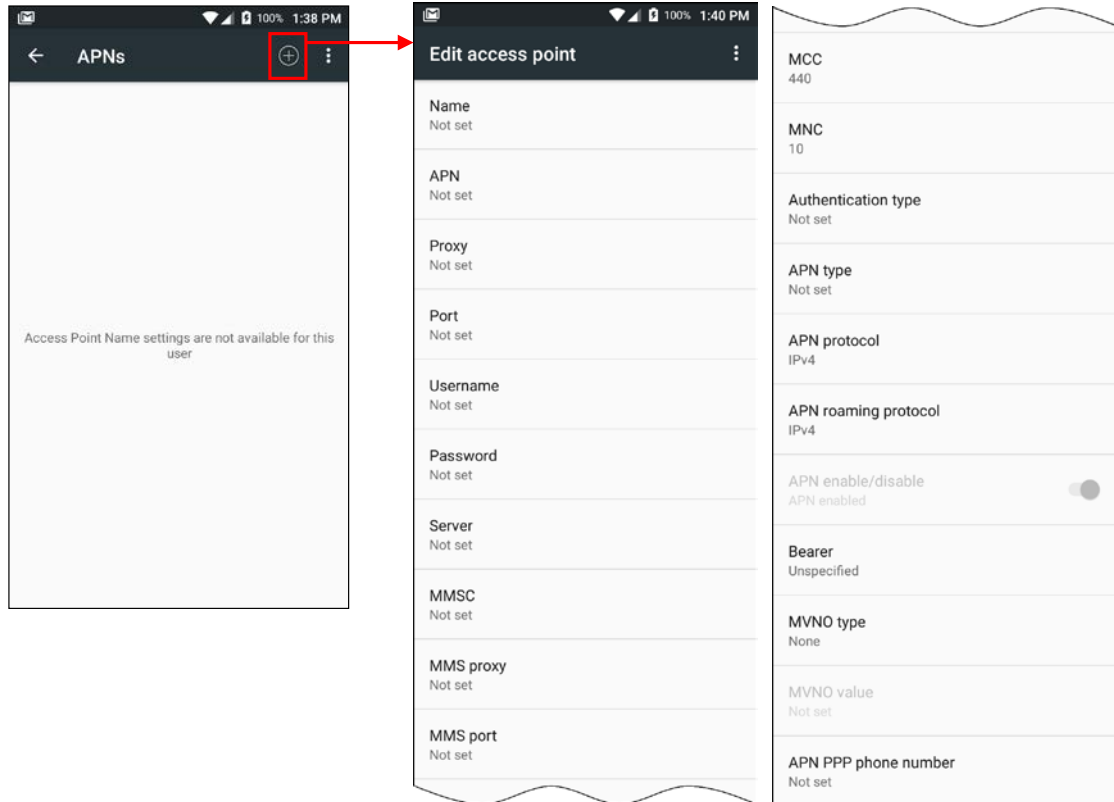


Table 4-3

Items	Description
Name	Set name of APN setting.
APN	Set Access point name.
Proxy	Set host name of proxy used for data communication.
Port	Set port number of the proxy.
Username	Set user name for authentication when connecting to APN.
Password	Set password for authentication when connecting to APN.
Server	Set the server name specified by the carrier.
MMSC	Configure MMS (multimedia messaging service) center.
MMS poxy	Set host name of the proxy used when using MMS.
MMS port	Set port number of the proxy used when using MMS.
MCC	Set MCC (Mobile Country Code).
MNC	Set MNC (Mobile Network Code).
Authentication type	Set one of the followings. None / PAP / CHAP / PAP or CHAP
APN type	Set APN type specified by the carrier.
APN protocol	Set one of the followings. IPv4 / IPv6 / IPv4/IPv6

Cautions!

Follow instructions of the carrier to set the contents. It is not necessary to set items that are not specifically instructed.

4.3 Device

Use to check sound and display settings, storage, battery, application status.

Table 4-4

Items		Description
Display	Brightness level	Sets screen brightness.
	Adaptive brightness	Sets automatic brightness control
	Wallpaper	Sets wallpaper.
	Sleep	Sets time to sleep (suspend).
	Wakeup Source	Sets wakeup condition.
	Daydream	Sets screen saver
	Ambient display	Enable / disable automatic screen rotation.
	Font size	Sets font size.
	When device is rotated	Sets rotate the contents of the screen
	Cast	Displays Android screen on TV.
Sound & notification	Sound	Sets speaker, notification, alarm, etc.
	Media volume	Sets Media volume.
	Alarm volume	Sets Alarm volume.
	Ring volume	Sets Ring volume.
	Also vibrator for calls	Sets vibrate at incoming call.
	Do not disturb	Sets notification priorities, etc.
	Phone ringtone	Sets Phone ringtone
	Default notification ringtone	Sets the default notification tone.
	Other sounds	Sets other sounds
	Cast	Displays Android screen on TV.
	Notification	Sets Notification behavior.
	When device is locked	Notification display during device lock
	App notifications	Sets notification to application
	Advanced	Advanced setting
	Notification access	Show apps requested access to notification.
	Do Not Disturb access	Show apps requested access to Do not disturb.
Apps		Confirm application installed on the terminal
Storage & USB		Confirm used and free storage space
Battery		Use to check the state of charge and time of use of the battery. Also, set eco charge on / off.
Memory		Monitors memory usage status.
Tap & pay		Function to settle with a smartphone.
ScanSetting		Ebable / disable barcode scanner.

4.4 Personal

Settings related to users' usage and usage, such as various security settings.

Table 4-5

Items		Description
Location	Switch Enable / Disable	Switch the enable / disable of Google's location information service.
	Mode	Select the location detection method from "High accuracy", "Battery saving", "Device only".
Security	Screen lock	Set authentication method when screen lock is released.
	Lock screen message	Set message contents to be displayed on the lock screen.
	Encrypt phone	Encrypt data in the device. ※
	Set up SIM card lock	Set necessity / unnecessary of SIM PIN input when using the device.
	Make passwords visible	Set whether to display each character of password for a short time when entering password.
	Device administrators	Toggle enable / disable of terminal management application.
	Unknown sources	Set whether or not to allow installation of unknown application.
	Trusted credentials	Display trusted CA certificates
	Install from SD card	Install certification from SD card.
	Clear credentials	Delete all certificates.
Accounts	Add account	Add accounts to terminal to use Google services.
Google		Settings for Google services
Language & input	Language	Set language to use.
	Spell checker	Select spell checker enable / disable setting and spelling dictionary.
	Personal dictionary	Register word in user dictionary
	Current keyboard	Set keyboard to use.
	Google keyboard	Set up Google keyboard (English).
	Google Japanese Input	Set up Google Japanese input.
	Google voice typing	Set up Google voice input.
	Text-to-speech output	Select the voice engine to use and set the speed of text to speech.
	Pointer speed	Set the speed of the mouse pointer.
Backup & reset	Back up my data	Enable / disable backup to Google servers.
	Network settings reset	Clear network settings.
	Factory data reset	Clear all data in the terminal.

4.5 System

Set date and time and make settings for developers.





Table 4-6

Item		Description
Date & time	Automatic date & time	Enable / disable automatic date and time.
	Automatic time zone	Enable / disable automatic time zone.
	Set date	Set date.
	Set time	Set time.
	Select time zone	Select time zone.
	Use 24-hour format	Set whether to display 24 hours.
Accessibility	TalkBack	Enable / disable TalkBack (Google screen reader).
	Switch access	Enable / disable Switch access that lets you interact with your Android device using one or more switches instead of the touch screen.
	Captions	Set whether to use caption.
	Magnification gestures	Enable / disable Magnification gestures.
	Large text	Set whether to use large character size.
	High contrast text	Set whether to use high contrast text.
	Power button ends call	Set whether to use power switch to end call.
	Auto-rotate screen	Set whether to use automatic screen rotation.
	Speak passwords	Set whether to use voice output of password.
	Accessibility shortcut	Set whether to use Accessibility shortcut.
	Text-to-speech output	Set whether to use Text-to speech output.
	Touch & hold delay	Set touching time for detecting as hold.
	Touch Sensitivity	Set sensitivity of touch screen (Settings cannot be changed during charging)
	Color inversion	Set whether to use Color inversion.
	Color correction	Set whether to use Color correction.
Printing	Cloud Print	Enable / disable Cloud print.
	Add service	Add Cloud print service.
About phone	System updates	Use to update OS image.
	Status	Display telephone number, radio wave condition, etc.
	Legal information	Display open source licenses, Google Terms of Service, and other software license information.
	Model number	Show terminal model name.
	Android version	Show Android version.
	Android security patch level	Show Android security patch level.
	Baseband version	Show Baseband version.
	Kernel version	Show kernel version.
	Build number	Show Build number.

5. Additional Application








5.1 List of applications

The table below shows a list of additional applications pre-installed by CASIO.


	Amaze File Manager Although this software is available on Play Store, pre-installed it on IT-G400 for your convenience. For the detail of it, refere Play Store.
	ASTRO File Manager Although this software is available on Play Store, pre-installed it on IT-G400 for your convenience. For the detail of it, refere Play Store.
	OI Notepad Creating, deleting and editing notes, and searching and sending them.
	MobiControl Stage MobiControl Stage is a rapid staging utility to configure initial device settings required for enabling the mobile device's enterprise mobility enrolment.

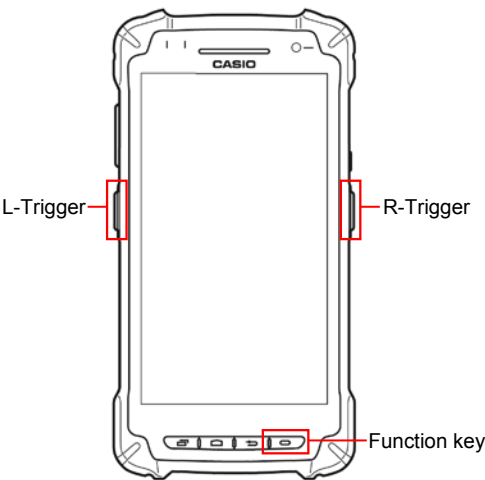
6. Operation support tools

6.1 List of softwares

No.	Apps	Name and functions
1.		Program Buttons Use to assign another function to trigger key, function key.
2.		ScanSetting Use to set up the barcode scanner. Effective when you do not develop special program such as web application for barcode scanner control.
3.		Power Launcher Use to invalidate the home key and setting.
4.		CPU Settings Use to set upper limit value of CPU clock.
5.		Backup & Restore Used to backup / restore the above 4 tools and specific application.
6.		System Information Tool that Casio has prepared for casio in order to check product information.
7.		Take bug report This is equivalent to "Take bug report" in "Developer options" on Android.

6.1.1 Program Buttons




 This tool can assign another function to the trigger key and function key.

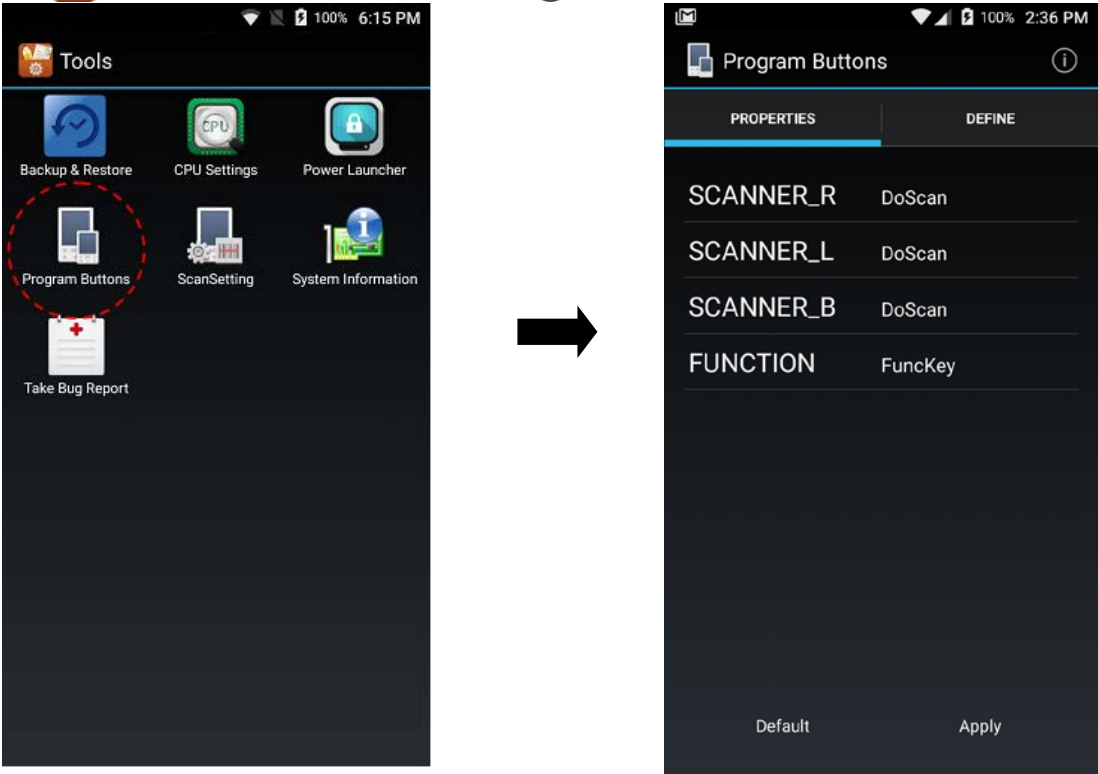


Default for each key is set as shown in the table below.

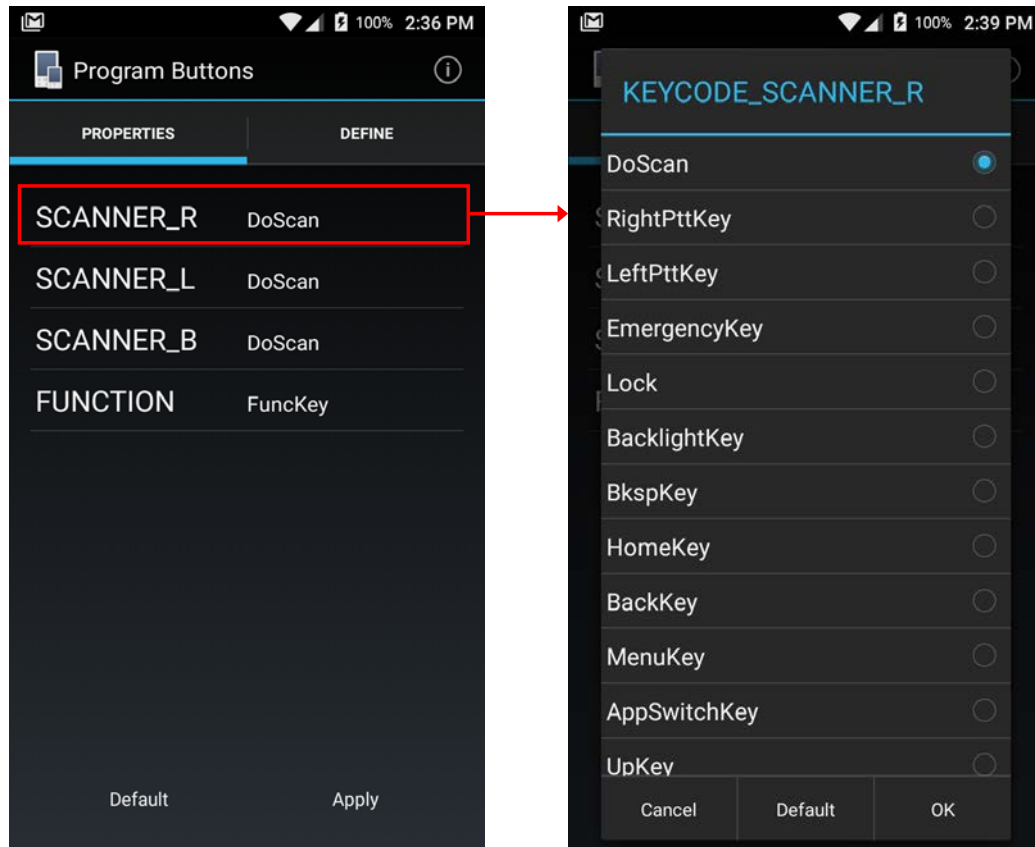
Key	Value	Function
R-Trigger key	DoScan	Scan barcode
L-Trigger key	DoScan	Scan barcode
Function key	FuncKey	Launch “Program Buttons”.

【 How to launch “Program Buttons” 】

Select  [Tool] ->  [CPU setting] from the  [Application list] on the home screen.



Touch the key for which you want to change the default assignment, a list of configurable functions is displayed. Select the function you want to assign and press [OK].




The assignable functions are shown in the table below.

	Function name	Function	Keycode of Android
1	NoAction	None	
2	DoScan	Scan barcode	—
3	RightPttKey	<< Reserved >>	—
4	LeftPttKey	<< Reserved >>	—
5	EmergencyKey	<< Reserved >>	—
6	Lock	Show Lock screen	—
7	BacklightKey	Toggle light / dark of backlight	—
8	BkspKey	Backspace key	KEYCODE_DEL
9	HomeKey	Home key	KEYCODE_HOME
10	BackKey	Back key	KEYCODE_BACK
11	MenuKey	Menu key	KEYCODE_MENU
12	AppSwitchKey	Application switch (History) key	KEYCODE_APP_SWITCH
13	Upkey	Up Cursor	KEYCODE_DPAD_UP
14	DownKey	Down Cursor	KEYCODE_DPAD_DOWN
15	LeftKey	Left Cursor	KEYCODE_DPAD_LEFT
16	RightKey	Right Cursor	KEYCODE_DPAD_RIGHT
17	VolumeUp	Volume Up	KEYCODE_VOLUME_UP
18	VolumeDown	Volume Down	KEYCODE_VOLUME_DOWN
19	DelKey	Delete key	KEYCODE_FORWARD_DEL
20	TabKey	Tab key	KEYCODE_TAB
21	EscKey	Esc key	KEYCODE_ESCAPE
22	ReturnKey	Return key	KEYCODE_ENTER
23	Send	Call key	KEYCODE_CALL
24	End	End call key	KEYCODE_ENDCALL
25	Vibrator	Switch Manner mode	KEYCODE_MANNER_MODE
26	Camera	Camera Shutter	KEYCODE_CAMERA




27	Focus	Camera Focus	KEYCODE_FOCUS
28	FuncKey	Launch “Program Buttons”	KEYCODE_FUNCTION
29	RunApplication	Launch specified application	—
30	BroadcastKey	<< Reserved >>	—
31	CustomIntent	Issuing specified intent	—

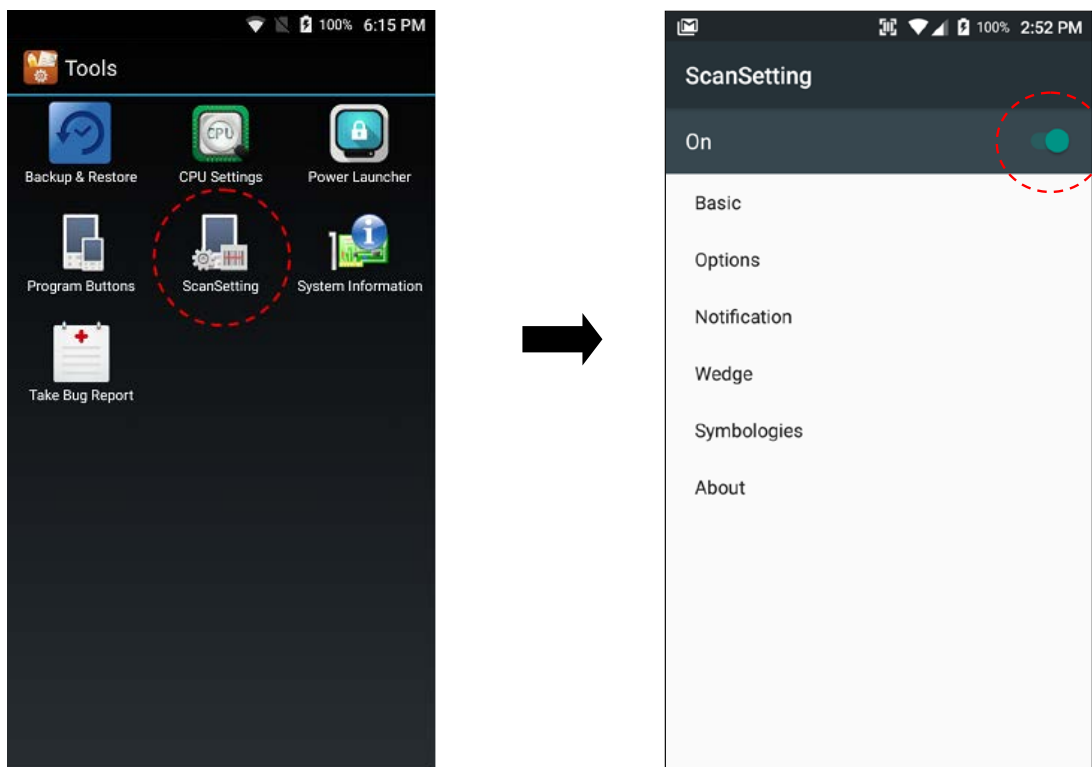
6.1.2 ScanSetting

 ScanSetting is used to configure barcode scanner. This is useful when you use application which doesn't directly control barcode scanner such as web application.

Using DeviceLibrary, you can implement similar functionality in your application. In such case, you do not need to use the ScanSetting.

【 How to launch “ScanSetting” 】

From the [ Application List] on the home screen, select [ Tools] → [ ScanSetting]. When ScanSetting is launched, slide a switch on the upper right to on, then various settings are enabled.



Function	Default value	Choosable value
Basic		
Scanning		
Trigger timeout (sec)	10seconds	Select waiting time from pressing trigger key to bar code reading. [1s], [2s], [3s], [4s], [5s], [6s], [7s], [8s], [9s], [10s]
Enable auto scan	Disable	Select auto scan. [Enable], [Disable]
Auto scan interval(sec)	1 second	Select auto scan interval time. [0.25s], [0.5s], [0.75s], [1s], [1.25s], [1.5s], [1.75s], [2s], [2.25s], [2.5s], [2.75s], [3s], [3.25s], [3.5s], [3.75s], [4s], [4.25s], [4.5s], [4.75s], [5s], [5.25s], [5.5s], [5.75s], [6s], [6.25s], [6.5s], [6.75s], [7s], [7.25s], [7.5s], [7.75s], [8s], [8.25s], [8.5s], [8.75s], [9s], [9.25s], [9.5s], [9.75s], [10s]
Enable continuous scan	Disable	When enabled, repeat barcode scanning while pressing trigger key. [Enable], [Disable]
Wedge mode		
Result type	Clipboard	Select how you want to pass the scanned barcode to the application. [User Message], [Keyboard Event], [Clipboard], [Intent Broadcast]
Terminator	None	Select barcode terminator. [None], [Space], [TAB], [LF], [TAB & LF]
Options		
Options		
Enable centering window	Disable	Toggles priority reading of the barcode near the center. [Enable], [Disable]
Center window tolerance	50	Set the detection area size. [0], [10], [20], [30], [40], [50], [60], [70], [80], [90], [100]
Decode mode	Quick Omni	Switch the scanning method of the barcode. [Standard], [Quick Omni]
Delay before decoding(sec)	0second	Set delay time before barcode reading. [0sec], [0.1sec], [0.2sec], [0.3sec], [0.4sec], [0.5sec], [0.6sec], [0.7sec], [0.8sec], [0.9sec]
Inverse 1D mode	Regular Type Only	Select Inverse 1D mode. [Regular Type Only], [Inverse Type Only], [Inverse Auto Detect]
Power save mode	Enable	Select Power save mode. [Enable], [Disable]
Power save timeout(sec)	60seconds	Set the auto power off time. 1 - 65535sec
Enable aimer	Enable	Toggle aimer. [Enable], [Disable]
Enable illumination	Enable	Toggle illumination [Enable], [Disable]


Notification		
Beep		
Enable beep	Enable	[Enable], [Disable]
Media volume		Set by slide bar
Good read	ScanSuccess.wav	[None], [ScanSuccess.wav], [Camera.wav], [ScanFail.wav], [ScanSuccess2.wav], [ScanSuccess3.wav]
Bad read	ScanFail.wav	[None], [ScanSuccess.wav], [Camera.wav], [ScanFail.wav], [ScanSuccess2.wav], [ScanSuccess3.wav]
LED		
Enable LED	Enable	[Enable], [Disable]
Vibrator		
Enable vibrator	Disable	[Enable], [Disable] When enabled, [0.0sec], [0.3sec], [0.6sec], [0.9sec], [1.2sec], [1.5sec], [1.8sec], [2.1sec], [2.4sec], [2.7sec], [3sec]
Wedge		
Barcode ID		
Transmit barcode ID	Disable	[Enable], [Disable]
Transmit aim ID	Disable	[Enable], [Disable]
Group separator	GS	[SOH], [STX], [EXT], [EOT], [ENQ], [ACK], [BEL], [BS], [HT], [LF], [VT], [FF], [CR], [SO], [SI], [DLE], [DC1], [DC2], [DC3], [DC4], [NAK], [SYN], [ETB], [CAN], [EM], [SUB], [ESC], [FS], [GS], [RS], [US]
Label		
Prefix	None	Any character string
Suffix	None	Any character string
Character set		
Charset	UTF-8	[TUF-8], [UTF-16], [UTF-16BE], [UTF-16LE], [US-ASCII], [ISO-8859-1], [EUC-KR], [Shift-JIS], [windows-1250], [windows-1251], [windows-1252], [windows-1253], [windows-1254], [windows-1257]
Symbolologies		
AZTEC	Enable	[Enable], [Disable], [Details]
CODABAR	Enable	[Enable], [Disable], [Details]
CODE 11	Disable	[Enable], [Disable], [Details]
CODE 128	Enable	[Enable], [Disable], [Details]
CODE 39	Enable	[Enable], [Disable], [Details]
CODE 93	Enable	[Enable], [Disable], [Details]
COMPOSITE A/B	Disable	[Enable], [Disable], [Details]
DATAMATRIX	Enable	[Enable], [Disable], [Details]
EAN 8	Enable	[Enable], [Disable], [Details]
EAN 13	Enable	[Enable], [Disable], [Details]
INTERLEAVED 2 OF 5	Enable	[Enable], [Disable], [Details]
MAXICODE	Enable	[Enable], [Disable], [Details]
MICRO PDF417	Enable	[Enable], [Disable], [Details]

OCR	Disable	[Enable], [Disable], [Details]
PDF417	Enable	[Enable], [Disable], [Details]
QR CODE	Enable	[Enable], [Disable], [Details]
REDUCED SPACE SYMBOLOGY	Enable	[Enable], [Disable], [Details]
UPC A	Enable	[Enable], [Disable], [Details]
UPC E	Enable	[Enable], [Disable], [Details]
STRAIGHT 2 OF 5 (IATA)	Disable	[Enable], [Disable], [Details]
CODABLOCK F	Disable	[Enable], [Disable], [Details]
MSI	Disable	[Enable], [Disable], [Details]
TCIF LINKED CODE 39 (TLC39)	Disable	[Enable], [Disable], [Details]
TRIOPTIC CODE 39	Disable	[Enable], [Disable], [Details]
CODE 32 PHARMACEUTICAL (PARAF)	Disable	[Enable], [Disable], [Details]
MATRIX 2 OF 5	Disable	[Enable], [Disable], [Details]
TELEPEN	Disable	[Enable], [Disable], [Details]
GS1 128(EAN 128)	Enable	[Enable], [Disable], [Details]
ISBT 128	Disable	[Enable], [Disable], [Details]
STRAIGHT 2 OF 5 (IATA)	Disable	[Enable], [Disable], [Details]
UCC COUPON	Disable	[Enable], [Disable], [Details]
HAN XIN	Disable	[Enable], [Disable], [Details]
UPC E1	Disable	[Enable], [Disable], [Details]
CHINA POST	Disable	[Enable], [Disable], [Details]
KOREAN 3 OF 5	Disable	[Enable], [Disable], [Details]
AUSTRALIA POST	Disable	[Enable], [Disable], [Details]
BRITISH POST(BPO)	Disable	[Enable], [Disable], [Details]
CANADIAN POST	Disable	[Enable], [Disable], [Details]
USPS 4CB	Disable	[Enable], [Disable], [Details]
JAPAN POSTAL	Enable	[Enable], [Disable], [Details]
NETHERLANDS KIX CODE	Disable	[Enable], [Disable], [Details]
US PLANET	Disable	[Enable], [Disable], [Details]
UPU FICS POSTAL	Disable	[Enable], [Disable], [Details]
US POSTNET	Disable	[Enable], [Disable], [Details]

- This “Scansetting” can change the setting of various barcodes, but the barcodes not supported by IT-G400 are also included in the list. Please refer to 2.20 Barcode scanner (p. 33) for the barcode that supports.
- Select “Symbologies”, and tap on each barcode to switch to the detailedsetting screen. On the detailed setting screen, you can set the number of digits to read barcode and enable / disable of character calculation. Please refer to the Device Library Manual for possible values of each setting.
- Do not change the Barcode ID for each barcode. Discrimination after barcode reading will not operate properly.

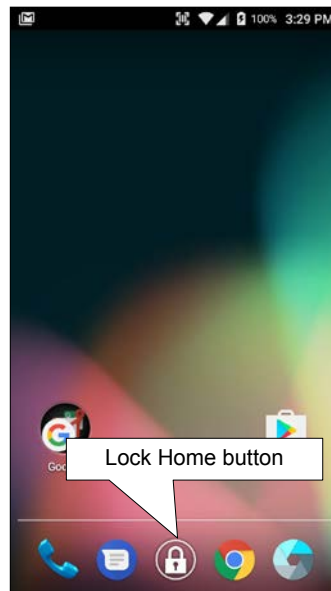
-
- Depending on the specification of the barcode scanner module, it is not possible to specify more than one POSTAL code. And, at least one POSTAL code must be enabled. The default for IT-G400 is JAPAN POSTAL.

6.1.3 Power Launcher

 Power launcher locks "Home" and "Settings" so as not to let the general operator operate. For business use terminals, there is a request that "Do not want to use the terminal for applications not intended by the administrator". Power launcher is used for this purpose.

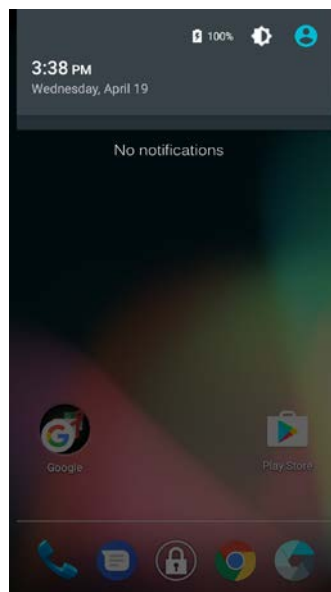
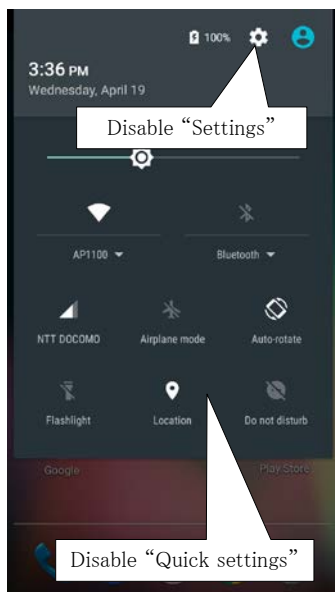
The power launcher provides the following functions.

- (1) Lock the home button (request password for unlocking)
- (2) Disable Widget
- (3) Invalidate setting
- (4) Disable quick setting
- (5) Disable MTP connection
- (6) Disable Screenshot



Left: "Power launcher" is disabled. "Home" and widgets is operable.

Right: "Power launcher" is enabled. "Home" is locked, and widgets are disappeared.

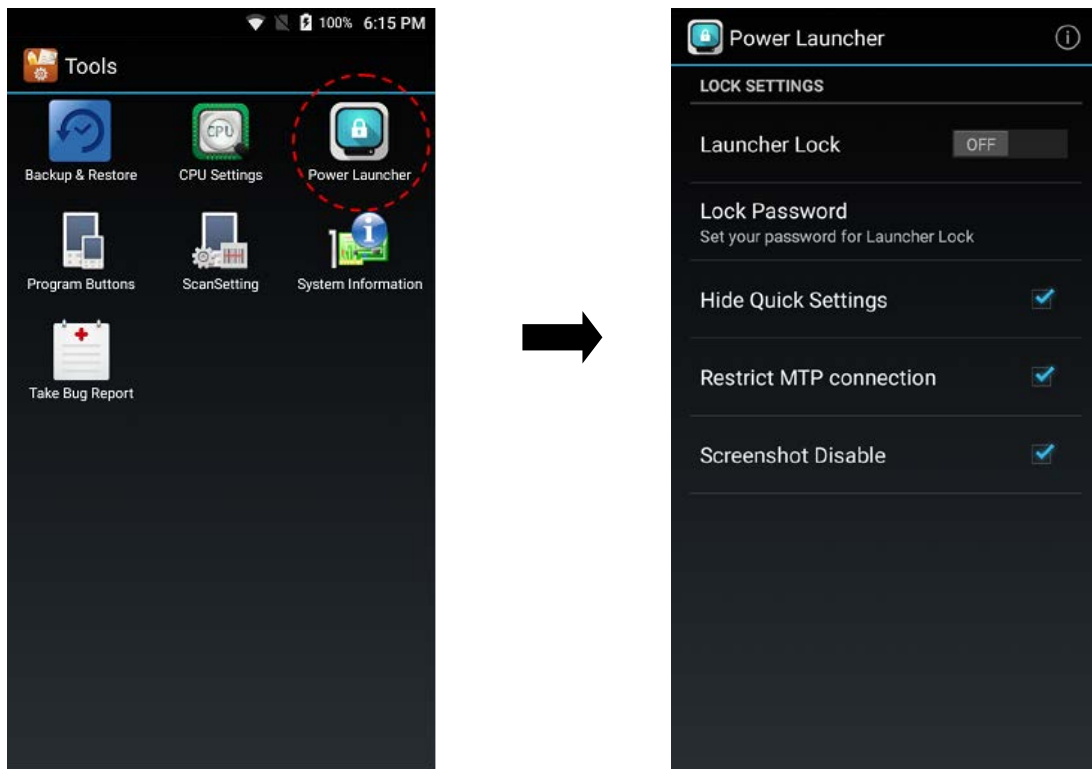


Left: "Power launcher" is disabled. "Settings" and "Quick settings" are operable.

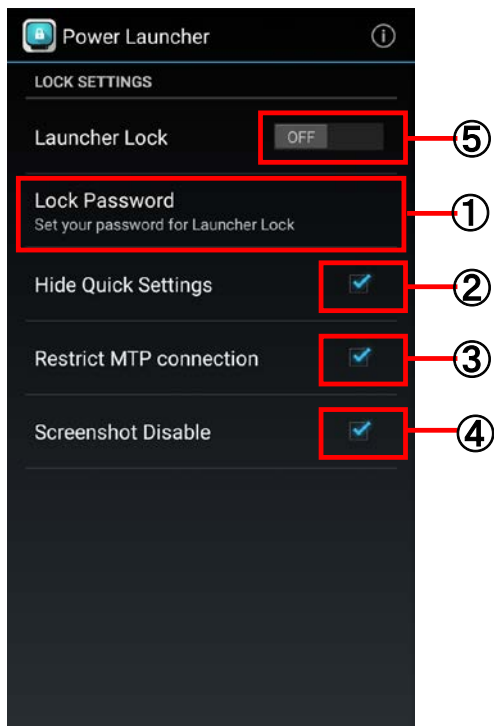
Right: "Power launcher" is enabled. "Settings" and "Quick settings" are disappeared.

【 How to launch “Power Launcher” 】

From the [Application List], select [Tools] → [Power Launcher].



To use the power launcher follow the procedure below.



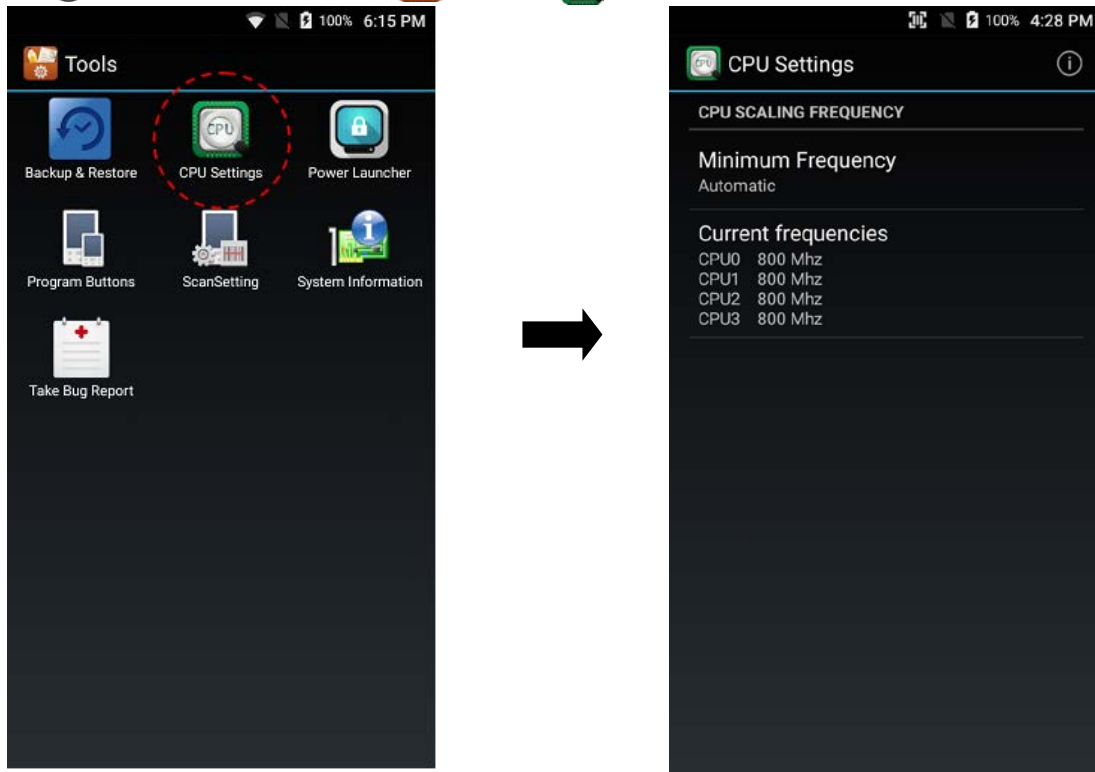
- ① Set the password to open the key
Passwords must be alphanumeric characters including one or more alphabetic characters.
- ② Lock quick setting
If checked, disables quick setting during launcher lock.
- ③ Disable MTP connection
If checked, MTP connection with PC is disabled.
- ④ Disable Screenshot
If checked, Screenshot is disabled.
- ⑤ Enable / disable launcher lock
Sliding to the right turns the launcher lock on (locked). To disable (unlock), slide to the left and enter the password.

6.1.4 CPU Settings

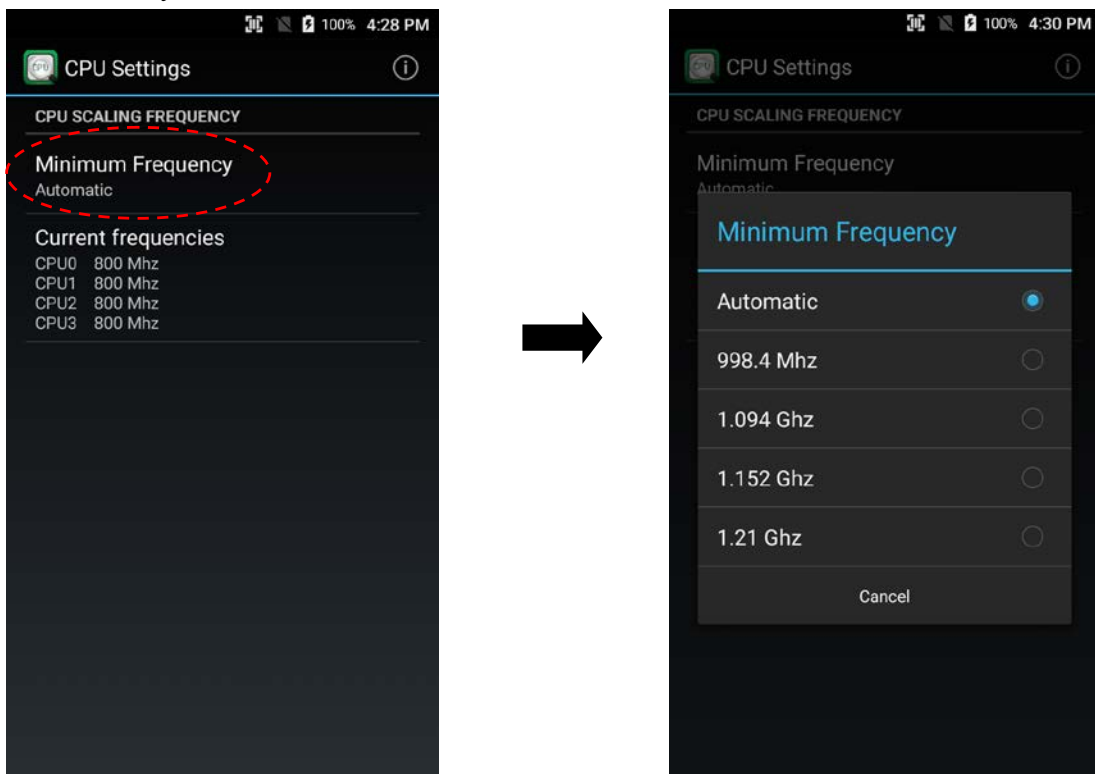
[CPU Settings] is used to set the lower limit value of the CPU clock.

【 How to launch “CPU Settings” 】


From [Application List], select [Tool] -> [CPU Setting].



When “CPU Settings” is launched, touch "Minimum Frequency" on the screen and select the operation clock you want to set as the lower limit value.



6.1.5 Backup & restore

" Backup & restore" is used to back up / restore the following system settings and installed applications.

Cautions!

This tool is not for creating / deploying packages for setting up other terminals. Please use only backed up data on the backed up terminal.

Also, be sure to restore the backed up data with the same OS version.

【What to backup】

(1) SYSTEM SETTINGS

Save System settings (Storage, Launcher) and settings of tools (ScanSetting, Power Launcher, Program Button, CPU Settings). Please refer to the Device Library Manual for possible values that can be backed up and restored by the ScanSetting.

(2) USER APPLICATIONS

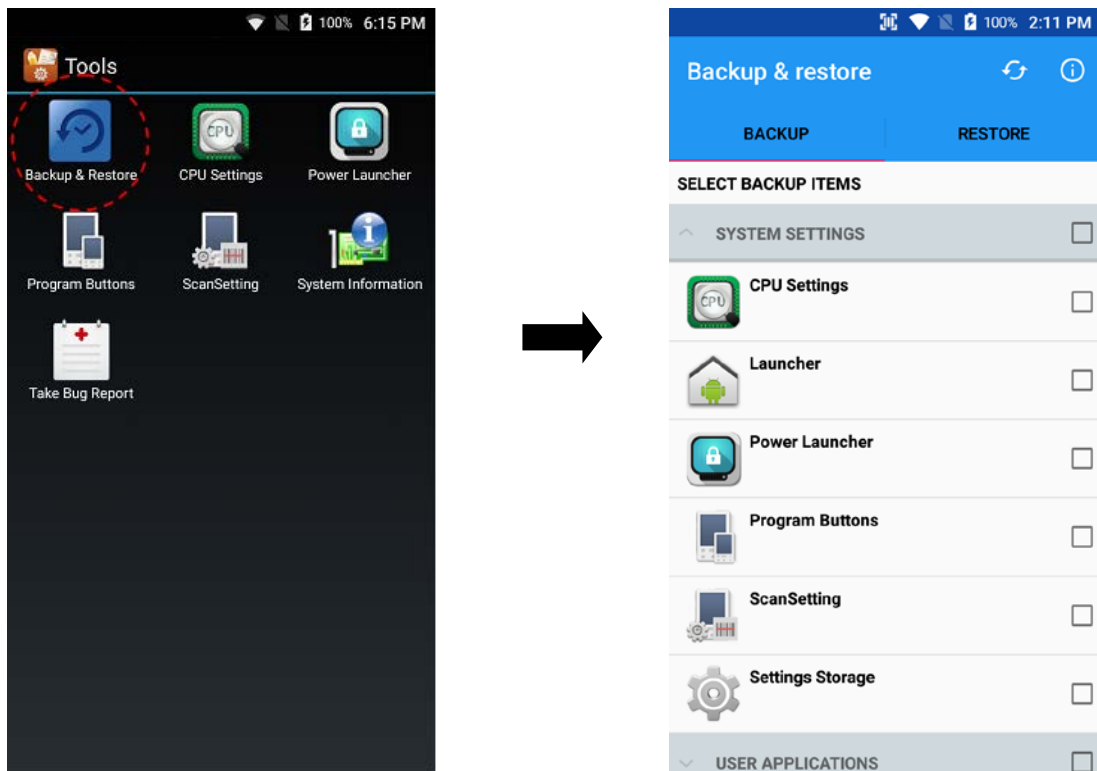
Back up the application installed by the user. However, depending on the application, backup may not be supported, or even if backup can be performed, restoration may not be possible. Do enough test before actual usage.

【Backup data storage location】

You can specify the internal storage (/storage/emulated/0/BackupRestore) or microSD card (/storage/sdcard1/BackupRestore) as the backup data storage destination.

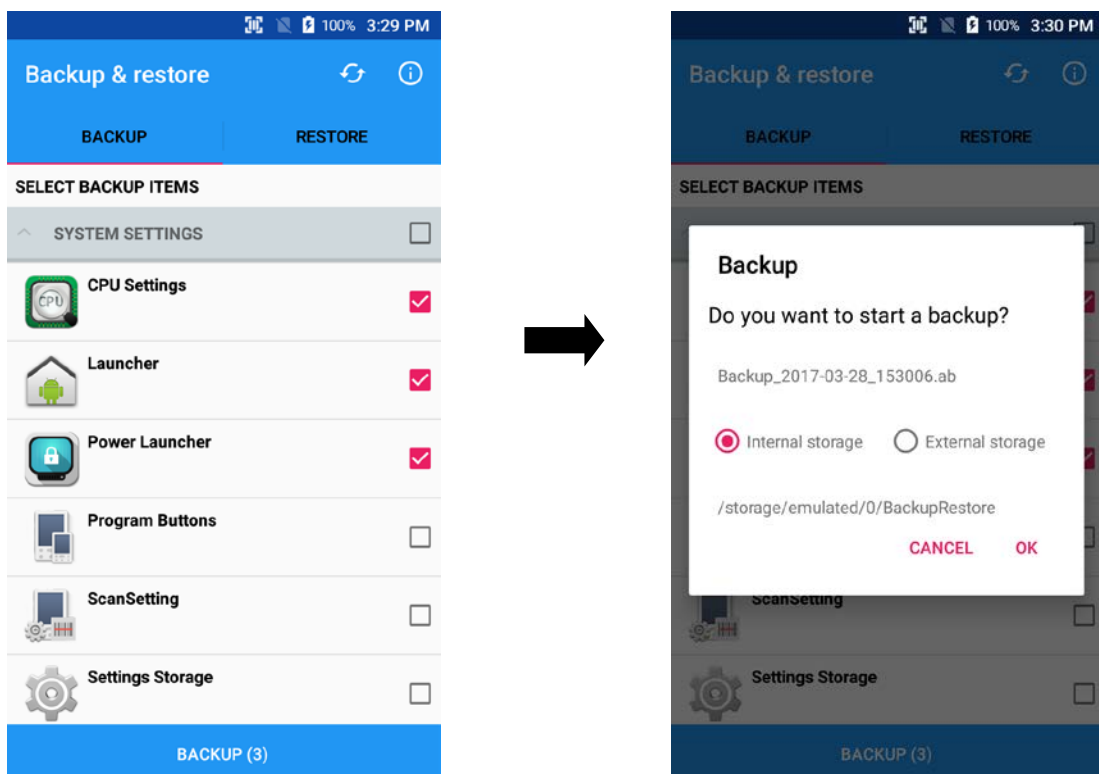
【 How to launch “Backup & restore” 】

From [Application List], select [Tools] -> [Backup & restore].



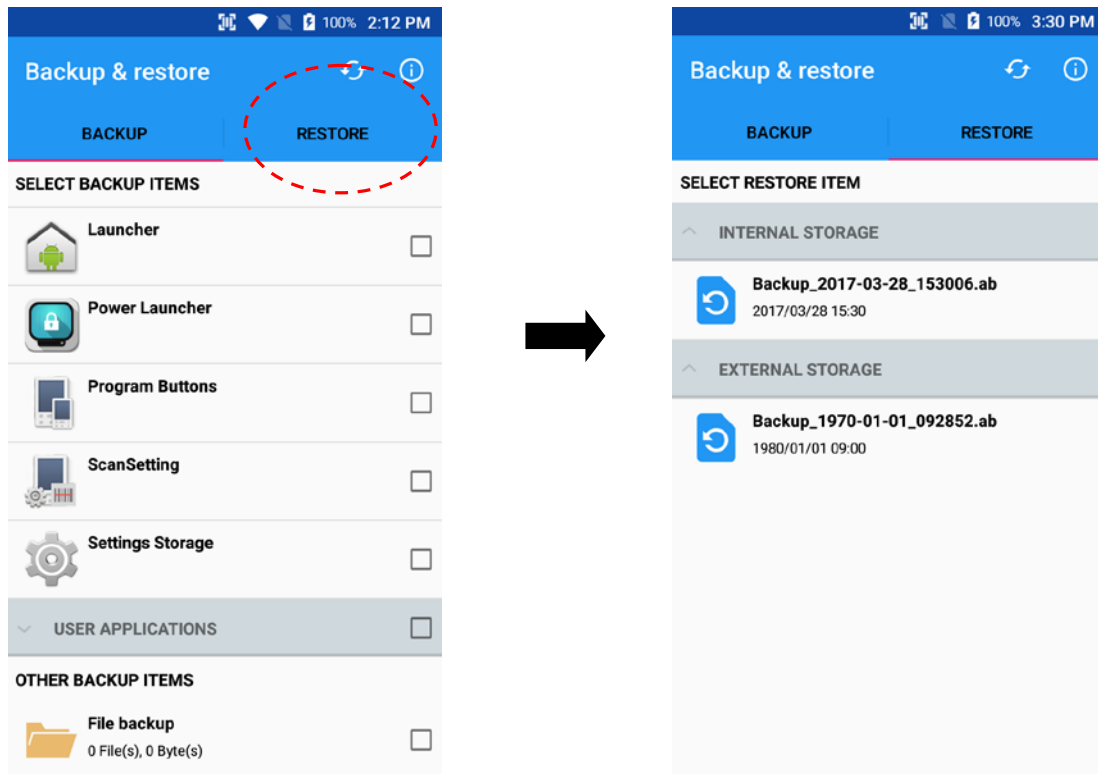
【 Procedure of backup data 】

Select the file to be backed up and press the BACKUP button at the bottom of the screen to display the dialog box for selecting the save destination.




【 Procedure of restore data 】




After starting "Backup & restore", select RESTORE in the upper right corner of the screen. A list of data saved in the past will be displayed, so select the data you want to restore.

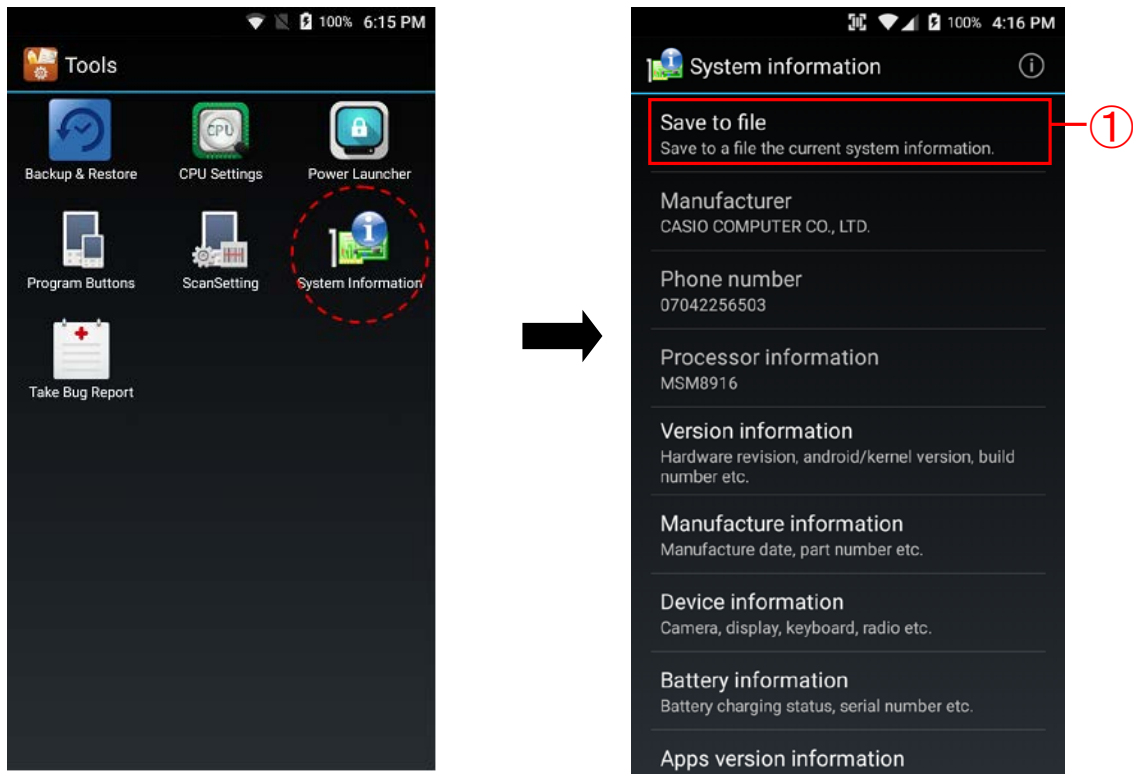


6.1.6 System Information


"System Information" is prepared by Casio Computer for confirming product information and it is not a tool for customers.

【 How to launch "System Information" 】




From [Application List], select [Tool] -> [System Information]. When the "System Information" starts up, you can write the acquired product information to the file (/sdcard/devinfo.html) by pressing [Save to file].



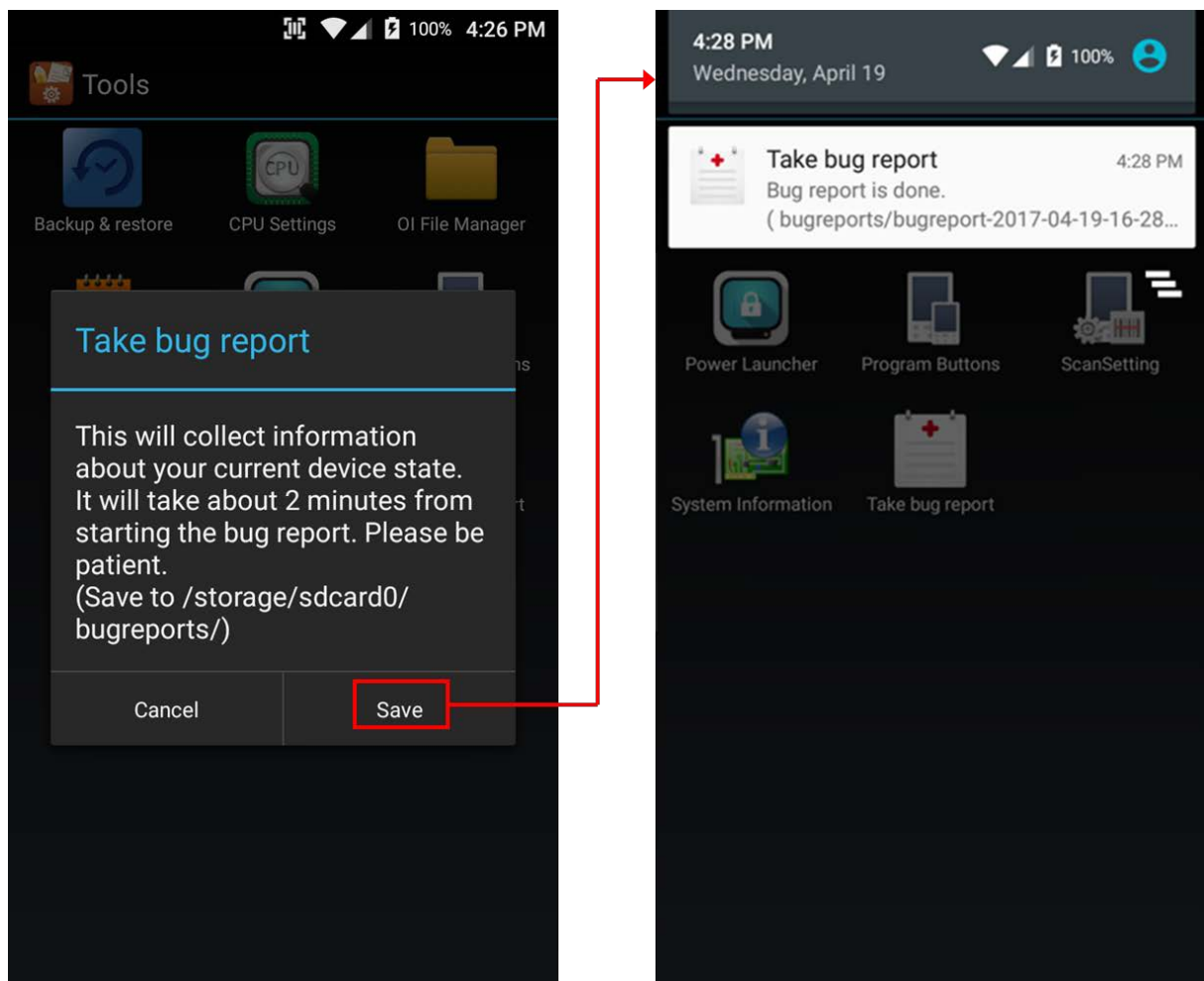
6.1.7 Take bug report

" Take bug report" is equivalent to "Take bug report" in "Developer options". The created bug report is stored in the /storage/emulated/0/bugreports folder.

【How to launch "Take bug report"】

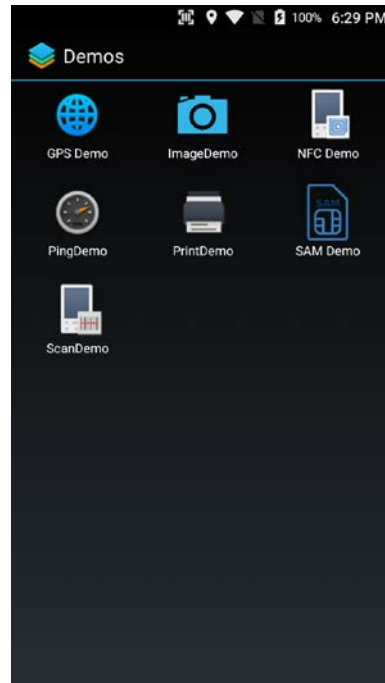
From [ Application List], select to [ Tools] → [ Take buf report]








Bug report is "debugging information including OS state (memory, process, stack, etc.)" and it takes from several tens of seconds to several minutes to acquire. When acquisition is completed, notification will be issued as shown below.



7. Demos

These tools are inspection software to confirm that the device (Bluetooth, GPS, camera, NFC, WiFi, SAM, imager) mounted on the terminal works. It does not guarantee the operation of all functions of these tools.



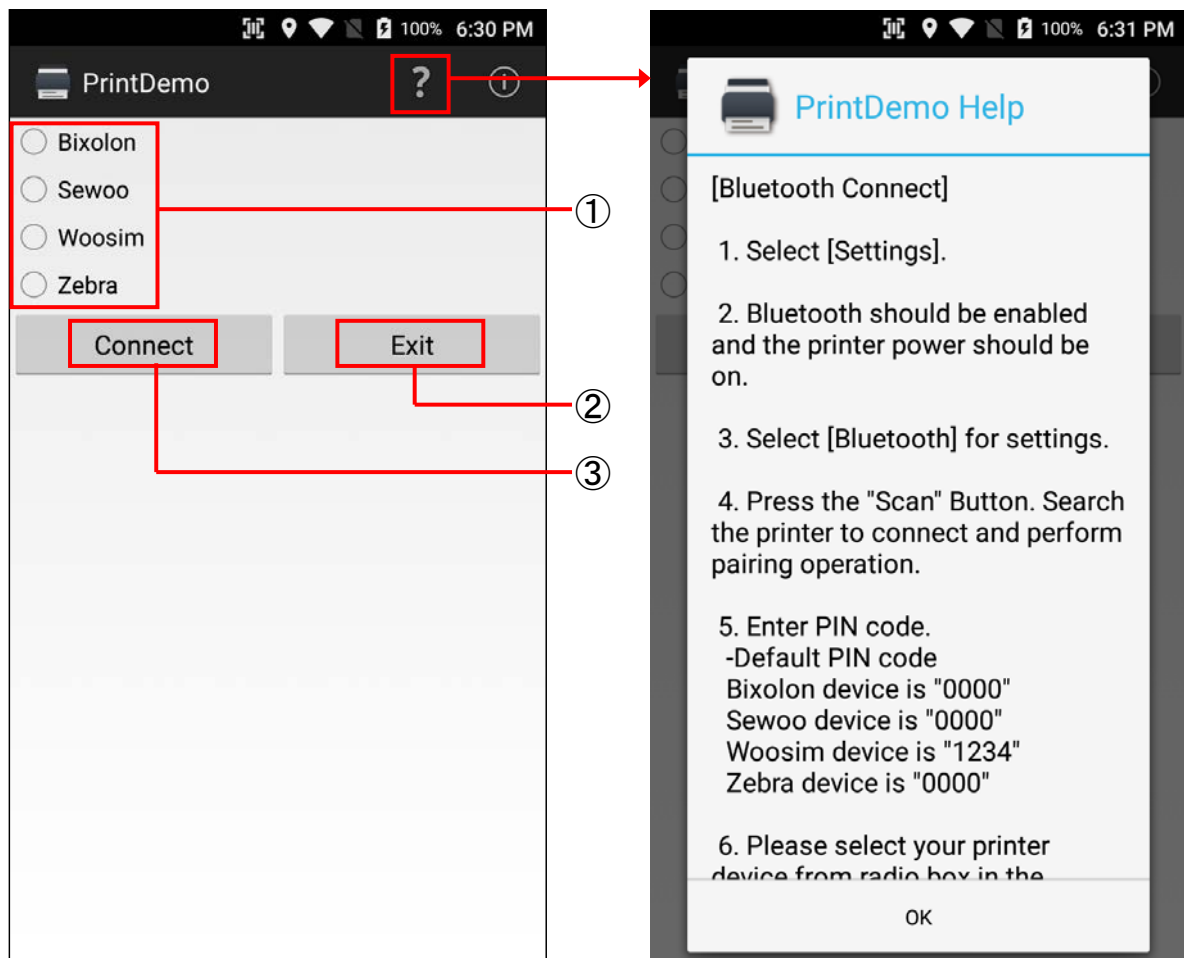
No.	Tool	Name and function
1.		PrintDemo Use to confirm that it can print to Bluetooth printer
2.		GPS Demo Use to confirm that it can detect satelights.
3.		ImageDemo Use to confirm that capture the image by barcode scanner.
4.		NFC Demo Use to confirm that NFC operates.
5.		PingDemo Use to confirm that network connection is working.
6.		SAM Demo Use to confirm that SAM interface is working. Cautions! IT - G 400 does not support the use of SAM.
7.		ScanDemo Use to confirm that barcode scanner is working.

7.1 PrintDemo

This software is used to confirm that Bluetooth function is working.

Cautions!

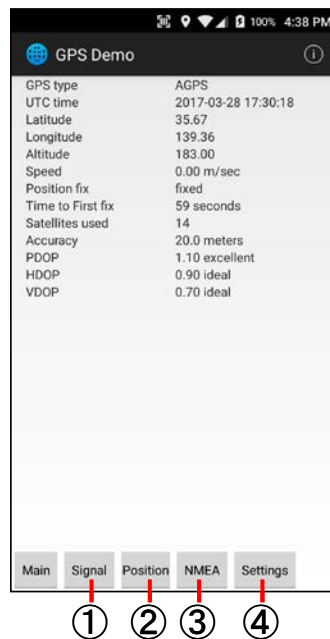
This software supports Bixolon, Sewoo, Woosim, Zebra, but it does not mean IT-G400 supports these printers.



- ① Select printer
- ② Finish the demonstration
- ③ Connect to printer

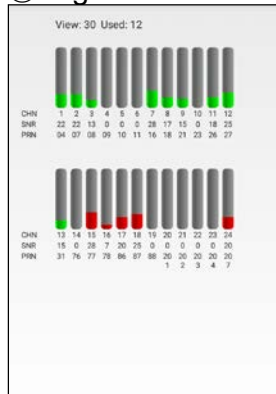
7.2 GPS Demo

This software is used to confirm that GPS function is working.

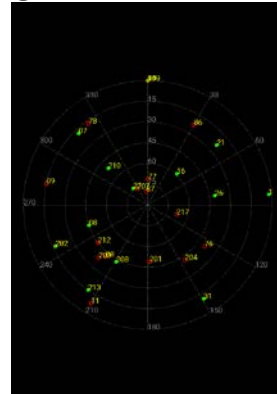


- ① Check signal from satellite
- ② Check the position of the satellite
- ③ Check NMEA data
- ④ Settings

① Signal



② Position



③ NMEA

```

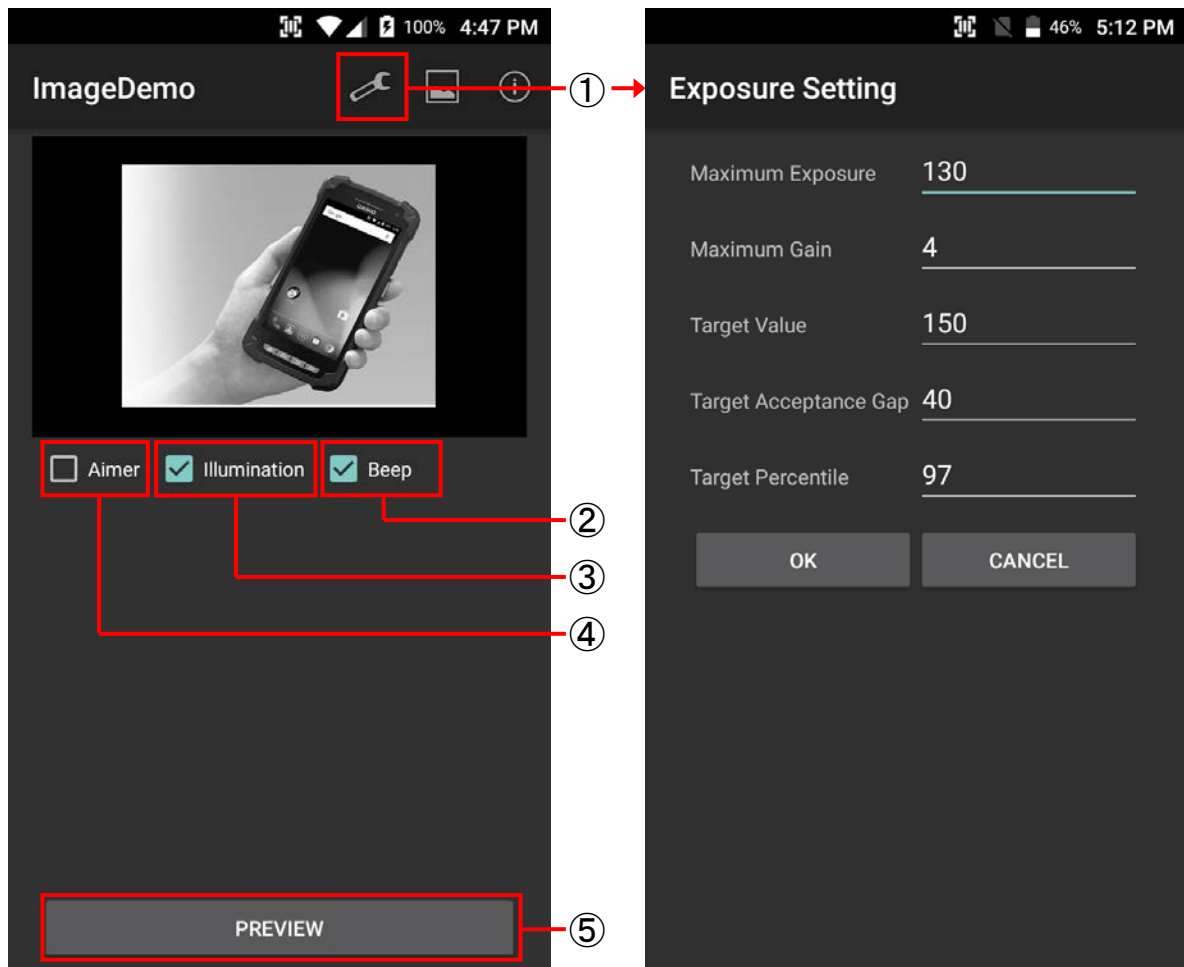
SGPGSV,4,1,13,23,17,246,*4C
SGLGSV,2,1,06,86,23,030,14,77,71,001,24,76,39,12
6,15,88,42,219,17*68
SGLGSV,2,2,06,87,80,355,28,78,17,324,*61
SGPGSA,A,
3,04,07,08,10,16,18,21,26,27,31,1,3,1,0,0,8*3D
SGPV,7,T,M,0,0,N,0,0,K,D*26
SGPRMC,083116,A,3540.080902,N,
13921.712629,E,0.0,280317,A,9,W,D*2D
SGPGGA,083116,3540.080902,N,13921.712629,E,
2,10,1.0,144.0,M,39.0,M,*47
SGPGSV,4,1,13,04,00,000,21,07,18,316,19,08,45,25
1,18,10,00,000,21*7F
SGPGSV,4,2,13,16,59,043,28,18,02,085,17,21,24,04
9,17,26,41,082,20*7C
SGPGSV,4,3,13,27,74,319,24,31,11,149,18,09,15,28
2,11,08,210,*7E
SGPGSV,4,4,13,23,17,246,*4C
SGLGSV,2,1,06,86,23,030,19,77,71,001,24,76,39,12
6,15,88,42,219,17*65
SGLGSV,2,2,06,87,80,355,28,78,17,324,*61
SGPGSA,A,
3,04,07,08,10,16,18,21,26,27,31,1,3,1,0,0,8*3D
SGPV,7,T,M,0,0,N,0,0,K,D*26
SGPRMC,083117,A,3540.080904,N,
13921.712633,E,0.0,280317,A,9,W,D*21
SGPGGA,083117,3540.080904,N,13921.712633,E,
2,10,1.0,144.0,M,39.0,M,*4B
    
```

④ Settings

- ☐ Production mode
- ☐ Save NMEA to /sdcard/GPSDemo/
- ☐ Print NMEA to logcat
- ☐ Screen always on

7.3 ImageDemo

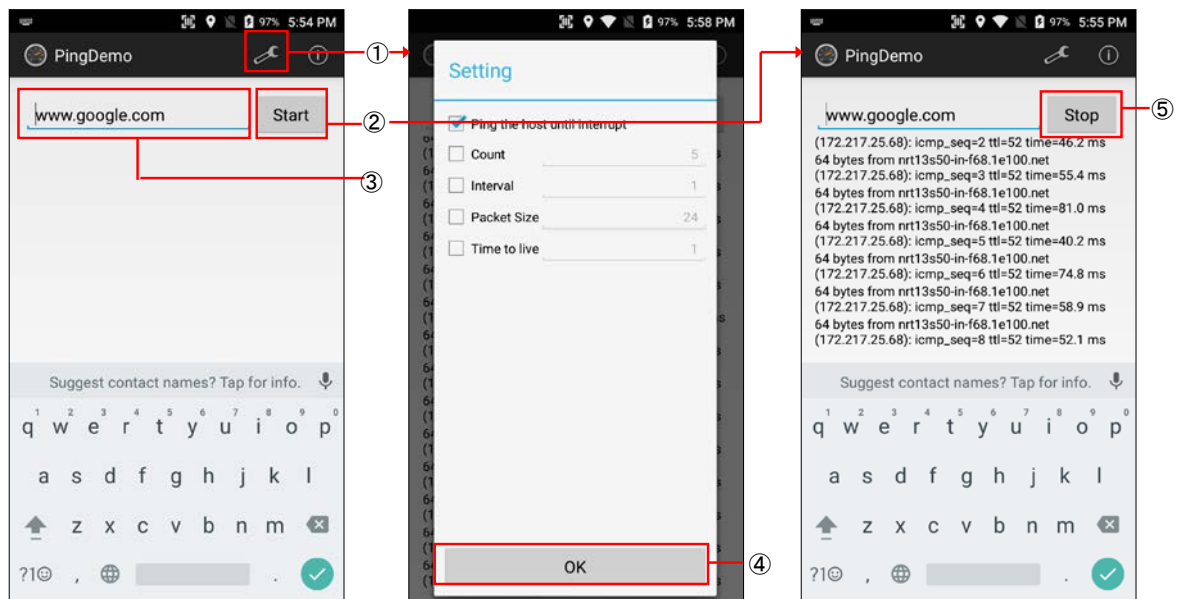
This software is used to confirm that capture the image by barcode scanner.



- ① Open exposure setting
- ② Enable / disable buzzer at image capture
- ③ Enable / disable illumination at image capture
- ④ Enable / disable the aimer at image capture
- ⑤ Start and stop image capture

7.4 PingDemo

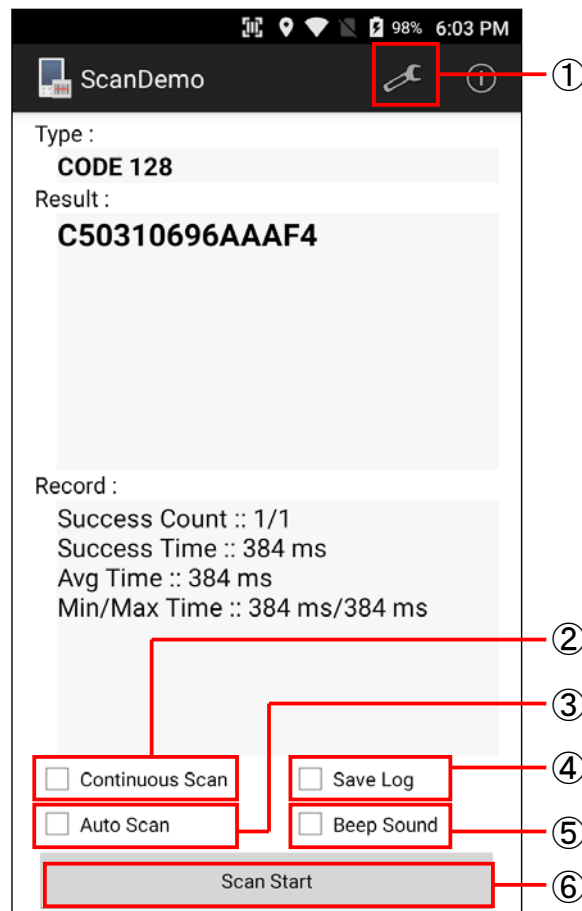
This software is used to confirm that network connection is working.



- ① Settings
- ② Start ping
- ③ Specify server address
- ④ Setting complete
- ⑤ Stop ping

7.5 ScanDemo

This software is used to confirm that barcode scanner is working.

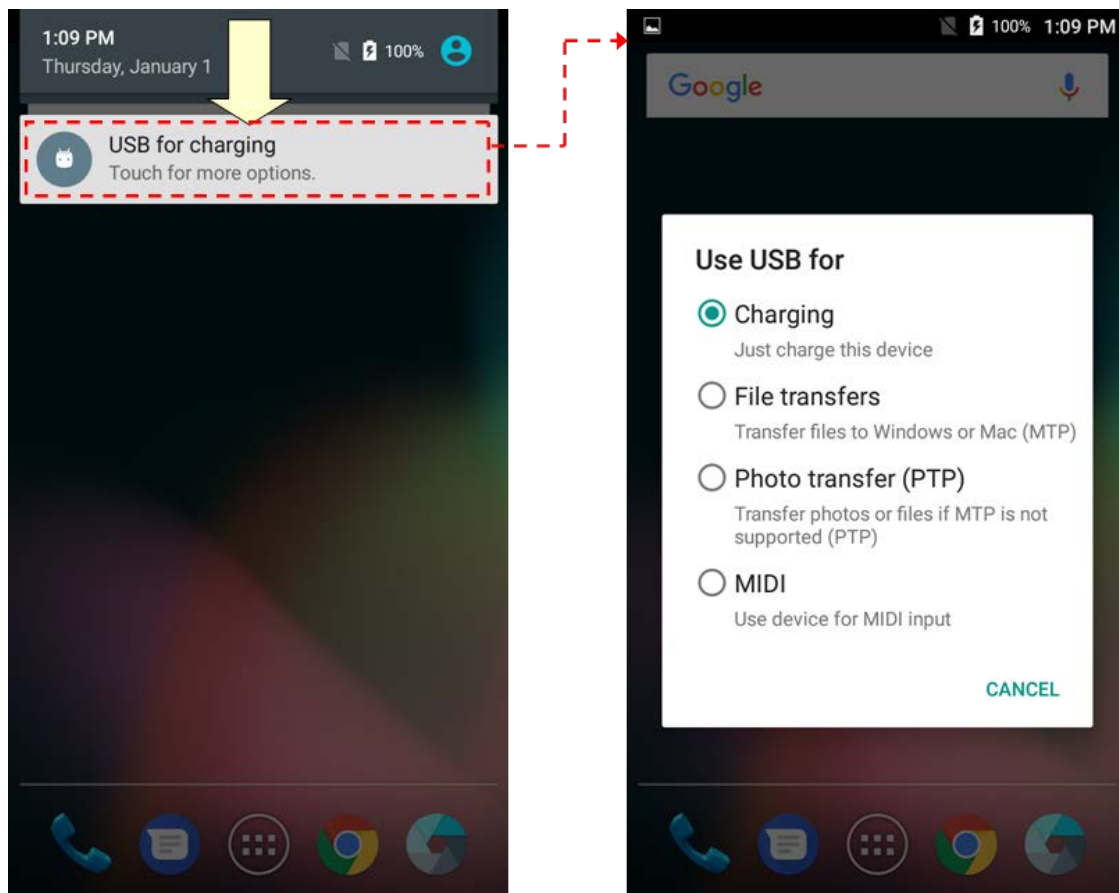


- ① Launch "ScanSetting"
- ② Enable / disable continuous scanning
- ③ Enable / disable auto scanning
- ④ Enable / disable log output
- ⑤ Enable / disable buzzer sound
- ⑥ Start barcode scanning

8. Connection with PC

IT-G400 is assumed to use a network such as WiFi or WAN for business data exchange (transmission and reception) with PC (server). Meanwhile, IT-G400 disk access from PC may be necessary for development and maintenance purposes. USB connection using cradle or USB cable is available for such use.

When IT-G400 is connected to the PC via cradle or USB cable, charging starts. Open the notification panel ("2.3.2 Notification panel and Quick setting panel (p.9)"), then, tap "USB for charging".



By selecting "File transfers" from the pop-up menu, you can access the IT-G400 disk from PC.

Cautions!

- The default is "charging" is a security specification of Android 6.0.
- "MIDI" is displayed in the pop-up menu, but IT-G 400 does not support it.
- When using USB cable, be sure to use AC adapter.

9. Reset switch

There are two ways to reset the IT-G400.

(1) Press power switch for 12 seconds

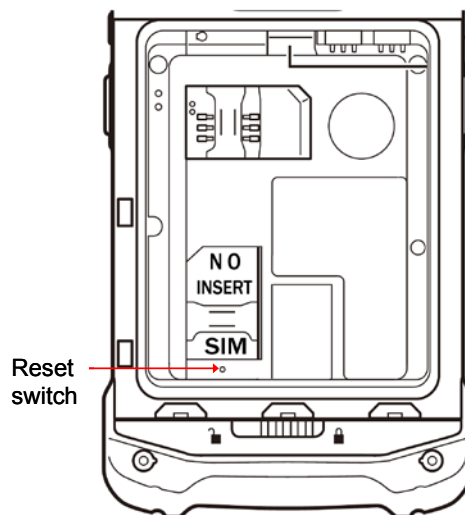
Close the file at the Linux level and reboot terminal.

(2) Push reset switch

Forcibly turn off the system power. It does not close the file etc.

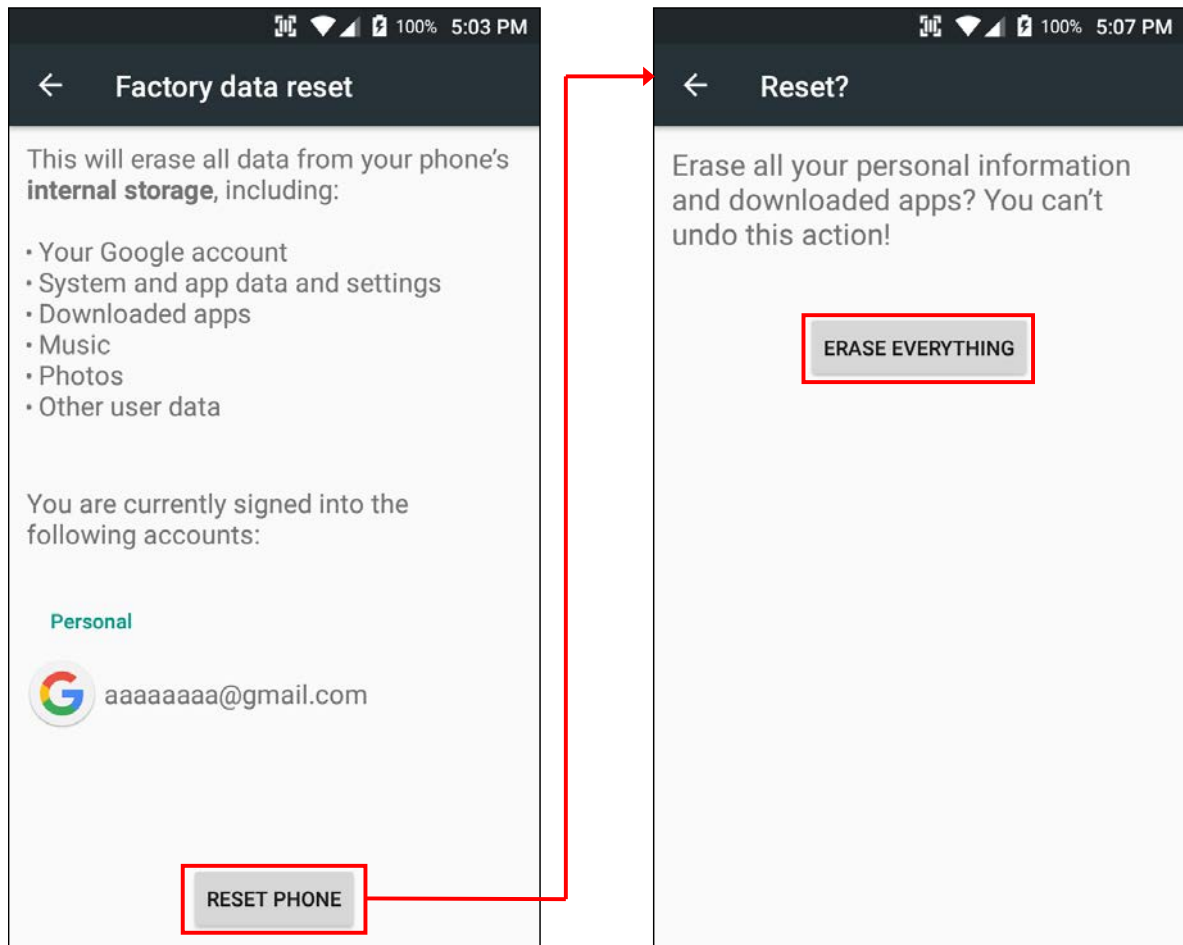
Resetting with the reset switch can cause inconsistency of the file. Therefore, if you want to restart the terminal, recommend that you try in the following order.

1. Press the power key for 1 second and select "Restart" from the pop-up.
2. Press and hold the power key for 12 seconds.
3. Press the reset switch.



10. Backup & reset

To initialize the IT-G400, use [Setup] → [Backup and reset] → [Factory data reset].



Since this operation erases all data in the terminal, please be careful not to accidentally erase important data.

Cautions!

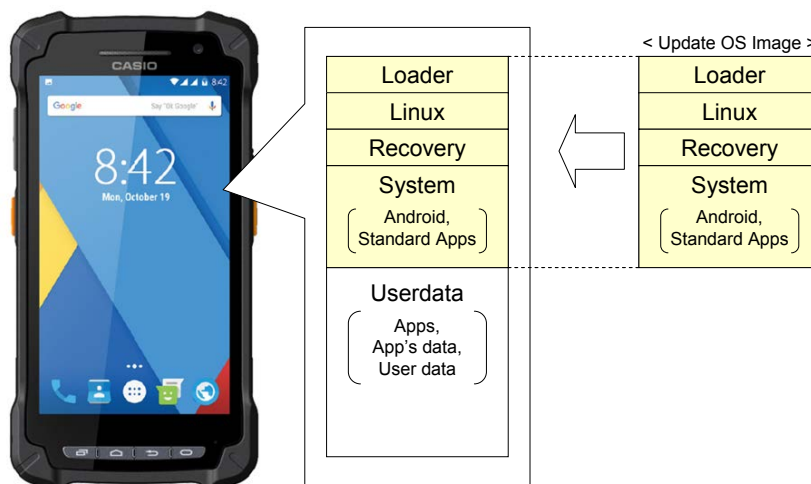
When you reset your device, the calendar will also be reset on January 1st. However, the year at this time depends on the timing of reset, and it does not necessarily become a fixed value.

11. Maintenance function

11.1 OS Update

The software (Android, Linux, driver, standard installed application) written at shipment from the factory of IT-G400 is called "OS", and the place where it is written is called "system area".

On the other hand, the application installed by the user, its data area, and the internal memory area are collectively called "user data" or "user area".



The function of rewriting the OS is called "System Update". With this function, you can write new OS or old OS to IT-G400.

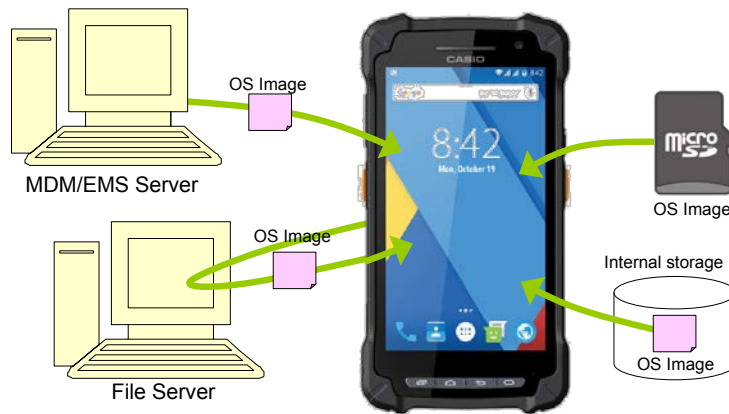
In System Update, since only the system area is rewritten, it does not affect the user area. However, in preparation for unexpected circumstances, recommend that back up data before updating the system.

Cautions!

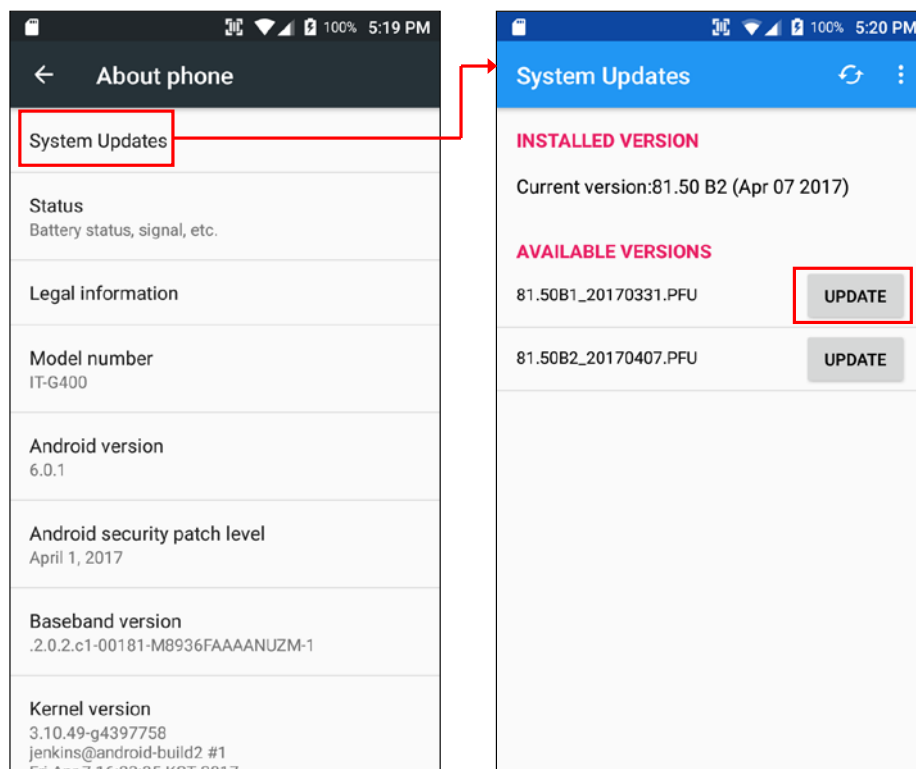
OS update supports OS up version and down version. However, when performing down version, be sure to perform factory data reset (refer to "10 Backup & reset (p.95)").

11.1.1 System updates

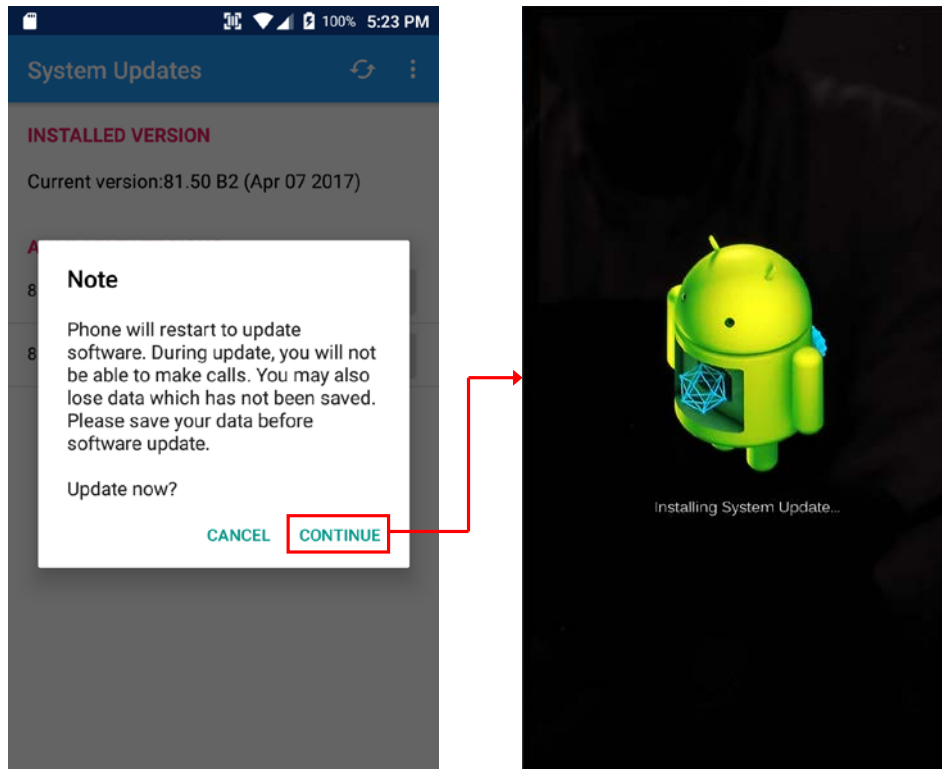
OS image used for System Update should be stored in internal storage or in microSD card. For both case, image must be placed on root folder.



With OS image stored in appropriate location, click [Settings] → [About phone] → [System updates], "System updates" is launched and list of images available for updating and [Install] button will be displayed.



Touch [Install] button displayed next to the OS image, following dialog for confirmation will be displayed. Touch [Continue] here, system will restart and system updating will start.



When update is completed, it will restart automatically.

11.2 OS Updating from Application

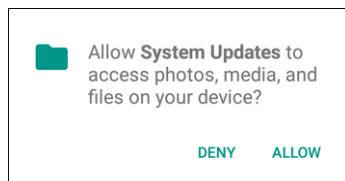
11.2.1 Overview

In the case of personal smartphone, its owner updates the system by his own discretion. On the other hand, in the case of business use, it is common that "whether to update the system depends on the judgment of the administrator". However, there is a problem that it is difficult to apply the update to the terminal actually being used at the site.

The following describes how to update the OS from your application. By this method, it is possible to update OS at night when the device is not used.

Cautions!

When using OSUpdateService described in this chapter, it is necessary to open "System Updates" (i.e. [Settings] → [About phone] → [System Updates]) at least once in advance. The reason for this is that when opening the "system update" of the setting for the first time, access permission is required.



OSUpdateService internally calls "System Updates", but if you do not give permission to the above, this call will end with an error.

Cautions!

The "OS Update (11.1 OS Update (p.96))" of IT-G400 is a premise to be done by human operation. This is based on the idea that "Since OS update is a dangerous act such as the terminal does not start when failing, wish people to check progress".

With this tool you can update the OS even if there are no people on the spot. However, we can not say that 'updating the OS will succeed under any circumstances'. Therefore, when using this service, sufficient verification is of course necessary, and furthermore it is necessary to prepare for "Measures to be taken if OS update fails, such as preparation of alternative terminal".

11.2.2 OS Updating service for application

Below are the tools used for OS update from application.

(1) OS Updating service

It is a program that is called from application in order to update OS.

File name : OSUpdateServiceXXXXXXXXXX.apk

Note! XXXXXXXXXXXX stands for version. However, in the following explanation, it is described as OSUpdateService.

(2) OS Image file used for updating

OS image file used for updating. The update service above uses it.

File name : 81.52_XXXXXXXX.PFU

(3) Sample application

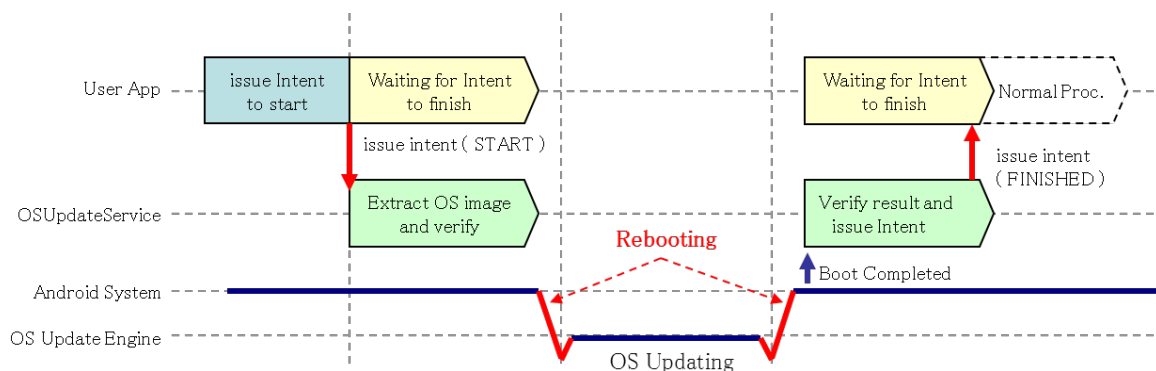
This is the source code sample of the application calling the above update service.

File name : OSUpdateSample.zip

11.2.3 How it works

The following explanation assumes that OSUpdateService is installed in advance.

- (1) Application downloads the "OS update image" from your file server to the "/storage/emulated/0" of IT-G400.
- (2) Application issues "START" intent together with the PATH to the "OS update image".
- (3) The OSUpdateService invoked by the intent above will check the integrity of the specified "update image file", restart the terminal, and update its the OS.
- (4) The application receives the "COMPLETED" intent issued by the OSUpdateService and checks the result.



11.2.4 Specification

■ Intent

(1) START intent

Package name:

Class name: `jp.casio.ht.osupdateservice.StartUpdate`

Extra:

(2) FINISHED message

Package name:

Class name: `jp.casio.ht.osupdateservice.finishupdate`

Extra:

■ How to issue the START intent

Application creates an Intent specifying the package name, class name, and extra and invokes `startActivity` to call the `OSUpdateService`.

```
Intent intent = new Intent(Intent.ACTION_MAIN);
intent.setFlags(Intent.FLAG_ACTIVITY_NEW_TASK);
intent.setClassName("jp.casio.ht.osupdateservice",
    "jp.casio.ht.osupdateservice.StartUpdate");
Uri uri = Uri.parse("PATH to the OS image file");
intent.setData(uri);
startActivity(intent);
```

■ How to receive FINISHED intent

Receive a broadcast message (i.e. `"jp.casio.ht.remoteupdate.finishupdate"`) using the broadcast receiver of the application.

```
FinishBroadcastReceiver receiver = new FinishBroadcastReceiver();
IntentFilter intentFilter= new
    IntentFilter("jp.casio.ht.osupdateservice.finishupdate");
registerReceiver(receiver, intentFilter);

...

class FinishBroadcastReceiver extends BroadcastReceiver {
    @Override
    public void onReceive(Context context, Intent intent) {
        Bundle bundle = intent.getExtras();
        String result: = bundle.getString("result");
    }
}
```

■ Execution result can be judged by bundled result.

- 1 OS update image file is not valid.
- 0 Update was completed normally.
- 1 Specified update has already been applied. ※
- 2 OS update service internal error.

※ In case of IT-G400, same OS version can be used. So, this error doesn't return.

<< Log file >>

The result is also left in the log file

(i.e. "/storage/emulated/0/Android/data/jp.casio.ht.osupdateservice /files/result.xml").

This is an XML format document, the layout shown below.

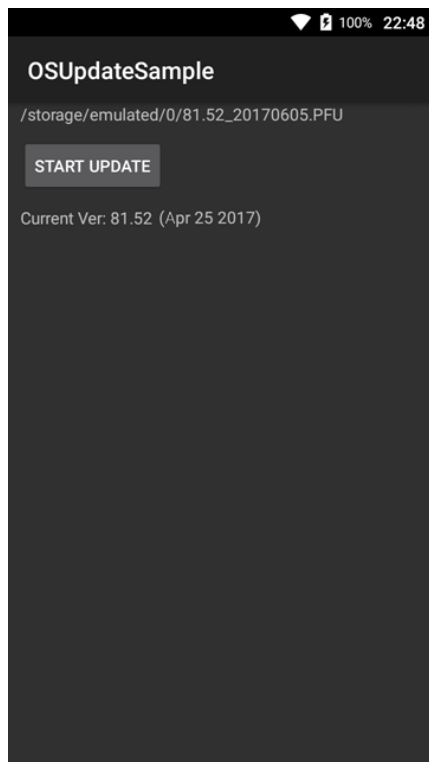
```
<?xml version='1.0' encoding='utf-8'?>
<update>
<file>PATH to the OS image file</file>
<apply>OS image file name</apply>
<start>Update starting time and date</start>
<finish>Update finished time and date</finish>
<prevver>OS version before updating</prevver>
<postver>OS version after updating</postver>
<result>0</result>
</update>
```

Example.

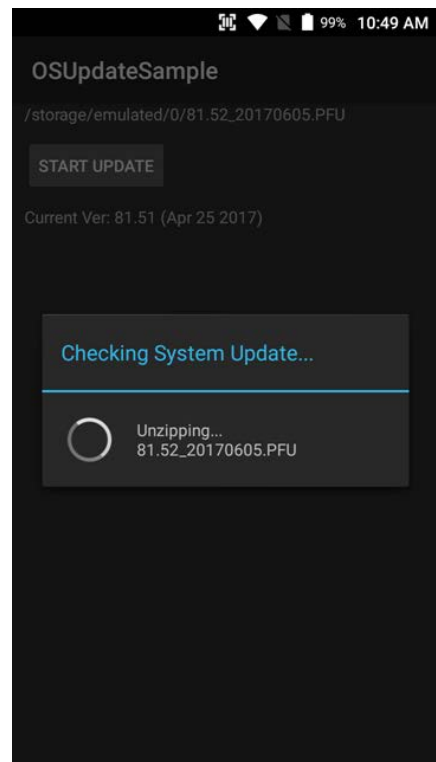
```
<?xml version="1.0" encoding="utf-8"?>
<update>
<file>/storage/emulated/0/81.52_20170605.PFU</file>
<apply>81.52_20170605.PFU</apply>
<start>2017/06/15 10:36:26</start>
<finish>2017/06/15 10:49:30</finish>
<prevver>81.51 (Apr 20 2017)</prevver>
<postver>81.51 (Jun 05 2017)</postver>
<result>0</result>
</update>
```


11.2.5 About sample program

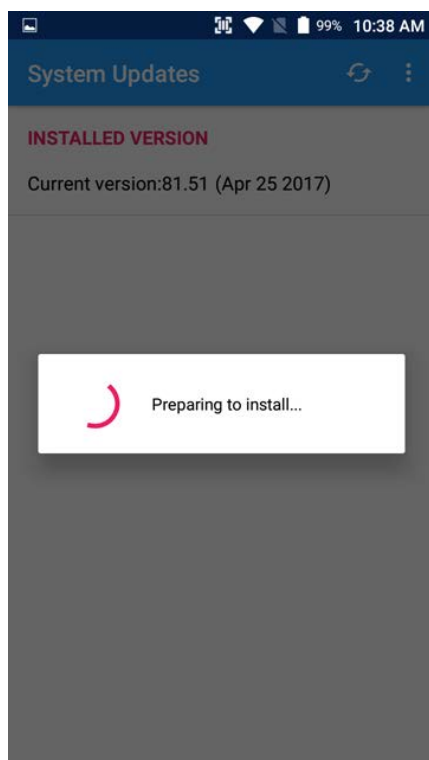
The figure below shows the flow of updating the OS using the sample program.



1. Touch [START UPDATE]



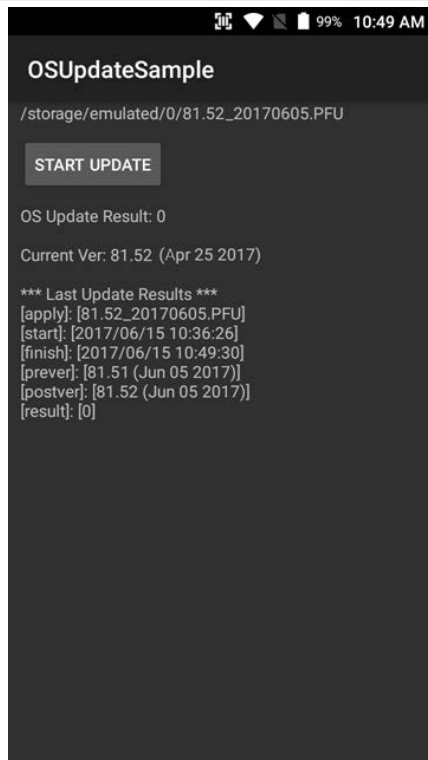
2. The called OSUpdateService validates the OS image file.



3. Restart and update OS



4. Under updating the OS



5. Recive FINISHED message, and show log file.

11.3 OS Updating by FOTA

11.3.1 Overview

Common Android based smartphones have OS updating function over the network (FOTA: Firmware Over The Air), and it is usual to keep the OS up to date with this.



However, for corporate use terminals, there was no need to "keep its OS up to date using FOTA" for the following two reasons.

- (1) Corporate use terminals use only evaluated OS by the system administrator.
- (2) Corporate use terminals are not connected to the Internet.


FOTA system on IT-G400 is prepared to make it easier for system administrators to download the OS image and to update several evaluation terminals.

To update the OS on the work site, we recommend the method described in "11.2 OS Updating from Application (p.99)".

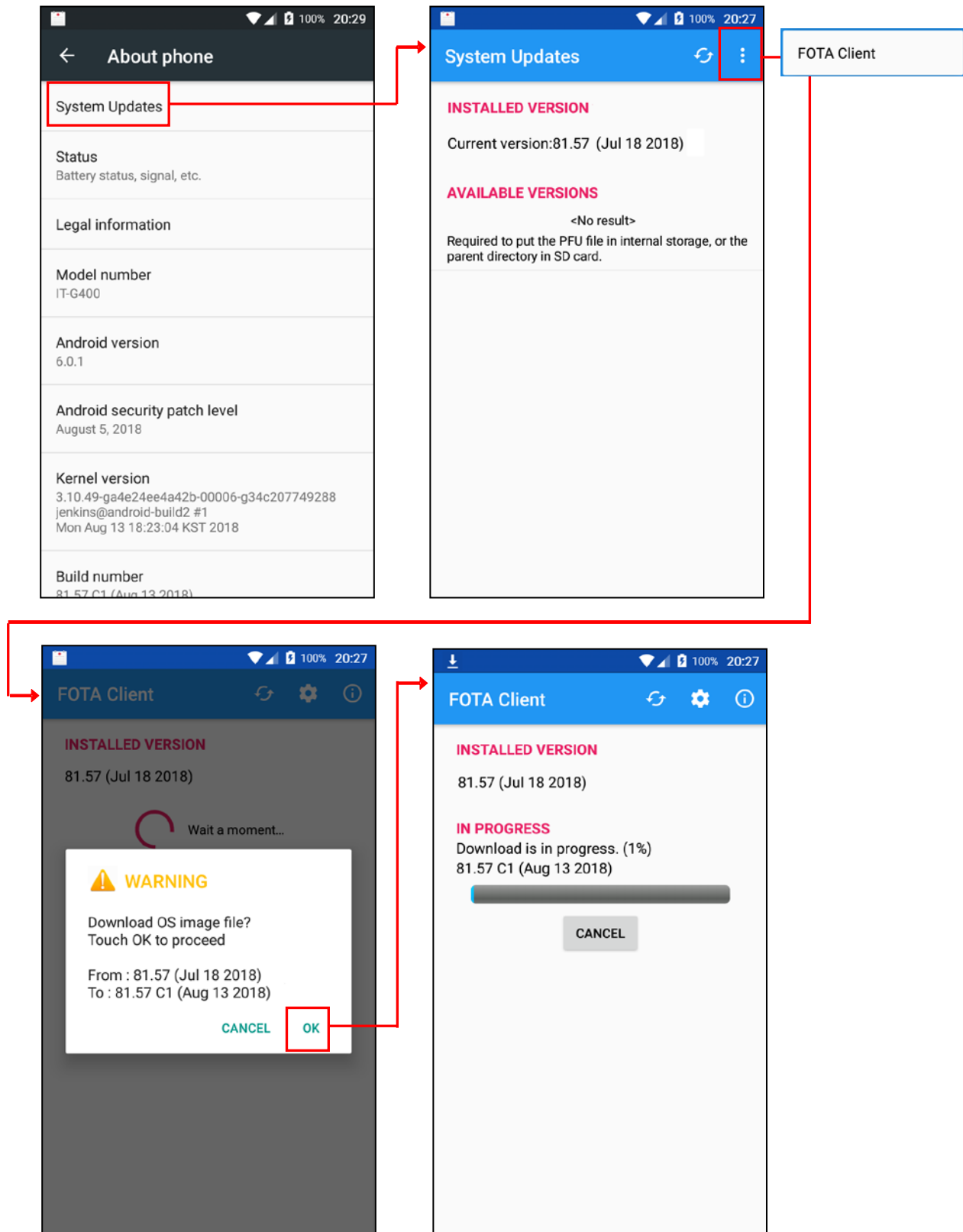
Cautions!

- The FOTA function is available on OS Ver.81.57C1 or later.
- The FOTA server is on the cloud, and it is possible to download by the appropriate route via the Internet.
- The use of FOTA function is free of charge. But data fees may apply from user's communications service provider.
- Downloading may take long time depending on the user's network environment since the downloading size is about 1.2GB.
- About 1.2GB of free space is required in the user area of the IT-G400's internal storage to download the OS image file.
- The FOTA server does not acquire any personal information, please do not worry.

11.3.2 Operation

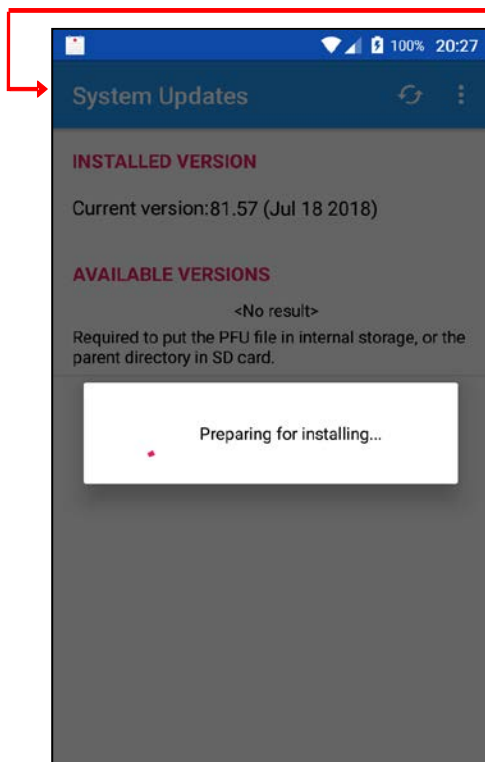
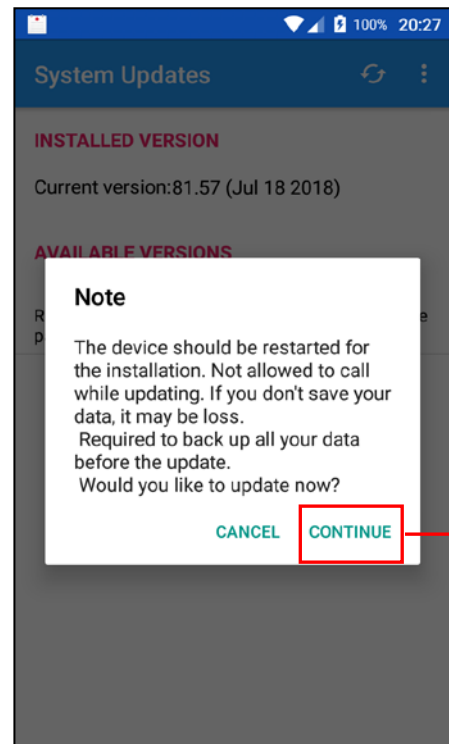
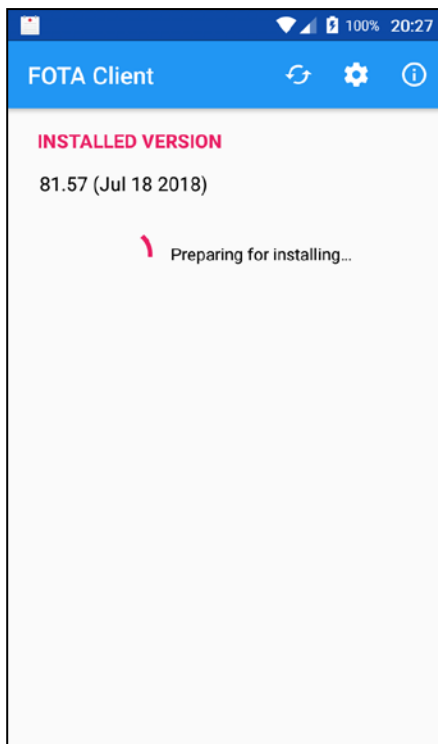
While WLAN connection is available, tap [Settings] → [About phone] → [System updates], tap the  on the "System updates" and select [FOTA Client], then FOTA Client software will be launched.

When it is launched, it accesses the FOTA server and confirmation dialog will be displayed. If you select [OK], it will start to download the OS image.



After downloading is completed, "Preparing for Installing" message is displayed and confirmation dialog will be displayed soon.

If you select [CONTINUE], "Preparing for Installing" message is displayed and updating will start. When completed, IT-G400 will restart automatically.



Caution!


If you select [CANCEL], updating will not start. But the OS image file is stored in the root folder of the internal storage. You can update the OS by [System Updates] menu. The downloaded OS image file will be deleted after restart regardless of whether updating is done or not.

11.3.3 Download over the Mobile network

By default, the FOTA client downloads the OS image only over the WLAN.

If the Mobile network (3G/LTE) is available but WLAN connection is not available, the following message is displayed and downloading will not start.

If you want to download the OS image over the Mobile network (3G/LTE), please change setting as follows.

[FOTA Client] →  → [Settings] → uncheck the [Download over WLAN only]

