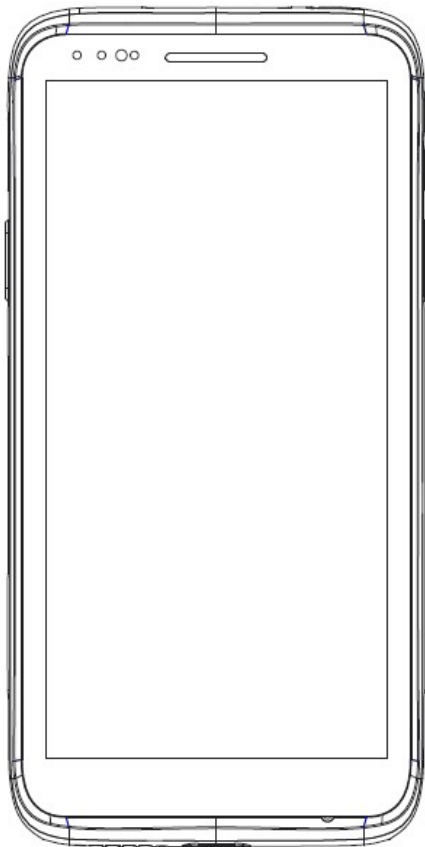


DS70 USER MANUAL



Android 11

ISO 9001 Certified
Quality Management System

Revision History

Changes to the original Manual are listed below

Date	Version	Description
July 2022	1.0	Initial release
Aug 2022	1.1	Revise images/details

© 2022 DSIC Co., Ltd.
All Rights Reserved.

DS70 is a trademark of DSIC Co., Ltd.
Mobilebase is a brand name of DSIC rugged mobile computer.

Notice

While reasonable efforts were made to ensure that the information in this document was complete and accurate at the time of printing, DSIC Co., Ltd. can assume to no liability for any errors. Changes and corrections to the information in this document might be incorporated in future release.

Document disclaimer

DSIC Co., Ltd. Is not responsible for any modifications, additions, or deletions to the original published version of this documentation unless Customer and/or End User agree to indemnify and hold harmless DSIC, DSIC's agents, servants, and employees against all claims, lawsuits, demands and judgments arising out of, or in connection with, subsequent modifications, additions or deletions to this documentation to the extent made by the Customer or End User.

Link disclaimer

DSIC Co., Ltd. is not responsible for the contents or reliability of any linked Web sites referenced elsewhere within this documentation, and DSIC does not necessarily endorse the products, services, or information described or offered within them. We cannot guarantee that these links will work all the time and we have no control over the availability of the linked pages.

Warranty

DSIC Co., Ltd. provides a limited warranty on this product. Refer to your sales agreement to establish the terms of the limited warranty. In addition, DSIC's standard warranty language, as well as information regarding support for this product, while under warranty, is available through the Mobilebase Support Web site:

<http://www.mobilebase.co.kr>

Copyright

Except where expressly stated otherwise, the Product is protected by copyright and other laws respecting proprietary rights. Unauthorized reproduction, transfer, and or use can be a criminal, as well as a civil offense under the applicable law.

Third-party components

Certain software programs or portions thereof included in the Product may contain software distributed under third party agreements ("Third Party Components"), which may contain terms that expand or limit rights to use certain portions of the Product ("Third Party Terms").

Trademarks

All other trademarks are the property of their respective owners.

Downloading documents

For the most current versions of documentation, see Mobilebase support Web site: <http://www.mobilebase.co.kr>

Contact DSIC Support

DSIC Co., Ltd. provides a technical support email account for you to report problems or to ask questions about your product. The support account is dsic_pda@dsic.co.kr

For additional support, See the Mobilebase Web site: <http://www.mobilebase.co.kr>



The Bluetooth word mark and logos are owned by Bluetooth SIG, Inc.
All trademarks and trade names are the property of their respective owners.

Contents

DS70 User Manual	1
Safety Instruction	6
Chapter 1: Introduction	7
Overview of terminal features	8
Front View.....	8
Back View.....	9
Hand Strap Removal and Replacement	10
Battery.....	10
Battery power source	10
Chapter 2: Getting Started	11
Installation micro SD / SAM / SIM card	12
Battery Mounting and Operation	13
Connecting Power Source	14
To use mini USB Travel Charger.....	14
To use Cradle.....	14
To use Multi-Slot cradle	15
Bumper Installation	15
Operating power of the terminal	16
Power on / off.....	16
Sleep and Wake up	16
Power restart	16
Hot swap	16
Home Screen	16
Organize your Home screens.....	17
Touch & type	18
Android version & updates.....	18
Chapter 3: Basic Use	19
Notifications & settings	19
Quick Settings.....	20
Data Sync.....	20
How to Connect with PC.....	20
Wi-Fi	21
Connecting to Wi-Fi Access point	21
Bluetooth.....	22
Pairing via Bluetooth.....	22
Lock screen	23
NFC (13.56 MHz)	24
File Manager.....	25
Screenshots	26
Barcode Scanning	26
Aim 1D barcode	26
Aim 2D barcode	26
Chapter 4: Use the keyboard	27
Enter & edit text	27
Basic editing.....	27

Emoji	28
Use next-word suggestions	28
Chapter 5: Try some apps	29
All Apps.....	29
Phone	30
Camera	31
Gallery	32
Contacts.....	33
Chapter 6: Settings.....	34
Chapter 7: Accessibility.....	35
Chapter 8: Device Management	36
EDM (Enterprise Device Management)	36
Main menu.....	36
Barcode Tray.....	37
Key Mapping.....	40
OS Update	42
USB Driver	42
FOTA Update.....	43
For users	43
For IT Manager.....	44
KIOSK MODE.....	46
Action Bar	46
Appendix I AUTO SETTING	48
Download DS_Auto Setting program	48
Barcode Scanning	48
Version Select.....	49
Common Interface.....	49
AutoSetting 1 – Wifi Set	50
AutoSetting 2 – Sound volume.....	51
AutoSetting 3 – Radio Set.....	52
AutoSetting 4 – General	53
AutoSetting 5 – Mobile APN.....	54
AutoSetting 6 – Keymap Set	55
AutoSetting 7 – Kiosk Set	57
AutoSetting 8 – Barcode Set.....	58
AutoSetting 9 – ETC Set	59
Barcode Form	60

SAFETY INSTRUCTION

Read this instruction carefully to keep yourself safe and to avoid loss of property.

- Make sure that battery terminals (metal part) should not contact with any conductive materials like a necklace or coin. Also make sure that batteries should not be damaged by teeth or a nail. Impact may cause an explosion of batteries
- Use dedicated batteries only and do not use the batteries for any other purpose than operating this product. Using an inauthentic battery may reduce life of the product, or cause an explosion.
- Make sure to use the adapter or the standard charger supplied with this product. Using an inauthentic charger may reduce life of batteries or cause an explosion.

Caution in relation with Laser Scanner



Do not flashing scanner light in human and animal's eyes. It could cause the damage of retina and amblyopia.

Caution in relation with Batteries

- Batteries may explode when damaged, impacted, heated, flooded or taken apart with a gimlet. Make sure to keep the batteries out of reach of children or pets.
- Do not use the Product in the area with the risk of explosion.

Safety information

- This Product is compliant with EMC. For safety and health, use the authentic parts supplied by the manufacturer. Any inauthentic parts may affect safety.
- Do not press the power button when the product is wet. Touching the adapter, or power cord with wet hands may cause an electric shock.
- Do not modify, disassemble or repair the product at your discretion. Also make sure to follow the safety instructions.
- Record the data in the Product and keep it in a separate place. Data stored in the product may be deleted during repairing or upgrading the product. So, make sure to back up important data.
- Do not use this Product in a hot or humid place. Using the product under a hot/humid temperature such as rain or sauna may cause a trouble.
- Keep this Product away from magnetic products such as credit card, telephone card, bank book and traffic ticket. The magnetic field of the terminal may affect the data.
- When storing a battery for a long period of time, recharge it and keep it at a room temperature. Even a fully charged battery will suffer reduced life due to the characteristics of the battery.

CHAPTER 1: INTRODUCTION

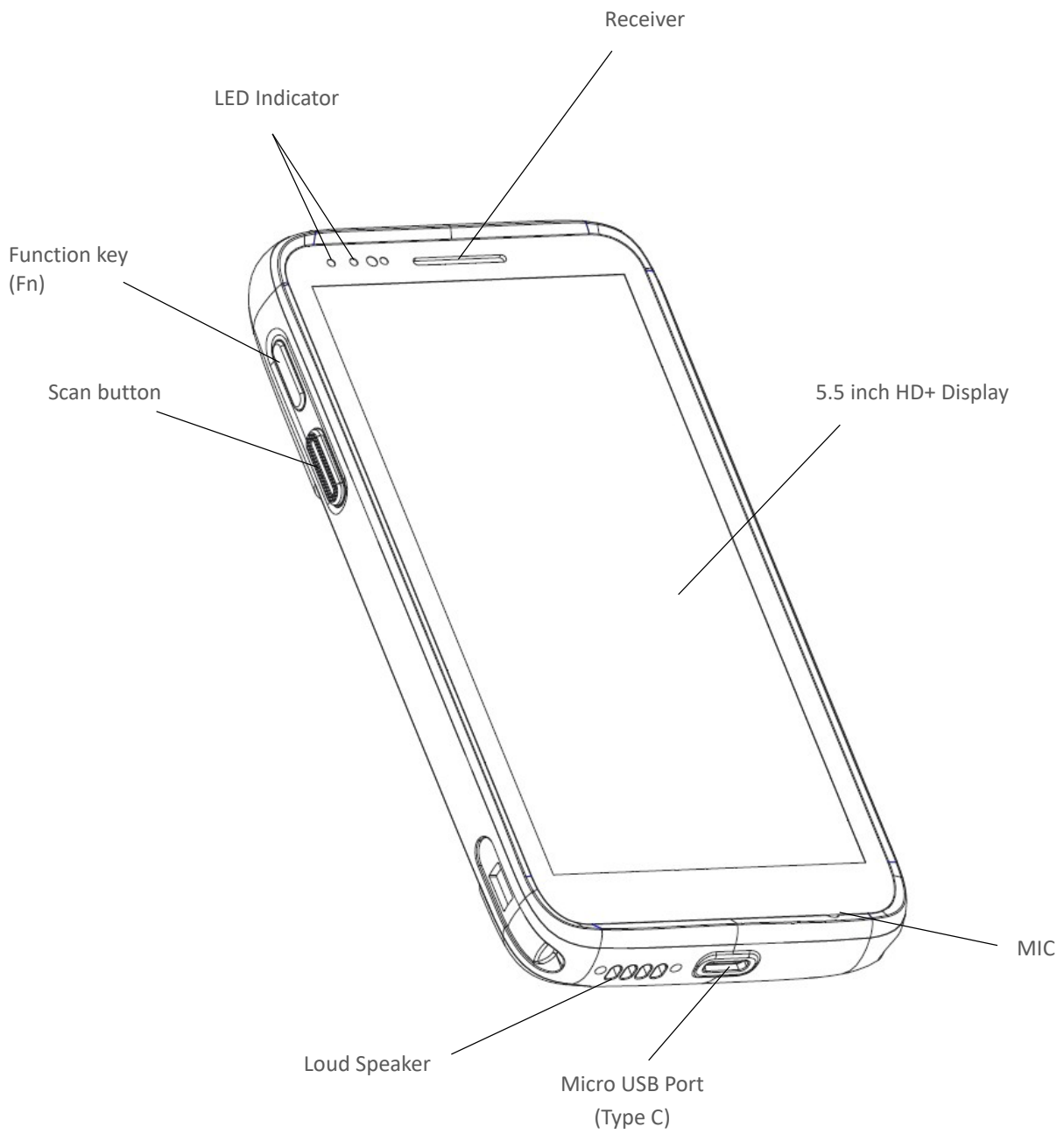
DS70 is designed with a focus on convenience to provides users with an optimal user experience.

Adopting a 5.5-inch display to provide users with excellent visibility with its HD+ resolution, while ergonomic design minimizes fatigue while carrying during the work.

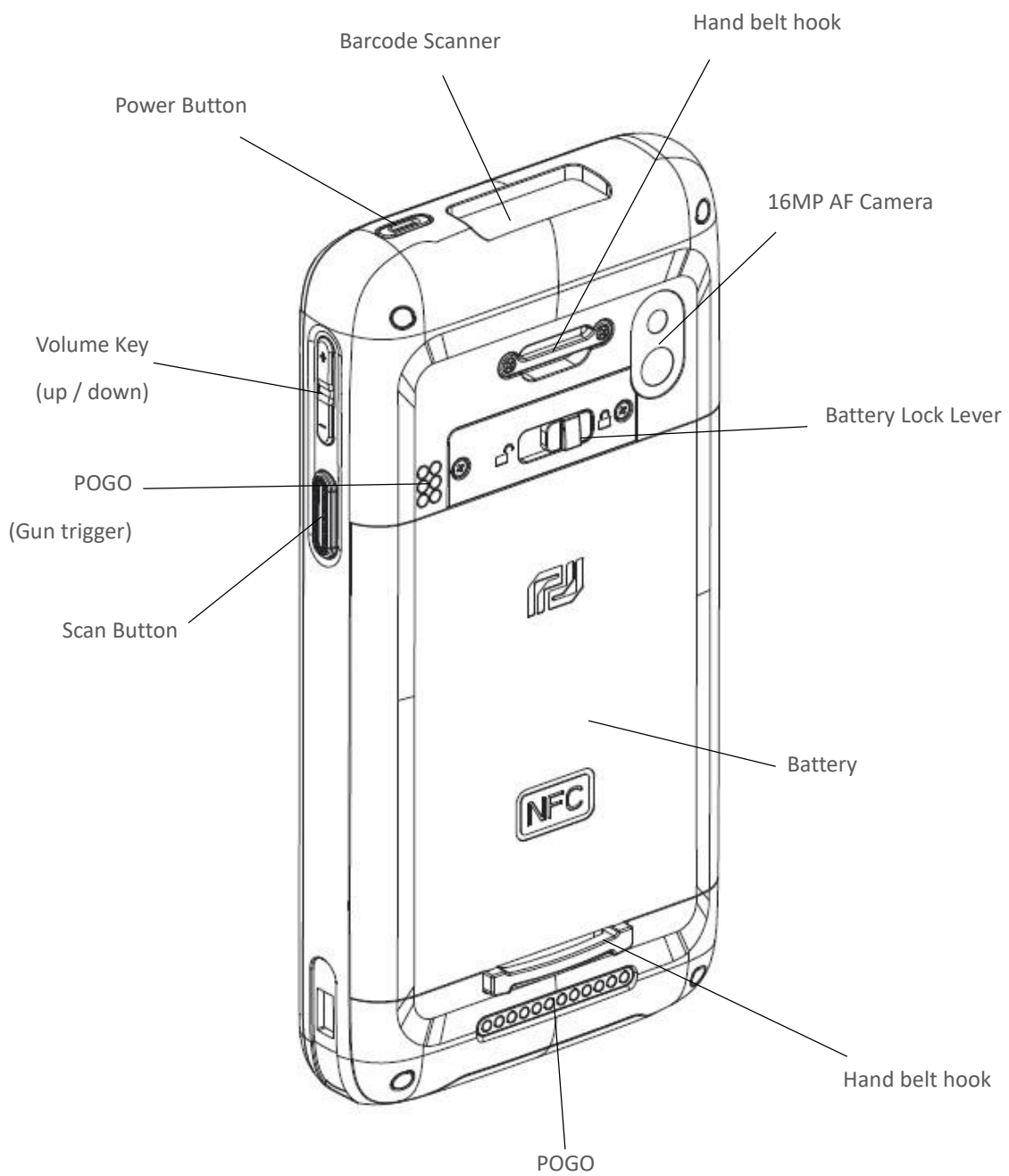
This chapter describes the front, back, battery or power adapter of the DS70.

Overview of terminal features

Front View



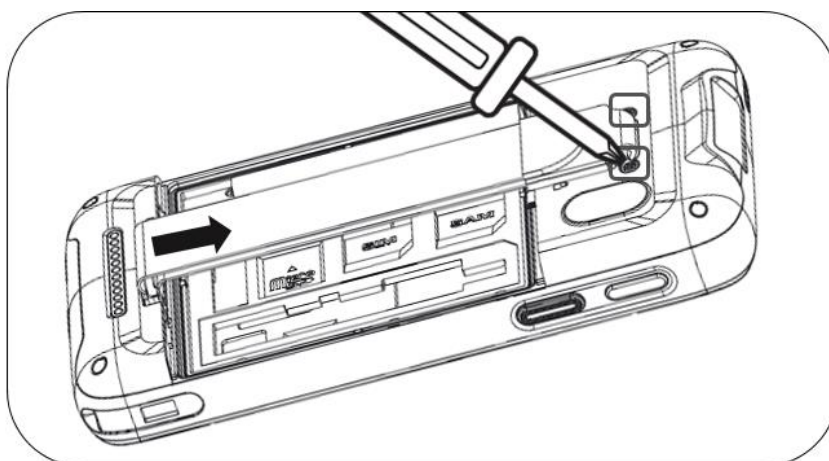
Back View



Hand Strap Removal and Replacement

To remove hand strap:

1. Un-screw two points on the top
2. Force to pull out lower loop to upward from the terminal



Battery

Caution

If the Product is wet, do not put it in a device that may heat the terminal (heater, microwave oven, etc.). Heating batteries may cause an explosion, deformation or fault. (Water or any other liquid will change the color of the label inside the terminal.)

Battery power source

Series	Description
DS70	3.8V, 4000mAh (14.8Wh) / 6,000mAh (optional)

You may need to fully charge the battery before using your terminal for the first time. Battery can be charged using below listed accessories

Charging Accessory	Charging Time	Specification
Mini USB cable	About 4hours 30minutes	5V, 3A
Desktop cradle and AC adapter	About 4hours 30minutes	5V, 3A
Multi Cradle (Connected)	About 4hours 30minutes	7V, 12A

CHAPTER 2: GETTING STARTED

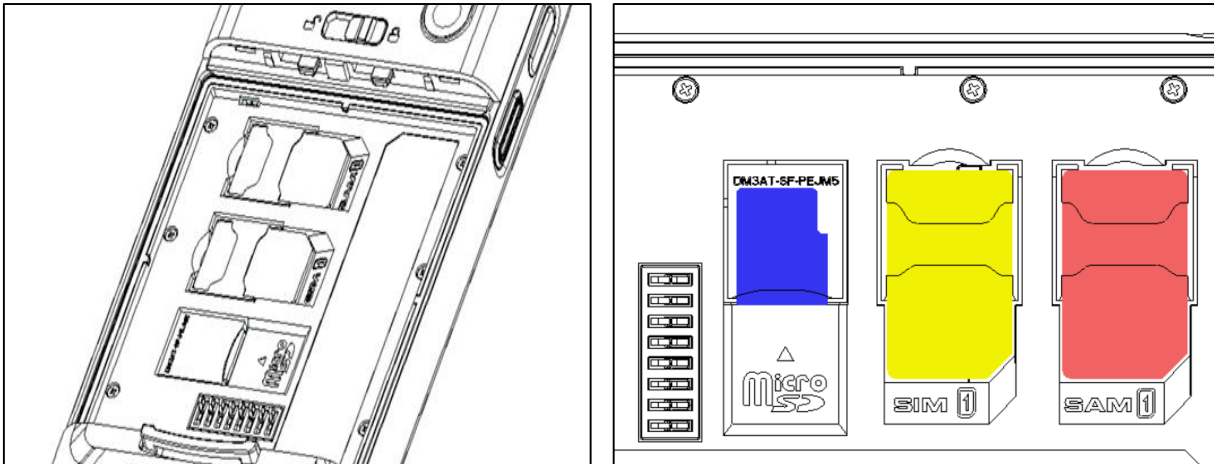
This chapter will describe how to install and charge battery, mount micro SD card and start up the terminal.

To start up the terminal:

- Installation Micro SD / SAM / SIM card
- Battery Mounting and Operation
- Connecting power source
- Bumper Installation
- Operating power of the terminal
- Home Screen
- Organize your Home screens
- Touch & Type
- Android version & updates

Installation micro SD / SAM / SIM card

Insert the card carefully as shown in the following illustrations. Make sure the card terminal position before insert the card. Push the back end of the card to fix it at the last step.



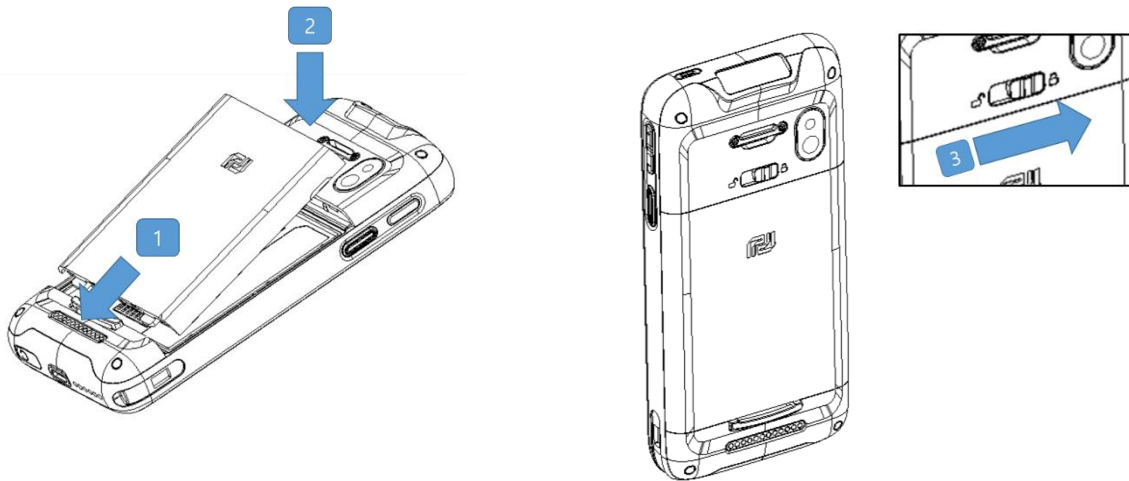
Card types	Insert direction
SAM card	
SIM card	
Micro SD card	

i Note

- Do not use the power too much when you insert the card. The card may be damaged.
- If you install the card in the wrong position, the card may be damaged or it may cause the malfunction of the card Slot.
- Keep the terminal part of the card in clean. Be careful the terminal part of the card not to dusty
- As the card is consumable, the card ends its days and may be not able to save data if you use it more than over certain times. In this case, replace the card to buy a new one.

Battery Mounting and Operation

Align the bottom of the battery and press down the top.
Then, lock the battery by sliding the lever from left to right.



Note

Battery Maintenance

Lithium-ion batteries have a limited life, which is affected by several factors; environment, storage, the number of charge / discharge cycles, and level of discharge / charge

To extend battery lifespan and battery life, we recommend following these simple guidelines;

- Avoid heat and humidity
- If do not use the terminal regularly, fully recharge the battery at least once per month.
- Do not leave the terminal connected to a charging device for longer than 3 days.
- Use only charging adapter approved
- In case of storing terminal 3 months or longer,
 - The best temperature for proper care and storage is between 0~25°C
 - Extended storage can cause batteries to discharge deeply, which can deteriorate the cell and reduce battery capacity, service life and ability to recharge. It is suggested, therefore, that the battery be fully charged before putting to the terminal in extended storage and that it be recharged fully every three months while in storage
- Update the terminal Operating System as new updates available. OS updates may contain new programs to optimize battery life.

Transportation

The contained lithium ion batteries are subject to the Dangerous Goods Legislation requirements. The user can transport the batteries by road without further requirements. When being transported by third parties (e.g.: air transport or forwarding agency), special requirements on packaging and labeling must be observed. For preparation of the item being shipped, consulting an expert hazardous material is required.

Disposal

Rechargeable batteries should be sorted for environmental friendly recycling. Do not disposal batteries into household waste. According to the European Guideline 2006/66/EC, defective or used battery packs/ batteries, must be collected separately and disposed of in an environmentally correct manner. Batteries no longer suitable for use can be directly returned at

DSIC Co., Ltd.

PDA Dept. DSIC Bldg. 205-28, Gasan digital 1-ro, Guemchun-gu, Seoul, Korea

Tel: +82-2-2107-5178

Fax: +82-2-2107-5128

Email: dsic_pda@dsic.co.kr

Subject to change without notice

Connecting Power Source

Connect power, using one of the methods listed below.

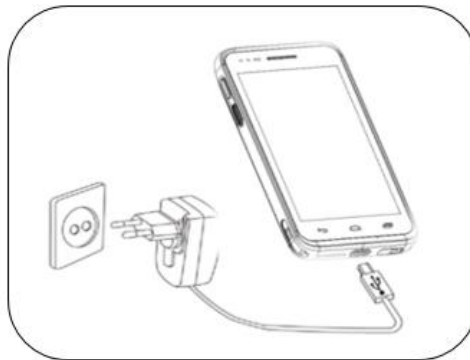
Caution

Verify that the terminal battery is installed prior to connection. If the battery is not properly installed and the wall charger is connected, the terminal may power off and on continuously, preventing proper operation.

Note

Failure to unplug the wall charger before you remove the battery, can cause damage to the terminal

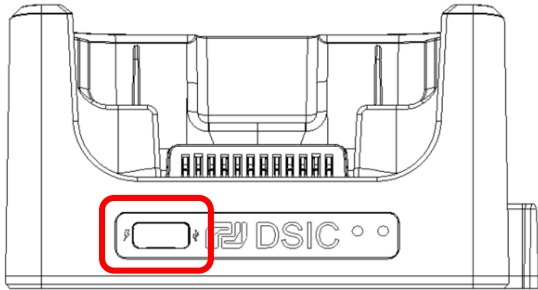
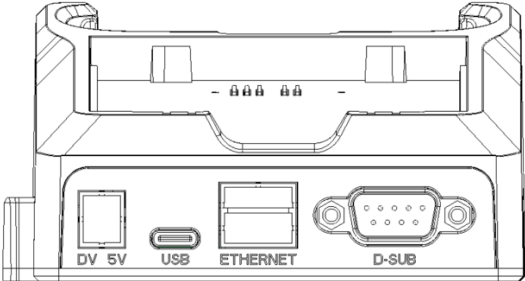
To use mini USB Travel Charger



1. Plug the flat end of the mini USB Travel Charger into the Power interface connector and the other end into standard AC wall outlet.
2. When charging is finished, remove the flat end from the interface connector jack on the terminal.

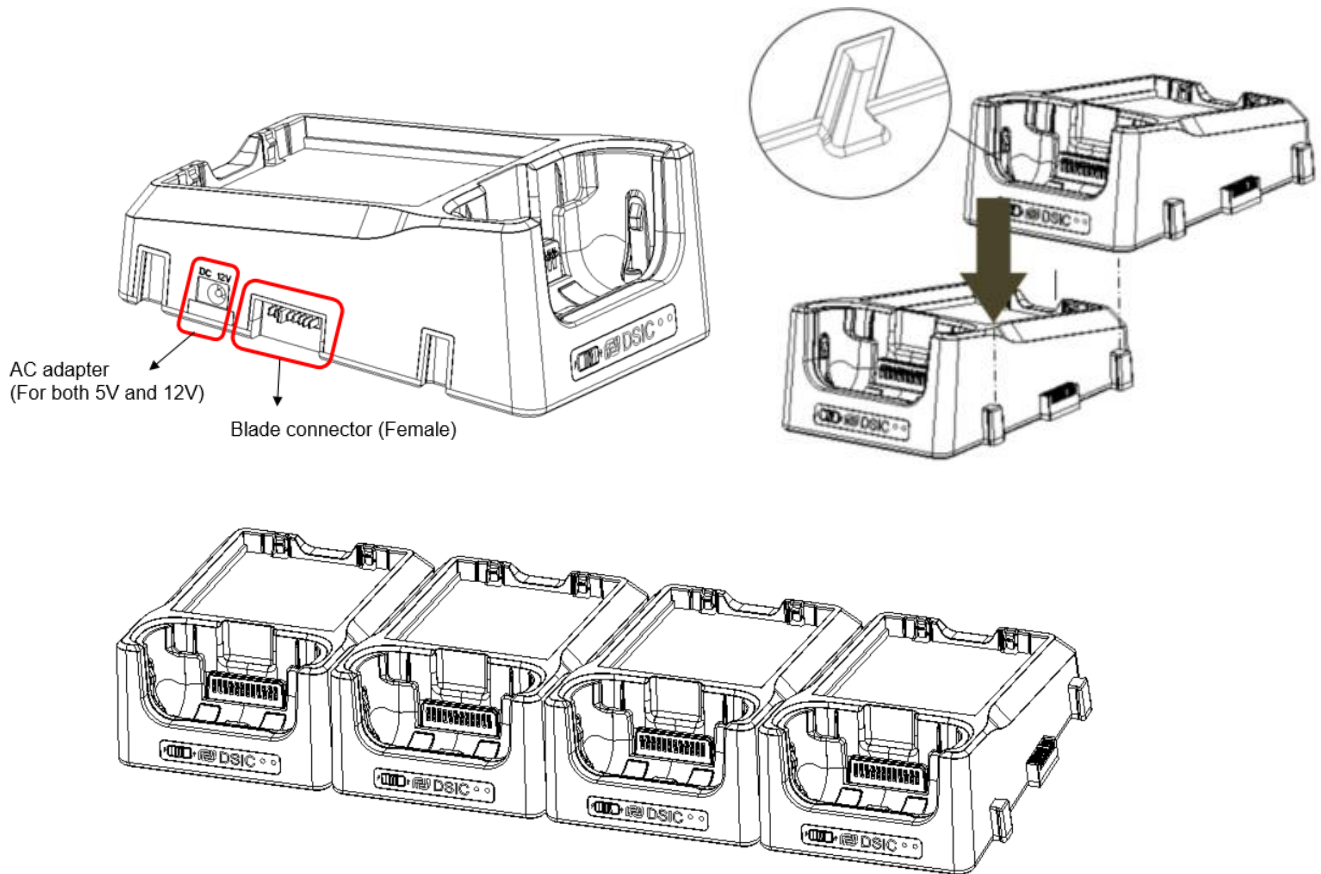
To use Cradle

1. Plug the AC power cord into cradle and plug the other end into a wall outlet.
2. Slide the cradle switch to Charge mode

Cradle Front View	Cradle Back View
	
<p>Slide switch: Slide the switch to choose charge or data sync mode</p>	<p>USB Port, Adapter Port, Spare battery Slot, RS232 (Optional), Ethernet port (Optional)</p>

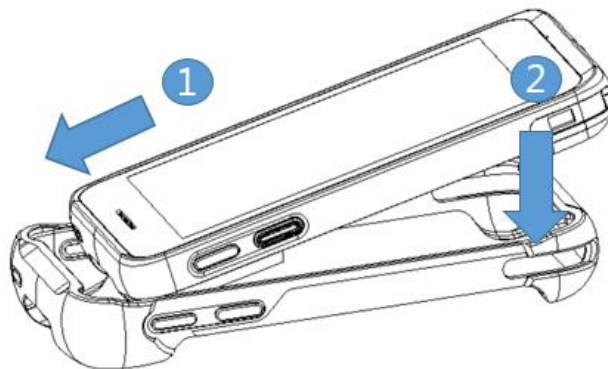
To use Multi-Slot cradle

You can connect cradles for using them as a multi-slot cradle. (Up to 4 cradles)

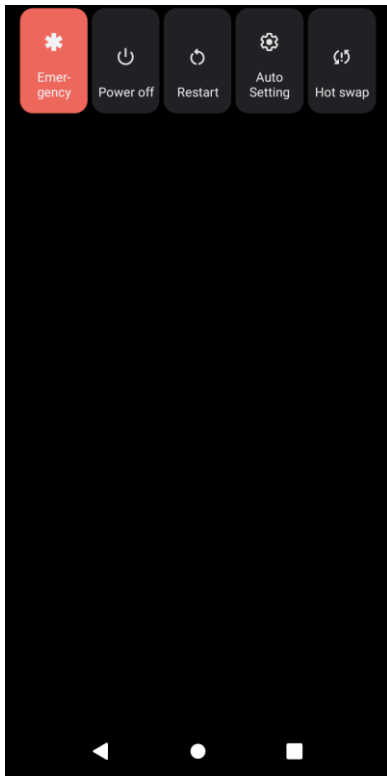


Bumper Installation

Install bumper as shown below.



Operating power of the terminal



Power on / off

Make a long press **Power button** at the right bottom side of the keyboard. When you turn on your device for the first time, you'll see a Welcome screen. Choose the language & time you want and touch Start or Start icon. To turn off the device, make a long press **Power button** and select **Power off**.

Sleep and Wake up

Press **Power button** shortly to enter Sleep, or Wake up the device.

Power restart

Make a long press **Power** button at the right bottom side of the keyboard. Select **Restart**. Your device will shut down and restart.

Note

In case you need to force to restart your device, such as device hang up, make a long press **Power button** until the device turns off. (Approximately 10 secs). After it turns off, start the device again. Your data in storage will be retained in terminal while not saved data will be in lost.

Hot swap

To replace your battery without shutting down your device system, long press the **Power** button and select **Hot swap**. Blue LED shall be blinked, then replace the battery.

Home Screen

Make yourself at home. After you finish setting up your device, the Home screen appears for the first time. Touch an icon to run an application you want.

Favorites Tray

At the bottom of home screen you'll find the Favorites tray

Favorites tray is a quick way to run your apps. Here's what it looks like on a DS70.



To open an app, touch it. To drag an app in or out of the Favorites tray or anywhere else on a Home screen, touch & hold it, then move it with your finger into position.

DS70 navigation buttons

At the bottom of DS70 screen, you'll always find the navigation bar with three buttons:



Back

Opens the previous screen you were working in, even if it was in a different app. Once you back up to Home screen, you can't go back any further.



Home

Opens the central Home screen.



Recent apps

Press Recent Apps to browse a list of thumbnail images of app you've worked with recently. To open an app, touch it. To remove a thumbnail from the list, swipe it left or right.

Organize your Home screens

To change the wallpaper for your Home screens, touch & hold the background.

To add an app icon to a Home screen:

1. Go to the Home screen.
2. Touch the **All Apps** icon.
3. Search the app you want to add on Home screen.
4. Touch & hold the app until it shows a menu, then move it to move to home screen.
5. lift your finger to place the app on position.

To add a Widget to the Home screen on a DS70, touch & hold the background.

When menu appears, touch Widgets to find the widget you want.

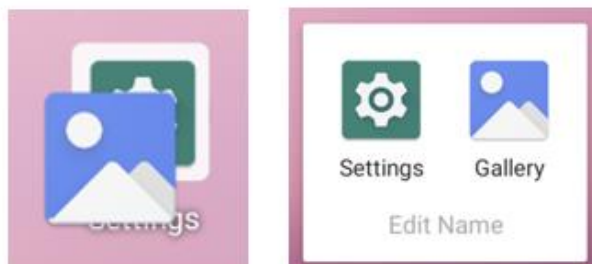
Again, touch & hold the widget to add it to Home screen.

To move an app or widget to another position:

1. Touch & hold the app or widget.
2. Slide your finger to the new position.
To move between Home screens, slide toward the edge of the screen. To bump another icon out of the way, slide slowly into it.
3. Lift your finger.

To create a folder, slide one icon quickly over another.

To name or rename a folder, open it and touch its name.



Touch & type

To select or activate something, touch it.

To type something, such as a name, password, or search terms, just touch where you want to type. A keyboard pops up that lets you type into the field.

Other common gestures include:

- **Touch & hold.** Touch & hold an item on the screen by touching it and not lifting your finger until it responds. For example, this is how you access accent and other special characters on the keyboard.
- **Touch, hold & drag.** Touch & hold an item for a moment and then, without lifting your finger, move your finger on the screen until you reach the target position. For example, you can move apps around on the Home screen.
- **Swipe or slide.** Quickly move your finger across the surface of the screen, without pausing when you first touch (so you don't drag something instead). For example, you can slide a Home screen left of right to view the other Home screens.
- **Double-tap.** Tap quickly twice on a webpage, map, or other screen to zoom. For example, double-tap a picture in Chrome to zoom in, and double-tap again to zoom out.
- **Rotate the screen.** The orientation of most screens rotates with your device as you turn it. To lock or unlock a device's vertical orientations, swipe down from the top right of any screen and touch the Rotation icon in Quick Settings. To do the same thing on a device, go to **Settings > Device > Display**.



You can open your device's Settings app from the All Apps screen or from Quick Settings. For example, to change notification sounds, volumes, and more, go to **Settings > Device > Sound**

To change brightness, font size, and more, go to **Settings > Device > Display**.

Android version & updates

To check your version number or get the latest system update for a DS70,

go to Settings > About Tablet. Then look for these labels:

- **Android version.** Look partway down the list for this heading and the number just below it.

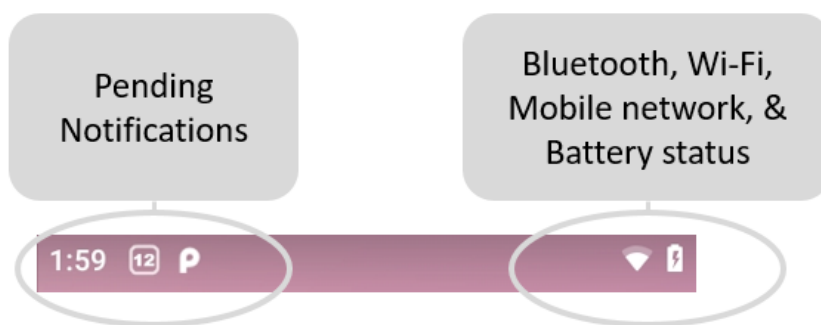
For comprehensive online help and support, including details about Android 11, visit <http://support.google.com/android>

CHAPTER 3: BASIC USE

Notifications & settings

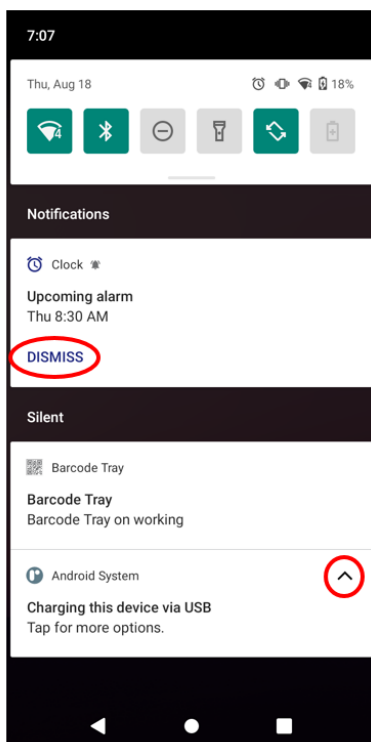
Notifications alert you to the arrival of new messages, calendar events, and alarms, as well as ongoing events.

When a notification arrives, its icon appears at the top of the screen. Icons for **Pending notifications** appear on the left, and **system icons** showing things like Wi-Fi signal, mobile carrier signal, or battery strength on the right:



TIP: Wi-Fi and mobile signal strength are indicated at the top of the screen by white bars. To see whether the selected Wi-Fi network has a full internet connection, open Quick Settings: swipe down twice from notification bar.

Certain notifications can be expanded to show more information such as email preview. The one at the top is always expanded when possible. To expand a notification, position one finger inside it and swipe down slowly.



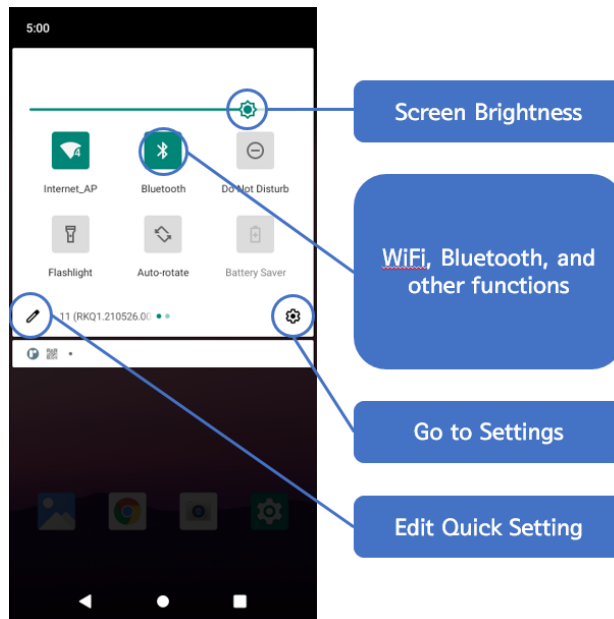
Touch DISMISS to remove the notification

Touch arrow to maximize /minimize notifications

1. To open the related app, touch the notification message. Some notifications also allow you to take specific actions by touching arrow.
2. To Clear the notification, touch DISMISS.

Quick Settings

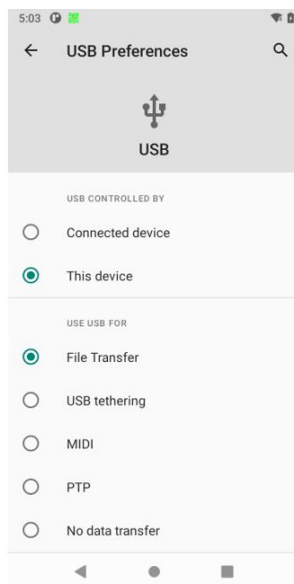
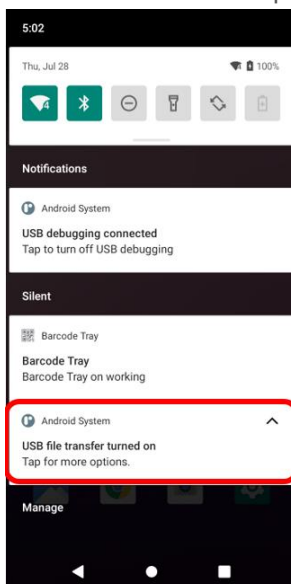
Use Quick Setting to easily access Wi-Fi settings, manage display brightness, open the main Settings menu, and more. To open Quick Settings, swipe down from the top of the screen twice with one finger.



Data Sync

How to Connect with PC

1. Connect the device to a PC via Desktop cradle or USB cable. You will see Android icon on the notification bar. (In case of using Cradle, make sure to move **Slide switch** to **Sync Mode**.)
2. Swipe the notification bar to downward.
3. Touch the marked tap to select the connection mode.

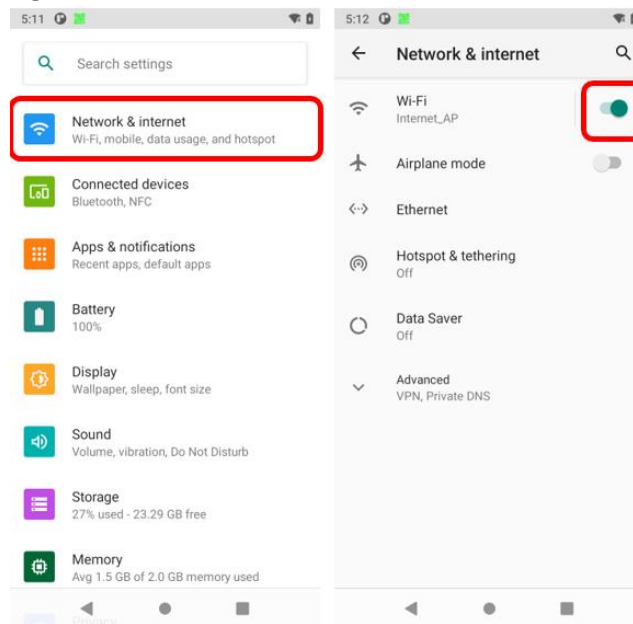


Menu	Description
File Transfer	Transfer files to another device
USB tethering	PC will be able to use internet via DS70
MIDI	Use this device as MIDI for an instrument application.
PTP	Transfer photos
No data transfer	Only for charging, Data transfer is not available.

Wi-Fi

Go to **Settings > Network & Internet > Wi-Fi**

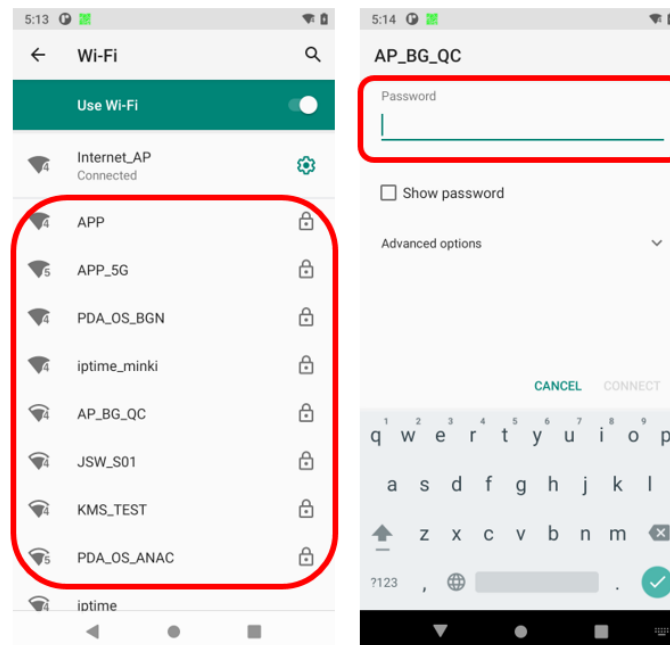
You can activate **Wi-Fi** by touching **ON/OFF** switch.



Connecting to Wi-Fi Access point

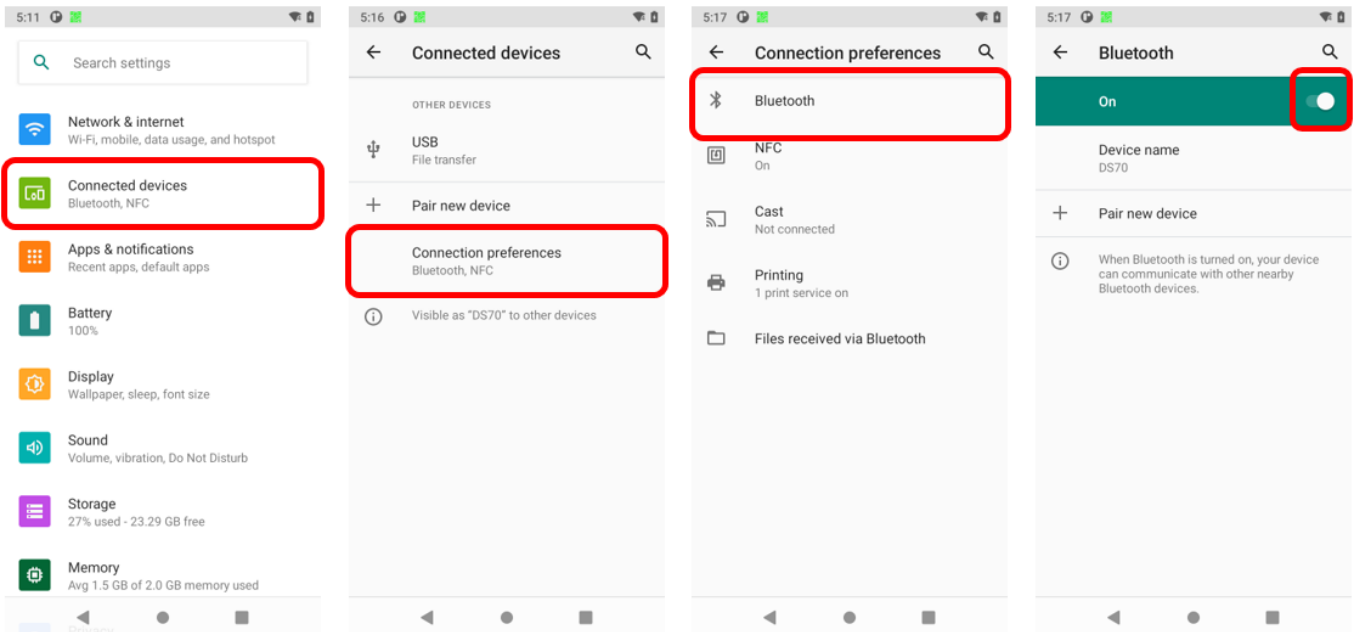
From the list, select an AP to connect

If the AP needs password, enter it to complete the access.



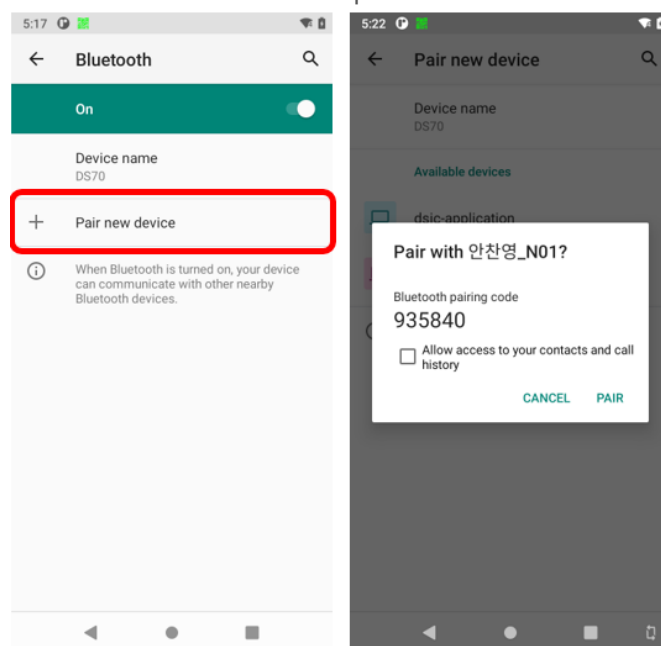
Bluetooth

Go to **Settings > Connected devices > Connection preferences > Bluetooth**.
You can activate **Bluetooth** by touching **ON/OFF** switch.



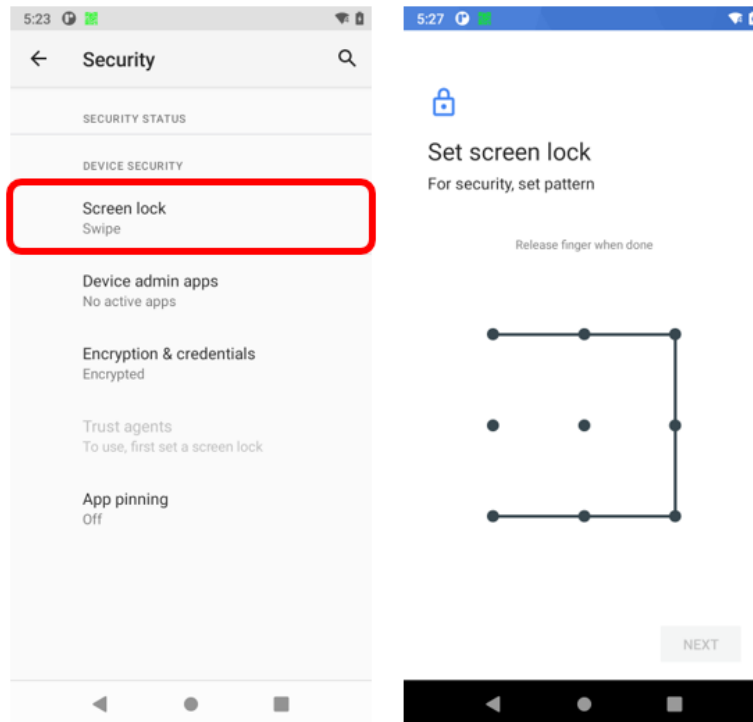
Pairing via Bluetooth

Go to Bluetooth menu and touch **Pair new device**.
After select the device, enter or check PIN number to pair to the device.



Lock screen

If a lock is set for your screen, the screen goes dark and locks when the display goes to sleep or if you press the Power button.



You can set locks of different strengths using lock settings:

1. Go to **Settings > Security > Device Security > Screen lock**.
2. Touch the type of lock you'd like to use.
You can select Swipe, Pattern, PIN, or Password.

NFC (13.56 MHz)

Reading NFC Cards

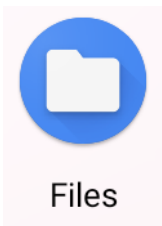
To read NFC card, move it close to back of DS70 until it detects the card. (Reading only)



File Manager

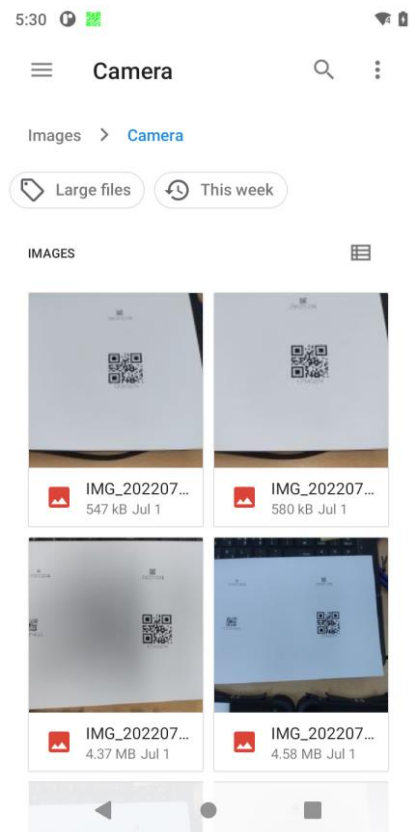
Android 11 makes it easy to store and browse through pictures, videos, and other files on your device and attach them to an email, Hangout message, and so on.

Location : All app screen > Files



File manager helps you to find every file in internal or external memory of device.




Also, it demonstrates capacity of internal memory and SD card memory. File search, move, delete, rename, share, and property is available.



Downloads

Use the Downloads to view, reopen, or delete files you download from email or other sources (excluding videos, magazines and other media)

In the Downloads :


- Touch an item to open it.
- Check items you want to share. Then touch the  Share icon and choose a sharing method from the list.
- Check items you want to delete. Then touch the  Trash icon.
- At the top of the screen, touch  to Sort the list **by name** or **by date** and **by size**.

Screenshots

To take a screenshot from DS70:

1. Make sure the image you want to capture is displayed on the screen.
2. Press the **Power button** and **Volume down button** simultaneously.

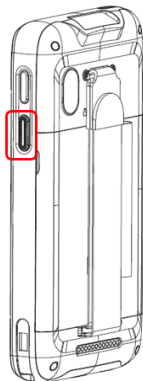
The screenshot is automatically saved in your Gallery.

TIP: To easily share your screenshot via message, or Bluetooth, and email, swipe down the notification shade and touch the  Share icon, and select application you want to share with.

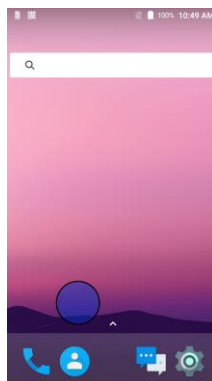
Barcode Scanning

Scan the barcode by pressing **Scan Trigger** buttons of DS70 or activate On-screen Scan key.

<Left/Right Scan Key>



<Software On-Screen Scan Key>



Scan Setting

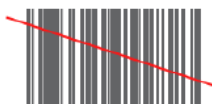
→ Activate On-Screen Scan Button

Aim 1D barcode

Aim the scanner when scanning 1D Barcode.



Good



Good



Wrong

Aim 2D barcode

Aim the scanner when scanning 2D Barcode.

Good



Wrong



CHAPTER 4: USE THE KEYBOARD


Enter & edit text

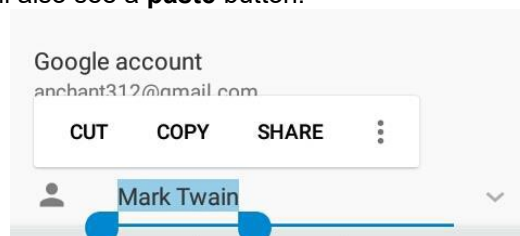
Use the onscreen keyboard to enter texts. Here's what it looks like on a DS70 device:







To make the keyboard go away, touch the **Back button** at the bottom of screen. Some apps open the keyboard automatically. In others, you first need to touch where you want to type.



Basic editing

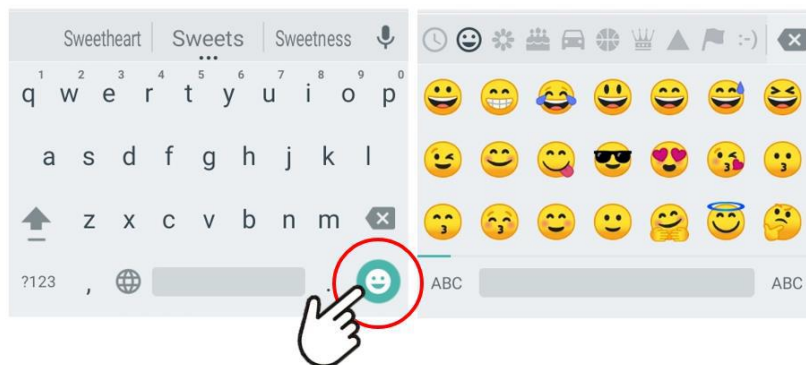
- **Move the insertion point.** Touch where you want to type. The cursor blinks in the new position, and a blue tab appears below it. Drag the tab to move the cursor.
- **Select Text.** Touch & hold or double-tap within the text. The nearest word highlights, with a tab at each end of the selection. Drag the tabs to change the selection.
- **Delete text.** Touch  to delete selected text or the characters before the cursor.
- **Cut, copy, paste.** Select the text you want to manipulate. Then touch **Cut** or **Copy**. If there's something on the clipboard to paste, you'll also see a **paste** button:



- **Type capital letters.** Touch the Shift key once to switch to capital letters for one letter. Or touch & hold  Shift key while you type. When you release the key, the lowercase letters reappear.
- **Turn caps lock on.** Double-tap or touch & hold  Shift key, so it changes to . Touch  Shift key again to return to lowercase.

Emoji

Android 11 vastly expands the variety of emoji available at your fingertips. Touch and hold the  Enter key to display  emoji. You will see a panel like this. To move between categories, swipe left or right or touch the symbols in the top row. To type an emoji, touch it:



Touch & Hold

Use next-word suggestions

1. Touch the location where you want to input text.
2. Start typing out a word. When the word you want is displayed in a list above the keyboard, touch it.
3. Continue to touch words unless the one you want doesn't appear. If so, type it. Android continues to suggest words as you type.

To change your keyboard and input methods, go to **Settings > System > Language & input**.

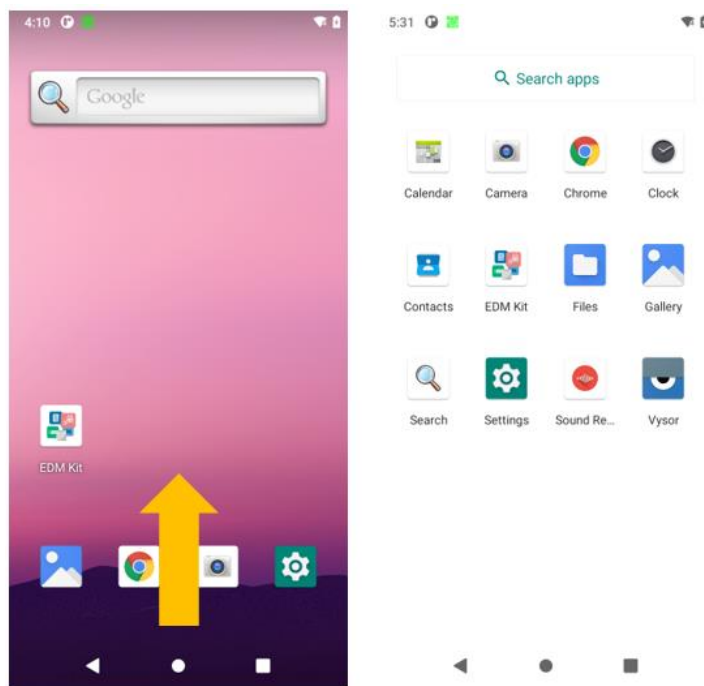


To turn next-word suggestion on or off, go to **Setting > System > Language & input > Keyboard & inputs > Virtual Keyboard > Android Keyboard (AOSP)**. Go to **Text correction** and activate **Next-word suggestions**.

CHAPTER 5: TRY SOME APPS

All Apps

To see all your apps, touch the All Apps icon in the Favorites tray on any Home screen. This is where you can see all your apps. You can move app icons to any of your Home screens.



From All Apps, you can:

- **Move between screens.** Swipe up or down.
- **Open an app.** Touch its icon.
- **Place an app icon on a Home screen.** Touch & hold the app icon, slide your finger, and lift your finger to drop the icon in place.

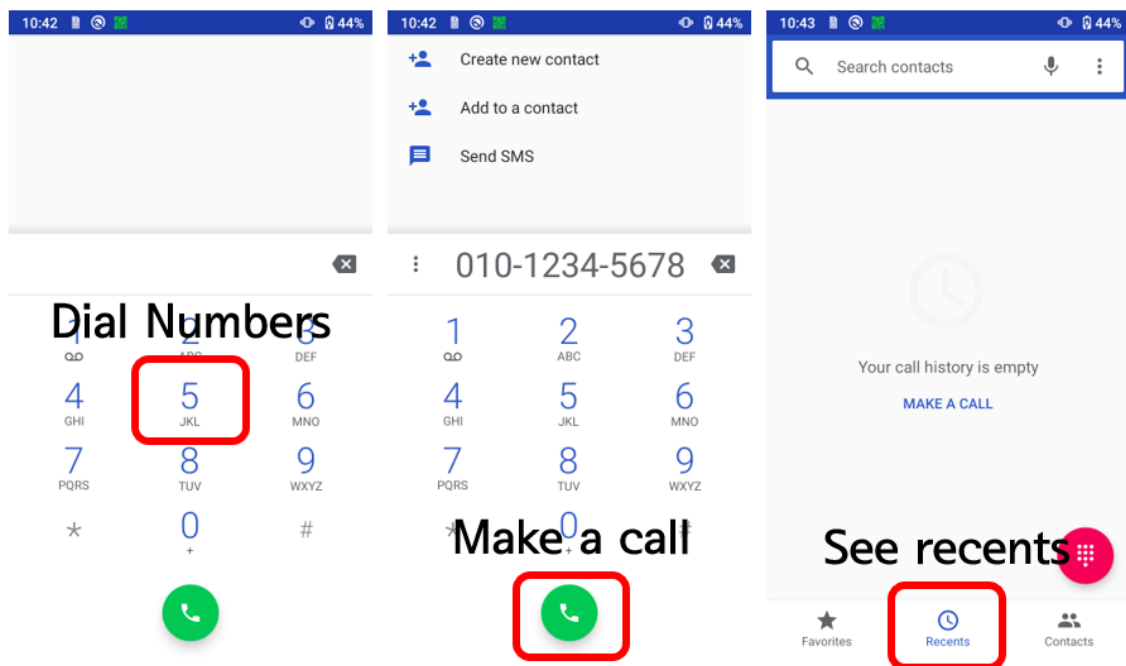
To remove an app icon from the **Home screen** without removing it permanently from your device, touch & hold it, slide your finger toward the top of the screen, and drop the app over the **×** Remove icon.

To view info about an app from an **All App screen**, touch & hold it, slide your finger toward the top of the screen, and drop the app over the **i** App Info icon.

Phone



Make a call, manage your contacts, and see recent calls with Phone app

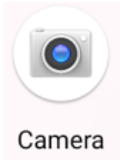


To place a call to one of your contacts:

1. Touch the Phone icon on a Home or All Apps screen
2. To choose someone to call, scroll or search. If the keypad's in the way, touch the Back button to lower it.
3. To place a call, touch the contact's name.

To view recent calls, touch the  call log icon at the menu tap.

Camera



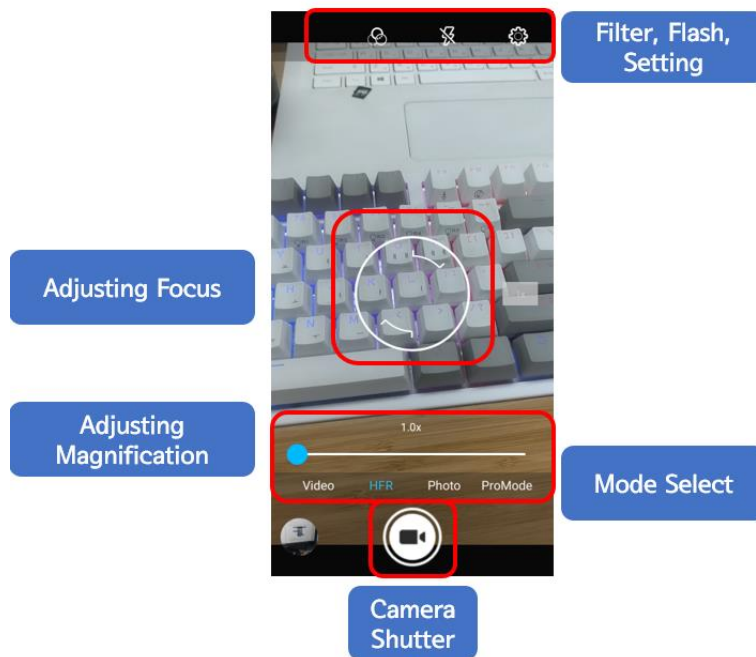
The Camera app lets you take photos and videos.

To open Camera:


- From the lock screen, swipe the Camera icon.
- From the Home screen, touch the Camera icon.

The first time you open Camera, you may be asked if you want it to remember photo locations.

The shutter and other controls float above the framed image at the bottom of the screen.



The camera icon indicates Camera mode. To take a picture in this mode:

1. Frame your subject and watch for the focus ring:  To focus on a different part of the image, touch it.
2. When the focus ring brackets disappear, touch the camera icon.
3. To see the image you just took, touch the thumbnail image on the screen or swipe the screen from right to left.

To change to a different mode, Slide the screen from left to right:



Video

To start recording a video, touch the red shutter button. Touch it again to stop.

Gallery

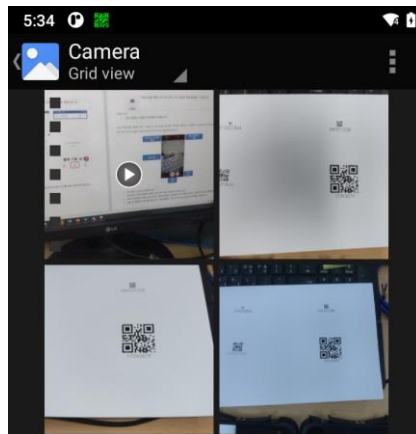



Gallery

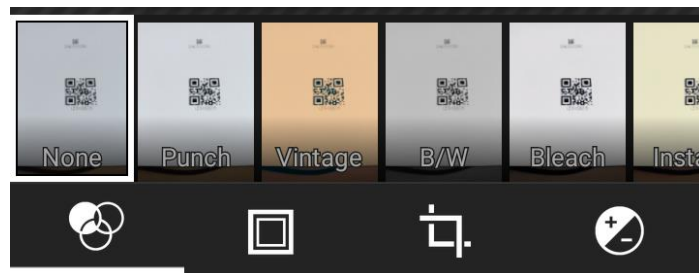
The Gallery app gives you an easy way to browse pictures and videos you've taken with Camera. It also displays screenshots and auto backups from other devices.

To open Gallery from the:

- Camera app. Touch the thumbnail image at the bottom.
- Home screen. Touch the Gallery icon.
-

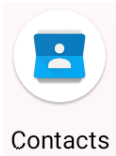


To get to the top level of the Gallery app, touch the icon  at the upper left. From there, open the slide-out side bar to view the available categories.

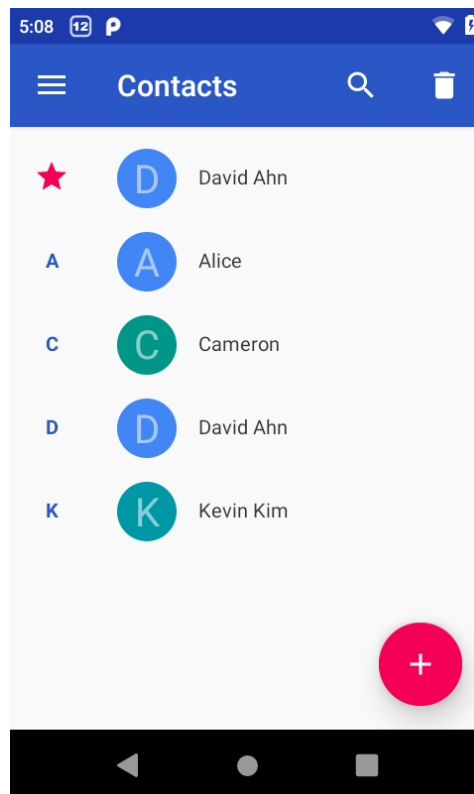


Within each category you can browse groups of images, crop, edit, and tag them, create slideshows, make pictures or videos available offline, and share with friends.




Contacts



The Contacts app gives you quick access to everyone you want to reach. To open it, touch the Contacts icon on All Apps screen. When using a new device, you can import contacts via “.vcf” file



When you open the Contact app, you can:

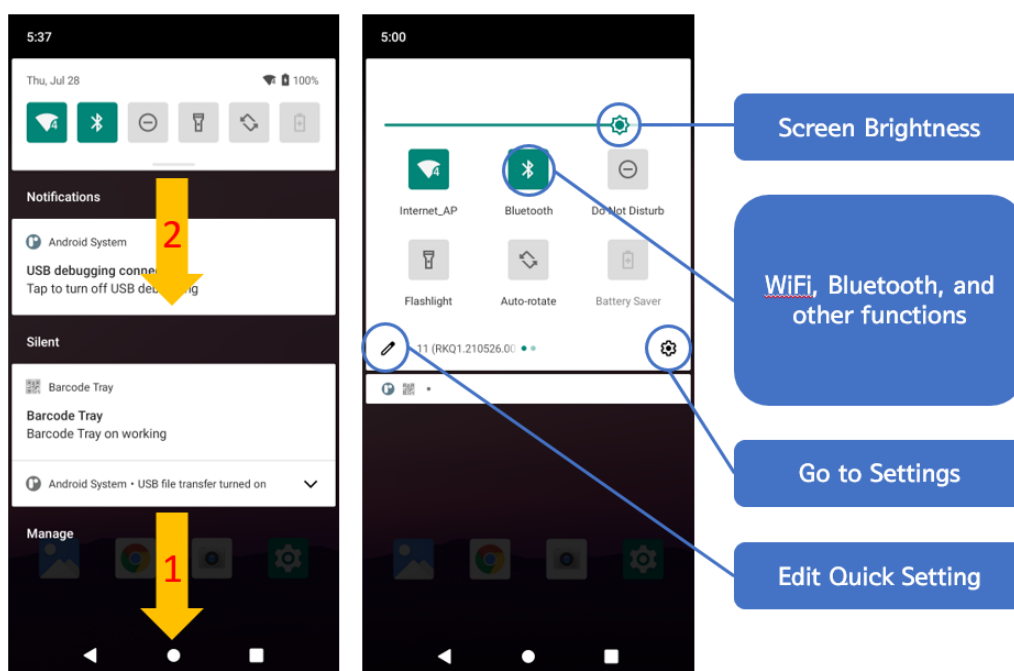
- **View all contacts, or favorites.** Favorites contacts has sorted with star.
- **Read details.** Touch a name to see details for a contact or group.
- **Edit details.** While viewing a contact, touch  icons at the top of the screen or the  Menu icon to edit or share contact details, delete a contact, and so on. You can touch  the star icon in contact's name to add that contact to your Favorites list.
- **Change your settings.** While viewing the main list screen, touch the menu to import or export contacts, choose display options for the Group and All tabs, and add or edit accounts.

CHAPTER 6: SETTINGS

Most apps include their own settings, typically available from **Menu > Settings** on DS70 devices.

The fastest way to adjust system settings that you access frequently, such as Wi-Fi or brightness, is through Quick Settings.

To open Quick Settings, swipe down from the top of the screen the Settings icon.

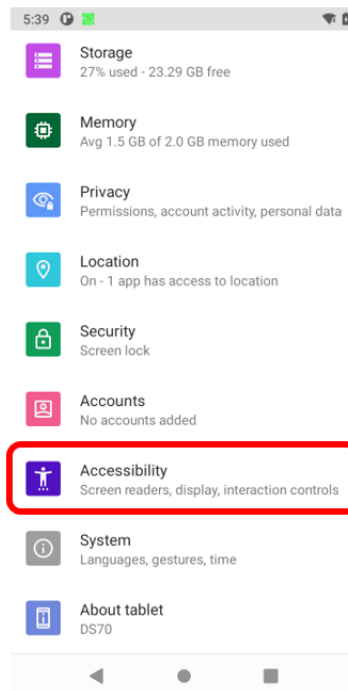


The Settings app controls the core Android settings for networks, hardware, location, security, language, accounts, and so on.

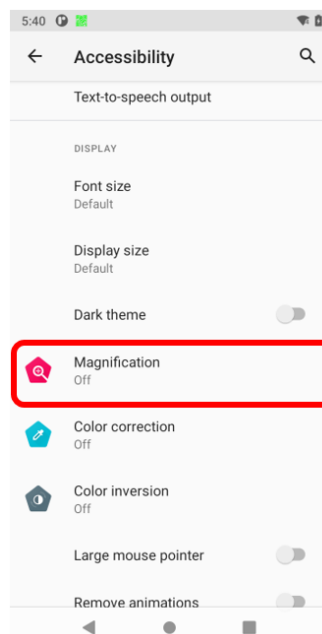
CHAPTER 7: ACCESSIBILITY

To use the accessibility options, open **Settings > System > Accessibility**.

Accessibility settings let you modify your device's display and sound options, such as increasing the text size, changing the speed at which text is spoken, and more.

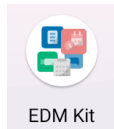


You can also try magnification gestures which allow you to zoom in and out, as well as temporarily magnify what's under your finger. To try magnification gestures, go to **Settings > Accessibility > Magnification gestures**.



CHAPTER 8: DEVICE MANAGEMENT

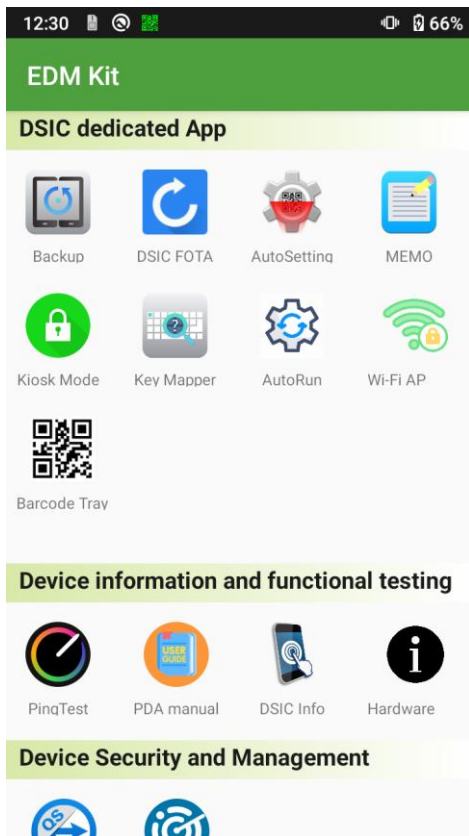
EDM (Enterprise Device Management)



Enterprise Device Management (EDM) is an application that provides useful features to help IT managers use Mobilebase products to effectively deploy, use, and manage devices.

Main menu

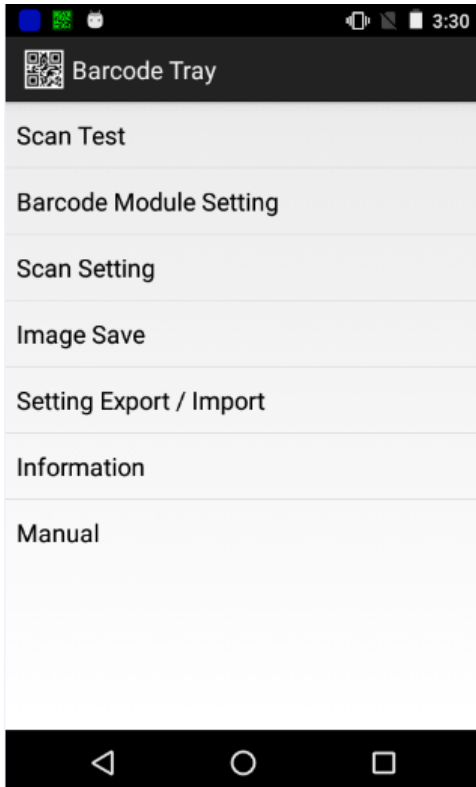
EDM features 3 main menus for IT manager.



Menu	Description
DSIC Dedicated App	Tools for IT administrative (FOTA, Backup, AutoSetting, KIOST, Barcode Tray, and etc)
Device Info & Functional testing	Device Diagnostics & Device info
Device Security & Management	Third-party MDM tools (TeamViewer, SOTI)

Barcode Tray

To activate Barcode Tray program, touch  barcode tray icon at your screen.



Scan Test

It is to test the barcode, and check the barcode type and data.

Barcode Module Setting

You can change the setting of the barcode module.

Scan Setting

You can set how you will scan the barcode such as max scan time / data receive method / prefix or suffix and so on.

Image Save

It shows you the image viewing from 2D Imager like Camera. You can save the image

Setting Export / Import

Set up barcode configuration by programming, or export the set up to file

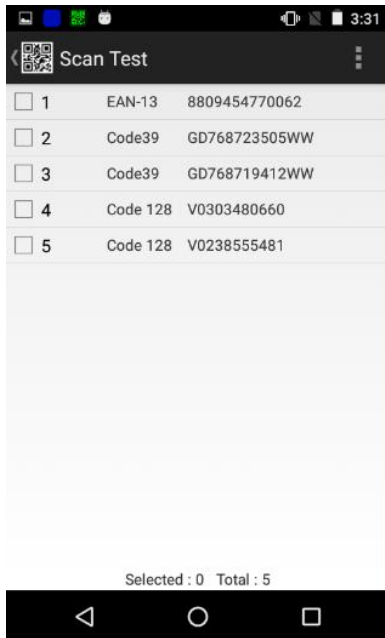
Info

Demonstrate the installed barcode scanner to your device and application version information of your barcode scanner.

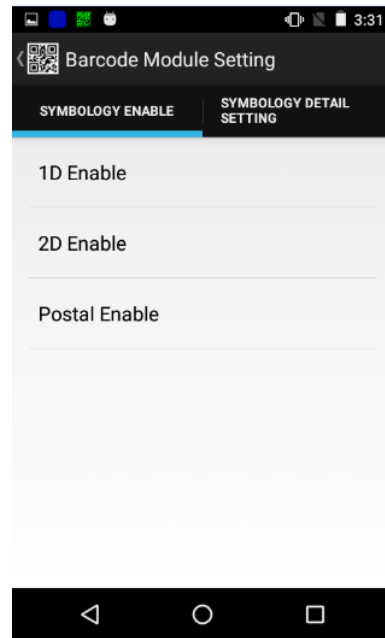
Manual

It includes detail explanations about barcode tray.

Scan Test



Barcode Module Setting : Setting to enable, or disable barcode types.



Scan Setting : Setting scanning feature, such as time out, prefix and suffix, scanner key setting, notification options and etc.

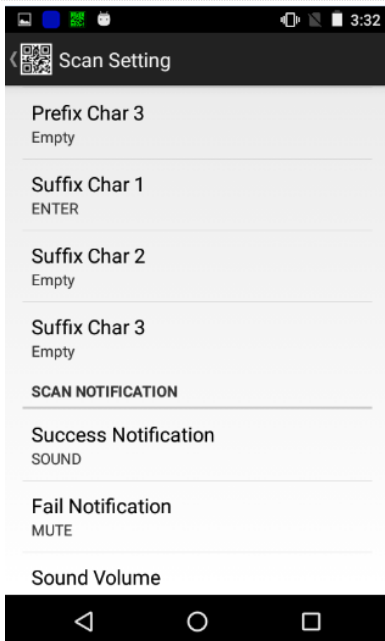
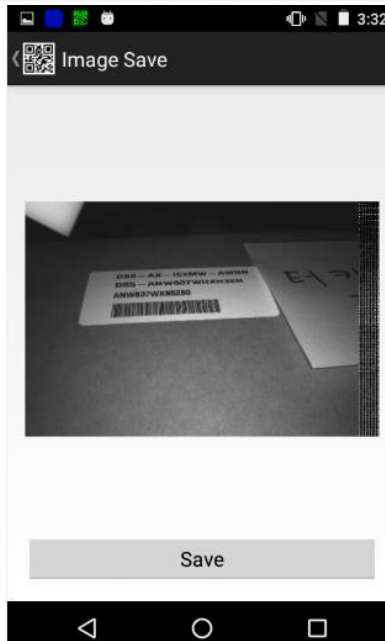
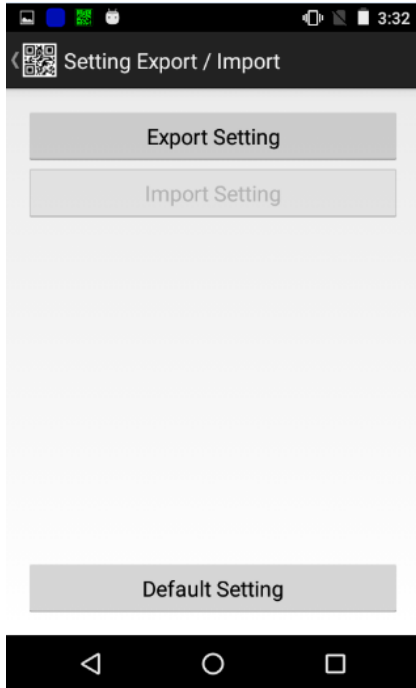


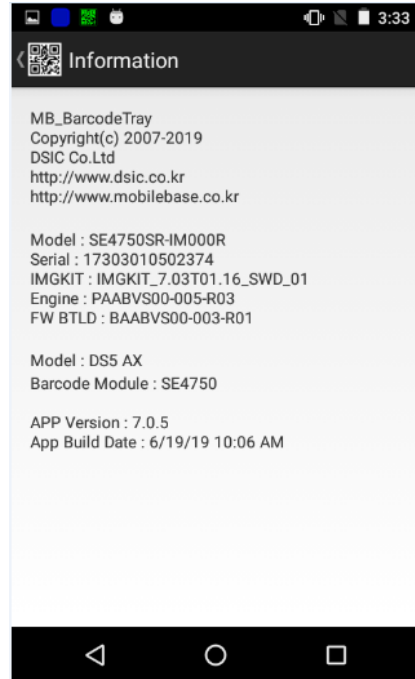
Image Capture : View image and capture the view from the imager scanner



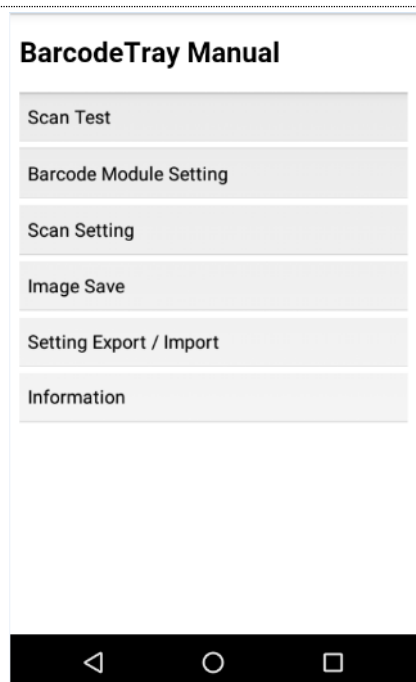
Setting Export / Import : Set up barcode configuration by programming, or export the set up to file.



Information : Demonstrate the installed barcode scanner to your device and application version information of your barcode scanner.

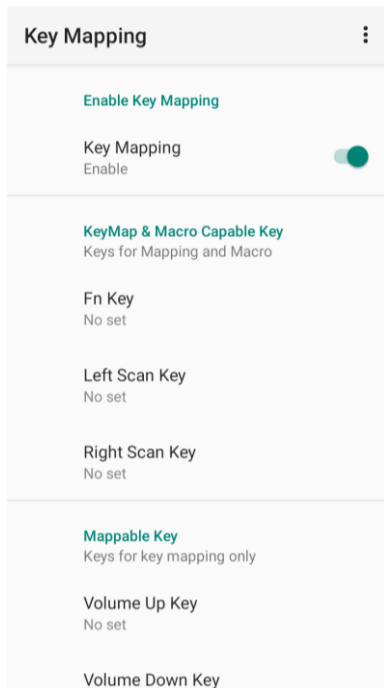


Manual



Key Mapping

It is enabling you to create a shortcut for repeating a sequence of keys or commands.
Go **EDM Kit > Key Mapper**

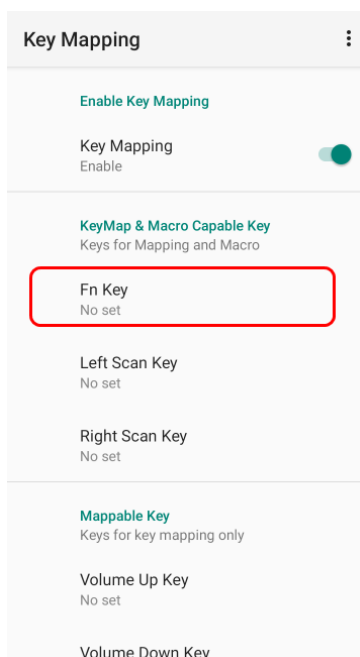


Belows are the list of keys which is programmable to be set as your sequenced key or short cut to execute application.

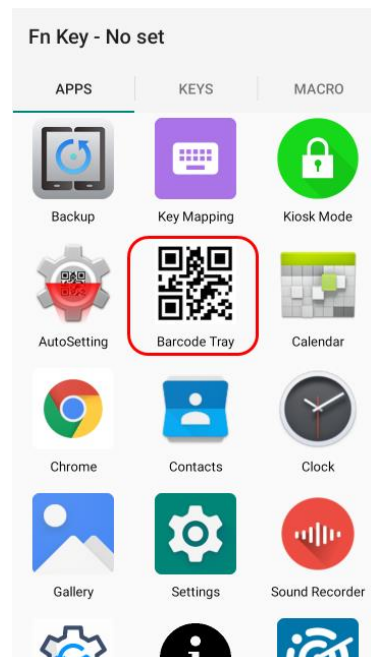
Programmable Key

- Fn Key
- Volume Up Key
- Volume Down Key
- Left Scan Key
- Right Scan Key

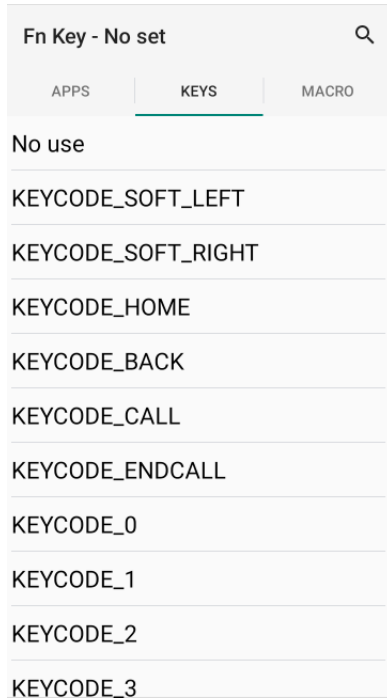
1) Select one of key in **KEYMAP & Macro Capable Key**



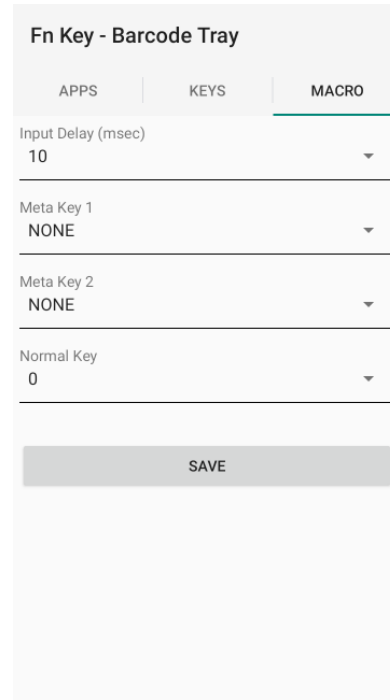
2) You can select an application to short cut for execution



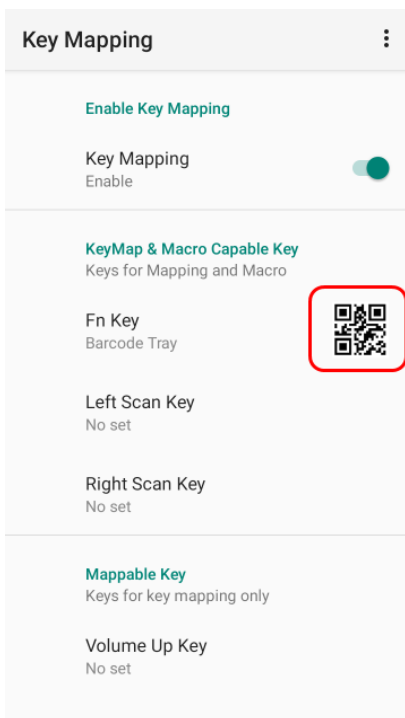
3) Or, swipe the screen to left to set sequence. When you select No use, then the key has no function.



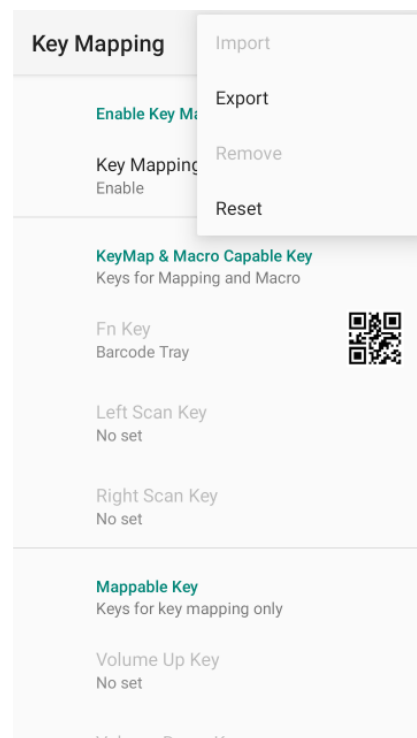
4) You can use it to do Macro



5) To reset the function key, press the icon. Then you can reset the config.



6) Press Menu icon ≡ to import, export, remove, or reset your key mapping configuration.



OS Update

You shall need to download file as “**DS70-r-XXX-user.zip**” from the FTP server.

Update Instruction

Download your OS and install on your device as below

- Copy the firmware file to the SD card
- Change the file name as “**ds.zip**”
- Input micro SD card into your device
- **WHILE** pressing and holding **Power key**, long press **Left Scan key** simultaneously to enter OS update screen.
- When OS image file has been copied and installed completely, **Success** will be displayed on your device screen.
- After the **Success** message, long press **power button** to turn off and restart your device

For latest OS, please contact your sales, or access to Mobilebase ftp. (You can get the information regarding Mobilebase ftp from your sales manager)

USB Driver

If you are Android developer, please download from below link and install on your PC before you connect DS70 to your PC. This is shell for ADB synchronization between your PC and DS70.

ADB: Android Development Bridge

This driver is useful when you have “Unknown device” message at your PC while you are connecting DS70 to your PC.

https://www.dropbox.com/s/zkfqn3hesnrr60v/DS9_usb_driver.zip?dl=0


FOTA Update

FOTA (Firmware Over The Air) update is the tool to update Mobilebase firmware remotely. The users only need to click the “UPDATE” button when the server system asks. Then the device will start OS.

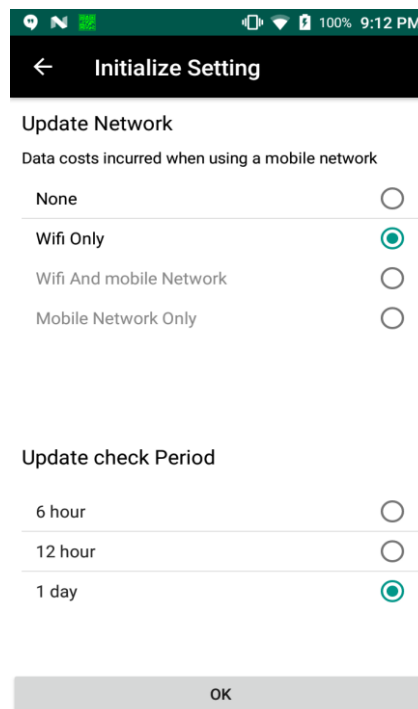
For users

Initial Setting

Default setting to use FOTA is **“Wifi Only” & “Update check Period : 1day”**.

If you want to change this setting, please move **EDM Kit > DSIC FOTA > Menu** .

You can set according to your usage.



Execute FOTA

Manual Update

EDM Kit > DSIC FOTA > Click “Current version”

If there is new version, it will be updated.

Automatic update

If your IT manager allows your device to update automatically, the pop-up message for update will appear when there is new version.

Click “UPDATE” when you see the message.

For IT Manager

Provide the customer information

You have to ask to Mobilebase account manager to create the profile in FOTA service.
To make a new profile, please provide the below information.

Request Information	Details
Profile name	Company name, or Brand name ex) Brand : Coca-cola, Nike Company : DSIC, SK hynix
Type of update	Manual or Automatic - Manual update is the server asks update when you ask. - Automatic update is the server asks update when there is new released firmware.
List of S/N	If it is not confirmed regarding using FOTA service in advance (at PO or production stage), you need to share the list of S/N of deployed devices to Mobilebase account manager. If they have several models, please classify the S/N according to each models.

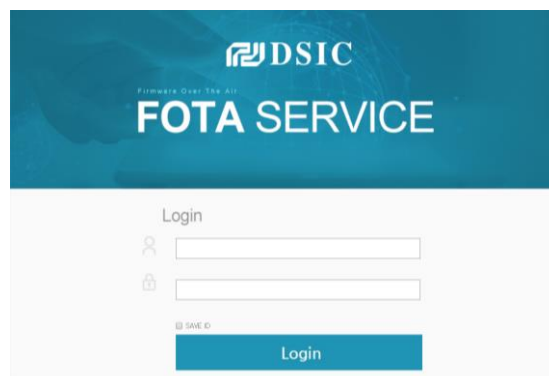
Example	
Profile name	DSIC
Type of update	Manual
List of S/N	DS4A - 9GWXXXWMC5116-5120 DS70 - ACB9PGWMC6011 DS5A - 9CWXXXWMC5008-5016 - 9CWXXXWMC5020-5025

Check the update Status

You can check each devices update status in Mobilebase FOTA site. With this website, you can manage the devices to check the update status.

Mobilebase FOTA site: <https://fota.mobilebase.co.kr/>

****Login information will be provided only for direct/project customer of Mobilebase.**



Details about FOTA site

The screenshot shows the FOTA mobilebase.co.kr website interface. At the top, there is a navigation bar with the FOTA logo, a 'Status' link, and a 'Log Out' button. Below this is a search filter section for 'Enrollment Status' with fields for Client, Project, Profile, and Enrollment date (2019-04-22 to 2020-04-22). A 'Search' button is located to the right.

The main content area is titled 'Status' and contains a table with the following columns: No, Profile name, Enrollment date, Enrollment time, Client, Project, Total, Enrolled, and Unenrolled. The table lists four entries:

No	Profile name	Enrollment date	Enrollment time	Client	Project	Total	Enrolled	Unenrolled
1	FOTA TEST DS4A GMS ROLLBACK	2020-04-19	11:00		-GMS-DS4A	1	0	1
2	FOTA TEST DS6 GMS ROLLBACK	2020-04-19	11:00		-GMS-DS6	1	0	1
3	FOTA TEST 2 - DS4A GMS	2020-04-19	11:00		-GMS-DS4A	1	1	0
4	FOTA TEST 1 - DS6 GMS	2020-04-19	11:00		-GMS-DS6	1	0	1

Below the table, there is a legend box defining the terms: **Total** : sum of registered device (ex. 600), **Enrolled** : sum of updated device via FOTA (ex.595), and **Unenrolled** : sum of device failed to update (ex.5).

The bottom section is titled 'Enrollment details' and shows the profile name 'FOTA TEST 1 - DS6 GMS'. It includes a 'Details of each device status' button and a 'Devices' dropdown menu. Below this is a table with the following columns: No, Serial No, Model Name, Android Version, NoGms/Gms, Customer, Phone/NoPhone, Enrollment version, Current version, and Assigned date. The table lists one device:

No	Serial No	Model Name	Android Version	NoGms/Gms	Customer	Phone/NoPhone	Enrollment version	Current version	Assigned date
1	ACB9PGWMC6011	DS2	7.1.2	GMS	GLOBAL	NOPHONE	1200	1199	2020-04-20 17:32:35

Reason of Unenrolled (Failed to update)

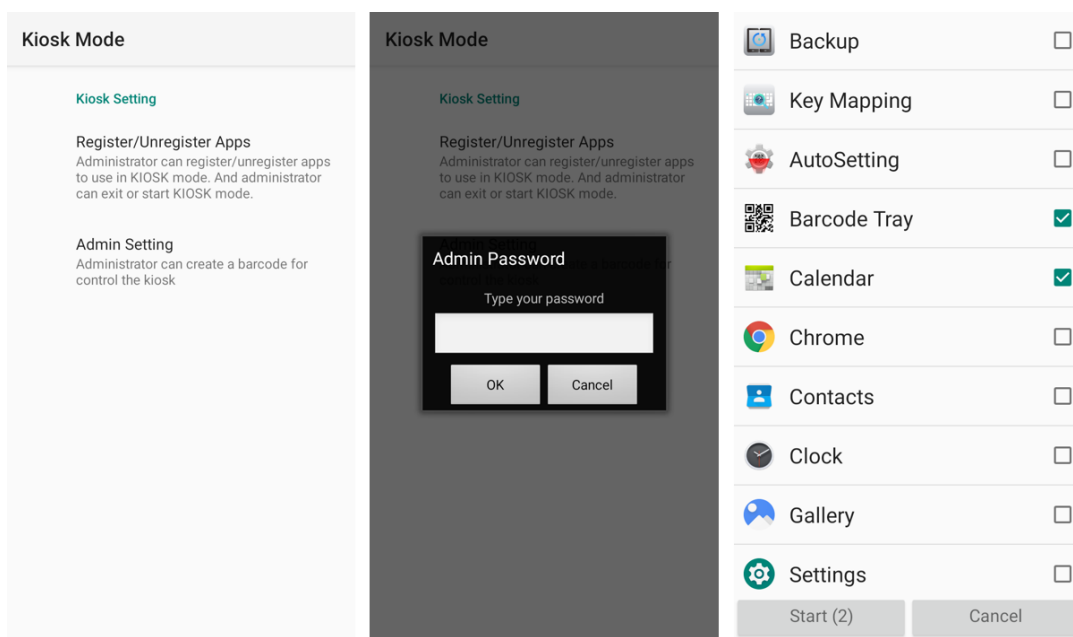
Even though the server sent the message for FOTA update, sometimes, it isn't updated.

- In case the device isn't turned on
- In case the device is turned on, but isn't connected to Wifi/3G
- In case the wrong OS is delivered.

KIOSK MODE

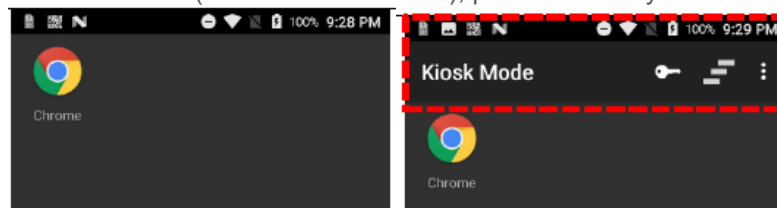
Kiosk mode is enabling to lock down unwanted device misuse. It is to control which application and device features can be used by user such as blocking access to games, social media apps and etc. When you allow access to business application apps, KIOSK MODE will ensure that the user cannot access anything other than those allowed application.

Select **EDM Kit > Kiosk Mode > Register/Unregister apps > Input Admin Password: default "0000"**
 Select necessary apps from **Kiosk App List** as shown. Then touch **Start**.



Action Bar

To activate the Action Bar, press **Back key** ↶ on the bottom of the device for 10 seconds. And input **password**. To go back to Kiosk mode (deactivate action bar), press **Back key** for 10 seconds again.



<Basic Screen>

<Action Bar Activated>

Action Bar Menu



Unlock the Kiosk Mode, and go back to Kiosk App List



Clear Notification on the status bar



Menu
 – Back ground / Icon Front Color / Admin Setting

Admin Setting

Admin Setting

Register/Unregister Apps

Register/Unregister Apps
Administrator can register/unregister apps to use in KIOSK mode. And administrator can exit or start KIOSK mode.

Setting Shortcut

Setting
Setting Shortcut

Restrict

Block USB connection
Block USB connection. Charge Only

Select USB Configuration
MTP (Media Transfer Protocol)

Block Storage
Block storage except internal storage.

Block App install and update
Device will be block application intall and update.

Access Wi-Fi & Bluetooth Settings
None

Backup & restore

Export
Save Kiosk app list to xml file on internal storage. It is used to call up the settings move the files to another device.

Import
Load the exported file from internal storage. If xml file is not exist, this menu will be disabled.

KIOSK Management

Change password
Administrator can change password

Enable Status Bar
Enable the status bar to allow extensions and settings

Background app running
If administrator register as a background app, even if you have not registered on the KIOSK mode screen, will be allow all actions to run the app.

Kiosk Finish
Kiosk mode will be terminated.

Settings

Go to "Setting"

Block USB connection

Limit access by USB connection

Select USB Configuration

Choose how to set when PC sync connected.

Block Storage

Limit access to storages not allowed.

Block App install and update

Limit installation and update the apps.

Access Wi-Fi & Bluetooth Settings

Choose how to connect Wi-Fi and Bluetooth in Kiosk mode.

Export

You can export KIOSK setting information of the device by email, or xml file, such as allowed APP List, KIOSK On, KISOK Off and new password.

Import

Import the Kiosk setting with xml file

Change password

Enable Status Bar

Set whether the status bar can be scrolled down

Background app running

Set to allow the background app running

Kiosk Finish

APPENDIX I AUTO SETTING

DS70's Auto Setting is PC-based program. It can create barcodes and apply the DS70 setting quickly. Below are the functions you can set by Auto Setting.

- Wifi Set
- Sound volume
- Radio Set
- General
- Mobile APN
- Keymap Set
- Kiosk Set
- Barcode Set
- ETC Set

Download DS_Auto Setting program

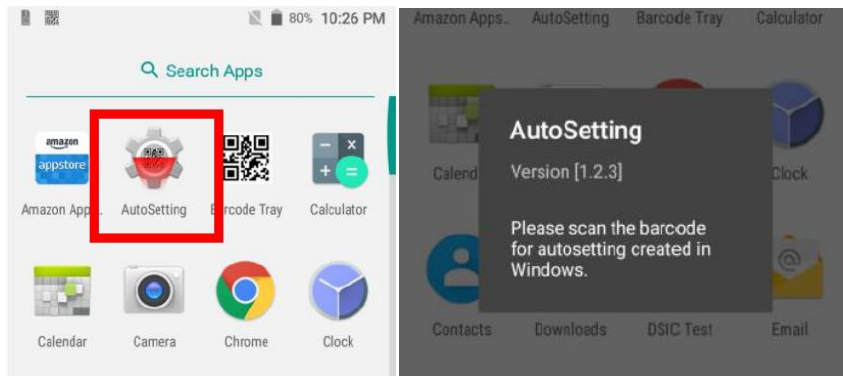
Connect the DS70 to PC, and copy the program (DS_AutoSetting.zip) into PC.
In your DS70, follow the path as **Menu > FileManager > All Files > INTERNAL > DS_AutoSetting**.
Unzip it and run the file in your PC.

이름	유형	압축된 크기	암호 사용	크기	비율	수정한 날짜
aapt.exe	응용 프로그램	681KB	아니요	1,587KB	58%	2019-02-15 오전 10:09
autosetting.xml	XML 문서	1KB	아니요	1KB	47%	2019-03-08 오후 6:45
BarcodeLib.dll	응용 프로그램 확장	38KB	아니요	108KB	66%	2019-02-15 오전 10:08
DS_AutoSetting.exe	응용 프로그램	719KB	아니요	1,046KB	32%	2019-03-13 오전 10:53
DSIC AUTO SETUP MANUAL_V1.1...	Adobe Acrobat Document	606KB	아니요	716KB	16%	2019-03-15 오후 3:11
ThoughtWorks.QRCode.dll	응용 프로그램 확장	953KB	아니요	6,060KB	85%	2019-02-15 오전 10:08

With this program, you will create the barcode for Auto-setting.

Barcode Scanning

After creating the barcode, you need to read the barcode with AutoSetting app in DS70.



Version Select

Select the model / GMS or noGMS / Phone or Nohone.

List	Description
Model	Select the model. ex) DS70.
GMS	Select the GMS or NOGMS. (GMS : You can find the Playstore in your Menu)
Phone	Select the PHONE or NOPHONE.

Common Interface

You can add the functions you need and create the barcode.

List	Description
Add	Add the needed function on the list.
Delete	Delete the selected item from the list.
Load	Load the selected item from the list. You can do double-click instead of clicking this.
Barcode	Create the barcode with the selected items in the list.
Save	Save settings. The file is stored in the directory as "autosetting.xml"

AutoSetting 1 – Wifi Set

Specify the wifi setting. When you scan the barcode, the setting will be applied automatically and the defined wifi will be connected.

List	Description
SSID	· Duplicate SSID is over-written automatically.
Password	· Password cannot be "null" when Security setting is 'WEP' or 'WPA/WPA2 PSK' · Password should be more than 8 digits when Security setting is 'WPA/WPA2 PSK'
Security	· Choose Security – None, WEP, WPA/WPA2 PSK
Proxy	· Choose Proxy – None, Manual, Proxy Auto-Config · Manual : Activate 'Host Name', 'Proxy Port', and 'Bypass' · Proxy Auto-Config : Activate 'PAC Address'
Host name	· Host name cannot be "null"
Proxy Port	· Proxy Port cannot be "null" · Enter only numbers · Number range is 0~65535
Bypass	· example.com ex) google.com
PAC Address	· PAC Address cannot be "null"
IP Setting	· DHCP / Static IP
IP Address	· IP Address cannot be null · Enter only numbers or dot
Gateway	· Gateway cannot be null · Enter only numbers or dot
Network Prefix	· Network prefix cannot be null · Enter only numbers
DNS1	· DNS1 cannot be null · Enter only numbers or dot
DNS2	· Enter only numbers or dot

AutoSetting 2 – Sound volume

You can control the volume sound or vibration as you need.

DS Auto Setting PIE V 1.0.0.1

WIFI Set | **Sound Volume** | Radio Set | General | Mobile APN | Keymap Set | Kiosk Set | Barcode Set | ETC Set

(Include Ring, System, Noti)

System Volume: Don't care

Alarm Volume: Don't care

Music Volume: Don't care

Call Volume: Don't care

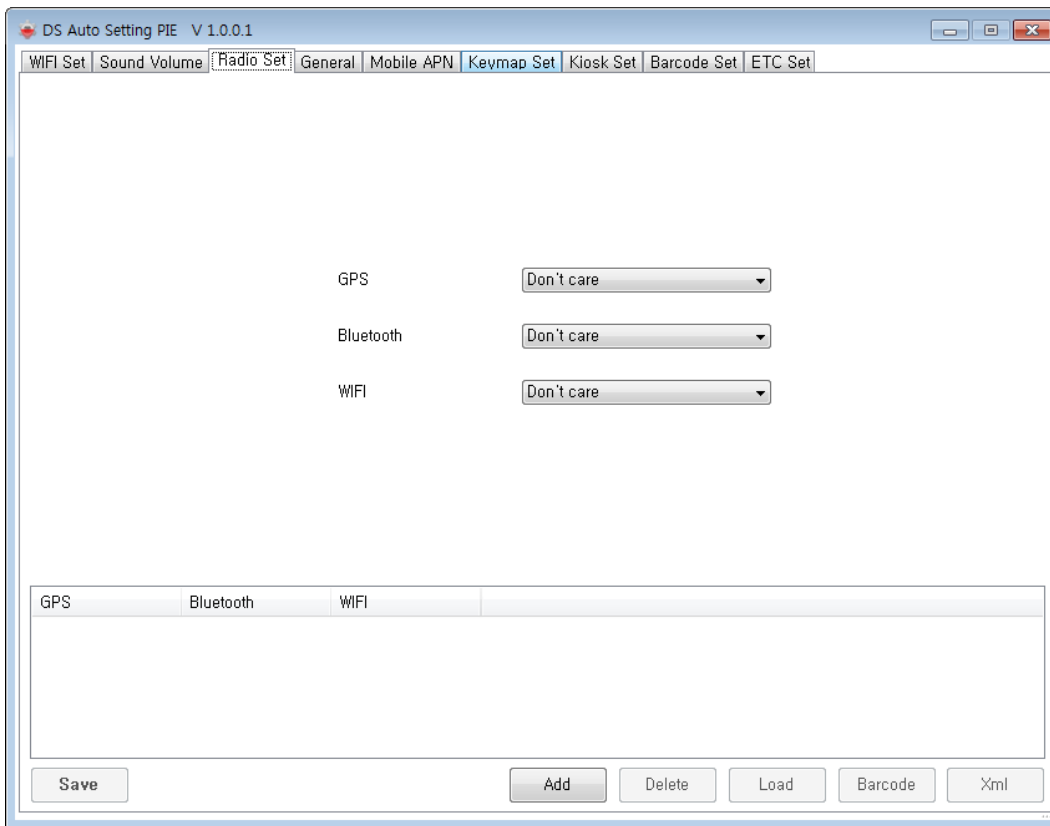
System Volume | Alarm Volume | Music Volume | Call Volume

Save Add Delete Load Barcode Xml

List	Description
System Volume	<ul style="list-style-type: none"> · Choose Don't care, Level 1~7 or Vibration · It includes ring, system and notification
Alarm Volume	<ul style="list-style-type: none"> · Choose Don't care or Level 0~7
Music Volume	<ul style="list-style-type: none"> · Choose Don't care or Level 0~15
Call Volume	<ul style="list-style-type: none"> · Choose Don't care or Level 1~5

AutoSetting 3 – Radio Set

You can ON/OFF GPS, Bluetooth or Wifi automatically



List	Description
GPS	· Choose Don't care / Enable / Disable
Bluetooth	· Choose Don't care / Enable / Disable
WIFI	· Choose Don't care / Enable / Disable

AutoSetting 4 – General

Set time or date.

DS Auto Setting PIE V 1.0.0.1

WIFI Set | Sound Volume | Radio Set | **General** | Mobile APN | Keymap Set | Kiosk Set | Barcode Set | ETC Set

Locale: Don't care

TimeZone: Don't care

AutoTime: Don't care

AutoTimeZone: Don't care

ScreenTimeout: Don't care

Locale	TimeZone	AutoTime	AutoTimeZone	Screen Timeout	Allow Unknown

Save Add Delete Load Barcode Xml

List	Description
Locale	· Choose your Language
TimeZone	· Choose your local Time zone
AutoTime	· Set the time automatically. Use Internet time zone.
AutoTimeZone	· Set the date and time automatically. Use network time.
Screen Timeout	· Specify the time to go sleep mode. When it is not used for a certain period of time, it goes sleep mode.

AutoSetting 5 – Mobile APN

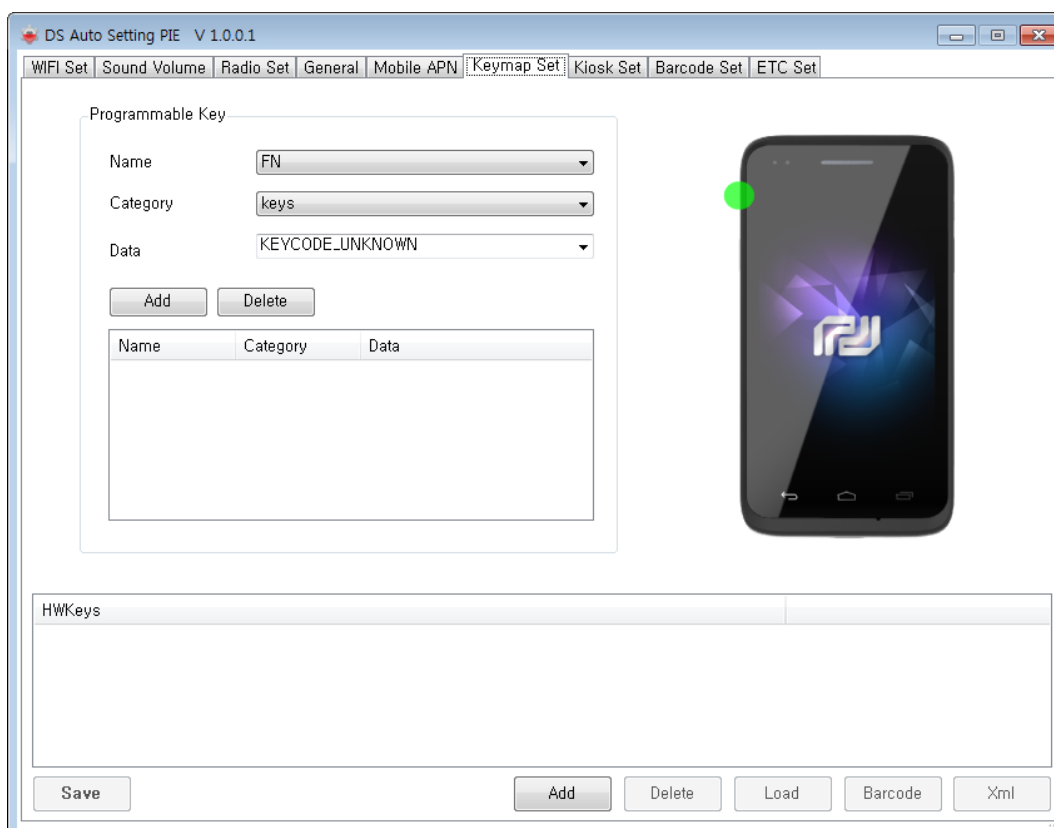
You can set APN automatically. Put the APN information according to your use.

List	Description
Name	<ul style="list-style-type: none"> · Enter the APN Name · Ex) SKT
APN	<ul style="list-style-type: none"> · Enter APN info · Ex) lte.sktelcom.com
Mcc	<ul style="list-style-type: none"> · Enter only numbers. Max. 3 digits · Ex) 450
Mnc	<ul style="list-style-type: none"> · Enter only numbers · Ex) 05
Proxy	<ul style="list-style-type: none"> · Enter the Proxy info. It can be null
Port	<ul style="list-style-type: none"> · Enter Port number. It can be null · Enter only numbers. Number range is 0~65535
User	<ul style="list-style-type: none"> · Enter User info. It can be null
Server	<ul style="list-style-type: none"> · Enter Server info. It can be null
Password	<ul style="list-style-type: none"> · Enter Password. It can be null

Mmsc	<ul style="list-style-type: none"> · Enter Mmsc info · Ex) http://omms.nate.com:9082/oma_mms
Mms Proxy	<ul style="list-style-type: none"> · Enter Mms Proxy info · Ex) lteoma.nate.com
Mms Port	<ul style="list-style-type: none"> · Enter Mms port number · Enter only numbers. Number range is 0~65535 · Ex) 9093
Auth type	<ul style="list-style-type: none"> · Choose Auth type – None / PAP / CHAP / PAP_CHAP
Type	<ul style="list-style-type: none"> · Choose APN type – default / supl / mms / dun · You can do multi-selection
IP Protocol	<ul style="list-style-type: none"> · Choose IP Portocol – IP / IPV6 / IPV4V6
Bearer	<ul style="list-style-type: none"> · Choose Bearer – None / LTE / eHRPD

AutoSetting 6 – Keymap Set

You can use a specific key to another function.



List	Description
Model	<ul style="list-style-type: none"> · Choose the model – DS70 / DS4a
Version	<ul style="list-style-type: none"> · Choose your version of device <ul style="list-style-type: none"> - GMS_PHONE / GMS_NOPHONE / NOGMS_PHONE / NOGMS_NOPHONE · Each has different application list
Name	<ul style="list-style-type: none"> · Green spot on the image appears when you choose the key name. · You can choose Enable/Disable for below settings <ul style="list-style-type: none"> - BRAK (Block Recent App Key) - BHK (Block Home Key) - BBK (Block Back Key) - EKM (Enable Key Map) - RAKM (Reset All Key Map)
Category	<ul style="list-style-type: none"> · Choose the category - Key / Applications
Keys	<ul style="list-style-type: none"> - Select the Key code from Data list - You can enter the Key code and search directly
Applications	<ul style="list-style-type: none"> · Select the Application from Data list · You can input the Application directly <ul style="list-style-type: none"> - Example : com.dsic.test/com.dsic.test.MainActivity
APK Load	<ul style="list-style-type: none"> · You can select the application from dialog box. · The file extension is '.apk'
Data	<ul style="list-style-type: none"> - Select the Key or Application in the list - Enable or Disable the settings such as BRAK, BHK, BBK, EKM or RAKM.
Add	<ul style="list-style-type: none"> · Add the key map setting to the list
Delete	<ul style="list-style-type: none"> - Delete the selected key map setting from the list - You can delete several settings.

AutoSetting 7 – Kiosk Set

Set Kiosk mode to limit the users' access to prevent the misuse.

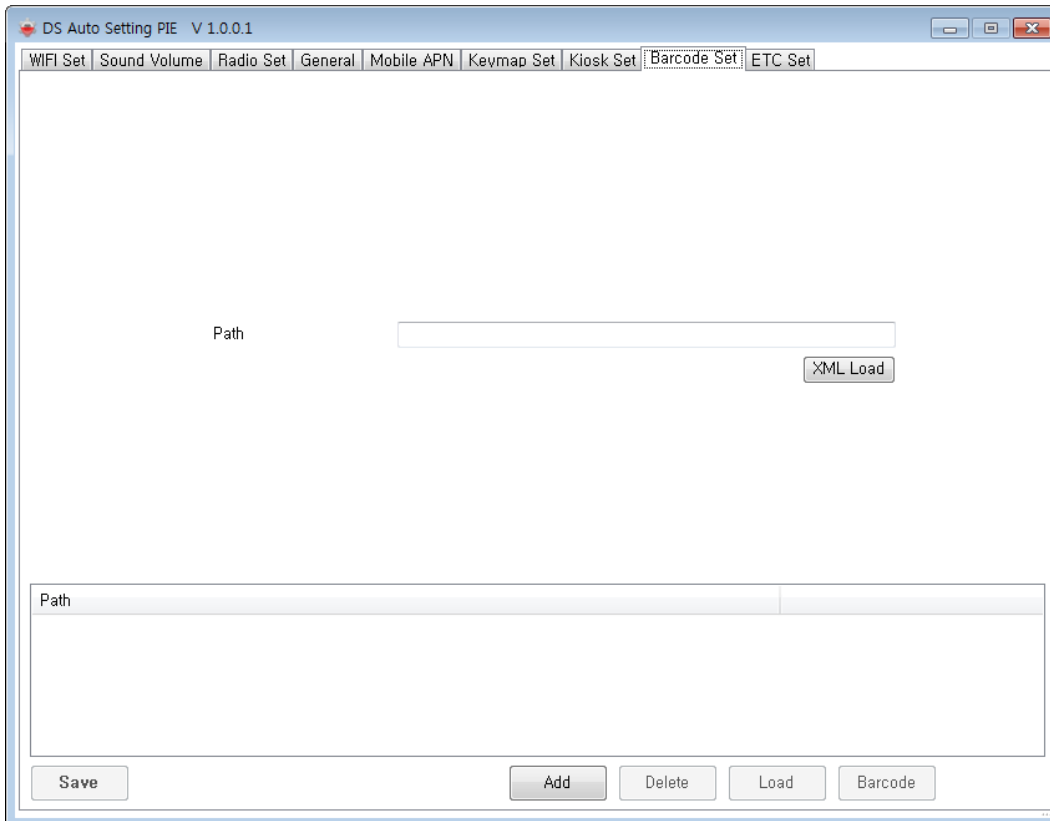
List	Description
Version	<ul style="list-style-type: none"> Choose your version of device <ul style="list-style-type: none"> GMS_PHONE / GMS_NOPHONE / NOGMS_PHONE / NOGMS_NOPHONE Each has different application list
Enable	<ul style="list-style-type: none"> Select Enable/Disable of Kiosk mode
USB Block	<ul style="list-style-type: none"> Select Enable/Disable to allow the USB connection
Storage Block	<ul style="list-style-type: none"> Select Enable/Disable to allow the storage
Install Block	<ul style="list-style-type: none"> Select Enable/Disable to allow the installation
Password	<ul style="list-style-type: none"> Password cannot be "null" The length of Password is 4~10 digits
Apps	<ul style="list-style-type: none"> Select the Application from the list You can input the Application directly <ul style="list-style-type: none"> Example : com.dsic.test/com.dsic.test.MainActivity
APK Load	<ul style="list-style-type: none"> You can select the application from dialog box. The file extension is '.apk'
Add	<ul style="list-style-type: none"> Add the selected application to Kiosk app list
Delete	<ul style="list-style-type: none"> Delete the selected application from Kiosk app list

AutoSetting 8 – Barcode Set

You can import Barcode Tray configuration automatically.

First, export the barcode setting file from 'Setup Export/Import' menu of Barcode Tray. (ex. SE4500_SETTINGS.xml).

Then, apply this setting to other devices by AutoSetting barcode.



List	Description
Path	· Enter the path of barcode setting file
XML Load	· You can select the barcode setting file (ex. SE4500_SETTINGS.xml) from dialog box. · The file extension is '.xml'

AutoSetting 9 – ETC Set

You can configure NTP server.

DS Auto Setting PIE V 1.0.0.1

WIFI Set | Sound Volume | Radio Set | General | Mobile APN | Keymap Set | Kiosk Set | Barcode Set | ETC Set

NTP

NTP

Shortcut	NTP
	NTP

Save Add Delete Load Barcode Xml

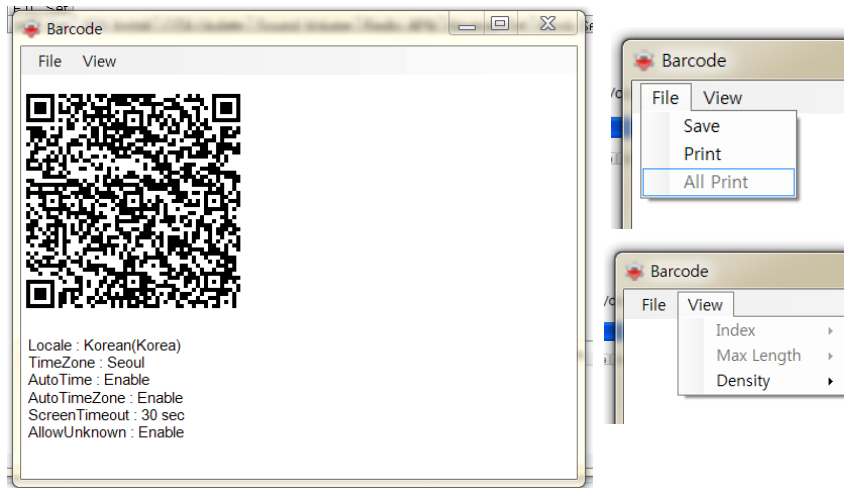
List	Description
NTP	· Enter the NTP. ex : time.google.com

Barcode Form

Locale	TimeZone	AutoTime	AutoTimeZone	Screen Timeout	Allow Unknown
Korean(Korea)	Seoul	Enable	Enable	30 sec	Enable
Korean(Korea)	Seoul	Enable	Enable	5 min	Disable

Buttons: Save, Add, Delete, Load, Barcode

Select the item you want to create barcode, and click Barcode button.
The barcode pops up as below.



List	Description
File	· The barcode can be saved or printed
Save	· Save the barcode image file. You can save as jpg, bmp, gif, or png · When the setting file is big, the barcode can create more than 2. You should save both.
Print	· Print the current barcode
All Print	· Print all barcodes when there is more than 2.
View	· You can select each barcodes when there is more than 2 · You can control the barcode size with 'Max Length' or 'Density'
Index	· It activates when there is more than 2 barcodes · There is counter (1/2, 2/2) on the images
Max Length	· Choose Max Length – 1000 / 1500 / 2000 · Default is 2000 · This menu activates when the date length is more than 1000
Density	· Choose Density – 2 / 3 / 4 · Default is 4



DaiShin Information & Communications Co., Ltd.
DSIC Bldg. 205-28, Gasan digital 1-ro, Geumcheon-gu, Seoul, Korea

T: +82-2-2107-5178 F: +82-2-2107-5128

DSIC (Kosdaq:020180) is a registered trademark of DaiShin Information & Communications Co., Ltd. All other trademarks are the property of their respective owners. The information is subject to change without prior notice.