IEI Integration Corp.

MODEL:

ICELOG-07

7” Android-Based Mobile Elite Manager with Touch Screen, Freescale™ i.MX6 Quad ARM® Cortex™-A9 Cores, Micro USB, Audio, RoHS Compliant, IP 54 Front Panel

User Manual

Rev. 1.00 – 25 November, 2013

RoHS Lead Free

Revision

Date	Version	Changes
25 November, 2013	1.00	Initial release

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Chapter

1

Introduction

1.1 Overview

Figure 1-1: ICELOG-07 Mobile Elite Manager

The ICELOG-07 is a 7” Android-based tablet designed with advanced communication abilities that enhance mobility for users in different industries.

At the heart of the system is the Freescale™ i.MX6 processor with quad ARM® Cortex™-A9 cores, offering low power in a powerful package. The system also offers a multimedia experience with a built-in 5-megapixel camera and speakers. Other peripherals include one Micro USB port and one headset connector. Wireless networking capabilities include Bluetooth 4.0 and Wi-Fi 802.11a/b/g/n.

1.2 Model Variations

The ICELOG-07 series has two models. The model variations are listed below.

Models	Wi-Fi	Bluetooth	3G	GPS	RFID	NFC
ICELOG-07-A9-HU	802.11a/b/g/n	4.0	Yes	Yes	Yes	Yes
ICELOG-07-A9-ET	802.11a/b/g/n	4.0	No	No	No	No

Table 1-1: Model Variations

1.3 Features

The ICELOG-07 features the following:

- Freescale™ i.MX6 processor with quad ARM® Cortex™-A9 cores
- On-board 1.0 GB DDR3 memory
- Android 4.2 operating system
- 802.11a/b/g/n wireless
- Bluetooth 4.0 + HS compliance
- One Micro USB 2.0 port
- Rear-facing 5-megapixel auto-focus camera with flashlight
- Touchscreen
- 3G connectivity (HU model only)
- GPS (HU model only)
- NFC and RFID reader (HU model only)
- Optional UHF RFID reader
- IP 54 compliant front panel
- RoHS compliance

1.4 Front Panel

The front of the ICELOG-07 is a 7” touchscreen with a plastic frame.

Figure 1-2: Front View

1.5 Rear Panel

The rear panel has a 5-megapixel auto-focus camera with flashlight and two speakers. The optional RFID reader is also located on the rear panel.

Figure 1-3: Rear View

1.6 Side Panels

The power button and the volume control button are located on the left side panel.

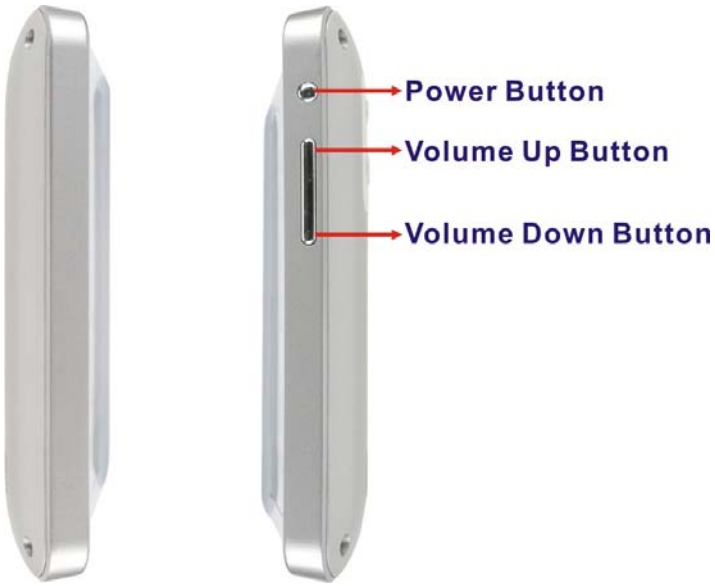


Figure 1-4: Side Panels

1.7 Bottom Panel

The bottom panel has the following connectors and slots. These connectors and slots are protected with plastic covers, except the cradle connector.

- 1 x Cradle connector
- 1 x Micro USB connector
- 1 x Headset connector
- 1 x microSD slot
- 1 x SIM card slot

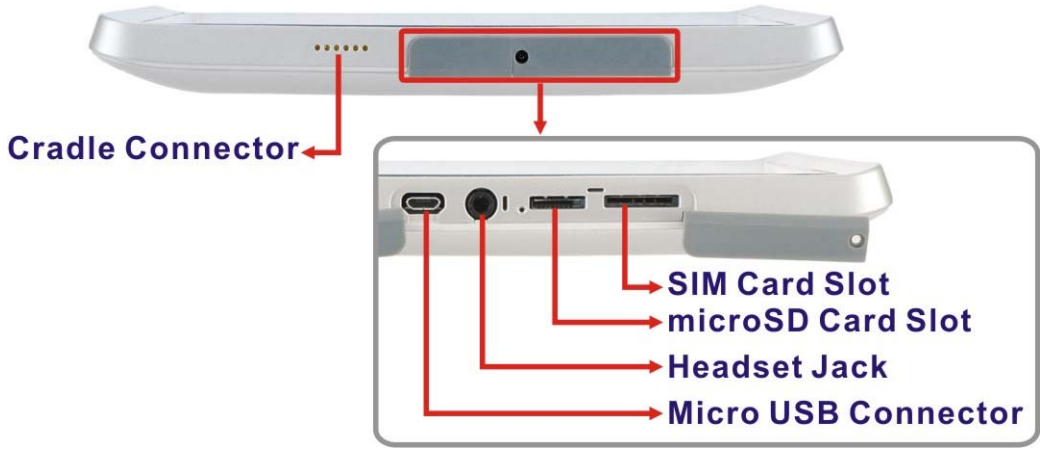


Figure 1-5: Bottom Panel

1.8 System Specifications

The technical specifications for the ICELOG-07 systems are listed in **Table 1-2.**

System	
CPU	Freescale™ i.MX6 with quad ARM® Cortex™-A9 cores
Memory	1.0 GB DDR3 memory
OS	Android 4.2
Storage	8 GB iNAND e.MMC One microSD card slot
Audio	2 x Speaker (1 W) 1 x Headset connector
Camera	Rear-facing 5-megapixel auto-focus camera with flashlight
Real-time Clock	Battery backup RTC
Display	
LCD	7" TFT LCD
Max. Resolution	1024 x 600
Brightness (cd/m^2)	250
Viewing Angle (H-V)	170°/170°
Touchscreen	Projective capacitive touchscreen
Communication	
Wireless LAN	Wi-Fi 802.11a/b/g/n
Bluetooth	Bluetooth™ 4.0 + HS compliance
3G	Cinterion PHS8-P 3G HSPA+ module (HU model only)
GPS	u-blox UBX-G7020 GPS module with internal antenna (HU model only)
NFC & RFID	NFC: device to device communication, RFID card reader: 13.56 MHz RFID, ISO 14443A (Mifare), ISO 14443B, ISO15693 (HU model only)
UHF RFID	Optional UHF RFID module
Power	
Power Adapter	5V/2A
Battery	3.7V 7400mAh battery
Physical Character	

Construction Material	ABS + PC plastic front frame
Dimensions (W x H x D)	205.4 mm x 140.0 mm x 21.5 mm
Operating Temperature	-10ºC ~ 40ºC
Storage Temperature	-20ºC ~ 60ºC
Humidity	5% ~ 95%, non-condensing
Net Weight	0.58 kg (with 3G module)
IP Level	IP 54 compliant front panel
Drop Survival	0.9 m
Safety	CE, FCC
Connectors and Buttons	
Expansion Slot	1 x SIM card slot
I/O Ports	1 x Micro USB client 2 x USB Host ports 1 x Cradle connector
Buttons	1 x Power button 1 x Volume up/down button

Table 1-2: Technical Specifications

1.9 Dimensions

The dimensions are shown below.

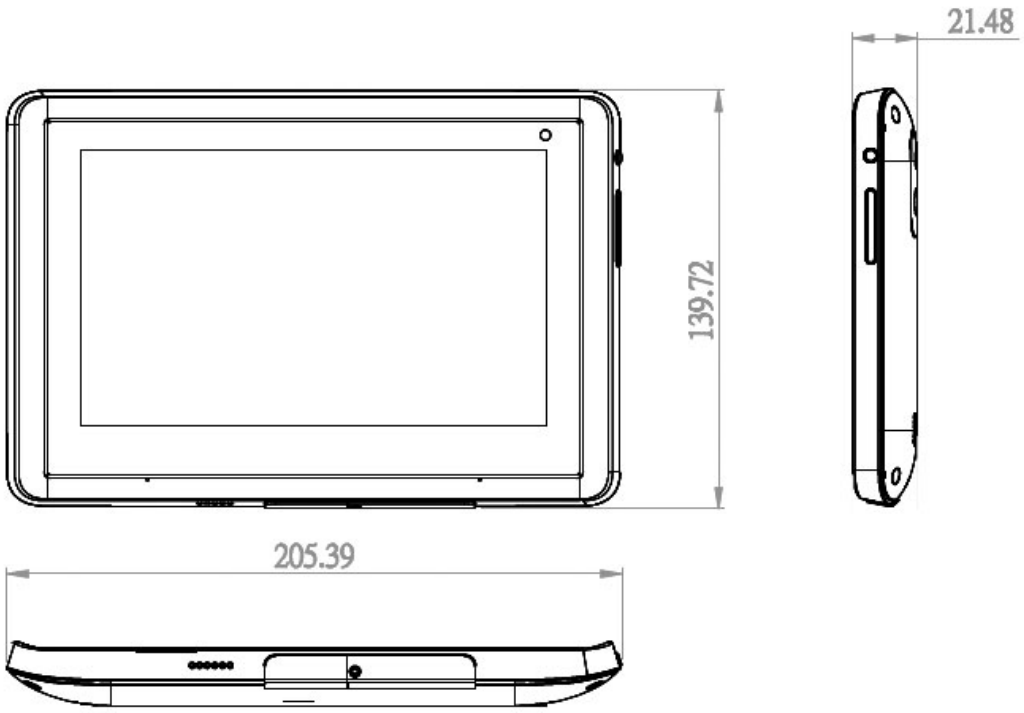


Figure 1-6: Dimensions (unit: mm)

Chapter

2

Unpacking

To unpack the panel PC, follow the steps below:

WARNING!

The front side LCD screen has a protective plastic cover stuck to the screen. Only remove the plastic cover after the system has been properly installed. This ensures the screen is protected during the installation process.

Step 1: Use sharp cutters to open the box.

Step 2: Remove the ICELOG-07and the packing material out of the box.

Step 3: Make sure all the components listed in the packing list are present.

2.1 Packing List

NOTE:

If any of the components listed in the checklist below are missing, do not proceed with the installation. Contact the IEI reseller or vendor the ICELOG-07 was purchased from or contact an IEI sales representative directly by sending an email to sales@iei.com.tw.

The ICELOG-07 is shipped with the following components:

Quantity	Item	Image
1	ICELOG-07 mobile elite manager	
1	Power adapter (**P/N**: 63040-290013-000-RS)	
1	Micro USB cable (**P/N**: 32001-008501-100-RS)	
1	Utility CD	

Table 2-1: Packing List

Chapter

3

Installation

3.1 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the maintenance of the ICELOG-07 may result in permanent damage to the ICELOG-07 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the ICELOG-07. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ICELOG-07 is accessed internally, or any other electrical component is handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: - Wearing a simple anti-static wristband can help to prevent ESD from damaging the board.
- ***Self-grounding***: - Before handling the board touch any grounded conducting material. During the time the board is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: - When configuring the ICELOG-07, place it on an antic-static pad. This reduces the possibility of ESD damaging the ICELOG-07.
- ***Only handle the edges of the PCB***: - When handling the PCB, hold the PCB by the edges.

3.2 Installation Precautions

When installing the ICELOG-07, please follow the precautions listed below:

- **Power turned off**: When installing the ICELOG-07, make sure the power is off. Failing to turn off the power may cause severe injury to the body and/or damage to the system.
- **Certified Engineers**: Only certified engineers should install and modify onboard functionalities.

- **Anti-static Discharge**: If a user open the rear panel of the ICELOG-07, to configure the jumpers or plug in added peripheral devices, ground themselves first and wear and anti-static wristband.

3.3 Installation and Configuration Steps

The following installation steps must be followed.

Step 1: Unpack the system

Step 2: Charging the system

Step 3: Install a microSD card

Step 4: Install a SIM card

Step 5: Connect peripheral devices

Step 6: Power up the system

3.4 Charging the System

WARNING:

When charging the system, make sure a power supply with the correct input voltage is being fed into the system. Incorrect voltages applied to the system may cause damage to the internal electronic components and may also cause injury to the user.

To start using the ICELOG-07, the user must charge the ICELOG-07 by the power adapter. To charge the ICELOG-07, please follow the steps below.

Step 1: Open the protective cover on the bottom panel to expose the Micro USB port.

Figure 3-1: ICELOG-07 Micro USB Port

Step 2: Connect the Micro USB plug of the Micro USB cable to the Micro USB connector of the ICELOG-07 (**Figure 3-2**).

Figure 3-2: Connecting the Micro USB Cable to the ICELOG-07

Step 3: Connect the other end of the Micro USB cable to the USB connector of the power adapter (**Figure 3-3)**.

Then plug the power adapter to a power source.

OR connect the Micro USB cable directly to a computer.

Figure 3-3: Connecting the ICELOG-07 to the Power Adapter

3.5 microSD Card Installation

To install the microSD card, follow the instructions below.

Step 1: Remove the retention screw and open the microSD card slot cover.

Figure 3-4: microSD Card Slot Cover Retention Screw

Step 2: Locate the microSD card slot. Insert the microSD card into the slot.

Figure 3-5: microSD Card Slot Location

Step 3: Replace the microSD card slot cover and the retention screw.

3.6 SIM Card Installation

To install the SIM card, follow the instructions below.

Step 1: Remove the retention screw and lift the SIM card slot access panel.

Figure 3-6: SIM Card Slot Access Panel Retention Screw

Step 2: Locate the SIM card slot. Slide the slot cover to the left to unlock the cover.

Figure 3-7: SIM Card Slot Location

Step 3: Replace the SIM card slot cover and the retention screw.

3.7 I/O Connectors

This section provides an overview of the external I/O connectors of the ICELOG-07.

3.7.1 Headset Jack

The headset jack on the bottom panel enables the ICELOG-07 to be connected to a headset. Open the protective plastic cover to expose the headset jack before connection.

Figure 3-8: ICELOG-07 Headset Jack

3.7.2 Micro USB Connector

The ICELOG-07 is equipped with a Micro USB connector that allows connection to a computer or the supplied power adapter. Refer to **Step 1** ~ **Step 3** in **Section 3.4** to

connect the ICELOG-07 to a computer or power adapter by using the supplied Micro USB cable.

Figure 3-9: ICELOG-07 Micro USB Port

3.8 System Maintenance

If the components of the ICELOG-07 fail, they must be replaced. Please contact the system reseller or vendor to purchase the replacement parts.

NOTE:

A user cannot replace a motherboard. If the motherboard fails it must be shipped back to IEI to be replaced. Please contact the system vendor, reseller or an IEI sales person directly.

Chapter

4

Using the ICELOG-07

4.1 Power-On/Off Procedure

4.1.1 Installation Checklist

To power on the system please make sure of the following:

- The rear cover is installed
- All peripheral devices (SIM card, microSD card) are installed
- The system is fully charged

4.1.2 Power-on Procedure

To power-on the ICELOG-07 , just push the power button to turns on the system.

Figure 4-1: Power Button

4.1.3 Power-off Procedure

To power-off the ICELOG-07 please follow the steps below:

Step 1: Hold down the power button for a few seconds until the following screen appears. See **Figure 4-2**. Tap **Power off**.

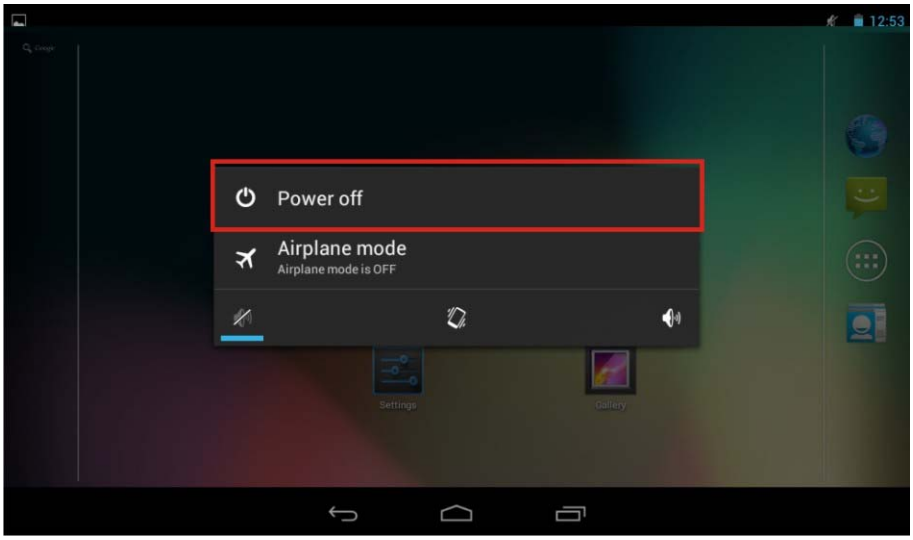


Figure 4-2: Power-off Menu

Step 2: A message window prompts as shown in **Figure 4-3**. Click **OK** to turn off the system.

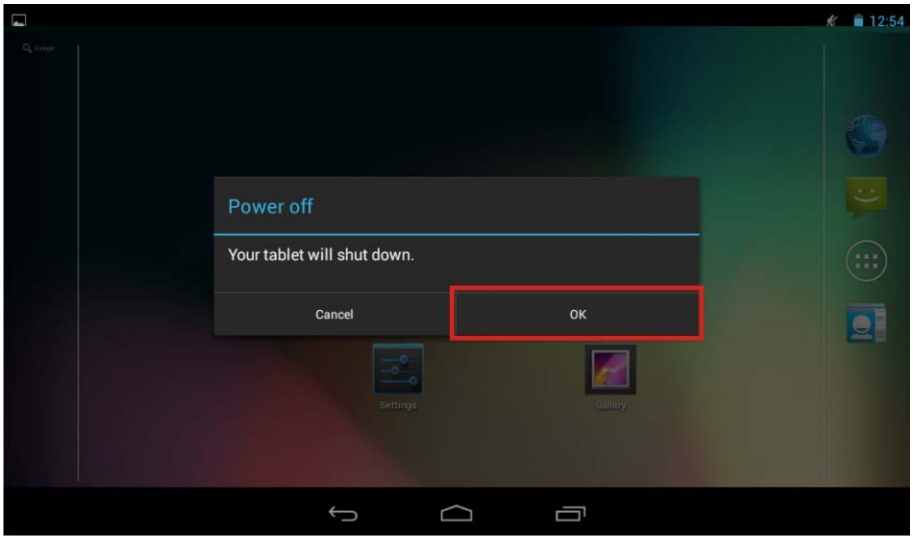


Figure 4-3: Power-off Confirmation Screen

4.2 Home Screen

The ICELOG-07 has multiple home screens allowing users to customize the screen with widgets, apps, folders and shortcuts. The following sections describe the basic technique to manage the home screen.

4.2.1 Navigation Buttons

The ICELOG-07 Android home screen has three navigation buttons to control the system. The navigation buttons are shown in **Figure 4-4** and described in **Table 4-1**.

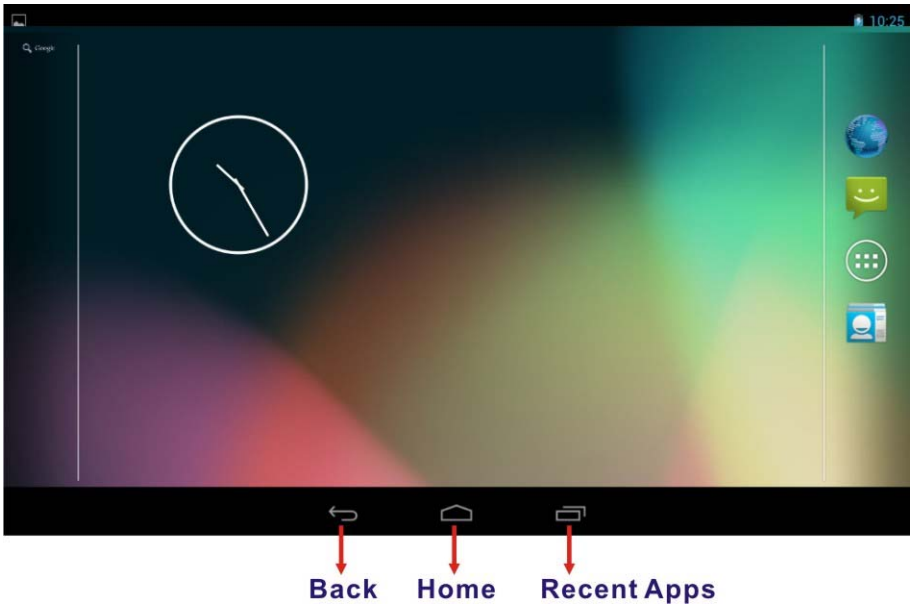


Figure 4-4: Navigation Buttons

Buttons	Description
Back	Tap to return to the previous screen.
Home	Tap to return to the home screen.
Recent Apps	Tap to display all the recently used applications.

Table 4-1: Navigation Buttons

4.2.2 Multiple Home Screens

Swipe left or right to switch. Long press an item on the home screen and when it vibrates drag the item to other screen.

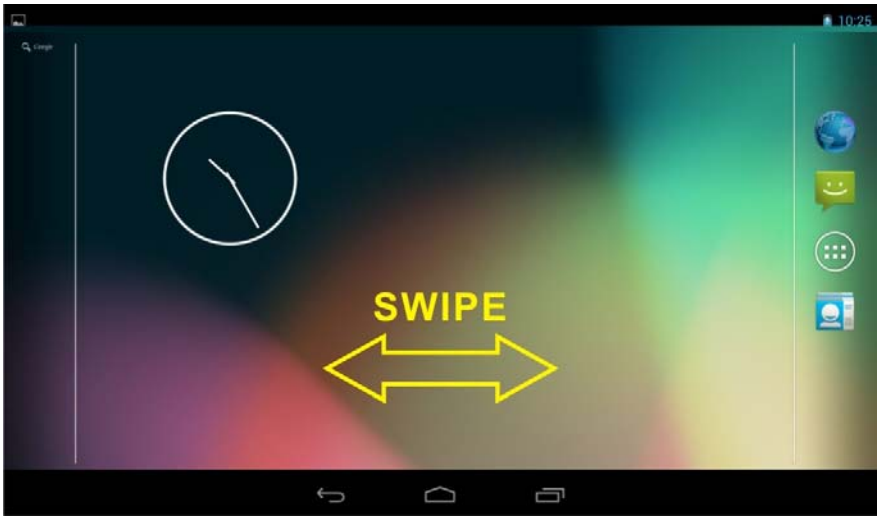


Figure 4-5: Multiple Home Screens

4.2.3 Adding Shortcut

To add app or widget shortcuts on the home screen, follow the steps below.

Step 1: Click the launcher button on the home screen to access the launcher/widget page.

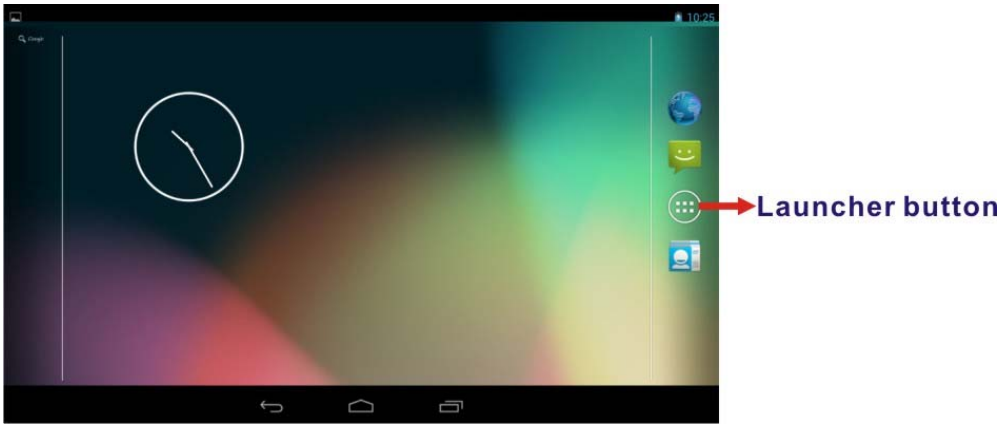


Figure 4-6: Launcher Button

Step 2: Long press an app icon or a widget (click the WIDGETS tab to access the widgets page). When it vibrates, drag app/widget to the home screen.

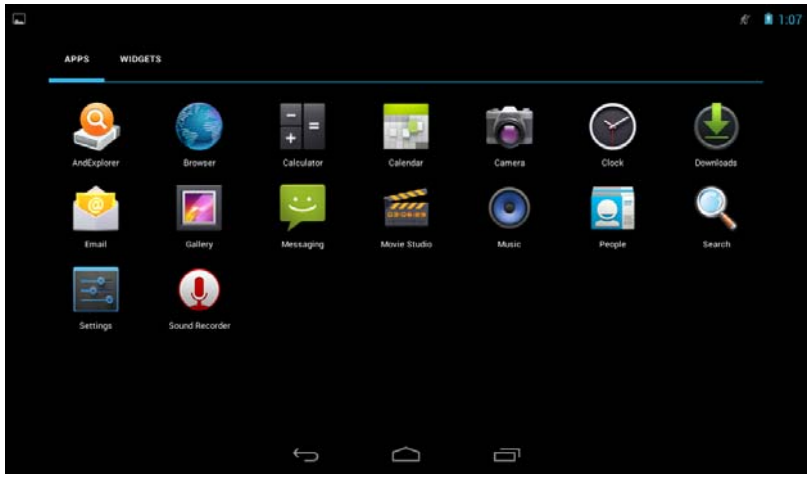


Figure 4-7: Launcher Page

4.2.4 Favorites Tray

The Favorites tray at the side of each home screen allows users to keep the most important or frequently used shortcuts and folders.

Long press an item on the home screen. When it vibrates, drag it to the favorites tray or move it from the favorites tray. The launcher button at the center of the favorites tray is fixed and can not be moved.

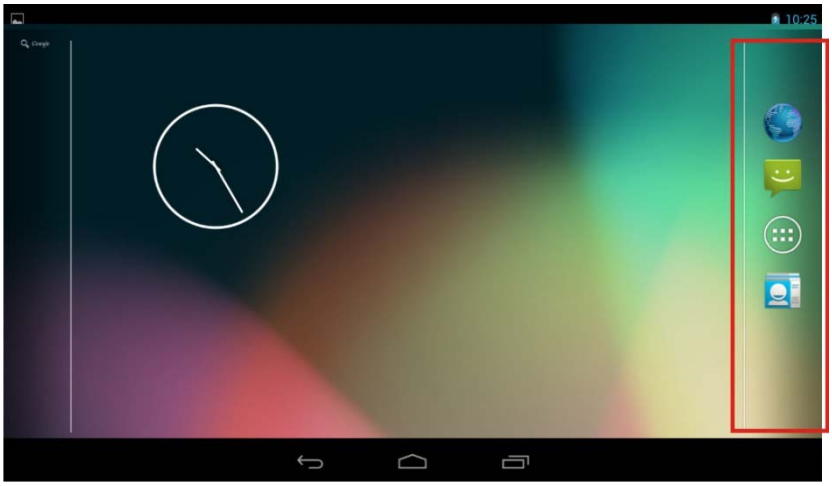


Figure 4-8: Favorites Tray

4.2.5 Arranging Home Screen

The items on the home screen can be moved and deleted. Long press an item on the home screen. When it vibrates, drag it where you want. To trash the item on the desktop, drag it to the “X” icon. Release the icon when it turns red.

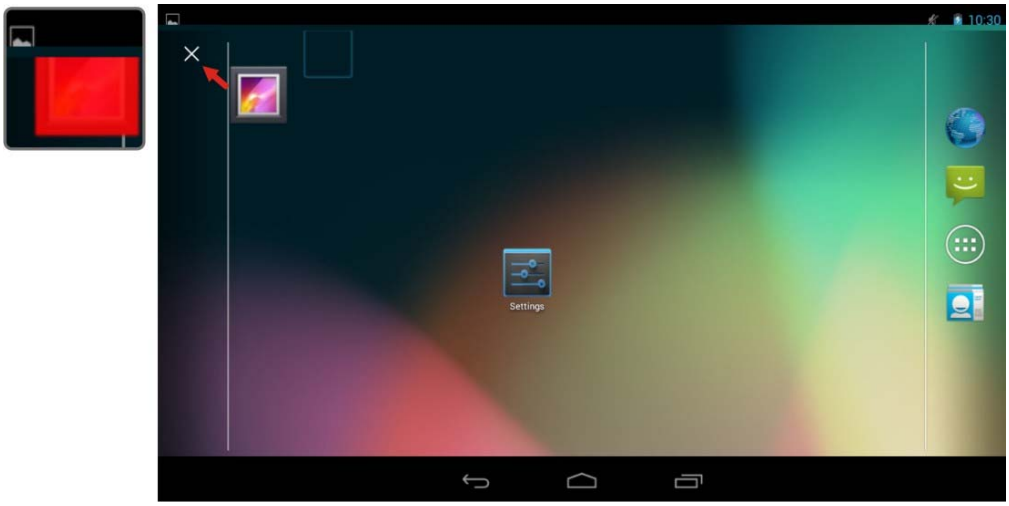


Figure 4-9: Move and Trash Item on Home Screen

4.3 Status Bar

The status bar on the top of the screen (**Figure 4-10)** displays the pending notifications and status, such as battery level or signal strength.

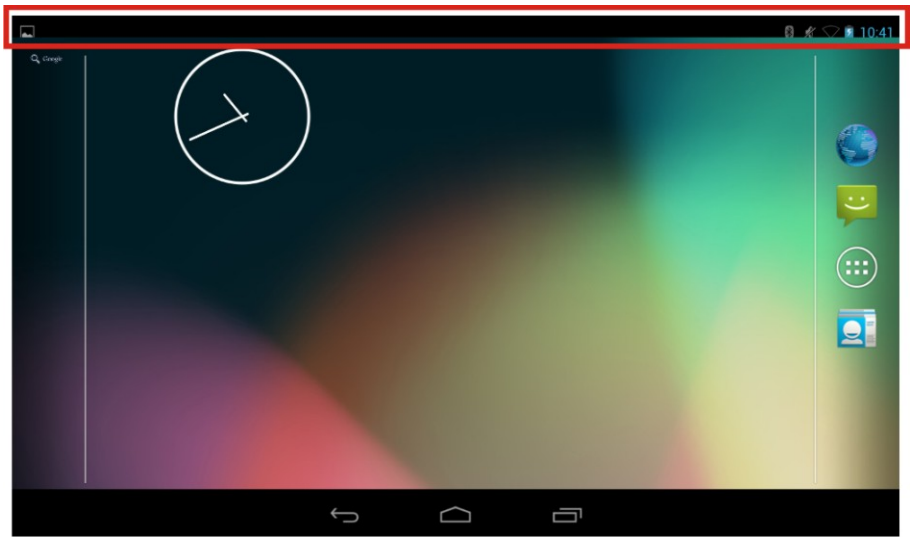


Figure 4-10: Status Bar

Swipe down from the right of the status bar to view the setting shortcut.

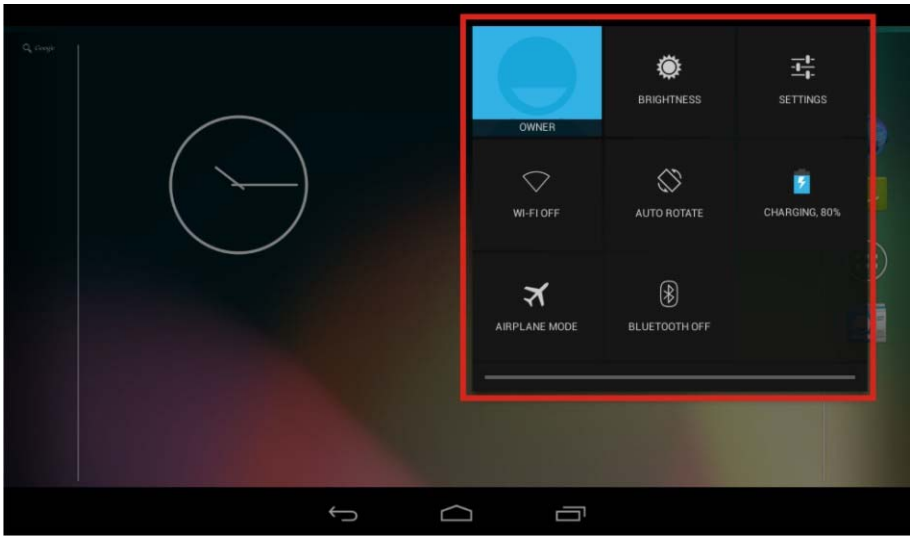


Figure 4-11: Status Bar – Setting Shortcut

Swipe down from the left of the status bar to view notification details.

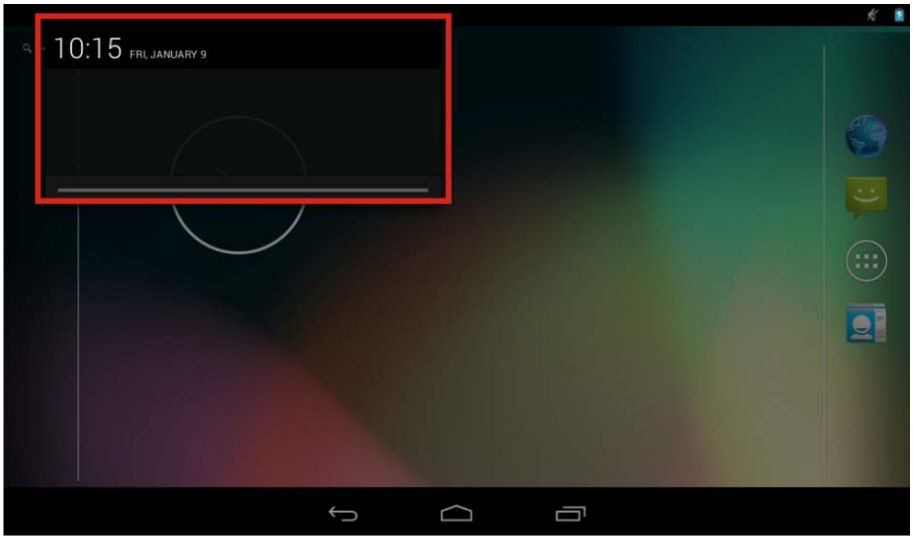
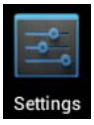


Figure 4-12: Status Bar – Notification

4.4 Settings

The Settings menu allows configuration to the ICELOG-07, such as Wi-Fi, volume, screen brightness, etc. To enter the Settings menu, tap **Settings** on the launcher page.



4.4.1 WIRELESS & NETWORKS

Figure 4-13: Wireless and Networks Settings

In the WIRELESS & NETWORKS field, the user can turn on/off the Wi-Fi and Bluetooth functions, and configure the network settings.

- **Wi-Fi**:
  Allows the user to turn on or turn off the Wi-Fi function. When the Wi-Fi function is turned on, tap this item to manage the access points.
- **Bluetooth**:
  Allows the user to turn on or turn off the Bluetooth function. When the Bluetooth function is turned on, tap this item to manage the Bluetooth connections.
- **Ethernet proxy settings**:
  Configures the Ethernet proxy settings.

4.4.1.1 More Settings

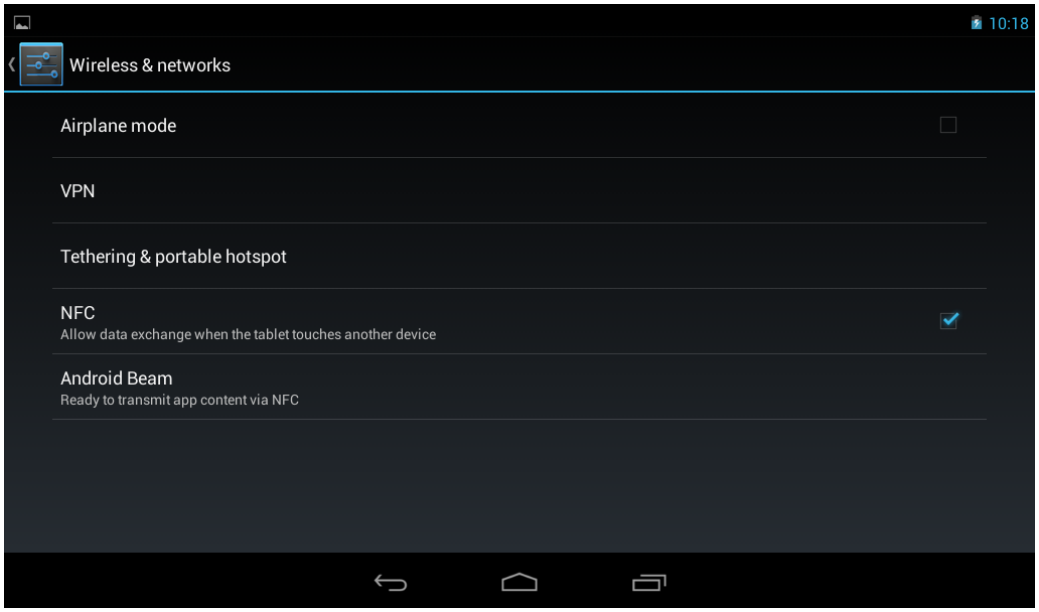


Figure 4-14: More Settings Menu

After tapping **More…** in the WIRELESS & NETWORKS field, the user can configure the following network settings.

- **Airplane mode**:
  Turns on or turns off the airplane mode.
- **VPN**:
  Sets up and manages Virtual Private Networks (VPNs).
- **Tethering & portable hotspot**:
  Allows the user to set this device as a portable Wi-Fi hotspot and configure the hotspot settings.
- **NFC**:
  Turns on or off the NFC function.
- **Android Beam**:
  This item is available only when the NFC function is turned on. Enabling this feature allows the user to beam app content to another NFC-capable device.

4.4.2 Sound

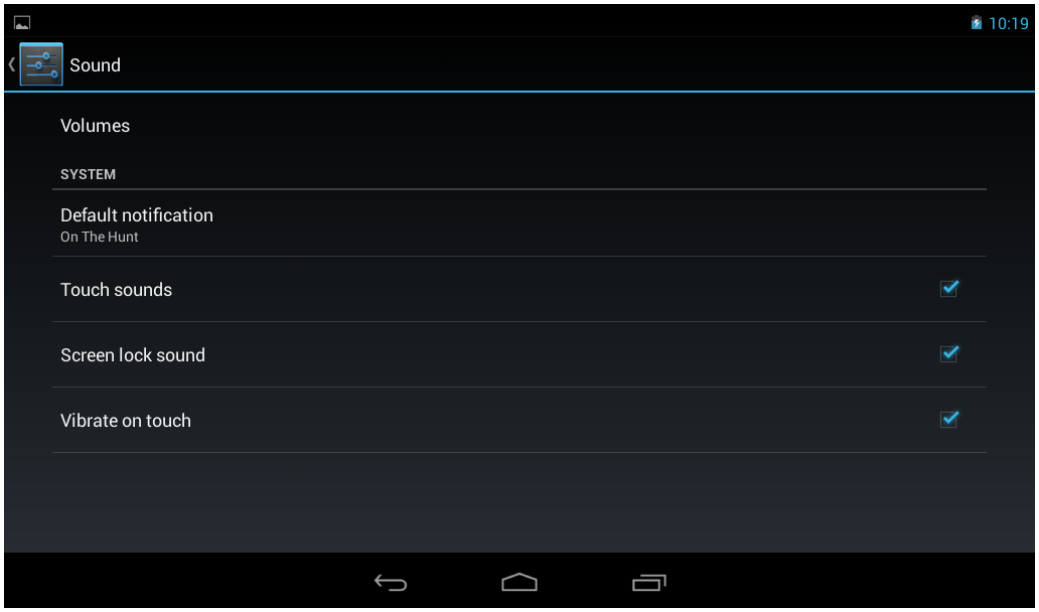


Figure 4-15: Sound Menu

Use the Sound menu to configure the following items.

- **Volumes**:
  Adjusts the volume of alarms, notifications, music, video, games and other media.
- **Default notification**:
  Sets up the notification ringtone.
- **Touch sounds**:
  Enables or disables playing a sound when making screen selection.
- **Screen lock sound**:
  Enables or disables playing a sound when unlocking the home screen.
- **Vibrate on touch**:
  Enables or disables the vibrate function when touching the screen.

4.4.3 Display

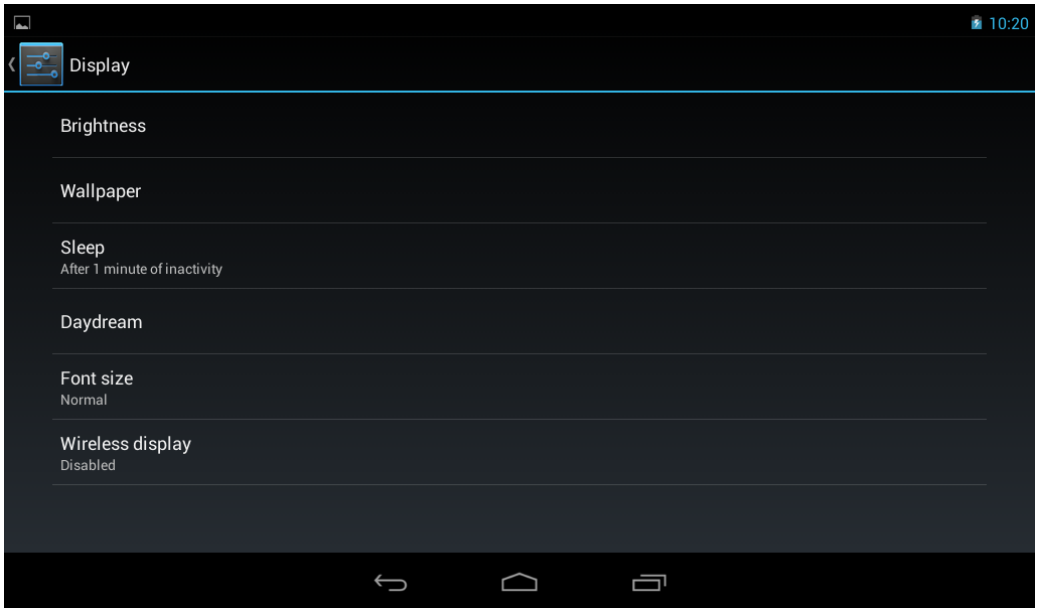


Figure 4-16: Display Menu

Use the Display menu to configure the following items.

- **Brightness**:
  Adjusts the screen brightness.
- **Wallpaper**:
  Sets up the wallpaper.
- **Sleep**:
  Sets up the time of inactivity after which the screen turns to sleep mode.
- **Daydream**:
  Configures the screensaver settings.
- **Font size**:
  Sets up the font size.
- **Wireless display**:
  Turns on or off the wireless display function and configures its settings.

4.4.4 Storage

The Storage menu displays the status of the internal storage and the installed microSD card, and allows users to manage the data stored in them.

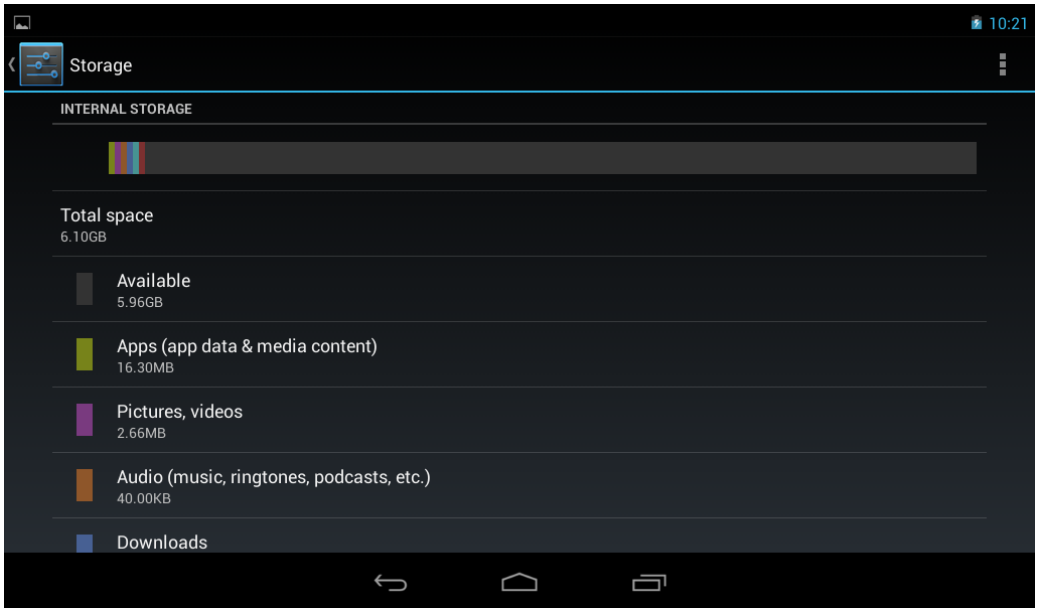


Figure 4-17: Storage Menu

4.4.5 Battery

The Battery menu displays the battery charging status and shows the remaining battery life as time when it is not charging.

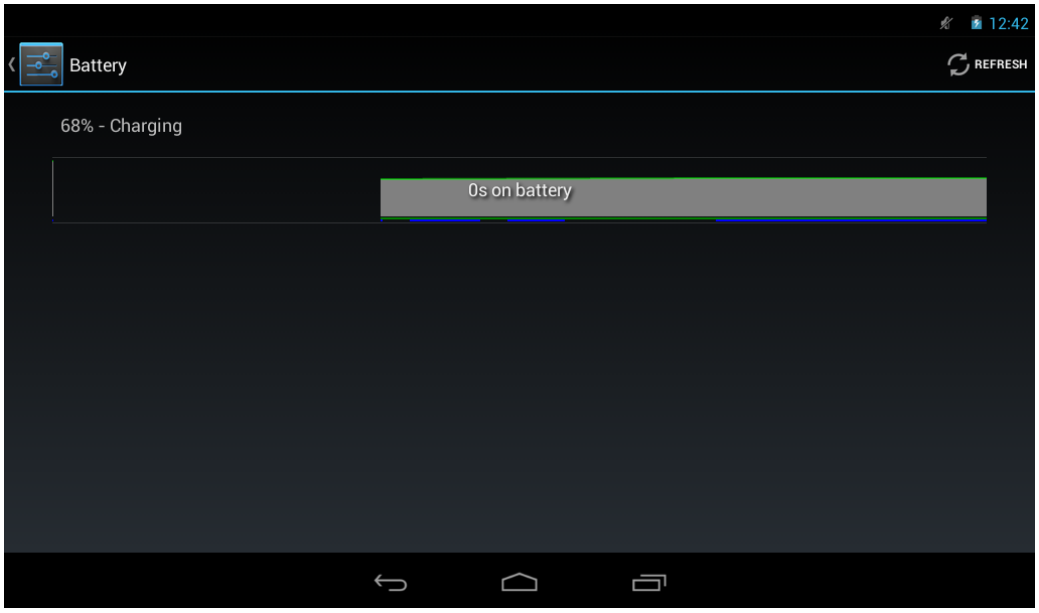


Figure 4-18: Battery Menu

4.4.6 Apps

The Apps menu displays the applications installed in the device, and allows users to manage them.

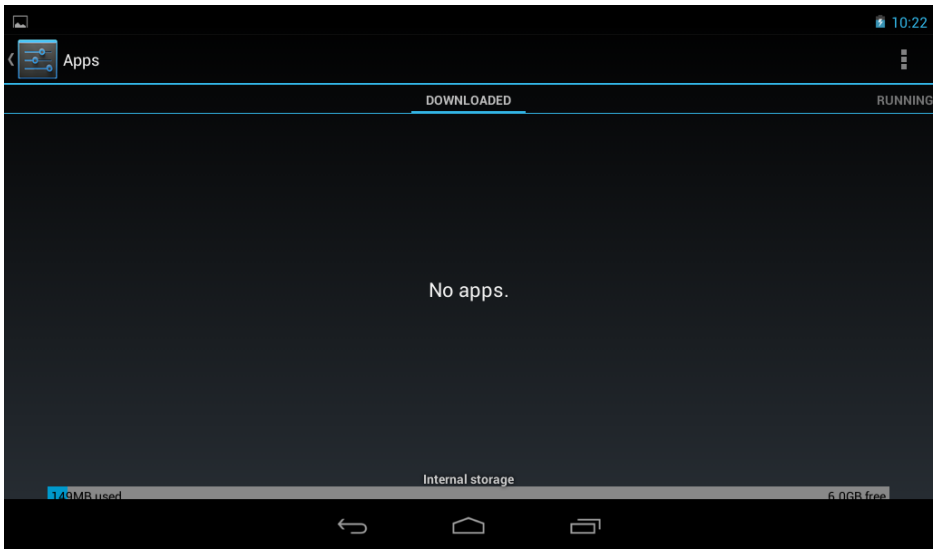


Figure 4-19: Apps Menu

4.4.7 Users

The Users menu allows the user to configure the owner information.

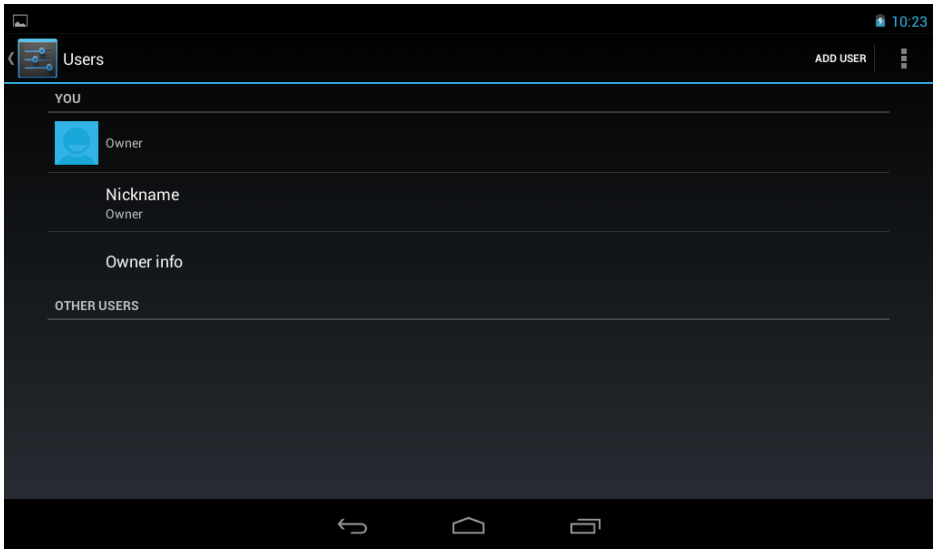


Figure 4-20: Users Menu

4.4.8 Location Access

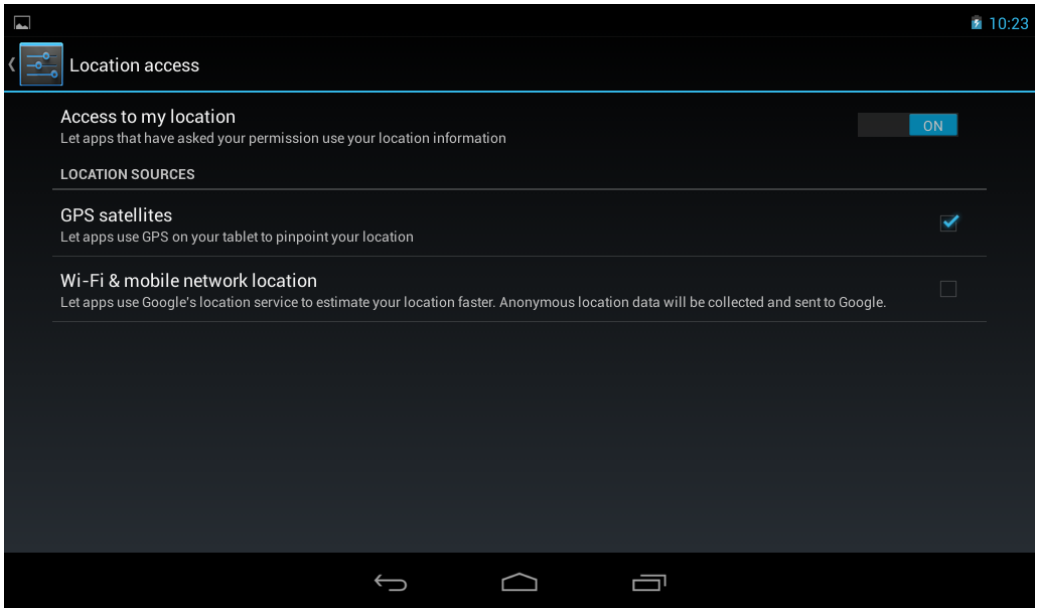


Figure 4-21: Location Access Menu

Use the Location access menu to configure the following items.

- **Access to my location**:
  Turns on to let the apps obtain the user's location information.
- **GPS satellites**:
  This item is available only when the **Access to my location** item is enabled. Enabling this item allows the apps to use the GPS in the device to pinpoint the user's location.
- **Wi-Fi & mobile network location**:
  This item is available only when the **Access to my location** item is enabled. Enabling this item allows the apps to use Google's location service to estimate the user's location.

4.4.9 Security

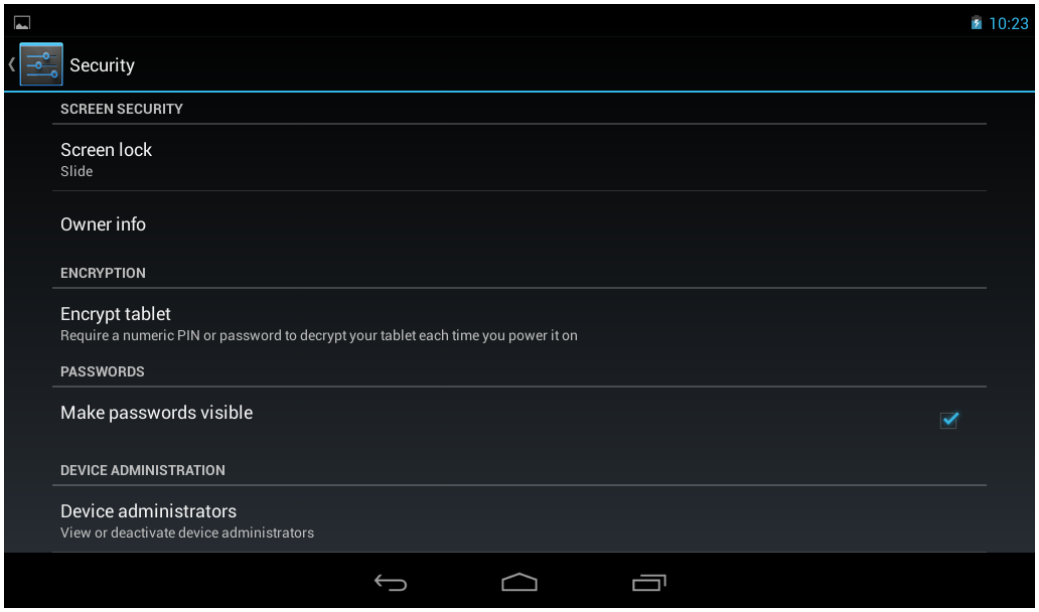


Figure 4-22: Security Menu

Use the Security menu to configure the following items.

- **Screen lock**:
  Sets up the way to unlock the screen.
- **Owner info**:
  Enables to show the information of the device owner on the lock screen.
- **Make passwords visible**:
  Enables to show password when typing.
- **Device administrators**:
  Views or deactivates the device administrators.
- **Unknown sources**:
  Enables to allow installation of applications from unknown sources.
- **Trusted credentials**:
  Taps to display the CA certificates.
- **Install from SD card**:
  Taps to install certificates from the SD card.

4.4.10 Language & Input

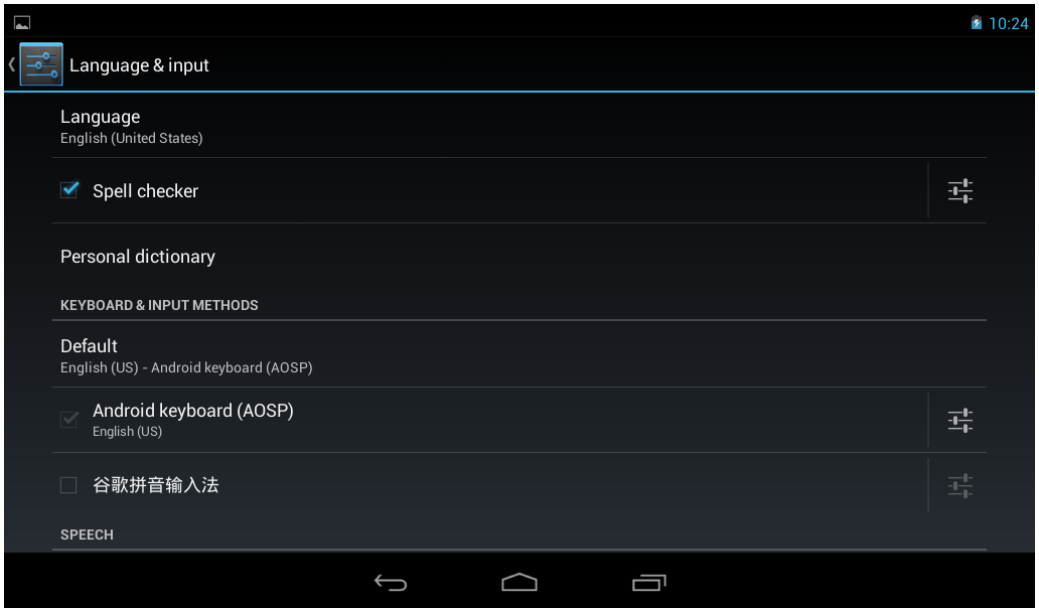


Figure 4-23: Language & Input Menu

Use the Language & input menu to configure the following items.

- **Language**:
  Sets up the language for ICELOG-07.
- **Spell checker**:
  Allows the user to enable the spell checking function and configure its settings.
- **Personal dictionary**:
  Configures the user dictionary.
- **KEYBOARD & INPUT METHODS**:
  Allows the user to set up the onscreen keyboard.
- **Text-to-speech output**:
  Configures the text-to-speech settings.
- **Pointer speed**:
  Sets up the pointer speed.

4.4.11 Backup & Reset

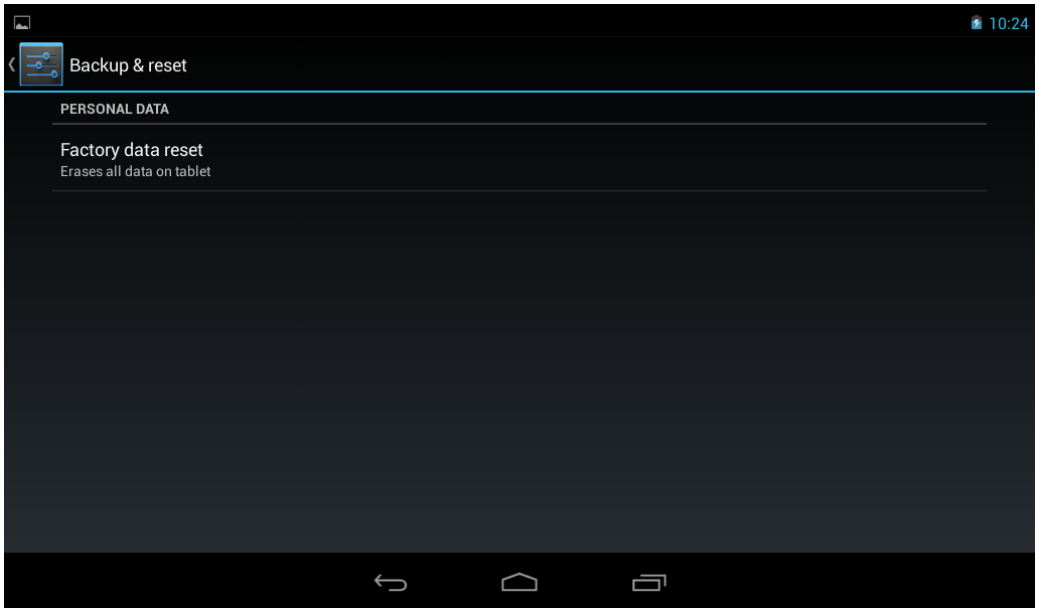


Figure 4-24: Backup & Reset Menu

Use the Back & reset menu to configure the following items.

- **Factory data reset**:
  Erases all data from the internal storage of the ICELOG-07.

4.4.12 Add account

Tap **Add account** to start setting up an e-mail or corporate account.

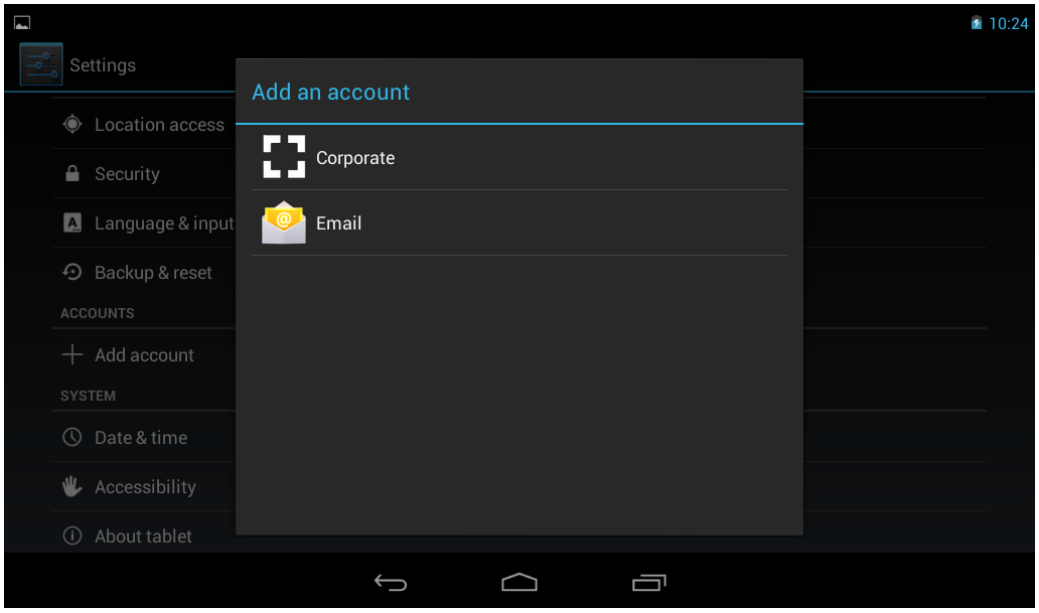


Figure 4-25: Add Account Menu

4.4.13 Date & Time

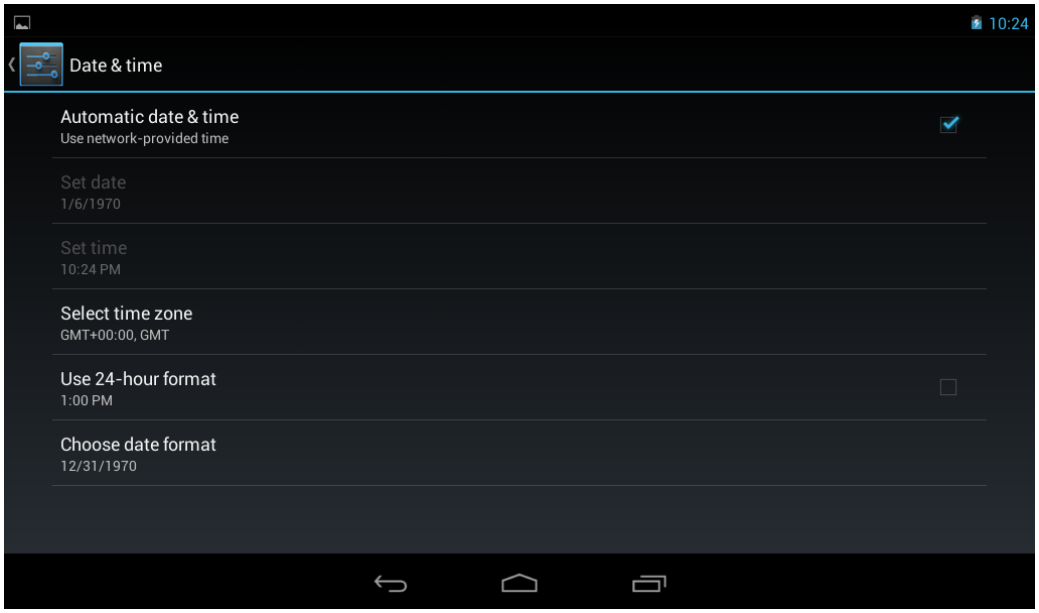


Figure 4-26: Date & Time Menu

Use the Date & time menu to configure the following items.

- **Automatic date & time**:
  Turns on to use the network-provided time.
- **Select time zone**:
  Sets up the time zone.
- **Use 24-hour format**:
  Turns on to use the 24-hour format.
- **Choose date format**:
  Sets up the date format.

4.4.14 Accessibility

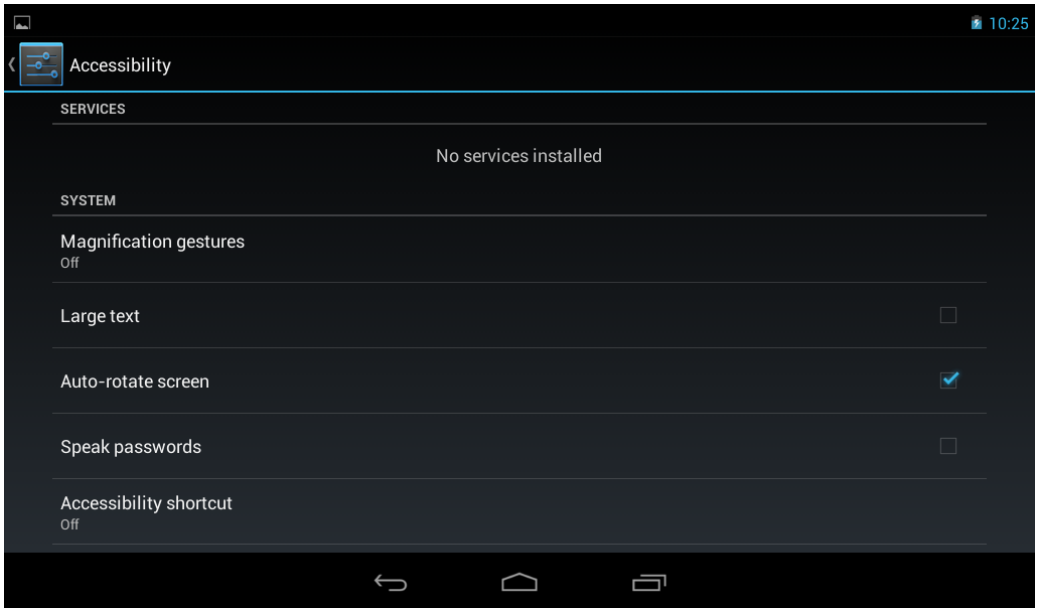


Figure 4-27: Accessibility Menu

Use the Accessibility menu to configure the following items.

- **Magnification gesture**:
  Enables to zoom in and out by triple-tapping the screen.
- **Large text**:
  Turns on to use large text.
- **Auto-rotate screen**:
  Turns on or off the auto-rotate function of the screen.

- **Speak passwords**:
  Turns on or off the speak password fucntion.
- **Text-to-speech output**:
  Configures the text-to-speech settings.
- **Touch & hold delay**:
  Configures the touch & hold delay settings.
- **Enhance web accessibility**:
  Turns on to allow apps to install scripts from Google that make their web content more accessible.

4.4.15 About Tablet

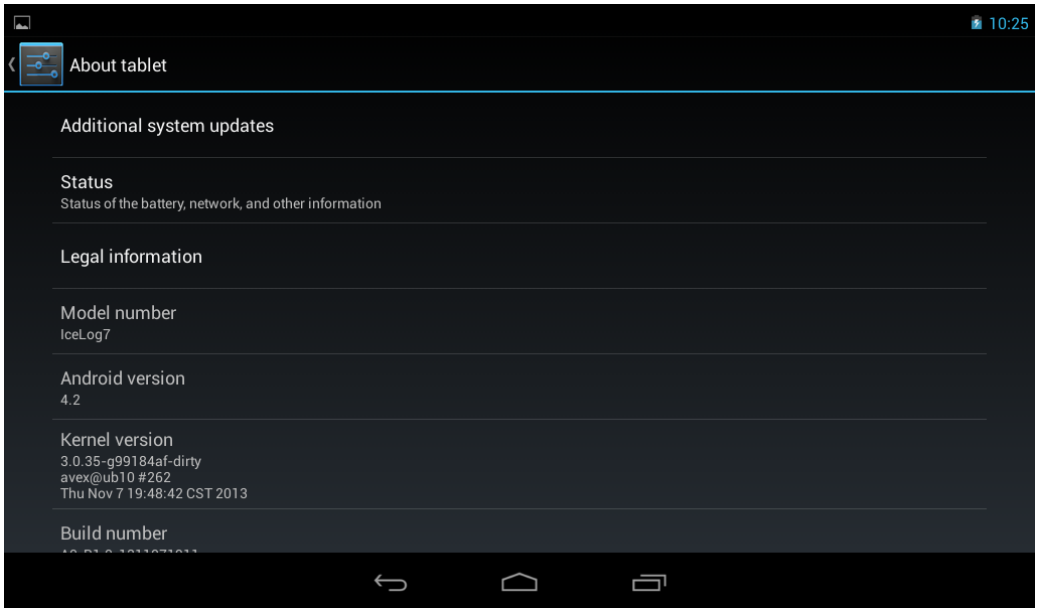


Figure 4-28: About Tablet Menu

Use the About tablet menu to display the following items.

- **Additional system updates**:
  Taps to update the system from OTA (over-the-air) or from the microSD card.
- **Status**:
  Taps to display the status of batteries, network, signal, etc.
- **Legal information**:
  Taps to display the legal information.

- **Model number**:
  Displays the model number.
- **Android version**:
  Displays the Android version.
- **Kernel version**:
  Displays the kernal version.
- **Build number**:
  Displays the device build number.

4.5 File Manager

The ICELOG-07 provides a file management tool that allows users to manage files in the internal storage and external storage devices. Tap **AndExplorer** on the application page to launch it.

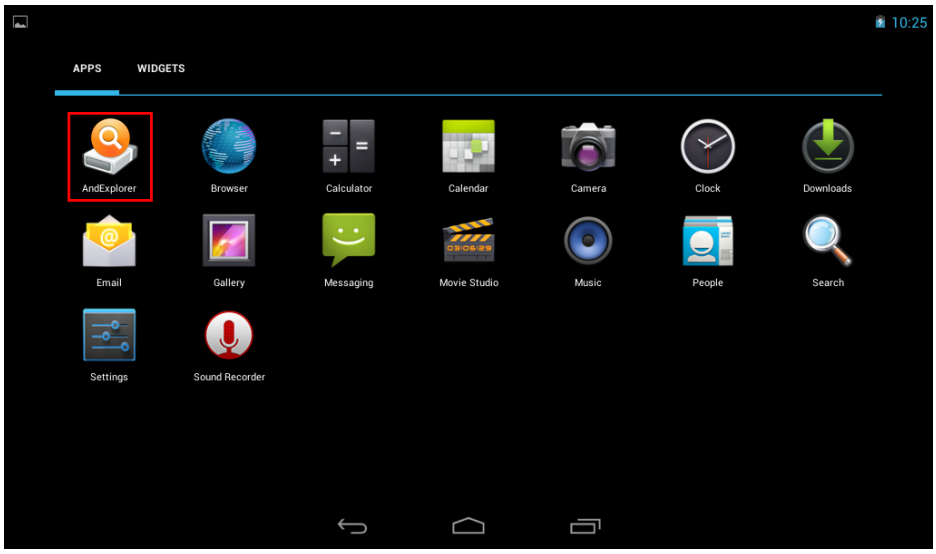


Figure 4-29: AndExplorer Icon

The screen shown in **Figure 4-30** appears. Use the buttons on the screen to browse through folders and files. Long click a folder or a file to select it.

Figure 4-30: AndExplorer Screen

To bring up the function button menu, click the icon on the bottom right corner.

Figure 4-31: AndExplorer – Function Button Menu

4.6 Camera

The ICELOG-07 equips with a 5-megapixel rear-facing auto-focus camera. Tap **Camera** on the Launcher page to launch it.

Figure 4-32 describes the user interface of the camera application.

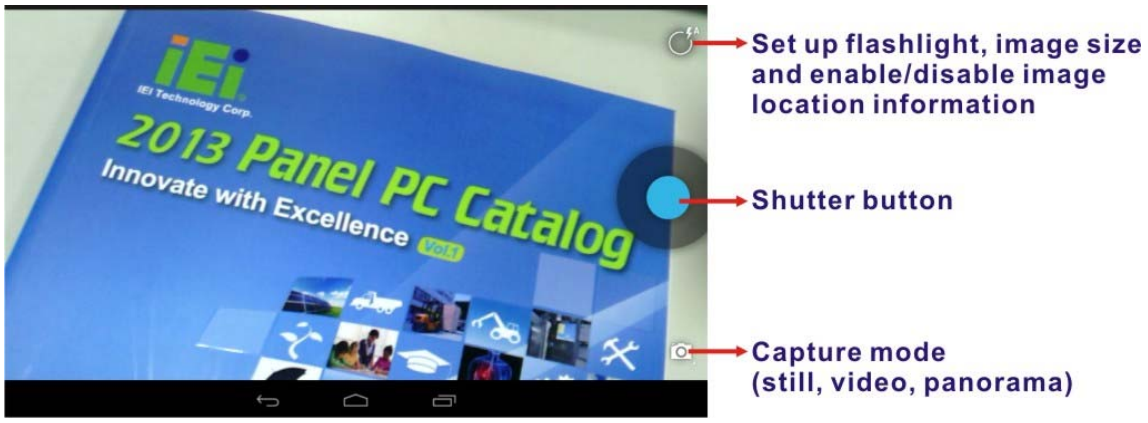


Figure 4-32: Camera Application

4.7 System Update

If there is a newer version of OS or firmware available, please follow the steps below to update the system.

Step 1: If choosing to update the OS or firmware from the microSD card, save the update file to a microSD card and insert the microSD card to the ICELOG-07 (see **Section 3.4** for the microSD card installation instruction). The user can also update from OTA (over-the-air) via Wi-Fi connection.

Step 2: Access the Launcher page and click **Settings**. Scroll down to select **About Tablet**. Then, tap **Additional system updates**.

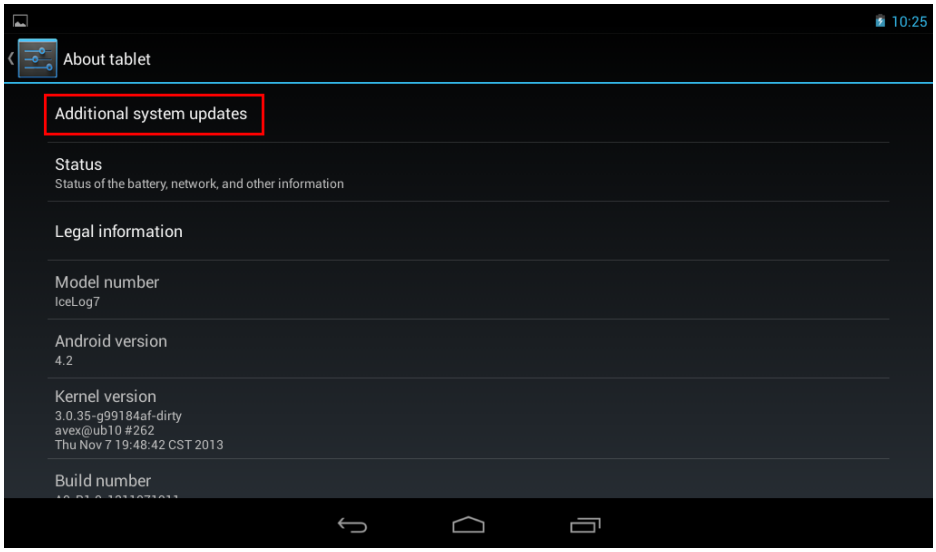


Figure 4-33: Additional System Updates

Step 3: The System Update page shows. Select either to update from OTA (over-the-air) or from the installed microSD card.

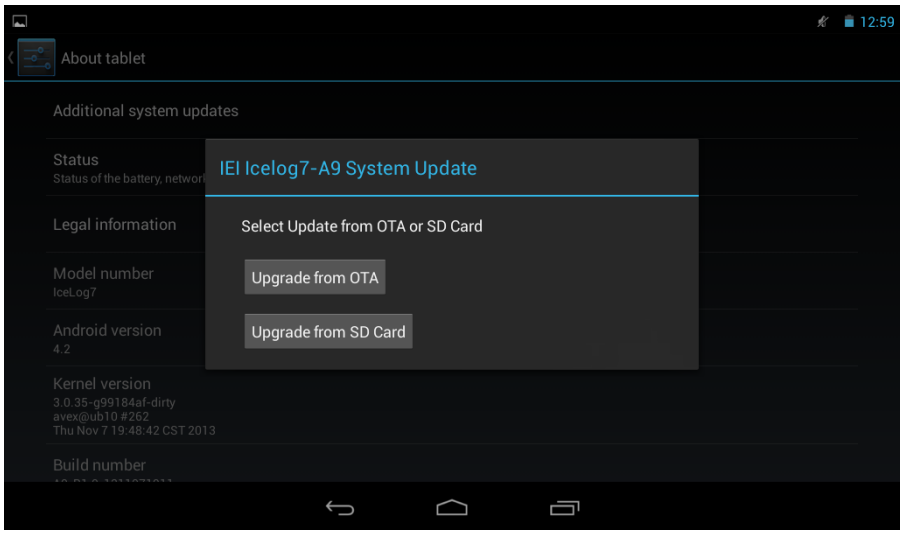


Figure 4-34: System Update Screen

Appendix

A

Safety Precautions

WARNING:

The precautions outlined in this chapter should be strictly followed. Failure to follow these precautions may result in permanent damage to the ICELOG-07.

A.1 Safety Precautions

Please follow the safety precautions outlined in the sections that follow:

A.1.1 General Safety Precautions

Please ensure the following safety precautions are adhered to at all times.

- ***Follow the electrostatic precautions*** outlined below whenever the ICELOG-07 is opened.
- ***Make sure the power is turned off and the power cord is disconnected*** whenever the ICELOG-07 is being installed, moved or modified.
- ***Do not apply voltage levels that exceed the specified voltage range***. Doing so may cause fire and/or an electrical shock.
- ***Electric shocks can occur*** if the ICELOG-07 chassis is opened when the ICELOG-07 is running.
- ***If considerable amounts of dust, water, or fluids enter the ICELOG-07***, turn off the power supply immediately, unplug the power cord, and contact the ICELOG-07 vendor.
- **DO NOT**:
  - Drop the ICELOG-07 against a hard surface.
  - Strike or exert excessive force onto the LCD panel.
  - Touch any of the LCD panels with a sharp object
  - In a site where the ambient temperature exceeds the rated temperature

A.1.2 Anti-static Precautions

WARNING:

Failure to take ESD precautions during the installation of the ICELOG-07 may result in permanent damage to the ICELOG-07 and severe injury to the user.

Electrostatic discharge (ESD) can cause serious damage to electronic components, including the ICELOG-07. Dry climates are especially susceptible to ESD. It is therefore critical that whenever the ICELOG-07 is opened and any of the electrical components are handled, the following anti-static precautions are strictly adhered to.

- ***Wear an anti-static wristband***: Wearing a simple anti-static wristband can help to prevent ESD from damaging any electrical component.
- ***Self-grounding***: Before handling any electrical component, touch any grounded conducting material. During the time the electrical component is handled, frequently touch any conducting materials that are connected to the ground.
- ***Use an anti-static pad***: When configuring or working with an electrical component, place it on an antic-static pad. This reduces the possibility of ESD damage.
- ***Only handle the edges of the electrical component***: When handling the electrical component, hold the electrical component by its edges.

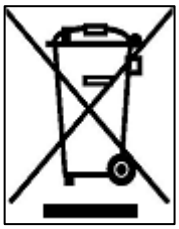
A.1.3 Product Disposal

CAUTION:

Risk of explosion if battery is replaced by and incorrect type. Only certified engineers should replace the on-board battery.

Dispose of used batteries according to instructions and local regulations.

- Outside the European Union - If you wish to dispose of used electrical and electronic products outside the European Union, please contact your local authority so as to comply with the correct disposal method.
- Within the European Union:



EU-wide legislation, as implemented in each Member State, requires that waste electrical and electronic products carrying the mark (left) must be disposed of separately from normal household waste. This includes monitors and electrical accessories, such as signal cables or power cords. When you need to dispose of your display products, please follow the guidance of your local authority, or ask the shop where you purchased the product. The mark on electrical and electronic products only applies to the current European Union Member States.

Please follow the national guidelines for electrical and electronic product disposal.

A.2 Maintenance and Cleaning Precautions

When maintaining or cleaning the ICELOG-07, please follow the guidelines below.

A.2.1 Maintenance and Cleaning

Prior to cleaning any part or component of the ICELOG-07, please read the details below.

- Except for the LCD panel, never spray or squirt liquids directly onto any other components. To clean the LCD panel, gently wipe it with a piece of soft dry cloth or a slightly moistened cloth.
- The interior of the ICELOG-07 does not require cleaning. Keep fluids away from the ICELOG-07 interior.
- Be cautious of all small removable components when vacuuming the ICELOG-07.
- Turn the ICELOG-07 off before cleaning the ICELOG-07.
- Never drop any objects or liquids through the openings of the ICELOG-07.
- Be cautious of any possible allergic reactions to solvents or chemicals used when cleaning the ICELOG-07.
- Avoid eating, drinking and smoking within vicinity of the ICELOG-07.

A.2.2 Cleaning Tools

Some components in the ICELOG-07 may only be cleaned using a product specifically designed for the purpose. In such case, the product will be explicitly mentioned in the cleaning tips. Below is a list of items to use when cleaning the ICELOG-07.

- ***Cloth*** – Although paper towels or tissues can be used, a soft, clean piece of cloth is recommended when cleaning the ICELOG-07.
- ***Water or rubbing alcohol*** – A cloth moistened with water or rubbing alcohol can be used to clean the ICELOG-07.
- ***Using solvents*** – The use of solvents is not recommended when cleaning the ICELOG-07 as they may damage the plastic parts.
- ***Vacuum cleaner*** – Using a vacuum specifically designed for computers is one of the best methods of cleaning the ICELOG-07. Dust and dirt can restrict the airflow in the ICELOG-07 and cause its circuitry to corrode.
- ***Cotton swabs*** - Cotton swaps moistened with rubbing alcohol or water are excellent tools for wiping hard to reach areas.
- ***Foam swabs*** - Whenever possible, it is best to use lint free swabs such as foam swabs for cleaning.

Appendix

B

Watchdog Timer

NOTE:

The following discussion applies to DOS. Contact IEI support or visit the IEI website for drivers for other operating systems.

The Watchdog Timer is a hardware-based timer that attempts to restart the system when it stops working. The system may stop working because of external EMI or software bugs. The Watchdog Timer ensures that standalone systems like ATMs will automatically attempt to restart in the case of system problems.

A BIOS function call (INT 15H) is used to control the Watchdog Timer.

INT 15H:

AH – 6FH Sub-function:	
AL – 2:	Sets the Watchdog Timer's period.
BL:	Time-out value (Its unit-second is dependent on the item "Watchdog Timer unit select" in CMOS setup).

Table B-1: AH-6FH Sub-function

Call sub-function 2 to set the time-out period of Watchdog Timer first. If the time-out value is not zero, the Watchdog Timer starts counting down. When the timer value reaches zero, the system resets. To ensure that this reset condition does not occur, calling sub-function 2 must periodically refresh the Watchdog Timer. However, the watchdog timer is disabled if the time-out value is set to zero.

A tolerance of at least 10% must be maintained to avoid unknown routines within the operating system (DOS), such as disk I/O that can be very time-consuming.

NOTE:

The Watchdog Timer is activated through software. The software application that activates the Watchdog Timer must also deactivate it when closed. If the Watchdog Timer is not deactivated, the system will automatically restart after the Timer has finished its countdown.

EXAMPLE PROGRAM:

```
; INITIAL TIMER PERIOD COUNTER

;
W_LOOP:
;

        MOV     AX, 6F02H       ;setting the time-out value
        MOV     BL, 30          ;time-out value is 48 seconds
        INT     15H

;
; ADD THE APPLICATION PROGRAM HERE
;

        CMP     EXIT_AP, 1      ;is the application over?
        JNE     W_LOOP          ;No, restart the application

        MOV     AX, 6F02H       ;disable Watchdog Timer
        MOV     BL, 0;
        INT     15H

;
; EXIT ;
```

Appendix

C

Hazardous Materials Disclosure

C.1 Hazardous Materials Disclosure Table for IPB Products Certified as RoHS Compliant Under 2002/95/EC Without Mercury

The details provided in this appendix are to ensure that the product is compliant with the Peoples Republic of China (China) RoHS standards. The table below acknowledges the presences of small quantities of certain materials in the product, and is applicable to China RoHS only.

A label will be placed on each product to indicate the estimated “Environmentally Friendly Use Period” (EFUP). This is an estimate of the number of years that these substances would “not leak out or undergo abrupt change.” This product may contain replaceable sub-assemblies/components which have a shorter EFUP such as batteries and lamps. These components will be separately marked.

Please refer to the table on the next page.

Part Name	Toxic or Hazardous Substances and Elements					
	Lead (Pb)	Mercury (Hg)	Cadmium (Cd)	Hexavalent Chromium (CR(VI))	Polybrominated Biphenyls (PBB)	Polybrominated Diphenyl Ethers (PBDE)
Housing	X	O	O	O	O	X
Display	X	O	O	O	O	X
Printed Circuit Board	X	O	O	O	O	X
Metal Fasteners	X	O	O	O	O	O
Cable Assembly	X	O	O	O	O	X
Fan Assembly	X	O	O	O	O	X
Power Supply Assemblies	X	O	O	O	O	X
Battery	O	O	O	O	O	O

O: This toxic or hazardous substance is contained in all of the homogeneous materials for the part is below the limit requirement in SJ/T11363-2006

X: This toxic or hazardous substance is contained in at least one of the homogeneous materials for this part is above the limit requirement in SJ/T11363-2006

此附件旨在确保本产品符合中国 RoHS 标准。以下表格标示此产品中某有毒物质的含量符合中国 RoHS 标准规定的限量要求。

本产品上会附有"环境友好使用期限"的标签，此期限是估算这些物质"不会有泄漏或突变"的年限。本产品可能包含有较短的环境友好使用期限的可替换元件，像是电池或灯管，这些元件将会单独标示出来。

部件名称	有毒有害物质或元素					
	铅 (Pb)	汞 (Hg)	镉 (Cd)	六价铬 (CR(VI))	多溴联苯 (PBB)	多溴二苯醚 (PBDE)
壳体	X	O	O	O	O	X
显示	X	O	O	O	O	X
印刷电路板	X	O	O	O	O	X
金属螺帽	X	O	O	O	O	O
电缆组装	X	O	O	O	O	X
风扇组装	X	O	O	O	O	X
电力供应组装	X	O	O	O	O	X
电池	O	O	O	O	O	O
O: 表示该有毒有害物质在该部件所有物质材料中的含量均在 SJ/T11363-2006 标准规定的限量要求以下。 X: 表示该有毒有害物质至少在该部件的某一均质材料中的含量超出 SJ/T11363-2006 标准规定的限量要求。						