

AIM-Android10-ARM_64-TPC1XX
User Manual
2023-06-01



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1 About Manual

Thank you for using Advantech product and AIM-Android 10. This manual is a user manual of AIM-Android 10. This manual may be copied and distributed in any medium, either commercially or non-commercially.

2 Introduction

AIM-Android 10 is developed for Advantech devices based on formal Android 10. It is customized to satisfy users' requirements and to add new functions and features.

2.1 New features

2.1.1 Automatic Installation

In the process of installation, device recognizing can make phase more automatically. It will ensure that the users use Advantech android in Advantech device more comfortably.

2.1.2 Debugging Support

In the Advantech device you can also use adb over NET. It will ensure that the users use debugging in Advantech device more comfortably.

2.1.3 Serial Port Support

We have developed a demo serial port JNI, JAR and utility for users. It can test serial port functions with UI utility.

2.1.4 Pre-installed Third Party Applications

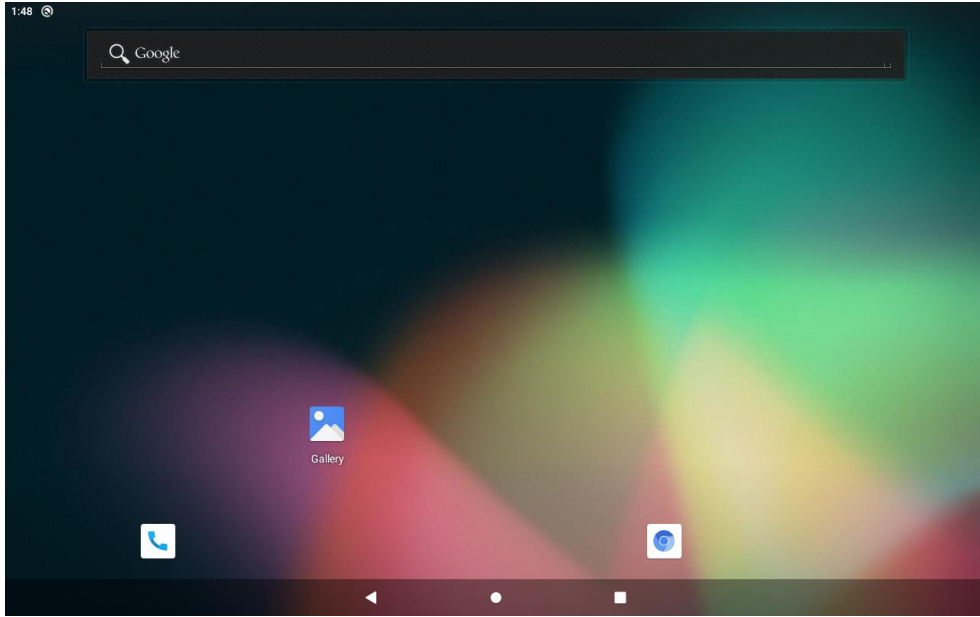
Third party applications are installed as default: KioskSetting, Android agent(Device Manager), ComPort, Chromium, power manager. It is more convenient for the user.

2.2 Device support list

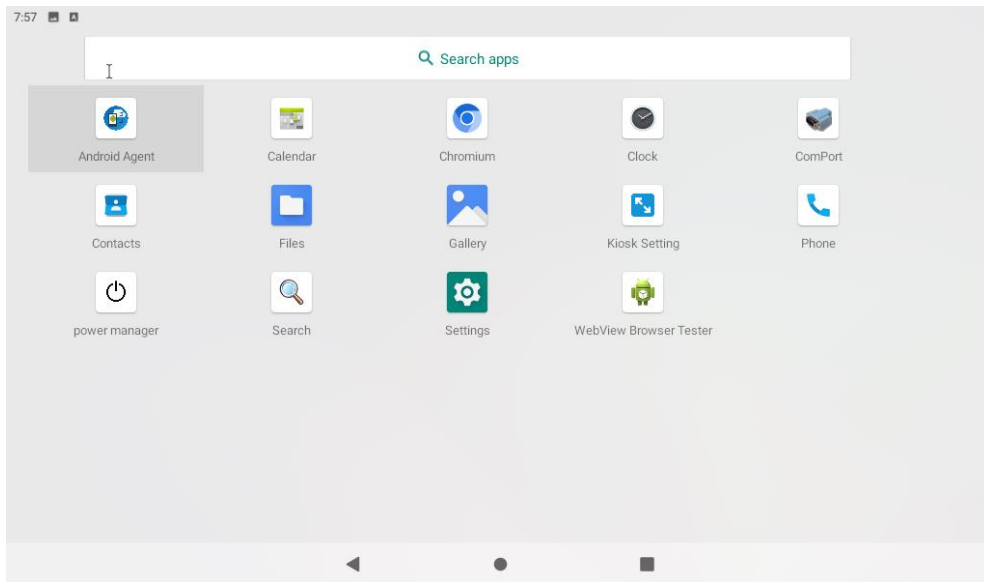
We currently support the following products:
TPC-1XX

2.3 Preview

After installation, you can see the HOME and application list:



HOME



App List

3 Boot up from SD card or eMMC

TPC-1XX supports boot from SD card or onboard flash. This section will guide you how to build an image for TPC-1XX Android system boot media.

The storages devices name as following

Device	Node
sdcard	/dev/mmcblk1
eMMC	/dev/mmcblk2

3.1 Create a bootable SD card

You are able to find the pre-built image from Advantech website. Please follow the steps below to create an SD card([not less than 16G](#)) for boot up. (Note: The PC's free partion need [10G or more](#))

Ubuntu:

Copy "AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip" package to your PC /root/.

Open "Terminal" on Ubuntu LTS.

\$sudo su (Change to "root" authority)

Input your password.

cd /root/

unzip AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip (Unzipfiles)

Insert one SD card into your PC.

Check the SD card location, like /dev/sdb

#dd if=/root/AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd

/eamb9918-sdcard_20211222.img of=/dev/sdb bs=4096

#sync

#eject /dev/sdb

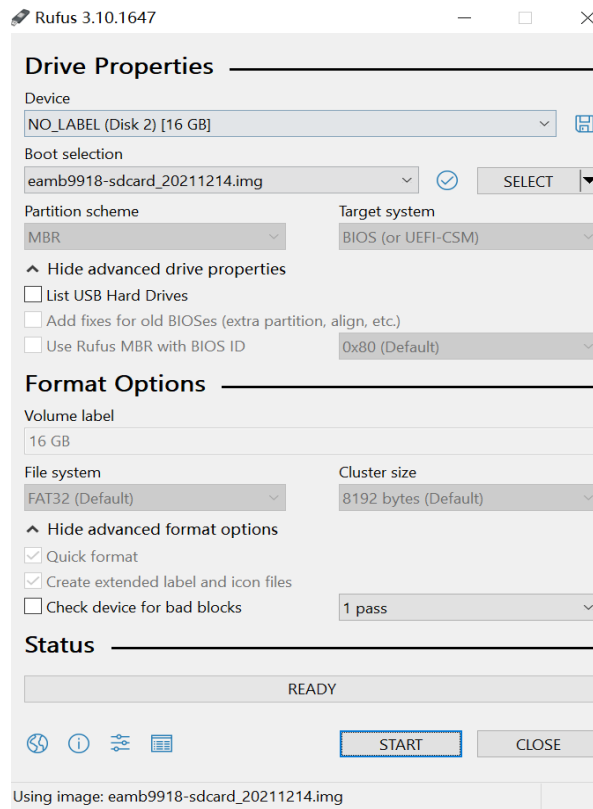
Then insert the SD card to TPC-1XX and power up.

Now, it should boot up with an Ubuntu environment.

Windows 10:

Unzip the AIM-Android-10-ARM_64-TPC-1XX_yyyy_mm_dd.zip.(Note: The PC's free partition need **10G or more**)

Use the rufus to burn the image.



Then insert the SD card to TPC-1XX and power up.

Now, it should boot up with an Ubuntu environment.

Note:

- 1.The DIP switch(SW2) needs to be adjusted to "1-off 2-on 3-on 4-off 5-off 6-off".
- 2.If you switch the operating system from android to linux, you need to re-input the uboot env.

The resolution's parameters:

- 1024x600(7",tdm07040ws) -> lvds_panel_mode 0
- 1280x800(10",g101ice) -> lvds_panel_mode 1
- 1366x768(15.6",g156bge) -> lvds_panel_mode 2
- 1920x1080(15.6".g156hce) -> lvds_panel_mode 3
- 1920x1080(21",g215han) -> lvds_panel_mode 5

For example:

```
#env default -a
#setenv lvds_panel_mode 1
#saveenv
#reset
```

3.2 Boot from eMMC

Please follow the section 3.1 to create a bootable SD card, that is TPC-1XX Ubuntu SD card. The TPC-1XX Android Image is in the SD card(/root/AndroidImg).

In the TPC-1XX Ubuntu.

Perform the following command:

```
$sudo su
#cd /root/AndroidImg
#./burnEmmc.sh /dev/mmcblk2
```

And then, please power off and remove the SD card.

Now, the TPC-1XX can boot up from the Android.

Note:

- 1.The DIP switch(SW2) needs to be adjusted to "1-on 2-off 3-off 4-off 5-off 6-off".
- 2.Wait for the LCD interface to have a screen output (for the first time, the eMMC needs about 65s). Do not shut down during the waiting process / Unplug the SD card / Unplug the monitor / Run the system command through the console, otherwise the system may crash.
3. If you switch the operating system from linux to android, you need to re-input the uboot env.

The resolution's parameters:

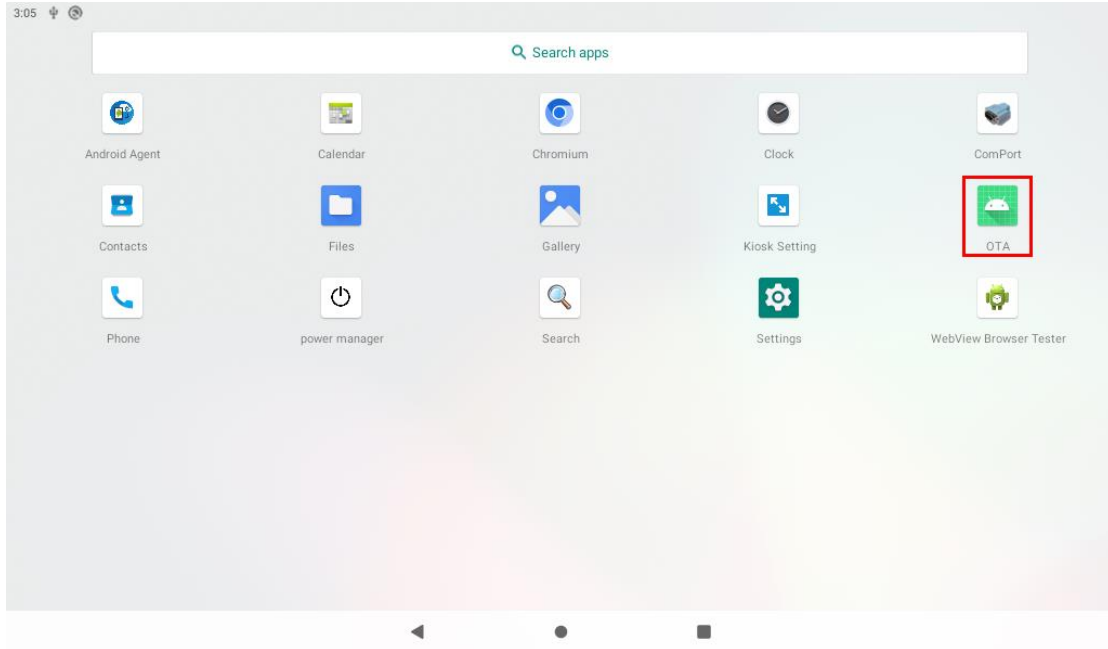
```
1024x600(7",tdm07040ws)  ->  lvds_panel_mode 0
1280x800(10",g101ice)    ->  lvds_panel_mode 1
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```

For example:

```
#env default -a
#setenv lvds_panel_mode 1
#saveenv
#reset
```

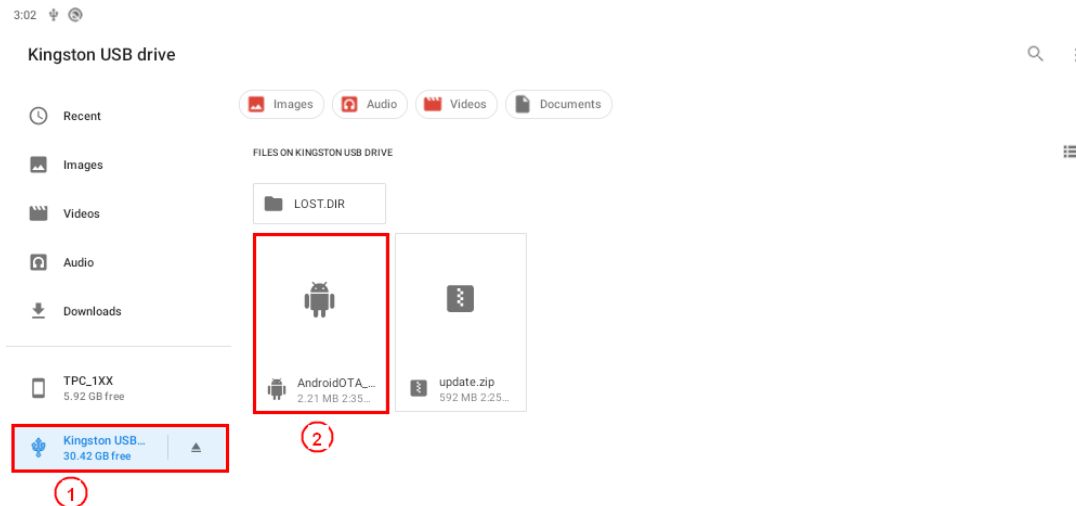
4 OS Upgrade

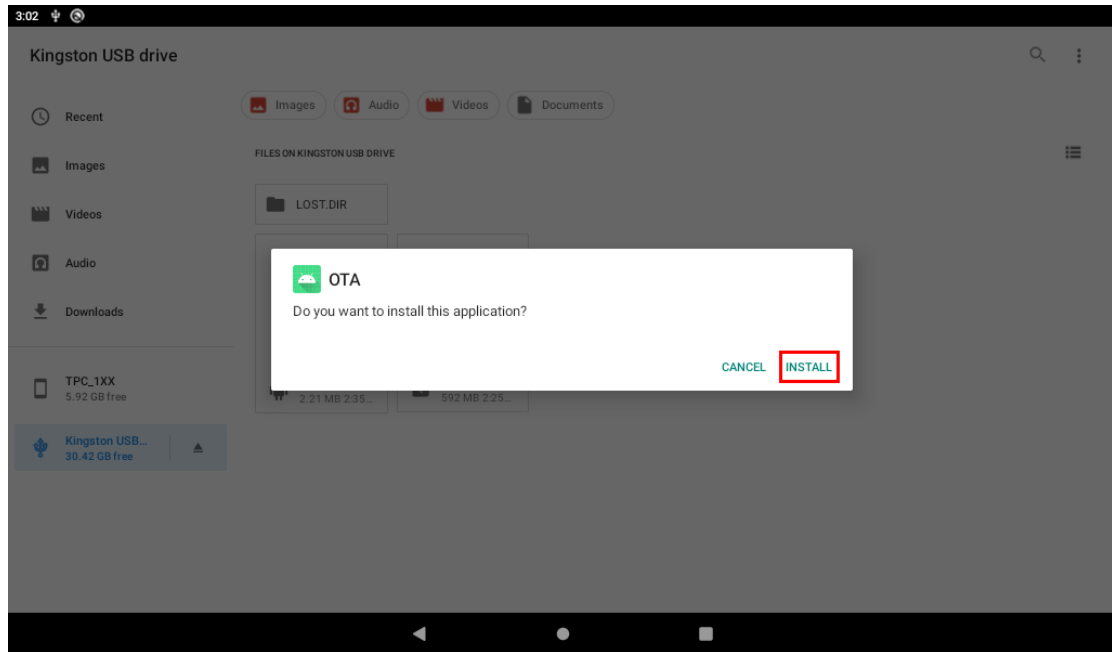
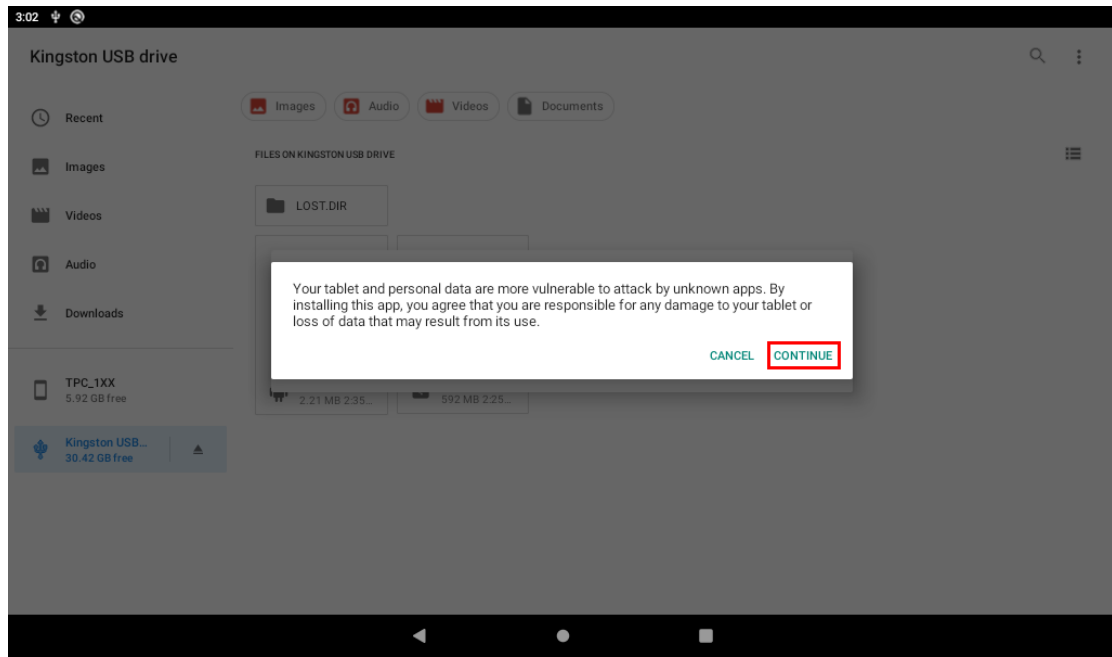
TPC-1XX supports the system upgrade function. The system update function requires OTA app.. If your current system is not installed, please refer to Chapter 4.1 for installation first. If it is already installed, please skip Chapter 4.1.

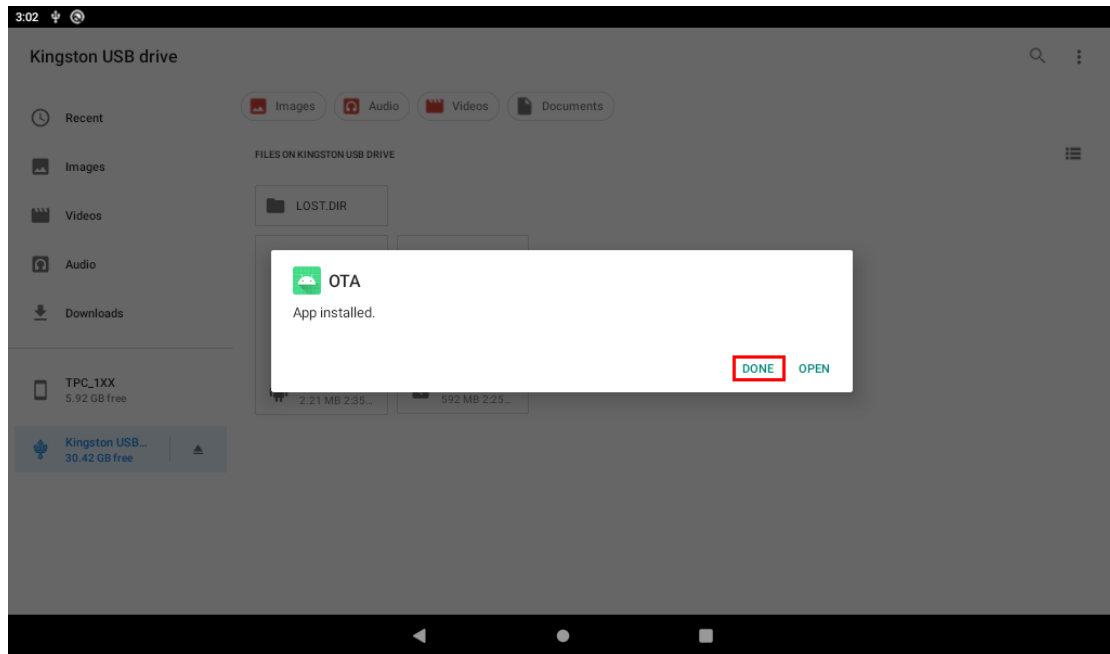


4.1 Install AndroidOTA app

1. Put the AndroidOTA_v1.0.apk package into the USB stick and connect the USB stick to the device
2. Follow the picture steps below



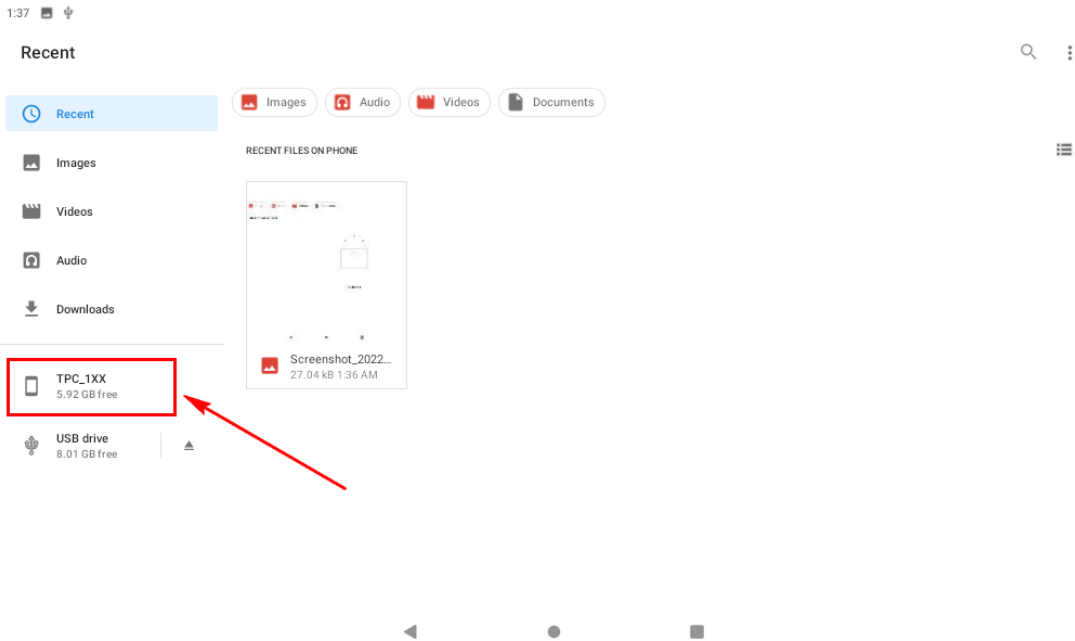




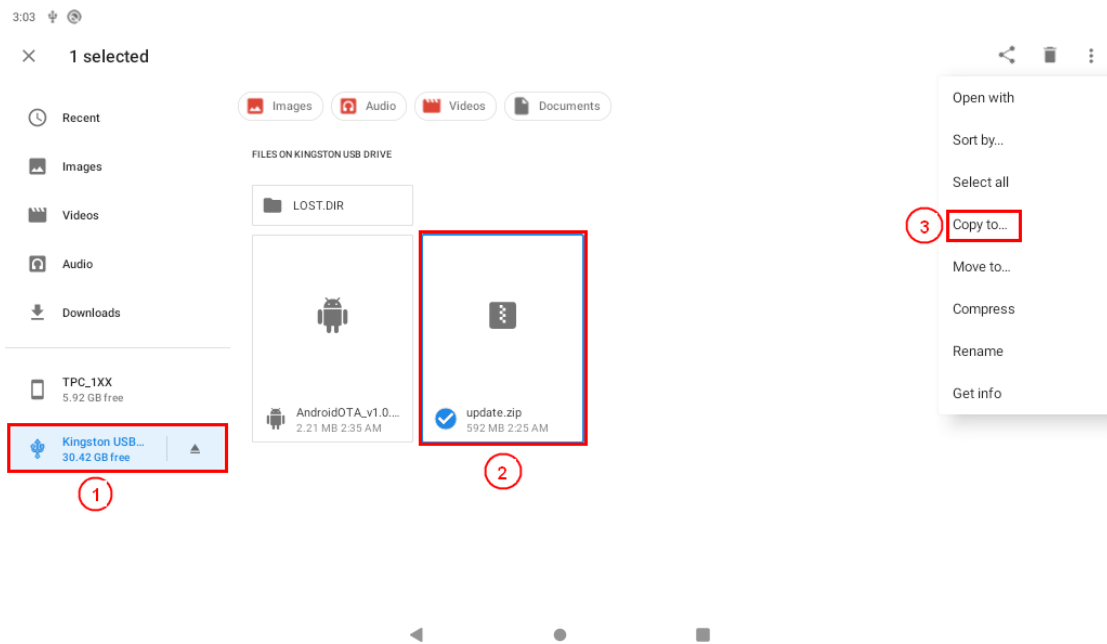
4.2 Copy the update package to the internal storage

1. If you cannot see the internal storage (TPC_1XX) in the File browser, please follow the steps below

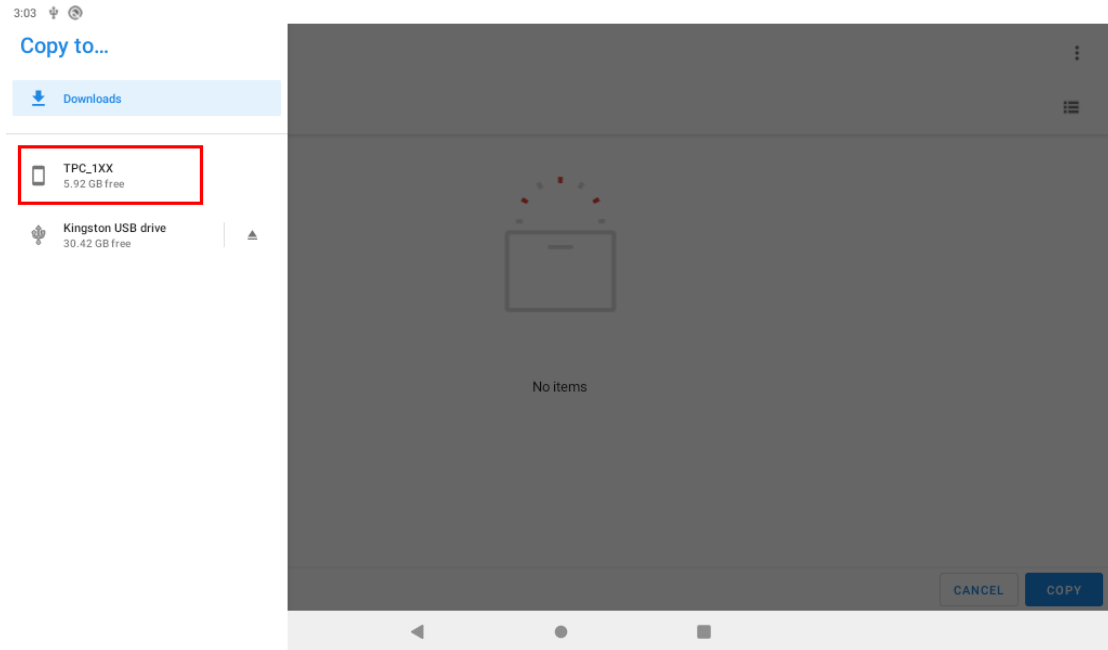




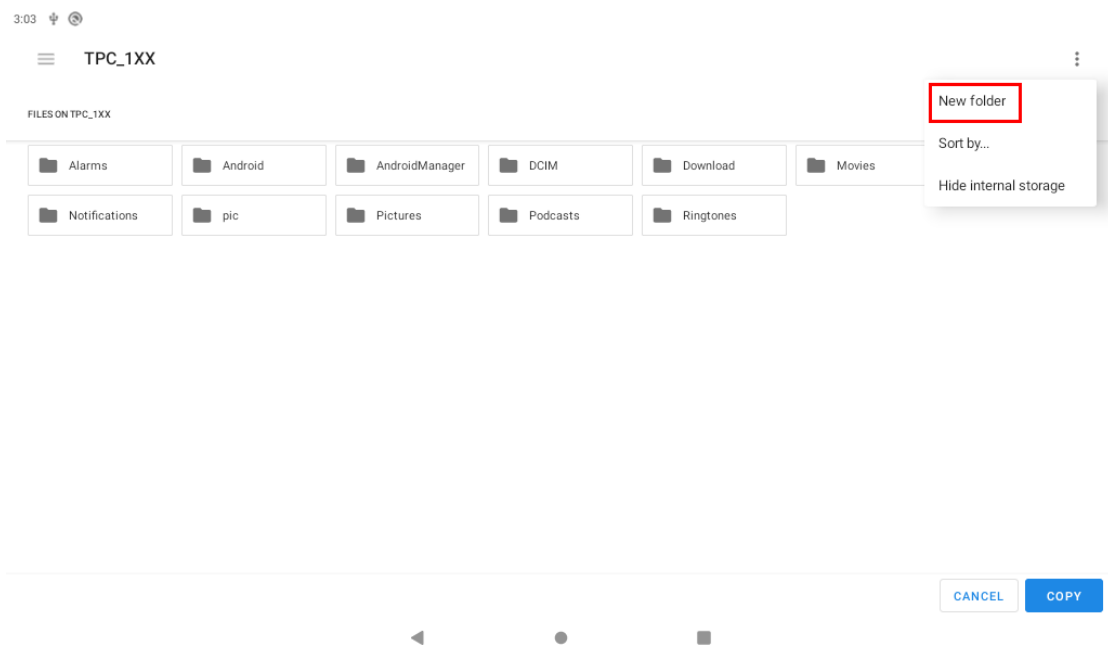
2. Put the update.zip ota package into the USB stick and connect the USB stick to the device
3. Copy the system update package update.zip file in the USB flash drive

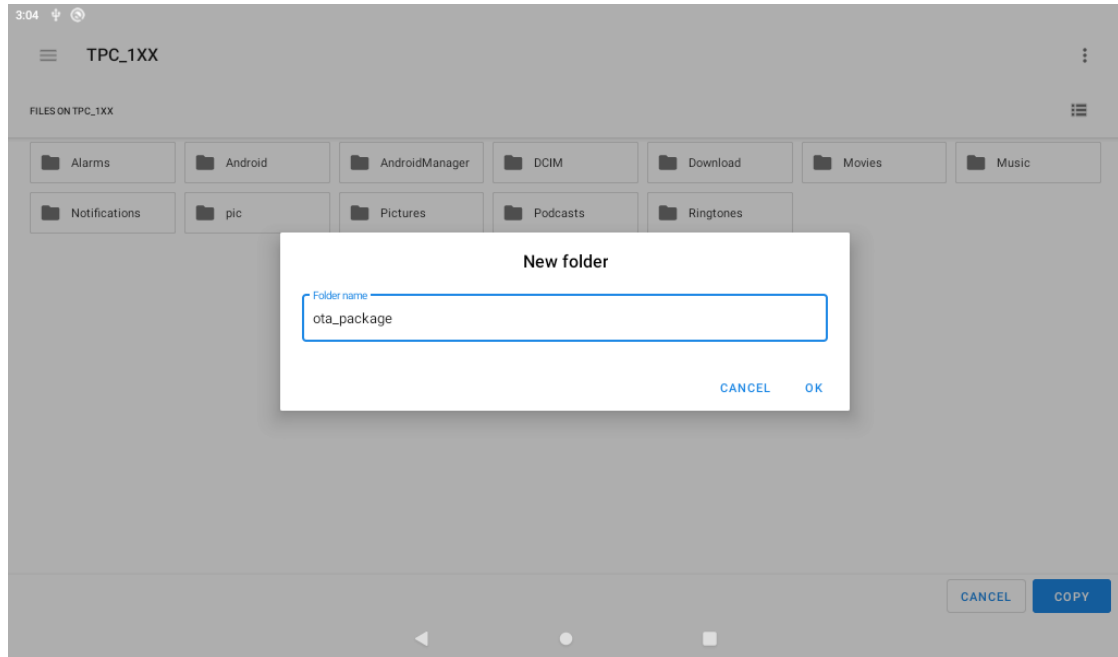


4. Select internal storage (TPC_1XX).

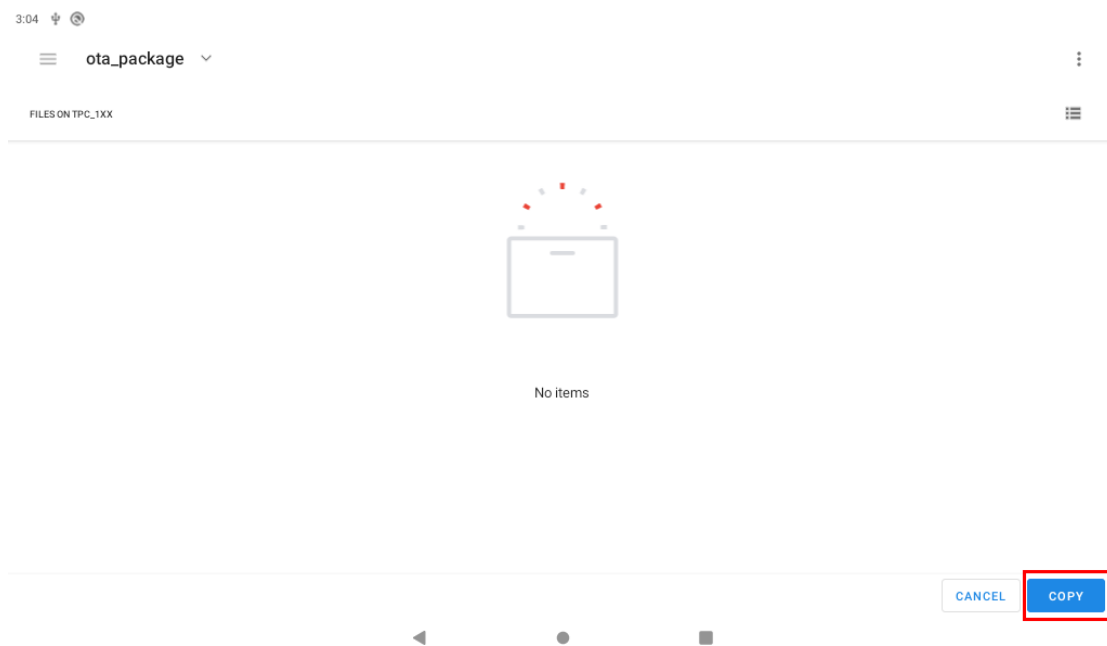


5. Create a new folder named ota_package.





6. Select Copy.



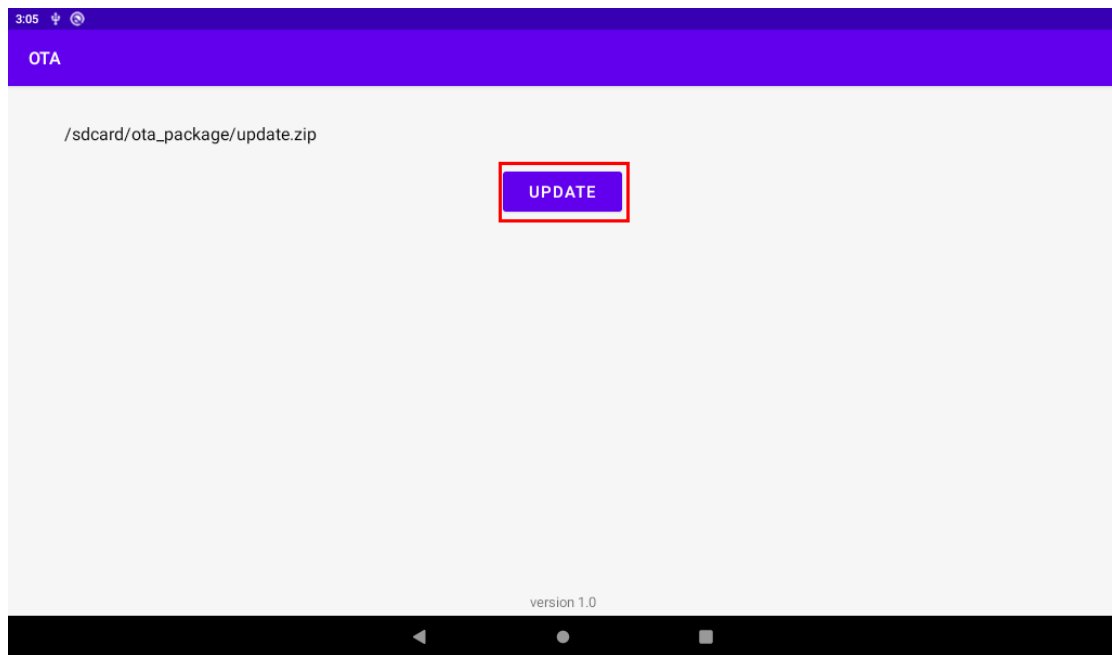
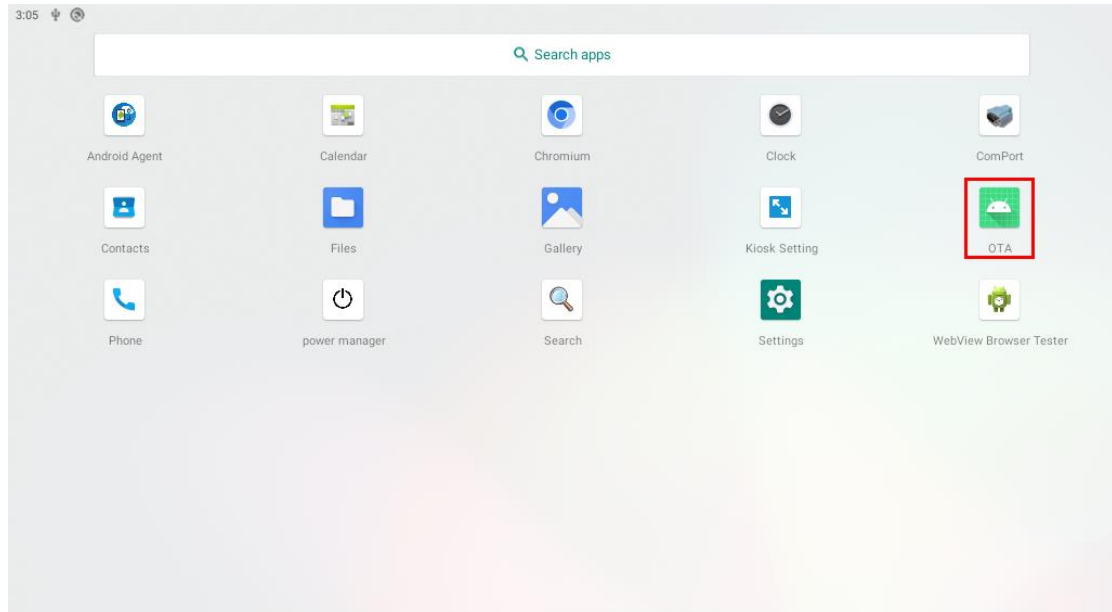
4.3 Start Update

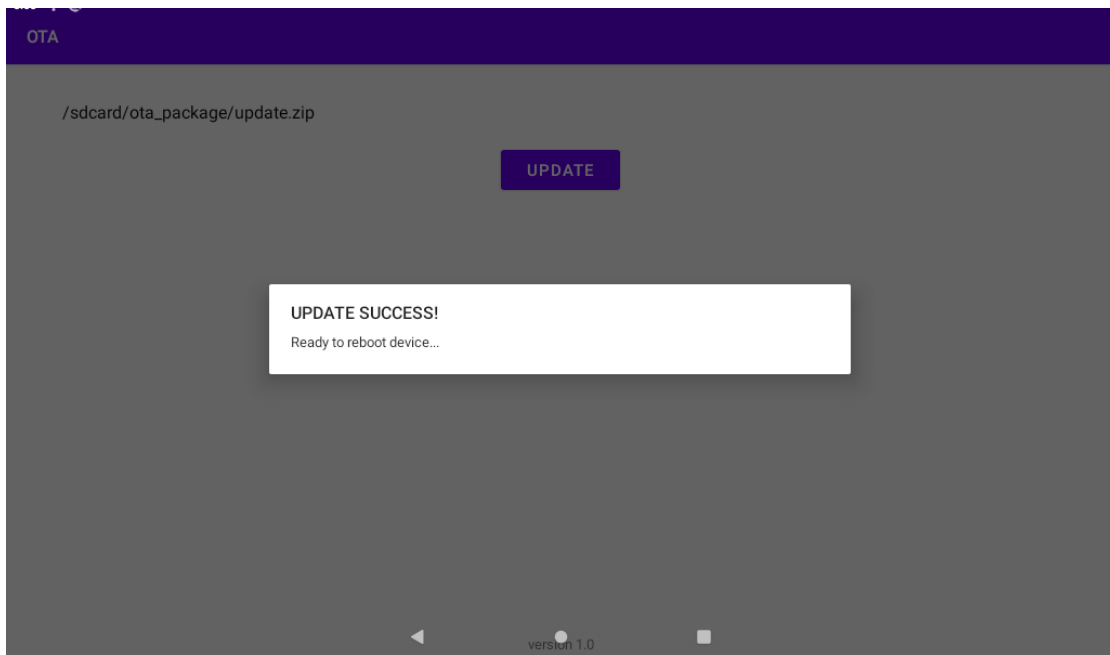
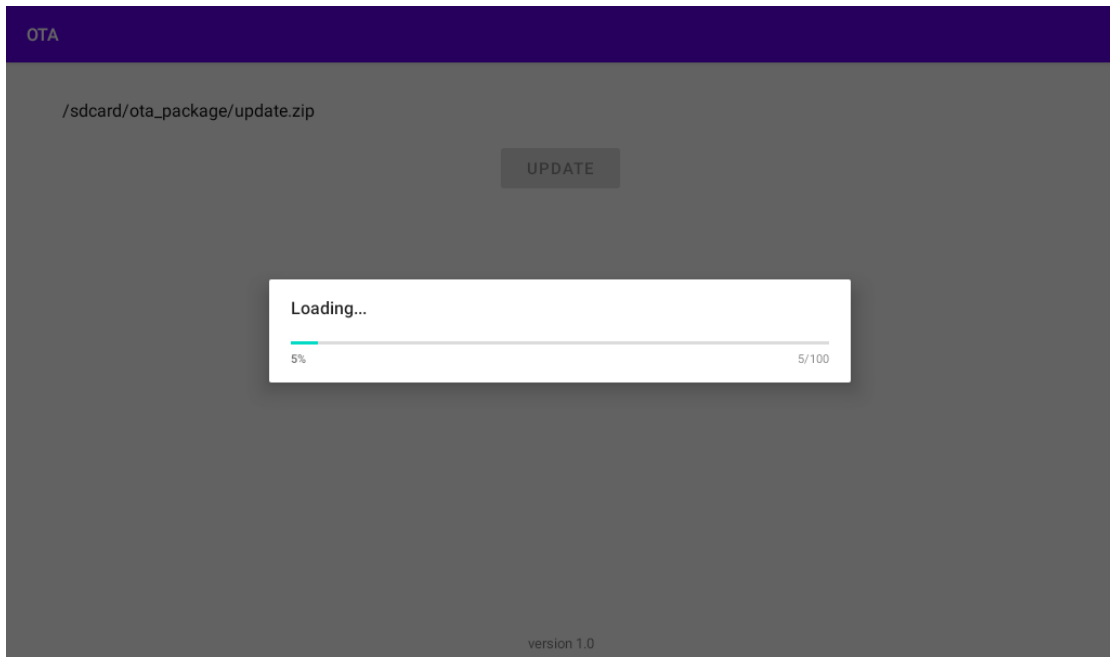
Method 1:

Restart the system directly. After the system is powered on next time, the ota app will automatically detect the update package of /sdcard/ota_package/ directory and then complete the system update.

Method 2:

Run ota app to update . Follow the picture steps below





5 Usage

5.1 About SerialPort sample

After installing AIM-Android, you will see a Serial application in App list. Users can test serial port with it.

Note:

1. Choose the SerialPort mode.

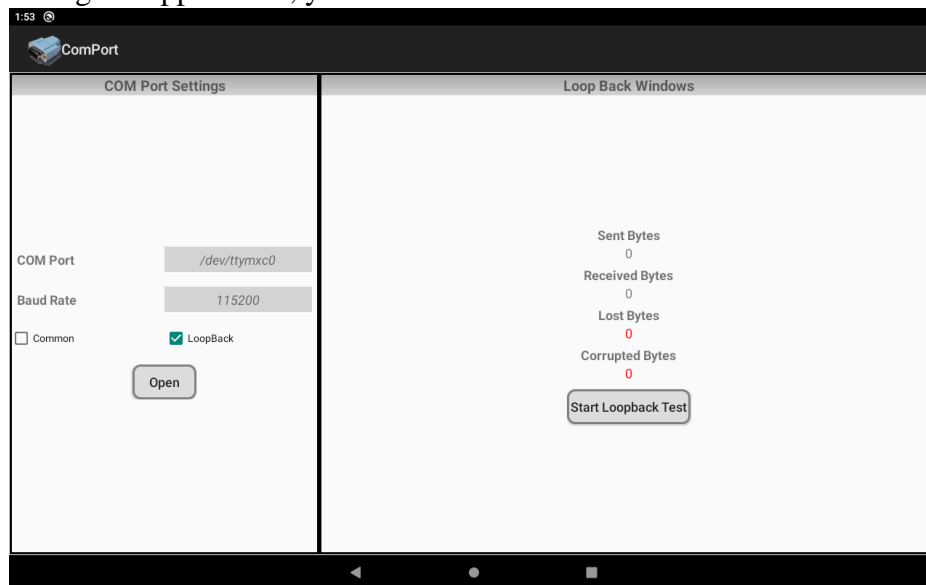
Settings->Network & internet->

Select serial mode(com1)(232mode,422mode,485mode)

2. The COM1(/dev/ttymx0) support three modes: 232mode,422mode,485mode.

The COM2(/dev/ttymx2) only support 485 mode.

After starting the application, you will see:



Serial port options

Usage: choose the port, baudrate.(e.g., ttymx0, 115200)

5.2 About KioskSetting

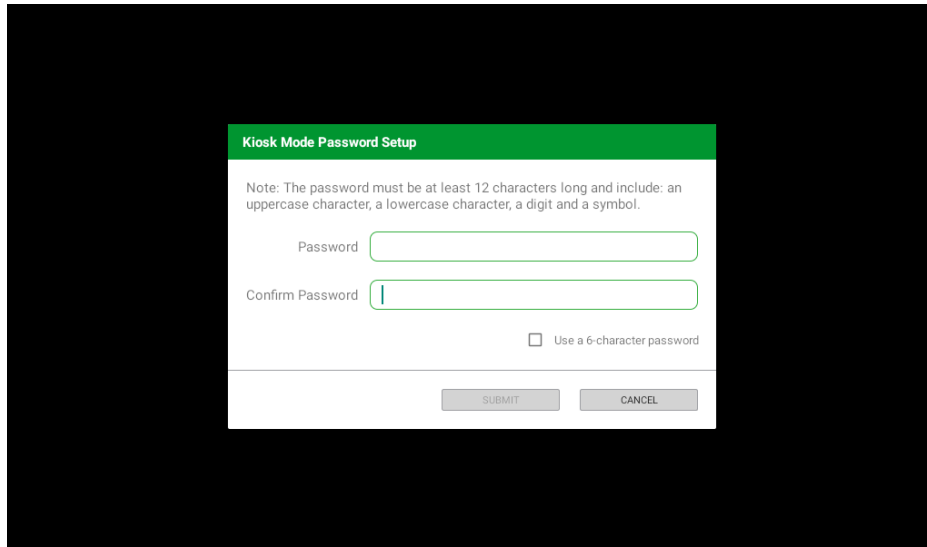
For Android Kiosk solution, Advantech provide a kiosk setting launch App, user can use this App to set any other android App as kiosk App, kiosk App means it will run in full screen when boot up, navigate bar and status bar of android will hide.

5.2.1 Set the Kiosk Setting app as the default launcher

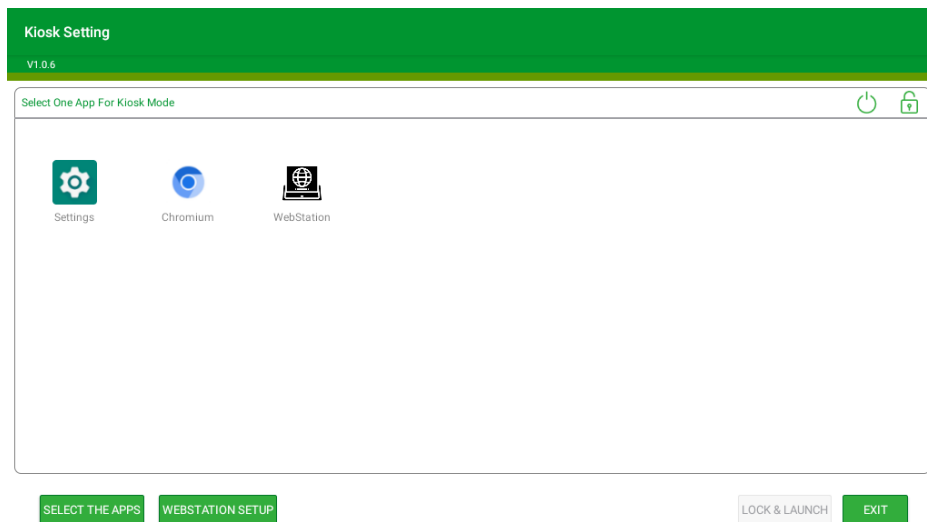
Just launch the kiosksetting app, the app can be the android default home app.

When KioskSetting app starts for the first time, you can see the following screen.

Please set the password of kiosk mode according to the prompt information in the dialog box.

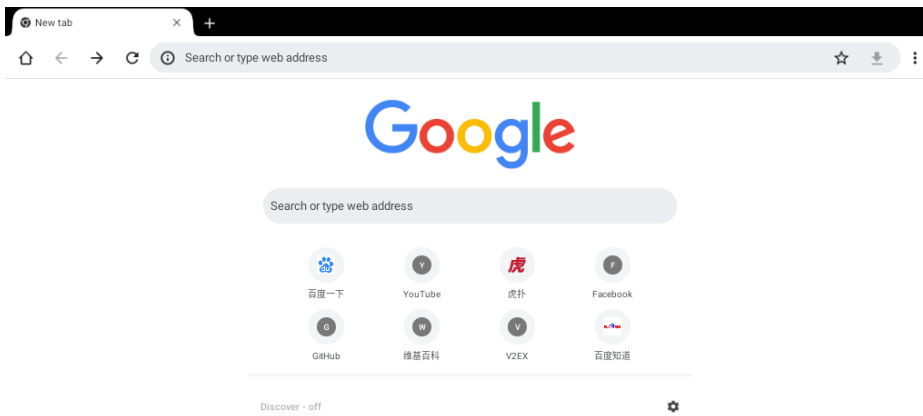
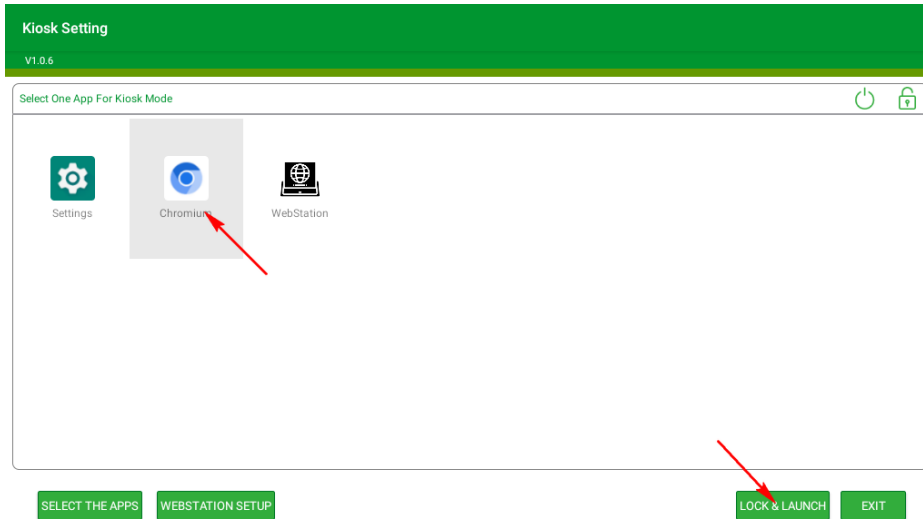


After input, click "SUBMIT" button to enter the app main interface.



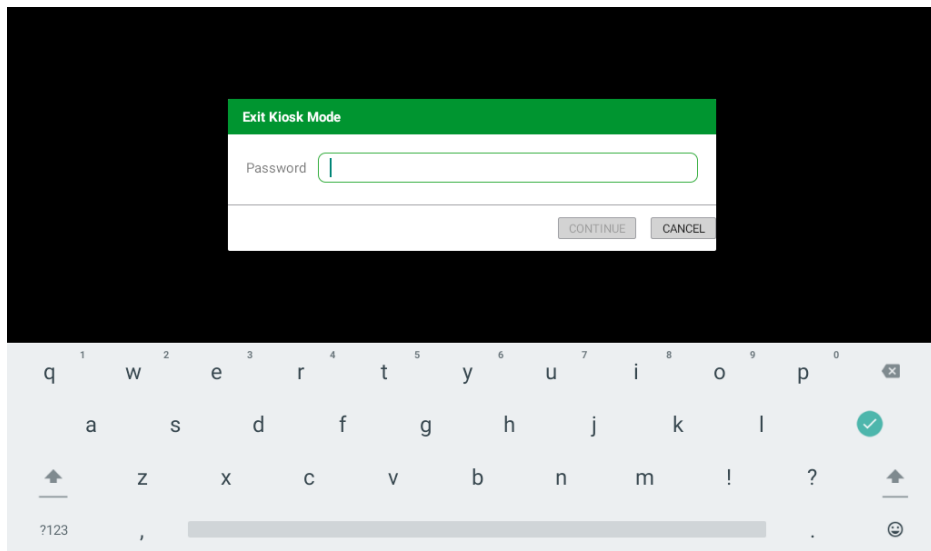
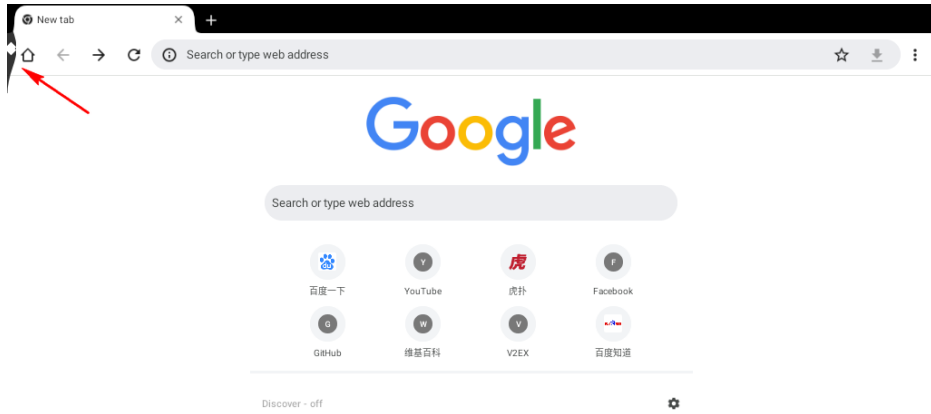
5.2.2 Set third app as kiosk app

First, click the "Chromium" icon in the main interface, and then click the "LOCK & LAUNCH" button to set the Chromium app as kiosk app.



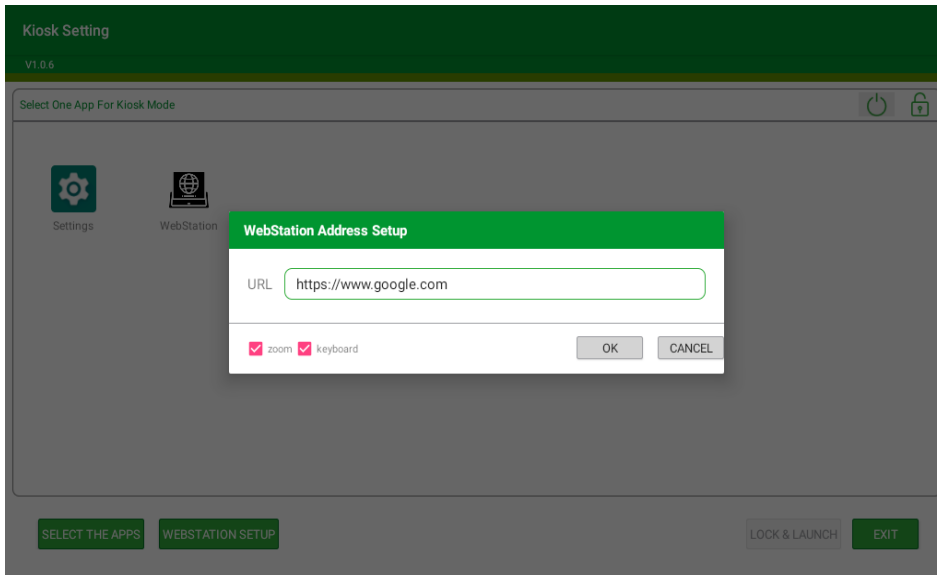
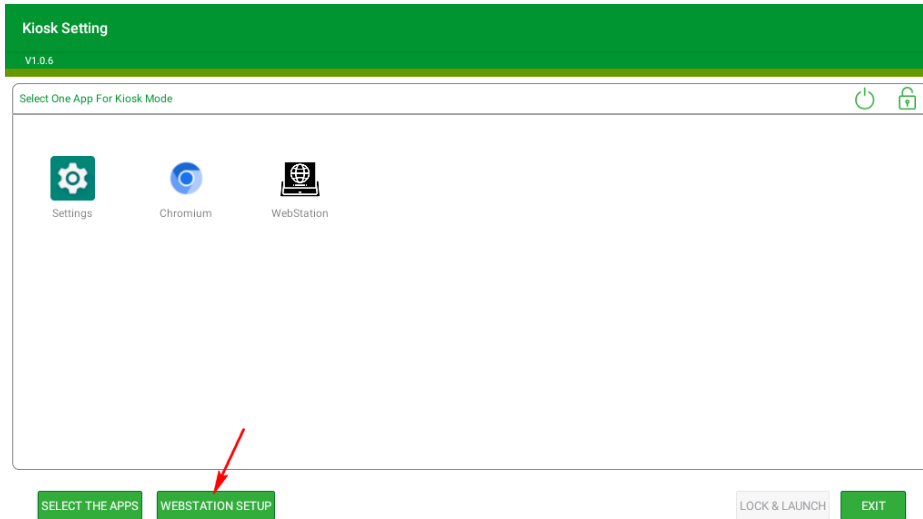
5.2.3 Exit kiosk app

If you want to exit the kiosk app, you need to touch the screen in the upper left corner and pull it inward for 3 seconds and enter the password for setting the kiosk mode before.

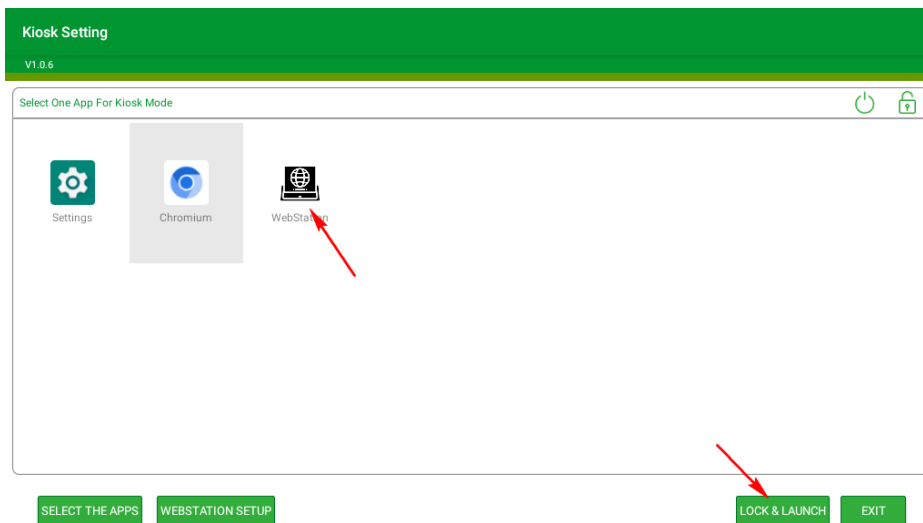


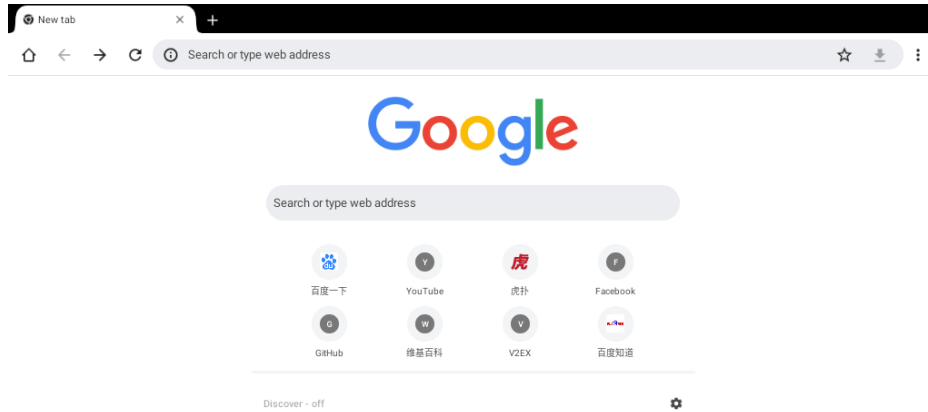
5.2.4 Set WebView as kiosk app

Click the "WEBSTATION SETUP" and input the URL.



Click the "WebStation" icon in the main interface, and then click the "LOCK & LAUNCH" button to set the WebStation app as kiosk app.

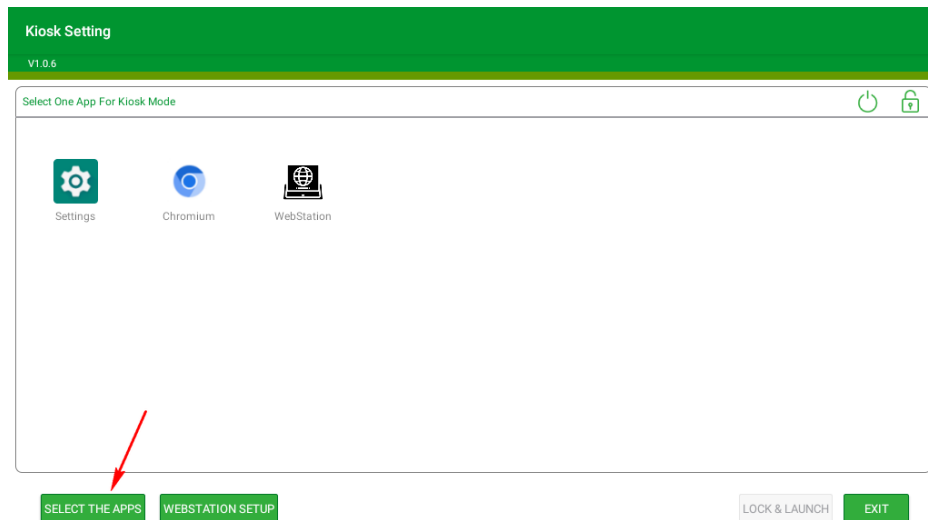


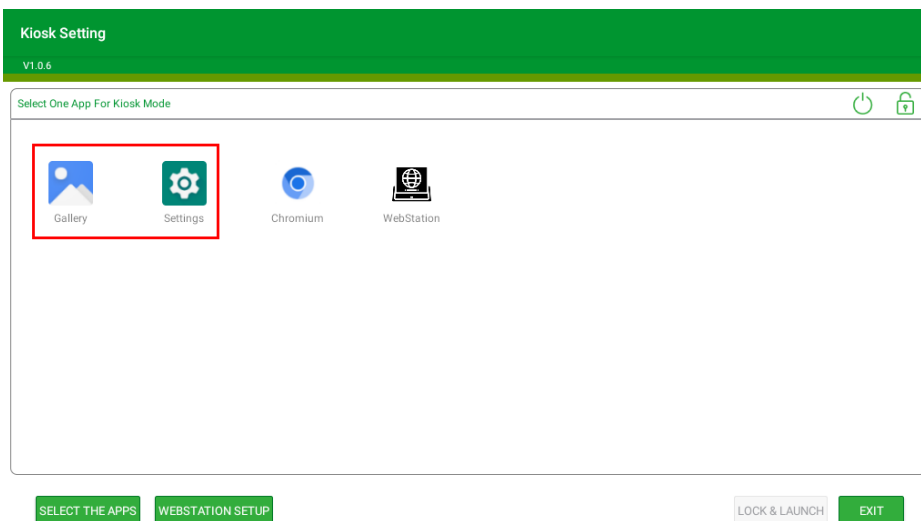
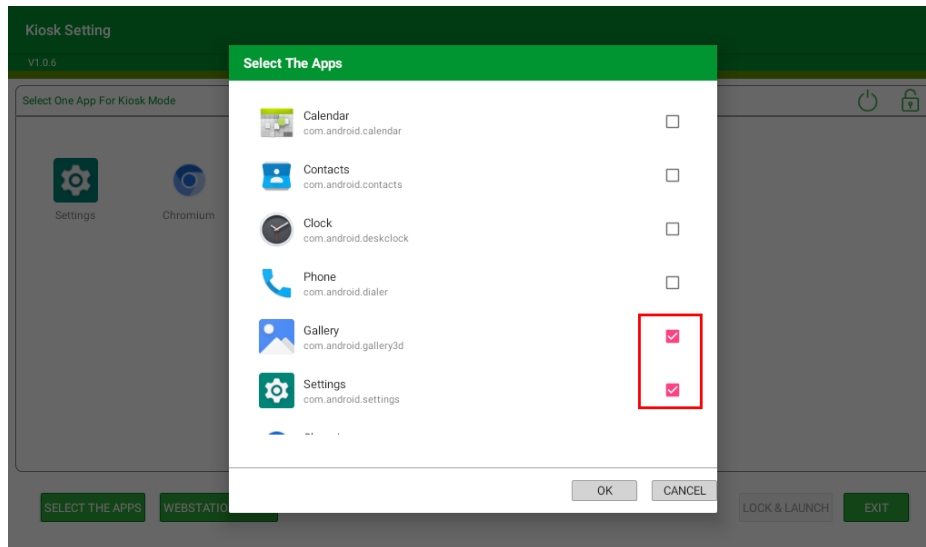


If you want to exit the kiosk app, you need to touch the screen in the upper left corner and pull it inward for 3 seconds and enter the password for setting the kiosk mode before.

5.2.5 Select the app to display

Click the "SELECT THE APPS" icon in the main interface

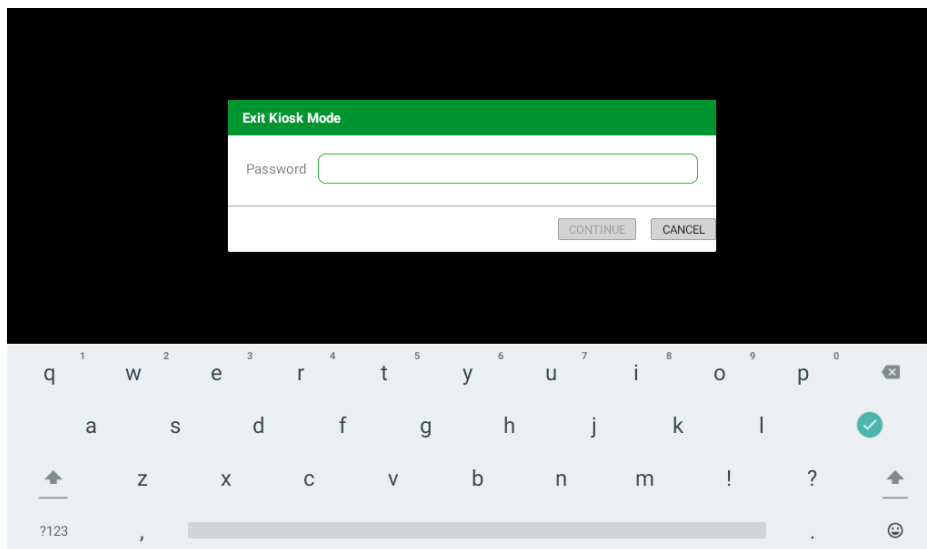
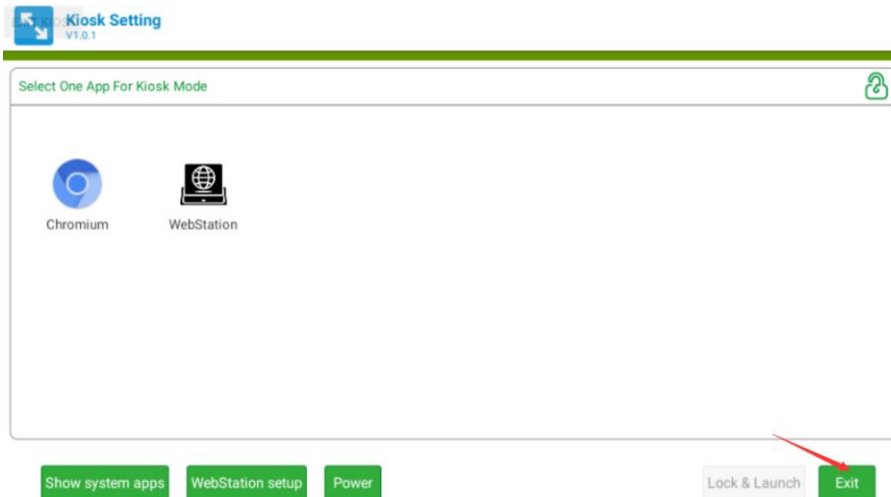




5.2.6 Exit kioskSetting

Click the "EXIT" in the main interface and input the password.

If you exit the application successfully, the launch3 will be the default home app.



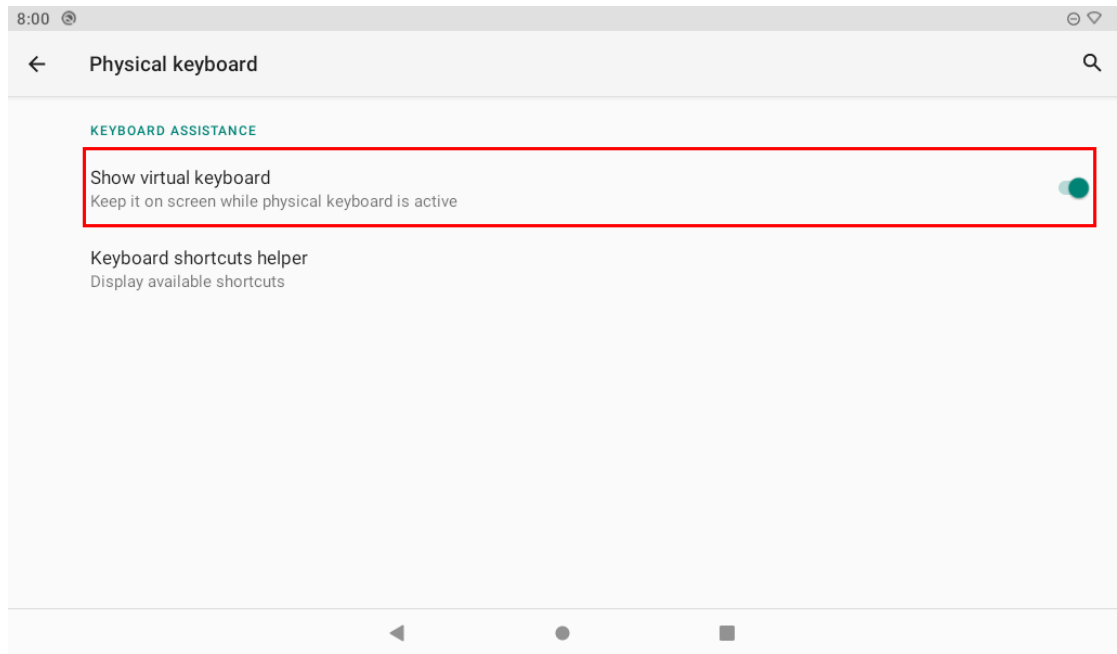
5.3 Other Applications

Many other applications for arm supported by Android or other resource web sites. You can search and download them from internet by yourself.

5.4 Virtual keyboard

5.4.1 How to keep the virtual keyboard display while the physical keyboard is active

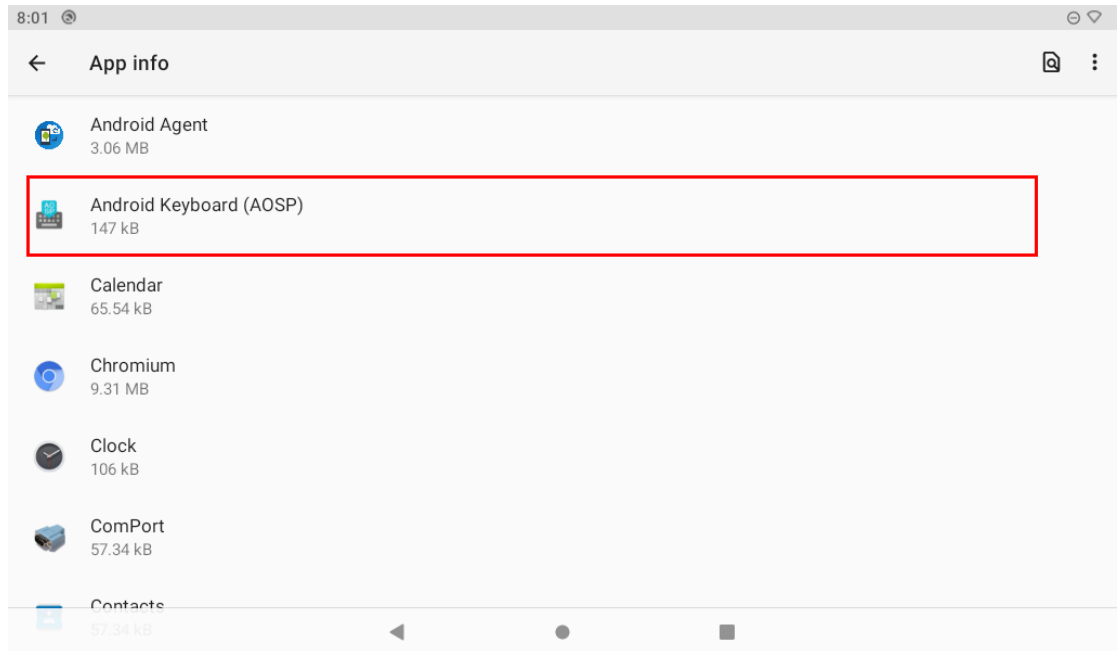
Open the “Show virtual keyboard” option on the “System->Languages & Input->Physical keyboard” page of the setting app.



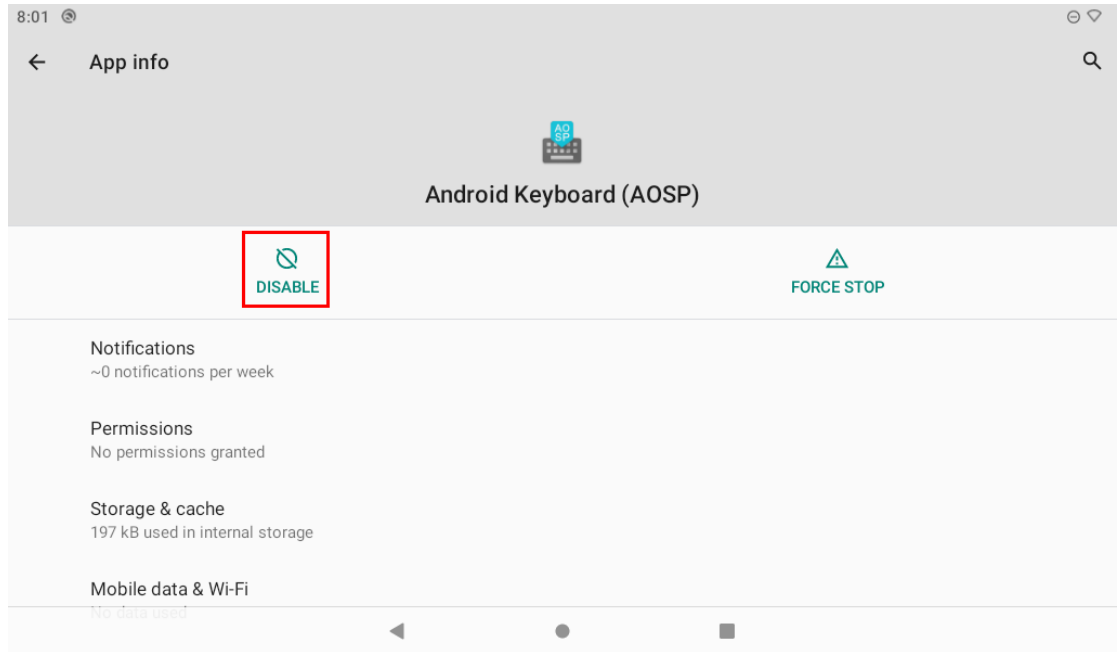
NOTE: If you do not want to pop up the virtual keyboard when using the physical keyboard, please turn off this option.

5.4.2 How to disable virtual keyboard

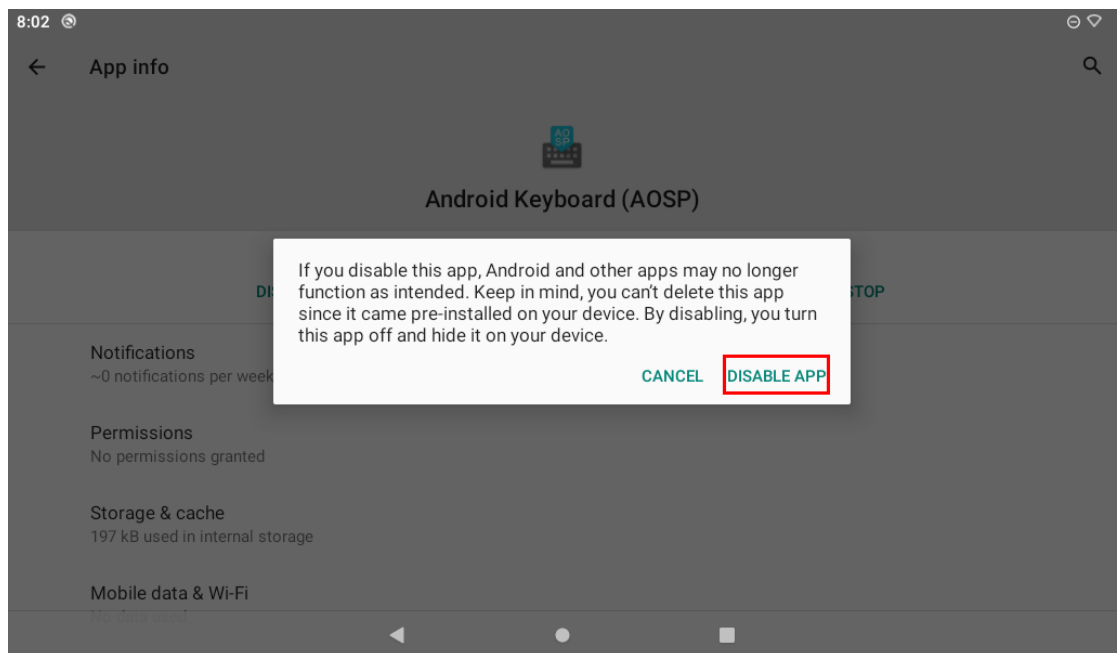
Open the “Apps & notifications” page in the setting app and find the “Android keyboard(AOSP)” app, then click to go to the app details page



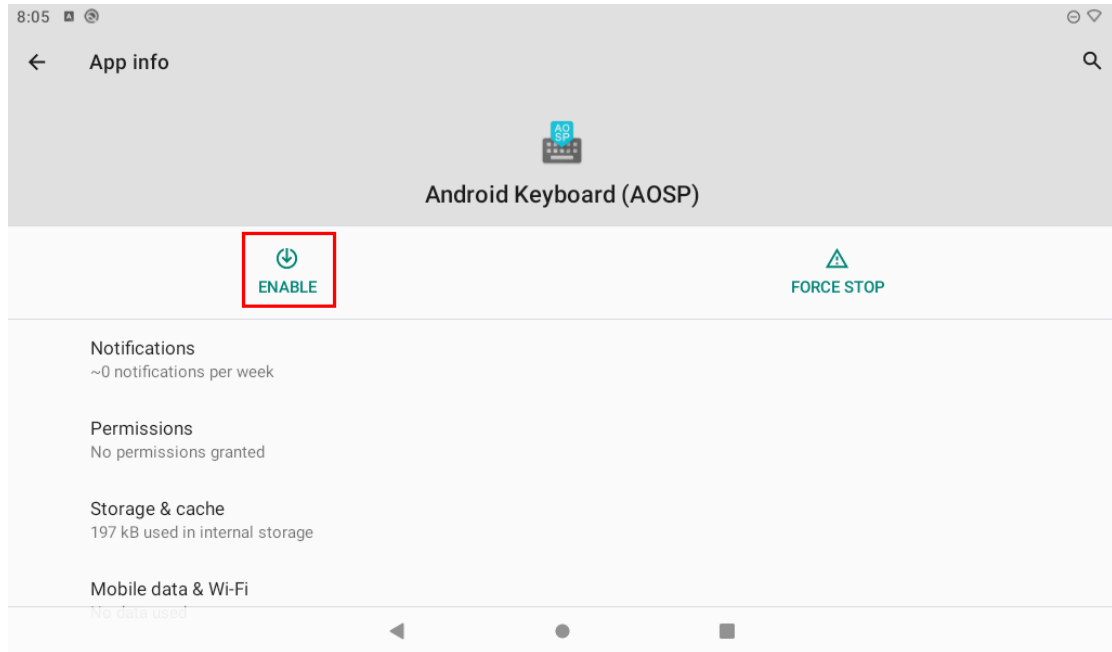
Then click the "DISABLE" option



Then click the "DISABLE APP" button



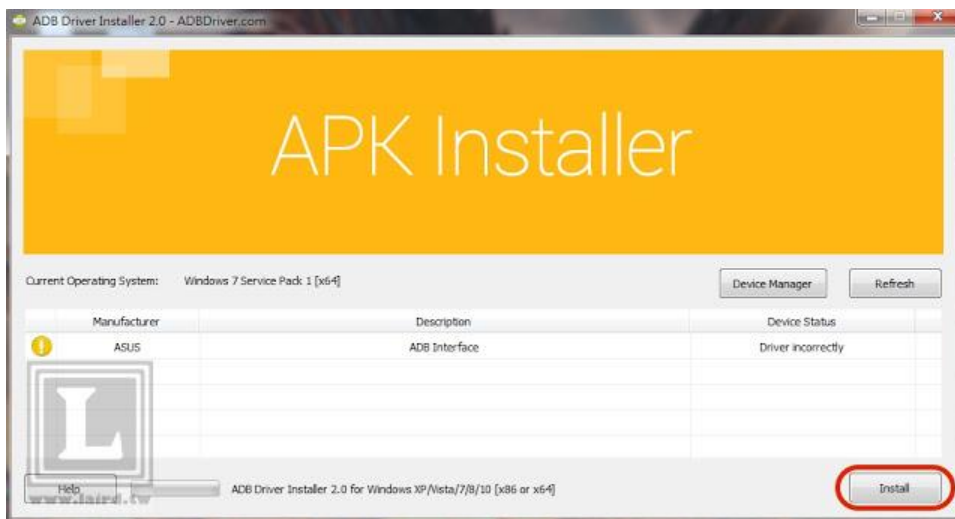
NOTE: If you want to enable the virtual keyboard again, please click the button below



5.5 How to use adb tool in windows

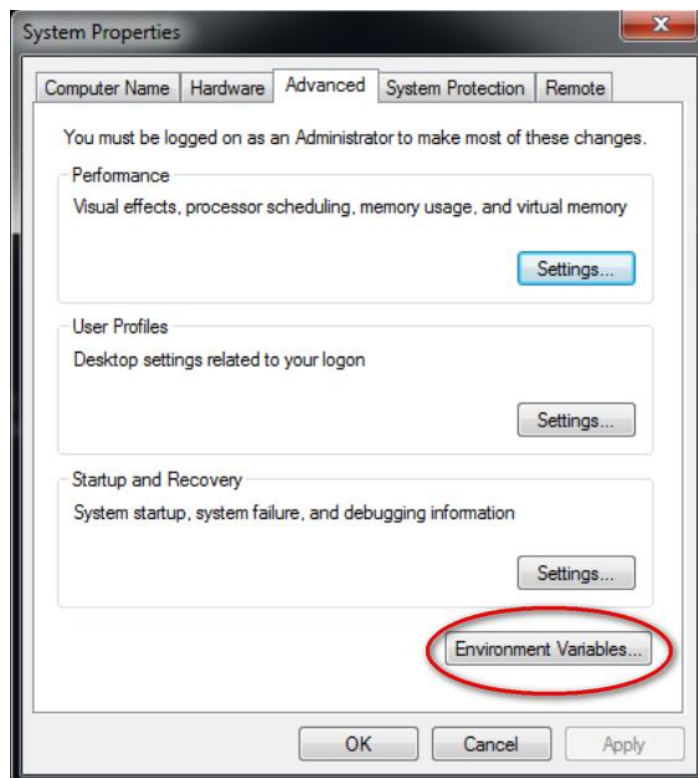
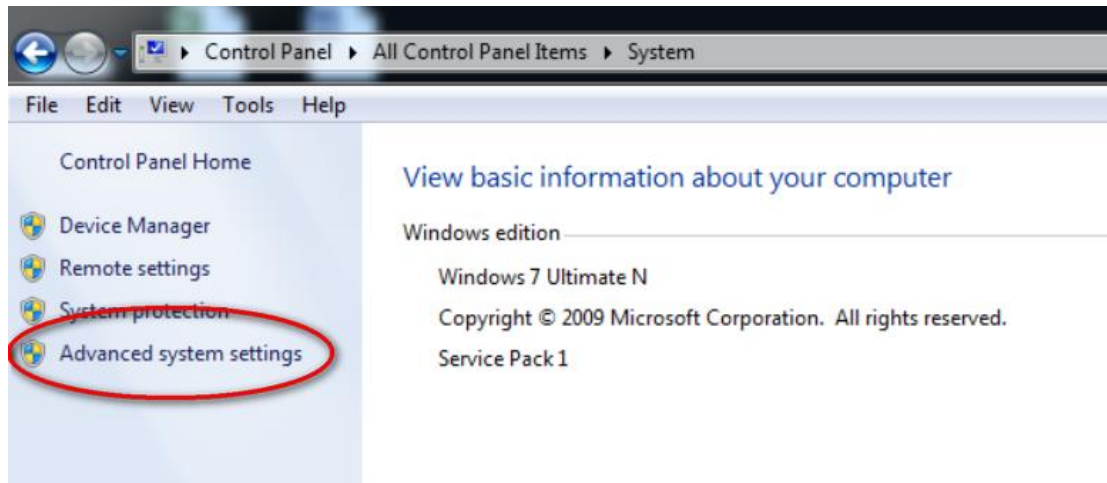
5.5.1 Install ADB

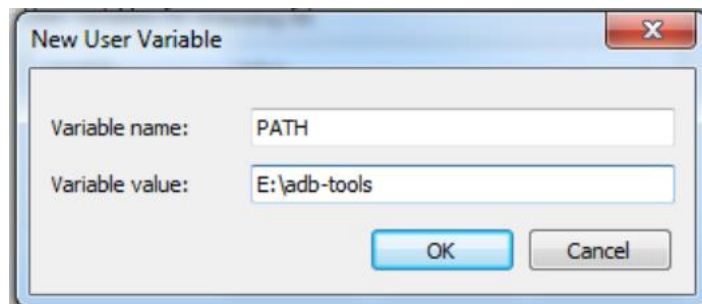
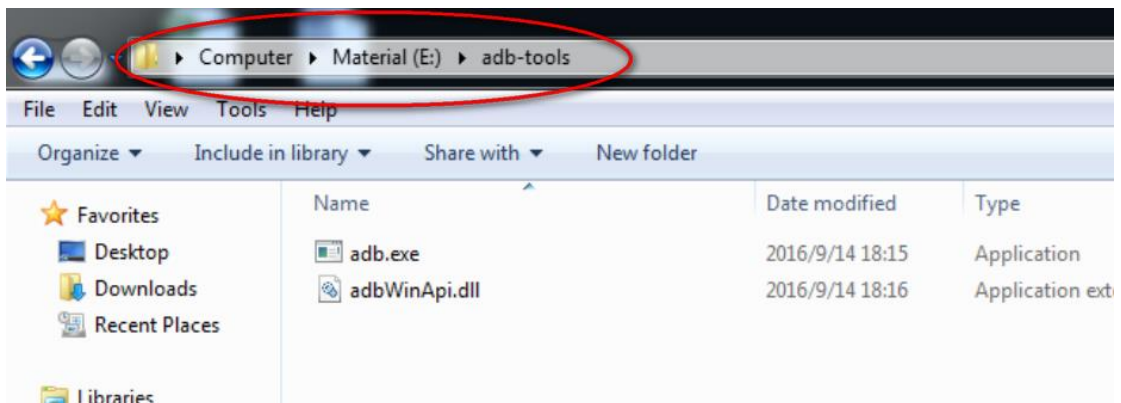
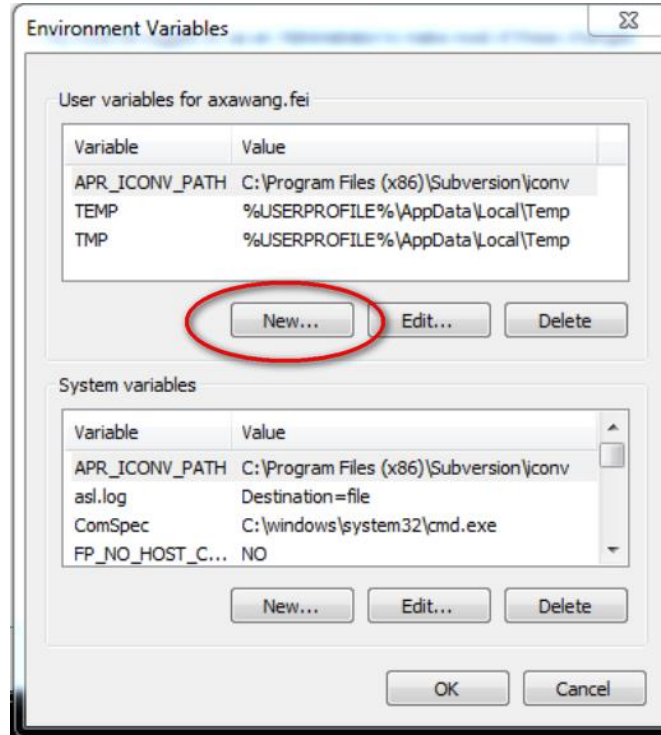
After the connection is built, download & execute "ADBDriverInstaller.exe" to install adb driver.



5.5.2 Create PATH

Add adb-tool and create path in windows.





Appendix

1. How to start application after booting android system?

After android system is started, it will broadcast an action message named 'android.intent.action.BOOT_COMPLETED'. You can receive this message and start your application.