M10R1-RK35 10” Rugged Industrial Tablet

User Manual

Version: 1.3

Revision History:

No.	Version	Description	Date
1	V1.0	First release	Dec. 30, 2023
2	V1.1	Updated the LCD/Camera description	Jan. 4, 2024
3	V1.2	Updated the use of barcode scanner in Debian system	Mar. 8, 2024
4	V1.3	Updated the pinout of the pogo pin	Nov. 15, 2024

Table of Contents

Foreword

Thank you for purchasing Vantron M10R1-RK35 10" rugged industrial tablet ("M10R1-RK35" or "the Product"). This manual intends to provide guidance and assistance necessary on setting up, operating, or maintaining the Product. Please read this manual and make sure you understand the structure and functionality of the Product before putting it into use.

Intended Users

This manual is intended for:

- Device owners
- Technical support engineers
- Other users

Copyright

Disclaimer

While all information contained herein has been carefully checked to assure its accuracy in technical details and typography, Vantron does not assume any responsibility resulting from any error or features of this manual, nor from improper uses of this manual or the software.

It is our practice to change part numbers when published ratings or features are changed, or when significant construction changes are made. However, some specifications of the Product may be changed without notice.

Technical Support and Assistance

Should you have any question about the Product that is not covered in this manual, contact your sales representative for solution. Please include the following information in your question:

- Product name and PO number;
- Complete description of the problem;
- Error message showing up on the device, if any.

Vantron Technology, Inc.

Address: 48434 Milmont Drive, Fremont, CA 94538

Tel: (650) 422-3128

Email: sales@vantrontech.com

Regulatory Information

The Product is designed to comply with:

- FCC
- CE
- ISED

Please refer to the **Appendix** for Regulatory Compliance Statements.

Symbology

This manual uses the following signs to prompt users to pay special attention to relevant information.

	Caution for latent damage to system or harm to personnel
	Attention to important information or regulations

General Safety Instructions

The Product is supposed be installed by knowledgeable, skilled persons familiar with local and/or international electrical codes and regulations. For your safety and prevention of damage to the Product or other equipment connected to it, please read and observe carefully the following safety instructions prior to installation and operation. Keep this manual well for future reference.

- Do not disassemble or otherwise modify the Product. Such action may cause heat generation, ignition, electronic shock, or other damages including human injury, and may void your warranty.
- Keep away from heat source, such as heater, heat dissipater, or engine casing.
- Do not insert foreign materials into the USB port or any other opening of the Product as it may cause the Product to malfunction or burn out.
- To ensure proper functioning and prevent overheating of the Product, do not cover or block the ventilation holes of the Product.
- Use only the adapter, power cord, and batteries that are approved for use with this Product. Otherwise, it may cause fire or explosion.
- Be sure that nothing rests on the power cable and that the cable is located at a place without risk of trips.
- Cut off the power before inspection of the Product to avoid human injury or product damage.

Precautions for Power Cables and Accessories

⚠ Use proper power source only and make sure the supply voltage falls within the specified range. You are recommended to use a power adapter that supports 5V/3A or 9V/3A or 12V/3A or 20V/3A DC output.

⚠ Take care not to drop the Product or place it under high temperature as such actions may cause shorting of the battery and lead to explosion.

⚠ Place the cables properly at places without extrusion hazards.

⚠ Use only approved antenna(s). Non-approved antenna(s) may produce spurious or excessive RF transmitting power which may violate FCC limits.

⚠ Cleaning instructions:

- Power off before cleaning the Product
- Do not use spray detergent
- Clean with a damp cloth
- Do not try to clean exposed electronic components unless with a dust collector

⚠ Power off and contact Vantron technical support engineer in case of the following faults:

- The Product is damaged
- The temperature is excessively high
- Fault is still not solved after troubleshooting according to this manual

⚠ Do not use in combustible and explosive environment:

- Keep away from combustible and explosive environment
- Keep away from all energized circuits
- Unauthorized removal of the enclosure from the device is not allowed
- Do not change components unless the power cable is unplugged
- In some cases, the device may still have residual voltage even if the power cable is unplugged. Therefore, it is a must to remove and fully discharge the device before replacement of the components.

CHAPTER 1 INTRODUCTION

1.1 Product Overview

Vantron M10R1-RK35 is a 10-inch high-performance rugged tablet, designed to handle demanding tasks with ease. It is powered by Rockchip RK3588S octa-core processor, combined with ARM Mali-G610 MP4 GPU and a TOPS NPU for industrial applications such as healthcare, plant walk-down, law enforcement patrol, and prison automation.

M10R1-RK35 features a resolution of 1920 x 1200 and a brightness of 600 nits to provide clear visuals even in bright sunlight or harsh lighting conditions. It is IP65 rated for water and dust resistance. Additionally, it has also been drop-tested from a height of 1.5m on all 6 sides, ensuring that it can withstand accidental drops and bumps without skipping a beat.

M10R1-RK35 features a pogo pin to allow users to connect additional accessories or peripherals with ease. It supports up to 60W PD charging, ensuring quick and efficient charging when needed.

1.2 Unpacking

The Product has been carefully packed with special attention to quality. The package includes the following components. Should you find of the components damaged, please contact your sales representative in due time.

- M10R1-RK35 10” rugged industrial tablet
- USB Type-C power adapter
- USB cable

Actual accessories might vary slightly from the list above as the customer order might be different from the standard configuration options.

The plastic film will protect the screen during installation, only remove the film after installation.

1.3 Specifications

M10R1-RK35			
System	CPU	Rockchip RK3588S Quad-core ARM Cortex-A76 MPCore processor + Quad-core ARM Cortex-A55 MPCore processor, Max. 2.4GHz	
	GPU	ARM Mali-G610 MP4, Max. 1GHz	
	NPU	6 TOPs	
	Memory	4GB LPDDR4	
	Storage	64GB eMMC V5.1	1 x M.2 M-Key (2242) SATA/NVMe for SSD
Communication	Wi-Fi & Bluetooth	Wi-Fi 802.11 a/b/g/n/ac/ax + BT 5.1	
	Cellular	2G/3G/4G, LTE CAT 4	
	GNSS	GPS + BeiDou + GLONASS + Galileo, AGPS supported	
	NFC	Supported	
Media	Display	10” 16:10 IPS panel	
		Resolution	1920 x 1200
		Brightness	600 nits
		Contrast ratio	1000:1
		Viewing angle	Horizontal: ±85° or 170° / Vertical: ±85° or 170°
	TP	10-point G + G PCAP touchscreen	
		Finishing process	Toughening
		Surface hardness	6H
	Camera	Front camera	5MP, fixed focus, with a working indicator
		Rear camera	8MP, auto focus, with a flash
	Audio	1 x 4Ω/2w speaker	1 x Mic
		1 x 3.5mm combo audio jack	
I/Os	USB	1 x USB 2.0 Type-A	1 x USB 3.0 Type-C
	Built-in barcode scanner	Bar width	> 8Mil
		Pixel	> 640 x 480
	Extended display	1 x Mini HDMI	
	Pogo pin	2 x 10 pin, supporting CAN J1939, USB 3.0, 100Mbs Ethernet RJ45, Audio Jack, RS232/RS485 Combo, TJA1100HN 100Base-T1 PHY	
	SIM card slot	1 x Nano SIM slot	
	TF slot	1 x TF slot (up to 128GB)	
	Security	1 x TPM 2.0 (Optional)	
Sensor	Light sensor	1 x Light sensor	
	Gyro-sensor	1 x Gyro-sensor	
	G-Sensor	1 x G-sensor	
System Control	Button	1 x Power button	3 x Function button
		1 x Volume +/- button	
	LED indicator	1 x Battery level indicator	1 x Camera working indicator

1.3 Specifications (Cont'd)

M10R1-RK35			
Software	OS	Android 12, Linux, Yocto +QT	
Power	Input	USB Type-C power input, 5V/3A, 9V/3A, 12V/3A, 20V/3A, 60W PD supported	
	Battery	6000mAh/7.6V, 8 hours working time*	
Mechanical	Material	PC, ABS	
	Dimensions	293.6mm x 191mm x 29.1mm	
	Net weight	1300g	
Performance Standard	IP rating	IP65	
	Drop test	MIL-STD-810H, drop from 1.5m onto concrete surfaces on 6 sides	
	Vibration	MIL-STD-810H: Method 516.8, Procedure I Operating: 20G, Idle: 40G	
	Thermal shock	MIL-STD-810H: Method 503.7 Operating: -20°C ~+60°C, Idle: -30°C ~+70°C	
	Solar radiation	MIL-STD-810H: Method 505.7	
	Liquid pollution	MIL-STD-810H: Method 504.3	
Environment Condition	Temperature	Operating: -20°C ~+60°C	Storage: -30°C ~+70°C
	Humidity	20%~80% RH (Non-condensing)	
	Certification	MIL-STD-810H	FCC (FCC Part 15 Class B)
		ISED, CE	ESD (Contact: ±4KV, Air: ±8KV)

* Source: Test with 1080p video play at 50% volume and 200 nits brightness.

1.4 Product Layout

Front view

Description of the I/Os:

No.	Item	Description
1	Camera indicator	Serve as a visual cue when the camera is in use or active
2	Light sensor	Automatic adjustment of display brightness
3	Front camera	5MP, fixed focus, with working indication
4	Battery level indicator	Red: less than 15% battery
		Green: battery fully charged
		Amber: battery charging and switches to solid green when the battery is fully charged
5	Microphone	Used for phone calls or voice recording
6	10” LCD display	16:10 IPS LCD, 1920 x 1200, 600 nits
	Touch panel	10-point G + G PCAP touchscreen
7	Power button	Long press (about 3 seconds) to turn on/off the device
		Short press to turn on/off the screen or turn on the device
8	Function button	User-defined function buttons
9		
10		

Back view

No.	Item	Description
1	Scanner flash	Provide additional illumination when scanning the codes in low light or dark environments
2	Barcode scanner	Capture data from 1D, 2D barcodes
3	Camera flash	Provide additional light for photo taking when the ambient light is insufficient
4	Rear camera	8MP, auto focus
5	Speaker	4Ω/2w speaker for audio output

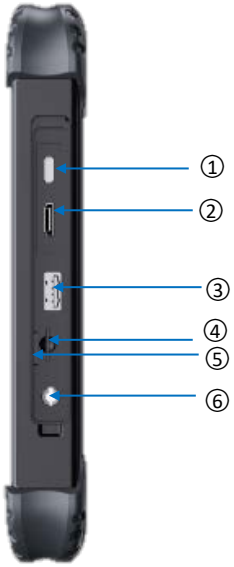
Top view

No.	Item	Description
1	Volume + button	Increase the media playing volume
2	Volume - button	Decrease the media playing volume

Bottom view

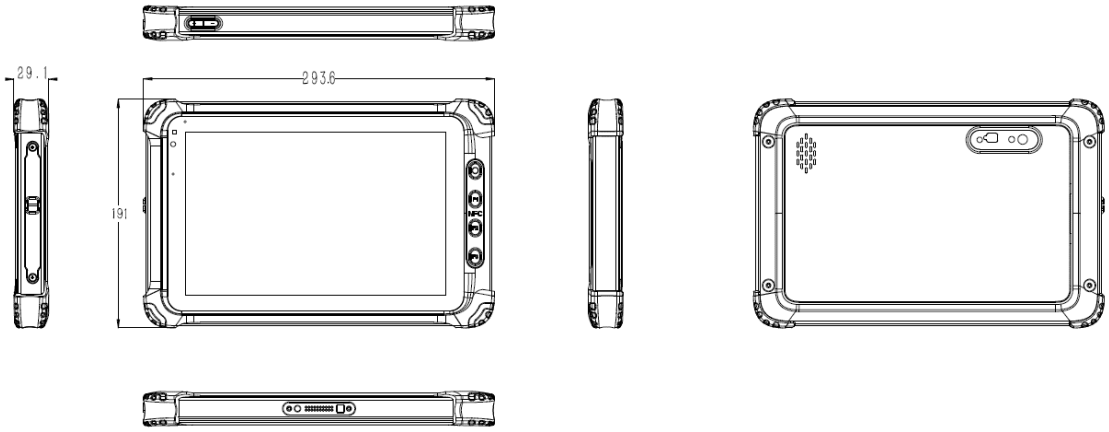
No.	Item	Description
1	Pogo pin	Routed from the motherboard for providing additional signals to connect peripherals

Left side view



No.	Item	Description
1	USB Type-C	USB 3.0 Type-C (charge, data transmission)
2	Mini HDMI	Connect an external display
3	USB Type-A	USB 2.0 Type-A
4	Nano SIM slot	Hold a Nano SIM card for cellular communication
5	TF slot	Store a TF card for expansion of the storage
6	Audio jack	Connect a headphone or external speaker, etc.

1.5 Product Outlines



1.6 Vantron VDS10 Docking Station

Vantron offers VDS10 docking station that is compatible with the M10R1-RK35 to provide power and user expansion. VDS10 weighs 800g, and operates at -20°C to +60°C.

Description of the I/Os:

No.	Description
1	Power jack (DC 12V ± 10%)
2	USB 3.0 Type-A (1A/5V)
3	USB 3.0 Type-A (1A/5V)
4	Ethernet jack
5	RS232
6	RS485
7	CAN
8	Sleep/wakeup button

*VDS10 is **NOT** a standard accessory included in the shipping package. Users can purchase one based on needs.*

CHAPTER 2 GETTING STARTED

2.1 Setting up the Device

After you have confirmed that nothing is damaged or missing in the package, it is recommended that you follow this section to set up the device as necessary.

2.1.1 Battery

The battery pack is not removable and is installed before shipment, so users do not need to install it on their own.

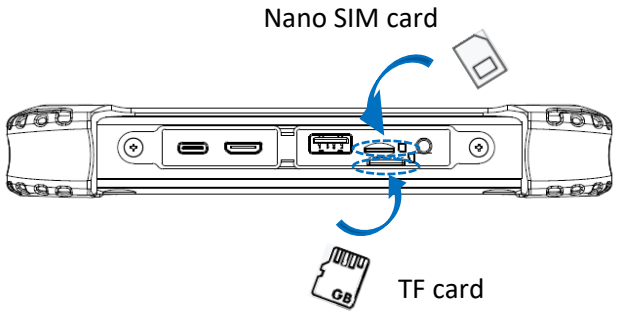
There is no additional requirement for battery charge before first use of the tablet. You can use it straightly out of box as long as it has a charge, and charge it when needed.

To charge M10R1-RK35, use the power adapter and cable provided or use a docking station with an appropriate power supply (e.g., Vantron VDS10 docking station).

The battery is design to support at a minimum of 1,000 charge cycles.

2.1.2 Installing and removing a SIM card/TF card

1. Place M10R1-RK35 on its back (with screen facing up);
2. Open the longer I/O cover located on the left side of the tablet;
3. Insert an activated Nano SIM card into the SIM slot with the gold contact facing down and the cut-off corner facing in;
4. Push the card in until it clicks into place;
5. Insert a TF card into the TF slot with the gold contact facing up;
6. Push the card in until it clicks into place;

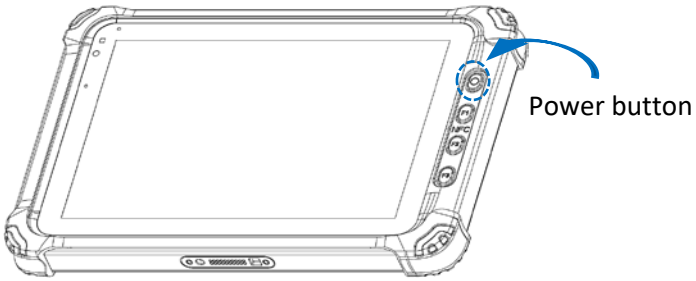


7. To remove the Nano SIM/TF card, gently push it again and it will eject from the slot;
8. Close the I/O cover.

2.1.3 Turning on/off the device

M10R1-RK35 is designed to run Android 12 or Debian 11 or Yocto + QT system.

Currently, the Debian operating system is ready for use. When the device is running Debian system, a long press of the power button on the right side of M10R1-RK35 about 3 seconds will turn off the device, while a short press of the power button will turn on the device.

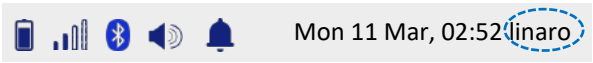


Do not press the power button repeatedly in short time.

Do not connect or disconnect the charger while the device is booting up.

After the tablet is turned on, you can also use the device GUI to properly turn it off.

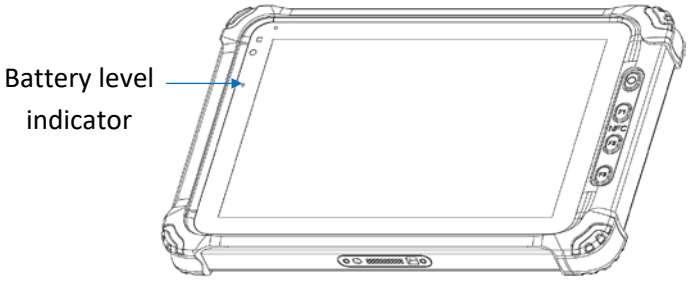
1. Tap on **linaro** from the taskbar of the screen to access the system options;



2. Tap on the **Shut Down** option;
3. Confirm if you really wish to shut down the device;
4. Wait for the device to completely power off.

2.1.4 Battery level indicator

There is an LED indicator on the front panel for indication of the battery condition and system status.



System status	Battery level	Charging status	Indicator
Active	<15%	Not charging	Red
		Charging	Amber
	15%~100% (excl.)	Not charging	NA
		Charging	Amber
	100%	Not charging	NA
		Charging	Green

2.2 I/O Description

This section details the hardware I/Os on the tablet.

2.2.1 Display

The 10-inch LCD screen is made of a display screen and a touch screen which are bonded together using the full-fit technology.

Specifications		Details
Display Screen	Diagonal Size	10.1"
	Aspect Ratio	16:10
	Viewing Angle	Horizontal: 170° / Vertical: 170°
	Resolution	1920 x 1200
	Contrast Ratio	1000:1
	LCM Luminance	600 nits
Touch Screen	Touch Points	10-point
	Touchscreen Technology	PCAP technology
	Structure	G + G

2.2.2 Mini HDMI

The Mini HDMI is for connecting an additional monitor to display in duplicate/extended mode. It supports a resolution up to 1920 x 1200.

2.2.3 USB Type-C

The USB 3.0 Type-C port on the device supports up to 60W PD charging using adapters with output ranging from 5V to 20V at 3A. Additionally, it features USB On-The-Go (OTG) functionality, allowing you to debug the device through this port.

2.2.4 USB Type-A

The USB 2.0 Type-A port allows users to connect peripherals such as a digital camera, a keyboard, or a printer for extended use.

2.2.5 Audio jack

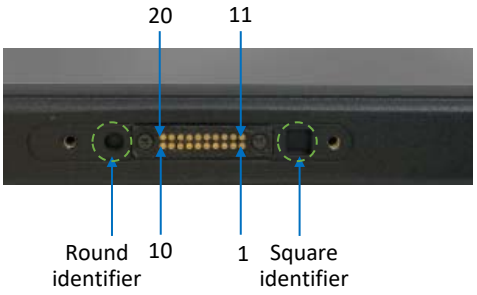
The device offers a 3.5 mm combo audio jack that is compatible with four-section headphones.

2.2.6 Speaker

The device offers a 4Ω/2W speaker for audio output.

2.2.7 Pogo pin

The pogo pin offers a convenient and efficient way to allow users to establish connections between the peripherals and the tablet.



Pinout description:

Pin	Name	Type	Description
1	POGO_Power_IN_CON	P	Only supports 12V power input
2	NC		
3	POGO_USB_3.0_TX_P_CON	I/O	USB3.0 Transmit differential positive
4	GND	G	Ground
5	POGO_USB_3.0_RX_P_CON	I/O	USB3.0 Receive differential positive
6	GND	G	Ground
7	POGO_USB2.0_DP_CON	I/O	USB2.0 Host data
8	GND	G	Ground
9	NC		
10	POGO_Power_IN_CON	P	Only supports power 12V input
11	POGO_Power_IN_CON	P	Only supports power 12V input
12	NC		
13	POGO_USB_3.0_TX_N_CON	I/O	USB3.0 Transmit differential negative

Pin	Name	Type	Description
14	GND	G	Ground
15	POGO_USB_3.0_RX_N_CON	I/O	USB3.0 Receive differential negative
16	GND	G	Ground
17	POGO_USB2.0_DN_CON	I/O	USB2.0 Host data
18	GND	G	Ground
19	NC		
20	POGO_Power_IN_CON	P	Only supports power 12V input

2.2.8 Buttons & NFC

There are four buttons on the tablet, including one power button in orange and three user-defined buttons. The NFC induction area is among the user-defined buttons.

CHAPTER 3 DEBIAN SYSTEM MANUAL

3.1 Operating the Device

This section will guide you on the use of M10R1-RK35 in Debian 11 operating system.

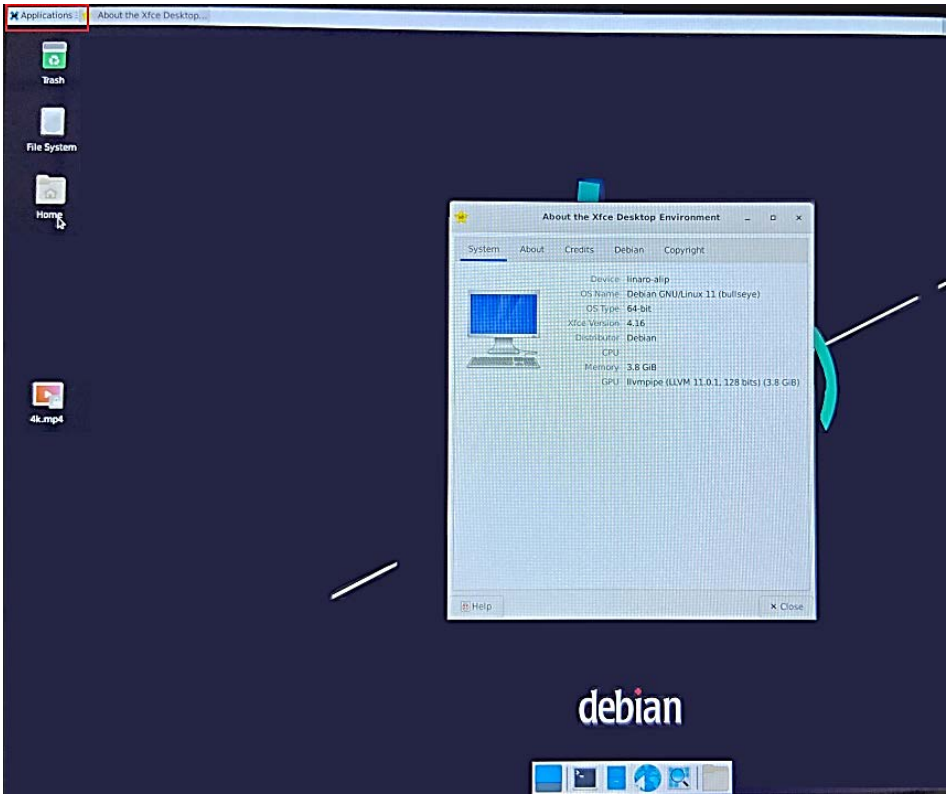
Upon startup, the device will automatically log in to **linaro** as the default user without requiring the input of the password. However, the password for the **linaro** user is “linaro” in case you need to switch users or create a new user.

If you need to switch to the root user in the device terminal, simply use the sudo su command without the need to enter a password.

3.1.1 Device information

To access the device information:

1. Tap on **Applications** on the top left corner of the screen;
2. Select the **About Xface** option to access the desktop environment;
3. You can then check the system information like device name, operating system, copyright statement, etc.



You can also open a terminal with a tap of the terminal tool at the bottom, and input the following commands.

1. To check the kernel version;

```
# uname -a
```

2. To check the Debian operating system version;

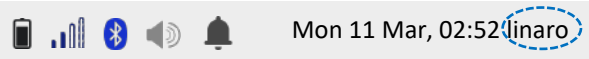
```
# lsb_release -a
```

3. To check disk space usage.

```
# df -h
```

3.1.2 Default user (linaro)

The device is logged in to linaro as the default user upon device startup.



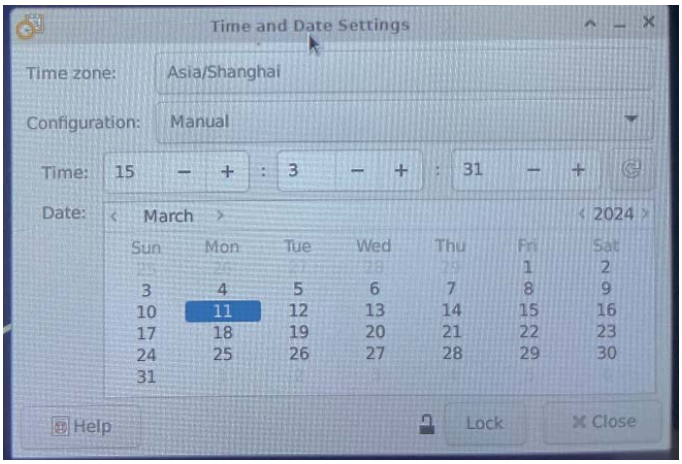
Upon a tap of linaro from the taskbar, you can:

- Lock the screen
- Switch the user (password for the linaro user is “linaro”)
- Store the device's current state and data in the system's RAM and suspend the device to a low-power state
- Shut down the device
- Log out the system

3.1.3 Time and Date

You can follow the steps below to change the system time and date.

1. Tap on **Applications** on the top left corner of the screen:
2. Navigate to **System** > **Time and Date** to access the Time and Date setup page;
3. Tap on **Unlock** and enter the password (linaro by default) before editing the settings;
4. Select your own time zone;
5. Choose to synchronize the time with the Internet server (device shall have Internet access) or fill in the time manually;



6. Tap on **Lock** to allow the settings take effect;
7. The system time will then change accordingly.

Note: This method only modifies the software system date and time, which may revert to the original settings upon device restart. To address this issue, refer to section 3.2.10 to adjust the RTC (hardware time).

3.2 Software Features

3.2.1 Connecting to a wireless network

1. Tap on the network icon () on the taskbar;
2. Select the desired SSID from the available list;
3. Tap on the **More networks** option to expand the list, if needed;
4. Enter the password for the network;
5. Once the device is connected to the target network, a "**Connection Established**" prompt will be displayed, indicating the name of the network you are connected to, and the network icon will change to a wireless network icon ();
6. You can tap on **Disconnect** below the SSID to disconnect the device from the network.

3.2.2 Pairing with a Bluetooth device

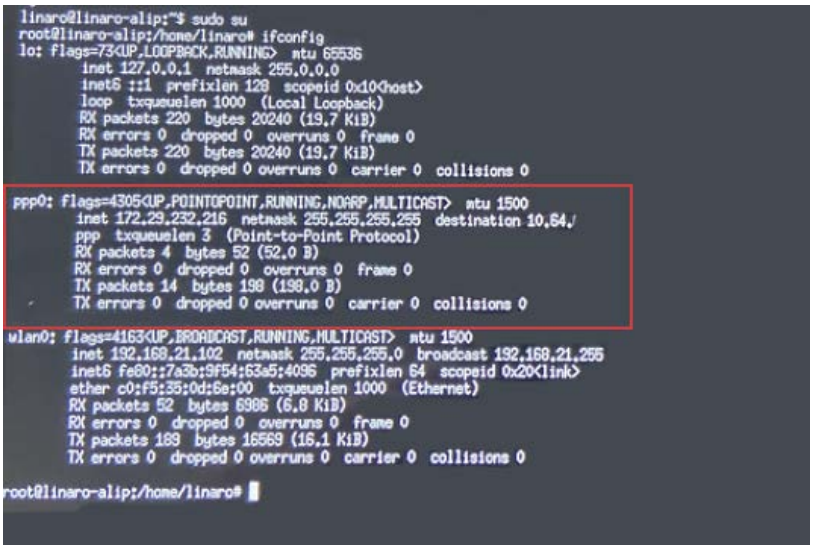
1. Tap on the Bluetooth off icon () and select the **Turn Bluetooth On** option;
2. Tap on the Bluetooth on icon () and select the **Set Up New Device** option;
3. In the Bluetooth device setup window, tap on **Next** and the available Bluetooth devices will be displayed;
4. Navigate through the list to locate the desired Bluetooth device, select it and tap on **Next**;
5. Select **Pair Device** as the pairing method and tap on **Next**;
6. Confirm the pair code on both devices;
7. Select the **Connect to: Network Access Point** option on the tablet, and tap on **Next**;
8. In the final step, there will be a message indicating that the target device is successfully added and connected.

3.2.3 Sending a file to a Bluetooth device

1. Tap on the Bluetooth on icon () and select the **Send Files to Device** option;
2. Select the file you intend to send and tap on **OK**;
3. Select the target device from the device list and tap on **OK**;
4. If the two devices are connected, the file transfer will be initiated immediately. Otherwise, the transfer might fail;
5. Wait for the file to be transferred.

3.2.4 Cellular network

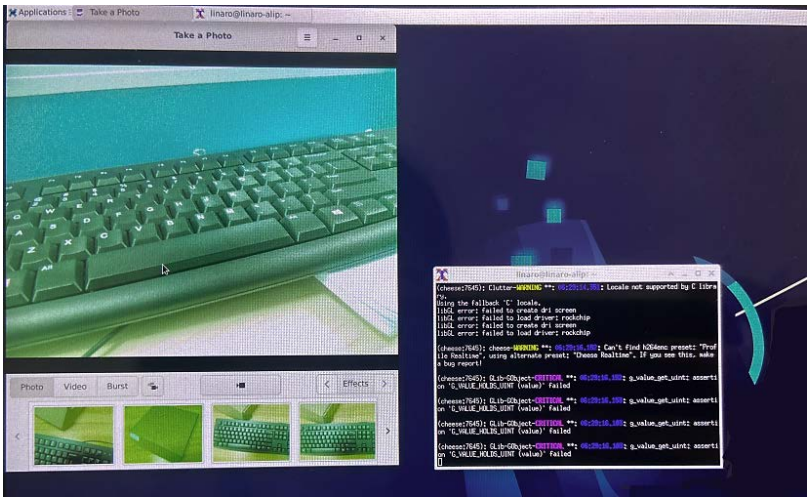
1. Follow the steps set out in 2.1.2 to install an activated Nano SIM card to the device and make sure the Nano SIM card is activated with a data plan;
2. The device does not support hot plug of the SIM card. Restart the device so that it can properly identify the SIM card;
3. Switch to the root user using `sudo su` command and input `ifconfig` to check the network interfaces on the device;



4. Use the “ping” command to test the connection of the cellular network.

3.2.5 Camera

1. Execute the cheese command or navigate to **Applications > Multimedia > Cheese** to enable the camera feature;

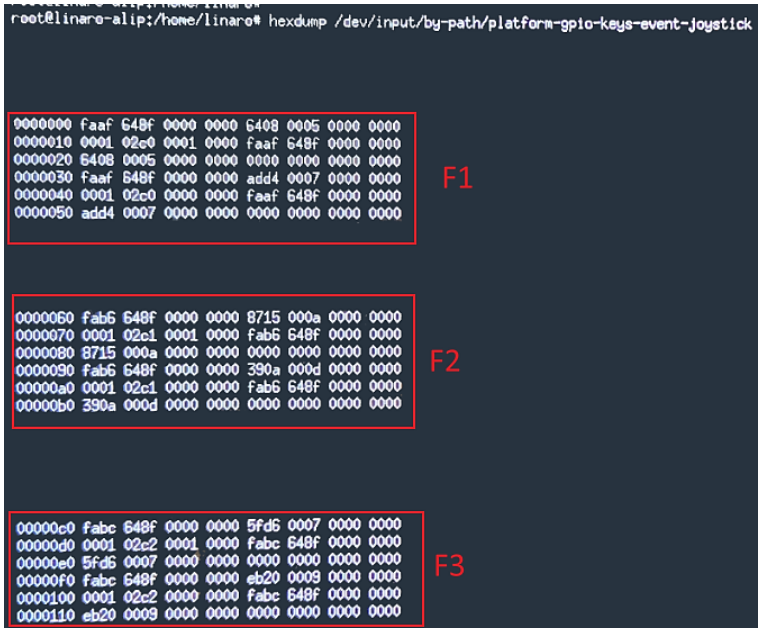


2. Press the **Space** button on the keyboard to take a photo;
3. Press **"Ctrl + C"** to exit the application.

3.2.6 Button

The device offers three user-defined buttons. You can input the following commands using hexdump tool and press the corresponding keys to check the printed information.

```
# hexdump /dev/input/by-path/platform-gpio-keys-event-joystick
```



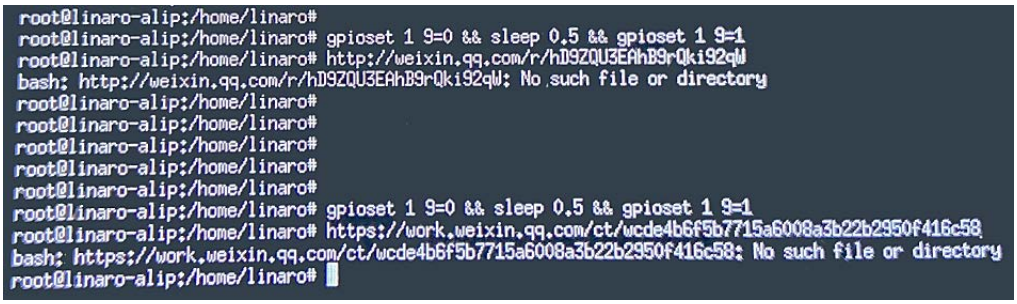
3.2.7 Barcode scanner

The device offers a built-in barcode scanner for capturing the code data to better manage the target assets. It supports scanning of both 1D and 2D codes for versatile use.

1. Use the following command to enable the scanner of the device;

```
# gpioset 1 9=0 && sleep 0.5 && gpioset 1 9=1
```

2. The flash will be lit when the scanner is activated and you can place a barcode or QR code near the scanner to read the code information;



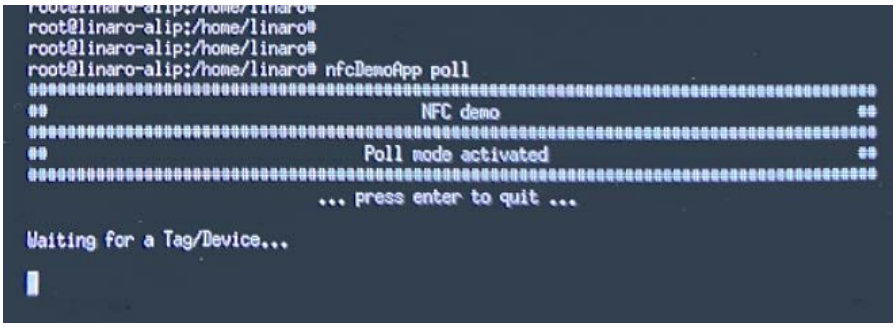
3. The scanner will be disabled after each scan and you can execute the command again for another scan.

3.2.8 NFC

Once the NFC feature is enabled, the device can read data from an NFC tag. The NFC induction area is around the buttons on the right side of the device.

1. Use the following command to enable the NFC feature of the device;

```
# nfcDemoApp poll
```



2. Place an NFC tag near the NFC induction area (between the user-defined buttons) for data reading;
3. Press the **Enter** button to exit the NFC feature.

3.2.9 Sensors

The device implements three sensors, a gyro sensor for detecting changes in rotation angle of the device, a magnetometer sensor for detecting and reading the strength and direction of the magnetic field or positioning the device, and an accelerometer sensor for measuring the acceleration of the device to obtain information such as object inclination and vibration.

Before utilizing a sensor, it is necessary to activate it. The value specified after "echo" in the first command line for enabling a sensor can be selected from 0 to 3, with each value representing a distinct mode.

0: Normal mode: To collect data without limitation;

1: Forced mode: To collect data once and then return to the sleep mode

2: Suspend mode: To stop data collection and the sensor will not actively detect motion or rotation in this mode (deeper power saving mode)

3: Sleep mode: To stop data collection with the register values remain unchanged. The sensor may still be able to detect motion or rotation, but with reduced sensitivity and accuracy (low power saving mode)

To activate the sensor from the sleep mode or suspend mode, use the “echo 0” command as shown below to switch to the normal mode.

1. Gyro sensor

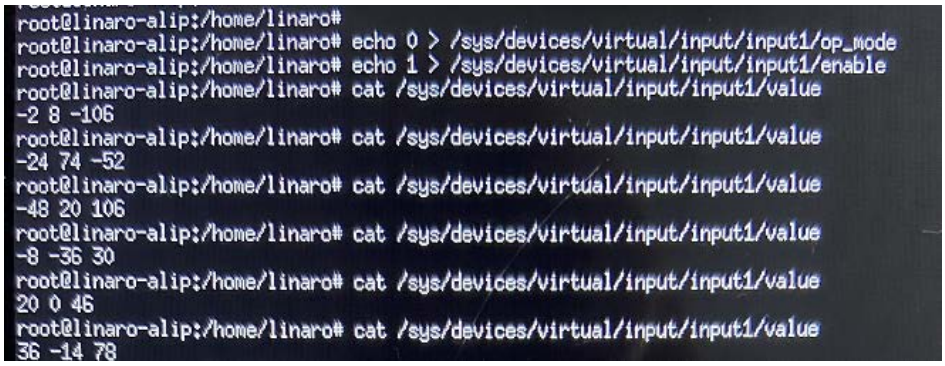
- Enable sensor

```
# echo 0 > /sys/devices/virtual/input/input1/op_mode

# echo 1 > /sys/devices/virtual/input/input1/enable
```

- Read sensor value

```
# cat /sys/devices/virtual/input/input1/value
```



Make sure the screen rotation is off when you need switch the mode of the sensor.

2. Magnetometer sensor

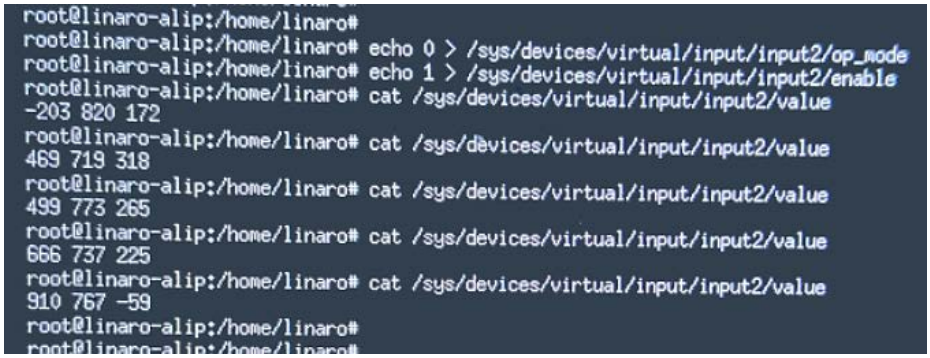
- Enable sensor

```
# echo 0 > /sys/devices/virtual/input/input2/op_mode

# echo 1 > /sys/devices/virtual/input/input2/enable
```

- Read sensor value

```
# cat /sys/devices/virtual/input/input2/value
```



3. Accelerometer sensor

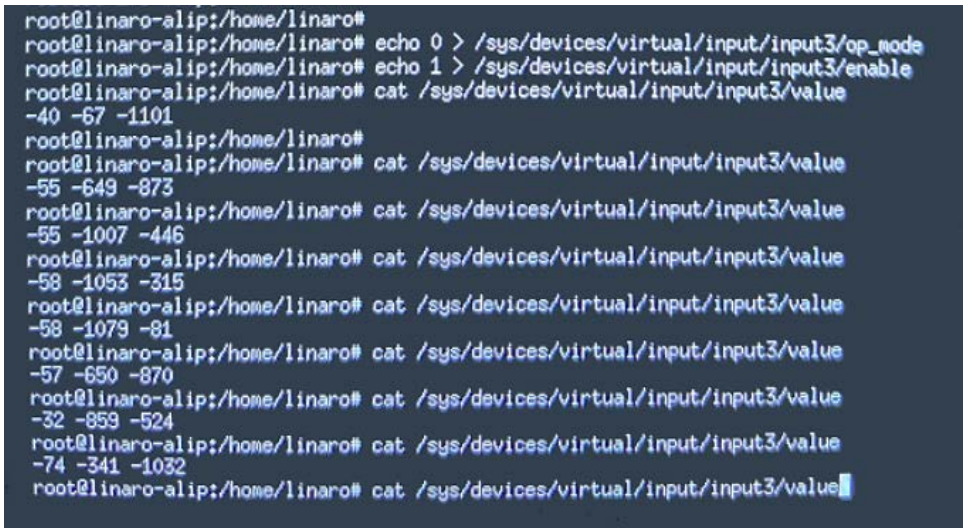
- Enable sensor

```
# echo 0 > /sys/devices/virtual/input/input3/op_mode

# echo 1 > /sys/devices/virtual/input/input3/enable
```

- Read sensor value

```
# cat /sys/devices/virtual/input/input3/value
```



3.2.10 RTC

Real-Time Clock (RTC) is a hardware component in the tablet that keeps track of the device time and date. Adjusting the RTC can help address issues related to time discrepancies or resets in software system time settings.

1. Set the system date & time;

```
# date -s "2024-02-24 14:38:10"          // replace with your own date and time
```

2. Synchronize the RTC time with the system time;

```
# hwclock -w
```

3. Reboot the device;

```
# reboot
```

4. Check the RTC time information.

```
# hwclock -r
```

3.2.11 Watchdog timer

The watchdog timer is enabled by default.

1. Set a timeout for feeding the watchdog. When the time elapsed, the device will reboot if the watchdog is not fed;

```
# echo 1 > /dev/watchdog      // time unit: minute
```

2. Feed the dog before the device reboot;

```
# echo V > /dev/watchdog
```

3. Enable the watchdog.

```
# echo A > /dev/watchdog
```

3.2.12 Audio

When you intend to use the audio feature of the device, prepare a 3.5mm combo audio cable and plug it into the audio jack.

1. Record an audio clip and name it (such as ”audio.wav”). Make sure the file name ends with an audio format;

   ```
   # arecord -f S16_LE -c 2 -r 44100 audio.wav
   ```

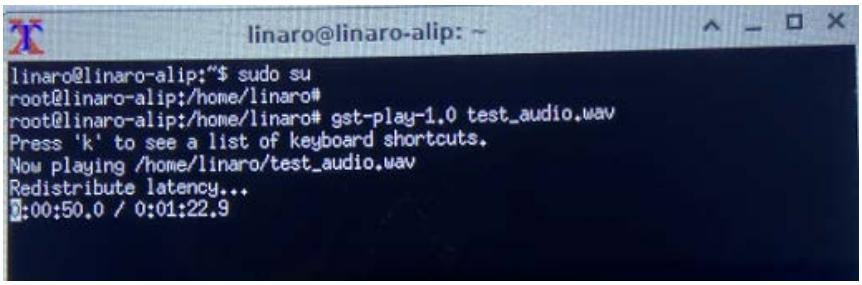
2. Press “Ctrl + C” to stop recording;

3. Play back the recorded clip;

   ```
   # aplay audio.wav
   ```

4. Randomly play an audio file that is saved on the device.

   ```
   # gst-play-1.0 test_audio.wav      // replace test_audio.wav with your file name
   ```



You can tap on **Application** and navigate to **Multimedia > PulseAudio Volume Control** to change the audio settings.

CHAPTER 4 DEBIAN SYSTEM UPGRADE

Whenever a new image is available, Vantron will provide a release package consisting of all the tools/files necessary so that you can flash the image either in Windows or Ubuntu system.

4.1 Image Flashing in Windows System

4.1.1 Prerequisites

- M10R1-RK35
- A host computer running Windows 10 or later
- A USB Type-A to Type-C cable
- Software release package for the device

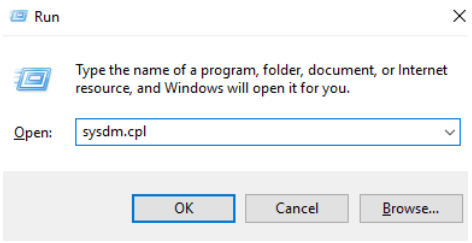
4.1.2 ADB setup

Android Debug Bridge (ADB) is a tool that is designed to connect your development workstation directly to your device for debugging, device upgrading, app installation, etc.

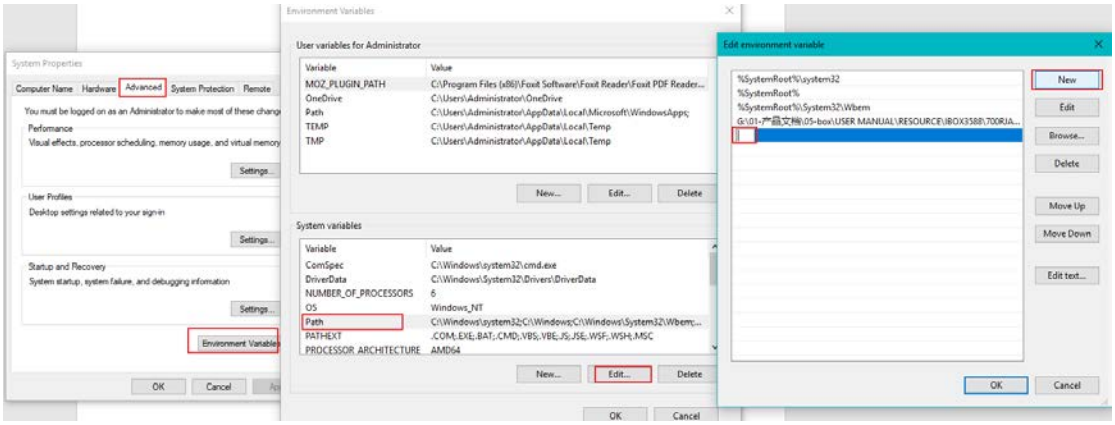
Adding the ADB executable file to the environment variable of your workstation allows you to run the ADB tool regardless of your current working directory.

Follow the steps below to set up the ADB on your Windows host computer.

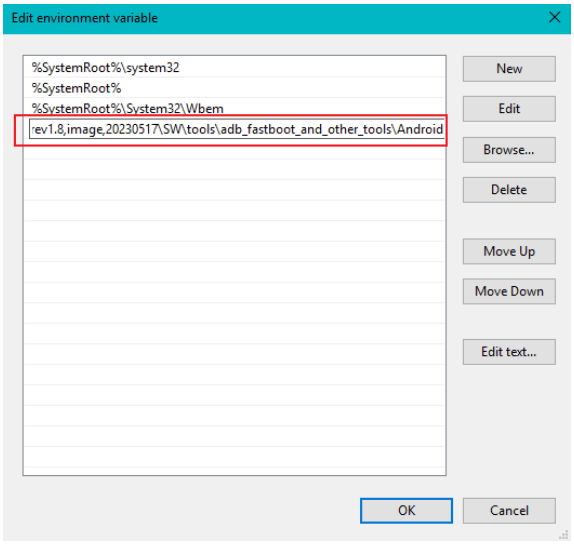
1. Unzip the software release package and navigate to the following directory: \SW\downloadetools\windows\adbtoolswindos;
2. Extract the **adbtoolswindos** zip file;
3. Navigate to the **platform-tools** folder that contains the ADB tool kit, and copy the folder path;
4. Press “Win + R” and input sysdm.cpl in the dialogue box to open the settings interface;



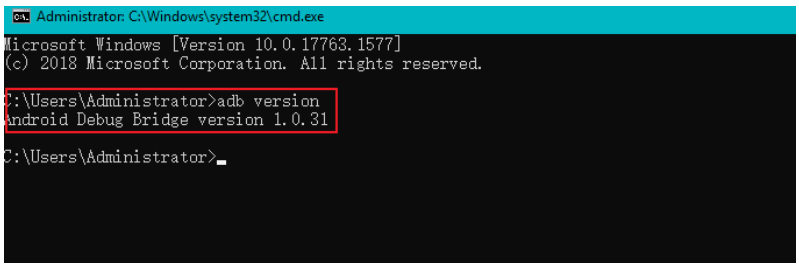
5. Click in sequence **Advanced > Environment Variables > System Variables > Path > Edit**, and click **New** in the pop-up;



6. Paste the path of the **platform-tools** folder, and click **OK** one by one to confirm and exit;



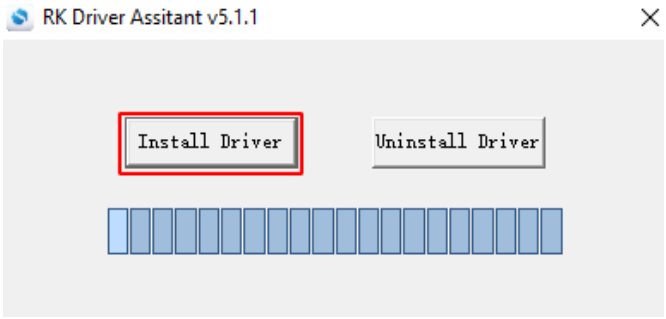
7. Press “Win + R” and input cmd in the dialogue box;
8. Input adb version in the command prompt to check if the ADB tool is installed.



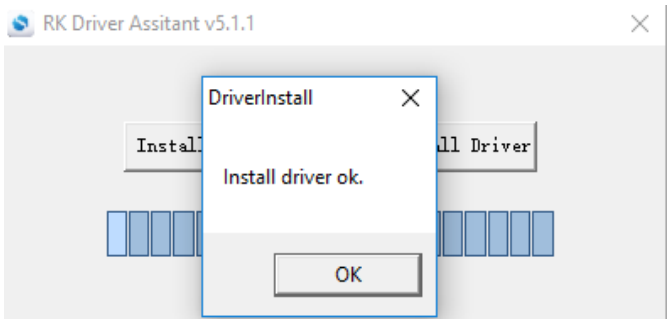
4.1.3 Upgrade driver installation

In the Windows environment, follow the steps below to finish driver installation.

1. Unzip the software release package and navigate to the following directory: \SW\downloadetools\windows\DriverAssitant_xxx\DriverInstall;
2. Right click the mouse and run the program as administrator;
3. Click **Install the Driver** and wait;

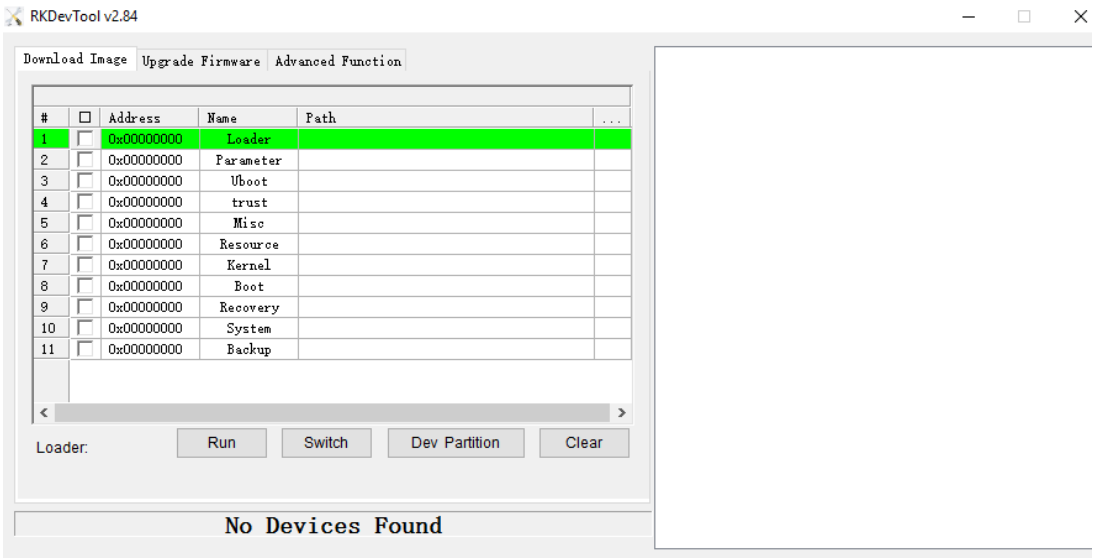


4. A pop-up will appear in a second suggesting the driver is installed.



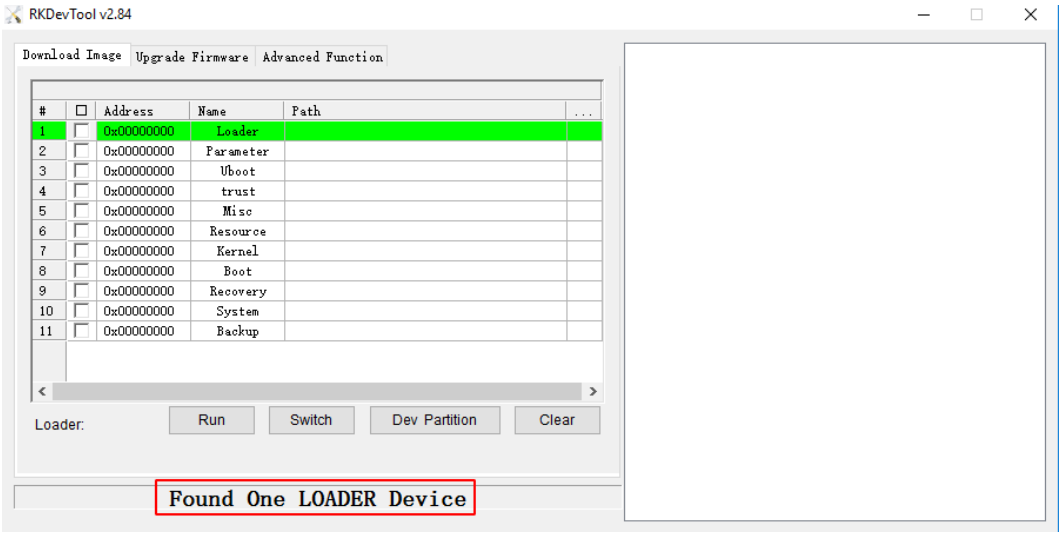
4.1.4 Image flashing

1. Return to the SW folder and open the directory of the upgrade tool (\SW\downloadetools\windows\RKDevTool_Release_ vxxx\RKDevTool);
2. Double click the upgrade tool program **RKDevTool.exe** to open the upgrade window;



3. Connect the tablet to the Windows host computer using the USB Type-A to Type-C cable;
4. Press “Windows + R” and input cmd in the dialog box to open the command prompt;
5. Input adb devices in the command prompt to check if the device is connected to the Windows host;
6. Once the device is identified by the Windows host computer, input adb reboot loader to reboot the device into the bootloader mode;

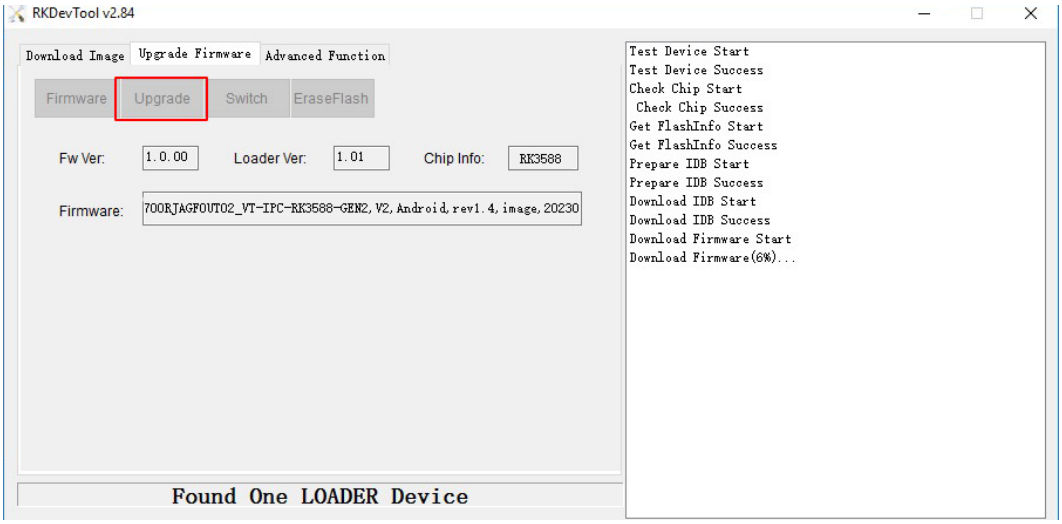
7. Then the upgrade window will prompt for the existence of a Loader device, indicating that the upgrade process is ready;



8. Click **Upgrade Firmware** > **Firmware** in the upgrade window;

9. Open the image file (**update.img**) from the local directory (\SW\IMG), and the firmware details will be automatically populated;

10. Click the **Upgrade** button and the system will start to download the image and upgrade the firmware automatically;



11. When the upgrade finishes, the system will reboot automatically.

4.2 Image Flashing in Ubuntu System

4.2.1 Prerequisites

- M10R1-RK35
- A host computer running Ubuntu 18.04 or later
- A USB Type-A to Type-C cable
- Software release package for the device

4.2.2 Image flashing

1. Connect the device to the Ubuntu host computer via the USB Type-A to Type-C cable;
2. Open a terminal and input the following command to install the ADB tool if necessary;

   ```
   $ sudo apt-get install adb -y
   ```

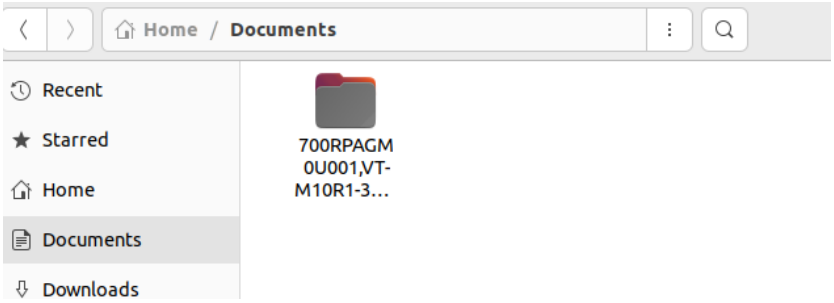
3. Check if the device is connected to the Ubuntu host computer via the ADB tool;

   ```
   $ adb devices -l
   ```

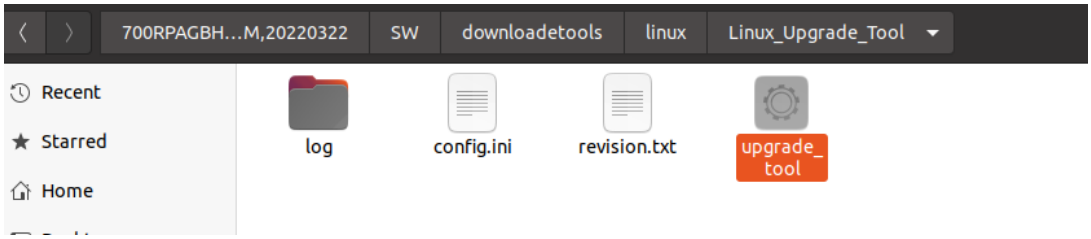
4. Execute `adb shell` to access the device's shell;
5. Execute `reboot loader` to reboot the device into bootloader mode;

   ```
   e@ubuntu:~$ adb shell
   root@linaro-alip:/# reboot loader
   root@linaro-alip:/#  @ubuntu:~$
   ```

6. Copy the release package provided by Vantron to the Ubuntu host computer;



7. Unzip the release package and navigate to the upgrade tool folder located at \SW\downloadedtools\linux\Linux_Upgrade_Tool;



8. Right click the mouse in an empty area and click **Open in Terminal** to open a new terminal in the upgrade tool folder;

9. Input the following command to download the image and start the upgrade process;

```
sudo ./upgrade_tool uf xxx/SW/update.img          // path of the image file
```

Replace "xxx" with the full name of the release package.

10. The upgrade will commence once the download is complete. The system will automatically reboot upon completion of the upgrade process.

```
Program Log will save in the /root/upgrade_tool/log/
Loading firmware...
Support Type:RK3588      FW Ver:1.0.00    FW Time:2022-07-30 16:22:22
Loader ver:1.0b Loader Time:2022-07-30 16:02:36
Upgrade firmware ok.
```

CHAPTER 5 DISPOSAL AND WARRANTY

5.1 Disposal

When the device comes to end of life, you are suggested to properly dispose of the device for the sake of the environment and safety.

Before you dispose of the device, please back up your data and erase it from the device.

It is recommended that the device is disassembled prior to disposal in conformity with local regulations. Please ensure that the abandoned batteries are disposed of according to local regulations on waste disposal. Do not throw batteries into fire or put in common waste canister as they are explosive. Products or product packages labeled with the sign of “explosive” should not be disposed of like household waste but delivered to specialized electrical & electronic waste recycling/disposal center.

Proper disposal of this sort of waste helps avoid harm and adverse effect upon surroundings and people’s health. Please contact local organizations or recycling/disposal center for more recycling/disposal methods of related products.

5.2 Warranty

Product warranty

VANTRON warrants to its CUSTOMER that the Product manufactured by VANTRON, or its subcontractors will conform strictly to the mutually agreed specifications and be free from defects in workmanship and materials (except that which is furnished by the CUSTOMER) upon shipment from VANTRON. VANTRON's obligation under this warranty is limited to replacing or repairing at its option of the Product which shall, within **24 months** after shipment, effective from invoice date, be returned to VANTRON's factory with transportation fee paid by the CUSTOMER and which shall, after examination, be disclosed to VANTRON's reasonable satisfaction to be thus defective. VANTRON shall bear the transportation fee for the shipment of the Product to the CUSTOMER.

Out-of-Warranty Repair

VANTRON will furnish the repair services for the Product which are out-of-warranty at VANTRON's then-prevailing rates for such services. At customer's request, VANTRON will provide components to the CUSTOMER for non-warranty repair. VANTRON will provide this service as long as the components are available in the market; and the CUSTOMER is requested to place a purchase order up front. Parts repaired will have an extended warranty of 3 months.

Returned Products

Any Product found to be defective and covered under warranty pursuant to Clause above, shall be returned to VANTRON only upon the CUSTOMER's receipt of and with reference to a VANTRON supplied Returned Materials Authorization (RMA) number. VANTRON shall supply a RMA, when required within three (3) working days of request by the CUSTOMER. VANTRON shall submit a new invoice to the CUSTOMER upon shipping of the returned products to the CUSTOMER. Prior to the return of any products by the CUSTOMER due to rejection or warranty defect, the CUSTOMER shall afford VANTRON the opportunity to inspect such products at the CUSTOMER's location and no Product so inspected shall be returned to VANTRON unless the cause for the rejection or defect is determined to be the responsibility of VANTRON. VANTRON shall in turn provide the CUSTOMER turnaround shipment on defective Product within **fourteen (14) working days** upon its receipt at VANTRON. If such turnaround cannot be provided by VANTRON due to causes beyond the control of VANTRON, VANTRON shall document such instances and notify the CUSTOMER immediately.

Appendix Regulatory Compliance Statements

FCC Statement

This device complies with part 15 of the FCC Rules. Operation is subject to the following two conditions:

(1) this device may not cause harmful interference, and

(2) this device must accept any interference received, including interference that may cause undesired operation.

Changes or modifications not expressly approved by the party responsible for compliance could void the user's authority to operate the equipment.

Exposure to radio frequency energy:

The radiated output power of this device meets the limits of FCC radio frequency exposure limits. This device should be operated with a minimum separation distance of 20cm (8 inches) between the equipment and a person’s body.

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

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

ISED Canada Compliance Statement

This device complies with ISED Canada license-exempt RSS standard(s). Operation is subject to the following two conditions:

(1) This device may not cause interference, and

(2) This device must accept any interference, including interference that may cause undesired operation of the device.

Operation in the band 5150–5250 MHz is only for indoor use to reduce the potential for harmful interference to co-channel mobile satellite systems.

Exposure to radio frequency energy:

The radiated output power of this device meets the limits of ISED Canada radio frequency exposure limits. This device should be operated with a minimum separation distance of 20cm (8 inches) between the equipment and a person's body.

Le présent appareil est conforme aux CNR d'ISDE Canada applicables aux appareils radio exempts de licence. L'exploitation est autorisée aux deux conditions suivantes:

(1) l'appareil ne doit pas produire de brouillage, et

(2) l'appareil doit accepter tout brouillage radioélectrique subi, même si le brouillage est susceptible d'en compromettre le fonctionnement.

La bande 5150–5250 MHz est réservée uniquement pour une utilisation à l'intérieur afin de réduire les risques de brouillage préjudiciable aux systèmes de satellites mobiles utilisant les mêmes canaux.

L'exposition à l'énergie radiofréquence:

La puissance de sortie rayonné de cet appareil est conforme aux limites de la ISDE Canada limites d'exposition aux fréquences radio. Cet appareil doit être utilisé avec une distance minimale de séparation de 20cm entre (8 pouces) l'appareil et le corps d'une personne.

ESD Precautions

The tablet contains highly sensitive electronic circuitry and is an Electrostatic Sensitive Device (ESD). Handling the tablet without proper ESD protection may destroy or damage it permanently. Proper ESD handling and packaging procedures must be applied throughout the processing, handling and operation of any application that incorporates the tablet. ESD precautions should be implemented on the application board where the B series is mounted. Failure to observe these precautions can result in severe damage to the tablet!

Heat Related Concerns

Your device may become very warm during normal use. It complies with the user-accessible surface temperature limits defined by the International Standards for Safety. Still, sustained contact with warm surfaces for long periods of time may cause discomfort or injury. To reduce potential heat-related concerns, follow these guidelines:

- Keep your device and its adapter in a well-ventilated area when in use or charging. Allow for adequate air circulation under and around the device.
- If your device is used for long periods, its surface can become very warm. While the temperature may not feel hot to the touch, if you maintain physical contact with the device for a long time, for example if you rest the device on your lap, your skin might suffer a low-heat injury.
- If your device is on your lap and gets uncomfortably warm, remove it from your lap and place it on a stable work surface.
- Never place your device or the adapter on furniture or any other surface that might be marred by exposure to heat since the base of your device and the surface of the adaptor may increase in temperature during normal use.