Linuxphoenixconsole

User Guide

Revision: V3.0.7

Release Date: September 14, 2023

Revision History

Revision	Date	Author	Description
3.0.7	September 14, 2023	AWA1746	1.Add the erasing mode parameter. 2.Add usage information.
1.0.0	November 10, 2022	AWA1746	Initial version.

Contents

Figures

1 About This Document

The Ubuntu command line burning tools are divided into two tools: linuxphoenixconsole32 and linuxphoenixconsole64. The following describes the burning tools using linuxphoenixconsole.

1.1 Purpose and Scpoe

This document introduces how to use linuxphoenixconsole, the burning command line tool for Linux.

1.2 Intended Audience

linuxphoenixconsole users or developers.

1.3 Related Versions

This tool is only applicable to the linux OS (recommended is ubuntu16.04 or later).

Recommended kernel version: 2.6.32-52-generic(x86_64).

1.4 Conventions and Terminology

The document gives the following conventions.

1.4.1 Symbol Conventions

The symbols that may be found in this document are defined as follows.

Symbol	Description
⚠ WARNING	Indicates potential risk of injury or death exists if the instructions are not obeyed.
⚠ CAUTION	Indicates potential risk of equipment damage, data loss, performance degradation, or unexpected results exists if the instructions are not obeyed.
📖 Note	Provides additional information to emphasize or supplement important points of the main text.
🔑 Tip	Indicates a tip that may help you solve a problem or save time.

1.4.2 Address and data description method convention

The expressions of addresses and data are described as follows.

Symbol	Example	Description
0x	0x0200，0x79	Address or data in hexadecimal.
0b	0b010，0b00 000 111	Data or sequence in binary (register description is excluded).
X	00X，XX1	In data expression, X indicates 0 or 1. For example, 00X indicates 000 or 001 and XX1 indicates 001, 011, 101 or 111.

1.4.3 Parameter Definition Specification

Parameter	Parameter Specification	Definition Specification
1	Firmware	The device firmware that needs to be specified for burning.
2	Erase mark	Empty:Retention data mode; EP:Partition wipe mode; EA:Erase all mode.

2 Overview

2.1 Introduction to the linuxphoenixconsole

This tool is a linux(ubuntu) system using command line operation to burn firmware tool.

2.2 2.1Installation Guide

1. The binary executable is linuxphoenixconsole.run. If the file does not have the permission to execute, use the command in the terminal:

chmod +x linuxphoenixconsole.run

This command adds executable permissions to the file.

2. Open the terminal and type "./linuxphoenixconsole.run" to run the installer.

If a message is displayed indicating that the dkms module is missing, run the "sudo apt-get install dkms" command for Ubuntu users. Run the yum install command for users of other distribution versions or download the dkms of their own versions from the network.

3.The program is installed in the Bin directory of the current user's Home directory.

4.cd to folder "$Home/Bin/linuxphoenixconsole/bin".

5. After installing the program, enter the directory ($Home/Bin/linuxphoenixconsole/bin), type the command "./ linuxphoenixconsole imagepath" run the tool.if there has permission problem,please add "sudo" like "sudo ./linuxphoenixconsole imagepath"

📖 Note

1.The USB driver is automatically installed during the installation process, and related information is displayed during the driver installation. The driver module name is awdev. The compiled kernel version is 2.6.32-52-generic(x86_64), and the driver version is 0.5, as shown in Figure 2-1.

2.In Ubuntu 10.04, you can add the udev rule in the following way to read and write hardware devices without root permission:

(1) Open the terminal and enter "sudo vim /etc/udev/rules.d/10-local.rules"

(2) Enter the following udev rule content, remember to replace test with the user group of the current user.

SUBSYSTEM! ="usb_device",ACTION! ="add",GOTO="objdev_rules_end"

#USBasp

SYSFS{idVendor}=="1f3a",SYSFS{idProduct}=="efe8",GROUP="test",MODE="0666"

LABEL="objdev_rules_end"

(3)Save and restart the machine or restart the udev service to run LiveSuit for regular users. Run the "sudo service udev restart" command to restart the udev service.

Figure 2-1 Driver installation information diagram


```
Module:   awdev
Version: 0.5
Kernel:  2.6.32-52-generic (x86_64)
-------------------------------------

Status: This module version was INACTIVE for this kernel.
depmod....(bad exit status: 1)

DKMS: uninstall completed.

----------------------------
Deleting module version: 0.5
completely from the DKMS tree.
----------------------------
Done.
Unpacking awdev-dkms (0.5) over (0.5) ...
Setting up awdev-dkms (0.5) ...

Loading tarball for awdev-0.5
Loading /var/lib/dkms/awdev/0.5/2.6.32-52-generic/i686...

DKMS: ldtarball completed.

Creating symlink /var/lib/dkms/awdev/0.5/source ->
                 /usr/src/awdev-0.5

DKMS: add completed.
First Installation: checking all kernels...
Building only for 4.15.0-142-generic
```

⚠ CAUTION

1.For users of other distribution versions, see the udev documentation and add udev rules using Ubuntu 10.04 as an example. Users who do not add the udev rule need to run the program with the sudo ./linuxphoenixconsole imagepath.

2.If device detection or burning fails after the driver is automatically installed, it indicates that the driver in the installation package is not compatible with the current linux kernel version, as shown in Figure 2-1. The compiled kernel version of the driver is 2.6.32-52-generic(x86_64). The current Linux kernel version is 4.15.0-142-generic. In this case, you need to compile a new driver adaptation kernel. For details, see section 2.3.1.

5.To avoid hardware damage, do not close the program or disconnect the device during firmware burning.

2.3   Tool Usage

Prepare the device: a device +USB data cable, if you need to see the serial port print information, also need to prepare a serial cable.

⚠ CAUTION

This tool only supports one device burning, not multiple devices burning at the same time.

2.3.1 Driver acquisition and installation

The kernel of the linux system is often automatically upgraded when the network is connected. After the upgrade, the usb driver may fail. In this case, the usb driver needs to be recompiled to adapt to the new kernel. The usb driver source code of the linux version needs to be obtained from the One(Allwinner distributes the Dolby firmware to Dolby-authorized QR customers through its self-developed platform, namely the One (https://one.allwinnertech.com)), and users need to contact the person in charge of the project to apply before downloading. A corresponding link on https://one.allwinnertech.com/#/sdkProductTools/index.

Please refer to the detailed description in the usb driver package for the compilation procedure, which is not explained here.

2.3.2 linuxphoenixconsole burning

First copy the toolkit to a directory on your linux (ubuntu) system, and then cd to the tool directory.

Enter the burning command in the following format to start the burning, the command structure is as follows.

"./linuxphoenixconsole yourimagepath eraseflag"

Retention data mode:

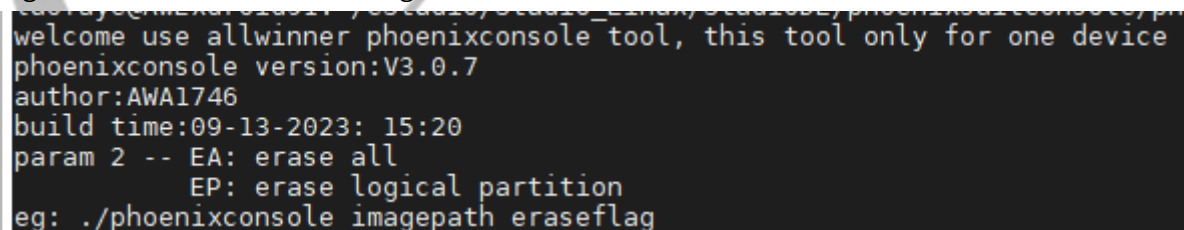./linuxphoenixconsole imagepath

Partition wipe mode:

./linuxphoenixconsole imagepath EP

Erase all mode:

./linuxphoenixconsole imagepath EA

After the tool is started, information about the current tool is displayed, as shown in Figure 2-2.

Figure 2-2 Tool information diagram


```
welcome use allwinner phoenixconsole tool, this tool only for one device
phoenixconsole version:V3.0.7
author:AWA1746
build time:09-13-2023: 15:20
param 2 -- EA: erase all
         EP: erase logical partition
eg: ./phoenixconsole imagepath eraseflag
```

During the burning process, the burned log will be printed in the terminal. At this time, you should wait for the burning to complete. After the burning is completed, the log will be printed, as shown in Figure 2-3.
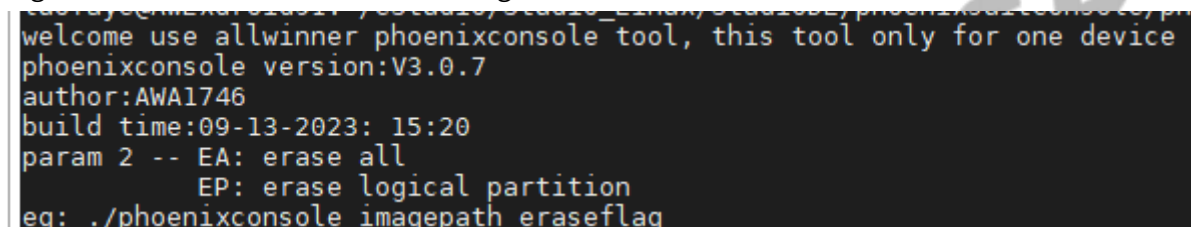
Figure 2-3 Burning completed diagram
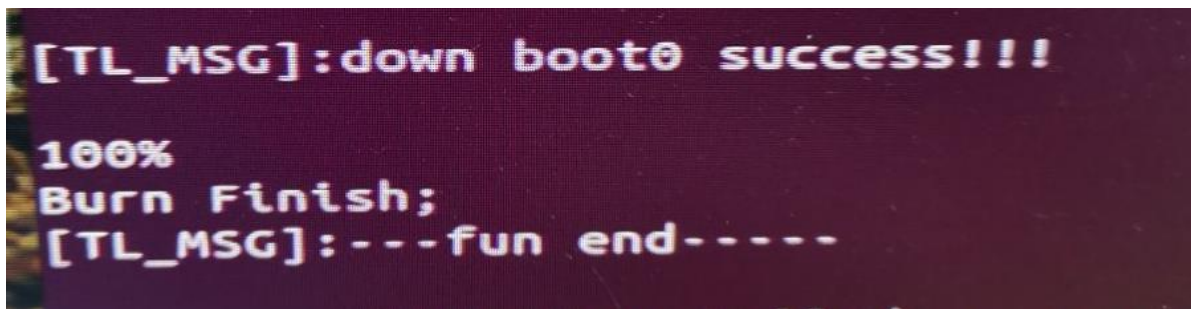
2.4 Tool Version

In the tool path, enter the following command:

"./linuxphoenixconsole"

You can view the version and author of the current tool, as shown in Figure 2-4.

Figure 2-4 Tool version and author diagram

2.5 Matters needing attention

1. The backup file package with the driver is reserved in the installation directory:

(1) Ubuntu platform installation package: awdev-dkms_0.1_all.deb

(2) Installation package for RedHat,Fedora, and CentOS: awdev-0.1-1dkms.noarch.rpm

2. If the kernel version has been updated, the driver is not automatically loaded. Install the driver manually.root permission is required for driver installation.

3. Open the Ubuntu terminal and run the "sudo dpkg -i awdev-dkms_0.1_all.deb" command to install the Ubuntu terminal.

For RedHat,Fedora, and CentOS, run the "sudo rpm -ivh awdev-0.1-1dkms.noarch.rpm" command.

4.Replace SYSFS with ATTRS for udev rule keyword in Ubuntu 12.04.

5.When the awdev-dkms installation prompts that dkms is missing, run the "sudo apt-get install dkms" command.

6. If a message indicating that compiling awusb.ko fails and the signal_pending problem occurs, it is because the path of the signal header file of the kernel of a later version changes, you can directly add #include <linux/sched/signal.h> to awusb.c. This awdev-0.5 driver supports the main updates of kernel versions 4.11.0 and above, and has realized automatic identification of kernel version number in the precompiled definition, without manual modification of the source code.

7. When the awusb.ko fails to be loaded by running the "insmod" command,.First, run the "sudo make clean" command. Then run the "sudo make" to generate the ko compiled using the current toolchain, and then loads it. If it still cannot be loaded, EFI_SECURE_BOOT_SIG_ENFORCE is enabled on the kernel of an earlier version of the operating system to prevent third-party modules from being loaded. If you want to use Ubuntu Desktop, you can install awdev-dkms_0.1_all.deb, and a pop-up message will be displayed. Just confirm; Common solutions are as follows:

（1） Open the terminal and type "sudo apt install mokutil"；

（2） type "sudo mokutil -disable-validation"；

（3） The terminal will ask you to set an 8-16 digit password, please remember the password set；

（4） When you restart the computer, a blue screen will appear, displaying the following options：

-Continue boot

-Change Secure Boot state

-Enroll key from disk

-Enroll hash from disk

Please select "Change Secure Boot state"

（5） The system will ask you to enter one of the passwords you previously set；

（6） The Disable Secure Boot selection screen is displayed. Select yes and return to the initial screen. Select reboot to re-enter the system.

8. The lack of libpng12.so.0 is due to the fact that Ubuntu 14 no longer supports libpng12, while LiveSuit relies on libpng12, so a lower version of libpng needs to be installed using a specific method:

（1） Open the terminal and type "sudo vim /etc/apt/source.list"；

（2） Follow the instructions on the Ubuntu website to add deb to the software source (http://cz.archive.ubuntu.com/ubuntu)；

（3） Save and exit vim, open the terminal and type "sudo apt-get update"；

（4） type "sudo apt-get install libpng12-0".

2.6　Common error explanation

Table 2-1 Common error description table

Error Message	Description
Set LiveProc Func failed	The liveproc plugin is not updated or is broken.
SetDevName %d set %s dev name failed, %d	Same as above.

Error Message	Description
Wait for Fes Device Timeout...	The switchover of the device to fes status times out. In this case, you should check whether the usb and device are normal.
Dev %s was already burning...	When inserting other devices during the process of burning a device, the existing devices will be traversed first. This is to avoid other devices preempting the current process and does not affect the burning.
Get Device Stage Failed!	Failed to obtain the device status. You need to check whether the hardware connection or device is normal.
DevicePlugIn PnpFelIn failed %d	The device fails to enter the fel state. Check whether the device is normal.
Fes Device Plugin after Timeout...	If the device enters the fes state after a timeout, you need to re-burn the device.
DevicePlugIn PnpFesIn failed %d	The device fails to enter the fes state. Check whether the usb or device is normal.
Err: imagepath must be required	Parameter error. Firmware path must be specified.

3 FAQ

3.1 dpkg: error processing package awdev-dkms (--install)

At this time, you need to update or install the corresponding dependent libraries, execute the following command:

"sudo apt-get --fix-broken install" or "sudo apt-get -f -y install".

After executing the above command, if the problem still exists, you can open the /var/lib/dkms/awdev/0.5/build/make.log file in the error prompt to see the actual errors when compiling the USB library.

If the error shows gcc-11 not found, it means that the gcc library is not installed on the Ubuntu system. At this time, you can execute the "sudo apt-get install gcc" command.

If the error is reported as follows:

"gcc: Depends on: cpp (= 4.9.3.0-1ubuntu2) but 4:11.2.0-ubuntu1 is about to be installed..." This is most likely because the apt source setting is wrong, and it needs to be installed according to the ubuntu system source to set the corresponding apt source.

The command to view the ubuntu system source is as follows:

"lsb_release -a"

The command to view the configuration information of the apt source is as follows:

"sudo vim /etc/apt/sources.list", depending on the settings of your personal PC.

After configuration, execute the following commands in sequence:

"sudo apt-get update"

"sudo apt-get upgrade"

Finally, enter the command to install gcc "sudo apt-get install gcc".

3.2 dpkg: error processing package awdev-dkms (--configure)

At this time, use the "sudo dpkg -l" command to check whether awdev-dkms has been installed. If so, please uninstall it first. The uninstall instructions are as follows:

"sudo apt-get remove awdev-dkms"

After the uninstallation is complete, execute "sudo apt-get --fix-broken install" again.

3.3 Package dkms not installed

You can install dkms according to the error message. The installation command is as follows:

"sudo apt-get install dkms"