



HUAWEI Module

# Upgrade Guide on Embedded Linux

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## About This Document

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### Revision History

Document Version	Date	Chapter	Descriptions
01	2013-04-17		Creation
02	2013-07-18	1	Added the description about MIPS/X86
03	2013-07-27	1	Added the description about Chrome OS in NOTE
		2.1	Added the description about Chrome OS
04	2013-08-31	1	Added the description about Android OS
05	2013-12-28	1	Added Table 1-1 List of UpdateWizard tool version
		2.2	Updated Command List
		2.4.4	Added Table 2-1 Error code
		3.2	Deleted 3.2 How to Find the PCUI Port



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# 1 Introduction

Huawei UpdateWizard for embedded Linux such as Android OS and Chrome OS is the tool which is just for updating the firmware of HUAWEI module.

The tool complies with interfaces of HUAWEI device and is forbidden to apply to devices of any other manufacturer.

The following rules must be observed for upgrading HUAWEI module:

- The tool is only applicable to the device based on MIPS/X86/ARM (Advanced RISC Machine) on embedded Linux system.
- You should not power off the module during the update process, otherwise it may cause much damage to the module.
- On Android OS, you should stop the ril process before upgrading HUAWEI module. [How to stop the ril process]: execute the command **stop ril-daemon**. Otherwise, use command **ps rild** to get the ril PID, then use **kill 'PID'** to kill the ril process.



## NOTE

- The full directory of the module's firmware package with ".BIN" format needs to be input when using the UpdateWizard tool.
- Input password if it is necessary (about when you need the password, please see section 3.1 ), as "-p password". Command rules: "**full directory of the update tool**" + "**full directory of the module's firmware package**" + "-p" + "**password**". For example: /data/Resources/UpdateWizard /data/Resources/11.103.10.00.00.BIN -p 47309592
- On Chrome OS, it is recommended to use the path **/local/bin** as the default upgrade tool directory.
- Do not run other program or process, and ensure PCUI port and Diag port are not occupied.

If the tool works, a log file **hwupgradewizard.log** will be created in the path as shown in Table 1-1 .

**Table 1-1** List of UpdateWizard tool version

Tool Version	OS	CPU	Additional Features	Log Path
V300R001B11 0SP01C03	Chrome/Linux	X86	VID: 0x12D1	./var/tmp



Tool Version	OS	CPU	Additional Features	Log Path
V300R001B11 0SP02C03	Android/Linux	ARM	VID: 0x12D1	./var/tmp
V300R001B11 0SP03C03	Android/Linux	ARM	VID: 0x03F0	Working directory of UpdateWizard tool
V300R001B11 0SP05C03	Android/Linux	X86	VID: 0x12D1&0x03F0 (Supported MBIM)	Working directory of UpdateWizard tool
V300R001B11 0SP06C03	Android/Chro me/Linux	ARM& X86	VID: 0x12D1&0x03F0	Working directory of UpdateWizard tool

# 2 Upgrade Guide

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## 2.1 Ready for Update

- According to the device's CPU architecture, choose the correct version of UpdateWizard tool (see Table 1-1 ).
- If the tool version you choose is V300R001B110SP01C03 or V300R001B110SP02C03, make sure that the path **/var/tmp** exists. If it does not exist, please create a "tmp" folder in the var directory.
- For using the UpdateWizard tool, you should let it in the place where the tool will work in. For example: choose the path **/data/Resources** on Android/Linux OS or the path **/local/bin** on Chrome OS.
- Run the command as **chmod 777 /data/Resources/UpdateWizard** to make sure full control over the account level of the tool.

## 2.2 Command List

For example, choose the path **/data/Resources** as the default directory for UpgradeWizard tool.

- Step 1 Make sure that the PCUI port exists and no other tool or program occupies the PCUI port.
- Step 2 Check whether the module supports the bodySAR function or not. And then, perform one of the following:
- 1) If the bodySAR function is supported, go to Step 3.
  - 2) If the bodySAR function is not supported, go to Step 4.
- Step 3 Check whether you need the update password or not (please see section 3.1 ). And then, perform one of the following:
- 1) If the password is not needed, run the command **/data/Resources/UpdateWizard /data/Resources/XXXXX.BIN /BKBODY SAR** to start updating.
  - 2) If the password is needed, run the command **/data/Resources/UpdateWizard /data/Resources/XXXXX.BIN /BKBODY SAR -p XXXXXXXX** to start updating.

- Step 4 Check whether you need the update password or not (please see section 3.1 ). And then, perform one of the following:
- 1) If the password is not needed, run the command **/data/Resources/UpdateWizard /data/Resources/XXXXX.BIN** to start updating.
  - 2) If the password is needed, run the command **/data/Resources/UpdateWizard /data/Resources/XXXXX.BIN -p XXXXXXXXX** to start updating.



**NOTE**

- **/data/Resources/UpdateWizard**: the full directory of this tool.
- **/data/Resources/XXXXX.BIN**: the full directory of the ".BIN" file.
- **-p XXXXXXXXX**: the update password.
- **/BKBODYSAR**: back up bodySAR values before update, and restore bodySAR after update.
- The path for the update tool, ".BIN" files and parameters (command parameters or password) must be separated with a half-width space.

## 2.3 Upgrade Procedures

- Step 1 Ensure that the interfaces of HUAWEI module can be displayed on embedded Linux system. (Some other modules may be displayed differently.)

```
root@localhost sdk]# cd /sys/bus/usb/drivers/option/  
root@localhost option]# ls  
-1:1.0 1-1:1.1 1-1:1.2 1-1:1.3 1-1:1.4 bind module uevent unbind  
root@localhost option]#
```

- Step 2 Use command line **chmod 777 UpdateWizard** to get the update program execution permissions.

```
[root@localhost Update]# chmod 777 UpdateWizard
```

- Step 3 Execute the upgrade program.

```
[root@localhost Update]# ./UpdateWizard MU739update_11.102.03.00.111.bin
```

- Step 4 Run successfully.



```
.Now update progress percents: 100
EM_STATE_RESUME_NV: resume nv...
.....Firmware Version: 11.102.03.00.11
Last error: 0: Success
acpid: can't open /proc/acpi/event: Device or resource busy
End Time: 14:36:20

Program takes 207 seconds.
[root@localhost Update]# vim /var/tmp/hwupgradewizard.log
```

Step 5 Look over the log. (Take the log path "var/tmp" as an example.)

```
.Now update progress percents: 100
EM_STATE_RESUME_NV: resume nv...
.....Firmware Version: 11.102.03.00.11

Last error: 0: Success
acpid: can't open /proc/acpi/event: Device or resource busy
End Time: 14:36:20

Program takes 207 seconds.
[root@localhost Update]# vim /var/tmp/hwupgradewizard.log
```

Step 6 Check the upgrade result by using the minicom tool of Linux system. Open the PCUI port, and send AT command **ATI** to confirm the current firmware version.

```
ATI
Manufacturer: Huawei Technologies Co., Ltd.
Model: MU739
Revision: 11.102.03.00.111
IMEI: 492100022000111
+GCAP: +CGSM

OK
```

## 2.4 Information Displaying

Because the UpdateWizard tool for embedded Linux does not work with UI, all of the information is output to the shell window, including step information, firmware information, download progress, error code and time cost.

### 2.4.1 Step Information

Before operating every step, the tool will give some information to show what the tool is doing, as shown in the following figure.

```
# upd 111.BIN
Start Time: 7:39:58
..EM STATE FINDING: begin search device...
..EM STATE CHECKINFO: begin check device information...
ISO Version: //
Authority ID: 492100022000111
Board Class: Huawei MU739
Firmware Version: 11.102.01.02.00
..EM STATE BACKUP NV: backup nv...
EM STATE_SWITCHPORT: switch port...
.....EM STATE UPDATING: updating...
..Now update progress percents: 1
..Now update progress percents: 2
```

### 2.4.2 Firmware Information

When the tool is in the step of "check device information", the device information will be output on the shell window after the update begins, as shown in the following figure.

```
# upd 111.BIN
Start Time: 7:39:58
..EM STATE FINDING: begin search device...
..EM STATE CHECKINFO: begin check device information...
ISO Version: //
Authority ID: 492100022000111
Board Class: Huawei MU739
Firmware Version: 11.102.01.02.00
..EM STATE BACKUP NV: backup nv...
EM STATE_SWITCHPORT: switch port...
.....EM STATE UPDATING: updating...
..Now update progress percents: 1
..Now update progress percents: 2
```

### 2.4.3 Download Progress

When the tool is downloading the data, it will show how much data has been downloaded, as shown in the following figure.

```
..Now update progress percents: 50
..Now update progress percents: 51
..Now update progress percents: 52
..Now update progress percents: 53
..Now update progress percents: 54
..Now update progress percents: 55
..Now update progress percents: 56
..Now update progress percents: 57
..Now update progress percents: 58
..Now update progress percents: 59
..Now update progress percents: 60
..Now update progress percents: 61
```

## 2.4.4 Error Code

Before the tool exits, it will show the last error code, as shown in the following figure.

```

..Now update progress percents: 99
..Now update progress percents: 100
.....EM_STATE_RESUME_NV: resume nv...
Firmware Version: T1.102.03.00.111
Last error: 0: Success
End Time: 7:55:59

Program takes 217 seconds.
#
  
```

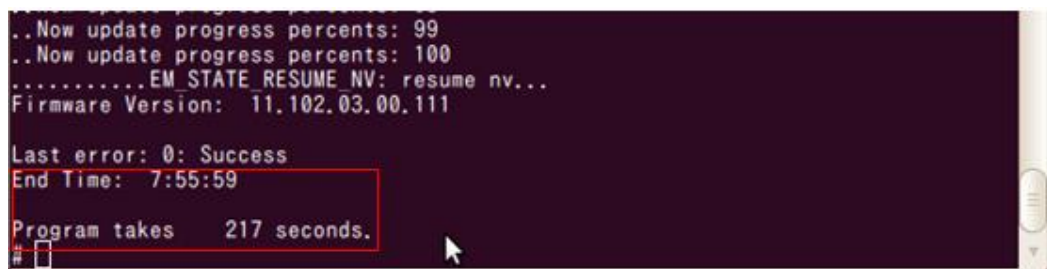
**Table 2-1** Error code

Error Code	Meaning	Simple Solution
0	Upgrade the module successfully.	-
10	Cannot find the upgrade port.	Check whether the module is working and its driver is loaded correctly or not.
11	Open the upgrade port unsuccessfully.	Check whether the PCUI port is occupied or not.
12	Query the download version of the module unsuccessfully.	Check whether the module is working or not.
13	Upgrade authentication failure	The module does not support the upgrade agreement.
14	Back up the NV data unsuccessfully.	Re-upgrade it again. If failed, it indicates the module does not support the upgrade agreement.
16	Change to the upgrade mode unsuccessfully.	It indicates the PCUI port is occupied or abnormal.
17	Verify the product ID unsuccessfully.	It indicates the module does not match with the upgrade package.
18	Verify the upgrade package unsuccessfully.	It indicates "." is missed in the upgrade package directory, or it is the upgrade package CRC code error.
19	Upgrade the firmware package unsuccessfully.	It is an UpdateWizard tool error or a module error. Need HUAWEI's support.
20	Restart the module unsuccessfully.	It indicates the device does not support the restart command after upgrading or the PCUI port is missed.

Error Code	Meaning	Simple Solution
21	Restore the NV data unsuccessfully.	Need HUAWEI's support
30	UpdateWizard is running.	-
255	Unknown error	Reserved

## 2.4.5 Time Cost

The start time, end time and the time cost for the update will be displayed, as shown in the following figure.



```
..Now update progress percents: 99
..Now update progress percents: 100
.....EM_STATE_RESUME_NV: resume nv...
Firmware Version: 11.102.03.00.111

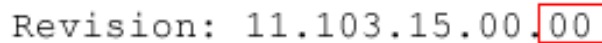
Last error: 0: Success
End Time: 7:55:59
Program takes 217 seconds.
```

# 3 FAQ

---

## 3.1 When do You Need the Update Password

There is a C version in the firmware version that indicates the customized or general version. C00 is the general version, and others are the customized version, just as shown in the following picture.



```
Revision: 11.103.15.00.00
```

In the following two cases, you need the update password.

- A customized version is updated to a general version. For example: the current module firmware version is C1103, and the firmware version being updated is C00.
- A customized version is updated to a different customized version. For example: the current module firmware version is C1103, and the firmware version being updated is C156.

The update password can be provided by HUAWEI.