Odin1 升级工具使用说明

升级后请同时升级ros driver

升级完成后请**一定到官方 github 仓库查看 ros driver 更新**，避免 ros driver 和固件不匹配导致使用出现问题

https://github.com/manifoldsdk/odin_ros_driver

0.5.0 版本工具使用说明

0.14.0版本更新：现在可以使用update.sh 一键烧录了，如果脚本升级失败，请参照以下说明手动升级。

代码块

```
./update.sh
[update] Detected architecture: x86_64 -> using amd64 update tool
[update] Update pack: /home/xiao/work/1_odin1/firmware/make_ota/0.14.0_release/odin1_firmware_update_0.14.0.tar.gz

[update] Before updating: stop the ros driver and reboot the device. Do NOT cut power during the update.

[update] ================================================
[update] Starting firmware update with tool 0.5.0 ...
[update] ================================================
odin 1 firmware_update_tool 0.5.0
temp folder ./odin1_fw_update_temp/ created.
You entered: /home/xiao/work/1_odin1/firmware/make_ota/0.14.0_release/odin1_firmware_update_0.14.0.tar.gz
config.yaml
Daemon_process_0.4.9.bin
db.bin
feat.yml
lyd_soc_app_0.4.9.bin
update_0.14.0.bin
wating for device attach...
device attach success.
get device version success!
device soc app version: 0.14.1
device daemon version: 0.6.1
```

```
device install version: 0.13.0
device mcu version: 1.5.2
device kernel version: 5.10.209
device start upgrade procedure success.
device version is 0.14.1, skip intermidiate stage.
transfering new module 1, this one will take longer
file transfer progress:  0.00%.
file transfer progress:  5.75%.
file transfer progress:  11.51%.
file transfer progress:  17.26%.
file transfer progress:  23.02%.
file transfer progress:  28.77%.
file transfer progress:  34.53%.
file transfer progress:  40.28%.
file transfer progress:  46.04%.
file transfer progress:  51.79%.
file transfer progress:  57.55%.
file transfer progress:  63.30%.
file transfer progress:  69.06%.
file transfer progress:  74.81%.
file transfer progress:  80.57%.
file transfer progress:  86.32%.
file transfer progress:  92.07%.
file transfer progress:  97.83%.
transfer new module 1 success.
transfering extra file db.bin -> /userdata/slam/db.bin
transfer extra file db.bin success.
transfering extra file feat.yml -> /userdata/slam/feat.yml
transfer extra file feat.yml success.
device commit upgrade procedure...
device commit upgrade procedure success.
prepare for firmware flashing...
now flashing...
device rebooted && reconnected in 27 seconds.
get device version success!
new firmware version:
device soc app version: 0.14.0
device daemon version: 0.6.1
device install version: 0.13.0
device mcu version: 1.5.2
device kernel version: 5.10.209
firmware update success, now exit.
[update] Update succeeded (tool 0.5.0).
[update] Power the device off completely, then power it on again, and use the
latest odin_ros_driver.
```

注意事项

Odin1 的0.13.0版本有更新，升级到0.13.0之后与原先升级工具无法兼容。

- 在当前运行固件是**0.12.4**（包含）以前的版本时，请使用**0.4.9**版本的升级工具进行升级。
- 在当前运行固件是**0.13.0**（包含）之后的版本时，请使用**0.5.0**版本的升级工具进行升级。

使用错误会有如下提示

代码块

```
odin 1 firmware_update_tool 0.4.9
temp folder ./odin1_fw_update_temp/ created.
You entered: odin1_firmware_update_0.13.1.tar.gz
config.yaml
Daemon_process_0.4.9.bin
db.bin
feat.yml
lyd_soc_app_0.4.9.bin
update_0.13.1.bin
wating for device attach...
device attach success.
get device version success!
device soc app version: 0.13.1
device daemon version: 0.6.1
device install version: 0.12.1
device mcu version: 1.5.2
device kernel version: 5.10.209
detected firmware version 0.13.1, this tool (0.4.9) does not support firmware 0.12.5 and later. please use firmware update tool 0.5.0.
```

使用说明

1. 解压odin1_firmware_update_pack_0.13.1_20260709.zip后会得到如下文件用于升级。

代码块

```
0.4.9版本升级工具
odin1_firmware_update_tool_0.4.9_aarch64
odin1_firmware_update_tool_0.4.9_amd64

0.5.0版本升级工具
odin1_firmware_update_tool_0.5.0_aarch64
odin1_firmware_update_tool_0.5.0_amd64

升级包
odin1_firmware_update_0.13.1.tar.gz
```

2. 根据host架构选择对应的工具，以x86为例，从0.12.0版本升级到0.13.1

代码块

```
odin 1 firmware_update_tool 0.4.9
temp folder ./odin1_fw_update_temp/ created.
You entered: odin1_firmware_update_0.13.1.tar.gz
config.yaml
Daemon_process_0.4.9.bin
db.bin
feat.yml
lyd_soc_app_0.4.9.bin
update_0.13.1.bin
wating for device attach...
device attach success.
get device version success!
device soc app version: 0.12.0
device daemon version: 0.6.1
device install version: 0.12.0
device mcu version: 1.5.2
device kernel version: 4.10.0
device start upgrade procedure success.
device version is 0.12.0, skip intermidiate stage.
transfering new module 1, this one will take longer
file transfer progress:  0.00%.
file transfer progress:  5.70%.
file transfer progress:  11.40%.
file transfer progress:  17.09%.
file transfer progress:  22.79%.
file transfer progress:  28.49%.
file transfer progress:  34.19%.
file transfer progress:  39.88%.
file transfer progress:  45.58%.
file transfer progress:  51.28%.
file transfer progress:  56.98%.
```

```
file transfer progress:  62.67%.
file transfer progress:  68.37%.
file transfer progress:  74.07%.
file transfer progress:  79.77%.
file transfer progress:  85.46%.
file transfer progress:  91.16%.
file transfer progress:  96.86%.
transfer new module 1 success.
transfering extra file db.bin -> /userdata/slam/db.bin
transfer extra file db.bin success.
transfering extra file feat.yml -> /userdata/slam/feat.yml
transfer extra file feat.yml success.
device commit upgrade procedure...
device commit upgrade procedure success.
prepare for firmware flashing...
now flashing...
device rebooted && reconnected in 32 seconds.
get device version success!
new firmware version:
device soc app version: 0.13.1
device daemon version: 0.6.1
device install version: 0.12.1
device mcu version: 1.5.2
device kernel version: 5.10.209
firmware update success, now exit.
```

0.4.x 版本工具，以 0.4.2 为例进行说明

请匹配使用同一固件升级包内的固件，本次以 odin1_firmware_update_0.7.0.tar.gz 为例

1. 库依赖
    a. yaml-cpp
    b. openssl
2. 确保**未**开启 ros driver
3. 确保设备正确连接主机且**上电**
    a. 运行 lsusb 出现设备 **2207：0019**
    b. 运行 lsusb -d 2207:0019 -v | grep bcdUSB, 确保连接速率至少为 **3.0**
        i. 若实际连接速率为 2.0 ,请更换usb线材及接口，并重启设备
4. 下载升级工具并添加运行权限
    - **目前仅支持x86 / x64主机进行更新**

a. 请根据系统版本选择对应的工具：
   i. odin1_firmware_update_tool_0.4.2_x86_x64_20.04
   ii. odin1_firmware_update_tool_0.4.2_x86_x64_22.04
b. 以下以22.04版本为例

```
chmod +x odin1_firmware_update_tool_0.4.2_x86_x64_22.04
```

5. 下载升级包
   a. 例 odin1_firmware_update_0.7.0.tar.gz
6. 运行升级工具：

```
./odin1_firmware_update_tool_0.4.2_x86_x64_22.04 <update_pack_file_path>
```

   a. 建议将工具和升级包放在同一文件夹下：

```
-parent
    -odin1_firmware_update_tool_0.4.2_x86_x64_22.04
    -odin1_firmware_update_0.7.0.tar.gz
```

   b. 执行以下命令：

```
./odin1_firmware_update_tool_0.4.2_x86_x64_22.04
odin1_firmware_update_0.7.0.tar.gz
```

   c. 工具将对设备进行升级。
      i. **升级过程中设备将数次自动重启，请确保供电和usb连接稳定。**
      ii. 升级完成后建议给设备重新上电
      iii. 该版本自动适配0.3.0-0.5.0版本设备，示例输出如下：

```
代码块
```

```
./output/odin1_firmware_update_tool_0.4.2/odin1_firmware_update_tool_0.4.2 odin1_firmware_update_0.7.0.tar.gz
odin 1 firmware_update_tool 0.4.2
temp folder ./odin1_fw_update_temp/ created.
You entered: odin1_firmware_update_0.7.0.tar.gz
config.yaml
Daemon_process_0.4.9.bin
lyd_soc_app_0.4.9.bin
update_0.7.0.bin
wating for device attach...
device attach success.
//////////////////////////
# 获取当前版本失败
<ERROR><firmware_update_tool.cpp:get_device_version:334>: get device version fail.
get device version fail. assume device version older than 0.4.0.
device start upgrade procedure success.
# 当前版本旧于0.5.0，传输临时模块
device version older than 0.5.0, apply intermidiate stage.
transfering new module 1
transfer new module 1 success.
transfering new module 2
transfer new module 2 success.
device 1st stage commit success.
waiting for device to reboot...
device now rebooting...
device attach success.
device start 2nd stage upgrade procedure success.
//////////////////////////
# 成功获取设备当前版本
get device version success!
device soc app version: 0.5.0
device daemon version: 0.5.0
device install version: 0.5.0
device mcu version: 1.4.9
device kernel version: 4.6.0
device start upgrade procedure success.
# 0.5.0 及以上无需临时模块，直接进行正式升级
device version is 0.5.0, skip intermidiate stage.
//////////////////////////
transfering new module 3, this one will take longer
file transfer progress:  0.00%.
file transfer progress:  5.55%.
file transfer progress:  11.11%.
file transfer progress:  16.66%.
file transfer progress:  22.22%.
file transfer progress:  27.77%.
```

```
file transfer progress:  33.33%.
file transfer progress:  38.88%.
file transfer progress:  44.44%.
file transfer progress:  49.99%.
file transfer progress:  55.55%.
file transfer progress:  61.10%.
file transfer progress:  66.66%.
file transfer progress:  72.21%.
file transfer progress:  77.76%.
file transfer progress:  83.32%.
file transfer progress:  88.87%.
file transfer progress:  94.43%.
file transfer progress:  99.98%.
transfer new module 3 success.
device commit upgrade procedure...
device commit upgrade procedure success.
# 准备刷写固件
prepare for firmware flashing...
# 刷写固件
now flashing...
# 固件刷写完毕，设备重启并重新连接
device rebooted && reconnected in 34 seconds.
get device version success!
# 更新后设备内部版本号
new firmware version:
device soc app version: 0.7.0
device daemon version: 0.6.0
device install version: 0.7.0
device mcu version: 1.5.1
device kernel version: 4.7.0
# 本次更新成功
firmware update success, now exit.
```

d. 异常处理：

i. 若出现以下报错：

代码块

```
[2026:01:18:21:14:45][ERROR][lib_usb.cpp:xfer_async_send:498]: submit 0 transfer fail LIBUSB_ERROR_NO_DEVICE.
```

该报错是因为设备烧写镜像时会自动重启，驱动与设备的通讯会暂时中断。已发出但未到达的通讯会产生该报错。只要最后设备成功重连并打印了新的版本号，即代表升级成功，报错无影响。

ii. 若出现以下报错：

```
代码块
1   device version older than 0.5.0, apply intermidiate stage.
2   transfering new module 1
3   transfer new module 1 success.
4   transfering new module 2
5   <ERROR><protocol.cpp:send_file_handler:897>: file chunk transfer fail.
    please retry
6   <ERROR><firmware_update_tool.cpp:upgrade_module:286>: transfer new
    module fail. please retry.
7   transfer new module 2 fail. please retry. current progress was not
    commited on device, no change made.
```

请附带完整的升级工具打印并联系官方支持获取对应补丁工具进行修复，然后重新进行升级。