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OTA_from_Android9.0_Android10.0_to_Android11.0_ Introduction

（第二系统产品部）

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1 概述 Overview

本文档描述了如何从 Rockchip Android 9.0 和 Rockchip Android 10.0 非 A/B 系统通过 OTA 的方式升级到 Android 11.0 非 A/B 系统。

This document describes how to upgrade from Rockchip Android9.0 and Rockchip Android10.0 non-A/B system to Android11.0 non-A/B system through OTA.

在 Rockchip Android 11.0 平台上，通过对应 lunch 项来实现对应 9.0 系统升级到 11.0 系统，以及 10.0 系统升级到 11.0。如 rk3326 11.0 平台上 lunch 项 rk3326_pie 就实现了 Android 9.0 的 rk3326_pie 通过 OTA 升级到 rk3326 11.0 系统；rk3326 11.0 平台上 lunch 项 rk3326_q 就实现了 Android 10.0 的 rk3326_q 通过 OTA 升级到 rk3326 11.0 系统。

On Rockchip Android11.0 platform, the corresponding lunch option can implement upgrading from the system Android9.0 to Android11.0 and Android10.0 to Android 11.0. For example, on rk3326 11.0 platform, lunch option rk3326_pie can implement rk3326 upgrading from Android9.0 to 11.0 system through OTA, and lunch option rk3326_q can implement rk3326 upgrading from Android10.0 to 11.0 system through OTA

通过 OTA 方式实现的 Android 9.0 到 Android 11.0 系统，不具备 Android 11.0 的动态分区功能。

The upgrade from Android9.0 to Android11.0 system implemented through OTA doesn’t support Android11.0 dynamic partition function.

2 Android 9.0 所需补丁说明 Patch required for Android9.0

注：该步仅针对 Android 9.0 升级到 Android 11.0。如果是从 Android 10.0 升级到 Android 11.0 则可以忽略。

Note: This step is only for upgrading from Android 9.0 to Android 11.0. If you are upgrading from Android 10.0 to Android 11.0, you can ignore it.

在 Andriod 9.0 上需增加如下补丁，并确保升级 11.0 之前，设备中的 9.0 固件所包含该补丁。

The following patch needs to be added on Android9.0. Please confirm Android9.0 image in the device includes this patch before upgrading to Android11.0.

1.device/rockchip/rk3326 中的 recovery fstab 增加 dtbo 节点。

Add dtbo node in the recovery fstab of device/rockchip/rk3326.

diff --git a/rk3326_pie/recovery.fstab b/rk3326_pie/recovery.fstab

index 51fc8b5..e6b96cc 100755

--- a/rk3326_pie/recovery.fstab

+++ b/rk3326_pie/recovery.fstab

@@ -23,3 +23,4 @@

/dev/block/by-name/trust /trust emmc defaults defaults

/dev/block/by-name/baseparamer /baseparamer emmc

defaults defaults

/dev/block/by-name/vbmeta /vbmeta emmc

defaults defaults

+/dev/block/by-name/dtbo /dtbo emmc

defaults defaults

2.关闭 libvintf 升级包兼容性检查

Disable the compatibility check for libvintf upgrading package

system/libvintf：

```
diff --git a/VintfObject.cpp b/VintfObject.cpp
index 604f7cb..afea999 100644
--- a/VintfObject.cpp
+++ b/VintfObject.cpp
@@ -528,7 +528,7 @@ int32_t checkCompatibility(const std::vector<std::string>& xmls, bool mount,
             }
             return INCOMPATIBLE;
         }
-
+#if 0
         if ((disabledChecks & DISABLE_RUNTIME_INFO) == 0) {
             if (!updated.runtimeInfo->checkCompatibility(*updated.fwk.matrix, error, disabledChecks)) {
                 if (error) {
@@ -538,6 +538,7 @@ int32_t checkCompatibility(const std::vector<std::string>& xmls, bool mount,
                 return INCOMPATIBLE;
             }
         }
+#endif

         return COMPATIBLE;
     }
```

3.recovery 中关闭 compatibility 兼容性检查。

Disable the compatibility check in recovery.

bootable/recovery：

```
diff --git a/install.cpp b/install.cpp
index 9e43ce3..28ea1d6 100644
--- a/install.cpp
+++ b/install.cpp
@@ -508,7 +508,7 @@ bool verify_package_compatibility(ZipArchiveHandle package_zip) {
```

```
    ZipEntry compatibility_entry;
    std::string real_product = android::base::GetProperty("ro.target.product", "unkonw");
    if (FindEntry(package_zip, compatibility_entry_name, &compatibility_entry) != 0
-       || real_product.compare("box")==0 ) {
+       || real_product.compare("box")==0 || true) {
      LOG(INFO) << "Package doesn't contain " << COMPATIBILITY_ZIP_ENTRY << " entry";
      return true;
    }
```

3 使用说明 Usage

3.1 Android 9.0 升级到 Android 11.0. Upgrade from Android 9.0 to Android 11.0

在 Rockchip Android 11.0 平台上，按如下方式操作产生对应的 OTA 升级包，然后将该升级包放置在 Rockchip Android 9.0 设备上，进行正常的 OTA 升级即可。升级前请仔细阅读 “4.注意事项”。

On Rockchip Android11.0 platform, generate the corresponding OTA upgrading package according to the following steps, and then put the package on Rockchip Android9.0 device to do the normal OTA upgrade. Please read "4. Precautions" carefully before upgrading.

1. 选择 9.0 系统升级到 11.0 系统的对应 lunch 项，如 rk3326_pie 或者 rk3399_mid 等

Select the corresponding lunch option for upgrading from 9.0 to 11.0, such as rk3326_pie or rk3399_mid etc.

2. 正常编译系统（编译 uboot、kernel 并且 lunch 后执行如下命令编译）：

Compile the system normally (compile uboot, kernel and execute the following command to compile after lunch):

```
make clean && make –j32 && make otapackage -j32 && ./mkimage.sh ota
```

3. 取出第 2 步编译出来的升级包，命名为 update.zip

Fetch out the upgrading package compiled by step 2, and name it update.zip.

4. 将对应的 update.zip 放置在 Android 9.0 设备上升级即可。

Put the corresponding update.zip on Android9.0 device to do upgrading.

3.2 Android 10.0 升级到 Android 11.0. Upgrade from Android 10.0 to Android 11.0

在 Rockchip Android 11.0 平台上，按如下方式操作产生对应的 OTA 升级包，然后将该升级包放置在 Rockchip Android 10.0 设备上，进行正常的 OTA 升级即可。升级前请仔细阅读 “4.注意事

项”。

On Rockchip Android11.0 platform, generate the corresponding OTA upgrading package according to the following steps, and then put the package on Rockchip Android10.0 device to do the normal OTA upgrade. Please read "4. Precautions" carefully before upgrading.

1. 选择 10.0 系统升级到 11.0 系统的对应 lunch 项，如 rk3326_q 或者 rk3399_Android10 等

Select the corresponding lunch option for upgrading from 10.0 to 11.0, such as rk3326_q or rk3399_Android10 etc.

2. 正常编译系统（编译 uboot、kernel 并且 lunch 后执行如下命令编译）：

Compile the system normally (compile uboot, kernel and execute the following command to compile after lunch):

```
make clean && make –j32 && make otapackage -j32 && ./mkimage.sh ota
```

3. 取出第 2 步编译出来的升级包，命名为 update.zip

Fetch out the upgrading package compiled by step 2, and name it update.zip.

4. 将对应的 update.zip 放置在 Android 10.0 设备上升级即可。

Put the corresponding update.zip on Android10.0 device to do upgrading.

注意：如果当前设备的 Android 10.0 系统是通过 Android 9.0 系统升级而来的（通过《Rockchip_Introduction_OTA_from_Android9.0_to_Android10.0_CN&EN》），在此基础上如果要将该 Android 10.0 系统进一步升级到 Android 11.0 系统，则操作方法与“3.1 Android 9.0 升级到 Android 11.0”相同，即在 11.0 系统上选择对应 9.0 的 lunch 项（如 rk3326_pie 或 rk3399_mid 等），正常编译系统，将编译出来的 upddate.zip 放入该 Android 10.0 设备上升级即可。

Note: If the Android 10.0 system of the current device is upgraded from the Android 9.0 system (through "Rockchip_Introduction_OTA_from_Android9.0_to_Android10.0_CN&EN"), and if you want to further upgrade from the Android 10.0 system to Android 11.0 system, perform the same operation as described in "3.1 Upgrade from Android 9.0 to Android 11.0" , that is, select the lunch item corresponding to 9.0 on the Android 11.0 system (such as rk3326_pie or rk3399_mid, etc.), compile the system normally, and put the compiled upddate.zip into the Android 10.0 device to upgrade.

4 注意事项 Precautions

1. 验证调试时各 Android 平台（如 Android 9.0/Android10.0/Android11.0）请使用 userdebug 版本，并且设置 BOARD_SELINUX_ENFORCING := false。

   Please use the userdebug version for each Android platform (such as Android 9.0/Android 10.0/Android 11.0) when verifying and debugging, and set BOARD_SELINUX_ENFORCING := false.

2. OTA 升级前确保 parameter 文件分区表必须一致。比如从 Android 9.0 升级到 Android 11.0，需确保编译出来的 11.0 固件使用的 parameter 与 9.0 一致。同理从 Android 10.0 升级到 Android 11.0，需确保编译出来的 11.0 固件使用的 parameter 与 10.0 一致。

   Before OTA upgrade, ensure that the parameter file partition table must be consistent. For example,

to upgrade from Android 9.0 to Android 11.0, you need to ensure that the parameters used by the compiled 11.0 firmware are consistent with 9.0. Similarly, when upgrading from Android 10.0 to Android 11.0, you need to make sure the parameters used by the compiled 11.0 firmware are consistent with 10.0.

3. OTA 升级前需确保编译出来的固件本身必须是正常的。比如从 Android 9.0 升级到 Android 11.0，需确保编译出来的 11.0 固件通过工具（如 AndroidTool）烧写到设备后必须能正常启动，并且各方面功能正常。同理从从 Android 10.0 升级到 Android 11.0，需确保编译出来的 11.0 固件通过工具（如 AndroidTool）烧写到设备后必须能正常启动，并且各方面功能正常。

   Before OTA upgrade, need to make sure that the compiled firmware itself must be normal. For example, to upgrade from Android 9.0 to Android 11.0, you need to ensure that the compiled 11.0 firmware must be able to start normally after it is flashed into the device with a tool (such as AndroidTool), and the functions should work normally. Similarly, when upgrading from Android 10.0 to Android 11.0, you need to make sure that the compiled 11.0 firmware must be able to start normally after it is flashed into the device with a tool (such as AndroidTool), and the functions should work normally.