Rockchip User Guide SDK Application And Synchronization

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Rockchip Electronics Co., Ltd.

No.18 Building, A District, No.89, software Boulevard Fuzhou, Fujian,PRC

Website: www.rock-chips.com

Customer service Tel: +86-4007-700-590

Customer service Fax: +86-591-83951833

Customer service e-Mail: fae@rock-chips.com

Preface

Overview

This guide is intended to guide you on how to apply for the Rockchip SDK Kit. The SDK application method and process are listed here, including the SDK version number supported by each chip and the recommendation index of each version.

Product Version

Chipset
Rockchip for all platforms

Intended Audience

This document (this guide) is mainly intended for:

Technical support engineers

Software development engineers

Revision History

Version	Author	Date	Change Description
V1.0.0	LB	2017-12-27	Initial version
V1.0.1	LGS/LB	2019-05-09	Added SDK synchronization processing
V1.1.0	LB	2021-02-02	Update SDK version
V1.1.1	LB	2023-03-24	Change the SDK application process
V1.2.0	LB	2023-07-06	Update the format

Contents

1. Operating manual

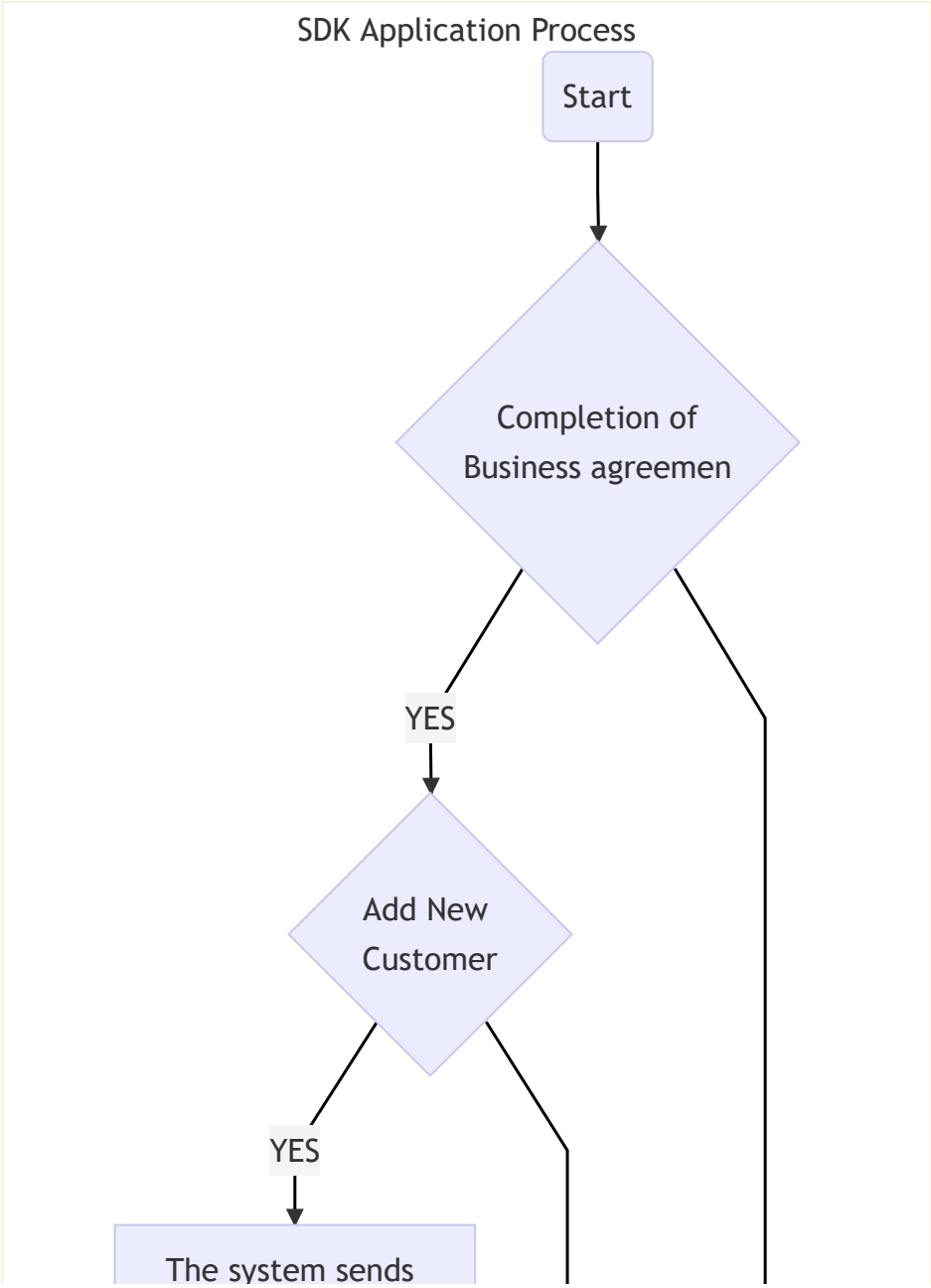
This chapter mainly introduces the Rockchip SDK application process: this includes the public key, SDK application form and data receiving window.

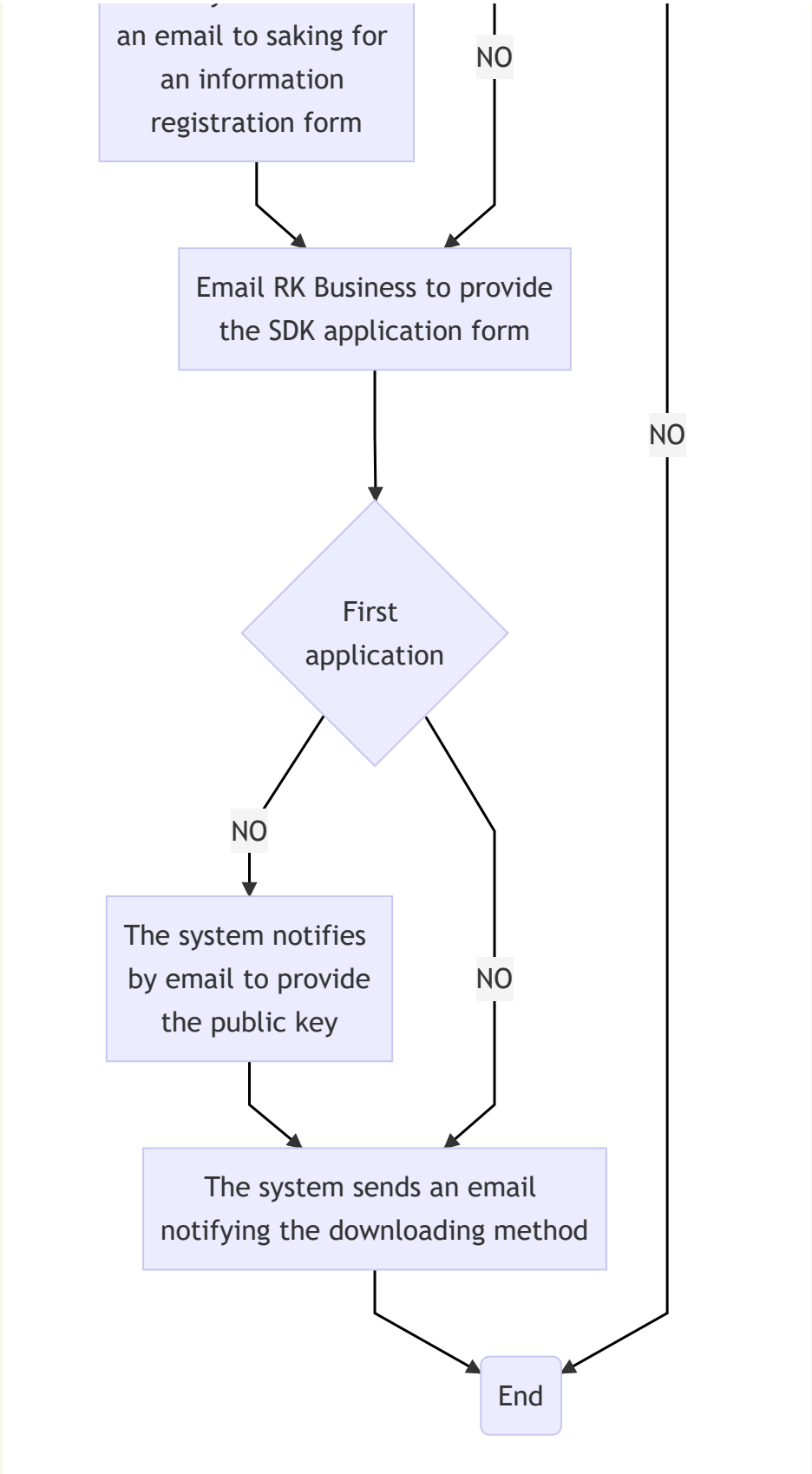
1.1 Process and steps for obtaining the SDK

To obtain the Rockchip SDK, do as follows:

1.1.1 Operating Process

Rockchip's SDK includes all released software materials. The application process is as follows:

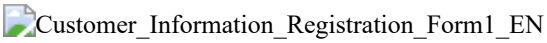


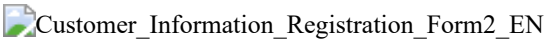


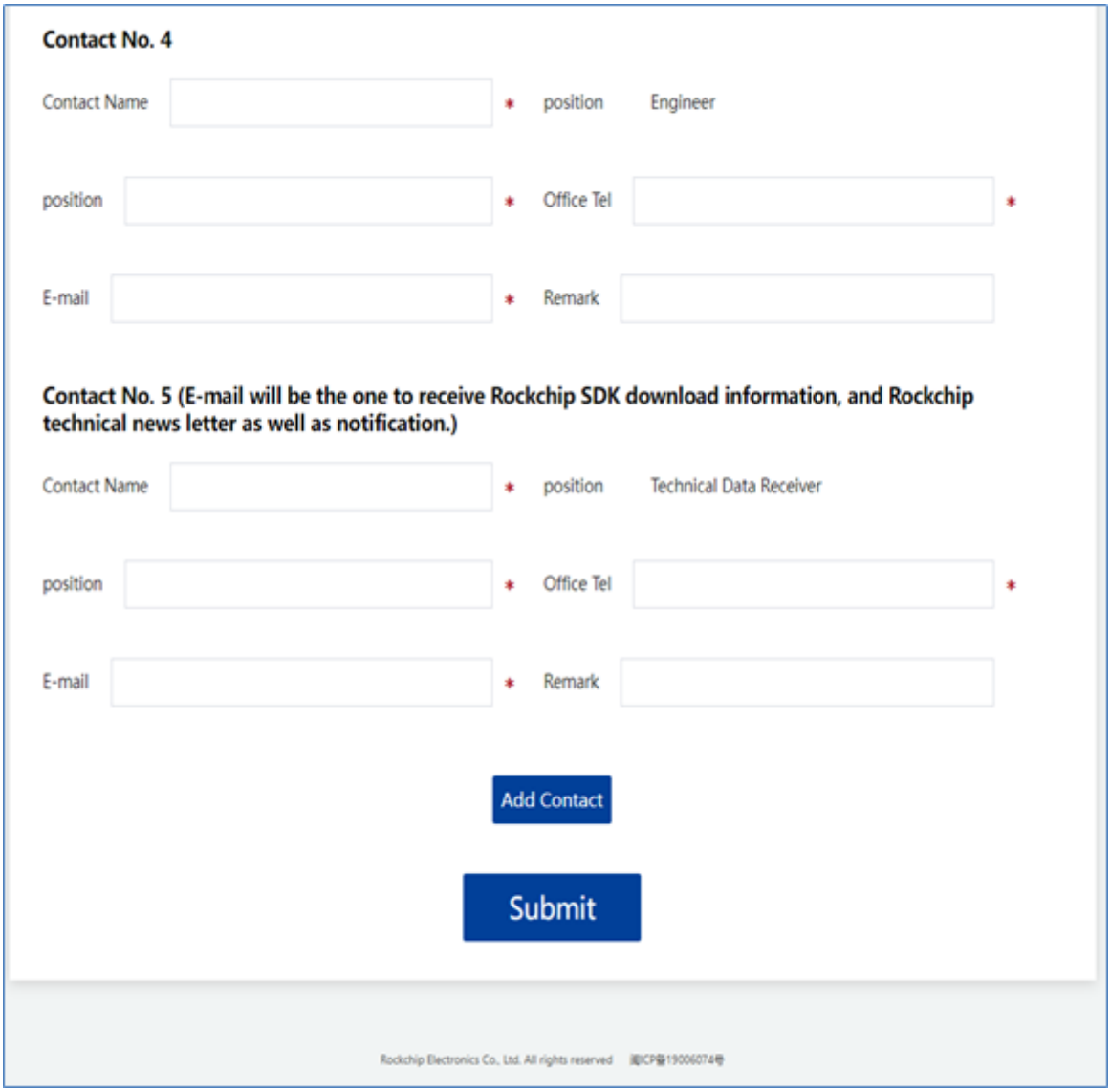
1.1.2 Fill out the information registration form

If you are a new user who establishes cooperation with RockChip for the first time, after signing the relevant business agreement between the two parties, the system will push the "RockChip Customer Information Form" notification email and fill in your company's file information as follows:

After you click on the "Fill in the Information Registration Form" link, the registration information is as follows:







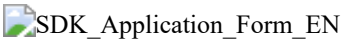
1.1.3 Provide data receiving window

This data interface is for your company's data officer to connect with RockChip and receive software and hardware data pushed by Rockchip and information related to the platform released. We stipulate that an entity can only have one account, which requires your internal personnel to interact, share and backup. If this window changes, please be sure to email the corresponding business update to RockChip to avoid missing important notification emails.

Note: We suggest that the email in this data receiving window be set as the developer's public email of your company (such as xxrd@xx.com), so as not to slip (forget internal sharing) such information and cause loss in the project development process.

1.1.4 Provide SDK application form

You can apply for one SDK version or multiple SDK versions at a time. Since there are many Rockchip chip models and SDK versions, please refer to the list (SDK version table or: redMine: https://redmine.rock-chips.com/projects/fae/documents SDK support version of the list and instructions) and it provide the SDK version number needs; Then use your work email to send to the corresponding business person of Rockchip, who needs the information to complete the internal application process, and fill in the following requirements：



1.1.5 Generate a public key

Run the following command in your directory on Ubuntu OS:

```
xx@ubuntu:~$ cd ~
xx@ubuntu:~$ ssh-keygen -t rsa -C user@rock-chips.com
```

Note: To generate a public key, you only need to run the above command, without entering a password. user@rock-chips.com is your company's work email address, you can not use personal email.

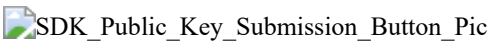
After you run the command, the corresponding key file is generated in the following directory:

```
xx@ubuntu:~$ ls -l .ssh/
total 12
-rw------- 1 rockchip rockchip 1675 Oct 31 2018 id_rsa
-rw-r--r-- 1 rockchip rockchip 403 Oct 31 2018 id_rsa.pub
```

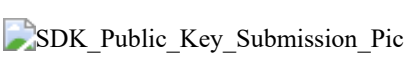
Please keep the generated private key file id_rsa and password properly. After your company receives the email notification of RockChip-SDK Public Key Submission, please submit the id_rsa.pub public key according to the email instructions.

1.1.6 Provide public key

When the business leader of RockChip completes the internal process, he will push the email "Rockchip-SDK Public key Submission". Does this sync determine whether your company's public key has been included in the system? If so, you don't have to provide it again, and you won't push the email. Before the two parties have never cooperated, they will push email notifications, which are as follows:

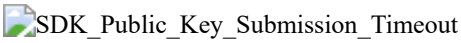


When you click "SDK Kit Submit", the following page will pop up:



Please copy and submit the contents of your company's public key (*.pub) directly (refer to #1.1.4 Public key production).

The validity period for RockChip to submit the public key link is 7 days. When this time expires, send an email notification to Rockchip-SDK Kit Submission Timeout. It is valid for another 24 hours, after which you need to reapply and activate:

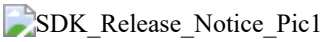

SDK_Public_Key_Submission_Timeout

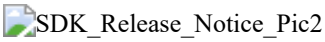
1.2 How to private the SDK

As the functions corresponding to the iteration of the SDK version become more and more abundant and the completeness becomes higher and higher, the total amount of the SDK code also increases synchronously. The basic package we provide is only the primary function of the code, development tools, development documents and version records of various warehouses, some SDK versions have exceeded 100GB, due to the network speed causes your download (synchronization) time is unpredictable; At the same time, we also provide a copy of the SDK base package and then sync, which can save the time to download the entire project code. There are two ways to do this: the SDK base package and directly sync with the server to download the code, and then sync the code when you get the SDK base package.

Emphasis: Here the basic package is not a complete SDK code, must be synchronized with the RockChip server (sync), in order to obtain the corresponding version of the complete code, but also to ensure the overall stability and reliability of the system.

When the RockChip internal process continues to the next node, you will then receive the system push email "Rockchip-SDK opened" notification:


SDK_Release_Notice_Pic1


SDK_Release_Notice_Pic2

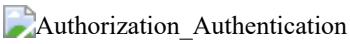
To maintain the security of the code server, we added authorization secondary validation.

1.2.1 Authentication and authorization Mode 1

The script sent by RockChip email automatically creates a user name and password as follows:

a. Obtain the script

When RockChip-SDK is enabled, the system automatically creates the SDK and sends it to the email address of the data owner. Please keep it properly. Attached to the email is a script file named after your company's Gerrit account. For example, Gerrit_Account.sh corresponds to the name of your key.。


Authorization_Authentication

b. Run the script

```
xx@ubuntu:~$ sh Gerrit_Account (Gerrit Account naming script).sh
```

Run the script in the current directory without any input. After verifying the key and account, you can obtain the download authorization.

1.2.2 Authentication and authorization mode 2

To be compatible with method 1 (1.2.2), you can also manually enter the user and password as follows:

a. Obtain the script

```
xx@ubuntu:~$ git clone https://gerrit.rock-chips.com:8443/repo-
release/tools/script
```

b. Run the script

```
xx@ubuntu:~$ sh Generate-Credential.sh
```

To switch to the script directory to run the script, enter your Gerrit account, email address, and private key file name. After verifying the key and account, you can obtain the download authorization.

```
└── script
├── Generate-Credential.sh
└── README.md
```

Note: After you receive the account, ensure that you use the private key corresponding to the public key submitted before to run the script (the permission of the private key file is 600, and the name of the private key file is id_rsa). After binding to the local device, data can be downloaded normally. **If the new device needs to be rebound, the previous device download authorization will be automatically invalid.**

1.2.3 How to provide base packages

Here is only a base package, Rockchip has three download methods for you to choose, respectively:

a. FTP download

As shown above, the FTP download method is provided, including the information exclusive to your company: FTP address, connection method, port number, FTP account and FTP password. Because the FTP download speed is not fixed and you apply for the Android SDK, the SDK itself is large, you are advised to use the following two other download methods.

b. Download it onsite

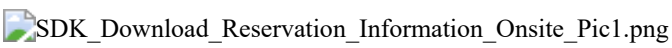
The on-site reservation link is valid for 7 days, after which a new application is required. Rockchip provides three offices (Fuzhou, Shenzhen and Shanghai) to copy SDK materials on-site, you can book the nearest location. Click on "Live download reservation", the following picture will pop up:

 SDK_Onsite_Download_ReserVation

Please fill in the name, telephone number, email address, Rockchip location (Fuzhou, Shenzhen and Shanghai) and the specific time of your visit according to the prompt above. Your submission is successful as shown below:

 Submit_SDK_Appointment

After you successfully make an appointment as shown above, this contact person will receive the RockChip system email push notification "Rockchip-SDK version live download Appointment information". As follows:


SDK_Download_Reservation_Information_Onsite_Pic1.png


SDK_Download_Reservation_Information_Onsite_Pic2

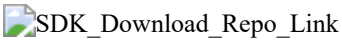
When you receive the above email notification, please bring a large-capacity portable hard disk or other storage device (requiring USB3.0 interface, in order to be compatible with Rockchip host) according to your reservation time. If you need several different versions of the SDK, this mobile storage device has at least 512GB of space, so as not to run out of space to get to the location of your choice on time. If your time is adjusted, please inform the corresponding person in charge in the first time, so as not to affect the cooperation between the two parties and the follow-up work of your company.

c. Disk download

Please follow the "Mail hardware method" shown above to send your large capacity portable hard disk or other storage device (requires USB3.0 interface, in order to be compatible with RockChip host. If you need several different SDK versions, leave at least 512GB of space on the mobile storage device to avoid running out of space.) After we receive the express, the default is to arrange SF Express to send back within one working day.

1.2.4 Download mode synchronized by the server

In the "SDK has been opened notification Email" there is the corresponding SDK release instructions, including the synchronous download code method and download (repo) address. The following "Rockchip_Android13_SDK_Developer_Guide_EN.pdf" as an example:


SDK_Download_Repo_Link

1.3 Update SDK instructions and methods

The SDK copied from Rockchip (or downloaded from FTP) is only a base package, and the complete version of this SDK must be obtained through network sync update on this base package. The method and steps of this synchronization are as follows:

1.3.1 Check file integrity

The large files that you download through FTP, copy onsite, or mail disk copies are prone to errors during replication. After you have copied the files to your development environment, verify the integrity of the files by using the following methods. Here "rk3399_android7.1_Industry_v1.0.tar.gz" as an example, like other SDKS, the paired md5 value is also saved in a separate file and provided with your *.tar package.

```
xx@ubuntu:~$ md5sum rk3399_android7.1_Industry_v1.0.tar.gz
57b4443df5decc0193b7930b5f93f8c1  rk3399_android7.1_Industry_v1.0.tar.gz
```

Through the command md5sum check the md5 value of the output after "57 b4443df5decc0193b7930b5f93f8c1", compared with the md5 value of Rockchip provide, if this value with Rockchip provide exactly the same, to illustrate the compressed file is complete; Otherwise, the compressed file is corrupted and needs to be copied or downloaded again.

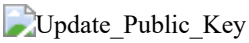
1.3.2 Backup public key

Please properly back up your company's public key to avoid loss and failure to synchronize code with the Rockchip server.

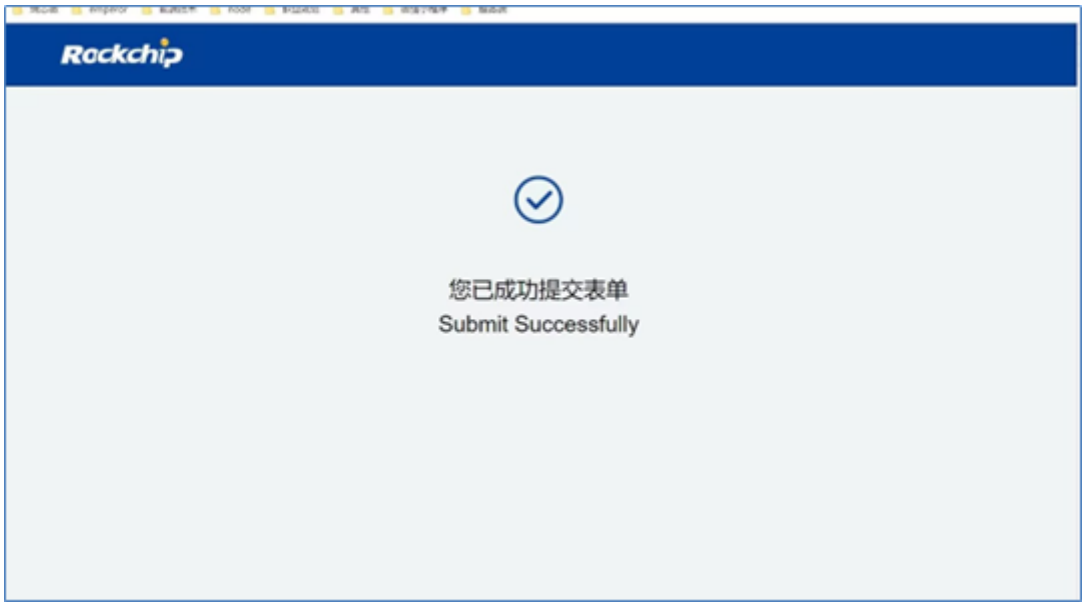
```
xx@ubuntu:~$ tar zcvf id_ras_backup.tag.gz ~/.ssh
```

1.3.3 Change the public key

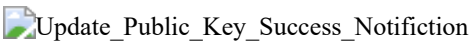
Due to various reasons, you need to change your company's public key, please send an email to the corresponding business of RockChip. After their internal application is approved, the system sends the public key to submit the link to you. As follows:



This link is valid for 7 days, after which you need to reapply. When you receive this notice, you need to submit your new public key as soon as possible. The redirection page for successful submission is as follows:



After the public key update process takes effect after RockChip is archived, you will receive a push email "RockChip- Public Key Update Success" notification that the public key has taken effect. As follows:



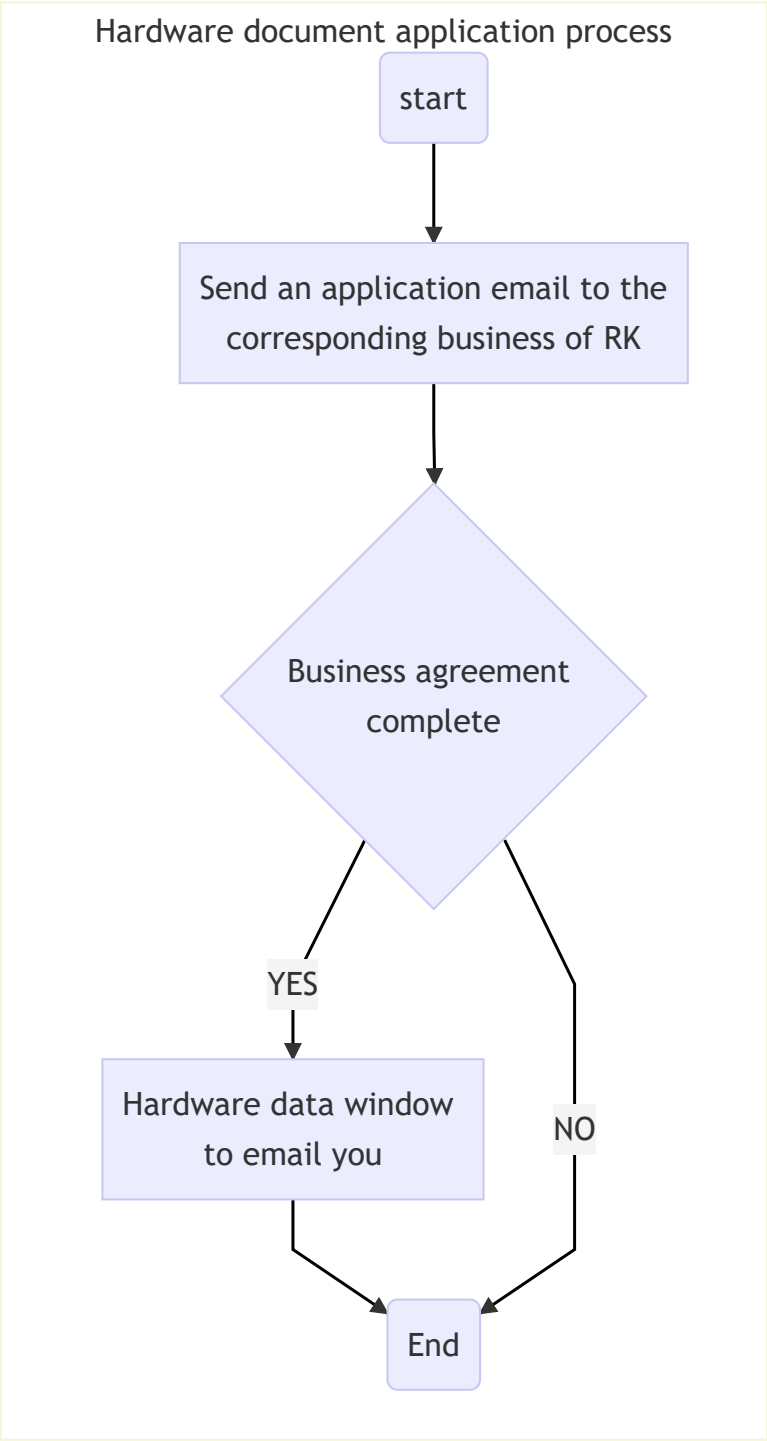
1.3.4 Update SDK method

RockChip's SDK is officially released after passing internal test acceptance standards. Due to the stability and maturity of SDK, it is gradually improved by multiple iterations and updates. You need to keep up to date with the RockChip server and keep your code up to date, reflecting the new features of the platform and the robustness of the system. For the corresponding SDK version, refer to the corresponding SDK release notes (for example, RK3399_ANDROID7.1-TABLET-SDK_V1.00 Release Notes.pdf).

For the synchronization method and troubleshooting of SDK, see Chapter 5 at the end of the article.

1.4 Process and method of obtaining hardware data

At present, Rockchip hardware data and SDK KIT are sent separately, and the hardware data application process is as follows:



Rockchip hardware data is divided by chip platform, you can apply for one or more platform resources at a time. This data mainly includes platform hardware reference design: power supply scheme, DDR template, hardware design guide and design reference for the main features. You need to pay attention to the following points when designing product hardware:

a. Power management must make reference to the scheme in the design;

b. The DDR template must be copied directly from the corresponding template in the reference design and cannot be modified;

c. Rockchip must be used to provide a list of key materials (such as: DDR, eMMC, Flash, WiFi/BT, Camera);

d. Must maintain the frequency of updates, Rockchip is always optimized.

If you do not wish to follow any of the above, please check with the corresponding business leader of Rockchip at the time of hardware design. Otherwise, Rockchip technology cannot provide guaranteed technical services, which will seriously affect the progress of your project.

You can also query RockChip hardware information updates: https://redmine.rock-chips.com/projects/fae/documents(hardware reference design version list). If the data you get is lower than this version, please contact the Rockchip data window to release the corresponding data in order to improve the development efficiency of the overall project.

2. SDK Version

This chapter mainly introduces the SDK version of RockChip: this includes the Rockchip official release of three ways, one is in the Rockchip server, is the need for SDK application process; The other is the open source Github server, which you can download directly, which does not require the SDK application process; There is also an open source community, ToyBrick, where we provide download of some SDK versions of some platforms, which does not require the SDK application process.

2.1 Official SDK version

The following is the official release of Rockchip chip support Android OS version and Linux OS and each version support product type and current technical support, as follows:

Note:

a. All the SDK version, see here (**support the version of the SDK list and description**) : https://redmine.rock-chips.com/projects/fae/documents

b. Recommendation index is the maintenance popularity of Rockchip's main SDK version. When your project is determined, please refer to this parameter to select the corresponding SDK version;

c. Android SDK versions of the two industry products currently under long-term maintenance:

- *RK3399_ANDROID7. 1 - Industry - SDK_V1. 0*
- *RK3288_ANDROID7. 1 _tablet - SDK_V1. 00 _20170629*

d. Android13 express comes with GMS package. For users who have been certified by Google and have MADA qualification, please apply for express version. The Android13 doesn't come with the GMS pack.

e. S, M, J, K and other chip suffix letters are explained, for details, see the corresponding chip instructions:

S--> Indicates the small-size package version model;

M--> Indicates the model that conforms to the vehicle regulation version;

J--> indicates the model that conforms to the regulation version;

K--> Indicates the model that conforms to the wide temperature version.

Chip platform	SDK version number	Recommendation
RK3588(S/M/J)	ROCKCHIP_ANDROID13.0_SDK_RELEASE(express version)	*****
	RK3588_ANDROID12.0_SDK_RELEASE	**
	RK3588_LINUX_EDGE_SDK_RELEASE	****
	RK3588_LINUX_SDK_RELEASE	*****
	RK3588_IPC_SDK_RELEASE	*****
	RK3588_LINUX_NVR_SDK_Release_V1.0.0_20220304	*****
RK3568(6/M/J)	ROCKCHIP_ANDROID13.0_SDK_RELEASE(express version)	*****
	RK3568(6)_ANDROID12.0_SDK_RELEASE	**
	RK3568(6) _ANDROID11.0_SDK_RELEASE_V1.0.0_20210106	*
	RK3566_ANDROID11.0_EBOOK_SDK_RELEASE_V1.0.0_20210126	***
	RK356X_LINUX5.10_SDK_RELEASE	
	RK356X_AMP_SDK_RELEASE	****
	RK356X_STANDALONE_SDK_RELEASE_V1.0.0_20210713	
	RK356X_NVR_Linux_SDK_V1.4.0_20220611	
RK3399(K)	ROCKCHIP_ANDROID13.0_SDK_RELEASE(express version)	*****
	RK3399_ANDROID12.0_SDK_RELEASE	**
	RK3399_ANDROID11.0_SDK_RELEASE_V1.0.0_20210106	**
	Rockchip_Android10.0_SDK_Release_20191211	*
	RK3399_Android9.0_SDK_V1.0_20190104	*
	RK3399_Android8.1_SDK_V1.00_20180517	*
	RK3399_ANDROID7.1-Industry-SDK_V1.0	*
	RK3399_ANDROID7.1-BOX-SDK_V1.00_20170414(stop updating)	*
	RK3399_ANDROID7.1-TABLET-SDK_V1.00(stop updating)	*
	RK3399_ANDROID6.0-VR-TABLET-SDK_V1.00(stop updating)	*
	RK3399_ANDROID6.0-BOX-SDK_V1.00_20160809(stop updating)	*
	RK3399_LINUX5.10_SDK_RELEASE	
RK3399PRO	Rk3399Pro_Android9.0_SDK_V1.00_20190806	****
	RK3399PRO_LINUX_SDK_V1.4_20201203	
RK1808	RK1808_Linux_V1.0.0_20181227	***
RK3288(W)	ROCKCHIP_ANDROID13.0_SDK_RELEASE(express version)	*****
	RK3288W_ANDROID12.0_SDK_RELEASE	**
	RK3288(W_Version)_ANDROID11.0_SDK_RELEASE	*
	RK3288_ANDROID10.0_SDK_Release	*
	RK3288(W-Version)_Android9.0_SDK_V1.0_20190410	*
	RK3288W_ANDROID8.1_SDK_V1.0_20180508	*
	RK3288_ANDROID7.1_TABLET-SDK_V1.00_20170629	*

Chip platform	SDK version number	Recommendation
	RK3288_UAV-SDK_V1.00_20160330(stop updating)	*
	RK3288_ANDROID6.0-MID-SDK_V1.00_20160301(stop updating)	*
	RK3288_ANDROID5.1-RBOX-SDK_V1.00_20150722(stop updating)	*
	RK3288_ANDROID5.1-SDK_V1.00_20150515(stop updating)	*
	RK3288_R-BOX_ANDROID4.4.2-SDK_V1.0.0(stop updating)	*
	RK3288_LINUX_SDK_V2.3_20201203	
RK3368(H)	RK3368_ANDROID10.0_SDK_Release	****
	RK3368_ANDROID9.0_SDK_V1.0_20190411	**
	RK3368_ANDROID9.0_BOX_SDK_V1.00_20190828	**
	RK3368H&RK3368_ANDROID8.1-MID-SDK_V1.00_20180123	*
	RK3368H&RK3368_Android7.1_SDK_20170401	*
	RK3368_ANDROID7.1-BOX-SDK_V1.00_20170825	*
	RK3368_ANDROID6.0-MID-SDK_V1.00_20160122(stop updating)	*
	RK3368_ANDROID5.1-SDK_V1.00_20150415(stop updating)	*
RK3188	RK3188_ANDROID5.1-MID-SDK_V1.00_20150730(stop updating)	*
	RK3188&RK3066_R-BOX_ANDROID4.4.2-SDK_V1.0.0_140318	*
RK3229	RK3229_ANDROID10.0_BOX_SDK_V1.0_20200109	****
	RK3229_ANDROID9.0_BOX_SDK_V1.0_2019012	*
	RK3229_ANDROID8.1-BOX-SDK_V1.0_20180423	*
	RK3229_ANDROID7.1_BOX-SDK_V1.00_20170831	*
	RK3229_ANDROID6.0-RBOX-SDK_V1.00_20160831	*
	RK3229_ANDROID5.1-RBOX-SDK_V1.00_20160318(stop updating)	*
	RK3229_ANDROID4.4-SDK_V1.00_20151214(stop updating)	*
	rk3229_wireless_dongle_v1.00_20161130	***
RK3528(J/A)	RK3528_ANDROID9.0-Box_ALPHA_V0.0.1_20221202	*****
RK3562	ROCKCHIP_ANDROID13.0_SDK_RELEASE（express version）	*****
	RK3562_LINUX_SDK_ALPHA	***
RK3328	RK3328_ANDROID12.0_SDK_RELEASE	****
	RK3328_ANDROID11.0_BOX_SDK_V1.0.1_20201030	***
	RK3328_ANDROID10.0-BOX_V1.0_20191125	*
	RK3328_ANDROID9.0-BOX-SDK_V1.0_20181206	*
	RK3328_ANDROID8.1-BOX-SDK_V1.0_20180319	*
	RK3328_ANDROID7.1_BOX-SDK_v1.00_20170223	*
	rk3328_linux_v1.00_20170419	
RK3326 (PX30) (RK3358(M/J)	ROCKCHIP_ANDROID13.0_SDK_RELEASE（express version）	****

Chip platform	SDK version number	Recommendation
	RK3326&PX30_ANDROID12.0_SDK_RELEASE	***
	RK3326&PX30_ANDROID11.0_SDK_RELEASE	*
	Rockchip_Android10.0_SDK_Release_20191211	*
	RK3326_Android_Pie_release_2080925	*
	RK3326&PX30_ANDROID8.1-TABLET-SDK_V1.0.0_20180505	*
	PX30_LINUX5.10_SDK_RELEASE	
	RK3326_LINUX5.10_SDK_RELEASE	
	PX30_LINUX5.10_SDK_RELEASE	
	RK3358_LINUX5.10_SDK_RELEASE	****
RK3308(J)	RK3308_LINUX5.10_SDK_RELEASE	*****
	RK3308_LINUX_SDK_V1.00_20180510	*
PX5	PX5_Android_8.0_release_20180726	**
	PX5_Android6.0-SDK_V0.1(stop updating)	*
RKPX3	RKPX3_ANDROID7.1-SDK_V0.1_20170303	*
PX3SE	PX3SE_LINUX_SDK_V0.2	***
	PX3SE_ANDROID7.1_SDK_V1.00_20170719	***
RK3128(H)	RK3128H_ANDROID8.1-BOX-SDK_V1.0_20180601	*****
	RK3128H_ANDROID4.4.4_BOX_SDK_V1.00_20180313	*
	RK3128_ANDROID7.1-BOX-SDK_V1.00_20170823	
	RK3128_ANDROID4.4.4-RBOX-SDK_CMCC_V1.0_20150317	*
	RK3128_ANDROID4.4.4-RBOX_SDK_V1.0_20141010(stop updating)）	*
	RK3128_ANDROID4.4.4_RBOX_ALIYUNOS_V1.8.0(stop updating)	*
	RK312X_LINUX_SDK_V1.0.0_20190719	***
RK3126(C)	Rockchip_Android10.0_SDK_Release_20191211	****
	RK3126C_ANDROID9.0_SDK_V1.0_20190103	***
	RK3126C_ANDROID8.1-SDK_V1.00_20180105	*
	RK312X_ANDROID7.1-TABLET-SDK_V1.00_20170519	*
	RK312X_ANDROID6.0-SDK_V1.00_20151230(stop updating)	*
	RK312X_ANDROID5.1-SDK_V1.00_20150423(stop updating)	*
	RK312X_ANDROID4.4.4-SDK_V1.0_20140922(stop updating)	*
	RK312X_LINUX5.10_SDK_RELEASE	
RK3036	rk3036_wireless_dongle_v1.00_20161130	
	K3036_LINUX5.10_SDK_RELEASE	
RK3066 RK3188	RK3188&RK3066_R-BOX_ANDROID4.4.2-SDK_V1.0.0_140318	**
RK3066	RK3066_ANDROID4.4.2-SDK_V1.00_2014.02.12	**

Chip platform	SDK version number	Recommendation
RV1106(3)	RV1106_RV1103_IPC_LINUX_SDK	****
	RV1106_RV1103_Linux_Battery_IPC_Doorbell-电池IPC和门铃	****
	RV1106_RV1103_SMART_DOOR_LINUX_SDK	
	RV1106_RV1103_SMART_USB_CAMERA_LINUX _SDK_BETA_V0.1.0_2022050	***
	RV1103_SCANER_LINUX_SDK_V0.0.1_20220915	
	RV1106_RV1103_Linux_CVR_SDK-CVR	
RV1126(09/K)	RV1126_RV1109_LINUX_SDK_V2.1.0_20210512	****
	UVC_rv1126_rv1109_linux_ai_camera_v1.6.2_20201204	*
	RV1126_RV1109_LINUX_AI_CAMERA_SDK	***
RV(K)1108	RV1108_LINUX_SDK_V2.1_20190329	***
	RV1108_CVR_V1.4_20180604	*
	RV110X_LINUX_IPC_SDK_V1.2_20170607	*
RKNanoD	RKNANOD_WIRELESS_AUDIO_SDK_V1.6_20161114	***
	RKNanoD_Wireless_Audio_SDK_V1.2	*
	RKNanoD_MP3_SDK_V1.1_20160516	*
RK2928	RK2928_wireless_hdmi_dongle-SDK_V2.0.0	***
RK292X	RK292X_ANDROID4.4.2-SDK_V1.00_20140302(stop updating)	*
RK3168	RK3168_ANDROID4.4.2-SDK_V1.10_20140103(stop updating)	*
RK3026 RK3028A	RK3026/3028A_KitKat_ANDROID4.4.2-SDK_V1.00_20131217 (stop updating)	*
SOFIA3GR	SOFIA3GR_Android6.0-SDK_20160428	*
	SOFIA3GR_ANDROID5.1-SDK_20150409	*
XMM6321	XMM6321_Phone_Android4.4-SDK(stop updating)	*
	XMM6321_Watch_Android4.4-SDK_20151015(stop updating)	*
RK2206	RK2206_FreeRTOS_SDK_Release_V1.0.0_20200115	*
RK2106	RK2106_FreeRTOS_BETA_V0.1_20181229	*
RK625	RK625_RT-Thread_SDK_Release_V1.0.0_20210531	*
RK628	RK628(第三方)	*

2.2 Open source file

We have Rockchip details in the open section at https://opensource.rock-chips.com/wiki_Main_Page and now have RK3399PRO, RK3399, RK3288, RK1808, RK3328 and PX30 platforms.

2.3 Open source community

RockChip officially launched the AI development ToyBrick open source community, the platform aims to provide an efficient, convenient and stable development environment, so that developers can quickly start AI application development, accelerate the development process of AI industry products, and improve the industry application ecology. Here are the contents of RK3399PRO, RK1808, RK3568 and other platforms, including the corresponding open source board purchase method, SDK (Android OS and Linux OS) download, hardware data, software development documents and tools, etc. For details, see the official link address: http://t.rock-chips.com/forum.php.

ToyBrick open source plate problem is need to submit the open source community(https://t.rock-chips.com/forum.php)to solve, not in RockChip Bug system (https://redmine.rock-chips.com/). If you have a special situation, please contact the corresponding business window coordination at RockChip.

2.4 Patch release

We Rockchip official launch platform patch release connections: https://redmine.rock-chips.com/projects/rockchip_patch/issues. Determine whether to add the corresponding patch based on the specific situation of the patch and your project.

3. Documentation and tools

The documents and tools that our Rockchip official provides to customers are released to you together with the corresponding SDK. Now there are mainly two sets of SDK versions for Android OS and Linux OS, and the paths of documents and tools stored respectively are a little different.

3.1 Android SDK

The following is the directory for storing the Android OS SDK documents and tools:

- *The path to save the documents is: RKDocs folder in the root directory of SDK.*
- *The tool is stored in the RKTools folder in the root directory of the SDK.*

3.2 Linux SDK

The following is the path for storing the Linux OS SDK documents and tools:

- *The document is stored in the docs folder under the SDK root directory.*
- *The tools are stored in the Tools folder in the root directory of the SDK.*

Note :

Our documents and tools are updated synchronously to the corresponding SDK version along with the code update. Here, different SDK versions of tools and documents are inconsistent. Therefore, you must use the corresponding SDK tools in the development process, if the version of the code and the tool is not one-to-one, there may be firmware download failure or system startup failure and other abnormal phenomena.

4. Complaints and suggestions

If your company has trouble with the process or the communication is not clear, please send an email to the Rockchip technical window (and copy the corresponding business interface person of Rockchip) or phone for confirmation.

Name	Email	Contact number
FAE	fae@rock-chips.com	0755-86690899
sw.fae	sw.fae@rock-chips.com	0755-86690899
hw.fae	hw.fae@rock-chips.com	0755-86690899

Note：

If you need Rockchip platform software materials, such as software documentation, platform tools, patch or source code, please send email to sw.fae@rock-chips.comand copy to the corresponding business person of Rockchip.

If you need Rockchip platform chip datasheet, hardware reference design, EVB board schematic diagram, PCB diagram and other hardware data, please send email to hw.fae@rock-chips.com to obtain, and copy the corresponding Rockchip business person。

5. Q&A

Here is a brief list of the problems you may encounter when applying for or using the Rockchip SDK.

5.1 SDK Management

Please keep and manage the Rockchip SDK properly. Rockchip will not provide repeated information. If any data is lost, you need to apply to the business window corresponding to Rockchip.

5.2 SDK Code update

5.2.1 SDK Synchronization

Each base package has to apply for code synchronization rights separately, otherwise the Repo cannot be synchronized to the Rockchip server to update the code. For synchronization methods, refer to the corresponding SDK release notes (provided with the base package to the customer).

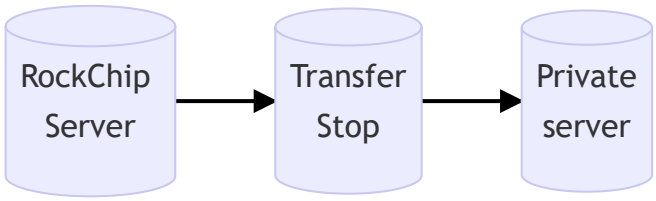
5.2.2 SDK applications for multiple platforms

Rockchip SDK versions for different chip platforms need to be applied to the corresponding business side separately. When your company has obtained the SDK of RK3288, and now the new project needs the SDK of RK3399, you need to contact the corresponding business side of Rockchip for business, and the business side will assist you in applying. The technical department can only open the information to your company after the approval of the process.

5.3 Version controller

Rockchip released SDK code management in Google's way is repo, do not recommend you delete the SDK repo and git version records. This will result in additional work for subsequent SDK updates and Rockchip technical support.

Due to some historical reasons, to delete the SDK version record, create a separate git or svn version controller internal management development, you can refer to the following methods.



Maintain two sets of code: one for transit and one for development. The function of this transfer station is to synchronize the code with the Rockchip server, and move the difference part of the code to the server; This is also a reference against which to check the code version against Rockchip. The role of the server can be personalized according to usage habits. This has two advantages:

- Rockchip is cooperating with the original manufacturer to deal with the problem, and can clearly confirm the specific version information of the code;
- Solve the problem that the server you may be developing cannot connect to the external network (unable to synchronize the code with the Rockchip server), and move the updated content of the Rockchip server.

5.4 SDK synchronization exception processing

5.4.1 SDK sync confirmation

Before synchronizing the code, you need to make the following confirmation:

a. Ensure that the ~/.ssh/ directory contains the key files of id_rsa (private key), id_rsa.pub (public key), and the known_hosts file is automatically generated when ssh is used. Run the following command to view a file:

```
xx@ubuntu:~$ ls -l ~/.ssh/
-rw------- 1 xx xx  1675 Apr 9 08:40 id_rsa
-rw-r--r-- 1 xx xx 400 Apr 9 08:40 id_rsa.pub
-rw-r--r-- 1 xx xx  2220 Apr 9 08:40 known_hosts
```

b. Ensure that multiple keys cannot be stored in the ~/.ssh/ directory. If multiple keys need to be managed, use the key-chain to manage keys according to the SDK release instructions.

c. Ensure that the permission of file id_rsa must be 600 (-rw-------). If it is not, run the following command to change the permission:

```
xx@ubuntu:~$ chmod 600  ~/.ssh/id_rsa
```

d. Run the following command to check whether the network ping succeeds without packet loss:

```
xx@ubuntu:~$ ping gerrit.rock-chips.com
PING gerrit.rockchip.com.cn (58.22.7.114) 56(84) bytes of data.
64 bytes from 58.22.7.114 (58.22.7.114): icmp_seq=1 ttl=243 time=55.1 ms
64 bytes from 58.22.7.114 (58.22.7.114): icmp_seq=2 ttl=243 time=53.3 ms
64 bytes from 58.22.7.114 (58.22.7.114): icmp_seq=3 ttl=243 time=51.9 ms
--- gerrit.rockchip.com.cn ping statistics ---
3 packets transmitted, 3 received, 0% packet loss, time 2003ms
rtt min/avg/max/mdev = 51.916/53.465/55.171/1.346 ms
```

e. Check whether the key matches: To check whether id_rsa.pub and id_rsa match, use the following method:

```
xx@ubuntu:~$ ssh-keygen -y -f id_rsa > id_rsa.pub.tobecompared
```

Then compare ID_rsa.pub.tobecompared to see if the contents of id_rsa.pub are the same (except for the mailbox behind). If they are different, the public key and private key are not the same key. You need to synchronize the code using the key corresponding to the public key provided to RK when applying for SDK permissions.

f. Check whether the ssh command is connected: Obtain the SDK download address from the SDK release document.

If the command contains "repo init --repo-url https://gerrit.rock-chips.com", run the following ssh command:

```
xx@ubuntu:~$ ssh -vT 用户名@gerrit.rock-chips.com -p 8222
```

The following test command:

```
xx@ubuntu:~$ ssh -vT xxx@gerrit.rock-chips.com -p 8222
OpenssH_7.4p1, OpenSSL 1.0.2k-fips 26 Jan 2017
```

```
debug1: Reading configuration data /home/gerrit/ .ssh/config
debug1: /home/gerrit/.ssh/config line 11: Applying options for gerrit.rock-
chips.com
debug1: Reading configuration data /etc/ssh/ssh_config
debug1 /etc/ssh/ssh_config line 58: Applying options for *
debug1: Connecting to gerrit.rock-chips.com [***] port 8222.
debug1: Connection established.
debug1: key_load_ public: No such file or directory
debug1: identity file /home/gerrit/.ssh/id_rsa type -1
debug1: key_load public: No such file or directory
debug1: identity file /home/gerrit/.ssh/id_rsa-cert type -1
debug1: Enabling compatibility mode for protocol 2.0
debug1: Local version string ssH-2.0-opensSH_7.4
debug1: Remote protocol version 2.0, remote software version
GerritCodeReview_3.3.3(APACHE-SSHD-2.4.0)
debug1: no match: GerritcodeReview_3.3.3 (APACHE-SSHD-2.4.0)
debug1: Authenticating to gerrit.rock-chips.com:8222 as 'xxx
debug1: SSH2_MSG_KEXINIT sent
debug1: SSH2_MsG_KEXINIT received
debug1: kex: algorithm: ecdh-sha2-nistp256
debug1: kex: host key algorithm: ecdsa-sha2-nistp256 debug1: kex: server->client
cipher: aes128-ctr MAC: hmac-sha2-256-etmGopenssh.com compression: none
debug1: kex: client->server cipher: aes128-ctr MAC: hmac-sha2-256-etm@openssh.com
compression: none
debug1: kex: ecdh-sha2-nistp256 need=32 dh_need=32
debug1: kex: ecdh-sha2-nistp256 need=32 dh_need=32
debug1 sending sSH2_MSG_KEX_ECDH_INIT
debug1: expecting sSH2_MSG_KEX_ECDH_REPLY
debug1: Server host key: ecdsa-sha2-nistp256
SHA256:8uOSKaXFkDc85Ne/WdXu7eg+Z/wTtaNyvAKl1Z0h10
debug1: Host '[gerrit.rock-chips.com]:8222' is known and matches the ECDSA host
key.
debug1: Found key in /home/gerrit/.ssh/known_hosts:18
debug1: rekey after 4294967296 blocks
debug1: sSH2_MSG_ NEWKEYS sent
debug1: expecting SSH2_MSG_NEWKEYS
debug1: SSH2_MSG_NEwKEYs received
debug1: rekey after 4294967296 blocks
debug1: SSH2_MSG_SERVICE_ACCEPT received
debug1: Authentications that can continue: publickey
debug1: Next authentication method: publickey
debug1: Trying private key:/home/gerrit.ssh/id_rsa
debug1: Authentication **succeeded** (publickey).
Authenticated to gerrit.rock-chips.com_([xxxx]:8222).debugi: channel e: new
[client-session]
debug1: Entering interactive session.
debug1: pledge: network debugi: Sending environment.
debug1: Sending env LANG = en_us.UTF-8

   ****welcome to Gerrit code Review****

 Hi xxx, you have **successfully connected** over SSH.
 Unfortunately, interactive shells are disabled.
 To clone a hosted Git repository, use:

 git clone ssh: / /xxx@gerrit.rock-chips.com:29418/REPOSITORY_NANE.git

debug1: channel 0: free: client-session, nchannels 1
```

```
Connection to gerrit.rock-chips.com closed by remote host.
Transferred: sent 2484,received 1904 bytes, in 50.0 seconds
Bytes per second: sent 49.6,received 38.0
debugl: Exit status_-l
xx@ubuntu:~$.
```

When you run the ssh command, if Are you sure you want to continue connecting (yes/no)? Please enter "yes" and press enter. After the test command is executed, if **successfully connected** is displayed, ssh is connected. If not, there may be a problem with the PC (or server) environment, you can change the PC (or server) to verify it. Notice When a VM uses a bridged network, ssh may fail.

g. Confirm the ssh/config configuration

```
xx@ubuntu:~$ cat ~/.ssh/config
Host gerrit.rock-chips.com
 HostName gerrit.rock-chips.com
 User **User Name**
 Port 8222
 IdentityFile ~/.ssh/id_rsa
 PreferredAuthentications publickey
 StrictHostKeyChecking no
 UserKnownHostsFile ~/.ssh/known_hosts
 PubKeyAcceptedKeyTypes +ssh-rsa
```

If there is no config file in your.ssh/ directory, you need to manually create a config file and copy the above contents, paying attention to the user name, related variables, and permissions. The permission must be 644.

```
xx@ubuntu:~$ls -l  ~/.ssh/config
-rw-r--r-- 1 xx xx 220 Nov 28 18:43 config
```

After confirming the preceding steps, synchronize the code again according to the operation method in the SDK release instructions.

5.4.2 SDKsynchronization error and solution

We followed up customer feedback and summarized the following common errors and solutions:

a. url problem: Contains log information, as follows:

```
ssh: connect to host 10.10.10.211 port 22: Connection timed out
ssh: connect to host 10.10.10.211 port 22: Connection timed out
fatal: Could not read from remote repository.
Please make sure you have the correct access rights
and the repository exists.
```

Solution： changes. Repo/manifests /. Git/config files, as follows:

```
xx@ubuntu:~$ vi .repo/manifests/.git/config
url = https://gerrit.rock-chips.com:8443/linux/rk/platform/manifests
```

Modify the.repo/repo/.git/config file as follows:

```
xx @ubuntu:~$ vi.repo/repo/.git/config
url = https://gerrit.rock-chips.com:8443/repo-release/tools/repo
```

b. When the key is generated, the password is set to contain Log information, as follows:

```
Enter passphrase for key '/home/junyikeji/.ssh/id_rsa':
```

Solution： Use key-chain management according to the release instructions or reset the private key password to empty:

```
xx@ubuntu:~$ ssh-keygen -f ~/.ssh/id_rsa -p
```

c. SDK permission problem: Contains log information, as follows:

```
FATAL: R any phoenix/rk3368/box/6.0/rk/platform/manifest shenk DENIED
by fallthru
```

Solution： Apply for the SDK permission.

d. git configuration error: Contains log information, as follows:

```
Please tell me who you are.
git config --global user.email "you@example.com"
git config --global user.name "Your Name"
to set your account's default identity.
```

Solution： Create file vi ~/.gitconfig with the following contents:

```
xx@ubuntu:~$ vi ~/.gitconfig
[color]
•       ui = true
[user]
•       name = xxx(fill in your name)
•       email = yyy（fill in your email）
```

e. During synchronization, a git repository error message is generated, which contains the following log information:

```
From ssh://www.rockchip.com.cn/repo/android/RKTools
[new branch] android-5.1 -> rk/android-5.1
[new branch] remotes/rk/rk3288/mid/android-5.1 ->
rk/remotes/rk/rk3288/mid/android-5.1
[new branch] rk3036/wireless_dongle/5.1/develop ->
rk/rk3036/wireless_dongle/5.1/develop
error: 'refs/remotes/rk/rk312x' exists; cannot create
'refs/remotes/rk/rk312x/mid/android-5.1'
! [new branch] rk312x/mid/android-5.1 -> rk/rk312x/mid/android-5.1 (unable to
update local ref)
error: unable to resolve reference refs/remotes/rk/rk322x/box/android-5.1: Not a
directory
! [new branch] rk322x/box/android-5.1 -> rk/rk322x/box/android-5.1 (unable to
update local ref)
error: 'refs/remotes/rk/rk3288' exists; cannot create
'refs/remotes/rk/rk3288/mid/android-5.1'
```

Solution： Delete the corresponding subwarehouse directory, for example, the RKTools directory in the preceding figure, and then synchronize the directory.

```
xx@ubuntu:~$ rm -rf RKTools
xx@ubuntu:~$ .repo/repo/repo sync
```

f. Language Settings error message: Contains log information:

```
projects: 50% (235/469) perl: warning: Setting locale failed.
perl: warning: Please check that your locale settings:
LANGUAGE = (unset),
LC_ALL = (unset),
LC_PAPER = "zh_CN.UTF-8",
LC_ADDRESS = "zh_CN.UTF-8",
LC_MONETARY = "zh_CN.UTF-8",
LC_NUMERIC = "zh_CN.UTF-8",
LC_TELEPHONE = "zh_CN.UTF-8",
LC_IDENTIFICATION = "zh_CN.UTF-8",
LC_MEASUREMENT = "zh_CN.UTF-8",
LC_TIME = "zh_CN.UTF-8",
LC_NAME = "zh_CN.UTF-8",
LANG = "en_US.UTF-8"
are supported and installed on your system.
perl: warning: Falling back to the standard locale ("C").
```

Solution： ~/.bashrc added to the end of the file

```
xx@ubuntu:~$ vi ~/.bashrc
export LC_ALL=C
```

Save and execute

```
xx@ubuntu:~$ source ~/.bashrc
```

g. GitError error message: Contains log information, as follows

```
GitError: --force-sync not enabled; cannot overwrite a local work tree. If you're
comfortable with the possibility of losing the work tree's git metadata, use
`repo sync --force-sync frameworks/native` to proceed.
```

Solution：Add the suffix -c --force-sync

```
xx@ubuntu:~$.repo/repo/repo sync -c --force-sync
```

h. fetch errors displays an error message containing log information as follows:

```
Fetching projects: 99% (477/481) Fetching projectplatform/external/libusb-compat
Fetching project platform/external/libseccomp-helper
error: Cannot fetch android/rk/u-boot
```

Solution：Sync again.

```
xx@ubuntu:~$ rm -rf .repo/projects/u-boot.git
xx@ubuntu:~$ .repo/repo/repo sync -c --force-sync
```

i. Error message when using sudo: No permission

```
xx@ubuntu:~$ sudo .repo/repo/repo sync -c
git@www.rockchip.com.cn: Permission denied (publickey).
manifests:
git@www.rockchip.con.cn: Permission dented (publickey).
fatal: could not read from remote repository.
Please make sure you have the correct access rights
and the repository exists.
Caborted by user
```

Solution： Remove sudo and synchronize again.

```
xx@ubuntu:~$ .repo/repo/repo sync -c
```

If you encounter any problem other than the above when synchronizing code, please submit the problem to RK official Bug system (https://redmine.rock-chips.com/), Rockchip will cooperate with you to solve it. If it is your network reason, this needs to be resolved by yourself.