



A76xx_Series_Open_SDK_ Debug_and_Download_ Application_Note

LTE Module

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About Document

Version History

Revision	Date	Chapter	What's new
V1.00	2020.4.28		New version
V1.00.01	2020.5.8	3.Download	Modify this chapter
		4.Debug	Modify this chapter
V1.00.02	2020.5.20	4.Debug	Modify this chapter
V1.00.03	2020.7.7	3.Download	Modify this chapter
		4.Debug	Modify this chapter
V1.00.04	2020.7.14	3.Download	Modify this chapter
V1.00.05	2020.7.29	5.Dump	New chapter
	2020.8.7	3.Download 4.Debug	Modify these chapters
V1.00.06	2020.5.6		Rename doc and some relative centents.

Scope

This document presents the debug and download method of OpenSDK for A76xx-xxxx, A7620.

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1. Introduction

1.1 Purpose of the document

This document is designed to provide users with the necessary information to the debug, download method and relative notes.

1.2 Related documents

[1] A76xx_Series_Open_SDK_Compiling_Application_Note

1.3 Definitions and Conventions

All the examples shown in this document is under WIN10 OS.

Serial Port Driver is [CP210x_VCP_Window](#).

aboot version is [aboot-tools-2020.04.08-win-x64](#), the version maybe update now and then.

Debug tool is [CATStudio_V2_5_9_56](#), the version maybe update now and then.

NOTE

Different operation systems and versions may be different.

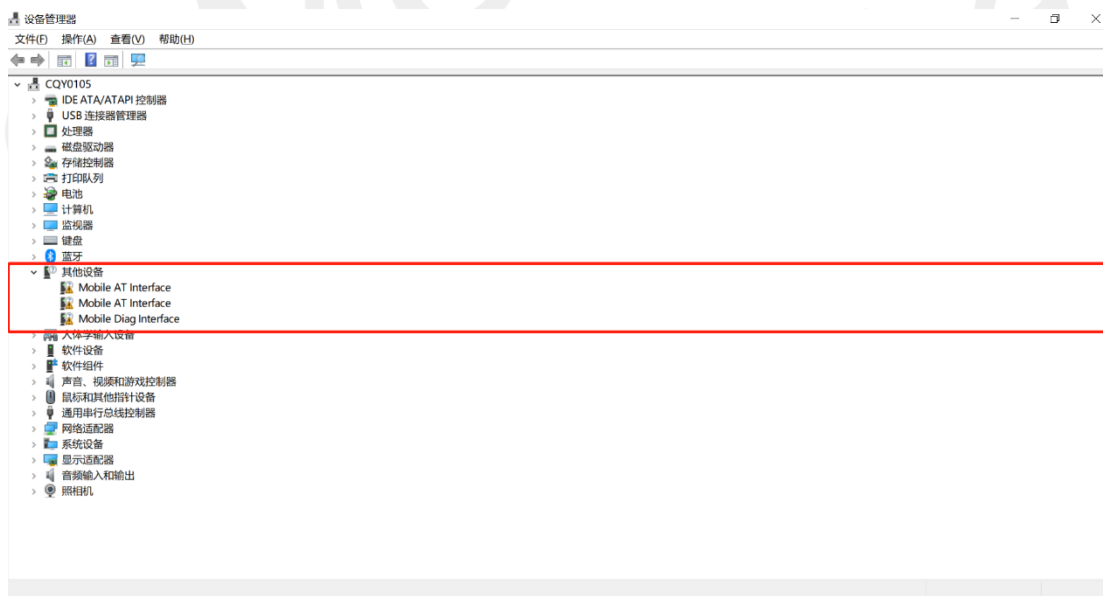
2. Install the Driver

Simcom offers the system USB drivers as followed.

名称	修改日期	类型	大小
Windows7	2019/7/9 14:47	文件夹	
Windows8	2019/7/9 14:47	文件夹	
Windows10	2019/7/9 14:47	文件夹	
XP-Vista	2019/7/9 14:47	文件夹	

2.1 Install USB Drivers

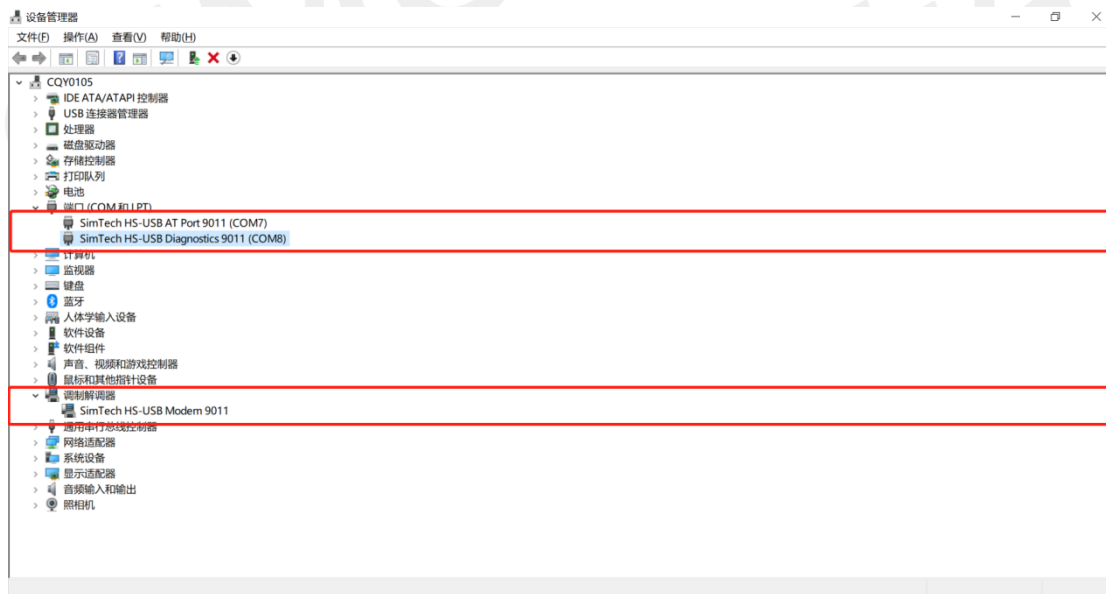
The following devices is prompted to install the driver after the USB is inserted under the circumstance of driver not installed on the PC.



STEP 1: Update the driver by scanning the computer with the driver supported by us.

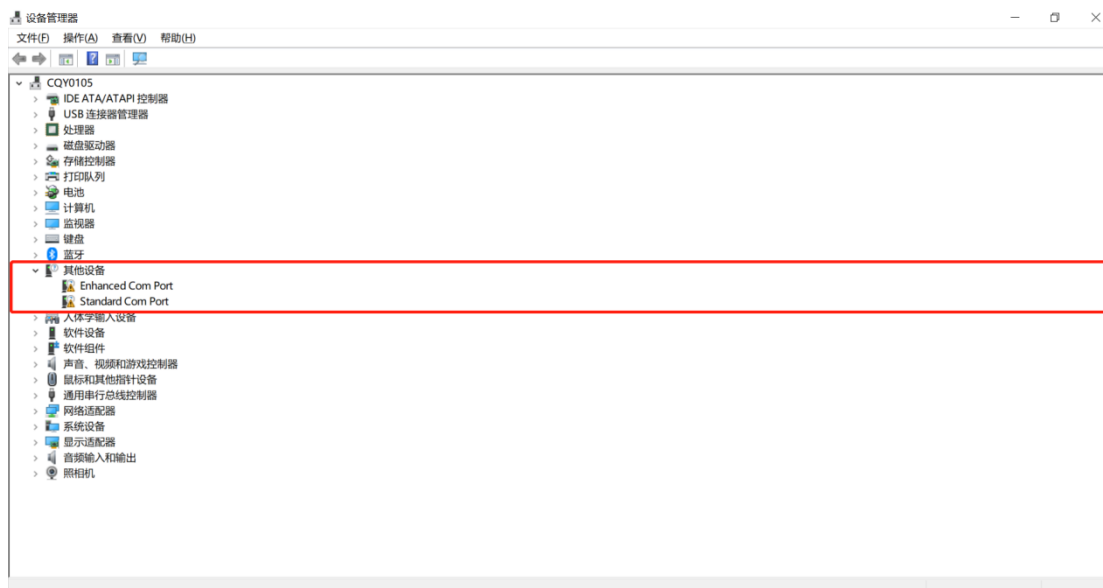


STEP 2: Install the drvier one by one until the drivers are all installed successfully as followed:

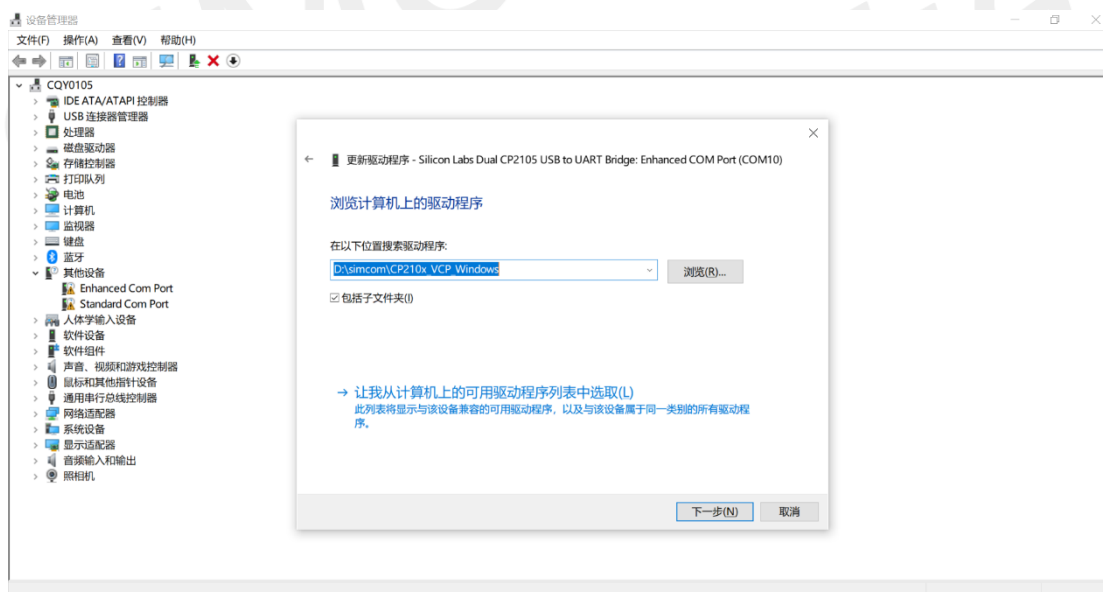


2.2 Install Serial Port Driver

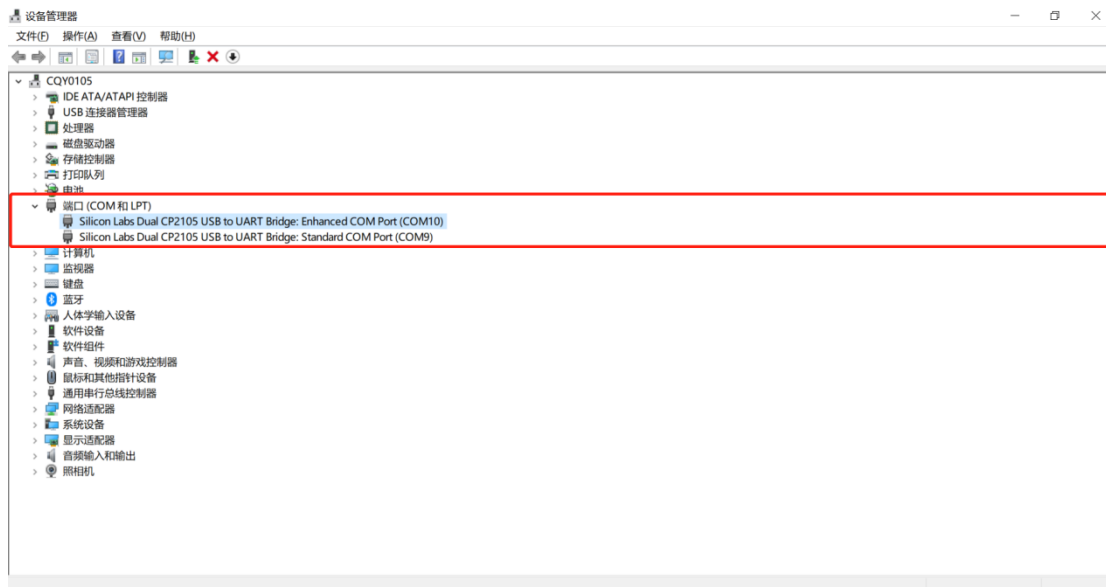
The following devices is prompted to install the driver under the circumstance of driver not installed on the PC.



**STEP 1: Update the driver by scanning the computer with the driver supported by us.
(CP210x_VCP_Windows)**



STEP 2: Install the drivers until the drivers are all installed successfully as followed:



3. Download

Before burning, please make sure that the firmware package has been compiled.

Currently, a separate burning APP and a complete burning firmware package are provided. Please refer to the document *A76xx_Series_Open_SDK_Compiling_Application_Note* chapter 4.2 and 4.3 for the method of compiling the firmware package.

About is supported by us for downloading under the path of "tools".


Detailed steps are listed below.

Please make sure every step is down successfully, otherwise some errors may occur.

STEP 1: Extract about-tools-2020.04.08-win-x64.exe to a specified directory.

名称	修改日期	类型	大小
config	2020/4/8 15:19	文件夹	
docs	2020/4/8 15:19	文件夹	
drivers	2020/4/8 15:19	文件夹	
images	2020/4/8 15:19	文件夹	
locales	2020/4/8 15:18	文件夹	
platform	2020/4/8 15:19	文件夹	
swiftshader	2020/4/8 15:18	文件夹	
upload	2020/4/8 15:19	文件夹	
about.exe	2020/4/8 15:19	应用程序	4,189 KB
adownload.exe	2020/4/8 15:19	应用程序	1,748 KB
arelease.exe	2020/4/8 15:19	应用程序	2,666 KB
credits.html	2020/4/8 15:18	HTML 文档	4,738 KB
d3dcompiler_47.dll	2020/4/8 15:18	应用程序扩展	4,377 KB
ffmpeg.dll	2020/4/8 15:18	应用程序扩展	1,532 KB
icudtl.dat	2020/4/8 15:18	DAT 文件	10,260 KB
libEGL.dll	2020/4/8 15:18	应用程序扩展	368 KB
libGLESv2.dll	2020/4/8 15:18	应用程序扩展	7,813 KB
natives_blob.bin	2020/4/8 15:18	BIN 文件	81 KB
node.dll	2020/4/8 15:18	应用程序扩展	11,452 KB
notification_helper.exe	2020/4/8 15:18	应用程序	870 KB
nw.dll	2020/4/8 15:18	应用程序扩展	124,625 KB
nw_100_percent.pak	2020/4/8 15:18	PAK 文件	1,195 KB
nw_200_percent.pak	2020/4/8 15:18	PAK 文件	1,604 KB
nw_elf.dll	2020/4/8 15:18	应用程序扩展	861 KB
resources.pak	2020/4/8 15:18	PAK 文件	4,855 KB

STEP 2: Run about.exe



Download

Release

Misc

Release package:

Start >

☐ Production mode
☐ Protocol dump
☒ Display log

☒ USB device only
☒ Auto enable for USB
☐ Reboot

Baud rate:

STEP 3: Choose the firmware package. After the SDK is compiled successfully, the firmware is in the target\xxx\ directory in zip compression format.

Release package:

choose firmware

Start >

☐ Production mode
☐ Protocol dump
☒ Display log

☒ USB device only
☒ Auto enable for USB
☐ Reboot

Baud rate:

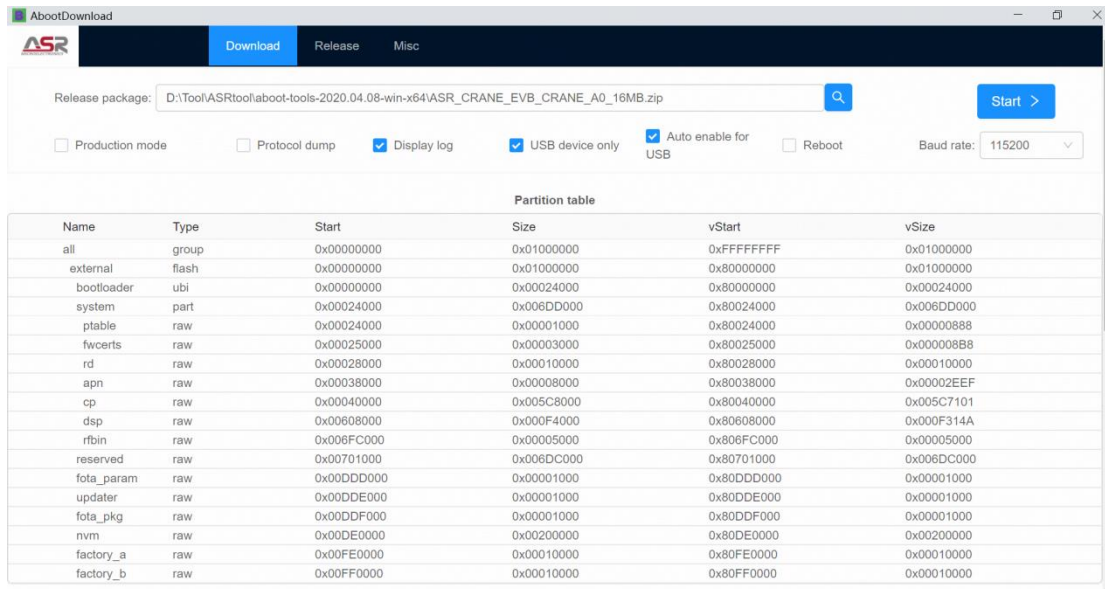
Name	Type	Start	Size	vStart	vSize
all	group	0x00000000	0x01000000	0xFFFFFFFF	0x01000000
external	flash	0x00000000	0x01000000	0x80000000	0x01000000
bootloader	ubi	0x00000000	0x00024000	0x80000000	0x00024000
system	part	0x00024000	0x00630000	0x80024000	0x00630000
ptable	raw	0x00024000	0x00001000	0x80024000	0x00000888
fwcerts	raw	0x00025000	0x00003000	0x80025000	0x000008B8
rd	raw	0x00028000	0x00010000	0x80028000	0x00010000
apn	raw	0x00038000	0x00008000	0x80038000	0x000037AD
cp	raw	0x00040000	0x00492000	0x80040000	0x00491921
dsp	raw	0x004D2000	0x0013D000	0x804D2000	0x0013C5C8
rtbin	raw	0x0060F000	0x00005000	0x8060F000	0x00005000
customer_app	raw	0x00614000	0x00040000	0x80614000	0x00032D9C
reserved	raw	0x00654000	0x000FE000	0x80654000	0x000FE000
cus_critical_chunk	raw	0x00752000	0x00002000	0x80752000	0x00002000
fota_param	raw	0x00754000	0x00004000	0x80754000	0x00004000
updater	raw	0x00758000	0x00008000	0x80758000	0x00001000
fota_pkg	raw	0x00760000	0x00480000	0x80760000	0x00480000
nvm	raw	0x00BE0000	0x00400000	0x80BE0000	0x00400000
factory	part	0x00FE0000	0x00020000	0x80FE0000	0x00020000
factory_a	raw	0x00FE0000	0x00010000	0x80FE0000	0x00010000
factory_b	raw	0x00FF0000	0x00010000	0x80FF0000	0x00010000

Download command table

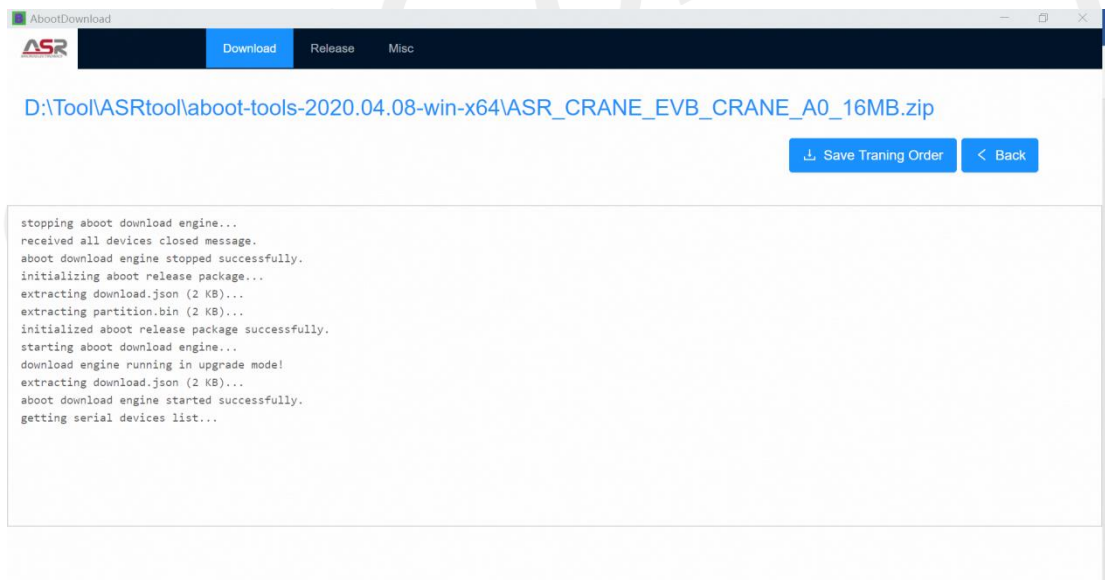
STEP 4: Click “Start” button to start download.

NOTE

- Generally, the default settings is enough for most customers.
- There's no need to check other options.
If the “Production mode” is chosen, the NVM files in the flash may disappear. Don't select this, otherwise the module needs to be recalibrate.



Download Mode

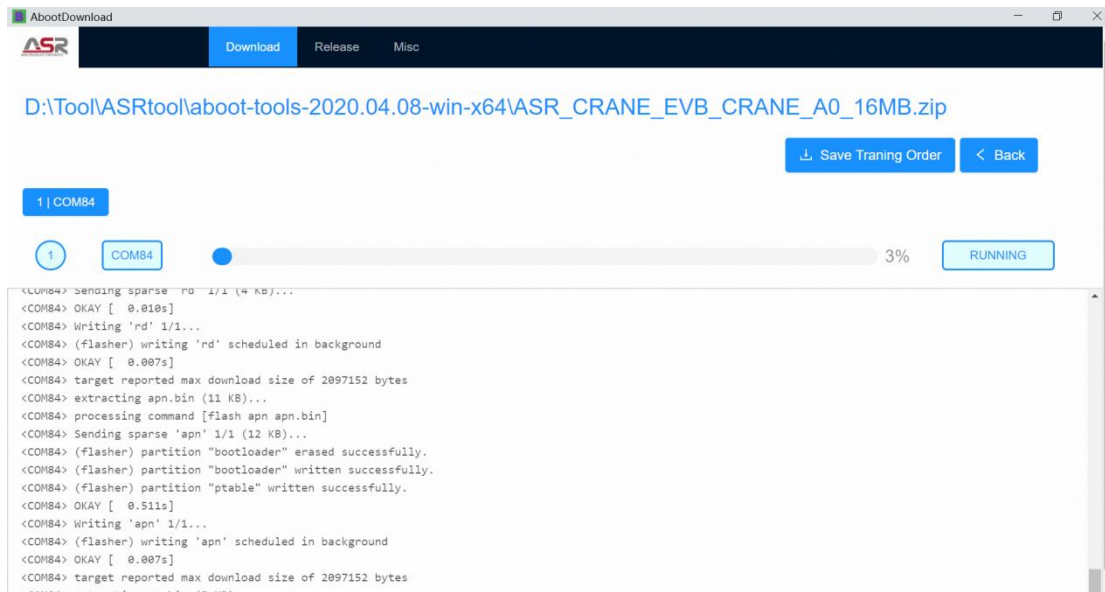


"Start" button is clicked

STEP 6: Power on the module and press the POWER_KEY to download:

NOTE

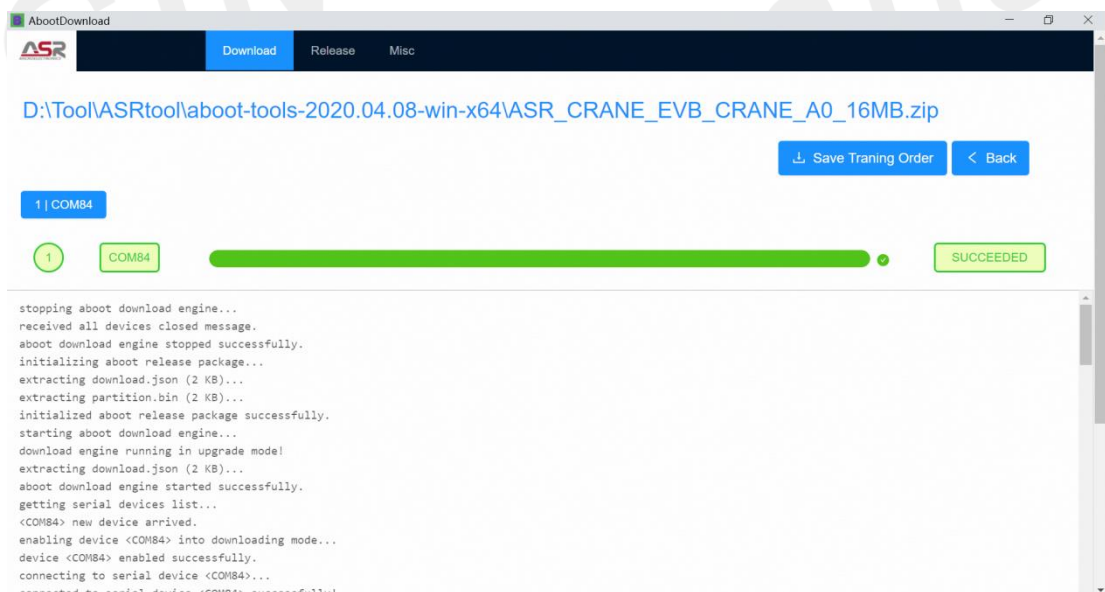
If no progress bar appears, try to press the POWER_KEY twice.



a download starts

STEP 7: If the download ends up successfully, the following will be shown.

Please remember to click the “Back” button, otherwise Download Mode may be triggered again after the module powers on again.



a successful download

4. Debug

CATStudio is supported by us for debugging.

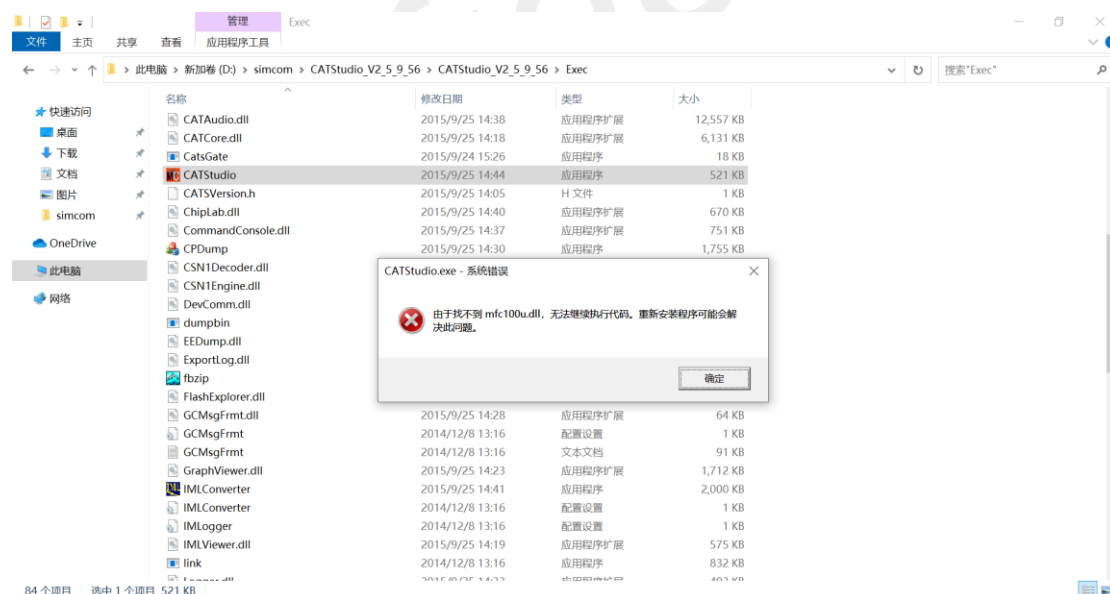
NOTE

ACAT LOG can be divided into online log and offline log.

STEP 1: Extract CATStudio_V2_5_9_56.zip to a specified path, and run the CATStudio.exe under the path directly.

NOTE

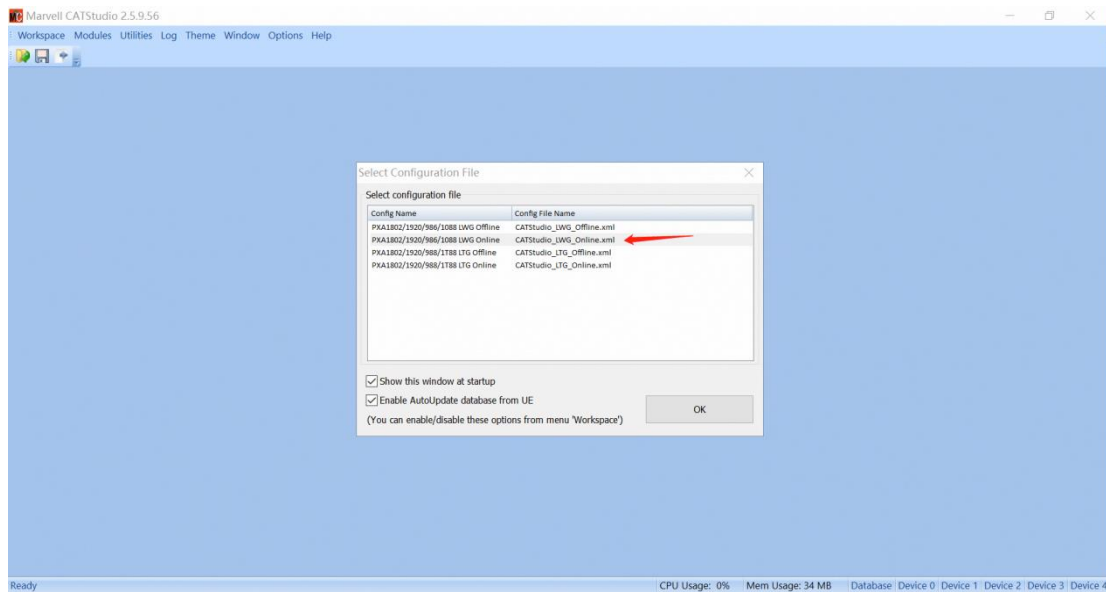
Some libs may be prompted that they cannot be found, like mfc100u.dll shown in the listed picture. Find the lib in the internet and install it.



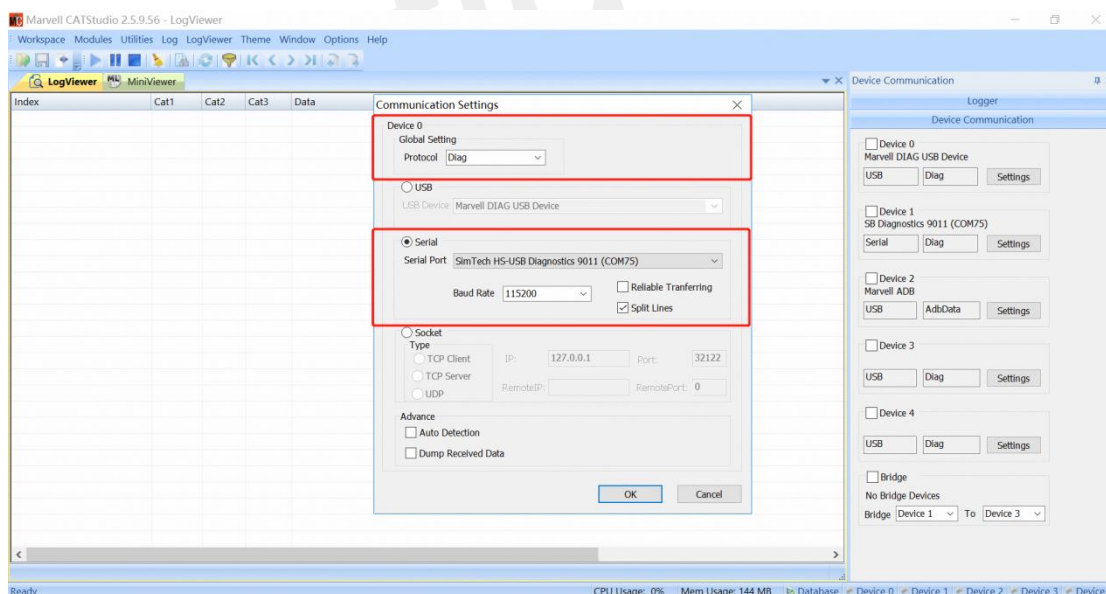
STEP 2: If CATStudio runs successfully, the configuration file is required, choose the file needed and click OK.

NOTE

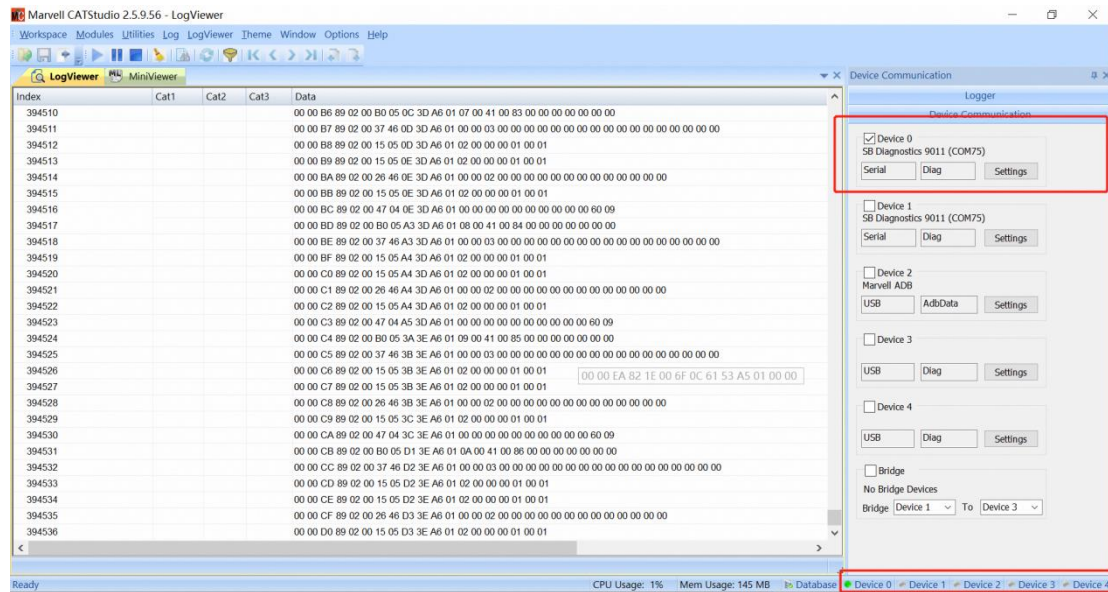
For online log, please choose CATStudio_LWG_Online.xml
For offline log, please choose CATStudio_LWG_Offline.xml



STEP 3: Choose connection device by clicking the setting of a certain Device number of Device Communication as shown in the figure, like Device0 can be configured for log output.



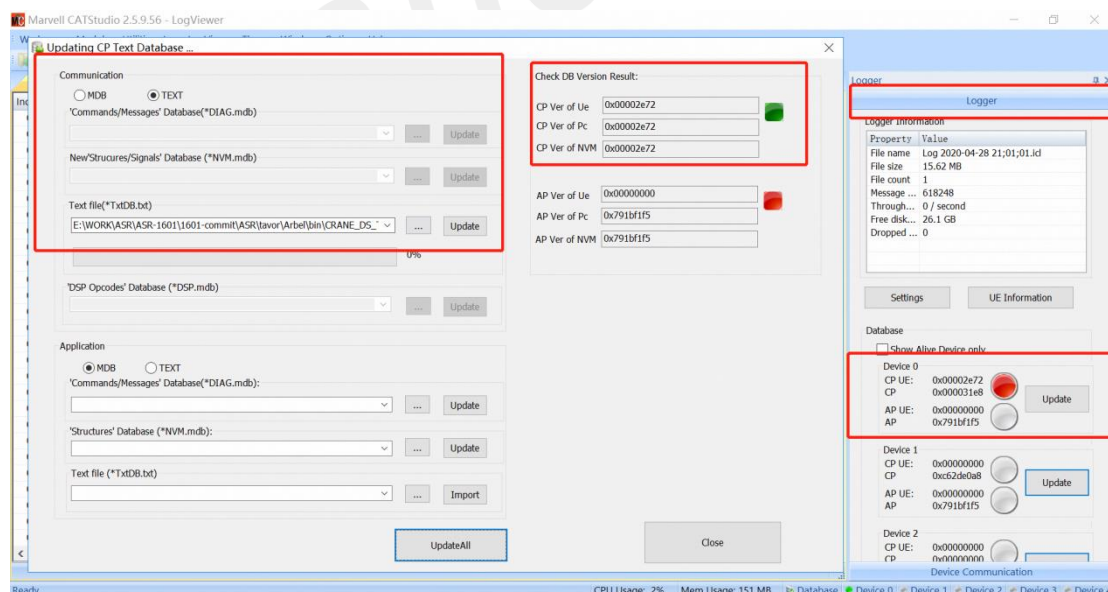
STEP 4: Check the device chosen by the previous step, connection status will be shown green if connection is successful, red if connection is failed.



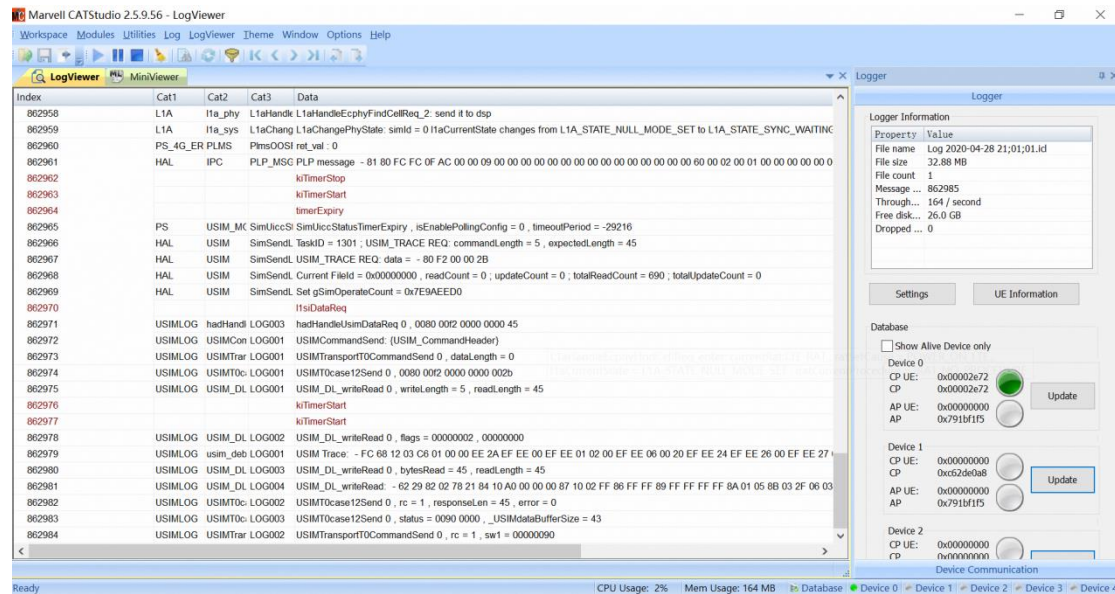
STEP 5: Open Logger panel, update DB(The cp_MDB.txt file is stored under **/sc_sdk_images/A76XX**), and DB Version Result will be shown green if .txt is perfectly match the cp downloaded in the module.

NOTE

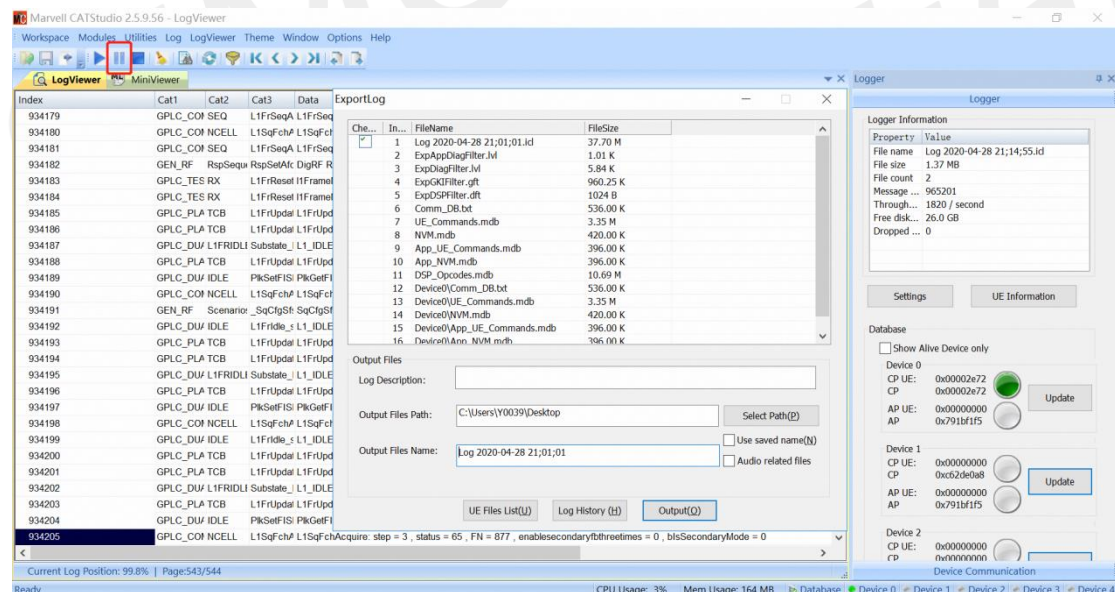
Please make sure DB and the CPbin are perfectly matched, otherwise some log cannot be analysed.



STEP 6: Click CATStudio Menu: Modules->LogViewer to open LogViewer panel, logs are shown there.



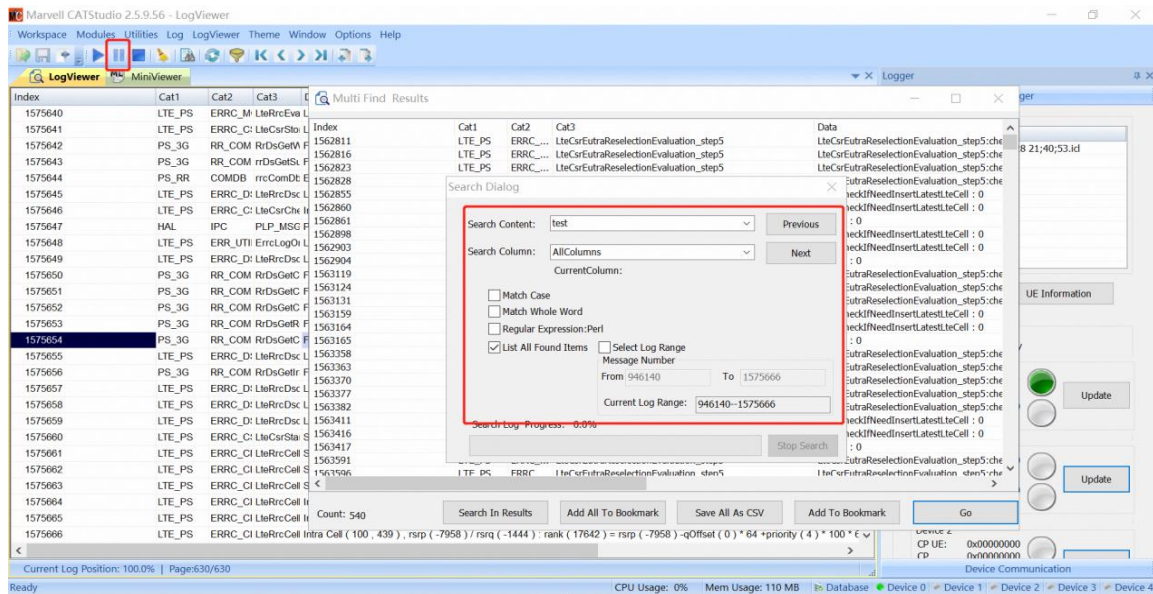
STEP 7: Save logs by stop the output, and click CATStudio Menu: LOG->Log->Export Log-File. Logs with zip format will be saved to a specified path by Output button.



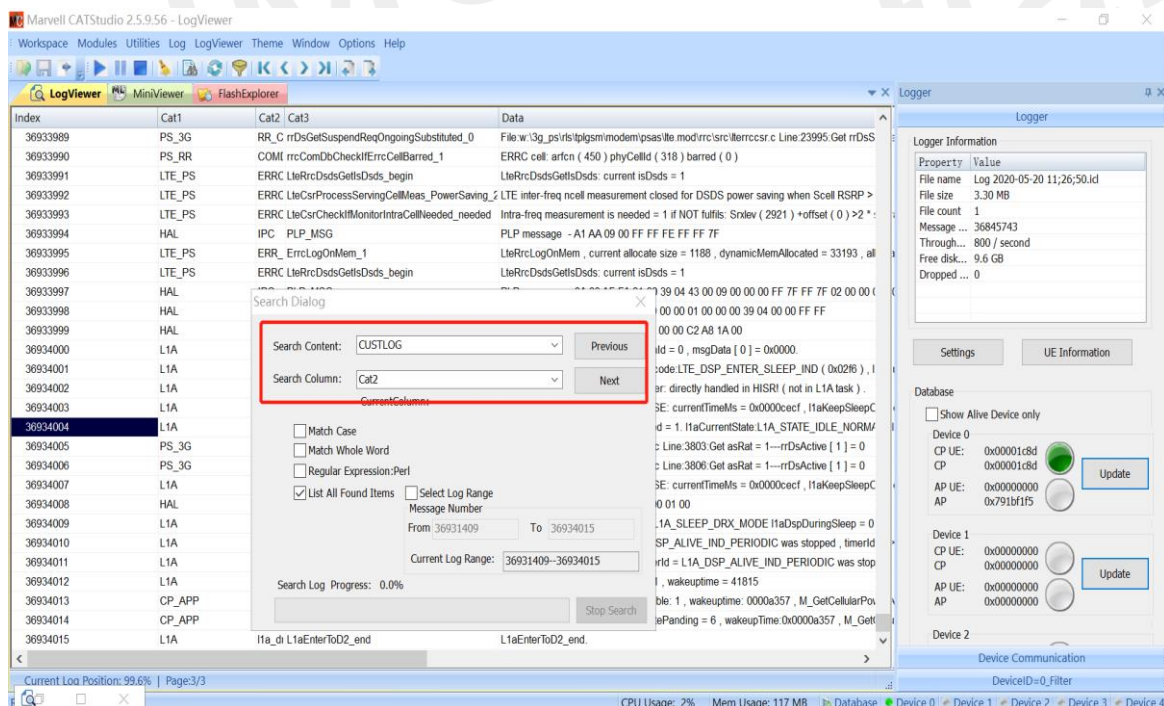
STEP 8: Specified information can be searched by CTRL+F when output stopped. The searching can be up or down by choosing Previous or Next.

NOTE

CATStudio supports filtering searching results, which means search in results in the Find Results panel is supported.

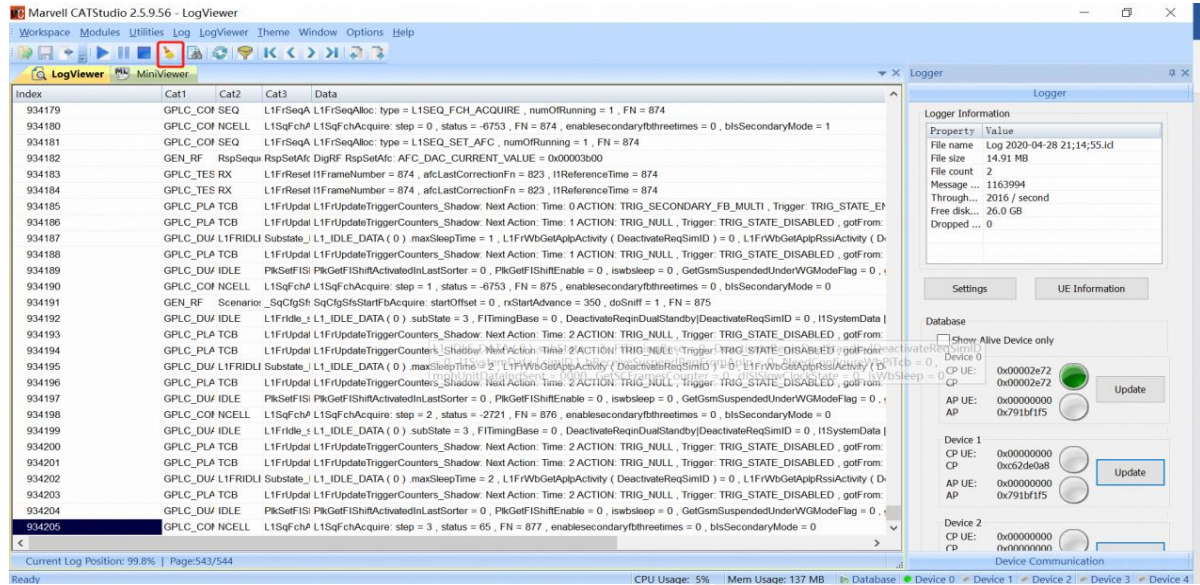


STEP 9: Get the api sAPI_Debug output log with CTRL+F and set the conditions as shown below.



STEP 10: If there is nothing wrong with test result for a while, which means the logs so far can be useless, please clear the logs by clicking Clear button.

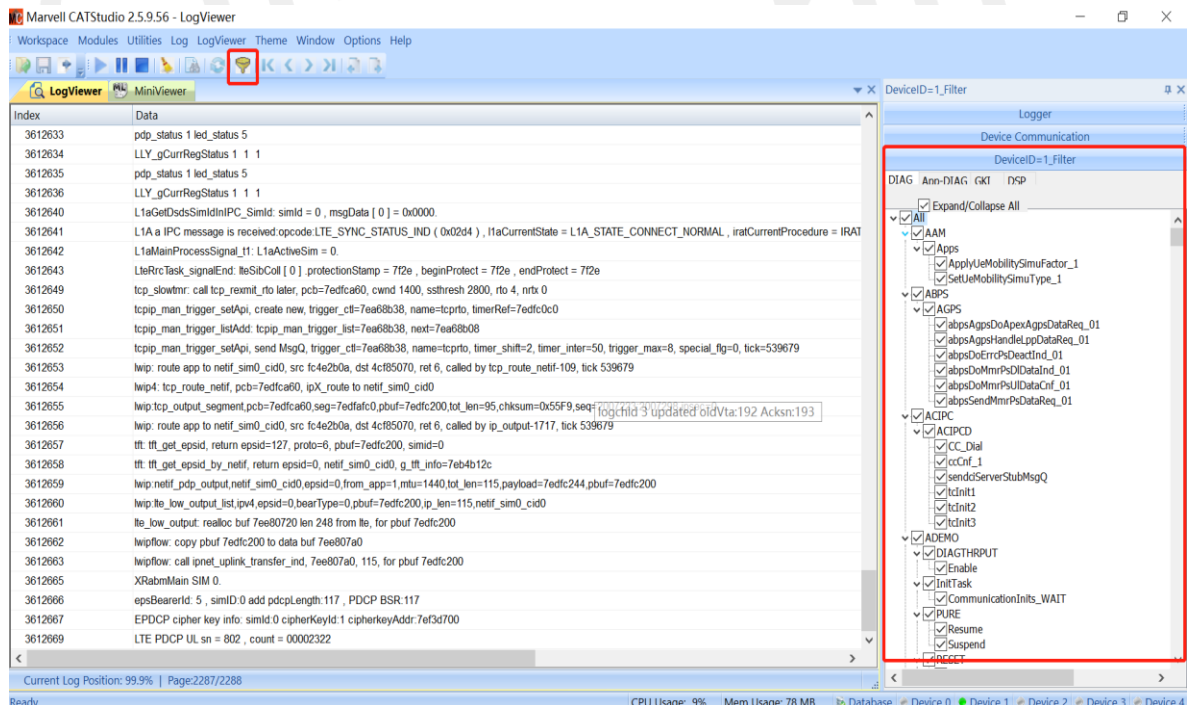
This action does good for analysing because the log file won't be too large and useless information won't be shown in the log.



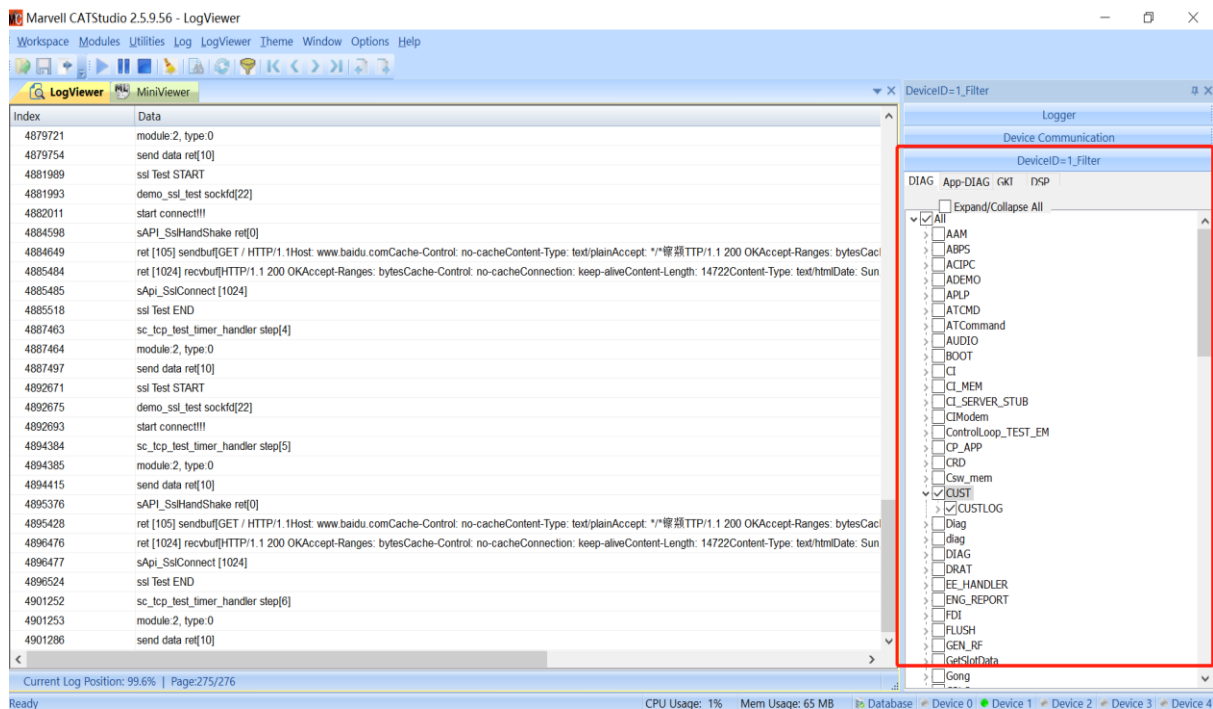
CATStudio is support log filtering

CATStudio All logs are printed by default, Too many logs affect debugging efficiency, Refer to the following configuration to print only the interface sAPI_Debug.

STEP 1: Click the Show Filter button as shown below



STEP 2: Click the DIAG button and just check CUST, Remove the options of App-DIAG GKT DSP, At this point, you can see only the sAPI_Debug interface printing



NOTE

1. Logs will be saved automatically under Exec\Bin Logs of the install path.
2. Please clear useless logs in case that the disk runs out its space.

What's more, the .icl under the path can be opened by CATStudio under the offline mode with the perfectly matching DB files.

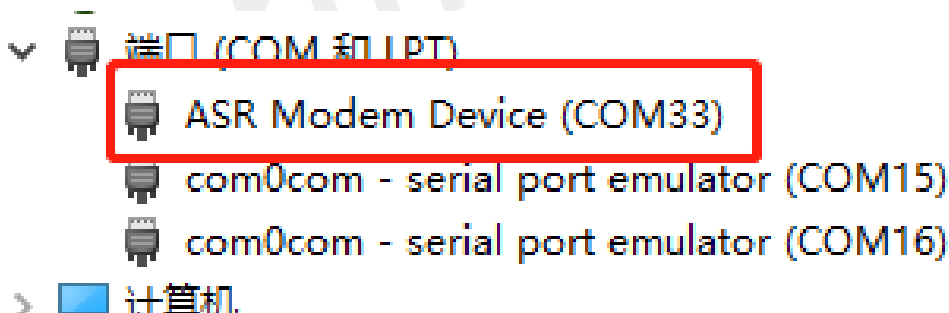
5. Dump

When the module is running, it enters the dump mode for some reasons (memory application failure, illegal pointer access, stack overflow, etc.). At this time, the dump information needs to be exported for analysis.

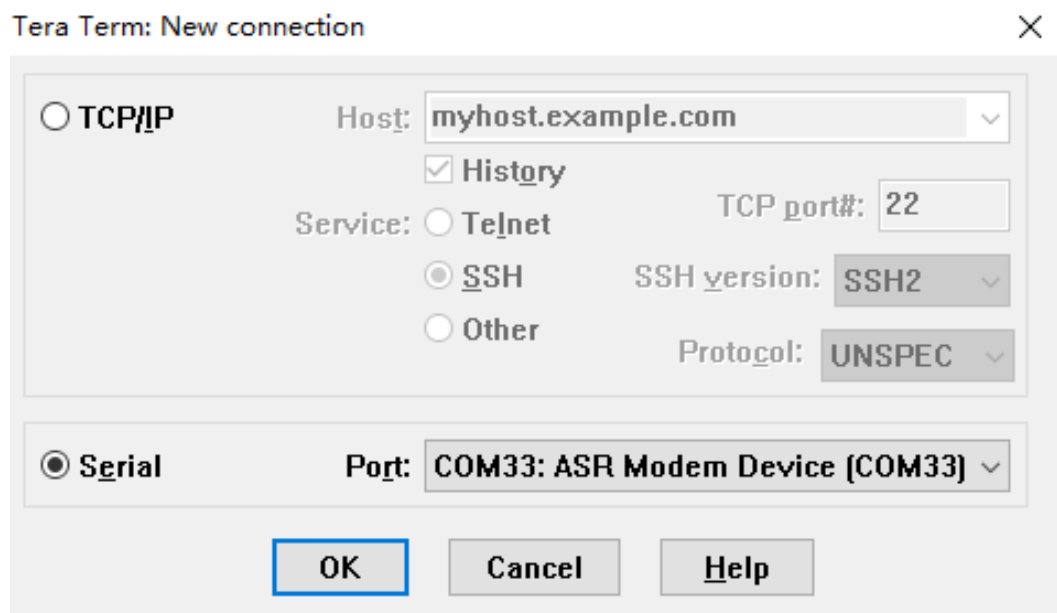
STEP 1: Install the teraterm. Unzip the installation package. After decompressing the file, you can see ttermpro.exe in the directory.

EDITOR.CNF	2018/5/31 0:16	CNF 文件	3 KB
FUNCTION.CNF	2018/5/31 0:16	CNF 文件	4 KB
IBMKEYB.CNF	2018/5/31 0:16	CNF 文件	3 KB
KEYBOARD.CNF	2018/5/31 0:16	CNF 文件	3 KB
keycode.exe	2018/5/31 0:22	应用程序	68 KB
license.txt	2018/5/31 0:16	文本文档	9 KB
login.ttl	2018/5/31 0:16	TTL 文件	1 KB
mpause.ttl	2018/5/31 0:16	TTL 文件	1 KB
NT98KEYB.CNF	2018/5/31 0:16	CNF 文件	3 KB
PC98KEYB.CNF	2018/5/31 0:16	CNF 文件	3 KB
random.ttl	2018/5/31 0:16	TTL 文件	1 KB
screenshot.ttl	2018/5/31 0:16	TTL 文件	2 KB
ssh_known_hosts	2018/5/31 0:16	文件	1 KB
ssh2login.ttl	2018/5/31 0:16	TTL 文件	1 KB
teraterm.chm	2018/5/31 0:22	编译的 HTML 帮...	2,212 KB
TERATERM.INI	2019/7/12 15:41	配置设置	25 KB
teratermj.chm	2018/5/31 0:21	编译的 HTML 帮...	2,136 KB
ttermpro.exe	2018/5/31 0:22	应用程序	1,984 KB
ttpcmn.dll	2018/5/31 0:22	应用程序扩展	224 KB
ttpdlg.dll	2018/5/31 0:22	应用程序扩展	516 KB
ttpfile.dll	2018/5/31 0:22	应用程序扩展	244 KB
ttmacro.exe	2018/5/31 0:22	应用程序	1,516 KB
ttpset.dll	2018/5/31 0:22	应用程序扩展	212 KB
ttptek.dll	2018/5/31 0:22	应用程序扩展	224 KB
TTXProxy.dll	2018/5/31 0:23	应用程序扩展	244 KB
TTXResizeMenu.dll	2018/5/31 0:23	应用程序扩展	76 KB
ttssh.dll	2018/5/31 0:23	应用程序扩展	2,564 KB

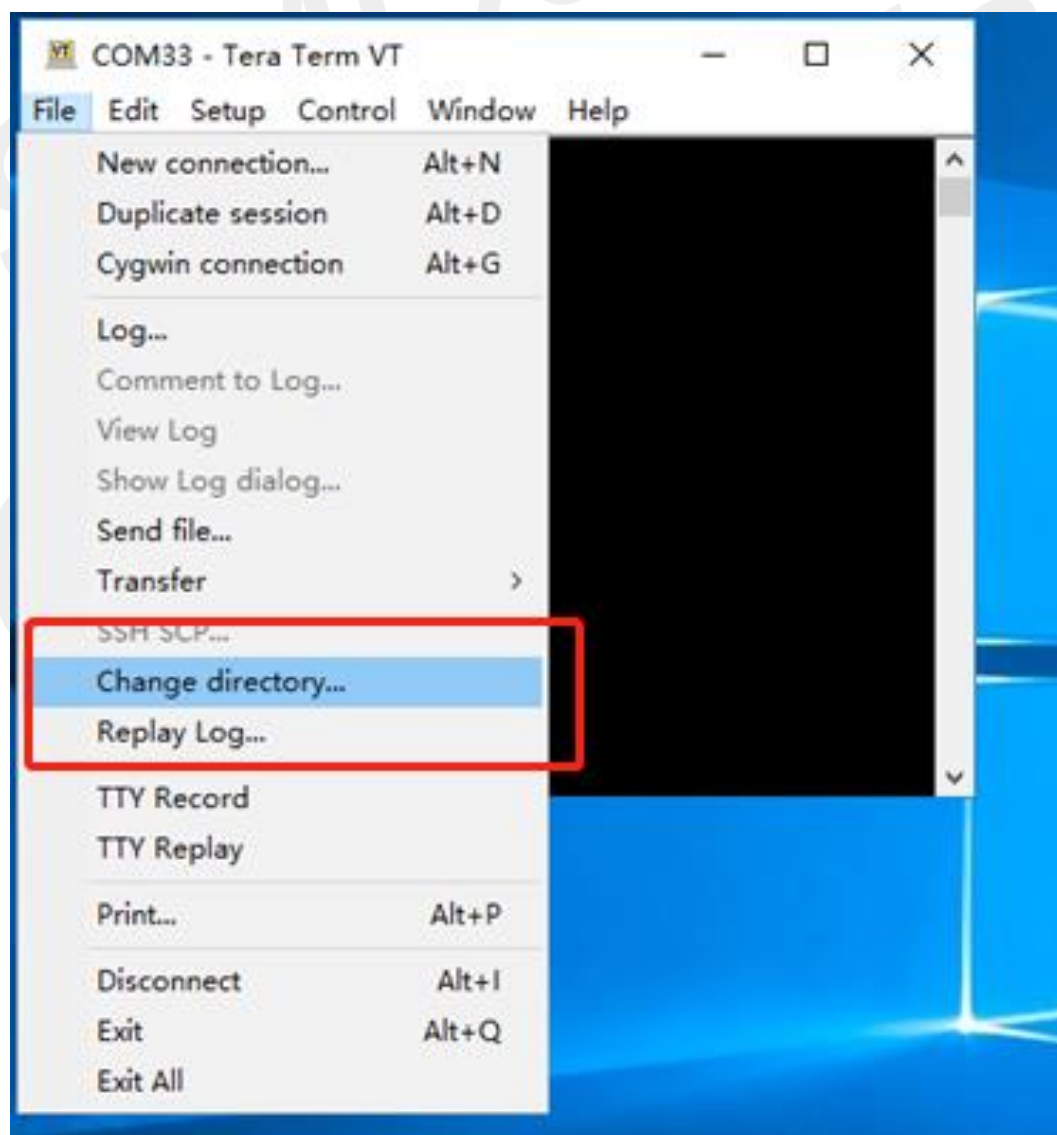
STEP 2: Confirm the com number of the ASR Modem Device port in the device manager



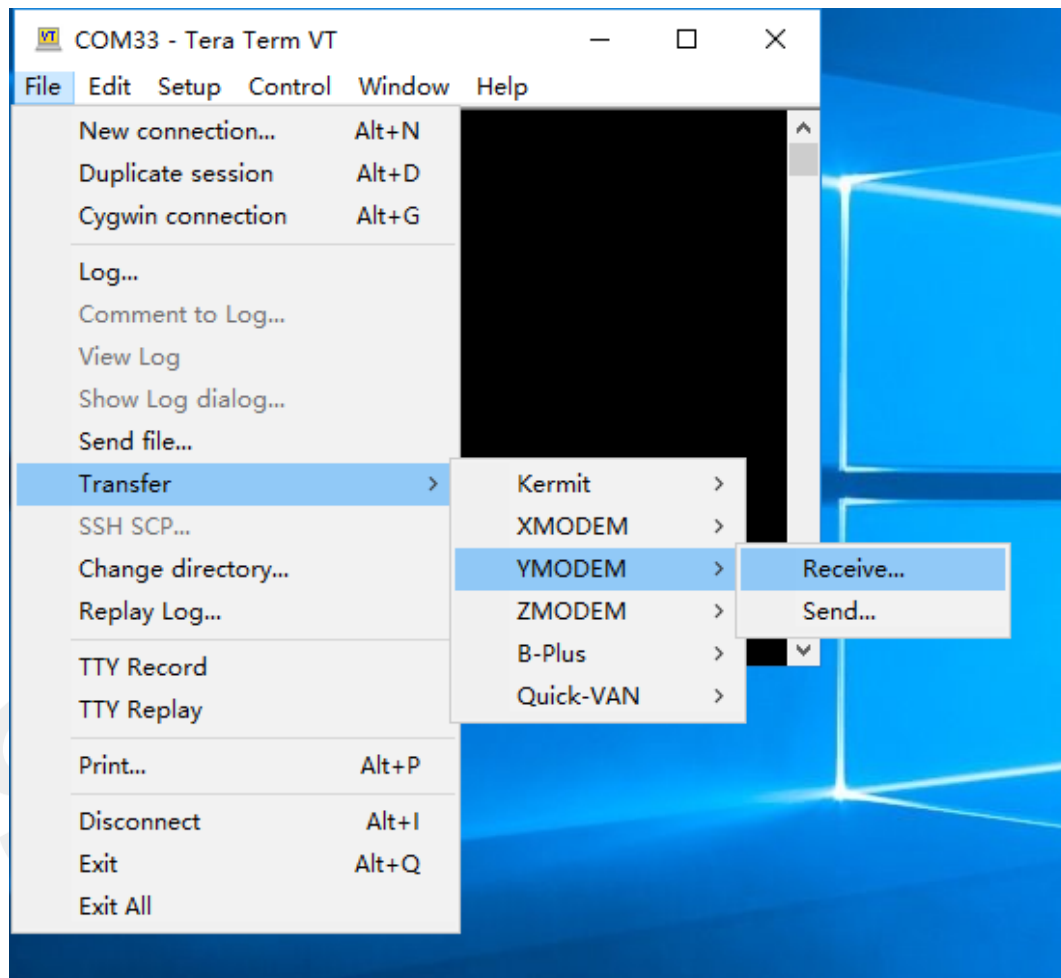
STEP 3: Open ttermpro and select the com port to grab dump

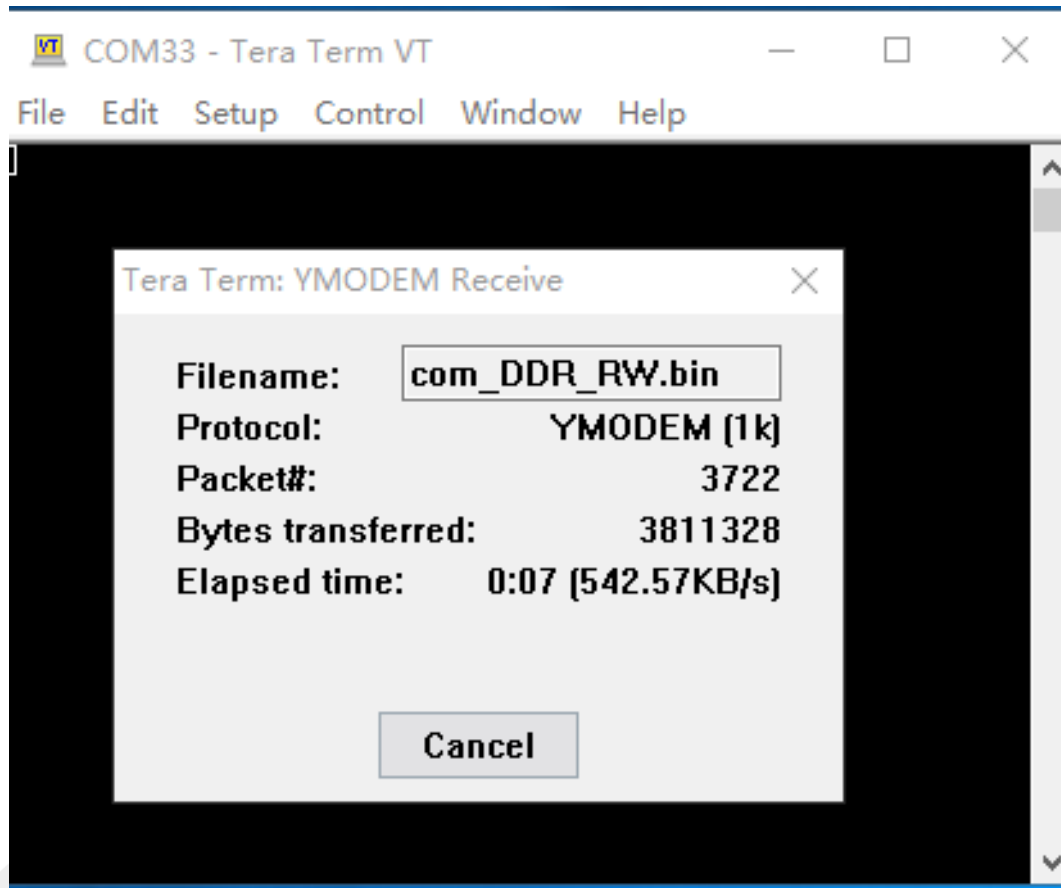


STEP 4: Change directory is used to select where to save the dump file.



STEP 5: Select ymodem protocol to receive dump file.





STEP 7: Check the received dump file.

<input type="checkbox"/> com_compmde.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_CustVer.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_DDR_RW.bin	2020/7/28 16:44	BIN 文件	14,272 KB
<input type="checkbox"/> com_DSP_DDR.bin	2020/7/28 16:44	BIN 文件	2,112 KB
<input type="checkbox"/> com_DSPdtcm.bin	2020/7/28 16:44	BIN 文件	256 KB
<input type="checkbox"/> com_DTCM.bin	2020/7/28 16:44	BIN 文件	64 KB
<input type="checkbox"/> com_dtcSpy.bin	2020/7/28 16:44	BIN 文件	2 KB
<input type="checkbox"/> com_dvfmSpy.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_EE_Hbuf.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_GplcSpy.bin	2020/7/28 16:44	BIN 文件	26 KB
<input type="checkbox"/> com_ITCM.bin	2020/7/28 16:44	BIN 文件	64 KB
<input type="checkbox"/> com_L1aSpy.bin	2020/7/28 16:44	BIN 文件	6 KB
<input type="checkbox"/> com_L2_sram.bin	2020/7/28 16:44	BIN 文件	128 KB
<input type="checkbox"/> com_PS_DAT.bin	2020/7/28 16:44	BIN 文件	448 KB
<input type="checkbox"/> com_rti_tsk.bin	2020/7/28 16:44	BIN 文件	3 KB
<input type="checkbox"/> com_SQU.bin	2020/7/28 16:44	BIN 文件	64 KB
<input type="checkbox"/> com_usbIntD.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_usbLog.bin	2020/7/28 16:44	BIN 文件	32 KB
<input type="checkbox"/> com_usbRese.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_wdtKICK.bin	2020/7/28 16:44	BIN 文件	1 KB
<input type="checkbox"/> com_wifiSpy.bin	2020/7/28 16:44	BIN 文件	2 KB