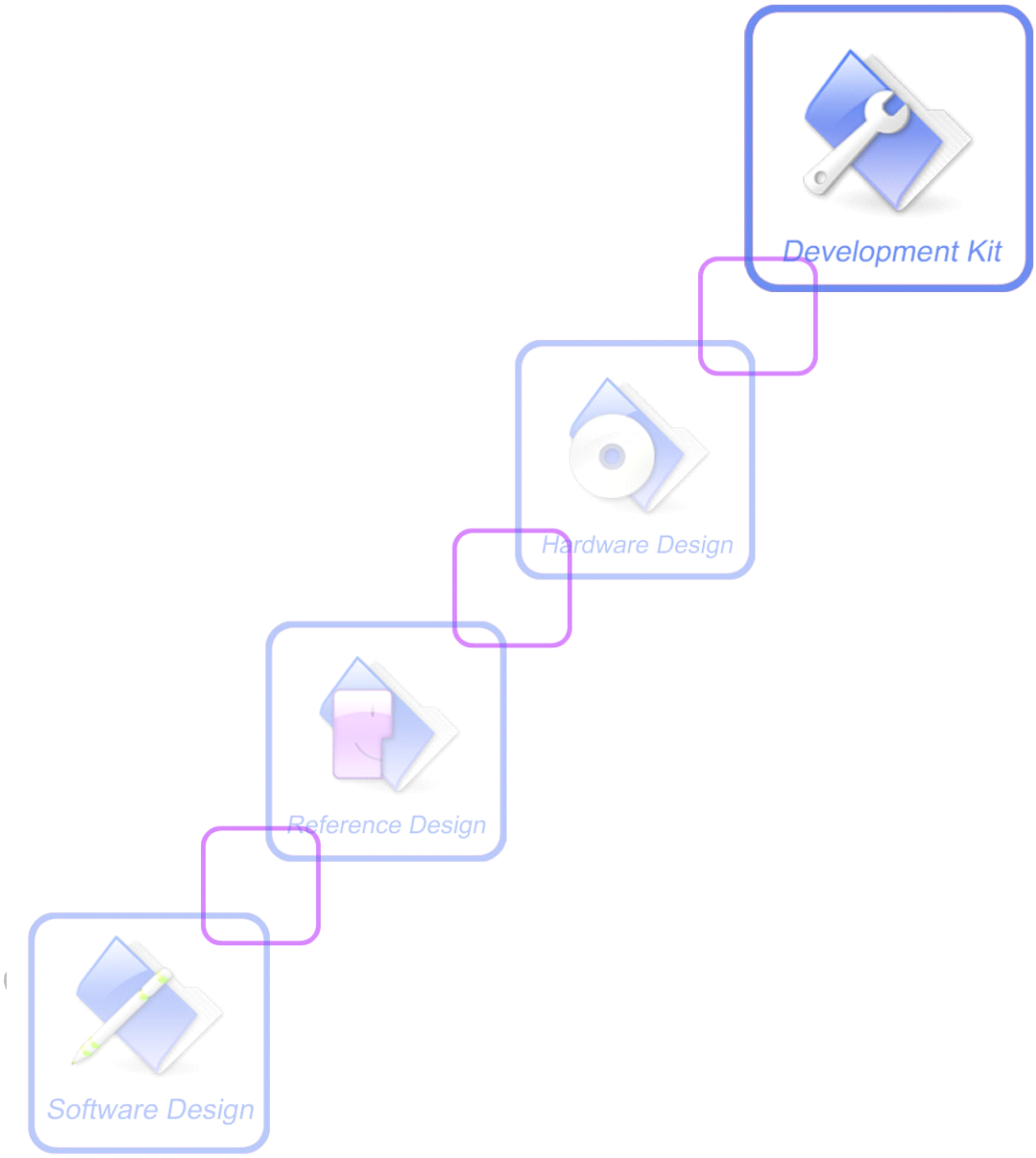
EFS Diag Application Note



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Version History

Version	Chapter	Comments
V0.01	New Version	
V0.02	Add delete packet	

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1. Introduction

1.1 Overview

This document gives the usage of SIM52XX EFS Diag functions for operating files in EFS; user can get useful information about the SIM52XX Diag functions quickly through this document.

The EFS Diag functions are designed for customers to design their own applications to operate files in SIM52XX module easily. User can access the Diag commands through UART/ USB interface which communicates with SIM52XX module.

SIM52XX Diag features:

- Put files to the module through USB DIAG port.

1.2 References

1.3 Terms and Abbreviations

2. EFS Diag Quick Start – Operate a file in EFS

The purpose of this section is to help get you to develop applications which can put a file to the module EFS or delete a file from the module EFS easily.

2.1 Configure USB DIAG port

SIM52XX supports transmitting various command packets through USB DIAG port which can be used to command the module to do EFS operations. All packets must be encoded in HDLC format. By using the DIAG port, Customer applications can operate files in EFS by sending and receiving DIAG command packets. Following is the steps on how to configure the SIM52XX module:

1) Connect USB DIAG port

USB DIAG port is a virtual serial port, customer applications can use serial port APIs to connect the USB DIAG port. For example, on windows platform, the CreateFile() function can be used to connect the USB DIAG port:

```
hComm = CreateFile("\\\\.\\COM3",
                                        GENERIC_READ | GENERIC_WRITE,
```

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```
                                        0,
                                        0,
                                        OPEN_EXISTING,
                                        FILE_ATTRIBUTE_NORMAL          |
                                        FILE_FLAG_OVERLAPPED,
                                        0);
```

2.1 Writing a file to EFS

1) Open a file in EFS with writable mode

SIM52XX DIAG port provides special command packets which can be used for external device to open a file in EFS. Following is the format of the open-file command packets:

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 2
flag	4 bytes	When writing a file, it is 577; or else it is 0.
mode	4 bytes	When writing a file, it is 438; or else it is 292.
file_name	1 – n bytes	This field must be filled with the full path of the file to open. A binary 0 must be put in the end of the file name string. The root directory "\" should not be included in this field.

Table 1- Open file request packet format

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 2
file handle	4 bytes	The filed contains the handle value of the file opened which will be used for later writing or reading operation.
error number	4 bytes	This field contains the error number value. None-zero

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		value indicates failing to open the file.

Table 2- Open file response packet format

Following is an example of opening a file "\MultiMedia\1.txt" in the EFS using the writable mode:

1. Pack the data according to the format in upper table
2. Pack the raw data to HDLC format

SEND 4B 13 02 00 41 02 00 00 B6 01 00 00 4D 75 6C 74 69 4D 65 64 69 61 2F 31 2E 74 78 74 00 FC 88 7E

RECV 4B 13 02 00 **00 00 00 00** 00 00 00 00 04 6D 7E

2) Write file data to the module

SIM52XX DIAG port provides special command packets which can be used for external device to write file data to EFS. Following is the format of the write-file command packets:

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 5
file handle	4 bytes	This filed must be filled with the file handle returned in opening file step.
offset	4 bytes	This field must be filled with offset of the file to write the data
data	1 – 512 bytes	This field contains the data to write.

Table 3- Write file request packet format

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 5
file handle	4 bytes	The filed contains the handle value of the file opened which will be used for later writing or reading operation.
offset	4 bytes	The offset of the file to write
bytes_written	4 bytes	The bytes of data written to the

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		file.
error number	4 bytes	This field contains the error number value. None-zero value indicates failing to write the file.

Table 4- Write file response packet format

Following is an example of writing data to the file opened in upper step:

1. Pack the data according to the format in upper table
2. Pack the raw data to HDLC format

SEND 4B 13 05 00 **00 00 00 00** 00 00 00 00 64 6F 66 69 6C 65 28 67 65 74 68 6F 6D 65 64 69 72 28 29 2E 2E 22 64 69 61 67 5C 5C 73 74 72 5F 75 74 69 6C 2E 6C 75 61 22 29 0D 0A 64 6F 66 69 6C 65 28 67 65 74 68 6F 6D 65 64 69 72 28 29 2E 2E 22 64 69 61 67 5C 5C 73 69 6F 5F 75 74 69 6C 2E 6C 75 61 22 29 0D 0A 64 6F 66 69 6C 65 28 67 65 74 68 6F 6D 65 64 69 72 28 29 2E 2E 22 64 69 61 67 5C 5C 64 69 61 67 2E 6C 75 61 22 29 0D 0A 64 6F 66 69 6C 65 28 67 65 74 68 6F 6D 65 64 69 72 28 29 2E 2E 22 64 69 61 67 5C 5C 66 73 5F 64 69 61 67 2E 6C 75 61 22 29 0D 0A 64 6F 66 69 6C 65 28 67 65 74 68 6F 6D 65 64 69 72 28 29 2E 2E 22 64 69 61 67 5C 5C 6E 76 5F 64 69 61 67 2E 6C 75 61 22 29 0D 0A 0D 0A 66 75 6E 63 74 69 6F 6E 20 74 65 73 74 5F 66 73 5F 64 69 61 67 5F 6C 69 73 74 5F 64 69 72 28 73 65 73 73 69 6F 6E 2C 20 64 69 72 29 0D 0A 20 20 6C 6F 63 61 6C 20 6F 70 65 6E 5F 64 69 72 5F 72 73 70 20 3D 20 66 73 5F 64 69 61 67 5F 6F 70 65 6E 5F 64 69 72 28 73 65 73 73 69 6F 6E 2C 20 64 69 72 29 3B 0D 0A 20 20 69 66 20 28 28 6E 6F 74 20 6F 70 65 6E 5F 64 69 72 5F 72 73 70 2E 64 69 72 70 29 20 6F 72 20 28 6E 6F 74 20 6F 70 65 6E 5F 64 69 72 5F 72 73 70 2E 73 74 61 74 75 73 29 20 6F 72 20 28 6F 70 65 6E 5F 64 69 72 5F 72 73 70 2E 73 74 61 74 75 73 20 7D 5E 3D 20 30 29 29 20 74 68 65 6E 0D 0A 20 20 20 20 72 65 74 75 72 6E 3B 0D 0A 20 20 65 6E 64 3B 0D 0A 20 20 6C 6F 63 61 6C 20 63 6F 75 6E 74 20 3D 20 30 3B 0D 0A 20 20 77 68 69 6C 65 20 28 74 72 75 65 29 20 64 6F 0D 0A 20 20 20 20 63 6F 75 6E 74 20 3D 20 63 6F 75 6E 74 20 2B 20 31 3B 0D 0A 20 20 20 20 6C 6F 63 61 6C 20 72 73 70 5F 72 4C 7E

RECV 4B 13 05 00 **00 00 00 00** 00 00 00 00 00 02 00 00 00 00 00 00 4B D2 7E

SEND 4B 13 05 00 **00 00 00 00** 00 02 00 00 72 65 73 75 6C 74 20 3D 20 66 73 5F 64 69 61 67 5F 72 65 61 64 5F 64 69 72 28 73 65 73 73 69 6F 6E 2C 20 6F 70 65 6E 5F 64 69 72 5F 72 73 70 2E 64 69 72 70 2C 20 63 6F 75 6E 74 29 3B 20 20 20 20 0D 0A 20 20 20 20 69 66 20 28 28 6E 6F 74 20 72 73 70 5F 72 65 73 75 6C 74 29 20 6F 72 20 28 6E 6F 74 20 72 73 70 5F 72 65 73 75 6C 74 2E 65 6E 74 72 79 6E 61 6D 65 29 29 20 74 68 65 6E 0D 0A 20 20 20 20 20 20 62 72 65 61 6B 3B 0D 0A 20 20 20 20 65 6E 64 3B 0D 0A 09 70 72 69 6E 74 28 66 73 5F 64 69 61 67 5F 67 65 74 5F 73 74 72 69 6E 67 5F 66 73 5F 74 79 70 65 28 73 65 73 73 69 6F 6E 2C 20 72 73 70 5F 72 65 73 75 6C 74 2E 65 6E 74 72 79 74 79 70 65 29 2C 20 22 20 20 20 20 22 2C 20 72 73 70 5F 72 65 73 75 6C 74 2E 65 6E 74 72 79 6E 61 6D 65 2C 20 22 20 20 20 20 3C 22 2C 20 72 73 70 5F 72 65 73 75 6C 74 2E 73 69 7A 65 2C 20 22 62 79 74 65 73 3E 22 2C 20 22 5C 72 5C 6E 22 29 3B 0D 0A 20 20 65 6E 64 3B 0D 0A 0D 0A 20 20 66 73 5F 64 69 61 67 5F 63 6C 6F 73 65 5F 64 69 72 28 73 65 73 73 69 6F 6E 2C 20 6F 70 65 6E 5F 64 69 72 5F 72 73 70 2E 64 69 72 70 29 3B 0D 0A 65 6E 64 3B 0D 0A 0D 0A 66 75 6E 63 74 69 6F 6E 20 74 65 73 74 5F 66 73 5F 64 69 61 67 5F 6D 6B 64 69 72 28 73 65 73 73 69 6F 6E 29 0D 0A 20 20 66 73 5F 64 69 61

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67 5F 6D 6B 64 69 72 28 73 65 73 73 69 6F 6E 2C 20 35 31 31 2C 20 22 43 3A 5C 5C 6D 79 64 69 72 22 29 3B 0D 0A 65 6E 64 3B 0D 0A 0D 0A 66 75 6E 63 74 69 6F 6E 20 74 65 73 74 5F 66 73 5F 64 69 61 67 5F 72 6D 64 69 72 28 73 65 73 73 69 6F 6E 29 20 20 0D 0A 20 20 66 73 5F 64 69 61 67 5F 72 6D 64 69 72 28 73 65 F9 5C 7E

RECV 4B 13 05 00 **00 00 00 00** 00 02 00 00 00 02 00 00 00 00 00 00 69 79 7E

3) Close the file opened

SIM52XX DIAG port provides special command packets which can be used for external device to close the file opened in upper step. Following is the format of the close-file command packets:

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 3
file handle	4 bytes	The filed contains the handle value of the file opened

Table 5- Close file request packet format

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 3
error number	4 bytes	This field contains the error number value. None-zero value indicates failing to close the file.

Table 6- Close file response packet format

Following is an example of closing the file opened in upper step:

1. Pack the data according to the format in upper table
2. Pack the raw data to HDLC format

SEND 4B 13 03 00 **00 00 00 00** 34 50 7E

RECV 4B 13 03 00 00 00 00 00 34 50 7E

4) Delete a file from EFS

SIM52XX DIAG port provides special command packets which can be used for external device to delete a file in EFS. Following is the format of the delete-file command packets:

Field	Length	Description
Sys_id	1 byte	This filed must be filled with

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		75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 8
file_name	1 – n bytes	This field must be filled with the full path of the file to delete. A binary 0 must be put in the end of the file name string. The root directory "\" should not be included in this field.

Table 1- Open file request packet format

Field	Length	Description
Sys_id	1 byte	This filed must be filled with 75
Sub_sys_id	1 byte	This filed must be filled with 19
command	2 bytes	This filed must be filled with 8
error number	4 bytes	This field contains the error number value. None-zero value indicates failing to open the file.

Table 2- Open file response packet format

Following is an example of opening a file "\MultiMedia\Picture\ 5216_delta_1_2.inst.mld" in the EFS using the writable mode:

1. Pack the data according to the format in upper table
2. Pack the raw data to HDLC format

SEND 4B 13 08 00 4D 75 6C 74 69 4D 65 64 69 61 2F 50 69 63 74 75 72 65 2F 35 32 31 36 5F 64 65 6C 74 61 5F 31 5F 32 2E 69 6E 73 74 2E 6D 6C 64 00 A9 11 7E

RECV 4B 13 08 00 00 00 00 00 11 7D 5D 7E

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2.3 Disconnect the USB DIAG port

After transferring the files to EFS, customer applications can close the USB DIAG port. Following is an example on windows platform:

CloseHandle(hComm);

2.3 Use PC LUA DIAG scripts

For operating EFS files easily, SIMCOM provides a few LUA scripts to assist operating EFS files. Following is the description of the main functions included in the LUA script files:

1. diag_find_sio_port(): searching the DIAG port automatically
2. open_diag(): Open the DIAG session
3. fs_diag_session_init(): Initialize the DIAG session
4. fs_diag_transfer_file_to_ue(): Transfer a file to the module EFS
5. fs_diag_transfer_file_to_pc(): Transfer a file from the module EFS to PC
6. fs_diag_unlink(): Delete a file in the module EFS
7. close_diag(): Close the DIAG session

Following is an example script files for transferring files to the module EFS:

fsdiagput.lua

Following is an example script files for deleting files from the module EFS:

fsdiagdel.lua

User can modify the two script files and then type “lua.exe fsdiagput.lua” or “lua.exe fsdiagdel.lua” in the console interface(cmd.exe) to run the script files. Following is the PC LUA toolkit:

Diag_lua.rar

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