QSTM32
FTP(S) Application Note

Confidentiality Level:(Tick the Box ■)		
Top Secret ☐	Confidential ☐	Public ☐

Document Control Record

Revision History			
Date	Revision	Revision Description	Author
2023-12-27	0	Initial	Floyd Wang
2025-08-29	V2.0	The second generation initial version	Wells Li Linkin Wang

Contents

1 Purpose

As one standard network protocol with pretty high transfer speed, the FTP, abbreviation of File Transfer Protocol, will be used to transmit files between client terminal and server on computer network.

While for FTPS, also named FTP over SSL or FTP Secure, is one kind of extended protocols that supports adding TLS and SSL into common FTP.

In this document, it will mainly illustrate how to apply following FTP(S) functions in Quectel Demo.

2 Scope

This document applies to MCUs that mounted with quectel module.

3 Term and Definition

Quectel: Quectel Wireless Solution Co., Ltd.
FTP: File Transfer Protocol

4 API Design

One set of reference APIs is designed by we Quectel to implement FTP(S) based on relevant AT commands. See ***Table 1*** in detail.

Table 2：FTP(S) API Reference Design

API	Implementation
ql_ftp_init()	Initialize the FTP(S) client instance
ql_ftp_setopt()	Set FTP(S) client options
ql_ftp_set_ssl()	Set SSL configuration for FTP client
ql_ftp_login()	Login FTP(S) Server
ql_ftp_cwd()	Configure the current directory of FTP(S) Server
ql_ftp_pwd()	Get the current directory of FTP(S) Server
ql_ftp_mkdir()	Make directory in FTP(S) Server
ql_ftp_rmdir()	Delete directory in FTP(S) Server
ql_ftp_rename	Rename file or folder in FTP(S) Server

ql_ftp_list()	Get the files info in directory of FTP(S) Server
ql_ftp_nlist()	Get the files name in directory of FTP(S) Server
ql_ftp_mlsd()	Get standardized file and directory info
ql_ftp_file_size()	Get FTP(S) Server file size
ql_ftp_upload()	Upload file to FTP(S) Server
ql_ftp_download()	Download file from FTP(S) Server
ql_ftp_file_delete()	Delete file from FTP(S) Server
ql_ftp_file_get_modify_time()	Get file modification time in FTP(S) Server
ql_ftp_logout()	Login out FTP(S) Server
ql_ftp_uninit()	De-initialize the FTP(S) client instance

For specific design on API, please refer to appendix: Quectel_QSTM32_SDK_API_Design_V2.0.

See following table for API usage and AT command.

Table 3: Mapping between API and AT command

API	AT Command
ql_ftp_setopt()	AT+QFTPCFG
ql_ftp_login()	AT+QFTPOPEN
ql_ftp_cwd()	AT+QFTPCWD
ql_ftp_pwd()	AT+QFTPPWD
ql_ftp_mkdir()	AT+QFTPMKDIR
ql_ftp_rmdir()	AT+QFTPRMDIR
ql_ftp_rename	AT+QFTPRENAME
ql_ftp_list()	AT+QFTPLIST
ql_ftp_nlist()	AT+QFTPNLST
ql_ftp_mlsd()	AT+QFTPMLSD

ql_ftp_file_size()	AT+QFTPSIZE
ql_ftp_upload()	AT+QFTPPUT
ql_ftp_download()	AT+QFTPGET
ql_ftp_file_delete()	AT+QFTPDEL
ql_ftp_file_get_modify_time()	AT+QFTPMDTM
ql_ftp_logout()	AT+QFTPCLOSE

In following ***Chapter 5*** and ***Chapter 6***, it will introduce how to use API to access the FTP(S) server.

5 FTP(S) Workflow

5.1. Login FTP(S)

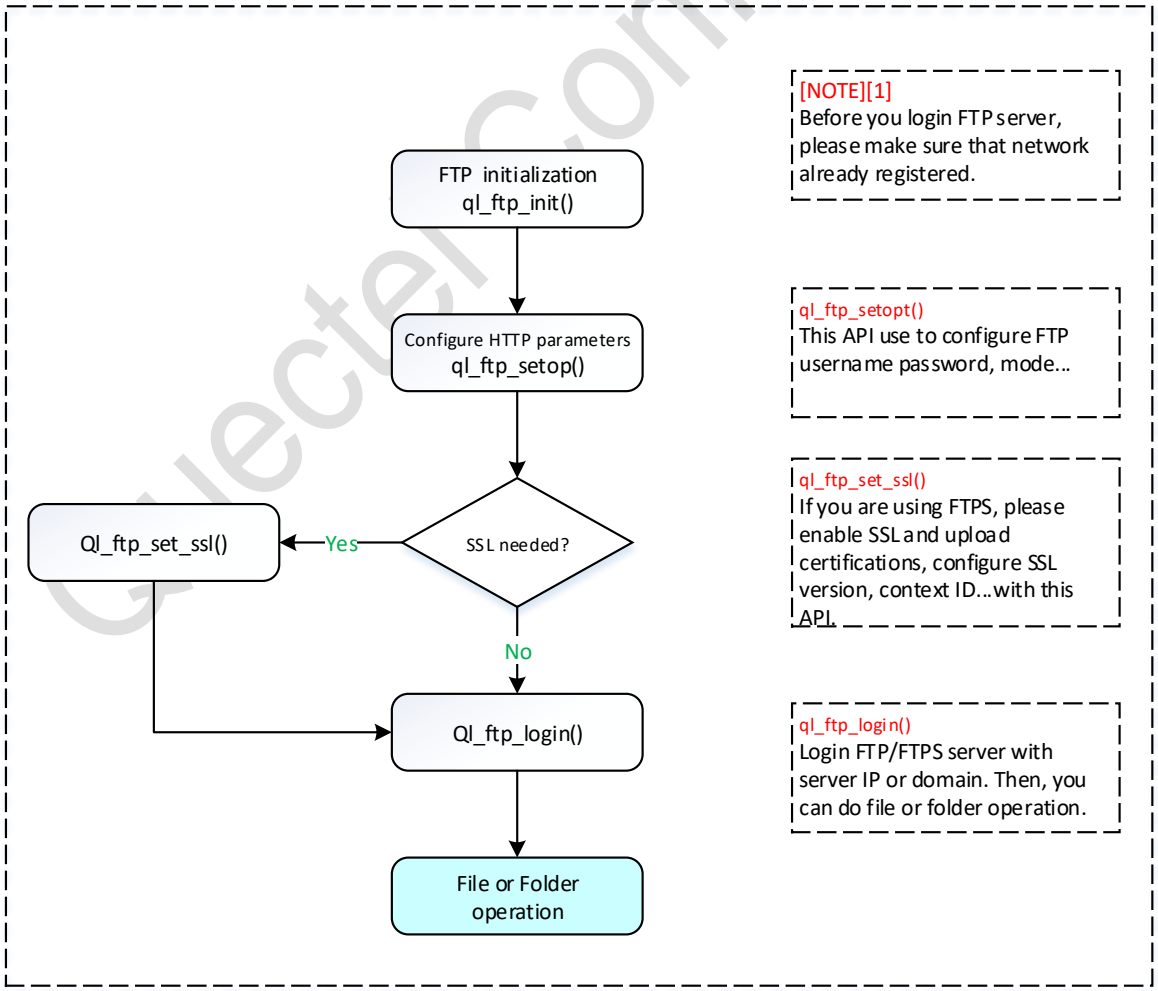

Figure 1: Login FTP(S) Server

See procedure shown as ***Figure 1*** above, it is needed to login FTP(S) server ahead.

a) Call *ql_ftp_setopt()* to set FTP(S) client options.

b) If the FTPS Server is to be accessed, it is needed to call *ql_ftp_set_ssl()* to configure SSL authentication. For specific configuration method and contents, please refer to the **SSL** header file.

c) Call *ql_ftp_login()* to login using the server's IP address or domain name.

5.2. FTP(S) Folder Operation

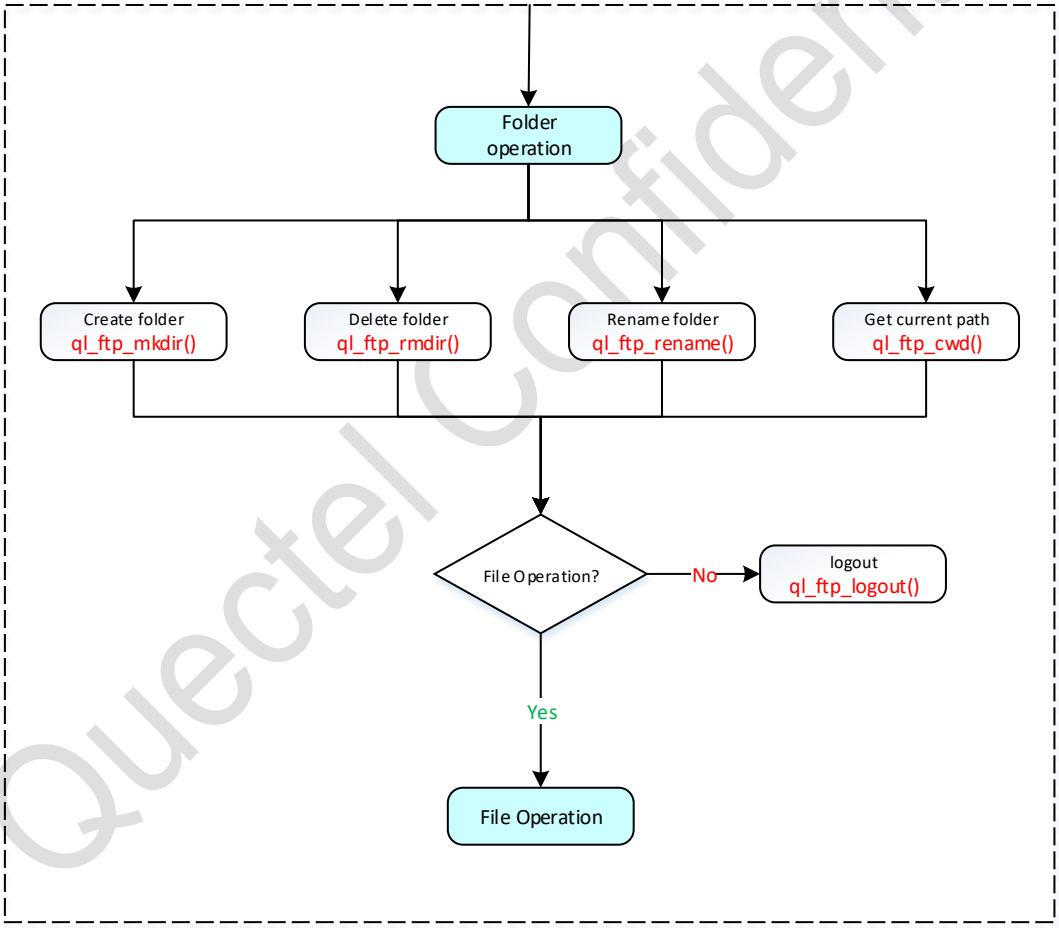

Figure 2: FTP(S) Folder Operation

Carry out folder operation based on workflow shown as ***Figure 2*** above.

a) Call *ql_ftp_mkdir()* to make folder, *ql_ftp_rmdir()* to delete folder, *ql_ftp_rename()* to rename folder and *ql_ftp_pwd()* to get current path.

b) After above operations related to adding, deleting, modifying and checking folder are done, it is needed to enter the path in which the file is located by calling *ql_ftp_cwd()*.

5.3. FTP(S) File Operation

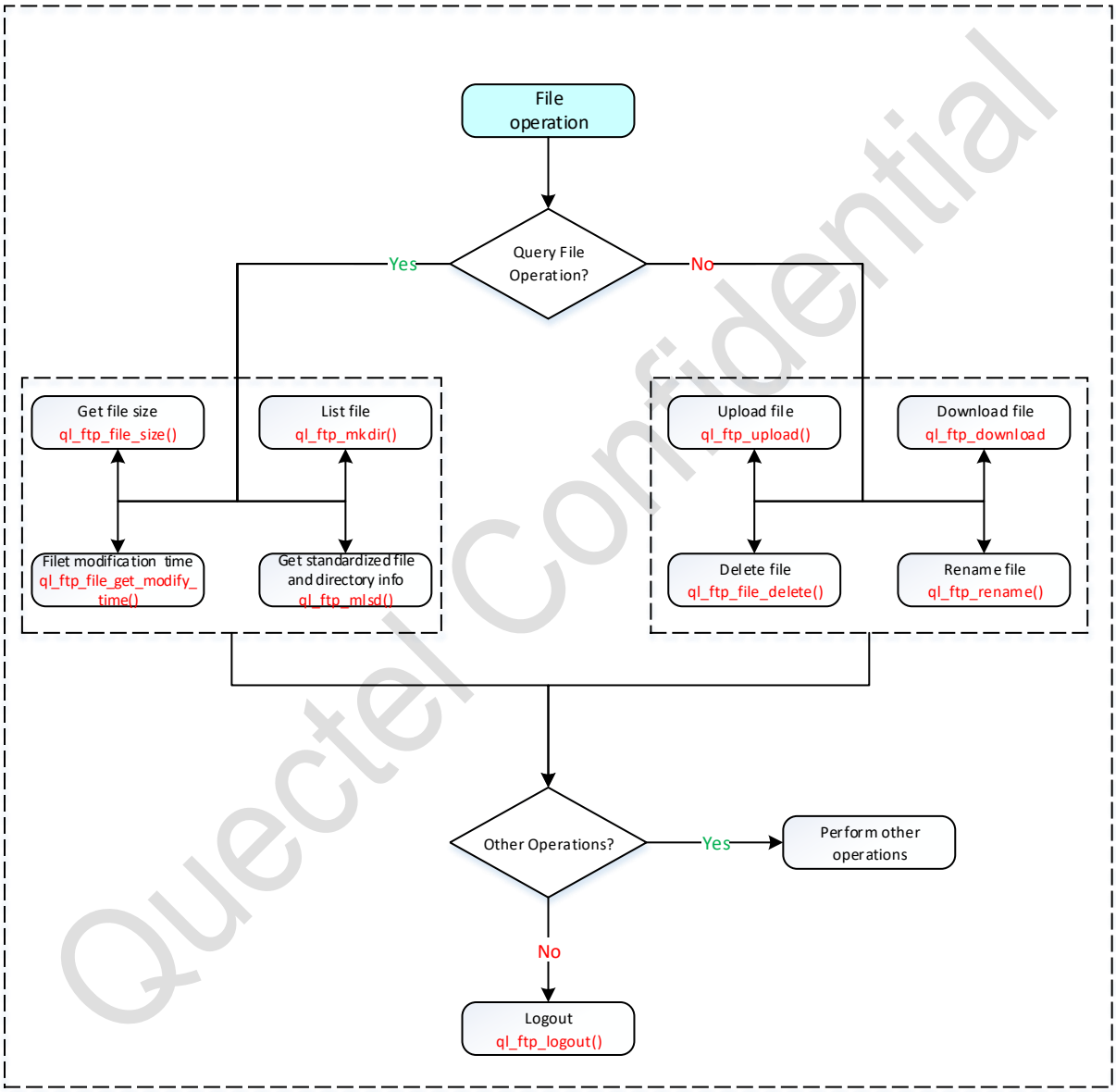

Figure 3: FTP(S) File Operation

See ***Figure 3*** above.

a) In terms of single file, it is available to get file size via *ql_ftp_file_size()* and the last time when the file is modified via *ql_ftp_file_get_modify_time()*.

b) In terms of current directory, it is valid to get the file list, specific file information and so on in current path via interfaces such as *ql_ftp_list()* and *ql_ftp_mlsd()*.

c) It is capable to upload and download file via *ql_ftp_upload()* and *ql_ftp_download()* respectively. The file input/output source supports UART input/output, RAM storage, UFS storage and SD card storage. For specific, please refer to file application note.

d) Moreover, it is also available to delete specified file via *ql_ftp_file_delete()* and rename file via *ql_ftp_rename()* individually.

5.4. Exit FTP(S)

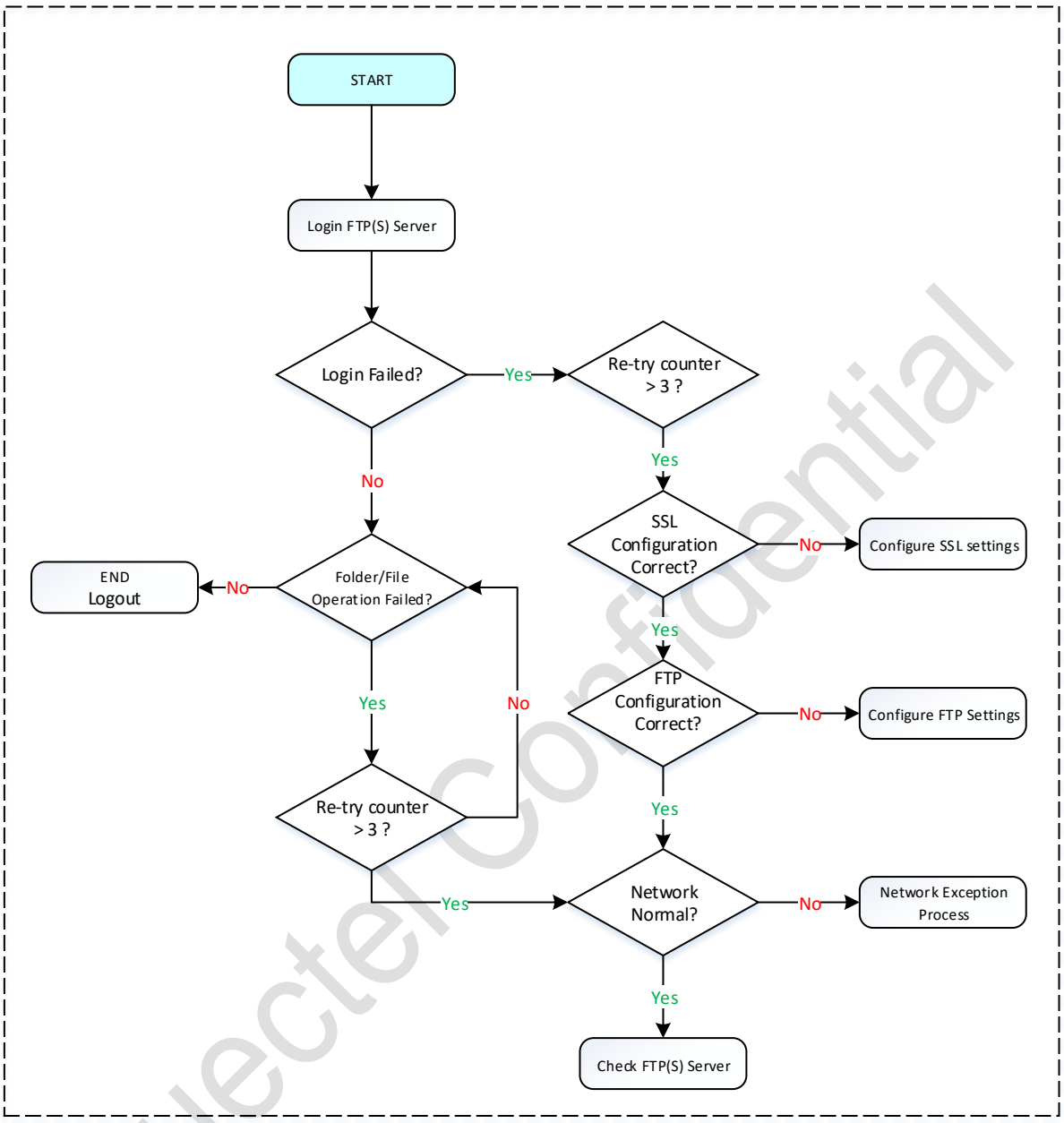

Figure 4: FTP(S) Exception Handing

6 Appendix A Reference Document

Quectel_QSTM32_SDK_API_Design_V2.0

Quectel_QSTM32_Network_Application_Note_V2.0