EC2x&EG9x&EM05 HTTP(S) AT Commands Manual

LTE Module Series

Rev. EC2x&EG9x&EM05_HTTP(S)_AT_Commands_Manual_V1.0

Date: 2017-11-20

Status: Released

Our aim is to provide customers with timely and comprehensive service. For any assistance, please contact our company headquarters:

Quectel Wireless Solutions Co., Ltd.
7th Floor, Hongye Building, No.1801 Hongmei Road, Xuhui District, Shanghai 200233, China
Tel: +86 21 5108 6236
Email: info@quectel.com

Or our local office. For more information, please visit:
http://quectel.com/support/sales.htm

For technical support, or to report documentation errors, please visit:
http://quectel.com/support/technical.htm
Or email to: support@quectel.com

GENERAL NOTES

QUECTEL OFFERS THE INFORMATION AS A SERVICE TO ITS CUSTOMERS. THE INFORMATION PROVIDED IS BASED UPON CUSTOMERS' REQUIREMENTS. QUECTEL MAKES EVERY EFFORT TO ENSURE THE QUALITY OF THE INFORMATION IT MAKES AVAILABLE. QUECTEL DOES NOT MAKE ANY WARRANTY AS TO THE INFORMATION CONTAINED HEREIN, AND DOES NOT ACCEPT ANY LIABILITY FOR ANY INJURY, LOSS OR DAMAGE OF ANY KIND INCURRED BY USE OF OR RELIANCE UPON THE INFORMATION. ALL INFORMATION SUPPLIED HEREIN IS SUBJECT TO CHANGE WITHOUT PRIOR NOTICE.

COPYRIGHT

About the Document

History

Revision	Date	Author	Description
1.0	2017-11-20	Duke XIN/ Haley HUANG	Initial

Contents

Table Index

1 Introduction

EC2x&EG9x&EM05 modules provide HTTP(S) application to HTTP(S) server. This document is a reference guide to all the AT commands defined for HTTP(S).

This document is applicable to following Quectel modules.

- EC2x (including EC25, EC21, EC20 R2.0 and EC20 R2.1)
- EG9x (including EG91 and EG95)
- EM05

1.1. The Process of Using HTTP(S) AT Commands

Through EC2x&EG9x&EM05 TCP/IP AT commands, customers can configure a PDP context, activate/deactivate the PDP context and query the PDP context status. And through EC2x&EG9x&EM05 HTTP(S) AT commands, customers can send HTTP(S) GET/POST requests to HTTP(S) server, and read HTTP(S) response from HTTP(S) server. The general process is as follows:

Step 1: Configure <APN>, <username>, <password> and other parameters of a PDP context by AT+QICSGP. Please refer to *Quectel_EC2x&EG9x&EM05_TCP(IP)_AT_Commands_Manual* for details. If QoS settings need to be updated, configure them by AT+CGQMIN, AT+CGEQMIN, AT+CGQREQ and AT+CGEQREQ commands. For more details, please refer to *Quectel_EC25&EC21_AT_Commands_Manual*, *Quectel_EG9x_AT_Commands_Manual* and *Quectel_EM05_AT_Commands_Manual*.

Step 2: Activate the PDP context by AT+QIACT, then the assigned IP address can be queried by AT+QIACT?. Please refer to *Quectel_EC2x&EG9x&EM05_TCP(IP)_AT_Commands_Manual* for details.

Step 3: Configure the PDP context ID and SSL context ID by AT+QHTTPCFG command.

Step 4: Configure SSL context parameters by AT+QSSLCFG command. For more details, please refer to *Quectel_EC2x&EG9x&EM05_SSL_AT_Commands_Manual*.

Step 5: Set HTTP(S) URL by AT+QHTTPURL command.

Step 6: Send HTTP(S) request. AT+QHTTPGET command can be used for sending HTTP(S) GET request, and AT+QHTTPPOST or QHTTPOSTFILE command can be used for sending HTTP(S) POST request.

Step 7: Read HTTP(S) response information by AT+QHTTPREAD or QHTTPREADFILE command.

Step 8: Deactivate the PDP context by AT+QIDEACT command. For more details, please refer to *Quectel_EC2x&EG9x&EM05_TCP(IP)_AT_Commands_Manual*.

1.2. Description of HTTP(S) Header

1.2.1. Customize HTTP(S) Request Header

HTTP(S) request header is filled by the module automatically. HTTP(S) request header can be customized by configuring <request_header> as 1 via AT+QHTTPCFG command, and then inputting HTTP(S) request header according to the following requirements:

1. Follow HTTP(S) header syntax.
2. The value of URI in HTTP(S) request line and the “Host:” header must be in line with the URL configured by AT+QHTTPURL command.
3. The HTTP(S) request header must end with <CR><LF>.

The following example shows a valid HTTP(S) POST request header:

POST /processorder.php HTTP/1.1<CR><LF>
Host: 220.180.239.212:8011<CR><LF>
Accept: */*<CR><LF>
User-Agent: QUECTEL_MODULE<CR><LF>
Connection: Keep-Alive<CR><LF>
Content-Type: application/x-www-form-urlencoded<CR><LF>
Content-Length: 48<CR><LF>
<CR><LF>
Message=1111&Appleqty=2222&Orangeqty=3333&find=1

1.2.2. Output HTTP(S) Response Header

HTTP(S) response header will not be outputted automatically. HTTP(S) response header information can be obtained by configuring <response header> to 1 via AT+QHTTPCFG command, and then HTTP(S) response header will be outputted with HTTP(S) response body after executing AT+QHTTPREAD or AT+QHTTPREADFILE command.

1.3. Description of Data Mode

The COM port of EC2x&EG9x&EM05 module has two working modes: AT command mode and data mode. In AT command mode, the inputted data via COM port will be treated as AT command. While in data mode, it will be treated as data.

Inputting “+++” or pulling up DTR (AT&D1 should be set first) can make the COM port exit from data mode. To prevent the “+++” from being misinterpreted as data, the following sequence should be followed:

1) Do not input any character within 1s or longer before inputting “+++”.
2) Input “+++” within 1s, and no other characters can be inputted during the time.
3) Do not input any character within 1s after “+++” has been inputted.

When AT+QHTTPURL, AT+QHTTPOST and AT+QHTTPREAD are executed, the COM port will enter data mode. If customers are using “+++” or DTR to make the port exit from data mode, the executing procedure of these commands will be interrupted before the response is returned. In such case, the COM port cannot reenter data mode by executing ATO command.

2 Description of HTTP(S) AT Commands

2.1. AT+QHTTPCFG Configure Parameters for HTTP(S) Server

The command is used to configure the parameters for HTTP(S) server, including configuring a PDP context ID, customizing HTTP(S) request header, outputting HTTP(S) response header and querying SSL settings. If the Write Command only executes one parameter, it will query the current settings.

AT+QHTTPCFG Configure Parameters for HTTP(S) Server	
Test Command **AT+QHTTPCFG=?**	Response **+QHTTPCFG: "contextid",(1-16)** **+QHTTPCFG: "requestheader",(0,1)** **+QHTTPCFG: "responseheader",(0,1)** **+QHTTPCFG: "sslctxid",(0-5)** **+QHTTPCFG: "contenttype",(0-3)** **+QHTTPCFG: "rspout/auto",(0,1)** **+QHTTPCFG: "closed/ind",(0,1)** **OK**
Write Command **AT+QHTTPCFG="contextid"[,<contextID>]**	Response If <contextID> is not omitted: **OK** Or **+CME ERROR: <err>** If <contextID> is omitted, query the current settings: **+QHTTPCFG: "contextid",<contextID>** **OK**
Write Command **AT+QHTTPCFG="requestheader"[,<request_header>]**	Response If <request_header> is not omitted: **OK** Or **+CME ERROR: <err>** If <request_header> is omitted , query the current settings:

	+QHTTPCFG: "requestheader",<request_header> **OK**
Write Command **AT+QHTTPCFG="responseheader"[,<response_header>]**	Response If <response_header> is not omitted: **OK** Or **+CME ERROR: <err>** If <response_header> is omitted , query the current settings: **+QHTTPCFG: "responseheader",<response_header>** **OK**
Write Command **AT+QHTTPCFG="sslctxid"[,<sslctxID>]**	Response If <sslctxID> is not omitted: **OK** Or **+CME ERROR: <err>** If <sslctxID> is omitted, query the current settings: **+QHTTPCFG: "sslctxid",<sslctxID>** **OK**
Write Command **AT+QHTTPCFG="rspout/auto"[,<auto_outrsp>]**	Response If <auto_outrsp> is not omitted: **OK** Or **+CME ERROR: <err>** If <auto_outrsp> is omitted, query the current settings: **+QHTTPCFG: "rspout/auto",<auto_outrsp>** **OK**
Write Command **AT+QHTTPCFG="closed/ind"[,<closedind>]**	Response If <closedind> is not omitted: **OK** Or **+CME ERROR: <err>** If <closedind> is omitted, query the current settings: **+QHTTPCFG: "closed/ind",<closedind>** **OK**

Read Command **AT+QHTTPCFG?**	Response **+QHTTPCFG: "contextid",<contextID>** **+QHTTPCFG: "requestheader",<request_header>** **+QHTTPCFG: "responseheader",<response_header>** **+QHTTPCFG: "sslctxid",<sslctxID>** **+QHTTPCFG: "contenttype",<content_type>** **+QHTTPCFG: "rspout/auto",<auto_outrsp>** **+QHTTPCFG: "closed/ind",<closedind>** **OK**

Parameter

<contextID>	Numeric type. PDP context ID. The range is 1-16, and the default value is 1.
<request_header>	Numeric type. Disable or enable to customize HTTP(S) request header. 0 Disable 1 Enable
<response_header>	Numeric type. Disable or enable to output HTTP(S) response header. 0 Disable 1 Enable
<sslctxID>	Numeric type. SSL context ID used for HTTP(S). The range is 0-5, and the default value is 1. Customers should configure the SSL parameters by AT+QSSLCFG. For details, please refer to *Quectel_EC2x&EG9x&EM05_SSL_AT_ Commands_Manual*.
<content_type>	Numeric type. Data type of HTTP(S) body. 0 application/x-www-form-urlencoded 1 text/plain 2 application/octet-stream 3 multipart/form-data
<auto_outrsp>	Numeric type. Disable or enable auto output of HTTP(S) response data. If auto output of HTTP(S) response data is enabled, then the execution of AT+QHTTPREAD and AT+QHTTPREADFILE commands will be failed. 0 Disable 1 Enable
<closedind>	Numeric type. Disable or enable report indication of closed HTTP(S) session. 0 Disable 1 Enable
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.

NOTE

AT+QHTTPCFG="rspout/auto"[,<auto_outrsp>] and AT+QHTTPCFG="closed/ind"[,<closedind>] are not supported on EM05 module currently.

2.2. AT+QHTTPURL Set URL of HTTP(S) Server

URL must begin with “http://” or “https://”, which indicates the access to an HTTP or HTTPS server.

AT+QHTTPURL Set URL of HTTP(S) Server	
Test Command **AT+QHTTPURL=?**	Response **+QHTTPURL: (1-2048),(1-65535)** **OK**
Write Command **AT+QHTTPURL=<URL_length>[,<timeout>]**	Response a) If the parameter format is correct, and it is not sending HTTP(S) GET/POST requests: **CONNECT** TA switches to transparent access mode, and the URL can be inputted. When the total size of the inputted data reaches <URL_length>, TA will return to command mode and report the following code: **OK** If the <timeout> has reached, but the received length of URL is less than <URL_length>, TA will return to command mode and report the following code: **+CME ERROR: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Read Command **AT+QHTTPURL?**	Response **[+QHTTPURL: <URL><CR><LF>]** **OK**

Parameter

<URL_length>	Numeric type. The length of URL. The range is 1-2048. Unit: byte.
<timeout>	Numeric type. The maximum time for inputting URL. The range is 1-65535, and the default value is 60. Unit: second.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.

2.3. AT+QHTTPGET Send GET Request to HTTP(S) Server

According to the configured <request_header> parameter in AT+QHTTPCFG="requestheader"[,<request_header>] command, AT+HTTPGET Write Command has two different formats. If <request_header> is set to 1, after AT+QHTTPGET command has been sent, "CONNECT" may be outputted in 125s to indicate that the connection is successful. If it is not outputted during the time, then "+CME ERROR: <err>" will be outputted.

After AT+HTTPGET Write Command has been sent, it is recommended to wait for a specific period of time (refer to the maximum response time below) for "+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]" to be outputted after "OK" is reported.

In "+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]", the <httprspcode> parameter can only be reported when <err> equals 0. If HTTP(S) response header contains "CONTENT-LENGTH" information, then <content_length> information will be reported.

AT+QHTTPGET Send GET Request to HTTP(S) Server	
Test Command **AT+QHTTPGET=?**	Response **+QHTTPGET: (1-65535),(1-2048),(1-65535)** **OK**
If <request_header> equals 0 (disable to customize HTTP(S) request header) Write Command **AT+QHTTPGET[=<rsptime>]**	Response a) If the parameter format is correct and no other errors occur: **OK** When the module has received response from HTTP(S) server, it will report the following URC: **+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
If <request_header> equals 1 (enable to customize HTTP(S) request header) Write Command **AT+QHTTPGET=<rsptime>,<data_length>[,<input_time>]**	Response a) If HTTP(S) server is connected successfully: **CONNECT** TA switches to transparent access mode, and the HTTP(S) GET request header can be inputted. When the total size of the inputted data reaches <data_length>, TA will return to command mode and report the following code: **OK** When the module has received response from HTTP(S) server, it will report the following URC:

	+QHTTPGET: <err>[,<httprspcode>[,<content_length>]] If the <input_time> has reached, but the length of received data is less than <data_length>, TA will return to command mode and report the following code: **+CME ERROR: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Maximum Response Time	Determined by <rsptime>

Parameter

<rsptime>	Numeric type. The range is 1-65535, and the default value is 60. Unit: second. It is used to configure the timeout for the HTTP(S) GET response "+QHTTPGET: <err>[,<httprspcode>,<content_length>]" to be outputted after "OK" is returned.
<data_length>	Numeric type. The length of HTTP(S) request information, including HTTP(S) request header and HTTP(S) request body. The range is 1-2048. Unit: byte.
<input_time>	Numeric type. The maximum time for inputting HTTP(S) request information. The range is 1-65535, and the default value is 60. Unit: second.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.
<httprspcode>	Please refer to ***Chapter 6***.
<request_header>	Please refer to ***Chapter 2.1***.
<content_length>	Numeric type. The length of HTTP(S) response body. Unit: byte.

2.4. AT+QHTTPGETEX Send Range GET Request to HTTP(S) Server

Like read files, MCU can get data from HTTP(S) server with specified position and specified length by AT+HTTPGETEX command, and this command is only executable in the condition of AT+QHTTPCFG="requestheader",0. After that, HTTP(S) server will always respond to Range GET Request with "206" code.

AT+QHTTPGETEX Send Range GET Request to HTTP(S) Server	
Test Command **AT+QHTTPGETEX=?**	Response **+QHTTPGETEX: (1-65535),<start_postion>,<read_len>** **OK**
Write Command **AT+QHTTPGET=<rsptime>,<start_position>,<read_len>**	Response a) If the parameter format is correct and no other errors occur: **OK**

	When the module has received response from HTTP(S) server, it will report the following URC: **+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Maximum Response Time	Determined by <rsptime>

Parameter

<rsptime>	Numeric type. The range is 1-65535, and the default value is 60. Unit: second. It is used to configure the timeout for the HTTP(S) GET response "+QHTTPGET: <err>[,<httprspcode>,<content_length>]" to be outputted after "OK" is returned.
<start_postion >	Numeric type. The start position of the data that the HTTP(S) client wants to GET.
<read_len>	Numeric type. The length of the data that the HTTP(S) client wants to GET.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.
<httprspcode>	Please refer to ***Chapter 6***.
<content_length>	Numeric type. The length of HTTP(S) response body. Unit: byte.

NOTE

AT+QHTTPGETE command is not supported on EM05 module currently.

2.5. AT+QHTTPPOST Send POST Request to HTTP(S) Server via UART/USB

The command is used to send HTTP(S) POST request. According to the configured <request_header> parameter in AT+QHTTPCFG="requestheader"[,<request_header>] command, the AT+QHTTPPOST Write Command has two different formats. If <request_header> is set to 0, post body should be inputted via UART/USB port. If <request_header> is set to 1, then both post header and body should be inputted via UART/USB port.

After AT+QHTTPPOST command has been sent, "CONNECT" may be outputted in 125s to indicate the connection is successful. If it is not received during the time, "+CME ERROR: <err>" will be outputted.

It is recommended to wait for a specific period of time (refer to the maximum response time below) for "+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]" to be outputted after "OK" is reported.

AT+QHTTPPOST Send POST Request to HTTP(S) Server via UART/USB	
Test Command **AT+QHTTPPOST=?**	Response **+QHTTPPOST: (1-1024000),(1-65535),(1-65535)** **OK**
If <request_header> equals 0 (disable to customize HTTP(S) request header) Write Command **AT+QHTTPPOST=<data_length>[,<input_time>,<rsptime>]**	Response a) If the parameter format is correct and HTTP(S) server is connected successfully and HTTP(S) request header is sent completely, it will prompt to input body: **CONNECT** TA switches to transparent access mode, and the HTTP(S) POST body can be inputted. When the total size of the inputted data reaches <data_length>, TA will return to command mode and report the following code: **OK** When the module has received response from HTTP(S) server, it will report the following URC: **+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]** If the <input_time> has reached, but the received length of data is less than <data_length>, TA will return to command mode and report the following code: **+CME ERROR: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
If <request_header> equals 1 (enable to customize HTTP(S) request header) Write Command **AT+QHTTPPOST=<data_length>[,<input_time>,<rsptime>]**	Response a) If the parameter format is correct and HTTP(S) server is connected successfully: **CONNECT** TA switches to the transparent access mode, and the HTTP(S) POST header and body can be inputted. When the total size of the inputted data reaches <data_length>, TA will return to command mode and report the following code: **OK** When the module has received response from HTTP(S) server, it will report the following URC: **+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]**

	If the <input_time> has reached, but the length of received data is less than <data_length>, TA will return to command mode and report the following code: **+CME ERROR: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Maximum Response Time	Determined by network and <rsptime>

Parameter

<data_length>	Numeric type. If <request_header> is 0, it indicates the length of post body, and if <request_header> is 1, it indicates the length of HTTP(S) request information, including HTTP(S) request header and HTTP(S) request body. The range is 1-1024000. Unit: byte.
<input_time>	Numeric type. The maximum time for inputting post body or HTTP(S) request information. The range is 1-65535, and the default value is 60. Unit: second.
<rsptime>	Numeric type. The range is 1-65535, and the default value is 60. Unit: second. It is used to configure the timeout for the HTTP(S) POST response "+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]" to be outputted after "OK" is returned.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.
<httprspcode>	Please refer to ***Chapter 6***.
<request_header>	Please refer to ***Chapter 2.1***.
<content_length>	Numeric type. The length of HTTP(S) response body. Unit: byte.

2.6. AT+QHTTPPOSTFILE Send POST Request to HTTP(S) Server via File

The command can be used to send HTTP(S) POST request via file. According to the <request_header> in AT+QHTTPCFG="requestheader"[,<request_header>] command, the file operated by AT+HTTPPOSTFILE command has two different formats. If <request_header> is set to 0, the file in file system will be post body. If <request_header> is set to 1, the file in file system will be post header and body.

The module will report "+QHTTPPOSTFILE: <err>[,<httprspcode>[,<content_length>]]" information to indicate the executing result of AT+QHTTPPOSFILE command. The <httprspcode> parameter can only be reported when <err> equals 0.

It is recommended to wait for a specific period of time (refer to the maximum response time below) for "+QHTTPPOSTFILE: <err>[,<httprspcode>[,<content_length>]]" to be outputted after "OK" is reported.

AT+QHTTPPOSTFILE Send POST Request to HTTP(S) Server by File	
Test Command **AT+QHTTPPOSTFILE=?**	Response **+QHTTPPOSTFILE: <file_name>,(1-65535)** **OK**
Write Command **AT+QHTTPPOSTFILE=<file_name>[,<rsptime>]** If <request_header> equals 1, the specified file must contain HTTP(S) request header information.	Response a) If parameter format is correct and HTTP(S) server is connected successfully: **OK** When the module has received response from HTTP(S) server, it will report the following URC: **+QHTTPPOSTFILE: <err>[,<httprspcode>,<content_length>]** b) If parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Maximum Response Time	Determined by <rsptime>

Parameter

<file_name>	String type. File name. The max length of file name is 80 bytes.
<rsptime>	Numeric type. The range is 1-65535, and the default value is 60. Unit: second. It is used to configure the timeout for the HTTP(S) POST response "+QHTTPPOSTFILE: <err>[,<httprspcode>,<content_length>]" to be outputted after "OK" is returned.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.
<httprspcode>	Please refer to ***Chapter 6***.
<request_header>	Please refer to ***Chapter 2.1***.
<content_length>	Numeric type. The length of HTTP(S) response body. Unit: byte.

2.7. AT+QHTTPREAD Read Response from HTTP(S) Server via UART/USB

After sending HTTP(S) GET/POST requests, customers can retrieve HTTP(S) response information from HTTP(S) server via UART/USB port by AT+QHTTPREAD command. And "+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]", "+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]" or

"+QHTTPPOSTFILE: <err>[,<httprspcode>,<content_length>]" information must be received before executing AT+QHTTPREAD command.

AT+QHTTPREAD Read Response from HTTP(S) Server via UART/USB	
Test Command **AT+QHTTPREAD=?**	Response **+QHTTPREAD: (1-65535)** **OK**
Write Command **AT+QHTTPREAD[=<wait_time>]**	Response a) If the parameter format is correct and read successfully: **CONNECT** <Output HTTP(S) response information> **OK** **+QHTTPREAD: <err>** If <wait_time> reaches or other errors occur, but body has not been outputted completely, it will report the following code: **+CME ERROR: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**

Parameter

<wait_time>	Numeric type. The maximum interval time between receiving two packets of data. The range is 1-65535, and the default value is 60. Unit: second.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.

2.8. AT+QHTTPREADFILE Read Response from HTTP(S) Server via File

After sending HTTP(S) GET/POST requests, customers can retrieve HTTP(S) response information from HTTP(S) server via file by AT+QHTTPREADFILE. And "+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]", "+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]" or "+QHTTPPOSTFILE: <err>[,<httprspcode>,<content_length>]" information must be received before executing AT+QHTTPREADFILE command.

AT+QHTTPREADFILE Read Response from HTTP(S) Server via File	
Test Command **AT+QHTTPREADFILE=?**	Response **+QHTTPREADFILE: <file_name>,(1-65535)**

	OK
Write Command **AT+QHTTPREADFILE=<file_name>[,<wait_time>]**	Response a) If the parameter format is correct: **OK** When body is read over or <wait_time> reaches, it will report: **+QHTTPREADFILE: <err>** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**

Parameter

<wait_time>	Numeric type. The maximum interval time between receiving two packets of data. The range is 1-65535, and the default value is 60. Unit: second.
<file_name>	String type. File name. The maximum length of the file name is 80 bytes.
<err>	Integer type. The error code of the operation. Please refer to ***Chapter 5***.

2.9. AT+QHTTPSTOP Cancel HTTP(S) Request

MCU can cancel HTTP(S) GET/POST request, and disconnect session with HTTP(S) server via this command.

AT+QHTTPSTOP Cancel HTTP(S) Request	
Test Command **AT+QHTTPSTOP=?**	Response **OK**
Execution Command **AT+QHTTPSTOP**	Response a) If the parameter format is correct and no other errors occur: **OK** b) If the parameter format is incorrect or other errors occur: **+CME ERROR: <err>**
Maximum Response Time	10s

NOTE

AT+QHTTPSTOP command is not supported on EG9x and EM05 modules currently.

3 Examples

3.1. Access to HTTP Server

3.1.1. Send HTTP GET Request and Read the Response

The following examples show how to send HTTP GET request and enable output of HTTP response header, as well as how to read HTTP GET response.

```
//Example of how to send HTTP GET response.
AT+QHTTPCFG="contextid",1              //Configure the PDP context ID as 1.
OK
AT+QHTTPCFG="responseheader",1         //Allow to output HTTP response header.
OK
AT+QIACT?                              //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","","" ,1        //Configure PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                             //Activate context 1.
OK                                     //Activated successfully.
AT+QIACT?                              //Query the state of context.
+QIACT: 1,1,1,"10.7.157.1"

OK
AT+QHTTPURL=23,80                      //Set the URL which will be accessed.
CONNECT
HTTP://www.sina.com.cn/                //Input URL whose length is 23 bytes. (This URL is only an
                                       example. Please input the correct URL in practical test.)
OK
AT+QHTTPGET=80                         //Send HTTP GET request and the maximum response time is
                                       80s.
OK

+QHTTPGET: 0,200,601710                //If HTTP response header contains "CONTENT-LENGTH"
                                       information, then the <content_length> information will be
                                       reported.
```

```
//Example of how to read HTTP response.

//Solution 1: Read HTTP response information and output it via UART port.

AT+QHTTPREAD=80                 //Read HTTP response information and output it via UART. The maximum time to wait for HTTP session to be closed is 80s.
CONNECT
HTTP/1.1 200 OK <CR><LF>        //HTTP response header and body
Server: nginx<CR><LF>
Date: Tue, 12 Sep 2017 05:57:29 GMT<CR><LF>
Content-Type: text/html<CR><LF>
Content-Length: 601710<CR><LF>
Connection: close<CR><LF>
Last-Modified: Tue, 12 Sep 2017 05:54:48 GMT<CR><LF>
Vary: Accept-Encoding<CR><LF>
Expires: Tue, 12 Sep 2017 05:58:28 GMT<CR><LF>
Cache-Control: max-age=60<CR><LF>
X-Powered-By: shci_v1.03<CR><LF>
Age: 1<CR><LF>
……<CR><LF>                     //Lines are omitted here
<CR><LF>
<body>
OK

+QHTTPREAD: 0                   //Read HTTP response header and body successfully.

//Solution 2: Read HTTP response information and store it to RAM file.

AT+QHTTPREADFILE="RAM:1.txt",80 //Read HTTP response header and body and store them to "RAM:1.txt". The maximum time to wait for HTTP session to be closed is 80s.
OK

+QHTTPREADFILE: 0               //HTTP response header and body are stored successfully.
```

3.1.2. Send HTTP POST Request and Read the Response

3.1.2.1. Post Body Obtained from UART/USB

The following examples show how to send HTTP POST request and retrieve post body via UART port, as well as how to read HTTP POST response.

```
AT+QHTTPCFG="contextid",1       //Configure the PDP context ID as 1.
OK
```

```
AT+QIACT?                                   //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","" ,"" ,1            //Configure PDP context 1. APN is “UNINET” for China Unicom.
OK
AT+QIACT=1                                  //Activate context 1.
OK                                          //Activated successfully.
AT+QIACT?                                   //Query the state of context.
+QIACT: 1,1,1,"172.22.86.226"

OK
AT+QHTTPURL=59,80                           //Set the URL which will be accessed.
CONNECT
http://api.efxnow.com/DEMOWebServices2.8/Service.asmx/Echo?   //Input URL whose length is 59 bytes. (This URL is only an example. Please input the correct URL in practical test.)
OK
AT+QHTTPPOST=20,80,80                       //Send HTTP POST request. POST body is obtained via UART. The maximum input body time is 80s and the maximum response time is 80s.
CONNECT
Message=HelloQuectel                        //Input post body whose length is 20 bytes. (The post body is only an example. Please input the correct post body in practical test.)
OK

+QHTTPPOST: 0,200,177                       //If the HTTP response header contains "CONTENT-LENGTH" information, then the <content_length> information will be reported.
AT+QHTTPREAD=80                             //Read HTTP response body and output it via UART. The maximum time to wait for HTTP session to be closed is 80s.
CONNECT
<?xml version="1.0" encoding="utf-8"?>
<string xmlns="httpHTTPs://api.efxnow.com/webservices2.3">Message='HelloQuectel' ASCII:72
101 108 108 111 81 117 101 99 116 101 108 </string>     //Output HTTP response body.
OK

+QHTTPREAD: 0                               //HTTP response body is outputted successfully.
```

3.1.2.2. Post Body Obtained from File System

The following examples show how to send HTTP POST request and retrieve post body via file system, as well as how to store HTTP POST response to file system.

```
AT+QHTTPCFG="contextid",1          //Configure the PDP context ID as 1.
OK
AT+QIACT?                          //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","" ,"" ,1   //Configure PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                         //Activate context 1.
OK                                 //Activated successfully.
AT+QIACT?                          //Query the state of context.
+QIACT: 1,1,1,"172.22.86.226"

OK
AT+QHTTPURL=59,80                  //Set the URL which will be accessed.
CONNECT
http://api.efxnow.com/DEMOWebServices2.8/Service.asmx/Echo?   //Input URL whose length is 59 bytes. (This URL is only an example. Please input the correct URL in practical test.)
OK

//POST request information from RAM file, and read HTTP response information and store it to RAM file.
AT+QHTTPPOSTFILE="RAM:2.txt",80    //Send HTTP POST request. POST body is obtained from "RAM:2.txt", and the maximum response time is 80s.
OK

+QHTTPPOSTFILE: 0,200,177          //After HTTP POST request is sent successfully, AT+QHTTPREAD command can be executed.
AT+QHTTPREADFILE="RAM:3.txt",80    //Read HTTP response body and store it to "RAM:3.txt". The maximum time to wait for HTTP session to be closed is 80s.
OK

+QHTTPREADFILE: 0                  //HTTP response body is stored successfully.
```

3.2. Access to HTTPS Server

3.2.1. Send HTTPS GET Request and Read the Response

The following examples show how to send HTTPS GET request and enable output of HTTPS response header, as well as how to read HTTPS GET response.

```
//Example of how to send HTTPS GET request.
AT+QHTTPCFG="contextid",1          //Configure the PDP context ID as 1.
```

```
OK
AT+QHTTPCFG="responseheader",1      //Allow to output HTTPS response header.
OK
AT+QIACT?                           //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","" ,"" ,1    //Configure PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                          //Activate context 1.
OK                                  //Activated successfully.
AT+QIACT?                           //Query the state of context.
+QIACT: 1,1,1,"10.7.157.1"

OK
AT+QHTTPCFG="sslctxid",1            //Set SSL context ID.
OK
AT+QSSLCFG="sslversion",1,1         //Set SSL version as 1 which means TLSV1.0.
OK
AT+QSSLCFG="ciphersuite",1,0x0005   //Set SSL cipher suite as 0x0005 which means RC4-SHA.
OK
AT+QSSLCFG="seclevel",1,0           //Set SSL verify level as 0 which means CA certificate is not
                                      needed.
OK
AT+QHTTPURL=22,80                   //Set the URL which will be accessed.
CONNECT
https://www.alipay.com              //Input URL whose length is 19 bytes. (This URL is only an
                                      example. Please input the correct URL in practical test.)
OK
AT+QHTTPGET=80                      //Send HTTPS GET request and the maximum response time
                                      is 80s.
OK

+QHTTPGET: 0,200,21472              //If the HTTPS response header contains "CONTENT-LENGTH"
                                      information, then the <content_length> information will be
                                      reported.

//Example of how to read HTTPS response.

//Solution 1: Read HTTPS response information and output it via UART.

AT+QHTTPREAD=80                     //Read HTTPS response information and output it via UART.
                                      The maximum time to wait for HTTPS session to be closed is
                                      80s.
CONNECT                             //HTTPS response header and body.
HTTP/1.1 200 OK<CR><LF>
Server: Tengine/2.1.0<CR><LF>
```

```
Date: Tue, 12 Sep 2017 05:54:34 GMT <CR><LF>
Content-Type: text/html; charset=utf-8<CR><LF>
Content-Length: 21451<CR><LF>
Connection: keep-alive <CR><LF>
…… <CR><LF>                                  //Lines are omitted here
<CR><LF>
<body>
OK

+QHTTPREAD: 0                                //Read HTTPS response header and body successfully.

//Solution 2: Read HTTPS response information and store it to RAM file.
AT+QHTTPREADFILE="RAM:4.txt",80               //Read HTTPS response header and body and store them to "RAM:4.txt". The maximum time to wait for HTTPS session to be closed is 80s.
OK

+QHTTPREADFILE: 0                            //HTTPS response header and body are stored successfully.
```

3.2.2. Send HTTPS POST Request and Read the Response

3.2.2.1. Post Body Obtained from UART/USB

The following examples show how to send HTTPS POST request and retrieve post body via UART port, as well as how to read HTTPS POST response.

```
AT+QHTTPCFG="contextid",1                    //Configure the PDP context ID as 1.
OK
AT+QIACT?                                    //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","" ,"" ,1             //Configure PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                                   //Activate context 1.
OK                                           //Activated successfully.
AT+QIACT?                                    //Query the state of context.
+QIACT: 1,1,1,"172.22.86.226"

OK
AT+QHTTPCFG="sslctxid",1                     //Set SSL context ID.
OK
AT+QSSLCFG="sslversion",1,1                  //Set SSL version as 1 which means TLsV1.0.
OK
AT+QSSLCFG="ciphersuite",1,0x0005 //Set SSL cipher suite as 0x0005 which means RC4-SHA.
```

```
OK
AT+QSSLCFG="seclevel",1,2          //Set SSL verify level as 2 which means CA certificate, client certificate and client private key should be uploaded by AT+QFUPL command.
OK
AT+QSSLCFG="cacert",1,"RAM:cacert.pem"
OK
AT+QSSLCFG="clientcert",1,"RAM:clientcert.pem"
OK
AT+QSSLCFG="clientkey",1,"RAM:clientkey.pem"
OK
AT+QHTTPURL=45,80                  //Set the URL which will be accessed.
CONNECT
HTTPs://220.180.239.212:8011/processorder.php    //Input URL whose length is 45 bytes. (This URL is only an example. Please input the correct URL in practical test.)
OK
AT+QHTTPPOST=48,80,80              //Send HTTPS POST request. POST body is obtained from UART. The maximum input body time is 80s and the maximum response time is 80s.
CONNECT
Message=1111&Appleqty=2222&Orangeqty=3333&find=1    //Input post body whose length is 48 bytes. (This post body is only an example. Please input the correct one in practical test.)
OK

+QHTTPPOST: 0,200,285              //If the HTTPS response header contains "CONTENT-LENGTH" information, then the <content_length> information will be reported.
AT+QHTTPREAD=80                    //Read HTTPS response body and output it via UART. The maximum time to wait for HTTPS session to be closed is 80s.
CONNECT                            //Read HTTPS response body successfully.
<html>
<head>
<title>Quectel's Auto Parts - Order Results</title>
</head>
<body>
<h1>Quectel's Auto Parts</h1>
<h2>Order Results</h2>

<p>Order processed at 02:49, 27th December</p><p>Your order is as follows: </p>1111
message<br />2222    apple<br />3333 orange<br /></body>
</html>
```

```
OK

+QHTTPREAD: 0                    //HTTPS response body is outputted successfully.
```

3.2.2.2. Post Body Obtained from File System

The following examples show how to send HTTPS POST request and retrieve post body from file system, as well as how to store HTTPS POST response to file system.

```
AT+QHTTPCFG="contextid",1          //Configure the PDP context ID as 1.
OK
AT+QIACT?                          //Query the state of context.
OK
AT+QICSGP=1,1,"UNINET","" ,"" ,1   //Configure PDP context 1. APN is "UNINET" for China Unicom.
OK
AT+QIACT=1                         //Activate context 1.
OK                                 //Activated successfully.
AT+QIACT?                          //Query the state of context.
+QIACT: 1,1,1,"172.22.86.226"

OK
AT+QHTTPCFG="sslctxid",1           //Set SSL context ID.
OK
AT+QSSLCFG="sslversion",1,1        //Set SSL version as 1 which means TLsV1.0.
OK
AT+QSSLCFG="ciphersuite",1,0x0005  //Set SSL cipher suite as 0x0005 which means RC4-SHA.
OK
AT+QSSLCFG="seclevel",1,2          //Set SSL verify level as 2 which means CA certificate, client
                                   certificate and client private key should be uploaded by
                                   AT+QFUPL command.
OK
AT+QSSLCFG="cacert",1,"RAM:cacert.pem"
OK
AT+QSSLCFG="clientcert",1,"RAM:clientcert.pem"
OK
AT+QSSLCFG="clientkey",1,"RAM:clientkey.pem"
OK
AT+QHTTPURL=45,80                  //Set the URL which will be accessed.
CONNECT
https:// 220.180.239.212:8011/processorder.php   //Input URL whose length is 45 bytes. (This URL is
                                                   only an example. Please input the correct URL in
                                                   practical test.)
```

OK

//POST request information from RAM file, and read HTTPS response information and store it to RAM file.

AT+QHTTPPOSTFILE="RAM:5.txt",80 //Send HTTPS POST request. POST body is obtained from "*RAM:5.txt*", and the maximum response time is 80s.

OK

+QHTTPPOSTFILE: 0,200,177 //After HTTPS POST request is sent successfully, AT+QHTTPREAD command can be executed.

AT+QHTTPREADFILE="RAM:6.txt",80 //Read HTTPS response body and store it to "*RAM:6.txt*". The maximum time to wait for HTTPS session to be closed is 80s.

OK

+QHTTPREADFILE: 0 //HTTPS response body is stored successfully.

4 Error Handling

4.1. Executing HTTP(S) AT Commands Fails

When executing HTTP(S) AT commands, if "ERROR" response is received from the module, please check whether the (U)SIM card is inserted and whether it is "+CPIN: READY" returned when executing AT+CPIN?.

4.2. PDP Activation Fails

If it is failed to active a PDP context by AT+QIACT command, please check the following configurations:

1. Query whether the PS domain is attached or not by AT+CGATT? command. If not, please execute AT+CGATT=1 command to attach the PS domain.
2. Query the PS domain status by AT+CGREG? command and make sure the PS domain has been registered.
3. Query the PDP context parameters by AT+QICSGP command and make sure the APN of specified PDP context has been set.
4. Make sure the specified PDP context ID is neither used by PPP nor activated by AT+CGACT command.
5 According to 3GPP specifications, the module only supports three PDP contexts activated simultaneously, so customers must make sure the number of activated PDP contexts is less than 3.

If all above configurations are correct, but activating the PDP context by AT+QIACT command still fails, please reboot the module to resolve this issue. After rebooting the module, please check the configurations mentioned above for at least three times and each time at an interval of 10 minutes to avoid frequently rebooting the module.

4.3. DNS Parse Fails

When executing AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPPOSTFILE commands, if "+CME ERROR: 714" (714: HTTP(S) DNS error) is returned, please check the following aspects:

1. Make sure the domain name of HTTP(S) server is valid.
2. Query the status of the PDP context by AT+QIACT? command to make sure the specified PDP context has been activated successfully.
3. Query the address of DNS server by AT+QIDNSCFG command to make sure the address of DNS server is not "0.0.0.0".

If the DNS server address is "0.0.0.0", there are two solutions:

1. Reassign a valid DNS server address by AT+QIDNSCFG command.
2. Deactivate the PDP context by AT+QIDEACT command, and re-activate the PDP context via AT+QIACT command.

4.4. Entering Data Mode Fails

When executing AT+QHTTPURL, AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPREAD commands, if "+CME ERROR: 704" (704: HTTP(S) UART busy) is returned, please check whether there are other ports in data mode, since the module only supports one port in data mode at a time. If any, please re-execute these commands after other ports have exited from data mode.

4.5. Sending GET/POST Requests Fails

When executing AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPPOSTFILE commands, if a failed result is received, please check the following configurations:

1. Make sure the URL inputted via AT+HTTPURL command is valid and can be accessed.
2. Make sure the specified server supports GET/POST commands.
3. Make sure the PDP context has been activated successfully.

If all above configurations are correct, but sending GET/POST requests by AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPPOSTFILE commands still fails, please deactivate the PDP context by AT+QIDEACT and re-activate the PDP context by AT+QIACT to resolve this issue. If activating the PDP context fails, please refer to ***Chapter 4.2*** to resolve it.

4.6. Reading Response Fails

Before reading response by AT+QHTTPREAD and AT+QHTTPREADFILE commands, customers should execute AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPPOSTFILE commands and the following URC information will be reported:

"+QHTTPGET: <err>[,<httprspcode>[,<content_length>]]"/
"+QHTTPPOST: <err>[,<httprspcode>[,<content_length>]]"/
"+QHTTPPOSTFILE: <err>[,<httprspcode>,<content_length>]"

During executing AT+QHTTTPREAD and AT+QHTTPREADFILE commands, if customers encounter some errors, such as: "+CME ERROR: 717" (717: HTTP(S) socket read error), please resend HTTP(S) GET/POST requests to HTTP(S) server by AT+QHTTPGET, AT+QHTTPPOST and AT+QHTTPPOSTFILE commands. If sending GET/POST requests to HTTP(S) server fails, please refer to ***Chapter 4.5*** to resolve it.

5 Summary of ERROR Codes

The error code <err> indicates an error related to mobile equipment or network. The details about <err> are described in the following table.

Table 1: Summary of Error Codes

<err>	Meaning
0	Operation successful
701	HTTP(S) unknown error
702	HTTP(S) timeout
703	HTTP(S) busy
704	HTTP(S) UART busy
705	HTTP(S) no GET/POST requests
706	HTTP(S) network busy
707	HTTP(S) network open failed
708	HTTP(S) network no configuration
709	HTTP(S) network deactivated
710	HTTP(S) network error
711	HTTP(S) URL error
712	HTTP(S) empty URL
713	HTTP(S) IP address error
714	HTTP(S) DNS error
715	HTTP(S) socket create error
716	HTTP(S) socket connect error
717	HTTP(S) socket read error

718	HTTP(S) socket write error
719	HTTP(S) socket closed
720	HTTP(S) data encode error
721	HTTP(S) data decode error
722	HTTP(S) read timeout
723	HTTP(S) response failed
724	Incoming call busy
725	Voice call busy
726	Input timeout
727	Wait data timeout
728	Wait HTTP(S) response timeout
729	Memory allocation failed
730	Invalid parameter

6 Summary of HTTP(S) Response Codes

<httprspcode> indicates the response codes from HTTP(S) server. The details about <httprspcode> are described in the following table.

Table 2: Summary of HTTP(S) Response Codes

<httprspcode>	Meaning
200	OK
403	Forbidden
404	Not found
409	Conflict
411	Length required
500	Internal server error

7 Appendix A References

Table 3: Related Documents

SN	Document Name	Remark
[1]	RFC2616	Hyper Text Transport Protocol
[2]	Quectel_EC2x&EG9x&EM05_TCP(IP)_AT_Commands_Manual	Introduction about EC2x&EG9x&EM05 TCP/IP AT commands
[3]	Quectel_EC2x&EG9x&EM05_FILE_Application_Note	EC2x&EG9x&EM05 FILE application note
[4]	Quectel_EC25&EC21_AT_Commands_Manual	EC25&EC21 AT commands manual
[5]	Quectel_EG9x_AT_Commands_Manual	EG9x AT commands manual
[6]	Quectel_EM05_AT_Commands_Manual	EM05 AT commands manual
[7]	Quectel_EC2x&EG9x&EM05_SSL_AT_Commands_Manual	Introduction about EC2x&EG9x&EM05 SSL AT commands

Table 4: Terms and Abbreviations

Abbreviation	Description
DNS	Domain Name Server
DTR	Data Terminal Ready
HTTP(S)	Hyper Text Transport Protocol (Secure)
PPP	Point-to-Point Protocol
SSL	Security Socket Layer
URI	Uniform Resource Identifier
URL	Uniform Resource Locator