SIM7028 Series_ HTTP(S)_Application Note

LPWA Module

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About Document

Version History

Version	Date	Chapter	Description
V1.00	2022.5.12	All	New version
V1.01	2022.05.31	All	Update file
V1.02	2022.07.06	All	Update some description
V1.03	2022.10.24	All	Add the details
V1.04	2022.12.28	4.2 AT+CSSLCFG	Add the details

Scope

This document applies to the following products

Name	Type	Size(mm)	Comments
SIM7028	NB2	17.6*15.7	Band 1/2/3/4/5/8/12/13/14/17/18/19/20/25/26/28/66/70/85

Contents

1 Introduction

1.1 Purpose of the document

Based on module AT command manual, this document will introduce HTTP(S) application process on SIM7028 series of module,developers could understand and develop application quickly and efficiently based on this document.

1.2 Related documents

[1] SIM7028 Series_AT Command Manual

1.3 Conventions and abbreviations

In this document, the GSM engines are referred to as following term:
ME (Mobile Equipment);
MS (Mobile Station);
TA (Terminal Adapter);
DCE (Data Communication Equipment) or facsimile DCE (FAX modem, FAX board);

In application, controlling device controls the GSM engine by sending AT Command via its serial interface.
The controlling device at the other end of the serial line is referred to as following term:
TE (Terminal Equipment);
DTE (Data Terminal Equipment) or plainly "the application" which is running on an embedded system;

Other Conventions:
PDP(Packet Data Protocol);
SSL(Secure Sockets Layer);
TLS(Transport Layer Security);

1.4   AT Command syntax

The "AT" or "at" or "aT" or "At" prefix must be set at the beginning of each Command line. To terminate a Command line enter **<CR>**.

Commands are usually followed by a response that includes. **"<CR><LF><response><CR><LF>"**

Throughout this document, only the responses are presented,**<CR><LF>** are omitted intentionally.

1.4.1 Basic syntax

These AT commands have the format of "**AT<x><n>**", or "**AT&<x><n>**", where "**<x>**"is the Command, and "**<n>**"is/are the argument(s) for that Command. An example of this is "**ATE<n>**", which tells the DCE whether received characters should be echoed back to the DTE according to the value of "**<n>**". "**<n>**" is optional and a default will be used if missing.

1.4.2 S Parameter syntax

These AT commands have the format of "**ATS<n>=<m>**", where "**<n>**" is the index of the **S** register to set, and *"<m>"*is the value to assign to it. "**<m>**" is optional; if it is missing, then a default value is assigned.

1.4.3 Extended Syntax

These commands can operate in several modes, as in the following table:

Table 1: Types of AT commands and responses	
Test Command AT+<x>=?	The mobile equipment returns the list of parameters and value ranges set with the corresponding Write Command or by internal processes.
Read Command AT+<x>?	This command returns the currently set value of the parameter or parameters.
Write Command AT+<x>=<…>	This command sets the user-definable parameter values.

Execution Command **AT+<x>**	The execution command reads non-variable parameters affected by internal processes in the GSM engine.

1.4.4 Combining AT commands on the same Command line

You can enter several AT commands on the same line. In this case, you do not need to type the "**AT**" or "**at**" prefix before every command. Instead, you only need type "**AT**" or "**at**" the beginning of the command line. Please note to use a semicolon as the command delimiter after an extended command; in basic syntax or S parameter syntax, the semicolon need not enter, for example: ATE1Q0S0=1S3=13V1X4;+IFC=0,0;+IPR=115200.

The Command line buffer can accept a maximum of 559 characters(counted from the first command without "AT" or "at" prefix) or 39 AT commands. If the characters entered exceeded this number then none of the Command will executed and TA will return "**ERROR**".

1.4.5 Entering successive AT commands on separate lines
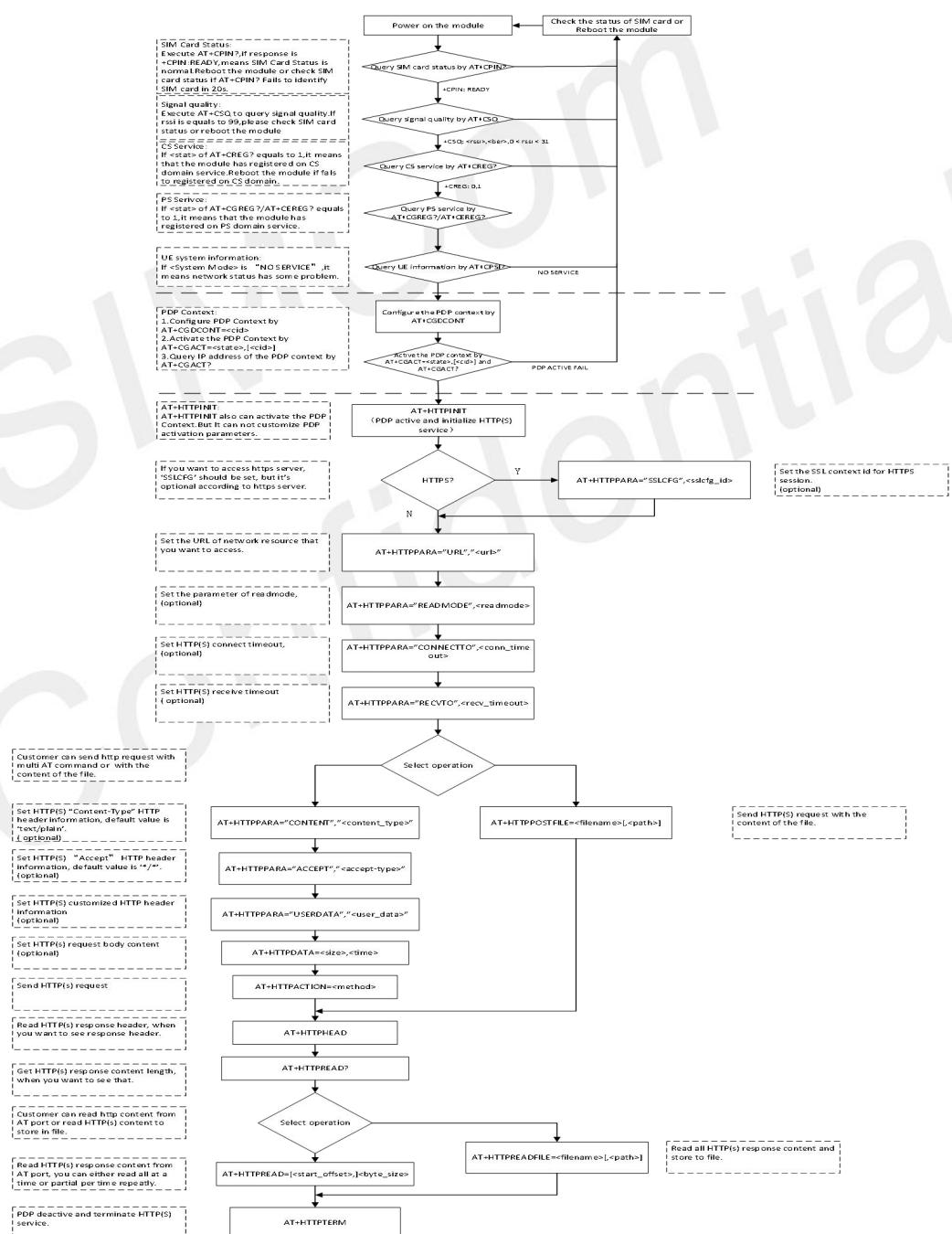
When you need to enter a series of AT commands on separate lines, please Note that you need to wait the final response (for example OK, CME error, CMS error) of last AT Command you entered before you enter the next AT Command.

1.5   AT Command definitions

- ● <CR>   Carriage return character
- ● <LF>   Line feed character
- ● <..>   Parameter name. Angle brackets do not appear on command line
- ● [..]   Option parameter. Square brackets do not appear on the command line.

2 HTTP(S) Introduction

2.1 The process of Using HTTP(S) AT Commands

2.2　Error Handling

2.2.1　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?.

2.2.2　PDP Activation Fails

If it is failed to activate a PDP context with AT+CGACT command, please check the following configurations:

1. Query the PS domain status by AT+CGREG? and make sure the PS domain has been registered.
2. Query the PDP context parameters by AT+CGDCONT? and make sure the APN of the specified PDP context has been set.
3. Make sure the specified PDP context ID is neither used by PPP nor activated by AT+CGACT command.

If all above configurations are correct, but activating the PDP context by AT+CGACT command still fails, please reboot the module to resolve this issue. After rebooting the module, please check the configurations mentioned above for at least.

2.2.3　Error Response of HTTP(S) Server

When the < errcode > of +HTTPACTION: <method>,<errcode>,<datalen> or +HTTPPOSTFILE: <errcode>,<datalen> is not 200, it indicates an error code replied from HTTP(S) server.

For example, if < errcode > is 404, the URL can't be found. If < errcode > is 301, the URL is redirect, please refer to SIM7028 Series_AT Command Manual.

3 AT Commands for HTTP(S)

3.1   Overview

Command	Description
AT+HTTPINIT	Start HTTP service
AT+HTTPTERM	Stop HTTP Service
AT+HTTPPARA	Set HTTP Parameters value
AT+HTTPACTION	HTTP Method Action
AT+HTTPHEAD	Read the HTTP Header Information of Server Respons
AT+HTTPREAD	Read the response information of HTTP Server
AT+HTTPDATA	Input HTTP Data

3.2   Detailed Description of AT Commands for HTTP(S)

3.2.1 AT+HTTPINIT   Start HTTP Service

AT+HTTPINIT is used to start HTTP service by activating PDP context. You must execute AT+HTTPINIT before any other HTTP related operations.

AT+HTTPINIT Start HTTP Service	
Test Command **AT+HTTPINIT=?**	Response **OK**
Execute Command **AT+HTTPINIT**	Response 1)If start HTTP service successfully: **OK** 2)If failed: **ERROR**
Parameter Saving Mode	-
Max Response Time	120000ms

Reference	-

Examples

3.2.2 AT+HTTPTERM Stop HTTP Service

AT+HTTPTERM is used to stop HTTP service.

AT+HTTPTERM Stop HTTP Service	
Test Command **AT+HTTPTERM=?**	Response **OK**
Execute Command **AT+HTTPTERM**	Response 1)If stop HTTP service successfully: **OK** 2)If failed: **ERROR**
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Examples

3.2.3 AT+HTTPPARA Set HTTP Parameters value

AT+HTTPPARA is used to set HTTP parameters value. When you want to access to a HTTP server, you should input <value> like http://'server':'tcpPort'/'path'. In addition, https://'server':'tcpPort'/'path' is used to access to a HTTPS server.

AT+HTTPPARA Set HTTP Parameters value	
Test Command	Response

AT+HTTPPARA=?	**OK**
Write Command **AT+HTTPPARA="URL",<url>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="CONNECTTO" ,<conn_timeout>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="RECVTO",<re cv_timeout>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="CONTENT",<c ontent_type>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="ACCEPT",<ac cept-type>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="SSLCFG",<ssl cfg_id>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="USERDATA",< user_data>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Write Command **AT+HTTPPARA="READMODE", <readmode>**	Response 1)If parameter format is right: **OK** 2)If parameter format is not right or other errors occur: **ERROR**
Parameter Saving Mode	-

Max Response Time	120000ms
Reference	-

Defined Values

\<url>	URL of network resource.String,start with "http://" or"https://" a)http://'server':'tcpPort'/'path'. b)https://'server':'tcpPort'/'path' "server"　DNS domain name or IP address "path"　path to a file or directory of a server "tcpPort"　http default value is 80,https default value is 443.(can be omitted)
\<conn_timeout>	Timeout for accessing server, Numeric type, range is 20-120s, default is 120s.
\<recv_timeout>	Timeout for receiving data from server, Numeric type range is 2s-120s, default is 20s.
\<content_type>	This is for HTTP "Content-Type" tag, String type, max length is 256, and default is "text/plain".
\<accept-type>	This is for HTTP "Accept-type" tag, String type, max length is 256, and default is "*/*".
\<sslcfg_id>	This is setting SSL context id, Numeric type, range is 0-1. Default is 0.
\<user_data>	The customized HTTP header information. String type, max length is 256.
\<readmode>	For HTTPREAD, Numeric type, it can be set to 0 or 1. If set to 1, you can read the response content data from the same position repeatly. The limit is that the size of HTTP server response content should be shorter than 1M.Default is 0.

Examples

AT+HTTPPARA="URL","http://www.baidu.com"
OK

3.2.4 AT+HTTPACTION   HTTP Method Action

AT+HTTPACTION is used to perform a HTTP Method. You can use HTTPACTION to send a get/post request to a HTTP/HTTPS server.

AT+HTTPACTION HTTP Method Action	
Test Command	Response

AT+HTTPACTION=?	+HTTPACTION: (0-4)
	OK
Write Command **AT+HTTPACTION=\<method\>**	Response 1)If parameter format is right: **OK** **+HTTPACTION: \<method\>,\<statuscode\>,\<datalen\>** 2)If parameter format is right but server connected unsuccessfully: **OK** **+HTTPACTION: \<method\>,\<errcode\>,\<datalen\>** 3)If parameter format is not right or other errors occur: **ERROR**
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

\<method\>	HTTP method specification: 0 GET 1 POST 2 HEAD 3 DELETE 4 PUT
\<statuscode\>	Please refer to the end of this chapter
\<datalen\>	The length of data received

Examples

AT+HTTPACTION=?
+HTTPACTION: (0-4)

OK
AT+HTTPACTION=0
OK

+HTTPACTION: 0,200,104220

3.2.5 AT+HTTPHEAD Read the HTTP Header Information of Server Response

AT+HTTPHEAD is used to read the HTTP header information of server response when module receives the response data from server.

AT+HTTPHEAD Read the HTTP Header Information of Server Response	
Test Command **AT+HTTPHEAD=?**	Response **OK**
Execute Command **AT+HTTPHEAD**	Response 1)If read the header information successfully: **+HTTPHEAD: <data_len>** **<data>** **OK** 2)If read failed: **ERROR**
Parameter Saving Mode	-
Max Response Time	120000ms
Reference	-

Defined Values

<dat_len>	The length of HTTP header
<data>	The header information of HTTP response

Examples

AT+HTTPHEAD
+HTTPHEAD: 653
HTTP/1.1 200 OK
Content-Type: text/html
Connection: keep-alive
X-Cache: MISS from PDcache-04:opinion.people.com.cn
Date: Tue, 24 Mar 2020 03:12:09 GMT
Powered-By-ChinaCache: HIT from CNC-WB-b-D24
Powered-By-ChinaCache: HIT from CNC-WV-b-D1C
ETag: W/"5b7379f5-57e9"
x-cc-via: CNC-WB-b-D24[H,1], CNC-WV-b-D1C[H,62]
d-cc-upstream: CNC-WV-b-D1C
CACHE: TCP_HIT
Vary: Accept-Encoding
Last-Modified: Wed, 15 Aug 2018 00:55:17 GMT

Expires: Tue, 24 Mar 2020 03:17:09 GMT

x-cc-req-id: f4b9e1793697d1ef2950f530aeec4519

Content-Length: 22505

Age: 0

Accept-Ranges: bytes

Server: nginx

X-Frame-Options: ALLOW-FROM .*

CC_CACHE: TCP_REFRESH_HIT

OK

3.2.6 AT+HTTPREAD   Read the response information of HTTP Server

After sending HTTP(S)GET/POST requests, you can retrieve HTTP(S)response information from HTTP(S)server via UART/USB port by AT+HTTPREAD. When the <datalen> of "+HTTPACTION: <method>,<statuscode>,<datalen>" is not equal to 0, You can execute AT+HTTPREAD=<start_offset>,<byte_size> to read out data to port. If parameter <byte_size> is set greater than the size of data saved in buffer, all data in cache will output to port.

AT+HTTPREAD Read the response information of HTTP Server	
Test Command **AT+HTTPREAD=?**	Response **OK**
Read Command **AT+HTTPREAD?**	Response 1)If check successfully: **+HTTPREAD: LEN,<len>** **OK** 2)If failed (no more data other error): **ERROR**
Write Command **AT+HTTPREAD=[<start_offset>,]<byte_size>**	Response 1)If read the response info successfully： **OK** **+HTTPREAD: <data_len>** **<data>** **+HTTPREAD: 0** If <byte_size> is bigger than the data size received, module will only return actual data size. 2)If read failed: **ERROR**
Parameter Saving Mode	-
Max Response Time	120000ms

Reference	-

Defined Values

<start_offset>	The start position of reading
<byte_size>	The length of data to read
<datalen>	The actual length of read data
<data>	Response content from HTTP server
<len>	Total size of data saved in buffer.

Examples

AT+HTTPREAD?
+HTTPREAD: LEN,22505

OK
AT+HTTPREAD=0,500
OK

+HTTPREAD: 500
\0\0\0\0\0\0\0\0\0\0\0\0\0<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN"
"http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">
<html xmlns="http://www.w3.org/1999/xhtml">
<head>
<meta http-equiv="content-type" content="text/html;charset=GB2312"/>
<meta http-equiv="Content-Language" content="utf-8" />
<meta content="all" name="robots" />
<title>人民日报钟声:牢记历史是为了更好开创未来--观点--人民网 </title>
<meta name="keywords" content="" />
<meta name="description" content="   日方应在正确对待历史?
+HTTPREAD: 0

> **NOTE**
>
> The response content received from server will be saved in cache, and would not be cleaned up by AT+HTTPREAD.
>
> Due to the max size of protocol stack is 10K bytes, when the total size of the data from server is bigger than that and 'READMODE' is 0, you should read the data quickly, or you will fail to read it.

3.2.7 AT+HTTPDATA Input HTTP Data

You can use AT+HTTPDATA to input data to post when you send a HTTP/HTTPS POST request.

AT+HTTPDATA Input HTTP Data	
Test Command **AT+HTTPDATA=?**	Response **OK**
Write Command **AT+HTTPDATA=\<size>,\<time>**	Response 1)if parameter format is right: **DOWNLOAD** **\<input data here>** When the total size of the inputted data reaches \<size>, TA will report the following code. Otherwise, the serial port will be blocked. **OK** 2)If parameter format is wrong or other errors occur: **ERROR**
Parameter Saving Mode	
Max Response Time	
Reference	

Defined Values

\<size>	Size in bytes of the data to post. range is 1- 10240 (bytes)
\<time>	Maximum time in seconds to input data.range is 10-65535

Examples

AT+HTTPDATA=18,1000
DOWNLOAD
Message=helloworld
OK

3.3 Command Result Codes

3.3.1 Description of <statuscode>

<statuscode>	Description
100	Continue
101	Switching Protocols
200	OK
201	Created
202	Accepted
203	Non-Authoritative Information
204	No Content
205	Reset Content
206	Partial Content
300	Multiple Choices
301	Moved Permanently
302	Found
303	See Other
304	Not Modified
305	Use Proxy
307	Temporary Redirect
400	Bad Request
401	Unauthorized
402	Payment Required
403	Forbidden
404	Not Found
405	Method Not Allowed
406	Not Acceptable
407	Proxy Authentication Required
408	Request Timeout
409	Conflict
410	Gone
411	Length Required
412	Precondition Failed
413	Request Entity Too Large
414	Request-URI Too Large
415	Unsupported Media Type
416	Requested range not satisfiable
417	Expectation Failed
500	Internal Server Error
501	Not Implemented
502	Bad Gateway

503	Service Unavailable
504	Gateway timeout
505	HTTP Version not supported
600	Not HTTP PDU
601	Network Error
602	No memory
603	DNS Error
604	Stack Busy

3.3.2 Description of <errcode>

<errcode>	Meaning
0	Success
701	Alert state
702	Unknown error
703	Busy
704	Connection closed error
705	Timeout
706	Receive/send socket data failed
707	File not exists or other memory error
708	Invalid parameter
709	Network error
710	start a new ssl session failed
711	Wrong state
712	Failed to create socket
713	Get DNS failed
714	Connect socket failed
715	Handshake failed
716	Close socket failed
717	No network error
718	Send data timeout
719	CA missed

3.4 Unsolicited Result Codes

URC	Description

+HTTP_PEER_CLOSED	It's a notification message. While received, it means the connection has been closed by server.
+HTTP_NONET_EVENT	It's a notification message. While received, it means now the network is unavailable.

4 HTTP(S) Examples

Before all HTTP(S) related operations, we should ensure the following condition.

AT+CSQ **+CSQ: 23,0** **OK**	
AT+CGREG? **+CGREG: 0,1** **OK**	Need to check network registeration state until get 1(home register) or 5(roaming register)
AT+CGDCONT=1,"IP","apn" **OK**	Customer need to set IP type(IP or IPV6) and correct apn name

4.1   Access to HTTP server

HTTP GET Request Example

AT+HTTPINIT **OK**	//Start HTTP service, activate PDP context
AT+HTTPPARA="URL","http://opinion.people.com.cn/GB/n1/2018/0815/c1003-30228758.html" **OK**	//Set the URL which will be accessed, for HTTP, the request URL begins with "HTTP://"
AT+HTTPACTION=0 **OK**	//Send HTTP GET request 22505 is the length of HTTP response information
+HTTPACTION: 0,200,22505	
AT+HTTPHEAD **+HTTPHEAD: 387**	//Read the HTTP response header //387 is the length of response header
HTTP/1.1 200 OK **Server: nginx** **Content-Type: text/html** **Connection: close** **Date: Thu, 16 Aug 2018 05:13:36 GMT** **Powered-By-ChinaCache: MISS from**	

06053423gG.15

ETag: W/"5b7379f5-57e9"

Last-Modified: Wed, 15 Aug 2018 00:55:17 GMT

Expires: Thu, 16 Aug 2018 05:18:36 GMT

Vary: Accept-Encoding

X-Cache-Hits: 14

Content-Length: 22505

CC_CACHE: TCP_REFRESH_HIT   //Content-Length indicates the length of HTTP

Accept-Ranges: bytes   response information is 22505 bytes

OK
                                             //Read the response information of HTTP server,
                                             the length to read is 500 bytes

AT+HTTPREAD=0,500

OK

+HTTPREAD: 500

<!DOCTYPE html PUBLIC "-//W3C//DTD XHTML 1.0 Transitional//EN" "http://www.w3.org/TR/xhtml1/DTD/xhtml1-transitional.dtd">

<html xmlns="http://www.w3.org/1999/xhtml">

<head>

<meta http-equiv="content-type" content="text/html;charset=GB2312"/>

<meta http-equiv="Content-Language" content="utf-8" />

<meta content="all" name="robots" />

<title>人民日报钟声：牢记历史是为了更好开创未来--观点--人民网 </title>

<meta name="keywords" content="" />

<meta name="description" content="   日方应在正确对待历史?

+HTTPREAD: 0

AT+HTTPTERM   //Stop HTTP Service

OK

HTTP POST Request Example

AT+HTTPINIT   //Start HTTP service, activate PDP context

OK

AT+HTTPPARA="URL","http://api.efxnow.com/   //Set the URL which will be accessed, for HTTP,

DEMOWebServices2.8/Service.asmx/Echo?"   the request URL begins with "HTTP://"

OK

AT+HTTPDATA=18,1000	//Send data to post, the length is 18 bytes
DOWNLOAD	
Message=helloworld	
OK	
AT+HTTPACTION=1	//Send HTTP POST request
OK	
+HTTPACTION: 1,500,30	
AT+HTTPHEAD	
+HTTPHEAD: 258	
HTTP/1.1 500 Internal Server Error	
Cache-Control: private	
Content-Type: text/plain; charset=utf-8	
Server: Microsoft-IIS/7.0	
X-AspNet-Version: 2.0.50727	
X-Powered-By: ASP.NET	
Date: Mon, 20 Aug 2018 04:18:58 GMT	
Connection: close	
Content-Length: 30	
OK	
AT+HTTPREAD=0,30	
OK	
+HTTPREAD: 30	
Request format is invalid: .	
+HTTPREAD: 0	
AT+HTTPTERM	
OK	

Send HTTP HEAD Request Example

AT+HTTPINIT	//Start HTTP service, activate PDP context
OK	
AT+HTTPPARA="URL","http://opinion.people.com.cn/GB/n1/2018/0815/c1003-30228758.html"	
OK	
AT+HTTPACTION=2	//Send a HEAD request to server to only get header of HTTP response
OK	
+HTTPACTION: 2,200,387	
+HTTP_PEER_CLOSED	//Server disconnect

AT+HTTPHEAD

+HTTPHEAD: 387

HTTP/1.1 200 OK

Server: nginx

Content-Type: text/html

Connection: close

Vary: Accept-Encoding

Powered-By-ChinaCache: MISS   from 06053423gG.15

ETag: W/"5b7379f5-57e9"

Last-Modified: Wed, 15 Aug 2018 00:55:17 GMT

Content-Length: 22505

X-Cache-Hits: 14

Date: Thu, 16 Aug 2018 10:58:00 GMT

Expires: Thu, 16 Aug 2018 11:03:00 GMT

CC_CACHE: TCP_REFRESH_HIT

Accept-Ranges: bytes

OK

AT+HTTPTERM   //Stop HTTP Service

OK

4.2   Access to HTTPS server

Send HTTPS GET Requst

AT+HTTPINIT   //Start HTTP service, activate PDP context

OK

AT+HTTPPARA="URL","https://ss0.bdstatic.com/5aV1bjqh_Q23odCf/static/mancard/css/card_min_dee38e45.css"

OK

AT+CSSLCFG=?

+CSSLCFG: "sslversion",(0-1),(0-4)

+CSSLCFG: "authmode",(0-1),(0-3)

+CSSLCFG: "ignorelocaltime",(0-1),(0,1)

+CSSLCFG: "negotiatetime",(0-1),(10-300)

+CSSLCFG: "cacert",(0-1),(1-53)

+CSSLCFG: "clientcert",(0-1),(1-53)

+CSSLCFG: "clientkey",(0-1),(1-53)

+CSSLCFG: "enableSNI",(0-1),(0,1)

OK

AT+CSSLCFG="authmode",0,1	//The authentication mode, 1 server authentication
OK	
AT+CSSLCFG="sslversion",0,3	//The SSL version, 3 TLS1.2
OK	
AT+CSSLCFG="cacert",0,"baidu.der"	
OK	
AT+CSSLCFG="cacert",0,"baidu.pem"	
OK	
AT+HTTPACTION=0	//Send HTTPS GET request
OK	
+HTTPACTION: 0,200,52060	//52060 is the length of HTTPS response information
AT+HTTPHEAD	//Read HTTPS response header .
+HTTPHEAD: 390	//390 is the length of HTTPS response hreader

HTTP/1.1 200 OK
Server: bfe/1.0.8.13-sslpool-patch
Date: Thu, 16 Aug 2018 11:38:08 GMT
Content-Type: text/css
Content-Length: 52060
Connection: close
ETag: "5a323f72-cb5c"
Last-Modified: Thu, 14 Dec 2017 09:08:02 GMT
Expires: Sat, 18 Aug 2018 09:50:53 GMT
Age: 2425635
Accept-Ranges: bytes
Cache-Control: max-age=2592000
Vary: Accept-Encoding
Ohc-Response-Time: 1 0 0 0 0 0

OK	
AT+HTTPREAD=0,500	//Read the response information of HTTPS server, the length to read is 500 bytes
OK	

+HTTPREAD: 500
.s-cardsetting{position:relative;text-align:left;
padding:22px 25px 0 25px;border:1px solid
#e3e3e3;width:843px}.main .sui-dialog-cardset
ting{opacity:.98;filter:alpha(opacity=98);positi
on:absolute;border:none;display:none;_heigh
t:186px}.sui-dialog-cardsetting{opacity:.98!im
portant;filter:alpha(opacity=98)!important;bor
der:none!important}.sui-dialog-cardsetting .su

i-dialog-title{height:42px;line-height:42px;text-indent:21px}.s-cardsetting-content   .s-mod-item b,.sui-dialog-cardsetting .sui-dialog-c

+HTTPREAD: 0

AT+HTTPTERM	//Stop HTTP Service
OK	

Send HTTPS POST Requst

AT+HTTPINIT	//Start HTTP service, activate PDP context
OK	
AT+HTTPPARA="URL","https://pv.csdn.net/csdnbi"	//Set the URL which will be accessed, for HTTPS, the request URL begins with "HTTPS://"
OK	
AT+CSSLCFG=?	
+CSSLCFG: "sslversion",(0-1),(0-4)	
+CSSLCFG: "authmode",(0-1),(0-3)	
+CSSLCFG: "ignorelocaltime",(0-1),(0,1)	
+CSSLCFG: "negotiatetime",(0-1),(10-300)	
+CSSLCFG: "cacert",(0-1),(1-53)	
+CSSLCFG: "clientcert",(0-1),(1-53)	
+CSSLCFG: "clientkey",(0-1),(1-53)	
+CSSLCFG: "enableSNI",(0-1),(0,1)	
OK	
AT+CSSLCFG="authmode",0,1	//The authentication mode, 1 server authentication
OK	
AT+CSSLCFG="sslversion",0,3	//The SSL version, 3 TLS1.2
OK	
AT+CSSLCFG="cacert",0,"baidu.der"	
OK	
AT+CSSLCFG="cacert",0,"baidu.pem"	
OK	
AT+HTTPDATA=465,1000	//Send data to post, the length is 465 bytes
DOWNLOAD	//Prompt string which indicates you can input data here

[{"headers":{"component":"enterprise","datatype":"track","version":"v1"},"body":"{\"re\":\"uid=merry1996&ref=https%3A%2F%2Fpassport.csdn.net%2Faccount%2Fverify%3Bjsessionid%3D7895A57BC64CE8616517F558940FD913.tomcat2&pid=www&mod=&con=&ck=-&curl=https%3A%2F%2Fwww.csdn.net%2F&session_id=10_1534696351647.160829&tos=12&referrer=https%3A%2F%2Fpassport.csdn.net%2Faccount%2Fverify%3Bjsessionid%3D7895A57BC64CE8616517F558940FD913.tomcat2&user_na

me=merry1996&type=pv\"}"}]
OK
AT+HTTPACTION=1   //Send HTTPS post request
OK

+HTTPACTION: 1,200,2   //2 is the length of HTTPS response information

+HTTP_PEER_CLOSED
AT+HTTPHEAD   //Read HTTPS response header .
+HTTPHEAD: 377
HTTP/1.1 200 OK
Server: openresty
Date: Mon, 20 Aug 2018 03:20:30 GMT
Content-Type: application/octet-stream
Connection: close
Set-Cookie:
uuid_tt_dd=10_37481894210-1534735230305-4
45993; Expires=Thu, 01 Jan 2025 00:00:00
GMT; Path=/; Domain=.csdn.net;
Set-Cookie:
dc_session_id=10_1534735230305.501284;
Expires=Thu, 01 Jan 2025 00:00:00 GMT;
Path=/; Domain=.csdn.net;

OK
AT+HTTPREAD=0,10   //Read the response information of HTTPS server,
                                              the length to read is 10 bytes

OK

+HTTPREAD: 2   //OK is the content of HTTPS response
OK   information, 2 bytes
+HTTPREAD: 0
AT+HTTPTERM   //Stop HTTP Service
OK

Send HTTPS HEAD Requst

AT+HTTPINIT   //Start HTTP service, activate PDP context
OK
AT+HTTPPARA="URL","https://ss0.bdstatic.co //Set the URL which will be accessed, for HTTPS,
m/5aV1bjqh_Q23odCf/static/mancard/css/card   the request URL begins with "HTTPS://"
_min_dee38e45.css"
OK
AT+CSSLCFG=?
+CSSLCFG: "sslversion",(0-1),(0-4)

```
+CSSLCFG: "authmode",(0-1),(0-3)
+CSSLCFG: "ignorelocaltime",(0-1),(0,1)
+CSSLCFG: "negotiatetime",(0-1),(10-300)
+CSSLCFG: "cacert",(0-1),(1-53)
+CSSLCFG: "clientcert",(0-1),(1-53)
+CSSLCFG: "clientkey",(0-1),(1-53)
+CSSLCFG: "enableSNI",(0-1),(0,1)
OK
```

AT+CSSLCFG="authmode",0,1   //The authentication mode, 1 server authentication
OK
AT+CSSLCFG="sslversion",0,3   //The SSL version, 3   TLS1.2
OK
AT+CSSLCFG="cacert",0,"baidu.der"
OK
AT+CSSLCFG="cacert",0,"baidu.pem"
OK
AT+HTTPACTION=2   //Send HTTPS HEAD request
OK

+HTTPACTION: 2,200,390   //390 is the length of HTTPS response header
+HTTP_PEER_CLOSED
AT+HTTPHEAD   //Read HTTPS response header .
+HTTPHEAD: 390

HTTP/1.1 200 OK
Server: bfe/1.0.8.13-sslpool-patch
Date: Thu, 16 Aug 2018 11:46:22 GMT
Content-Type: text/css
Content-Length: 52060
Connection: close
ETag: "5a323f72-cb5c"
Last-Modified: Thu, 14 Dec 2017 09:08:02 GMT
Expires: Sat, 18 Aug 2018 09:50:53 GMT
Age: 2426129
Accept-Ranges: bytes
Cache-Control: max-age=2592000
Vary: Accept-Encoding
Ohc-Response-Time: 1 0 0 0 0 0

OK
AT+HTTPTERM   //Stop HTTP Service
OK