



# A7600 Series\_ HTTP(S)\_Application Note

LTE Module

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# About Document

## Version History

Version	Date	Chapter	Description
V1.00	2020.06.19		New version

## Scope

This document presents the AT Command Set for SIMCom A7600 Series, including A7600XX-XXXX, A5360E, and A7670X.

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# 1 Introduction

## 1.1 Purpose of the document

Based on module AT command manual, this document will introduce HTTP application process. Developers could understand and develop application quickly and efficiently based on this document.

## 1.2 Related documents

[1] A7600 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:

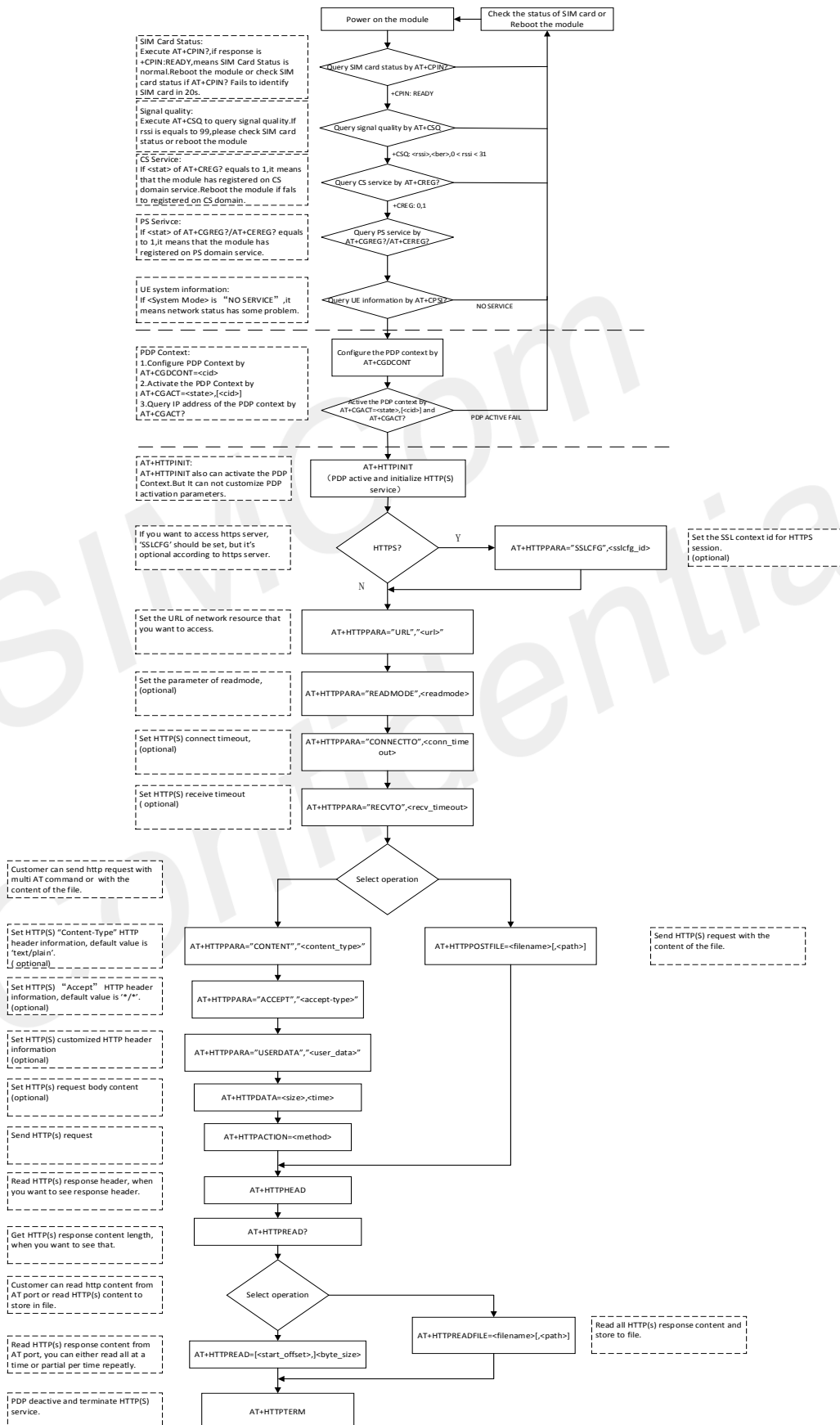
PDP(Packet Data Protocol);

FTP(File Transfer Protocol);

SSL(Secure Sockets Layer);

TLS(Transport Layer Security);

## 1.4 The process of Using HTTP(S) AT Commands



## 1.5 Error Handling

### 1.5.1 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?**.

### 1.5.2 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.

### 1.5.3 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 A7600 Series\_AT Command Manual\_V1.01.

## 2 AT Commands for HTTP(S)

### 2.1 Overview of AT Commands for HTTP(S)

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
AT+HTTPPOSTFILE	Send HTTP Request to HTTP(S) server by File
AT+HTTPREADFILE	Receive HTTP Response Content to a file



## 3 HTTP(S) Examples

Before all HTTP(S) related operations, we should ensure the following:  
Ensure network is available:

**AT+CSQ**

+CSQ: 23,0

OK

**AT+CREG?**

+CREG: 0,1

OK

**AT+CGREG?**

+CGREG: 0,1

OK

**AT+CPSI?**

+CPSI:

LTE,Online,460-00,0x333C,39589680,308,EUT  
RAN-BAND3,1350,5,0,0,54,0,22

OK

//In WCDMA/GSW, you need to continue to  
execute the following instructions

**AT+CGDCONT=cid,"ip","APN"**

OK

**AT+CGACT=1,cid**

OK

**AT+CGACT=?**

+CGACT: 1,1

OK

### 3.1 Access to HTTP server

// Send HTTP GET Request

**AT+HTTPIPINIT**

//start HTTP service, activate PDP context

OK

//set the URL which will be accessed, for HTTP,  
the request URL begins with "HTTP://"

AT+HTTTPARA="URL","http://opinion.people.  
com.cn/GB/n1/2018/0815/c1003-30228758.html  
"

OK

AT+HTTPACTION=0

//send HTTP GET request

OK

//22505 is the length of HTTP response  
information

+HTTPACTION: 0,200,22505

AT+HTTPHEAD

//read the HTTP response header

+HTTPHEAD: 387

//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

// Content-Length indicates the length of HTTP  
response information is 22505 bytes

CC\_CACHE: TCP\_REFRESH\_HIT

Accept-Ranges: 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-tra  
nsitional.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

### Send HTTP POST Request

**AT+HTTPINIT**

//start HTTP service, activate PDP context

OK

**AT+HTTPPARA="URL","http://api.efxnow.com/  
DEMOWebServices2.8/Service.asmx/Echo?"**

//set the URL which will be accessed, for HTTP, 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

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

### POSTFILE to HTTP server and read HTTP response content to a file

AT+HTTPINIT

//start HTTP service, activate PDP context

OK

```
AT+HTTTPARA="URL","http://www.baidu.com" //set server URL
OK
AT+HTTPPOSTFILE="getbaidu.txt",1 //access server and send file getbaidu.txt to server
OK

+HTTPPOSTFILE: 200,14615
AT+HTTPHEAD //read the HTTP server response header
information.

+HTTPHEAD: 773
HTTP/1.1 200 OK
Accept-Ranges: bytes
Cache-Control: no-cache
Connection: Keep-Alive
Content-Length: 14615
Content-Type: text/html
Date: Thu, 13 Sep 2018 05:14:30 GMT
Etag: "5b8641dc-3917"
Last-Modified: Wed, 29 Aug 2018 06:49:00 GMT
P3p: CP=" OTI DSP COR IVA OUR IND COM "
Pragma: no-cache
Server: BWS/1.1
Set-Cookie:
BAIDUID=A374BCFD28DFEEAF0BA0C4EEAC7
7B0B0:FG=1; expires=Thu, 31-Dec-37 23:55:55
GMT; max-age=2147483647; path=/;
domain=.baidu.com
Set-Cookie:
BIDUPSID=A374BCFD28DFEEAF0BA0C4EEAC
77B0B0; expires=Thu, 31-Dec-37 23:55:55 GMT;
max-age=2147483647; path=/;
domain=.baidu.com
Set-Cookie: PSTM=1536815670; expires=Thu,
31-Dec-37 23:55:55 GMT;
max-age=2147483647; path=/;
domain=.baidu.com
Vary: Accept-Encoding
X-Ua-Compatible: IE=Edge,chrome=1

OK
AT+HTTPREADFILE="readbaidu.dat" //read the HTTP server response content to a file
named readbaidu.dat, saved to local storage

OK

+HTTPREADFILE: 0
AT+HTTPTERM //stop HTTP Service
OK
```

## 3.2 Access to HTTPS server

### Send HTTPS GET Request

```
AT+HTTPINIT                                     //start HTTP service, activate PDP context
OK
AT+HTTPPARA="URL","https://ss0.bdstatic.co
m/5aV1bjqh_Q23odCf/static/mancard/css/card_
min_dee38e45.css"
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 header

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

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;p
adding:22px 25px 0 25px;border:1px solid
```

```
#e3e3e3;width:843px}.main .sui-dialog-cardsetting{opacity:.98;filter:alpha(opacity=98);position:absolute;border:none;display:none;_height:186px}.sui-dialog-cardsetting{opacity:.98!important;filter:alpha(opacity=98)!important;border:none!important}.sui-dialog-cardsetting .sui-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
OK
```

//stop HTTP Service

### Send HTTPS POST Request

```
AT+HTTPINIT
OK
AT+HTTTPARA="URL","https://pv.csdn.net/csdnbi"
OK
AT+HTTPDATA=465,1000
DOWNLOAD
[{"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_name=merry1996&type=pv\""}]}
OK
AT+HTTPACTION=1
OK
+HTTPACTION: 1,200,2
+HTTP_PEER_CLOSED
AT+HTTPHEAD
+HTTPHEAD: 377
HTTP/1.1 200 OK
Server: openresty
Date: Mon, 20 Aug 2018 03:20:30 GMT
```

//start HTTP service, activate PDP context

//set the URL which will be accessed, for HTTPS, the request URL begins with "HTTPS://"

//send data to post, the length is 465 bytes  
//prompt string which indicates you can input data here

//send HTTPS post request

// 2 is the length of HTTPS response information

//read HTTPS response header .

Content-Type: application/octet-stream

Connection: close

Set-Cookie:

uuid\_tt\_dd=10\_37481894210-1534735230305-44

5993; 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 information,  
2 bytes

OK

+HTTPREAD: 0

AT+HTTPTERM

//stop HTTP Service

OK

Send HTTPS HEAD Request

AT+HTTPINIT

//start HTTP service, activate PDP context

OK

AT+HTTPPARA="URL","https://ss0.bdstatic.co  
m/5aV1bjqh\_Q23odCf/static/mancard/css/card\_  
min\_dee38e45.css"

//set the URL which will be accessed, for HTTPS,  
the request URL begins with "HTTPS://"

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

POSTFILE to HTTPS server and read HTTPS response content to a file

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

OK

AT+HTTPPARA="URL","https://www.baidu.com //set server URL

"

OK

AT+HTTPPOSTFILE="getbaidu.txt",1 //access server and send file getbaidu.txt to server

OK

+HTTPPOSTFILE: 200,14615

AT+HTTPHEAD //read HTTPS response header .

+HTTPHEAD: 773

HTTP/1.1 200 OK

Accept-Ranges: bytes

Cache-Control: no-cache

Connection: Keep-Alive

Content-Length: 14615

Content-Type: text/html

Date: Thu, 13 Sep 2018 05:14:30 GMT

Etag: "5b8641dc-3917"

Last-Modified: Wed, 29 Aug 2018 06:49:00 GMT

P3p: CP=" OTI DSP COR IVA OUR IND COM "

Pragma: no-cache

Server: BWS/1.1

Set-Cookie:

BAIDUID=A374BCFD28DFEEAF0BA0C4EEAC7

7B0B0;FG=1; expires=Thu, 31-Dec-37 23:55:55

GMT; max-age=2147483647; path=/;

domain=.baidu.com

Set-Cookie:

BIDUPSID=A374BCFD28DFEEAF0BA0C4EEAC

77B0B0; expires=Thu, 31-Dec-37 23:55:55 GMT;

max-age=2147483647; path=/;

domain=.baidu.com

```
Set-Cookie: PSTM=1536815670; expires=Thu,
31-Dec-37      23:55:55      GMT;
max-age=2147483647;      path=/;
domain=.baidu.com
Vary: Accept-Encoding
X-Ua-Compatible: IE=Edge,chrome=1
```

OK

AT+HTTPREADFILE="readbaidu.dat"

OK

AT+HTTPTERM

//stop HTTP Service

OK

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## 4 Appendix

### 4.1 Summary of Error Codes

<statuscode>	Meaning
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

## 4.2 Unsolicited Result Codes

URC	Meaning
+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.

<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

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