

# **WizFi360**

AT command examples

**Version 1.0.1**

**WIZnet Co.,Ltd**

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# History

| Ver   | Date     | Description     |
|-------|----------|-----------------|
| 1.0.0 | Aug.2019 | Initial version |
| 1.0.1 | Oct.2019 | Typing error    |

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## 1. Overview

There are three operating mode for WizFi360, as below.

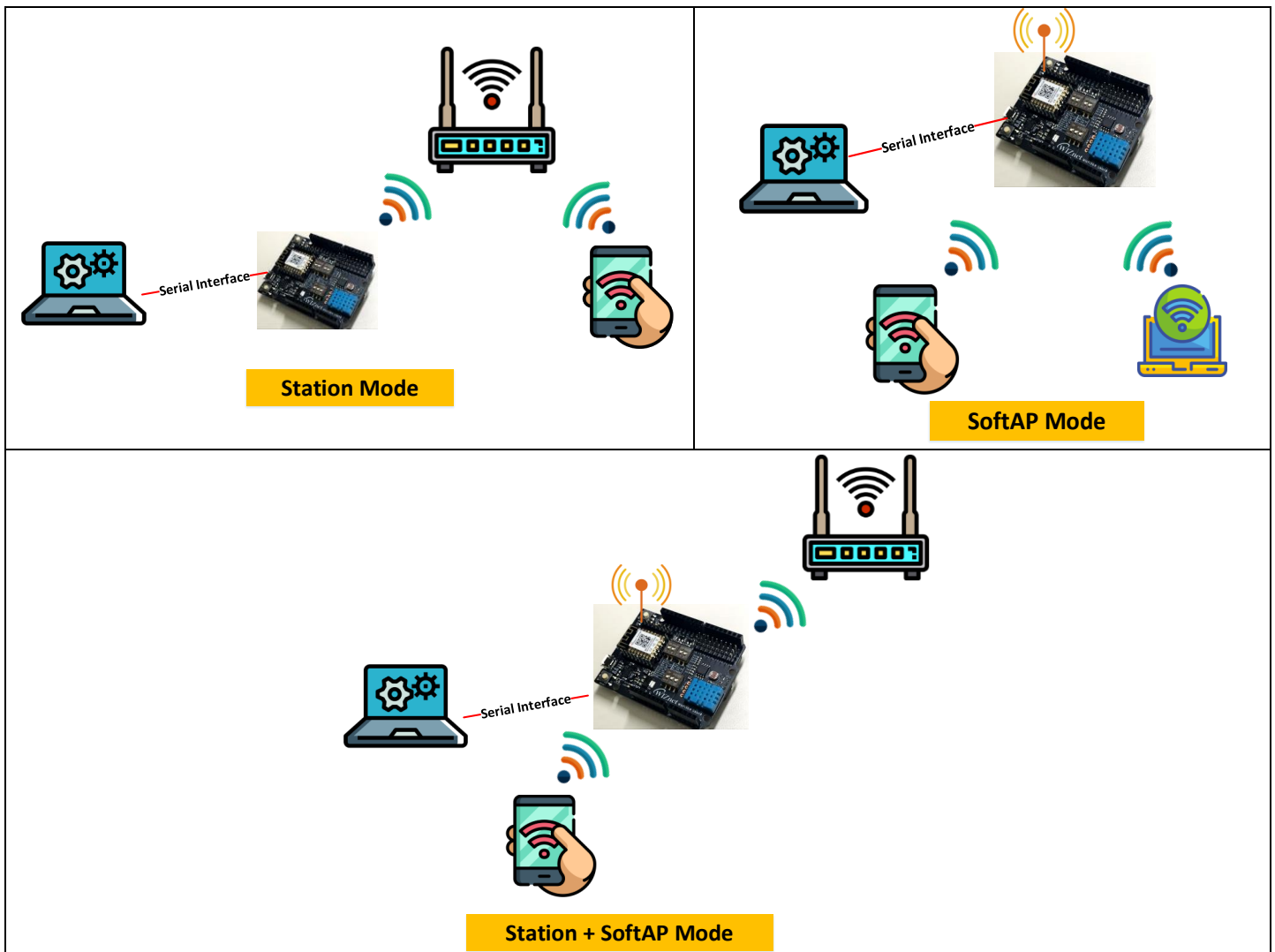
- Station mode
- SoftAP mode
- Station + SoftAP mode

When WizFi360 as Station operating mode, WizFi360 connect and to another AP(Access Point) and communicate.

When it is as SoftAP operating mode, WizFi360 can communicates with devices and it assign the IP by DHCP.

When it is as Station+ SoftAP operating mode, this mode includes content of previous operating mode so it is Station mode operated and SoftAP operated at the same time.

Please refer to the figure below that modes.



There are two modes of data transparent those are AT command mode and data mode, the difference point sends the AT command whether or not.

### WizFi360 AT command examples

WizFi360 operate as data mode, the AT command have sent as data via network.

If you change the AT command mode in data transparent mode, you should send the "+++" through Serial.

## 2. Default setting value of AT command

| AT Command   | Description                               |
|--|---|
| <b>ATE1</b>  | Echo Enable                               |
| <b>+CWMODE:2</b> <CR><LF>  | SoftAP mode                               |
| <b>+UART_DEF:115200,8,1,0,0</b> <CR><LF>   | Setting UART                              |
| <b>+CIPDNS_DEF:192.168.1.1</b> <CR><LF>  | Setting DNS address                       |
| <b>+CIPSTA_DEF:ip:"192.168.1.1"</b> <CR><LF><br><b>+CIPSTA_DEF:gateway:"192.168.1.1"</b> <CR><LF><br><b>+CIPSTA_DEF:netmask:"255.255.255.0"</b> <CR><LF> | Used network information in Station mode  |
| <b>+CIPAP_CUR:ip:"192.168.36.1"</b> <CR><LF><br><b>+CIPAP_CUR:gateway:"192.168.36.1"</b> <CR><LF><br><b>+CIPAP_CUR:netmask:"255.255.255.0"</b> <CR><LF>  | Used network information in SoftAP mode   |
| <b>+CIPSTAMAC_DEF:"00:08:dc:a1:b2:33"</b> <CR><LF>   | Setting MAC address in Station mode       |
| <b>+CWDHCPS_CUR:120,"192.168.36.2","192.168.36.101"</b> <CR><LF>   | Setting IP allocation area as DHCP server |
| <b>+CWSAP_CUR:"WizFi360","",11,0,0,0</b> <CR><LF>  | Setting SSID, PW, etc in SoftAP mode      |
| <b>+CIPMODE:0</b> <CR><LF>   | AT command mode in data transparent mode  |
| <b>+CIFSR:APIP,"192.168.36.1"</b> <CR><LF><br><b>+CIFSR:APMAC,"02:08:dc:a1:b2:33"</b> <CR><LF>   | Setting IP/MAC address in SoftAP mode     |

## 3. Using Serial Command

### 3.1 AT Command mode

| AT command | Terminal  |
|------------|---|
| AT         | <pre> AT&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; </pre> |

### 3.2 Station/SoftAP/Station+SoftAP mode

#### 3.2.1 Station

| AT command  | Terminal  |
|---|---|
| AT<br>AT+CWMODE_CUR=1<br>AT+CWDHCP_CUR=1,1<br>AT+CWLAP<br>AT+CWJAP_CUR="wizms1","maker0701"<br>AT+CIPSTA_CUR? | <pre> AT&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWMODE_CUR=1&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWDHCP_CUR=1,1&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWLAP&lt;CR&gt;&lt;LF&gt; +CWLAP: (4,"DIR-815_Wiznet",-59,"",1)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"ESP_574935",-71,"",1)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"#WIZnet_irina",-46,"",1)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"Matthew2.4",-63,"",2)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"rena",-46,"",3)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"iptime",-67,"",4)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"Dap",-63,"",5)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"ESP_577CC7",-67,"",6)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"wizms1",-63,"",6)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"Wizfi360",-69,"",6)&lt;CR&gt;&lt;LF&gt; +CWLAP: (4,"DLINK-IPv6",-55,"",10)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"iptime",-59,"",11)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"WIZnet Scott",-51,"",11)&lt;CR&gt;&lt;LF&gt; +CWLAP: (0,"WizFi360_A1B2D1",-69,"",11)&lt;CR&gt;&lt;LF&gt; +CWLAP: (3,"Teddy_AP",-57,"",13)&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWJAP_CUR="wizms1","maker0701"&lt;CR&gt;&lt;LF&gt; WIFI_DISCONNECT&lt;CR&gt;&lt;LF&gt; WIFI_CONNECTED&lt;CR&gt;&lt;LF&gt; WIFI_GOT_IP&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CIPSTA_CUR?&lt;CR&gt;&lt;LF&gt; +CIPSTA_CUR:ip:"192.168.1.120"&lt;CR&gt;&lt;LF&gt; +CIPSTA_CUR:gateway:"192.168.1.1"&lt;CR&gt;&lt;LF&gt; +CIPSTA_CUR:netmask:"255.255.255.0"&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; </pre> |

### 3.2.2 SoftAP

| AT command  | Terminal  |
|---|---|
| <b>AT</b><br><b>AT+CWMODE_CUR=2</b><br><b>AT+CWDHCP_CUR=0,1</b><br><b>AT+CWSAP_CUR="WizFi360_ffffff","0123456789",1,3,4,0</b><br><b>AT+CIPAP_CUR="192.168.36.1","192.168.36.1","255.255.255</b><br><b>.0"</b><br><b>AT+CWDHCPS_CUR=1,120,"192.168.36.100","192.168.36.20</b><br><b>0"</b> | <pre> AT&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWMODE_CUR=2&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWDHCP_CUR=0,1&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWSAP_CUR="WizFi360_ffffff","0123456789",1,3,4,0&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CIPAP_CUR="192.168.36.1","192.168.36.1","255.255.255.0"&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWDHCPS_CUR=1,120,"192.168.36.100","192.168.36.200"&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; </pre> |

### 3.2.3 Station+SoftAP

| AT command   | Terminal  |
|--|---|
| <b>AT+CWMODE_CUR=3</b><br><b>AT+CWDHCP_CUR=2,1</b><br><b>AT+CWDHCPS_CUR=1,120,"192.168.36.100","192.168.36.20</b><br><b>0"</b><br><b>AT+CWSAP_CUR="WizFi360_ffffff","0123456789",1,3,4,0</b><br><b>AT+CIPAP_CUR="192.168.36.1","192.168.36.1","255.255.255</b><br><b>.0"</b><br><b>AT+CWJAP_CUR="wizms1","maker0701"</b> | <pre> AT+CWMODE_CUR=3&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWDHCP_CUR=2,1&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWDHCPS_CUR=1,120,"192.168.36.100","192.168.36.200"&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWSAP_CUR="WizFi360_ffffff","0123456789",1,3,4,0&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CIPAP_CUR="192.168.36.1","192.168.36.1","255.255.255.0"&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; AT+CWJAP_CUR="wizms1","maker0701"&lt;CR&gt;&lt;LF&gt; WIFI_CONNECTED&lt;CR&gt;&lt;LF&gt; WIFI_GOT_IP&lt;CR&gt;&lt;LF&gt; &lt;CR&gt;&lt;LF&gt; OK&lt;CR&gt;&lt;LF&gt; </pre> |

## 3.3 TCP/IP

### 3.3.1 TCP Server

| AT command   | Terminal   |
|--|--|
| <b>AT+CIPMUX=1</b><br><b>AT+CIPSERVER=1,5000</b><br><b>AT+CIPSENDDBUF=0,10</b><br><b>0123456789 =&gt; 10byte data</b><br><b>AT+CIPSENDEX=0,10</b><br><b>012W0 =&gt; 3byte data</b> | <b>AT+CIPMUX=1&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSERVER=1,5000&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br><b>0,CONNECT&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSENDDBUF=0,10&lt;CR&gt;&lt;LF&gt;</b><br><b>1,0&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>0123456789</b><br><CR><LF><br><b>Recv 10 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>0,1,SEND OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSENDEX=0,10&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>012\0</b><br><CR><LF><br><b>Recv 3 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b> |

### 3.3.2 TCP Client

| AT command   | Terminal  |
|--|---|
| <b>AT+CIPSTART="TCP","192.168.1.74",5000</b><br><b>AT+CIPSENDDBUF=10</b><br><b>0123456789 =&gt; 10byte data</b><br><b>AT+CIPSENDEX=10</b><br><b>012W0 =&gt; 3byte data</b> | <b>AT+CIPSTART="TCP","192.168.1.74",5000&lt;CR&gt;&lt;LF&gt;</b><br><b>CONNECT&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSENDDBUF=10&lt;CR&gt;&lt;LF&gt;</b><br><b>1,0&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>0123456789</b><br><CR><LF><br><b>Recv 10 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>1,SEND OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSENDEX=10&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>012\0</b><br><CR><LF><br><b>Recv 3 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b> |



### 3.3.3 UDP

| AT command   | Terminal  |
|--|---|
| <b>AT+CIPSTART="UDP","192.168.1.74",5000,8888</b><br><b>AT+CIPSEND=10</b><br><b>0123456789 =&gt; 10byte data</b><br><b>AT+CIPSEND=10,"192.168.1.74",5000</b><br><b>0123456789 =&gt; 10byte data</b><br><b>AT+CIPSENDEX=10</b><br><b>012W0 =&gt; 3byte data</b> | <b>AT+CIPSTART="UDP","192.168.1.74",5000,8888&lt;CR&gt;&lt;LF&gt;</b><br><b>CONNECT&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSEND=10&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>0123456789</b><br><CR><LF><br><b>Recv 10 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSEND=10,"192.168.1.74",5000&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>0123456789</b><br><CR><LF><br><b>Recv 10 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSENDEX=10&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>012\0</b><br><CR><LF><br><b>Recv 3 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b> |

### 3.3.4 SSL

| AT command  | Terminal  |
|---|---|
| <b>AT+CIPSTART="SSL","facebook.com",443</b><br><b>AT+CIPSEND=18</b><br><b>GET / HTTP/1.1{0x0d}{0x0a} =&gt;Send Data</b> | <b>AT+CIPSTART="SSL","facebook.com",443&lt;CR&gt;&lt;LF&gt;</b><br><b>CONNECT&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br><b>AT+CIPSEND=18&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>OK&lt;CR&gt;&lt;LF&gt;</b><br>><br><b>GET / HTTP/1.1{0x0d}{0x0a}</b><br><CR><LF><br><b>Recv 18 bytes&lt;CR&gt;&lt;LF&gt;</b><br><CR><LF><br><b>SEND OK&lt;CR&gt;&lt;LF&gt;</b> |

```

<CR><LF>
+IPD,1500:HTTP/1.1 400 Bad Request<CR><LF>
Content-Type: text/html; charset=utf-8<CR><LF>
Date: Thu, 11 Jul 2019 07:21:45 GMT<CR><LF>
Connection: close<CR><LF>
Content-Length: 2959<CR><LF>
<CR><LF>
<!DOCTYPE html><LF>
<html lang="en" id="facebook"><LF>
<head><LF>
<title>Facebook | Error</title><LF>
<meta charset="utf-8"><LF>
<meta http-equiv="cache-control" content="no-cache"><LF>
<meta http-equiv="cache-control" content="no-store"><LF>
<meta http-equiv="cache-control" content="max-age=0"><LF>
<meta http-equiv="expires" content="-1"><LF>
<meta http-equiv="pragma" content="no-cache"><LF>
<meta name="robots" content="noindex,nofollow"><LF>
<style><LF>
html, body {<LF>
color: #141823;<LF>
background-color: #e9eae2;<LF>
font-family: Helvetica, Lucida Grande, Arial,<LF>
Tahoma, Verdana, sans-serif;<LF>
margin: 0;<LF>
padding: 0;<LF>
text-align: center;<LF>
}<LF>
<LF>
#header {<LF>
height: 30px;<LF>
padding-bottom: 10px;<LF>
padding-top: 10px;<LF>
text-align: center;<LF>
}<LF>
<LF>
#icon {<LF>
width: 30px;<LF>
}<LF>
<LF>
h1 {<LF>
font-size: 18px;<LF>
}<LF>
<LF>
p {<LF>
font-size: 13px;<LF>
}<LF>
<LF>
#footer {<LF>
border-top: 1px solid #ddd;<LF>
color: #9197a3;<LF>
font-size: 12px;<LF>
padding: 5px 8px 6px 0;<LF>
}<LF>
</style><LF>
</head><LF>
<body><LF>
<div id="header"><LF>
<a href="//www.facebook.com/"><LF>
<LF>
</a><LF>
</div><LF>
<div id="core"><LF>
<h1 id="sorry">Sor<CR><LF>
+IPD,1605:ry, something went wrong.</h1><LF>
<p id="promise"><LF>
We're working on it and we'll get it fixed as soon as we can.<LF>
</p><LF>
<p id="back-link"><LF>
<a id="back" href="//www.facebook.com/">Go Back</a><LF>
</p><LF>
<div id="footer"><LF>
Facebook<LF>
<span id="copyright"><LF>
&copy; 2019<LF>
</span><LF>
<span id="help-link"><LF>
&#183;<LF>
<a id="help" href="//www.facebook.com/help/">Help Center</a><LF>
</span><LF>
</div><LF>
</div><LF>
<script><LF>
document.getElementById('back').onclick = function() {<LF>
if (history.length > 1) {<LF>
history.back();<LF>
return false;<LF>
}<LF>
};<LF>
<LF>
// Adjust the display based on the window size<LF>
if (window.innerHeight < 80 || window.innerWidth < 80) {<LF>
// Blank if window is too small<LF>
document.body.style.display = 'none';<LF>
};<LF>
if (window.innerWidth < 200 || window.innerHeight < 150) {<LF>
document.getElementById('back-link').style.display = 'none';<LF>
document.getElementById('help-link').style.display = 'none';<LF>
};<LF>
if (window.innerWidth < 200) {<LF>
document.getElementById('sorry').style.fontSize = '16px';<LF>
};<LF>
if (window.innerWidth < 150) {<LF>
document.getElementById('promise').style.display = 'none';<LF>
};<LF>
if (window.innerHeight < 150) {<LF>
document.getElementById('sorry').style.margin = '4px 0 0 0';<LF>
document.getElementById('sorry').style.fontSize = '14px';<LF>
document.getElementById('promise').style.display = 'none';<LF>
};<LF>
</script><LF>
</body><LF>
</html><LF>
<CR><LF>
+IPD,2:<SOH><NUL>CLOSED<CR><LF>

```

### 3.3.5 SNTP

| AT command                           | Terminal  |
|--------------------------------------|---|
| AT+CIPSNTPCFG=1,8<br>AT+CIPSNTPTIME? | AT+CIPSNTPCFG=1,8<CR><LF><br><CR><LF><br>OK<CR><LF><br>AT+CIPSNTPTIME?<CR><LF><br>+CIPSNTPTIME:Wed Aug 07 08:21:19 2019<LF><CR><LF><br>OK<CR><LF> |