WizFi360

AT Instruction Set

Version 1.0.2

http://www.wiznet.io/

Contents

1 Document Revision History

Version	Date	Descriptions
Ver. 1.0.0	1AUG2019	Initial Release
Ver. 1.0.1	14AUG2019	Add AT+CWCOUNTRY_CUR, AT+CWCOUNTRY_DEF, AT+SYSIOSETCFG, AT+SYSIOGETCFG, AT+SYSGPIODIR, AT+SYSGPIOWRITE, AT+SYSGPIOREAD, Pin List, AT+CIPSERVERMAXCONN, AT+CWSTARTSMART, AT+CWSTOPSMART, NOTE of UART_CUR(for PA1), Modify return value of AT+CIFSR, description of AT+SAVETRANSLINK, option of AT+CWLAP and AT+CWLAPOPT(adding wps parameter), AT Command Overview, description of AT+RESOTRE, description of CIPAPMAC(not change the value)
Ver. 1.0.2	20AUG2019	Renewal Layout Add AT+WPS, AT+SLEEP, AT+GSLP

2 AT Command Overview

2.1 AT Command Format

AT command is of the following type. Not all AT commands support all four variations.

Command Type	Command Format	Functional Description
Test Command	AT	Query to see if the module is in normal transmission mode
Set Command	AT+<command>=<para>...	Set the value of a particular parameter
Query Command	AT+<command>?	Query the current setting of a particular parameter value
Execute Command	AT+<command>	Performs a specific function

Note:

1. *AT command must be capitalized, start with AT and end with <CR><LF>(=\r\n).*
2. *AT command can have several parameters, separated by a comma.*
3. *Optional parameters are indicated in square brackets [ ]. It may be either not required or not appear, and set to the default value if it is not set.*
4. *String values have to set in double quotation mark.*

2.2 AT command returns a list of values

Return values for AT Command are as follows.

Return Type	Return value	Description
Error Messages	ERROR	AT command input error or execution error
	ALREADY CONNECTED	The TCP, UDP or SSL connection is already established.
	SEND FAIL	The network data transmission is failed.
Success Message	OK	Set command is executed correctly.
	+<Command>: <para1>,<para2> .. OK	Query or Execute command is executed correctly and return the parameter value.
	SEND OK	The network data transmission is success.
	… OK	Query or Execute command is executed correctly and return the specific value.

2.3 List of Messages

In addition to the return value for command, the following message is returned.

Tips	Explanation
ready	The AT firmware is ready.
WiFi CONNECTED	WizFi360 station connected to the AP
WiFi GOT IP	WizFi360 station got IP address from the AP
WiFi DISCONNECTED	WizFi360 station disconnected from the AP
busy s ...	It means busy sending. WizFi360 is sending for previous input, cannot response to the new input.
busy p ...	It means busy processing. WizFi360 is processing for previous input, cannot response to the new input.
<Link ID>, CONNECT	A network connection of which <Link ID>
<Link ID>, CLOSED	A network close of which <Link ID>
+IPD	Received network data.
+STA_CONNECTED: <mac>	A station connects to the WizFi360 softAP
+DIST_STA_IP: <mac>, <ip addr>	WizFi360 softAP distributes an IP address to the station connected.
+STA_DISCONNECTED: <smac>	A station disconnects to the WizFi360 softAP.

2.4 Enter normal transmission mode

There are normal transmission mode and transparent mode in WizFi360.
In case WizFi360 is Normal Command mode, WizFi360 executes AT command. Confirm Normal Command mode by inputting AT\r\n and returning \r\nOK\r\n.
In case transparent mode, WizFi360 doesn't execute AT command. Only transmit and receive data with peer. If input is "+++", switch to normal command mode.
Note:

1. *In case that TCP connection is established and WizFi360 is transparent mode, don't switch to AT command to keep TCP connection.*
2. *"+++" input rule: three "+" must be continuously transmitted by serial. After at least 1s, WizFi360 can be respond for AT Command.*
3. *Factory default mode of WizFi360 is Normal command mode*

3 AT Command Description

AT Command list

Type	Name	Features
System control commands	AT	Tests AT Startup
	AT+RST	Restarts the module
	AT+GMR	Checks Version Information
	AT+GSLP	Enters Deep-sleep Mode
	ATE	AT Commands Echoing
	AT+RESTORE	Restores the Factory Default settings
	AT+UART_CUR	Current UART Configuration; Not saved to Flash
	AT+UART_DEF	Default UART Configuration; Saved in the Flash
	AT+SLEEP	Configures the Sleep Modes
	AT+SYSIOSETCFG	Configures IO Working Mode
	AT+SYSIOGETCFG	Checks IO Working Mode
	AT+SYSGPIODIR	Configures the Direction of a GPIO
	AT+SYSGPIOWRITE	Configures the GPIO Output Level
	AT+SYSGPIOREAD	Reads the GPIO Input Level
WiFi command	AT+CWMODE_CUR	Sets the Current Wi-Fi mode; Not Saved in the Flash
	AT+CWMODE_DEF	Set the operation mode, Save to Flash
	AT+CWJAP_CUR	Connects to an AP; Configuration Not Saved in the Flash
	AT+CWJAP_DEF	Connects to an AP; Configuration Saved in the Flash
	AT+CWLAPOPT	Sets the Configuration for the Command AT+CWLAP
	AT+CWLAP	Lists Available APs
	AT+CWQAP	Disconnects from the AP
	AT+CWSAP_CUR	Configures the WizFi360 SoftAP; Configuration Not Saved in the Flash
	AT+CWSAP_DEF	Configures the WizFi360 SoftAP; Configuration Saved in the Flash
	AT+CWLIF	IP of Stations to Which the WizFi360 SoftAP is Connected
	AT+CWDHCP_CUR	Enables/Disables DHCP; Configuration Not Saved in the Flash
	AT+CWDHCP_DEF	Enables/Disables DHCP; Configuration Saved in the Flash
	AT+CWDHCPS_CUR	Sets the IP Address Allocated by WizFi360 SoftAP DHCP; Configuration Not Saved in Flash

	AT+CWDHCPS_DEF	Sets the IP Address Allocated by WizFi360 SoftAP DHCP; Configuration Saved in Flash
	AT+CWAUTOCONN	Auto-Connects to the AP or Not
	AT+CIPSTAMAC_CUR	Sets the MAC Address of the WizFi360 Station; Configuration Not Saved in the Flash
	AT+CIPSTAMAC_DEF	Sets the MAC Address of the WizFi360 Station; Configuration Saved in the Flash
	AT+CIPAPMAC_CUR	Sets the MAC Address of the WizFi360 SoftAP; Configuration Not Saved in the Flash
	AT+CIPAPMAC_DEF	Sets the MAC Address of the WizFi360 SoftAP; Configuration Saved in the Flash
	AT+CIPSTA_CUR	Sets the Current IP Address of the WizFi360 Station; Configuration Not Saved in the Flash
	AT+CIPSTA_DEF	Set the static IP of WizFi360 Station, Saved to Flash
	AT+CIPAP_CUR	Sets the IP Address of the WizFi360 SoftAP; Configuration Not Saved in the Flash
	AT+CIPAP_DEF	Sets the IP Address of the WizFi360 SoftAP; Configuration Saved in the Flash
	AT+CWSTARTSMART	Start SmartConfig
	AT+CWSTOPSMART	Stop Smart Config
	AT+WPS	Enables the WPS Function
	AT+CWHOSTNAME	Configures the Name of WizFi360 Station
	AT+CWCOUNTRY_CUR	Set WiFi Country Code of WizFi360; Configuration Not Saved in the Flash
	AT+CWCOUNTRY_DEF	Set WiFi Country Code of WizFi360; Configuration Saved in the Flash
TCP / IP command	AT+CIPSTATUS	Gets the Connection Status
	AT+CIPDOMAIN	DNS Function
	AT+CIPSTART	Establishes TCP Connection, UDP Transmission or SSL Connection
	AT+CIPSSLSIZE	Sets the Size of SSL Buffer
	AT+CIPSEND	Send data
	AT+CIPSENDEX	Sends data
	AT+CIPSENDBUF	Writes Data into the TCP-Send-Buffer
	AT+CIPBUFRESET	Resets the Segment ID Count
	AT+CIPBUFSTATUS	Checks the Status of TCP-Send-Buffer
	AT+CIPCHECKSEQ	Checks If a Specific Segment Was Successfully Sent
	AT+CIPCLOSE	Closes the TCP/UDP/SSL Connection
	AT+CIFSR	Gets the Local IP Address
	AT+CIPMUX	Enable or Disable Multiple Connections

	AT+CIPSERVER	Deletes/Creates TCP Server
	AT+CIPSERVERMAXCONN	Set the Maximum Connection Number Allowed by Server
	AT+CIPMODE	Sets transmission mode
	AT+SAVETRANSLINK	Saves the Transparent Transmission Link in Flash;
	AT+CIPSTO	Sets the TCP Server Timeout
	AT+CIUPDATE	Update the Firmware
	AT+PING	Ping Packets
	AT+CIPDINFO	Shows the Remote IP and Port with +IPD
	+IPD	Receive Network Data
	AT+CIPSNTPCFG	Sets the Configuration of SNTP
	AT+CIPSNTPIME	Checks the SNTP Time
	AT+CIPDNS_CUR	Sets User-defined DNS Servers; Configuration Not Saved in the Flash
	AT+CIPDNS_DEF	Sets User-defined DNS Servers; Configuration Saved in the Flash

3.1 System Control Commands

3.1.1 AT: Tests AT Startup

	Execute command
Commands	AT
Response	OK

3.1.1 AT+RST: Restarts the module

	Execute command
Commands	AT+RST
Response	OK

3.1.1 AT+GMR: Checks Version Information

	Execute Command
Commands	AT+GMR
Response	<AT version info> <SDK version info> <compile time> OK
Parameter	<AT version info>: information about the AT version. <SDK version info>: information about the SDK version. <compile time>: the duration of time for compiling the BIN.
Example	AT+GMR
	AT version:1.0.1.0(Jun 6 2019 17:49:31) SDK version:3.0.0(a0ffff9f) compile time:Jun 6 2019 17:49:31 OK

3.1.2 AT+GSLP: Enters Deep-sleep Mode

	Set Command
Commands	AT+GSLP=<time>
Function	WizFi360 will wake up after Deep-sleep for as many milliseconds (ms) as <time> indicates.

Response	OK
Parameter	<time>: the duration of WizFi360's sleep within the range of 1000~65535 ms.
Example	AT+GSLP=3000
	OK

3.1.3 ATE: AT Commands Echoing

	Execute command
Commands	ATE
Response	OK
Parameter	ATE0: Switches echo off ATE1: Switches echo on.
Note	This command ATE is used to trigger command echo. It means that entered commands can be echoed back to the sender when ATE command is used. Two Parameter are possible. The command returns OK in normal cases and ERROR when a parameter other than 0 or 1 was specified.

3.1.4 AT+RESTORE: Restores the Factory Default settings

	Execute command
Commands	ATE
Response	OK
Parameter	<type>: • 0: Restore only station mac address factory setting (factory default) • 1: Restore all factory setting
Note	The execution of this command will reset station mac address or all Parameter saved in flash, and restore the factory default settings of the module. The chip will be restarted when this command is executed.

3.1.5 AT+UART_CUR: Current UART Configuration; Not saved to Flash

	Query command	Set Command
Commands	AT+UART_CUR?	AT+UART_CUR=<baudrate>,<databits>,<stop bits>,<parity>,<flow control>
Response	+UART_CUR:<baudrate>,<databits>,<stop bits>,<parity>,<flow control> OK	OK
Default Value	115200,8,1,0,0	

Parameter	<baudrate>: UART baud rate 2,000,000, 1,500,000, 1,000,000, 921,600, 460,800, 230400, 115200 (factory default), 57,600, 38,400, 19,200, 14,400, 9,600, 4800, 2400, 1800, 1200, 600 <databits>: data bits • 5: 5-bit data • 6: 6-bit data • 7: 7-bit data • 8: 8-bit data (factory default) <stopbits>: stop bits • 1: 1-bit stop bit (factory default) • 2: 2-bit stop bit <parity>: parity bit • 0: None (factory default) • 1: Odd • 2: Even <flow control>: flow control • 0: flow control is not enabled (factory default) • 1: enable RTS/CTS flow control	
Note	The configuration changes will NOT be saved in the flash. This command is linked with the PA1 pin of WizFi360. When the PA1 pin (refer to the WizFi360 datasheet) pulled down PA1 pin for more than 3 seconds, the Parameter of the command are restored to the default values. If the WizFi360 hardware flow control function is enabled, the user device should connect to the flow control pin of WizFi360. For details, please refer to the WizFi360 datasheet.	
Example	AT+UART_CUR?	AT+UART_CUR=115200,8,1,0,0
	+UART_CUR:115200,8,1,0,0 OK	OK

3.1.6 AT+UART_DEF: Default UART Configuration; Saved in the Flash

	Query command	Set Command
Commands	AT+UART_DEF?	AT+UART_DEF=<baudrate>,<databits>,<stop bits>,<parity>,<flow control>
Response	+UART_DEF:<baudrate>,<databits>,<stop bits>,<parity>,<flow control> OK	OK
Default Value	115200,8,1,0,0	
Parameter	<baudrate>: UART baud rate 2,000,000, 1,500,000, 1,000,000, 921,600, 460,800, 230400, 115200 (factory default), 57,600, 38,400, 19,200, 14,400, 9,600, 4800, 2400, 1800, 1200, 600 <databits>: data bits • 5: 5-bit data • 6: 6-bit data • 7: 7-bit data • 8: 8-bit data (factory default) <stopbits>: stop bits	

	• 1: 1-bit stop bit (factory default) • 2: 2-bit stop bit <parity>: parity bit • 0: None (factory default) • 1: Odd • 2: Even <flow control>: flow control • 0: flow control is not enabled (factory default) • 1: enable RTS/CTS flow control	
Note	The configuration changes will be saved in the user parameter area in the flash, and will still be valid when the chip is powered on again. If the WizFi360 hardware flow control function is enabled, the user device should connect to the flow control pin of WizFi360. For details, please refer to the WizFi360 datasheet.	
Example	AT+UART_DEF?	AT+UART_DEF=115200,8,1,0,0
	+UART_DEF:115200,8,1,0,0 OK	OK

3.1.7 AT+SLEEP: Configures the Sleep Modes

	Query Command	Set Command
Commands	AT+SLEEP?	AT+SLEEP=<sleep mode>
Response	+SLEEP:<sleep mode> OK	OK
Parameter	<sleep mode>: • 0: disables sleep mode • 1: Light-sleep mode • 2: Modem-sleep mode (factory default)	
Example	AT+SLEEP?	AT+SLEEP=1
	+SLEEP:2 OK	OK
Note	• This command can only be used in Station mode.	

3.1.8 AT+SYSIOSETCFG: Configures IO Working Mode

	Set command
Commands	AT+SYSIOSETCFG=<pin>,<mode>,<pull-up>
Response	OK
Parameter	<pin>: IO pin number

<mode>: IO mode

Pin	Mode0	Mode1
3	RESERVED	GPIOPA_0
6	RESERVED	GPIOPB_6
7	UART1_CTS	GPIOPB_9
9	RESERVED	GPIOPB_15
10	RESERVED	GPIOPB_18
11	RESERVED	GPIOPB_13
12	RESERVED	GPIOPB_14
13	RESERVED	GPIOPB_17
14	RESERVED	GPIOPB_16
16	UART1_RTS	GPIOPB_10
19	RESERVED	GPIOPB_7
20	RESERVED	GPIOPB_8

<pull-up>:
- 0: Disable pull-up
- 1: Enable pull-up

Example	AT+SYSIOSETCFG=12,1,0
	OK

3.1.9 AT+SYSIOGETCFG: Checks IO Working Mode

	Set command
Commands	AT+SYSIOGETCFG=<pin>
Response	+SYSIOGETCFG:<pin>,<mode>,<pull-up> OK
Parameter	<pin>: IO pin number <mode>: • 0: default mode • 1: GPIO mode <pull-up>: • 0: Disable pull-up • 1: Enable pull-up
Example	AT+SYSIOGETCFG=12
	+SYSIOGETCFG:12,1,0 OK

3.1.10 AT+SYSGPIODIR: Configures the Direction of GPIO

	Set command
Commands	AT+SYSGPIODIR=<pin>,<dir>
Response	OK
	NOT GPIO MODE! ERROR
Note	If IO pin mode is not GPIO mode, the command will return "NOT GPIO MODE!"
Parameter	<pin>: IO pin number <dir>: • 0: Set the pin to input mode (If GPIO Direction is input, set to pull-up automatically) • 1: Set the pin to output mode
Example	AT+SYSIOSETCFG=12,1,1
	OK
	AT+SYSGPIODIR=12,0
	OK

3.1.11 AT+SYSGPIOWRITE: Configures the GPIO Output Level

	Set command
Commands	AT+SYSGPIOWRITE=<pin>,<level>
Response	OK
	NOT GPIO MODE! ERROR
Note	If IO pin mode is not output mode, the command will return "NOT OUTPUT MODE!"
Parameter	<pin>: IO pin number <level>: • 0: Set the pin to low level • 1: Set the pin to high level
Example	AT+SYSIOSETCFG=12,1,1
	OK
	AT+SYSGPIODIR=12,0
	OK

3.1.12 AT+SYSGPIOREAD: Reads the GPIO Input Level

	Set command
Commands	AT+SYSGPIOREAD=<pin>
Response	+SYSGPIOREAD:<pin>,<dir>,<level> OK
	NOT GPIO MODE!\r\n ERROR\r\n
Note	If IO pin mode is not GPIO mode, the command will return "NOT GPIO MODE!"
Parameter	<pin>: IO pin number <dir>: • 0: input mode • 1: output mode <level>: • 0: low level • 1: high level
Example	AT+SYSIOSETCFG=12,1,1
	OK
	AT+SYSGPIODIR=12,0
	OK
	AT+SYSGPIOREAD=12
	+SYSGPIOREAD:12,0,1 OK

3.2 WiFi command

3.2.1 AT+CWMODE_CUR: Sets the Current Wi-Fi mode; Not Saved in the Flash

	Query command	Set Command
Commands	AT+CWMODE_CUR?	AT+CWMODE_CUR=<mode>
Response	+CWMODE_CUR:<mode> OK	OK
Parameter	<mode>: • 1: Station mode (factory default) • 2: SoftAP mode • 3: Station + SoftAP mode	
Example	AT+CWMODE_CUR?	AT+CWMODE_CUR=1
	AT+CWMODE_CUR:1 OK	OK
Note	The configuration changes will NOT be saved in the flash.	

3.2.2 AT+CWMODE_DEF: Set the operation mode, Save to Flash

	Query command	Set Command
Commands	AT+CWMODE_DEF=?	AT+CWMODE_DEF=<mode>
Response	+CWMODE_DEF:<mode> OK	OK
Parameter	<mode>: • 1: Station mode • 2: SoftAP mode • 3: Station + SoftAP mode	
Example	AT+CWMODE_DEF?	AT+CWMODE_DEF=1
	+CWMODE_DEF:1 OK	OK
Note	The configuration changes will be saved in the system parameter area in the flash.	

3.2.3 AT+CWJAP_CUR: Connects to an AP; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CWJAP_CUR?	AT+CWJAP_CUR=<ssid>,<pwd>[,<bssid>]
Function	To query the AP to which the WizFi360 Station is already connected.	To set the AP to which the WizFi360 Station needs to be connected.
Response	+CWJAP_CUR:<ssid>,<bssid>,<channel>,<rssi> OK	OK +CWJAP_CUR:<error code> FAIL
Parameter	<ssid>: string parameter, SSID of the AP. <rssi>: signal strength. <mac>: string parameter, MAC address of the AP. <channel>: channel number	<ssid>: the SSID of the target AP, MAX: 32 bytes. <pwd>: password, MAX: 64-byte ASCII. [<bssid>]: optional parameter, the target AP's MAC address, used when multiple APs have the same SSID. <error code>: (for reference only) • 1: connection timeout. • 2: wrong password. • 3: cannot find the target AP. • 4: connection failed.
Example	AT+CWJAP_CUR?	AT+CWJAP_CUR="ab\\\,c","12345678\"\\","00:08:DC:11:12:13" (SSID: ab\,c Password: 12345678"\)
	+CWJAP_CUR="WIZNETSZ","00:08:dc:9c:ef:b6",12,-75 OK	OK
Note	• The configuration changes will NOT be saved in the flash. • This command is only available in Station mode and SoftAP+Station mode. • If the SSID or password contains special characters such as ", \ and , you need an escape character.	

3.2.4 AT+CWJAP_DEF: Connects to an AP; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CWJAP_DEF?	AT+CWJAP_DEF=<ssid>,<pwd>[,<bssid>]
Function	To query the AP to which the WizFi360 Station is already connected.	To set the AP to which the WizFi360 Station needs to be connected.
Response	+CWJAP_DEF:<ssid>,<bssid>,<channel>,<rssi>	OK

<table>
<tr><td></td><td>OK</td><td>+CWJAP_DEF:<error code>

FAIL</td></tr>
<tr><td>Parameter</td><td><ssid>: string parameter, SSID of the AP.
<rssi>: signal strength.
<mac>: string parameter, MAC address of the AP.
<channel>: channel number</td><td><ssid>: the SSID of the target AP, MAX: 32 bytes.
<pwd>: password, MAX: 64-byte ASCII.
[<bssid>]: optional parameter, the target AP’s MAC address, used when multiple APs have the same SSID.
<error code>: (for reference only)
• 1: connection timeout.
• 2: wrong password.
• 3: cannot find the target AP.
• 4: connection failed.</td></tr>
<tr><td rowspan="2">Example</td><td>AT+CWJAP_DEF?</td><td>AT+CWJAP_DEF="ab\\\,c","12345678\"\\","00:08:DC:11:12:13"
(SSID: ab\,c
Password: 12345678”\)</td></tr>
<tr><td>+CWJAP_DEF="WIZNETSZ","00:08:dc:9c:ef:b6",12,-75

OK</td><td>OK</td></tr>
<tr><td>Note</td><td colspan="2">• The configuration changes will be saved in the user parameter area in the flash.
• This command is only available in Station mode and SoftAP+Station mode.
• If the SSID or password contains special characters such as ", \ and , you need an escape character.</td></tr>
</table>

3.2.5 AT+CWLAPOPT: Sets the Configuration for the Command AT+CWLAP

	Set command
Commands	AT+CWLAPOPT=<sort_enable>,<mask>
Response	OK
Parameter	<sort_enable>: determines whether the result of command AT+CWLAP will be listed according to RSSI: • 0: the result is not ordered according to RSSI (factory default) • 1: the result is ordered according to RSSI. <mask>: determines the Parameter shown in the result of AT+CWLAP; 0 means not showing the parameter corresponding to the bit, and 1 means showing it. • bit 0: determines whether <ecn> will be shown in the result of AT+CWLAP. • bit 1: determines whether <ssid> will be shown in the result of AT+CWLAP. • bit 2: determines whether <rssi> will be shown in the result of AT+CWLAP. • bit 3: determines whether <mac> will be shown in the result of AT+CWLAP. • bit 4: determines whether <ch> will be shown in the result of AT+CWLAP. • bit 5: reserved.

	• bit 6: reserved. • bit 7: reserved. • bit 8: reserved. • bit 9: reserved. • bit 10: determines whether <wps> will be shown in the result of AT+CWLAP.
Example	AT+CWLAPOPT=1,1055 (The first parameter is 1, meaning that the result of the command AT+CWLAP will be ordered according to RSSI; The second parameter is 1055, which is 1000011111 in binary; meaning that the corresponding bits of <mask> are all set to 1. All Parameter will be shown in the result of AT+CWLAP.)
	OK
Note	• The configuration changes will NOT be saved in the flash.

3.2.6 AT+CWLAP: Lists Available APs

	Query command	Set Command
Commands	AT+CWLAP	AT+CWLAP=<ssid>[,<mac>,<channel>]
Function	To list all available APs..	To query the APs with specific SSID and MAC on a specific channel.
Response	+CWLAP:([<ecn>,<ssid>,<rssi>,<mac>,<channel>,<wps>]) OK	
Parameter	<ecn>: encryption method. • 0: OPEN • 1: WEP • 2: WPA_PSK • 3: WPA2_PSK • 4: WPA_WPA2_PSK <ssid>: string parameter, SSID of the AP. <rssi>: signal strength. <mac>: string parameter, MAC address of the AP. <channel>: channel number <wps>: • 0: WPS is disabled • 1: WPS is enabled	
Example	AT+CWLAP	AT+CWLAP="WIZNETSZ"
	+CWLAP: (4,"WIZnet",-57,"00:08:dc:6a:46:2e",1,1) +CWLAP: (3,"WIZNETSZ",-75,"00:08:dc:9c:ef:b6",12,1)	+CWLAP:(3,"WIZNETSZ",-75,"00:08:dc:9c:ef:b6",12,1) OK

	OK	
Note	• This command is only available in Station mode and SoftAP+Station mode. • The parameters displayed change according to the setting of CWLAPOPT command.	

3.2.7 AT+CWQAP: Disconnects from the AP

	Execute Command
Commands	AT+CWQAP
Response	OK
Example	AT+CWMODE_DEF=1
	OK
	AT+CWJAP_DEF="WIZNETSZ","12345678"
	OK
	AT+CWQAP
	OK
Note	• The configuration changes will be saved in the user parameter area in the flash. • This command is only available in Station mode and SoftAP+Station mode.

3.2.8 AT+CWSAP_CUR: Configures the WizFi360 SoftAP; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CWSAP_CUR?	AT+CWSAP_CUR=<ssid>,<pwd>,<chl>,<ecn>[,<max conn>][,<ssid hidden>]
Function	To obtain the configuration Parameter of the WizFi360 SoftAP.	To configure the WizFi360 SoftAP
Response	+CWSAP_CUR:<ssid>,<pwd>,<chl>,<ecn>,<max conn>,<ssid hidden> OK	OK
Parameter	<ssid>: string parameter, SSID of AP. Length from 1 to 32 bytes of visible character. <pwd>: string parameter, length of password: 8 ~ 64 bytes ASCII. <chl>: channel ID. With range of [0,13] <ecn>: encryption method: • 0: OPEN • 2: WPA_PSK	

	• 3: WPA2_PSK [<max conn>]: maximum number of Stations to which WizFi360 SoftAP can be connected; within the range of [1, 4]. The default is 4. [<ssid hidden>]: • 0: SSID is broadcasted. (factory default) • 1: SSID is not broadcasted.	
Example	AT+CWSAP_CUR?	AT+CWMODE_CUR=2
	+CWSAP_CUR=“WizFi360","12345678",5,3,4,0 OK	OK
		AT+CWSAP_CUR="WizFi360","12345678",5,3,4,0
		OK
Note	• The configuration changes will NOT be saved in the flash. • This command is only available in SoftAP mode and SoftAP+Station mode.	

3.2.9 AT+CWSAP_DEF: Configures the WizFi360 SoftAP; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CWSAP_DEF?	AT+CWSAP_DEF=<ssid>,<pwd>,<chl>,<ecn>[,<max conn>][,<ssid hidden>]
Function	To obtain the configuration Parameter of the WizFi360 SoftAP.	To configure the WizFi360 SoftAP
Response	+CWSAP_DEF:<ssid>,<pwd>,<chl>,<ecn>,<max conn>,<ssid hidden> OK	OK
Parameter	<ssid>: string parameter, SSID of AP. Length from 1 to 32 bytes of visible character. <pwd>: string parameter, length of password: 8 ~ 64 bytes ASCII. <chl>: channel ID. With range of [0,13] <ecn>: encryption method: • 0: OPEN • 2: WPA_PSK • 3: WPA2_PSK [<max conn>]: maximum number of Stations to which WizFi360 SoftAP can be connected; within the range of [1, 4]. The default is 4. [<ssid hidden>]: • 0: SSID is broadcasted. (factory default) • 1: SSID is not broadcasted.	
Example	AT+CWSAP_DEF?	AT+CWMODE_DEF=2
	+CWSAP_DEF="WizFi360","12345678",5,3,4,0	OK

	OK	AT+CWSAP_DEF="WizFi360","12345678",5,3,4,0
		OK
Note	• The configuration changes will be saved in the flash system parameter area. • This command is only available in SoftAP mode and SoftAP+Station mode.	

3.2.10 AT+CWLIF: IP of Stations to Which the WizFi360 SoftAP is Connected

	Execute command
Commands	AT+CWLIF
Response	<ip>,<mac> OK
Parameter	<ip>: IP address of Stations to which WizFi360 SoftAP is connected. <mac>: MAC address of Stations to which WizFi360 SoftAP is connected.
Example	AT+CWMODE_DEF=2
	OK
	AT+CWSAP_DEF="WizFi360","12345678",1,2
	OK
	AT+CWLIF
	"192.168.4.2","18:cf:5e:c5:ce:76"
Note	• This command cannot get a static IP. • It only works when both DHCPs of the WizFi360 SoftAP, and of the Station to which WizFi360 is connected, are enabled.

3.2.11 AT+CWDHCP_CUR: Enables/Disables DHCP; Configuration Not Saved in the Flash

	Query command	**Set Command**
Commands	AT+CWDHCP_CUR?	AT+CWDHCP_CUR=<mode>,<en>
Function	To check the DHCP status	To enable/disable DHCP.
Response	+CWDHCP_CUR:<para> OK	OK
Parameter	<para>	<mode> • 0: Sets WizFi360 SoftAP

	• 0: SoftAP DHCP and Station DHCP are disabled. • 1: SoftAP DHCP is enabled and Station DHCP is disabled. • 2: SoftAP DHCP is disabled and Station DHCP is enabled. • 3: SoftAP DHCP and Station DHCP are enabled. (factory default)	• 1: Sets WizFi360 Station • 2: Sets both SoftAP and Station <en> • 0: Disables DHCP • 1: Enables DHCP
Example	AT+CWDHCP_CUR?	AT+CWDHCP_CUR=1,1
	+CWDHCP_CUR:1 OK	OK
Note	• The configuration changes will NOT be saved in the flash. • This Set Command interacts with static-IP-related AT commands (AT+CIPSTA-related and • AT+CIPAP-related commands): • If DHCP is enabled, static IP will be disabled. • If static IP is enabled, DHCP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.	

3.2.12 AT+CWDHCP_DEF: Enables/Disables DHCP; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CWDHCP_DEF?	AT+CWDHCP_DEF=<mode>,<en>
Function	To check the DHCP status	To enable/disable DHCP.
Response	+CWDHCP_DEF:<para> OK	OK
Parameter	<para> • 0: SoftAP DHCP and Station DHCP are disabled. • 1: SoftAP DHCP is enabled and Station DHCP is disabled. • 2: SoftAP DHCP is disabled and Station DHCP is enabled. • 3: SoftAP DHCP and Station DHCP are enabled. (factory default)	<mode> • 0: Sets WizFi360 SoftAP • 1: Sets WizFi360 Station • 2: Sets both SoftAP and Station <en> • 0: Disables DHCP • 1: Enables DHCP
Example	AT+CWDHCP_DEF?	AT+CWDHCP_DEF=1,1

	+CWDHCP_DEF:1 OK	OK
Note	• The configuration changes will be saved in the system parameter area in the flash. • This Set Command interacts with static-IP-related AT commands (AT+CIPSTA-related and AT+CIPAP-related commands): • If DHCP is enabled, static IP will be disabled. • If static IP is enabled, DHCP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.	

3.2.13 AT+CWDHCPS_CUR: Sets the IP Address Allocated by WizFi360 SoftAP DHCP; Configuration Not Saved in Flash

	Query command	Set Command
Commands	AT+CWDHCPS_CUR?	AT+CWDHCPS_CUR=<enable>,<lease time>,<start IP>,<end IP>
Function	To obtain the IP address range of the WizFi360 SoftAP.	Sets the IP address range of the WizFi360 SoftAP DHCP server
Response	+CWDHCPS_CUR: <lease time>,<start IP>,<end IP> OK	OK
Parameter	-	<enable>: • 0: Disable the settings and use the default IP range. • 1: Enable setting the IP range, and the Parameter below have to be set.
	<lease time>: lease time; unit: minute; range [1, 2880]. Default value is 120 <start IP>: start IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. <end IP>: end IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server.	
Example	AT+CWDHCPS_CUR?	AT+CWDHCPS_CUR=1,120,"192.168.0.100","192.168.0.200"
	+CWDHCPS_CUR:120,"192.168.0.2","192.168.0.101" OK	OK
Note	• The configuration changes will NOT be saved in the flash. • This AT command is enabled when WizFi360 runs as SoftAP, and when DHCP is enabled. • The IP address should be in the same network segment as the IP address of SoftAP.	

3.2.14 AT+CWDHCPS_DEF: Sets the IP Address Allocated by WizFi360 SoftAP DHCP; Configuration Saved in Flash

	Query command	Set Command
Commands	AT+CWDHPCS_DEF?	AT+CWDHCPS_DEF=<enable>,<lease time>,<start IP>,<end IP>
Function	To obtain the IP address range of the WizFi360 SoftAP.	Sets the IP address range of the WizFi360 SoftAP DHCP server
Response	+CWDHCPS_DEF: <lease time>,<start IP>,<end IP> OK	OK
Parameter	-	<enable>: • 0: Disable the settings and use the default IP range. • 1: Enable setting the IP range, and the Parameter below have to be set.
	<lease time>: lease time; unit: minute; range [1, 2880]. Default value is 120 <start IP>: start IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. <end IP>: end IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server.	
Example	AT+CWDHCPS_DEF?	AT+CWDHCPS_DEF=1,120,"192.168.0.100","192.168.0.200"
	+CWDHCPS_DEF:120,"192.168.0.2","192.168.0.101" OK	OK
Note	• The configuration changes will be saved in the flash system parameter area. • This AT command is enabled when WizFi360 runs as SoftAP, and when DHCP is enabled. • The IP address should be in the same network segment as the IP address of SoftAP.	

3.2.15 AT+CWAUTOCONN: Auto-Connects to the AP or Not

	Execute Command
Commands	AT+CWAUTOCONN=<enable>
Response	OK
Parameter	<enable>: • 0: does NOT auto-connect to AP on power-up. • 1: connects to AP automatically on power-up. (factory default)
Example	AT+CWJAP_DEF="WIZNETSZ","12345678"

	OK
	AT+CWAUTOCONN=1
	OK
Note	• The configuration changes will be saved in the user parameter area in the flash. • This command is only available in Station mode and SoftAP+Station mode.

3.2.16 AT+CIPSTAMAC_CUR: Sets the MAC Address of the WizFi360 Station; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CIPSTAMAC_CUR?	AT+CIPSTAMAC_CUR=<mac>
Function	Obtain the MAC address of the WizFi360 Station.	Set the MAC address of the WizFi360 Station.
Response	+CIPSTAMAC_CUR:<mac> OK	OK
Parameter	<mac>: string parameter, MAC address of the WizFi360 Station.	
Example	AT+CIPSTAMAC_CUR?	AT+CIPSTAMAC_CUR="00:08:DC:11:12:13"
	+CIPSTAMAC_CUR:"00:08:dc:11:12:13" OK	OK
Note	• The configuration changes will NOT be saved in the flash. • The MAC address of WizFi360 SoftAP is different from that of the WizFi360 Station. • e.g. If the MAC address in station mode is "00:08:DC:11:12:13"; the MAC address in SoftAP mode is "02:08:DC:11:12:13". • Bit 0 of the WizFi360 MAC address CANNOT be 1. For example, a MAC address can be "00:…" but not "01:…".	

3.2.17 AT+CIPSTAMAC_DEF: Sets the MAC Address of the WizFi360 Station; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CIPSTAMAC_DEF?	AT+CIPSTAMAC_DEF=<mac>
Function	Obtain the MAC address of the WizFi360 Station.	Set the MAC address of the WizFi360 Station.
Response	+CIPSTAMAC_DEF:<mac> OK	OK
Parameter	<mac>: string parameter, MAC address of the WizFi360 Station.	

Example	AT+CIPSTAMAC_DEF?	AT+CIPSTAMAC_DEF="00:08:DC:11:12:13"
	+CIPSTAMAC_DEF:"00:08:dc:11:12:13" OK	OK
Note	• The configuration changes will be saved in the user parameter area in the flash. • The MAC address of WizFi360 SoftAP is different from that of the WizFi360 Station. • e.g. If the MAC address in station mode is “00:08:DC:11:12:13”; the MAC address in SoftAP mode is "02:08:DC:11:12:13". • Bit 0 of the WizFi360 MAC address CANNOT be 1. For example, a MAC address can be "00:…" but not "01:…".	

3.2.18 AT+CIPAPMAC_CUR: Sets the MAC Address of the WizFi360 SoftAP; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CIPAPMAC_CUR?	AT+CIPAPMAC_CUR=<mac>
Function	Obtain the MAC address of the WizFi360 SoftAP.	Set the MAC address of the WizFi360 SoftAP.
Response	+CIPAPMAC_CUR:<mac> OK	OK
Parameter	<mac>: string parameter, MAC address of the WizFi360 SoftAP.	
Example	AT+CIPAPMAC_CUR?	AT+CIPSTAMAC_DEF="00:08:DC:11:12:13"
	+CIPAPMAC_CUR:"02:08:dc:11:12:13" OK	OK
Note	• The configuration changes will NOT be invalid. • The MAC address of WizFi360 SoftAP depends on WizFi360 Station at boot time. • e.g. If the MAC address in station mode is "00:08:DC:11:12:13"; the MAC address in SoftAP mode is "02:08:DC:11:12:13".	

3.2.19 AT+CIPAPMAC_DEF: Sets the MAC Address of the WizFi360 SoftAP; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CIPAPMAC_DEF?	AT+CIPAPMAC_DEF=<mac>
Function	Obtain the MAC address of the WizFi360 SoftAP.	Set the MAC address of the WizFi360 SoftAP.
Response	+CIPAPMAC_DEF:<mac>	OK

	OK	
Parameter	<mac>: string parameter, MAC address of the WizFi360 SoftAP.	
Example	AT+CIPAPMAC_DEF?	AT+CIPSTAMAC_DEF="00:08:DC:11:12:13"
	+CIPAPMAC_DEF:"02:08:dc:11:12:13" OK	OK
Note	• The configuration changes will NOT be invalid. • The MAC address of WizFi360 SoftAP depends on WizFi360 Station at boot time. • e.g. If the MAC address in station mode is "00:08:DC:11:12:13"; the MAC address in SoftAP mode is "02:08:DC:11:12:13".	

3.2.20 AT+CIPSTA_CUR: Sets the Current IP Address of the WizFi360 Station; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CIPSTA_CUR?	AT+CIPSTA_CUR=<ip>[,<gateway>,<netmask>]
Function	To obtain the current IP address of the WizFi360 station	To set the current IP address of the WizFi360 Station
Response	+CIPSTA_CUR:ip:<ip> +CIPSTA_CUR:gateway:<gateway> +CIPSTA_CUR:netmask:<netmask> OK	OK
Parameter	<ip>: string parameter, the IP address of the WizFi360 Station [<gateway>]: gateway [<netmask>]: netmask	
Example	AT+CIPSTA_CUR?	AT+CIPSTA_CUR="192.168.1.88","192.168.1.1","255.255.255.0"
	+CIPSTA_CUR:ip:"192.168.1.88" +CIPSTA_CUR:gateway:"192.168.1.1" +CIPSTA_CUR:netmask:"255.255.255.0" OK	OK
Note	• The configuration changes will NOT be saved in the flash. • The Set Command interacts with DHCP-related AT commands (AT+CWDHCP-related commands): • If static IP is enabled, DHCP will be disabled. • If DHCP is enabled, static IP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.	

3.2.21 AT+CIPSTA_DEF: Set the static IP of WizFi360 Station, Saved to Flash

	Query command	Set Command
Commands	AT+CIPSTA_DEF?	AT+CIPSTA_DEF=<ip>[,<gateway>,<netmask>]
Function	To obtain the current IP address of the WizFi360 station	To set the current IP address of the WizFi360 Station
Response	+CIPSTA_DEF:ip:<ip> +CIPSTA_DEF:gateway:<gateway> +CIPSTA_DEF:netmask:<netmask> OK	OK
Parameter	<ip>: string parameter, the IP address of the WizFi360 Station [<gateway>]: gateway [<netmask>]: netmask	
Example	AT+CIPSTA_DEF?	AT+CIPSTA_DEF="192.168.1.88","192.168.1.1","255.255.255.0"
	+CIPSTA_CUR:ip:"192.168.1.88" +CIPSTA_CUR:gateway:"192.168.1.1" +CIPSTA_CUR:netmask:"255.255.255.0" OK	OK
Note	• The configuration changes will be saved in the user parameter area in the flash. • The Set Command interacts with DHCP-related AT commands (AT+CWDHCP-related commands): • If static IP is enabled, DHCP will be disabled. • If DHCP is enabled, static IP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.	

3.2.22 AT+CIPAP_CUR: Sets the IP Address of the WizFi360 SoftAP; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CIPAP_CUR?	AT+CIPAP_CUR=<ip>[,<gateway>][,<netmask>]
Function	To obtain the current IP address of the WizFi360 SoftAP.	To set the current IP address of the WizFi360 SoftAP.
Response	+CIPAP_CUR:ip:"<ip>" +CIPAP_CUR:gateway:"<gateway>" +CIPAP_CUR:netmask:"<netmask>" OK	OK

Parameter	<ip>: string parameter, the IP address of the WizFi360 SoftAP. <gateway>: gateway <netmask>: netmask	
Example	AT+CIPAP_CUR?	AT+CIPAP_CUR="192.168.0.1","192.168.0.1","255.255.255.0"
	+CIPAP_CUR:ip:"192.168.0.1" +CIPAP_CUR:gateway:"192.168.0.1" +CIPAP_CUR:netmask:"255.255.255.0" OK	OK
		AT+CIPAP_CUR="192.168.0.1"
		OK
Note	• The configuration changes will NOT be saved in the flash. • Currently, WizFi360 only supports class C IP addresses. • The Set Command interacts with DHCP-related AT commands (AT+CWDHCP-related commands): • If static IP is enabled, DHCP will be disabled. • If DHCP is enabled, static IP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.	

3.2.23 AT+CIPAP_DEF: Sets the IP Address of the WizFi360 SoftAP; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CIPAP_DEF?	AT+CIPAP_DEF=<ip>[,<gateway>][,<netmask>]
Function	To obtain the default IP address of the WizFi360 SoftAP.	To set the default IP address of the WizFi360 SoftAP.
Response	+CIPAP_DEF:ip:"<ip>" +CIPAP_DEF:gateway:"<gateway>" +CIPAP_DEF:netmask:"<netmask>" OK	OK
Parameter	<ip>: string parameter, the IP address of the WizFi360 SoftAP. <gateway>: gateway <netmask>: netmask	
Example	AT+CIPAP_DEF?	AT+CIPAP_DEF="192.168.0.1","192.168.0.1","255.255.255.0"
	+CIPAP_DEF:ip:"192.168.0.1" +CIPAP_DEF:gateway:"192.168.0.1" +CIPAP_DEF:netmask:"255.255.255.0" OK	OK
		AT+CIPAP_DEF="192.168.0.1"
		OK

Note	• The configuration changes will be saved in the user parameter area in the flash. • Currently, WizFi360 only supports class C IP addresses. • The Set Command interacts with DHCP-related AT commands (AT+CWDHCP-related commands): • If static IP is enabled, DHCP will be disabled. • If DHCP is enabled, static IP will be disabled. • Whether it is DHCP or static IP that is enabled depends on the last configuration.

3.2.24 AT+CWSTARTSMART: Start SmartConfig

	Execute command	Set command
Commands	AT+CWSTARTSMART	AT+CWSTARTSMART[=<type>]
Function	To start SmartConfig of ESP-TOUCH + AirKiss.	To start SmartConfig of a designated type.
Response	OK	
Parameter	-	<type>: Start the Smart Config to a configured type • 1: ESP-TOUCH • 2: AirKiss • 3: ESP-TOUCH + AirKiss
Messages	After smartconfig start and connect to the AP, it will return as below	
	smartconfig type:<type> //AIRKISS or ESPTOUCH smart get WiFi info ssid:<ssid> //AP's ssid password:<password> //AP's password WiFi CONNECTED WiFi GOT IP smartconfig connected WiFi	
Example	AT+CWMODE_DEF=1	
	OK	
	AT+CWSTARTSMART	
	OK	
	(After smartconfig start and connect to the AP, it will return as below)	
	Smartconfig type:ESPTOUCH smart get WiFi info ssid:wizms1 password:maker0701 WiFi CONNECTED WiFi GOT IP	

	smartconfig connected WiFi
Note	• SmartConfig is only available in the Station mode. (AT+CWMODE_CUR=1) • The message "smart get wifi info" means that SmartConfig has successfully acquired the AP information. WizFi360 will try to connect to the target AP. • The message "smartconfig connected wifi" is printed if the connection is successful. Use command AT+CWSTOPSMART to stop SmartConfig before running other commands. Please make sure that you do not execute other commands during SmartConfig. • SmartConfig operation process is such as following. 1. Set the WizFi360 to station mode and start smartconfig. 2. Connect to the AP on smartphone 3. Open the ESP-TOUCH APP or AirKiss on WeChat APP. 4. Set the AP's ssid and password on the APP and check connection to the AP on WizFi360.

3.2.25 AT+CWSTOPSMART: Stop Smart Config

	Execute command
Commands	AT+CWSTOPSMART
Response	OK
Example	AT+CWSTOPSMART OK
Note	• No matter what of whether SmartConfig succeeds or not, before executing any other AT commands, please always call AT+CWSTOPSMART

3.2.26 AT+WPS: Enables the WPS Function

	Execute command
Commands	AT+WPS=<enable>
Response	wps started OK
Parameter	<enable>: • 1: enables WPS/Wi-Fi Protected Setup • 0: disables WPS
Example	AT+WPS=1 wps started OK

Note	• WPS must be used when the ESP8266 Station is enabled. • WPS does not support WEP/Wired-Equivalent Privacy encryption

3.2.27 AT+CWHOSTNAME: Configures the Name of WizFi360 Station

	Query Command	Set Command
Commands	AT+CWHOSTNAME?	AT+CWHOSTNAME=<hostname>
Function	Checks the host name of WizFi360 Station	Sets the host name of WizFi360 Station
Response	+CWHOSTNAME:<host name> OK	OK
	(Station mode disabled) +CWHOSTNAME:<NULL> OK	
Parameter	<hostname>: the host name of the WizFi360 Station, the maximum length is 32 bytes.	
Example	AT+CWHOSTNAME?	
	+CWHOSTNAME:"WizFi360_FF6179" OK	
Note	• The configuration changes will NOT be saved in the flash.	

3.2.28 AT+CWCOUNTRY_CUR: Set WiFi Country Code of WizFi360; Configuration Not Saved in the Flash

	Query Command	Set Command
Commands	AT+CWCOUNTRY_CUR?	AT+CWCOUNTRY_CUR=<policy>,<country_code>,<channel_option>
Function	Check the actual value of WiFi country code, which may be changed to the same as the AP it connected to.	Set the current WiFi Country code of WizFi360
Response	+CWCOUNTRY_CUR:<policy>,<country_code>,<channel_option> OK	OK
Parameter	<policy>: • 0: will change the county code to be the same as the AP that WizFi360 is connected to • 1: the country code will not change, always be the one set by command	

<table>
<tr><td></td><td colspan="2"><country_code>: country code, the length can be 3 characters at most; but the third one is a special character which will not be shown when querying by command AT+CWCOUNTRY_CUR?
<channel_option>:
• 0: select the channel to 1~11
• 1: select the channel to 1~13
• 2: select the channel to 10~11
• 3: select the channel to 10~13
• 4: select the channel to 14
• 5: select the channel to 1~14
• 6: select the channel to 3~9
• 7: select the channel to 5~13</td></tr>
<tr><td rowspan="2">Example</td><td>AT+CWCOUNTRY_CUR?</td><td>AT+CWCOUNTRY_CUR=1,"KR",1</td></tr>
<tr><td>+CWCOUNTRY_CUR=1,"KR",1

OK</td><td>OK</td></tr>
<tr><td>Note</td><td colspan="2">• The configuration changes will NOT be saved in the flash.</td></tr>
</table>

3.2.29 AT+CWCOUNTRY_DEF: Set WiFi Country Code of WizFi360; Configuration Saved in the Flash

	Query Command	Set Command
Commands	AT+CWCOUNTRY_DEF?	AT+CWCOUNTRY_DEF=<policy>,<country_code>,<channel_option>
Function	Check the default WiFi country code which is stored in the flash.	Set the default WiFi Country code of WizFi360, and save in the flash.
Response	+CWCOUNTRY_DEF:<policy>,<country_code>,<channel_option> OK	OK
Parameter	<policy>: • 0: will change the county code to be the same as the AP that WizFi360 is connected to • 1: the country code will not change, always be the one set by command <country_code>: country code, the length can be 3 characters at most; but the third one is a special character which will not be shown when querying by command AT+CWCOUNTRY_DEF? <channel_option>: • 0: select the channel to 1~11	

<table>
<tr><td></td><td colspan="2">• 1: select the channel to 1~13
• 2: select the channel to 10~11
• 3: select the channel to 10~13
• 4: select the channel to 14
• 5: select the channel to 1~14
• 6: select the channel to 3~9
• 7: select the channel to 5~13</td></tr>
<tr><td rowspan="2">Example</td><td>AT+CWCOUNTRY_DEF?</td><td>AT+CWCOUNTRY_DEF=1,"KR",1</td></tr>
<tr><td>+CWCOUNTRY_DEF=1,"KR",1

OK</td><td>OK</td></tr>
<tr><td>Note</td><td colspan="2">• The configuration changes will be saved in the flash user parameter area.</td></tr>
</table>

3.3 TCP / IP command

3.3.1 AT+CIPSTATUS: Gets the Connection Status

	Set command
Commands	AT+CIPSTATUS
Response	STATUS:<stat> +CIPSTATUS:<link ID>,<type>,<remote IP>,<remote port>,<local port>,<tcp type> OK
Parameter	<stat>: status of the WizFi360 Station interface • 2: The WizFi360 Station is connected to an AP and its IP is obtained • 3: The WizFi360 Station has created a TCP or UDP transmission • 4: The TCP or UDP transmission of WizFi360 Station is disconnected • 5: The WizFi360 Station does NOT connect to an AP <link ID>: ID of the connection (0~4), used for multiple connections <type>: string parameter, "TCP" or "UDP" <remote IP>: string parameter indicating the remote IP address <remote port>: the remote port number <local port>: WizFi360 local port number <tcp type> • 0: WizFi360 runs as a client • 1: WizFi360 runs as a server
Example1	AT+CIPSTATUS
	STATUS:2 OK
Example2	AT+CIPSTATUS
	STATUS:3 +CIPSTATUS:1,"TCP","192.168.4.2",5000,6000,1 OK

3.3.2 AT+CIPDOMAIN: DNS Function

	Execute Command
Commands	AT+CIPDOMAIN=<domain name>
Response	+CIPDOMAIN:<ip address> OK

	DNS Fail ERROR
Parameter	<domain name>: the domain name, length should be less than 64 bytes <ip address>: IP address corresponding to the domain name
Example	AT+CIPDOMAIN="www.wiznet.io"
	+CIPDOMAIN:"183.111.174.49" OK

3.3.3 AT+CIPSTART: Establishes TCP Connection, UDP Transmission or SSL Connection

Establish TCP Connection

	Single TCP connection (AT+CIPMUX=0)	Multiple TCP connections (AT+CIPMUX=1)
Commands	AT+CIPSTART=<type>,<remote IP>,<remote port>[,<TCP keep alive>]	AT+CIPSTART=<link ID>,<type>,<remote IP>,<remote port>[,<TCP keep alive>]
Response	OK	
	ERROR	
	ALREADY CONNECTED // If the UDP transmission is already established	
Parameter	<link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <type>: string parameter indicating the connection type: "TCP", "UDP", “SSL”; This is “TCP” in this case <remote IP>: string parameter indicating the remote IP address <remote port>: the remote port number within the range of 1~65535. [<TCP keep alive>]: detection time interval when TCP is kept alive; this function is disabled by default • 0: disable TCP keep-alive • 1 ~ 7200: detection time interval; unit: second (s)	
Example	AT+CIPSTART="TCP","192.168.1.99",5000	AT+CIPSTART=1,"TCP","www.iwiznet.cn",5000,10
	OK	OK

Establish UDP Connection

	Single UDP connection (AT+CIPMUX=0)	Multiple UDP connections (AT+CIPMUX=1)
Commands	AT+CIPSTART=<type>,<remote IP>,<remote port>[,<UDP local port>,<UDP mode>]	AT+CIPSTART=<link ID>,<type>,<remote IP>,<remote port>[,<UDP local port>,<UDP mode>]
Response	OK	

	ERROR	
	ALREADY CONNECTED // If the TCP connection is already established	
Parameter	<link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <type>: string parameter indicating the connection type: "TCP", "UDP", “SSL”; This is “UDP” in this case <remote IP>: string parameter indicating the remote IP address <remote port>: the remote port number within the range of 0~65535. If set to 0, it is assigned random value. [<UDP local port>]: optional; UDP port number within the range of 1~65535. of WizFi360 [<UDP mode>]: optional. In the UDP transparent transmission, the value of this parameter must be 0 • 0: the destination peer entity of UDP will not change (default)_ • 1: the destination peer entity of UDP can change once • 2: the destination peer entity of UDP is allowed to change	
Example	AT+CIPSTART="UDP","192.168.1.99",5000	AT+CIPSTART=1,"UDP","www.iwiznet.cn",5000,6000,2
	OK	OK
Note	To use <UDP mode>, <UDP local port> must be set first.	

Establish SSL Connection

	Single SSL connection (AT+CIPMUX=0)	Multiple SSL connections (AT+CIPMUX=1)
Commands	AT+CIPSTART=<type>,<remote IP>,<remote port>[,<TCP keep alive>]	AT+CIPSTART=<link ID>,<type>,<remote IP>,<remote port>[,<TCP keep alive>]
Response	OK	
	ERROR	
	ALREADY CONNECTED // If the TCP connection is already established	
Parameter	<link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <type>: string parameter indicating the connection type: "TCP", "UDP", “SSL”; This is “SSL” in this case <remote IP>: string parameter indicating the remote IP address <remote port>: the remote port number [<TCP keep alive>]: detection time interval when TCP is kept alive; this function is disabled by default • 0: disable TCP keep-alive • 1 ~ 7200: detection time interval; unit: second (s)	
Example	AT+CIPSTART="SSL","www.iwiznet.cn",5000	AT+CIPSTART=1,"SSL","www.iwiznet.cn",5000
	OK	OK
Note	• WizFi360 can only set one SSL connection at most. • SSL connection does not support UART-Wi-Fi passthrough mode (transparent transmission).	

	• SSL connection needs a large amount of memory; otherwise, it may cause system reboot. The command AT+CIPSSLSIZE=<size> can be used to enlarge the SSL buffer size.

3.3.4 AT+CIPSSLSIZE: Sets the Size of SSL Buffer

	Set command
Commands	AT+CIPSSLSIZE=<size>
Response	OK
Parameter	<size>: the size of the SSL buffer; range of value: [2048, 4096]
Example	AT+CIPSSLSIZE=4096
	OK AT+CIPSERVER=1,5000

3.3.5 AT+CIPSEND: Send data

UART-WiFi passthrough mode

	Execute command
Commands	AT+CIPSEND
Function	To start sending data in transparent transmission mode. Wrap return > after executing this command. Enter transparent transmission, with a 20-ms interval between each packet, and a maximum of 2048 bytes per packet.
Response	OK >
Example	AT+CWMODE_CUR=1
	OK
	AT+CWJAP_CUR="wizms1","maker0701"
	OK
	AT+CIPMODE=1
	OK
	AT+CIPSEND
	>
Note	• When a single packet containing +++ is received, WizFi360 returns to normal command mode. • Please wait for at least one second before sending the next AT command. • This command can only be used in transparent transmission mode which requires single connection.

	• For UDP transparent transmission, the value of <UDP mode> has to be 0 when using AT+CIPSTART.

Normal transmission mode

	Send in single connection (AT+CIPMUX=0)	Send in multiple connections (AT+CIPMUX=1)
Commands	AT+CIPSEND=<length>[,<remote IP>,<remote port>]	AT+CIPSEND=<link ID>,<length> [,<remote IP>,<remote port>]
Function	Send data of designated length in normal transmission mode. Wrap return > after the Set Command. Begin receiving serial data. When data length defined by <length> is met, the transmission of data starts.	
Response	OK >	
	If the connection cannot be established or gets disrupted during data transmission, the system returns: ERROR	
	If data is transmitted successfully, the system returns: SEND OK	
	If it failed, the system returns: SEND FAIL	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) <length>: data length, MAX: 2048 bytes. [<remote IP>]: remote IP can be set in UDP transmission. [<remote port>]: remote port can be set in UDP transmission.	
Example	AT+CIPSEND=1220	AT+CIPSEND=0,1220,"192.168.0.10",50000
	OK >	OK >

3.3.6 AT+CIPSENDEX: Sends data

	Send in single connection (AT+CIPMUX=0)	Send in multiple connections (AT+CIPMUX=1)
Commands	AT+CIPSENDEX=<length>[,<remote IP>,<remote port>]	AT+CIPSENDEX=<link ID>,<length> [,<remote IP>,<remote port>]
Function	Send data of designated length in normal transmission mode. Wrap return > after the Set Command. Begin receiving serial data. When the requirement of data length, determined by <length>, is met, or when \0 appears in the data, the transmission starts.	
Response	OK >	
	If the connection cannot be established or gets disrupted during data transmission, the system returns: ERROR	

	If data is transmitted successfully, the system returns: SEND OK	
	If it failed, the system returns: SEND FAIL	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) <length>: data length, MAX: 2048 bytes. [<remote IP>]: remote IP can be set in UDP transmission. [<remote port>]: remote port can be set in UDP transmission.	
Example	AT+CIPSENDEX=1220	AT+CIPSENDEX=0,1220,"192.168.0.10",50000
	OK >	OK >
Note	• When the requirement of data length, determined by <length>, is met, or when \0 appears, the transmission of data starts. Go back to the normal command mode and wait for the next AT command. • When sending \0, please send it as \\0.	

3.3.7 AT+CIPSENDBUF: Writes Data into the TCP-Send-Buffer

	single connection (AT+CIPMUX=0)	**multiple connections (AT+CIPMUX=1)**
Commands	AT+CIPSENDBUF=<length>	AT+CIPSENDBUF=<link ID>,<length>
Function	Wrap return > begins receiving serial data; when the length of data defined by the parameter <length> is met, the data is sent.	
Response	<current segment ID>,<segment ID of which sent successfully> OK >	
	If the data length over the value of <length>, the data will be discarded, the system returns: busy	
	If the connection cannot be established, or if it is not a TCP connection, or if the buffer is full, or some other error occurs, the system returns: ERROR	
	If data is transmitted successfully, the system returns: <segment ID>,SEND OK	*If data is transmitted successfully, the system returns:* <link ID>,<segment ID>,SEND OK
	If it failed, the system returns: SEND FAIL	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) <segment ID>: uint32; the ID assigned to each data packet, starting from 1; the ID number increases by 1 every time a data packet is written into the buffer. <length>: data length, MAX: 2048 bytes.	
Example	AT+CIPSENDBUF=1024	AT+CIPSENDBUF=0,1024

	0 OK >	0,0 OK >
Note	• This command only writes data into the TCP-send-buffer, so it can be called continually, and the user need not wait for SEND OK; if a TCP segment is sent successfully, it will return <segment ID>,SEND OK. • Before data length reaches the value defined by <length>, input +++ can switch back from data mode to command mode, and discard the data received before. • This command can NOT be used for SSL connections.	

3.3.8 AT+CIPBUFRESET: Resets the Segment ID Count

	single connection (AT+CIPMUX=0)	multiple connections (AT+CIPMUX=1)
Commands	AT+CIPBUFRESET	AT+CIPBUFRESET=<link ID>
Response	OK	
	If the connection is not established or there is still TCP data waiting to be sent, the response will be: ERROR	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1)	
Example	AT+CIPBUFRESET	AT+CIPBUFRESET=1
	OK	OK
Note	• This command can only be used when AT+CIPSENDBUF is used.	

3.3.9 AT+CIPBUFSTATUS: Checks the Status of TCP-Send-Buffer

	single connection (AT+CIPMUX=0)	multiple connections (AT+CIPMUX=1)
Commands	AT+CIPBUFSTATUS	AT+CIPBUFSTATUS=<link ID>
Response	<next segment ID>,<segment ID sent >,<segment ID successfully sent>,<remain buffer size>,<queue number> OK	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) <next segment ID>: the next segment ID obtained by AT+CIPSENDBUF <segment ID sent>: the ID of the TCP segment last sent <segment ID successfully sent>: the ID of the last successfully sent TCP segment <remain buffer size>: the remaining size of the TCP-send-buffer <queue number>: available TCP queue number; it's not reliable and should be used as a reference only.	
Example	AT+CIPBUFRESET	AT+CIPBUFRESET=1
	20,15,10,200,7	20,15,10,200,7

	OK	OK
	• 20: means that the latest segment ID is 19; so when calling AT+CIPSENDBUF the next time, the segment ID returned is 20 • 15: means that the TCP segment with the ID 15 is the last segment sent, but the segment may not be successfully sent • 10: means that the TCP segment with the ID 10 was sent successfully • 200: means that the remaining size of the TCP-send-buffer is 200 bytes • 7: the available TCP queue number; it is not reliable and should be used as a reference only; when the queue number is 0, no TCP data can be sent.	
Note	• This command can not be used for SSL connection. • Only when <next segment ID> - <segment ID sent> = 1, can AT+CIPBUFRESET be called to reset the counting. • TCP buffer size is 21,900 bytes.	

3.3.10 AT+CIPCHECKSEQ: Checks If a Specific Segment Was Successfully Sent

	single connection (AT+CIPMUX=0)	multiple connections (AT+CIPMUX=1)
Commands	AT+CIPCHECKSEQ=<segment ID>	AT+CIPCHECKSEQ=<ID>,<segment ID>
Response	<segment ID>,<status> OK	<link ID>,<segment ID>,<status> OK
Parameter	[<link ID>]: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) <segment ID>: the segment ID obtained by calling AT+CIPSENDBUF <status> • FALSE: the segment-sending failed • TRUE: the segment was sent successfully	
Example	AT+CIPCHECKSEQ=20	AT+CIPCHECKSEQ=1,20
	20,TRUE OK	1,20,TRUE OK
Note	• This command can only be used when AT+CIPSENDBUF is used.	

3.3.11 AT+CIPCLOSE: Closes the TCP/UDP/SSL Connection

	single connection (AT+CIPMUX=0)	multiple connections (AT+CIPMUX=1)
Commands	AT+CIPCLOSE	AT+CIPCLOSE=<link ID>
Function	To close the TCP/UDP Connection	

Response	OK	
Parameter	<link ID>: ID of the connection (0~4), for multiple connections. (AT+CIPMUX=1) When ID is 5, all connections will be closed. (In server mode, the ID 5 has no effect.)	
Example	AT+CIPCLOSE	AT+CIPCLOSE=1
	OK	OK

3.3.12 AT+CIFSR: Gets the Local IP Address

	Execute Command
Commands	AT+CIFSR
Response	*If WizFi360 is station mode(AT+CWMODE=1), the system returns:* +CIFSR:STAIP,<Station IP address> +CIFSR:STAMAC,<Station MAC address OK
	If WizFi360 is SoftAP mode(AT+CWMODE=2), the system returns: +CIFSR:APIP,<SoftAP IP address> +CIFSR:APMAC,<SoftAP MAC address> OK
	If WizFi360 is station+SoftAP mode(AT+CWMODE=3), the system returns: +CIFSR:APIP,<SoftAP IP address> +CIFSR:APMAC,<SoftAP MAC address> +CIFSR:STAIP,<Station IP address> +CIFSR:STAMAC,<Station MAC address> OK
Parameter	<SoftAP IP address>: IP address of the WizFi360 SoftAP <Station IP address>: IP address of the WizFi360 Station <SoftAP MAC address>: MAC address of the WizFi360 SoftAP <Station MAC address>: MAC address of the WizFi360 Station
Example	AT+CIFSR
	+CIFSR:APIP,"192.168.4.1" +CIFSR:APMAC,"02:08:dc:11:12:13" +CIFSR:STAIP,"192.168.1.88" +CIFSR:STAMAC,"00:08:dc:11:12:13" OK

3.3.13 AT+CIPMUX: Enable or Disable Multiple Connections

	Query Command	Set Command
Commands	AT+CIPMUX?	AT+CIPMUX=<mode>
Function	To obtain information about connection type	To set the connection type
Response	+CIPMUX:<mode> OK	OK
Parameter	<mode> • 0: single connection (factory default) • 1: multiple connections	<mode> 0: single connection (default) 1: multiplec

		onnections
Example	AT+CIPMUX?	AT+CIPMUX=1
	+CIPMUX:1 OK	OK
Note	• Multiple connections can only be set when transparent transmission is disabled (AT+CIPMODE=0). • This mode can only be changed after all connections are disconnected. • If the TCP server is running, it must be deleted (AT+CIPSERVER=0) before the single connection mode is activated.	

3.3.14 AT+CIPSERVER: Deletes/Creates TCP Server

	Set command
Commands	AT+CIPSERVER=<mode>[,<port>]
Response	OK
Parameter	<mode> • 0: deletes server • 1: creates server <port>: port number within the range of 1 ~ 65535; 333 by default
Note	• A TCP server can only be created when multiple connections are activated (AT+CIPMUX=1). • A server monitor will automatically be created when the TCP server is created. • When a client is connected to the server, it will take up one connection and be assigned an ID.
Example	AT+CIPMUX=1
	OK
	AT+CIPSERVER=1,5000
	OK

3.3.15 AT+CIPSERVERMAXCONN: Set the Maximum Connection Number Allowed by Server

	Query Command	Set Command
Commands	AT+CIPSERVERMAXCONN?	AT+CIPSERVERMAXCONN=<num>
Function	To obtain the maximum number of clients allowed to connect to the TCP or SSL server.	To set the maximum number of clients allowed to connect to the TCP or SSL server.
Response	+CIPSERVERMAXCONN:<num> OK	OK
Parameter	<num>: the maximum number of clients allowed to connect to the TCP or SSL server within the range of 1~4. Default value is 4.	
Example	AT+CIPSERVERMAXCONN?	AT+CIPSERVERMAXCONN=2
	+CIPSERVERMAXCONN:2 OK	OK
		AT+CIPSERVER=1,5000
		OK
Note	• To set this configuration, you should call the command AT+CIPSERVERMAXCONN=<num> before creating a server.	

3.3.16 AT+CIPMODE: Sets transmission mode

	Query Command	Set Command
Commands	AT+CIPMODE?	AT+CIPMODE=<mode>
Function	To check the transmission mode.	To set the transmission mode
Response	+CIPMODE:<mode> OK	OK
Parameter	<mode> • 0: normal transmission mode. (factory default) • 1: UART-Wi-Fi passthrough mode (transparent transmission), which can only be enabled in TCP single connection mode or in UDP mode when the remote IP and port do not change.	
Example	AT+CIPMODE?	AT+CIPMODE=1
	+CIPMODE:1 OK	OK
Note	• The configuration changes will NOT be saved in flash.	

	• During the UART-Wi-Fi passthrough transmission, if the TCP connection breaks, WizFi360 will keep trying to reconnect until +++ is input to exit the transmission. • During the normal transmission and the TCP connection breaks, WizFi360 will give a prompt and will not attempt to reconnect.

3.3.17 AT+SAVETRANSLINK: Saves the Transparent Transmission Link in Flash;

Save TCP Single Connection in Flash

	Set command
Commands	AT+SAVETRANSLINK=<mode>,<remote IP or domain name>,<remote port>[,<type>,<TCP keep alive>]
Function	Enter UART-Wi-Fi passthrough mode and try to TCP connection on power-up.
Response	OK
Parameter	<mode> • 0: WizFi360 will NOT enter UART-Wi-Fi passthrough mode on power-up (factory_default) • 1: WizFi360 will enter UART-Wi-Fi passthrough mode on power-up <remote IP>: remote IP or domain name <remote port>: remote port [<type>] (optional): TCP or UDP, TCP by default [<TCP keep alive>] (optional): TCP is kept alive. This function is disabled by default • 0: disables the TCP keep-alive function • 1 ~ 7200: keep-alive detection time interval; unit: second (s)
Example	AT+SAVETRANSLINK=1,"192.168.2.2",5000,"TCP",5
	OK

Save UDP Single Connection in Flash

	Set command
Commands	AT+SAVETRANSLINK=<mode>,<remote IP>,<remote port>[,<type>,<UDP Local port>]
Function	Enter UART-Wi-Fi passthrough mode and try to UDP connection on power-up.
Response	OK
Parameter	<mode> • 0: normal mode; WizFi360 will NOT enter UART-Wi-Fi passthrough mode on power-up • 1: WizFi360 enters UART-Wi-Fi passthrough mode on power-up <remote IP>: remote IP or domain name <remote port>: remote port [<type>] (optional): TCP or UDP, TCP by default; UDP in this case [<UDP local port>](optional): local port when UDP transparent transmission is enabled on power-up

Example	AT+SAVETRANSLINK=1,"192.168.2.2",5000,"UDP",6000
	OK

3.3.18 AT+CIPSTO: Sets the TCP Server Timeout

	Query Command	Set Command
Commands	AT+CIPSTO?	AT+CIPSTO=<time>
Function	To check the TCP server timeout.	To set the TCP server timeout.
Response	+CIPSTO:<time> OK	OK
Parameter	<time>: TCP server timeout within the range of 0 ~ 7200s.	
Example	AT+CIPSTO?	AT+CIPSTO=180
	+CIPSTO:10 OK	OK

3.3.19 AT+CIUPDATE: Updates the Software Through Wi-Fi

	Execute Command	
Commands	AT+CIUPDATE[=<url>]	AT+CIUPDATE="http://<ip>:8080/<filename>"
Function	Updates firmware by connecting to url	Updates firmware using the Upgrade Tool
Response	+CIPUPDATE: <n> OK	
Parameter	<url>: Firmware file path location.	<ip>: Local IP address <filename>: firmware file name
	<n>: • 1: find the server • 2: connect to server • 3: get the software version • 4: start updating	
Example	AT+CIUPDATE	AT+CIUPDATE="http://192.168.0.2:8080/WizFi360_SDK.img"
	+CIPUPDATE:<1> +CIPUPDATE:<2> +CIPUPDATE:<3>	+CIPUPDATE:<1> +CIPUPDATE:<2> +CIPUPDATE:<3>

	+CIPUPDATE:<4> OK	+CIPUPDATE:<4> OK
Note	• In case that updates firmware using the Upgrade Tool, please refer to Firmware Update Guide	

3.3.20 AT+PING: Ping Packets

	Execute Command
Commands	AT+PING=<IP address>
Response	+<Time> OK
	+timeout ERROR
Parameter	<IP>: string; host IP or domain name <time>: the response time of ping (in ms)
Example	AT+PING="www.google.com"
	+52 OK

3.3.21 AT+CIPDINFO: Shows the Remote IP and Port with +IPD

	Set Command
Commands	AT+CIPDINFO=<mode>
Response	OK
Parameter	<mode> • 0: does not show the remote IP and port with +IPD. • 1: shows the remote IP and port with +IPD.
Example	AT+CIPDINFO
	OK
Note	• This command can only be used when AT+CIPSENDBUF is used.

3.3.22 +IPD: Receive Network Data

	single connection (AT+CIPMUX=0)	multiple connections (AT+CIPMUX=1)
Commands	+IPD,<len>[,<remote IP>,<remote port>]:<data>	+IPD,<link ID>,<len>[,<remote IP>,<remote port>]:<data>
Parameter	[<remote IP>]: remote IP, enabled by command AT+CIPDINFO=1. [<remote port>]: remote port, enabled by command AT+CIPDINFO=1. <link ID>: ID number of connection. <len>: data length. <data>: data received.	
Example	+IPD,5:12345	+IPD,1,5,"192.168.0.10",50000:12345
Note	• The command is valid in normal command mode. When the module receives network data, it will send the data through the serial port using the +IPD command.	

3.3.23 AT+CIPSNTPCFG: Sets the Configuration of SNTP

	Query Command	Set Command
Commands	AT+CIPSNTPCFG?	AT+CIPSNTPCFG=<enable>[,<timezone>][,<SNTP server0>,<SNTP server1>,<SNTP server2>]
Function	To check the SNTP Server.	To set the SNTP Server.
Response	+CIPSNTPCFG:<enable>,<timezone>,<SNTP server1>[,<SNTP server2>,<SNTP server3>] OK	OK
Parameter	<enable> • 0: SNTP is disabled (factory default) • 1: SNTP is enabled <timezone>: time zone; range: [-11,13]; if SNTP is enabled, the <timezone> has to be set <SNTP server0>: optional parameter indicating the first SNTP server <SNTP server1>: optional parameter indicating the second SNTP server <SNTP server2>: optional parameter indicating the third SNTP server	
Example	AT+CIPSNTPCFG?	AT+CIPSNTPCFG=1,8,"cn.ntp.org.cn","ntp.sjtu.edu.cn","us.pool.ntp.org"
	+CIPSNTPCFG:1,8,"cn.ntp.org.cn" OK	OK
Note	• If the <SNTP server> Parameter are not set, servers "cn.ntp.org.cn","ntp.sjtu.edu.cn", and "us.pool.ntp.org" will be used by default.	

3.3.24 AT+CIPSNTPTIME: Checks the SNTP Time

	Query Command
Commands	AT+CIPSNTPTIME?
Response	+CIPSNTPTIME:<time> OK
Parameter	<time>: SNTP time
Example	AT+CIPSNTPTIME?
	+CIPSNTPTIME:Wed Jul 24 11:38:25 2019 OK

3.3.25 AT+CIPDNS_CUR: Sets User-defined DNS Servers; Configuration Not Saved in the Flash

	Query command	Set Command
Commands	AT+CIPDNS_CUR?	AT+CIPDNS_CUR=<enable>[,"<DNS server0>"][,"<DNS server1>"]
Function	Get the current DNS server	Set user-defined DNS servers
Response	[+CIPDNS_CUR:<DNS server0>] [+CIPDNS_CUR:<DNS server1>] OK	OK
Parameter	-	<enable> • 0: disable to use user-defined DNS servers • 1: enable to use user-defined DNS servers
	<DNS server0>: optional parameter indicating the first DNS server <DNS server1>: optional parameter indicating the second DNS server	
Example	AT+CIPDNS_CUR?	AT+CIPDNS_CUR=1,"1.1.1.1","8.8.8.8"
	+CIPDNS_CUR: 1.1.1.1 +CIPDNS_CUR: 8.8.8.8 OK	OK
Note	• The configuration changes will NOT be saved in the flash. • If <enable> is 1 and <DNS server0> and <DNS server1> are not fill, DNS server will be used "208.67.222.222". • DNS server(s) may be changed after executing AT+CWDHCP-commands. • <DNS server0> & <DNS server1> must be different.	

3.3.26 AT+CIPDNS_DEF: Sets User-defined DNS Servers; Configuration Saved in the Flash

	Query command	Set Command
Commands	AT+CIPDNS_DEF?	AT+CIPDNS_DEF=<enable>[,"<DNS server0>"][,"<DNS server1>"]
Function	Get the user-defined DNS servers which saved in flash.	Set user-defined DNS servers
Response	[+CIPDNS_DEF:<DNS server0>] [+CIPDNS_DEF:<DNS server1>] OK	OK
Parameter	-	<enable> • 0: disable to use user-defined DNS servers • 1: enable to use user-defined DNS servers
	<DNS server0>: optional parameter indicating the first DNS server <DNS server1>: optional parameter indicating the second DNS server	
Example	AT+CIPDNS_DEF?	AT+CIPDNS_DEF=1,"1.1.1.1","8.8.8.8"
	+CIPDNS_DEF: 1.1.1.1 +CIPDNS_DEFF: 8.8.8.8 OK	OK
Note	• The configuration changes will be saved in the system parameter area in the flash. • If <enable> is 1 and <DNS server0> and <DNS server1> are not fill, DNS server will be used "208.67.222.222". • DNS server(s) may be changed after executing AT+CWDHCP-commands. • <DNS server0> & <DNS server1> must be different.	

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