

WizFi360

AT Instruction Set

Version 1.0.5

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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 |
| Ver. 1.0.3 | 23AUG2019 | Add MQTT Command Add description of AT+CIPSTART SSL |
| Ver. 1.0.4 | 16SEP2019 | Modify typing error |

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>=<para0>,<para1>,...,<paraN> | Set the value of a particular parameter. The number of parameters is different for each command. |
| 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(=0x0A 0x0d).
2. <command> means each command. For example, <command> can be RST or CWMODE_CUR.
3. AT command can have several parameters, separated by a comma.
4. 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.
5. 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>, ...,<paran> OK | Query or Execute command is executed correctly and return the parameter value. |
| | SEND OK | The network data transmission is success. |
| | <description> OK | Query or Execute command is executed correctly and return the specific value. <description> means the returned values, and the returned values are different for each command. |
| | | |

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+CWDHPCS_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+CIPSENDERBUF | 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 |
| AT+MQTTSET | Sets the Configuration of MQTT connection |
| AT+MQTTTOPIC | Sets the Topic of Publish and Subscribe |
| AT+MQTTCON | Connects to a Broker |
| AT+MQTTPUB | Publish a message |
| AT+MQTTDIS | Disconnects from a Broker |

3.1 System Control Commands

3.1.1 AT: Tests AT Startup

| | Execute command |
|----------|-----------------|
| Commands | AT |
| Response | OK |

3.1.2 AT+RST: Restarts the module

| | Execute command |
|----------|-----------------|
| Commands | AT+RST |
| Response | OK |

3.1.3 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 |

3.1.4 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 |

3.1.5 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. |

3.1.6 AT+RESTORE: Restores the Factory Default settings

| | Execute command |
|------------------|---|
| Commands | AT+RESOTRE[=<type>] |
| Response | OK |
| Parameter | [<type>]: <ul style="list-style-type: none"> • 0: Restore only station mac address factory setting (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. |

3.1.7 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 | <p><baudrate>: UART baud rate 2000000, 1500000, 1000000, 921600, 460800, 230400, 115200 (factory default), 57600, 38400, 19200, 14400, 9600, 4800, 2400, 1800, 1200, 600</p> <p><databits>: data bits</p> <ul style="list-style-type: none"> • 5: 5-bit data • 6: 6-bit data • 7: 7-bit data • 8: 8-bit data (factory default) <p><stopbits>: stop bits</p> <ul style="list-style-type: none"> • 1: 1-bit stop bit (factory default) • 2: 2-bit stop bit <p><parity>: parity bit</p> <ul style="list-style-type: none"> • 0: None (factory default) • 1: Odd • 2: Even <p><flow control>: flow control</p> <ul style="list-style-type: none"> • 0: disable RTS/CTS flow control (factory default) • 1: enable RTS/CTS flow control | |
| Note | <ul style="list-style-type: none"> • 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 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 |

3.1.8 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 | <p><baudrate>: UART baud rate 2000000, 1500000, 1000000, 921600, 460800, 230400, 115200 (factory default), 57600, 38400, 19200, 14400, 9600, 4800, 2400, 1800, 1200, 600</p> <p><databits>: data bits</p> <ul style="list-style-type: none"> • 5: 5-bit data • 6: 6-bit data • 7: 7-bit data • 8: 8-bit data (factory default) <p><stopbits>: stop bits</p> | |

| | | |
|----------------|--|----------------------------|
| | <ul style="list-style-type: none"> • 1: 1-bit stop bit (factory default) • 2: 2-bit stop bit <p><parity>: parity bit</p> <ul style="list-style-type: none"> • 0: None (factory default) • 1: Odd • 2: Even <p><flow control>: flow control</p> <ul style="list-style-type: none"> • 0: flow control is not enabled (factory default) • 1: enable RTS/CTS flow control | |
| Note | <ul style="list-style-type: none"> • 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 | |

3.1.9 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>: <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none">• This command can only be used in Station mode. | |

3.1.10 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 | | |

3.1.11 AT+SYSIOGETCFG: Checks IO Working Mode

| | Set command |
|-----------|--|
| Commands | AT+SYSIOGETCFG=<pin> |
| Response | +SYSIOGETCFG:<pin>,<mode>,<pull-up> OK |
| Parameter | <p><pin>: IO pin number</p> <p><mode>:</p> <ul style="list-style-type: none"> • 0: default mode • 1: GPIO mode <p><pull-up>:</p> <ul style="list-style-type: none"> • 0: Disable pull-up • 1: Enable pull-up |
| Example | AT+SYSIOGETCFG=12 |
| | +SYSIOGETCFG:12,1,0 OK |

3.1.12 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>: <ul style="list-style-type: none"> • 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 |

3.1.13 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>: <ul style="list-style-type: none"> • 0: Set the pin to low level • 1: Set the pin to high level |
| Example | AT+SYSIOSETCFG=12,1,1 |
| | OK |
| | AT+SYSGPIOWRITE=12,0 |
| | OK |

3.1.14 AT+SYSGPIOREAD: Reads the GPIO Input Level

| | Set command |
|------------------|---|
| Commands | AT+SYSGPIOREAD=<pin> |
| Response | +SYSGPIOREAD:<pin>,<dir>,<level> |
| | 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>: <ul style="list-style-type: none"> • 0: input mode • 1: output mode <level>: <ul style="list-style-type: none"> • 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 • 2: SoftAP mode (factory default) • 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 |
| | <ssid>: string parameter, the SSID of the target AP, MAX: 32 bytes. <pwd>: string parameter, the password of the target AP, MAX: 64-byte ASCII. [<bssid>]: string parameter, the MAC address of the target AP, used when multiple APs have the same SSID. <channel>: channel number <rssi>: signal strength. <error code>: (for reference only) <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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 any special characters such as " , \, 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 |

| | | |
|-----------|---|--|
| | OK | +CWJAP_DEF:<error code> FAIL |
| Parameter | <p><ssid>: string parameter, the SSID of the target AP, MAX: 32 bytes.</p> <p><pwd>: string parameter, the password of the target AP, MAX: 64-byte ASCII.</p> <p>[<bssid>]: string parameter, the MAC address of the target AP, used when multiple APs have the same SSID.</p> <p><channel>: channel number</p> <p><rssi>: signal strength.</p> <p><error code>: (for reference only)</p> <ul style="list-style-type: none">• 1: connection timeout.• 2: wrong password.• 3: cannot find the target AP.• 4: connection failed. | |
| Example | AT+CWJAP_DEF? | AT+CWJAP_DEF="ab\\,c","12345678\\", "00:08:DC:11:12:13" (SSID: ab,c Password: 12345678\) |
| | +CWJAP_DEF="WIZNETSZ","00:08:dc:9c:ef:b6",12,-75 | OK |
| | OK | |
| Note | <ul style="list-style-type: none">• 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 " , \ , you need an escape character. | |

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

| | Set command | | | | | | | | | | | | | | | | | | | | | | |
|-----------|--|-------|------|------|------|------|------|------|------|------|------|------|-----|---|---|---|---|---|----|-----|------|------|-----|
| Commands | AT+CWLAPOPT=<sort_enable>,<mask> | | | | | | | | | | | | | | | | | | | | | | |
| Response | OK | | | | | | | | | | | | | | | | | | | | | | |
| Parameter | <p><sort_enable>: determines whether the result of command AT+CWLAP will be listed according to RSSI:</p> <ul style="list-style-type: none">• 0: the result is not ordered according to RSSI (factory default)• 1: the result is ordered according to RSSI. <p><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.</p> <table><tr><td>Bit10</td><td>Bit9</td><td>Bit8</td><td>Bit7</td><td>Bit6</td><td>Bit5</td><td>Bit4</td><td>Bit3</td><td>Bit2</td><td>Bit1</td><td>Bit0</td></tr><tr><td>WPS</td><td>-</td><td>-</td><td>-</td><td>-</td><td>-</td><td>CH</td><td>MAC</td><td>RSSI</td><td>SSID</td><td>ECN</td></tr></table> | Bit10 | Bit9 | Bit8 | Bit7 | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 | WPS | - | - | - | - | - | CH | MAC | RSSI | SSID | ECN |
| Bit10 | Bit9 | Bit8 | Bit7 | Bit6 | Bit5 | Bit4 | Bit3 | Bit2 | Bit1 | Bit0 | | | | | | | | | | | | | |
| WPS | - | - | - | - | - | CH | MAC | RSSI | SSID | ECN | | | | | | | | | | | | | |
| 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 10000011111 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 | <ul style="list-style-type: none"> 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. <ul style="list-style-type: none"> 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>: <ul style="list-style-type: none"> 0: WPS is disabled 1: WPS is enabled | |
| Example1 | 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) OK | +CWLAP:(3,"WIZNETSZ",-75,"00:08:dc:9c:ef:b6",12,1) OK |
| Example2 | - | AT+CWLAP="WIZNETSZ","",12 |
| | | +CWLAP:(3,"WIZNETSZ",-75,"00:08:dc:9c:ef:b6",12,1) OK |
| Note | <ul style="list-style-type: none"> This command is only available in Station mode and SoftAP+Station mode. The parameters displayed of Response change according to the setting of CWLAPOPT command. If you want to set the optional parameter <channel> only, write it as in Example2. | |

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 |

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 |
| Default Value | WizFi360_36036","",1,0,4,0 | |
| 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]. [<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 | <ul style="list-style-type: none"> • The configuration changes will NOT be saved in the flash. • This command is only available in SoftAP mode and SoftAP+Station mode. • To use <ssid hidden>, <max conn> must be set first. | |

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 |
| Default Value | WizFi360_36036","",1,0,4,0 | |
| Parameter | <p><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:</p> <ul style="list-style-type: none"> • 0: OPEN • 2: WPA_PSK • 3: WPA2_PSK <p>[<max conn>]: maximum number of Stations to which WizFi360 SoftAP can be connected; within the range of [1, 4]. [<ssid hidden>]:</p> <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • The configuration changes will be saved in the flash system parameter area. • This command is only available in SoftAP mode and SoftAP+Station mode. • To use <ssid hidden>, <max conn> must be set first. | |

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>: string parameter, IP address of Stations to which WizFi360 SoftAP is connected. <mac>: string parameter, 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 | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 0: Sets WizFi360 SoftAP • 1: Sets WizFi360 Station • 2: Sets both SoftAP and Station <en> <ul style="list-style-type: none"> • 0: Disables DHCP • 1: Enables DHCP |

| | | |
|---------|--|-------------------|
| Example | AT+CWDHCP_CUR? | AT+CWDHCP_CUR=1,1 |
| | +CWDHCP_CUR:1 | OK |
| | OK | |
| Note | <ul style="list-style-type: none">• 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):<ul style="list-style-type: none">• 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> <ul style="list-style-type: none">• 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> <ul style="list-style-type: none">• 0: Sets WizFi360 SoftAP• 1: Sets WizFi360 Station• 2: Sets both SoftAP and Station <en> <ul style="list-style-type: none">• 0: Disables DHCP• 1: Enables DHCP |
| Example | AT+CWDHCP_DEF? | AT+CWDHCP_DEF=1,1 |
| | +CWDHCP_DEF:1 OK | OK |
| Note | <ul style="list-style-type: none">• 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+CWDHCP_CUR: Sets the IP Address Allocated by WizFi360 SoftAP DHCP; Configuration Not Saved in Flash

| | Query command | Set Command |
|----------------------|---|--|
| Commands | AT+CWDHCP_CUR? | AT+CWDHCP_CUR=<enable>[,<lease time>,<start IP>,<end IP>] |
| Function | To obtain the IP address range of the WizFi360 SoftAP DHCP Server. | Sets the IP address range of the WizFi360 SoftAP DHCP server |
| Response | +CWDHCP_CUR: <lease time>,<start IP>,<end IP> OK | OK |
| Default Value | 120,"192.168.36.2","192.168.36.101" | |
| 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]. [<start IP>]: string parameter, start IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. [<end IP>]: string parameter, end IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. | |
| Example1 | AT+CWDHCP_CUR? | AT+CWDHCP_CUR=0,1 |
| | +CWDHCP_CUR:120,"192.168.0.2","192.168.0.101" | OK |
| | OK | AT+CWDHCP_CUR=1,120,"192.168.0.100","192.168.0.200" |
| | | OK |
| Example2 | - | AT+CWDHCP_CUR=0 |
| | | OK |
| Note | <ul style="list-style-type: none"> 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. To use <lease time>, <start IP> and <end IP> must be set. Likewise, to use <start IP> and <end IP>, <lease time> must be set. | |

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

| | Query command | Set Command |
|-----------------|----------------|---|
| Commands | AT+CWDHCP_DEF? | AT+CWDHCP_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 |
| Default Value | 120,"192.168.36.2","192.168.36.101" | |
| 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]. [<start IP>]: string parameter, start IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. [<end IP>]: string parameter, end IP of the IP range that can be obtained from WizFi360 SoftAP DHCP server. | |
| Example1 | AT+CWDHCPS_DEF? | AT+CWDHCPS_DEF=0,1 |
| | +CWDHCPS_DEF:120,"192.168.0.2","192.168.0.101" | OK |
| | OK | AT+CWDHCPS_DEF=1,120,"192.168.0.100","192.168.0.200" |
| | | OK |
| Example2 | - | AT+CWDHCPS_DEF=0 |
| | | OK |
| Note | <ul style="list-style-type: none"> • 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. • To use <lease time>, <start IP> and <end IP> must be set. Likewise, to use <start IP> and <end IP>, <lease time> must be set. | |

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 | <ul style="list-style-type: none"> 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 | <ul style="list-style-type: none">• 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 | <ul style="list-style-type: none"> • 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+CIPAPMAC_CUR="02:08:DC:11:12:13" |
| | +CIPAPMAC_CUR:"02:08:dc:11:12:13" OK | OK |
| Note | <ul style="list-style-type: none"> • The configuration changes are not allowed. • The MAC address of WizFi360 SoftAP depends on MAC address of the 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+CIPAPMAC_DEF="02:08:DC:11:12:13" |
| | +CIPAPMAC_DEF:"02:08:dc:11:12:13" | OK |
| | OK | |
| Note | <ul style="list-style-type: none">• The configuration changes are not allowed.• The MAC address of WizFi360 SoftAP depends on MAC address of the 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>]: string parameter, the gateway of the WizFi360 Station [<netmask>]: string parameter, the netmask of the WizFi360 Station | |
| 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 | <ul style="list-style-type: none">• 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.• To use <gateway>, <netmask> must be set first. | |

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 default IP address of the WizFi360 station | To set the default 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>]: string parameter, the gateway of the WizFi360 Station [<netmask>]: string parameter, the netmask of the WizFi360 Station | |
| 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 | <ul style="list-style-type: none"> • 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. • To use <gateway>, <netmask> must be set first. | |

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>]: string parameter, the gateway of the WizFi360 SoftAP. [<netmask>]: string parameter, the netmask of the WizFi360 SoftAP. | |
| 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" | OK |

| | | |
|-------------|---|----------------------------|
| | +CIPAP_CUR:gateway:"192.168.0.1" +CIPAP_CUR:netmask:"255.255.255.0" | AT+CIPAP_CUR="192.168.0.1" |
| | OK | OK |
| Note | <ul style="list-style-type: none"> 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. To use <gateway>, <netmask> must be set first. | |

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>]: string parameter, the gateway of the WizFi360 SoftAP. [<netmask>]: string parameter, the netmask of the WizFi360 SoftAP. | |
| 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" | OK |
| | +CIPAP_DEF:gateway:"192.168.0.1" | AT+CIPAP_DEF="192.168.0.1" |
| | +CIPAP_DEF:netmask:"255.255.255.0" | OK |
| | OK | |
| Note | <ul style="list-style-type: none"> 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. To use <gateway>, <netmask> must be set first. | |

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 <ul style="list-style-type: none"> • 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> smart get WiFi info ssid:<ssid> password:<password> WiFi CONNECTED WiFi GOT IP smartconfig connected WiFi | |
| Parameter | <type>: AIRKISS or ESPTOUCH <ssid>: AP's ssid <password>: AP's password | |
| 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 | <ul style="list-style-type: none"> • 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. | |

| | |
|--|--|
| | <ul style="list-style-type: none"> • 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. <ol style="list-style-type: none"> 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 | <ul style="list-style-type: none"> • 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>: <ul style="list-style-type: none"> • 1: enables WPS/Wi-Fi Protected Setup • 0: disables WPS |
| Example | AT+WPS=1 |
| | wps started |
| | OK |
| Note | <ul style="list-style-type: none"> • WPS must be used in Station mode and SoftAP+Station mode. • 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>: string parameter, 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 | <p><policy>:</p> <ul style="list-style-type: none"> 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 <p><country_code>: string parameter, 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?</p> | |

| | | |
|----------------|--|--------------------------|
| | <channel_option>: <ul style="list-style-type: none"> • 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 | |
| Example | AT+CWOUNTRY_CUR? | AT+CWOUNTRY_CUR=1,"KR",1 |
| | +CWOUNTRY_CUR=1,"KR",1 OK | OK |
| Note | <ul style="list-style-type: none"> • The configuration changes will NOT be saved in the flash. | |

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

| | Query Command | Set Command |
|------------------|---|---|
| Commands | AT+CWOUNTRY_DEF? | AT+CWOUNTRY_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 | +CWOUNTRY_DEF:<policy>,<country_code>,<channel_option> OK | OK |
| Parameter | <policy>: <ul style="list-style-type: none"> • 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>: string parameter, 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+CWOUNTRY_DEF? <channel_option>: <ul style="list-style-type: none"> • 0: select the channel to 1~11 • 1: select the channel to 1~13 | |

| | | |
|----------------|---|---------------------------|
| | <ul style="list-style-type: none"> • 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 | |
| Example | AT+CWCOUNTRY_DEF? | AT+CWCOUNTRY_DEF=1,"KR",1 |
| | +CWCOUNTRY_DEF=1,"KR",1 OK | OK |
| Note | <ul style="list-style-type: none"> • The configuration changes will be saved in the flash user parameter area. | |

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 <ul style="list-style-type: none"> • 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 network connection (0~4), used for multiple connections (AT+CIPMUX=1) <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> <ul style="list-style-type: none"> • 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>: string parameter, the domain name, length should be less than 64 bytes <ip address>: string parameter, 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 TCP 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, range [1, 65535] [<TCP keep alive>]: detection time interval when TCP is kept alive; this function is disabled by default <ul style="list-style-type: none"> • 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 UDP connection is already established | |
| Parameter | <p><link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1)</p> <p><type>: string parameter indicating the connection type: TCP, UDP, SSL; This is UDP in this case</p> <p><remote IP>: string parameter indicating the remote IP address</p> <p><remote port>: the remote port number within the range of 0~65535. If set to 0, it is assigned random value.</p> <p>[<UDP local port>]: UDP port number within the range of 1~65535. of WizFi360</p> <p>[<UDP mode>]: In the UDP transparent transmission, the value of this parameter must be 0</p> <ul style="list-style-type: none"> • 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 | <p><link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1)</p> <p><type>: string parameter indicating the connection type: TCP, UDP, SSL; This is SSL in this case</p> <p><remote IP>: string parameter indicating the remote IP address</p> <p><remote port>: the remote port number</p> <p>[<TCP keep alive>]: detection time interval when TCP is kept alive; this function is disabled by default</p> <ul style="list-style-type: none"> • 0: disable TCP keep-alive • 1 ~ 7200: detection time interval; unit: second (s) | |
| Example | AT+CIPSTART="SSL","www.wiznet.io",443 | AT+CIPSTART=1,"SSL","www.wiznet.io",443 |
| | OK | OK |

| | |
|-------------|--|
| Note | <ul style="list-style-type: none"> • 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. • WizFi360 does not support certificate. |
|-------------|--|

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 |

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 | <ul style="list-style-type: none"> • 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. |

| | |
|--|---|
| | <ul style="list-style-type: none"> • 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 > | |
| | <i>If the connection cannot be established or gets disrupted during data transmission, the system returns:</i> ERROR | |
| | <i>If data is transmitted successfully, the system returns:</i> SEND OK | |
| | <i>If it failed, the system returns:</i> SEND FAIL | |
| Parameter | <link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <length>: data length, MAX: 2048 bytes. [<remote IP>]: string parameter, 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 > |
| Note | <ul style="list-style-type: none"> • In UDP transmission, <remote IP> and <remote port> are optional parameters. Whenever this command is executed, WizFi360 sends data to different destination. If you do not set an optional parameter, WizFi360 sends data to the destination set when the AT + CIPSTART command is executed. • To use <remote IP>, <remote port> must be set. Likewise, to use <remote port>, <remote IP> must be set. | |

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 > | |
| | <i>If the connection cannot be established or gets disrupted during data transmission, the system returns:</i> ERROR | |
| | <i>If data is transmitted successfully, the system returns:</i> SEND OK | |
| | <i>If it failed, the system returns:</i> SEND FAIL | |
| Parameter | <link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <length>: data length, MAX: 2048 bytes. [<remote IP>]: string parameter, 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 | <ul style="list-style-type: none"> • 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. • In UDP transmission, <remote IP> and <remote port> are optional parameters. Whenever this command is executed, WizFi360 sends data to different destination. If you do not set an optional parameter, WizFi360 sends data to the destination set when the AT + CIPSTART command is executed. • To use <remote IP>, <remote port> must be set. Likewise, to use <remote port>, <remote IP> must be set. | |

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

| | single connection (AT+CIPMUX=0) | multiple connections (AT+CIPMUX=1) |
|-----------------|---|------------------------------------|
| Commands | AT+CIPSENDERBUF=<length> | AT+CIPSENDERBUF=<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 > | |
| | <i>If the data length over the value of <length>, the data will be discarded, the system returns:</i> 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 network connection (0~4), used 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+CIPSENDERBUF=1024 | AT+CIPSENDERBUF=0,1024 |
| | 0 | 0,0 |
| | OK > | OK > |
| Note | <ul style="list-style-type: none"> • 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 network connection (0~4), used for multiple connections (AT+CIPMUX=1) | |
| Example | AT+CIPBUFRESET | AT+CIPBUFRESET=1 |
| | OK | OK |
| Note | • This command can only be used when AT+CIPSENDERBUF 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 network connection (0~4), used for multiple connections (AT+CIPMUX=1) <next segment ID>: the next segment ID obtained by AT+CIPSENDERBUF <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 |
| | <ul style="list-style-type: none"> • 20: means that the latest segment ID is 19; so when calling AT+CIPSENDERBUF 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 | <ul style="list-style-type: none"> • 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=<link ID>,<segment ID> |
| Response | <segment ID>,<status> OK | <link ID>,<segment ID>,<status> OK |
| Parameter | <link ID>: ID of network connection (0~4), used for multiple connections (AT+CIPMUX=1) <segment ID>: the segment ID obtained by calling AT+CIPSENDERBUF <status> <ul style="list-style-type: none"> • FALSE: the segment-sending failed • TRUE: the segment was sent successfully | |

| | | |
|----------------|--|---------------------|
| Example | AT+CIPCHECKSEQ=20 | AT+CIPCHECKSEQ=1,20 |
| | 20,TRUE | 1,20,TRUE |
| | OK | OK |
| Note | <ul style="list-style-type: none"> This command can only be used when AT+CIPSENDLBUF 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 network connection (0~4), used 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 | <i>If WizFi360 is station mode(AT+CWMODE=1), the system returns:</i> +CIFSR:STAIP,<Station IP address> +CIFSR:STAMAC,<Station MAC address> OK |
| | <i>If WizFi360 is SoftAP mode(AT+CWMODE=2), the system returns:</i> +CIFSR:APIP,<SoftAP IP address> +CIFSR:APMAC,<SoftAP MAC address> OK |
| | <i>If WizFi360 is station+SoftAP mode(AT+CWMODE=3), the system returns:</i> +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>: string parameter, IP address of the WizFi360 SoftAP <Station IP address>: string parameter, IP address of the WizFi360 Station <SoftAP MAC address>: string parameter, MAC address of the WizFi360 SoftAP <Station MAC address>: string parameter, 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> <ul style="list-style-type: none"> • 0: single connection (factory default) • 1: multiple connections | |
| Example | AT+CIPMUX? +CIPMUX:1 OK | AT+CIPMUX=1 OK |
| Note | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 0: deletes server • 1: creates server <port>: port number within the range of 1 ~ 65535; 333 by default |
| Note | <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 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 | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 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>: string parameter, remote IP or domain name <remote port>: remote port [<type>]: string parameter, TCP or UDP, TCP by default [<TCP keep alive>]: TCP is kept alive. This function is disabled by default <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 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>: string parameter, remote IP or domain name <remote port>: remote port <type>: string parameter, TCP or UDP, TCP by default; UDP in this case [<UDP local port>]: 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>]: string parameter, Firmware file path location. | <ip>: Local IP address <filename>: firmware file name |
| | <n>: <ul style="list-style-type: none"> • 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:<1> |
| | +CIPUPDATE:<2> | +CIPUPDATE:<2> |
| | +CIPUPDATE:<3> | +CIPUPDATE:<3> |
| Example | +CIPUPDATE:<4> | +CIPUPDATE:<4> |
| | OK | OK |
| Note | <ul style="list-style-type: none"> • 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 parameter, 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> <ul style="list-style-type: none"> • 0: does not show the remote IP and port with +IPD. • 1: shows the remote IP and port with +IPD. |
| Example | AT+CIPDINFO |
| | OK |

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 | <link ID>: ID of network connection (0~4) <len>: data length. [<remote IP>]: string parameter, remote IP, enabled by command AT+CIPDINFO=1. [<remote port>]: remote port, enabled by command AT+CIPDINFO=1. <data>: data received. | |
| Example | +IPD,5:12345 | +IPD,1,5,"192.168.0.10",50000:12345 |
| Note | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 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>]: string parameter indicating the first SNTP server [<SNTP server1>]: string parameter indicating the second SNTP server [<SNTP server2>]: string 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 | <ul style="list-style-type: none"> 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> <ul style="list-style-type: none"> 0: disable to use user-defined DNS servers 1: enable to use user-defined DNS servers |

| | | |
|---------|---|-------------------------------------|
| | <DNS server0>: string parameter indicating the first DNS server <DNS server1>: string 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 | <ul style="list-style-type: none"> • 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> <ul style="list-style-type: none"> • 0: disable to use user-defined DNS servers • 1: enable to use user-defined DNS servers |
| | <DNS server0>: string parameter indicating the first DNS server <DNS server1>: string 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 | <ul style="list-style-type: none"> • 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. | |

3.3.27 AT+MQTTSET: Sets the Configuration of MQTT connection.

| | Query command | Set Command |
|------------------|--|--|
| Commands | AT+MQTTSET? | AT+MQTTSET=<User Name>,<Password>,<ClientID>,<AliveTime> |
| Response | <UserName>,<Password>,<ClientID>,<AliveTime> OK | OK |
| Parameter | <UserName>: string parameter, User Name used in the broker authentication Max: 50byte <Password>: string parameter, Password used in the broker authentication. Max: 50byte <ClientID>: string parameter, Client ID connected to the broker. Max: 50byte <AliveTime>: keep-alive time setting with the broker within the range of 30s~300s. | |
| Example | AT+MQTTSET=? | AT+MQTTSET="wiznet","12345678","wiznet-01",60 |
| | "wiznet","12345678","wiznet-01",60 OK | OK |
| Note | <ul style="list-style-type: none"> This command should be set before connecting to a broker. | |

3.3.28 AT+MQTTTOPIC: Sets the Topic of Publish and Subscribe

| | Query command | Set Command |
|------------------|---|--|
| Commands | AT+MQTTTOPIC? | AT+MQTTTOPIC=<publish topic>,<subscribe topic> |
| Response | <publish topic>,<subscribe topic> OK | OK |
| Parameter | <publish topic>: string parameter, The topic published on the WizFi360 <subscribe topic>: string parameter, The topic subscribed by the WizFi360 | |
| Example | AT+MQTTTOPIC? | AT+MQTTTOPIC="pubTopic","subTopic" |
| | "pubTopic","subTopic" OK | OK |
| Note | <ul style="list-style-type: none"> This command should be set before connecting to a broker. | |

3.3.29 AT+MQTTCON: Connects to a Broker

| | Set Command |
|-----------------|---|
| Commands | AT+MQTTCON=<enable>,<broker IP>,<broker port> |

| | |
|------------------|---|
| Response | CONNECT |
| | OK |
| | CONNECT FAIL |
| | ERROR |
| Parameter | <p><enable>:</p> <ul style="list-style-type: none"> • 0: Connect to a broker without authentication • 1: Connect to a broker with authentication <p><broker IP>: string parameter indicating the broker IP address <broker port>: the broker port number</p> |
| Message | Whenever messages of subscribe topic is received, it will return as below |
| | <subscribe topic> -> "subscribe data" |
| Example | AT+MQTTCON=0,"192.168.1.20",1883 |
| | CONNECT |
| | OK |
| Note | <ul style="list-style-type: none"> • When the module receives a message of subscribed topic defined by AT+MQTTTOPIC, it will send the data through the serial port |

3.3.30 AT+MQTTPUB: Publish a message

| | Set Command |
|------------------|---|
| Commands | AT+MQTTPUB=<message> |
| Response | OK |
| Parameter | <message>: string parameter, Publish the message to subscribed Client |
| Example | AT+MQTTPUB="publish data" |
| | OK |
| Note | <ul style="list-style-type: none"> • This command can only be used when MQTT Connection is established. • Topic of published data is decided by AT+MQTTTOPIC, you should be set a topic of publish before connecting to a broker. |

3.3.31 AT+MQTTDIS: Disconnects from a Broker

| | Execute Command |
|-----------------|-----------------|
| Commands | AT+MQTTDIS |

| | |
|----------|-------|
| Response | CLOSE |
|----------|-------|

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