

# v3.2.0.0 Release Notes

---

v3.2.0.0 is released for ESP32 and ESP32-C3. The changes since the previous version are as follows.

- [ESP32-AT](#)
- [ESP32C3-AT](#)

## ESP32-AT

Documentation for Release v3.2.0.0 is available at <https://docs.espressif.com/projects/esp-at/en/release-v3.2.0.0/esp32/index.html> ESP32-AT v3.2.0.0 is a major update for ESP32-AT [v2.4.0.0](#).

The firmwares:

- [ESP32-WROOM-32-AT-V3.2.0.0.zip](#)
- [ESP32-SOLO-AT-V3.2.0.0.zip](#)
- [ESP32-PICO-D4-AT-V3.2.0.0.zip](#)
- [ESP32-MINI-1-AT-V3.2.0.0.zip](#)
- ESP-AT will not release firmwares for ESP32 WROVER series

This is the list of changes since release [v2.4.0.0](#):

## Breaking Changes

- `esp-idf` version updated to release/v5.0 ([24b9d38a](#))
- `AT+SYSFLASH`: If you previously used v2.4.0.0 firmware and now directly flash v3.2.0.0 firmware, and MCU reads/writes parameters through `AT+SYSFLASH` command, the two versions will return different data, causing incompatibility (because v2.4.0.0 reads/writes parameters using partition method, while v3.2.0.0 uses NVS method). You can choose any of the following methods to resolve the compatibility issue:
  - Modify MCU code. For v2.4.0.0 firmware version, use `AT+SYSFLASH` command to read/write parameters; for v3.2.0.0 firmware version, use `AT+SYSMFG` command to read/write parameters.
  - Upgrade to v3.2.0.0 firmware using `AT+USEROTA` or `AT+CIUPDATE` command instead of directly flashing firmware.
  - Customize AT firmware. In the firmware released with v2.4.0.0, replace the `esp-at.bin` file with the `esp-at.bin` file from v3.1.0.0, and recompile it into a new 4MB firmware.
- `AT+RFPOWER`: The default value of ble tx power changed from 2 to 0

## 1. Feature

### 1.1 Wi-Fi

- `AT+CWSTAPROTO` and `AT+CWAPPROTO` commands added `WIFI_PROTOCOL_LR` support
- Added the `AT+CWINIT` command to init or deinit Wi-Fi
- `AT+WEBSERVER`: Wi-Fi provisioning supports special characters in SSIDs and passwords

### 1.2 TCP/IP

- Added the **AT+CIPFWVER?** command to query firmware versions
- **AT+CIUPDATE**: Added CDN network support
- Added the **AT+TRANSINTVL** command to support configurable intervals in passthrough mode

### 1.3 Application Layer

- Added the **AT+MQTTLONGCLIENTID** command to set MQTT client ID
- Added the **AT+MQTTLONGUSERNAME** command to set MQTT username
- Added the **AT+MQTTLONGPASSWORD** command to set MQTT password
- Added the **AT+HTTPCHEAD** commands to set more request headers
- Added **AT+HTTPCPUT** command to put HTTP data of specified length
- **AT+HTTPGETSIZE**: Added tx\_size, rx\_size, timeout parameters
- Added WebSocket AT commands
- **AT+WEBSERVER**: Added the customized partition upgrade function
- **AT+CIPSNTPCFG**: Added timezone query and timezone set when SNTP was disabled

### 1.4 System

- Added the **AT+SYSMSGFILTER** and **AT+SYSMSGFILTERCFG** commands to filter system messages
- Added the **AT+USERWKMUCCFG** and **AT+USERMCUSLEEP** commands to wake up MCU
- Added **esp\_at\_get\_para\_as\_float()** API to get the float type parameter

### 1.5 Bluetooth

- **AT+BLUFI**: BluFi supports getting AP lists and sending custom data
- **AT+BLEWL**: Added ble whitelist command
- **AT+BLUFINAME**: Modified maximum length of BluFi name to 29 bytes
- **AT+SAVETRANSLINK**: Support Bluetooth LE passthrough mode
- **AT+BLERDRSSI**: Support reading the RSSI of Bluetooth LE connection
- Support sending exchange MTU requests when init server role

## 2. Bugfix

### 2.1 Wi-Fi

- Fixed that Wi-Fi mode was changed after waking up from deep sleep (**AT+GSLP**)
- Fixed that **AT+CWQIF** fails to disconnect the station if connected by multiple stations
- Fixed that **AT+CWJAP** returned the wrong reason code sometimes
- Fixed the crash caused by frequently enabling and disabling web server (**AT+WEBSERVER**)
- Fixed that Wi-Fi stopped reconnection if **AT+BLUFI** command was sent
- Fixed the issue of occasional network configuration failure in smartconfig (due to the lack of SSID validity check, which resulted in incorrect Wi-Fi auto-connection after power-up, further terminating the smartconfig network configuration).
- Fixed a potential issue that SoftAP could not work if powered down when saving the SoftAP configurations
- **AT+CWJEAP**: Fixed the issue that the **EAP-TLS** method does not work due to the last byte of PKI was not NULL terminated
- Fixed that **AT+RFPower** command could not set ble tx power when Wi-Fi mode was 0

## 2.2 TCP/IP

- Fixed that `AT+CIPSTO` could not work in passthrough mode
- Fixed that `AT+CIPTCPOPT` cannot work if AT works as a server
- Fixed that `AT+CIPTCPOPT` query command may return the wrong keep-alive value
- Added a workaround that `AT+CIPCLOSE` might block forever if ESP-AT works as a TCP client and `SO_LINGER` option is set (due to the [LwIP SO\\_LINGER issue](#) in some cases)
- Fixed that `AT+CIPRECVDATA` may cause a busy p issue
- Fixed that `AT+CIPSSLCCONF`, `AT+CIPSSLCCN`, `AT+CIPSSLCSENI`, `AT+CIPSSLCALPN`, `AT+CIPSSLCPSK`, `AT+CIPTCPOPT` returns multiple items in single connection
- Fixed a type and remote host parameter unmatched issue in `AT+CIPSTART` command
- Fixed a potential crash if the hostname length is bigger than 64 bytes in `AT+CIPSTART` command
- `AT+CIPSEND`: Fixed a data sent issue due to the changed link\_id
- Fixed that `AT+CIUPDATE` returned ERROR if the OTA server returned too many OTA versions
- Fixed that `AT+CIPSTART` could not establish multiple UDP transmissions on the same port
- Fixed the issue of TLS connection failures caused by incorrect CN settings
- Fixed the issue of returning OK when setting `AT+CIPSERVER` twice

## 2.3 Application Layer

- Fixed that `AT+HTTPURLCFG?` returned the wrong URL
- Fixed that `rx_size` parameter could not work when set to 0 in `AT+HTTPCGET` command
- Fixed that `AT+HTTPCPOST` response returns the wrong command name if appended more post data
- Fixed the issue of AT blocking when MQTT broker actively closed MQTT client connection

## 2.4 System

- Fixed that busy p issue if an SSL connection was established and data was read in a weak network
- Fixed that GPIO32/GPIO33 could not work as UART pins due to conflict with the external 32 KHz crystal oscillator configuration
- Fixed that `esp_at_port_write_data()` crashed if input length < 0
- Fixed the high power consumption in light sleep if set the wake-up source
- Fixed the memory leak issue of `AT+FS` command
- `SPI`: Fixed a global issue where incorrect length was returned when reading data by SPI (For example, `AT+HTTPCPOST` command cannot read out all the data from SPI due to wanted data length being returned instead of the actual data length)

## 2.5 Bluetooth

- Fixed that device name was missing in adv packets
- Fixed some BluFi issues
- Fixed the issue of occasional restart caused by the `AT+BLEGATTCPRIMSRV=0` command
- Fixed the ble tx power set fail issue

## 2.6 Tools

- Fixed that factory firmware cannot be generated on Windows OS
- `build.py`: Installed compilation environment depends on the target

- `build.py`: Used the python of esp-idf environment instead of external deprecated python
- `at.py` Support modifying manufacturing NVS

### 3. Optimization

- Refactored the storage mode of factory parameters to use the manufacturing NVS operation instead of partition operation. (see [Why are we using manufacturing nvs way on the master?](#) for more details)
- Simplified GitHub CI workflow
- Enabled power\_management for the station when disconnected (Chip will do modem-sleep when rf module is not in use any more)
- Disable PMF to improve Wi-Fi compatibility when AT works in SoftAP mode
- Used Python to generate fatfs.bin instead of the deprecated mkfatfs component
- Support jihulab redirects in `build.py`
- Migrated AT firmware resources from `download.espressif.com` server to `dl.espressif.com` server
- Enhanced the documentation with the addition of more and detailed descriptions and addressed some document errors.

## ESP32C3-AT

Documentation for Release v3.2.0.0 is available at <https://docs.espressif.com/projects/esp-at/en/release-v3.2.0.0/esp32c3/index.html> ESP32C3-AT v3.2.0.0 is a major update for ESP32C3-AT [v2.4.2.0](#).

The firmwares:

- [ESP32-C3-MINI-1-AT-V3.2.0.0.zip](#)

This is the list of changes since release [v2.4.2.0](#):

### Breaking Changes

- `esp-idf` version updated to release/v5.0 ([24b9d38a](#))
- `AT+SYSFLASH`: If you previously used v2.4.0.0 firmware and now directly flash v3.2.0.0 firmware, and MCU reads/writes parameters through `AT+SYSFLASH` command, the two versions will return different data, causing incompatibility (because v2.4.0.0 reads/writes parameters using partition method, while v3.2.0.0 uses NVS method). You can choose any of the following methods to resolve the compatibility issue:
  - Modify MCU code. For v2.4.0.0 firmware version, use `AT+SYSFLASH` command to read/write parameters; for v3.2.0.0 firmware version, use `AT+SYSMFG` command to read/write parameters.
  - Upgrade to v3.2.0.0 firmware using `AT+USEROTA` or `AT+CIUPDATE` command instead of directly flashing firmware.
  - Customize AT firmware. In the firmware released with v2.4.0.0, replace the esp-at.bin file with the esp-at.bin file from v3.1.0.0, and recompile it into a new 4MB firmware.
- `AT+RFPower`: The default value of ble tx power changed from 10 to 11

## 1. Feature

## 1.1 Wi-Fi

- **AT+CWSTAPROTO** and **AT+CWAPPROTO** commands added **WIFI\_PROTOCOL\_LR** support
- Added the **AT+CWINIT** command to init or deinit Wi-Fi
- **AT+WEBSERVER**: Wi-Fi provisioning supports the special character in SSID and password

## 1.2 TCP/IP

- **AT+CIUPDATE**: Added CDN network support
- Added the **AT+TRANSINTVL** command to support configurable intervals in passthrough mode

## 1.3 Application Layer

- Added the **AT+HTTPHEAD** commands to set more request headers
- Added **AT+HTTPCPUT** command to put HTTP data of specified length
- **AT+HTTPGETSIZE**: Added tx\_size, rx\_size, timeout parameters
- Added WebSocket AT commands
- **AT+WEBSERVER**: Added the customized partition upgrade function
- **AT+CIPSNTPCFG**: Added timezone query and timezone set when SNTP was disabled
- Added RainMaker AT Commands and Firmware

## 1.4 System

- Added the **AT+SYSMSGFILTER** and **AT+SYSMSGFILTERCFG** commands to filter system messages
- Added the **AT+RST** setup command to set the chip to enter normal running mode or firmware downloading mode
- Enable the external 32 KHz oscillator option by default and it works regardless of whether a 32K crystal oscillator is connected or not

## 1.5 Bluetooth

- **AT+BLUFI**: BluFi supports getting AP lists and sending custom data
- **AT+BLEWL**: Added Bluetooth LE whitelist command
- **AT+BLUFINAME**: Modified maximum length of Blu-Fi name to 29 bytes
- **AT+SAVETRANSLINK**: Support Bluetooth LE passthrough mode
- **AT+BLERDRSSI**: Support reading the RSSI of Bluetooth LE connection
- Support sending exchange MTU requests when init server role

## 2. Bugfix

### 2.1 Wi-Fi

- Fixed that **AT+CWQIF** fails to disconnect the station if connected by multiple stations
- Fixed that **AT+CWJAP** returned the wrong reason code sometimes
- Fixed a crash caused by frequently enabling and disabling web server (**AT+WEBSERVER**)
- Fixed that Wi-Fi stopped reconnection if sent **AT+BLUFI** command
- Fixed the issue of occasional network configuration failure in smartconfig (due to the lack of SSID validity check, which resulted in incorrect Wi-Fi auto-connection after power-up, further terminating

the smartconfig network configuration).

- Fixed a potential issue that SoftAP cannot work if powered down when saving the SoftAP configurations
- **AT+CWJEAP**: Fixed the issue that the **EAP-TLS** method does not work due to the last byte of PKI not NULL terminated
- Fixed that **AT+RFPower** command cannot set ble tx power when Wi-Fi mode is 0

## 2.2 TCP/IP

- Added a workaround that **AT+CIPCLOSE** might block forever if ESP-AT works as a TCP client and **SO\_LINGER** option is set (due to the **LWIP SO\_LINGER issue** in some cases)
- Fixed that **AT+CIPRECVDATA** may cause a busy p issue
- Fixed that **AT+CIPSSLCCONF**, **AT+CIPSSLCCN**, **AT+CIPSSLSNI**, **AT+CIPSSLCALPN**, **AT+CIPSSLCPSK**, **AT+CIPTCPOPT** returns multiple items in single connection
- Fixed a type and remote host parameter unmatched issue in **AT+CIPSTART** command
- Fixed a potential crash if hostname length is bigger than 64 bytes in **AT+CIPSTART** command
- **AT+CIPSEND**: Fixed a data sent issue due to changed link\_id
- Fixed that **AT+CIUPDATE** returns ERROR if the OTA server returned too many ota versions
- Fixed that **AT+CIPSTART** cannot establish multiple UDP transmissions on the same port
- Fixed the issue of TLS connection failures caused by incorrect CN settings
- Fixed the issue of returning OK when setting **AT+CIPSERVER** twice

## 2.3 Application Layer

- Fixed that **AT+HTTPCPOST** response returns the wrong command name if appended more post data
- Fixed an issue of AT blocking when the MQTT broker actively closes MQTT client connection
- Fixed a memory leak issue when using **AT+MQTTLONGCLIENTID**, **AT+MQTTLONGUSERNAME**, or **AT+MQTTLONGPASSWORD** command

## 2.4 System

- Fixed that busy p issue if established an SSL connection and read data in a weak network
- Fixed the high power consumption in light sleep if set the wake-up source
- Fixed the memory leak issue of **AT+FS** command
- **SPI**: Fixed a global issue where incorrect length was returned when reading data by SPI (For example, **AT+HTTPCPOST** command cannot read out all the data from SPI due to wanted data length being returned instead of the actual data length)

## 2.5 Bluetooth

- Fixed that the second BluFi net config failed if BluFi net config failed the first time
- Fixed the ble tx power set fail issue

## 2.6 Tools

- **build.py**: Installed compilation environment depends on the target
- **build.py**: Used the python of esp-idf environment instead of external deprecated python
- **at.py** Support modifying manufacturing NVS

### 3. Optimization

- Refactored the storage mode of factory parameters to use the manufacturing NVS operation instead of partition operation. (see [Why are we using manufacturing nvs way on the master?](#) for more details)
- Simplified GitHub CI workflow
- Disable PMF to improve Wi-Fi compatibility when AT works in SoftAP mode
- Used Python to generate fatfs.bin instead of the deprecated mkfatfs component
- Support jihulab redirects in [build.py](#)
- Migrated AT firmware resources from [download.espressif.com](#) server to [dl.espressif.com](#) server
- Disabled the JTAG function to support flashing the firmware by USB
- Enhanced the documentation with the addition of more and detailed descriptions and addressed some document errors.