

Bug Advisory

Title	Advisory for the Probabilistic Failure of Wi-Fi and Bluetooth on Some Chips
Issue Date	2024/02/07
Advisory Number	AR2023-009
Serial Number	NA
Version	V1.0

Issue Summary

During the chip boot, the bootloader code will power down the digital modules related to Wi-Fi and Bluetooth. Later, these modules will be powered up during Wi-Fi and Bluetooth initialization. In this process, there is a probability that the related digital modules fail to reset, resulting in a probabilistic failure of Wi-Fi or Bluetooth on some chips. The issue can be fixed by adding a reset operation in the software to ensure that the digital module is reset successfully.

Impact Analysis

When using Wi-Fi, Bluetooth LE, Classic Bluetooth, or their combinations on ESP32, ESP32-C3, ESP32-S3, and ESP32-S2, there is a certain probability that Wi-Fi or Bluetooth will not be able to send or receive packets properly in certain scenarios (see below).

For affected applications, the software needs to be upgraded to the corresponding ESP-IDF fix version or above.

Bug Scenarios:

- On chip power up or reboot
- When turning Wi-Fi or Bluetooth off and on again

Affect Product Series:



- ESP32-C3, ESP32-S3, ESP32-S2, ESP32
- Theoretically, all the above four chips could have the issue, but there have been no reports of issue with ESP32 yet.
- Chips other than those mentioned above do not have the issue.

The affected and fixed ESP-IDF versions are as follows.

Affected Versions of ESP-IDF

ESP-IDF Branch	Affected Commit ID	Affected Release Versions
master after v5.2-dev	f8d2c089 to 91bd2c85 (excluded)	No related release
release/v5.1	7a20ea5f to abfd0cbe (excluded)	v5.1~v5.1.2
release/v5.0	fdfa260b to 3937e35a (excluded)	v5.0~v5.0.4
release/v4.4	c8315e01 to df801011 (excluded)	v4.4~v4.4.6
release/v4.3	e783f148 to 481a064d (excluded)	v4.3~v4.3.6

Fixed Versions of ESP-IDF

ESP-IDF Branch	Fixed Commit ID	Fixed ESP-IDF Version
master after v5.2-dev	91bd2c85	/
release/v5.2	42aaf574	Expected in v5.2
release/v5.1	abfd0cbe	Expected in v5.1.3
release/v5.0	3937e35a	Expected in v5.0.6
release/v4.4	df801011	Expected in v4.4.7
release/v4.3 ¹	481a064d	Fixed in v4.3.7

¹ ESP-IDF v4.3 has officially reached the end of maintenance. Espressif will no longer provide support for adding new features, fixing bugs, or addressing security issues in this version.

Recommendations for Application Developers

If your application is using Wi-Fi or Bluetooth, and the ESP-IDF version you are using is affected by the issue, it is recommended to upgrade ESP-IDF to the fixed version or a version with patches (refer to the above table). If you encounter



problems during the upgrade process, please provide the ESP-IDF version or Commit ID to [Espressif](#). We will handle related matters as soon as possible.