

Bug Advisory

Title	Bug Advisory Concerning Upgrading ESP-IDF for Applications Using Deep-Sleep Functionality based on Certain ESP-IDF Versions
Issue Date	2024/05/31
Advisory Number	AR2024-004
Serial Number	NA
Version	v1.0

Issue Summary

Issue 1: An incorrect power on/off configuration sequence of the Modem power domain may lead to a task watchdog exception during Wi-Fi initialization after wake-up from deep-sleep mode.

This issue may occur on ESP32, ESP32-S2, ESP32-S3, ESP32-C3, and ESP32-C6 chips. When both Wi-Fi and deep-sleep functionality are used simultaneously, there is a small possibility that the Modem module enters an exception state after the system waking up from deep sleep on a very small number of chips. This is due to the software executing an incorrect power on/off sequence for the Modem power domain, which can result in applications triggering the task watchdog in the subsequent Wi-Fi initialization process.

Issue 2: For applications utilizing deep-sleep mode and developed based on certain ESP-IDF versions, they may trigger RTC watchdog after waking up on a very small number of ESP32-C6 chips.

This issue occurs exclusively on ESP32-C6 chips. If these applications do not correctly shut off the HP_AON power domain during sleep, peripherals within this power domain may enter an exception state upon wake-up. Furthermore, bootloader may get stuck and the RTC watchdog could be triggered after wake-up on a very small number of chips.

Affected Product Series:

Issues 1 and 2 are both related to the chip manufacturing process and do not affect most chips. Issue 1 affects ESP32, ESP32-S2, ESP32-S3, ESP32-C3, ESP32-C6 and ESP32-H2 series chips. For now, only very few bug reports have been received for ESP32-S3. Issue 2 only affects ESP32-C6 series chips.

ESP-IDF Affected Versions:

Issue 1:

ESP-IDF Branch	Affected Commit IDs	Affected ESP-IDF Versions
master	abc43d8e to 24244f04 (not include)	/
release/v5.2	11eaf41b to 8f896f07 (not include)	v5.2 - v5.2.1
release/v5.1	cbce221e to ddd2c5b4 (not include)	v5.1 - v5.1.3
release/v5.0	6db1f2f9 to 55fc8e6a (not include)	v5.0 - v5.0.6
release/v4.4	8153bfe4 to 5017ec08 (not include)	v4.4 - v4.4.7

Issue 2:

ESP-IDF Branch	Affected Commit IDs	Affected ESP-IDF Versions
release/v5.1	cbce221e to 5c3f7ed2 (not include)	v5.1 - v5.1.1

ESP-IDF Patched Versions:

Issue 1:

ESP-IDF Branch	Fixed Commit ID	Fixed ESP-IDF Version
master	Fixed for ESP32, ESP32-S2, ESP32-S3, and ESP32-C3 in commit 59716830 Fixed for ESP32-C6 in commit 24244f04	Expected in v5.3
release/v5.2	Fixed for ESP32, ESP32-S2, ESP32-S3, and ESP32-C3 in commit c722d8aa	Expected in v5.2.2

	Fixed for ESP32-C6 in commit 8f896f07	
release/v5.1	Fixed for ESP32, ESP32-S2, ESP32-S3, and ESP32-C3 in commit a1471a92 Fixed for ESP32-C6 in commit ddd2c5b4	Fixed in v5.1.4
release/v5.0	Fixed for ESP32, ESP32-S2, ESP32-S3, and ESP32-C3 in commit 55fc8e6a	Expected in v5.0.7
release/v4.4	Fixed for ESP32, ESP32-S2, ESP32-S3, and ESP32-C3 in commit 5017ec08	Expected in v4.4.8

Issue 2:

ESP-IDF Branch	Fixed Commit ID	Fixed ESP-IDF Version
release/v5.1	5c3f7ed2	Fixed in v5.1.2

Recommendations for Application Developers

If your application involves both Wi-Fi and deep sleep, and you are using an affected ESP-IDF version, it is recommended to use fixed ESP-IDF versions mentioned above or versions after the fixed commit. If you encounter any issues during the upgrade process, please provide the ESP-IDF version or Commit ID to [Espressif](#). We will confirm and handle related matters as soon as possible.