



# Ameba Release Note

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SDK release note

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## 1 Release v3.0

### 1.1 v3.0a

- First release for 8195a

### 1.2 v3.0c

- Fix WPS and long PassPrhase issue

## 2 Release v3.1

### 2.1 v3.1a

- Support EVB 2V0

### 2.2 v3.1b

- add examples: crypto, i2s, flash, nfc, pw\_deepsleep
- update flash layout document: UM0034

## 3 Release v3.2

### 3.1 v3.2a

- add examples: pw\_deepstandby, pw\_sleep, watchdog, timer, adc(analog\_in), uart\_irq,
- wlan: support concurrent mode. support fast reconnect.
- evb: support 8195a 3v0 evaluation board (jlink).

### 3.2 v3.2b

- Fix SPI clock rate issue
- Update example of disabling uart log before entering deep Sleep Mode
- Update I2C block read api

### 3.3 v3.2c

- Modify heap size from 75KB to 70KB

## 3.4 v3.2d

- Update for tool chain

## 4 Release v3.3

### 4.1 v3.3a

- Add peripheral example :
  - gtimer\_rtc,
  - spi\_stream\_twoboard: SPI DMA mode
  - uart\_clock: use uart to generate clock
- Add peripehral device examples:
  - i2c\_epl2197\_heartrate: heart rate sensor
  - i2c\_epl2590\_light: light Sensor
  - i2c\_epl2590\_proximity: proximity Sensor
  - i2c-shtc1: humidity and temperature Sensor
  - pwm-buzzer: PWM buzzer
- Add application example
  - wlan\_fast\_connect example
  - multicast example
  - mdns example
- I2S: api is modified in order to enhance performance.
- Wlan:
  - enhance AP mode throughput
  - support unassociated idle, associated idle power save
- LwIP: upgrade to LwIP 1.4.1
  - Standard library: update standard library

### 4.2 v3.3b

- Fix issue of cannot load image

### 4.3 v3.3c

- Fix WPS library
- Add simple config wizard lost library

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## 5 Release v3.4

### 5.1 v3.4a

- Power Save
  - Provide power save mode to switch system between ON and Sleep dynamically and automatically.
  - example: pm\_tickless
  - Doc: AN0045 for detail discussion
  
- WLAN
  - Connection Indication
    - ◆ Support indication event of a STA association to Ameba AP
    - ◆ Please check `wext_wlan_indicate`, Running as AP mode.
  - Auto Connection after disconnect
    - ◆ Add an API for developer to decide retry time and timeout if wlan is disconnected.
    - ◆ API: `wifi_config_autoreconnect`
  - Fast Connect
    - ◆ Fix AES connect fail if key length is 13
    - ◆ Fix WEP connect fail for different key id
    - ◆ Change fast-connect flash area to prevent confliction with OTA address. (this address should finally be customized by developer according to their flash layout)
  - LWIP
    - ◆ Fix LwIP issue to solve hardfault issue.
  
- USB Video
  - Support USB camera software stack. It is able to use VLC on Windows/Android/iPhone to get video stream from Ameba.
  - Doc: AN0050
  - **It requires special guide** to turn on this function in SDK. Please contact FAE or agent for help.
  - Only several camera modules are included in supported vendor list, please contact FAE or agent for help. Before activation, please contact agent to apply for USB camera.
  
- Wi-Fi RS232, UART Adapter application
  - Support putting system in sleep mode and can be wake up by UART RX.

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- It is required to use PA\_7/PA\_6, which is different from previous SDK.
  - Doc: AN0046 and AN0045
  
  - WiGadget Application
    - Provide an example to setup a sensor/control application quickly.
    - Sample code for both device code and Android app are provided.
    - Sample code for both local control and remote control are provided.
    - Doc: AN0049
  
  - mDNS lib
    - In previous version, mDNS lib is located in SDRAM by default. For this version, developers can locate it in SRAM is required by modifying linker. Please check document in detail
    - Doc: AN0043
  
  - Simple Config
    - Improve successful rate
    - Both library for Ameba device and Android/iOS app are updated
    - Fix Hardfault if running wifi\_connect and simple config at the same time. (although it is not correct control flow)
    - Fix the issue of simple config fail in open mode with under certain flow.
  
  - Efuse
    - Add example for using efuse. There are limited efuse storage, so
    - Please be caution when you decide to test efuse function. It is suggested to make a plan at first.
    - Example : example\_sources\efuse\_user\
  
  - Google Nest
    - Google Nest Server changes its behavior, so modify implementation accordingly.
  
  - GPIO
    - GPIO and Jtag
      - ◆ Add an example to disable jtag and config it as general gpio pin
      - ◆ Example: example\_sources\gpio\_jtag
  
  - Boot
    - Fix flash calibration fail under some special condition

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- Change start address of image 2
  
  - Application Example
    - SSL download large file (such as firmware)
      - ◆ It is usually used in OTA procedure
      - ◆ Example: component\common\example\ssl\_download
    - Socket Select
      - ◆ Example: component\common\example\socket\_select
    - XML parser/generator
      - ◆ Example: component\common\example\xml
  
  - Crypto Engine
    - AES
      - ◆ Support AES-CBC and DES-CBC larger than 16000
  
  - OTA
    - Add checksum feature
    - When using IAR to generate ota.bin, it appends checksum information at the end of image. Program downloads ota.bin from the internet and compares checksum value at the end.
  
  - UART
    - UART socket
      - ◆ Use select function for UART send and receive
      - ◆ Example: component\common\utilities\uart\_socket.[c/h]

## 5.2 v3.4b

- Wlan
  - Provide interface to control wi-fi power save mode and adjust DTIM time slot. Please check wifi\_set\_power\_mode, wifi\_set\_lps\_dtim.
  - Provide proper api for regulatory domain setting.
  - Fix long run disconnect issue in 3.4a
  - Fast Connect
    - ◆ Fix the issue of non-initialized content of channel field in flash causes scan fail.
    - ◆ Enable auto connect after fast connect.
  - Adaptivity
    - ◆ Add api to enabling adaptivity.
  - Isolate wlan and wps library to be os independent

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- System power save
    - Log uart tx should be pulled up before entering sleep mode to prevent from the receiving peer misunderstanding this kind of situation as TX start.
    - Support option for do not disable log uart during system sleep.
  - GPIO
    - Fix the issue of gpio port is disabled if the gpio share same pin with corresponding peripheral and the peripheral is disabled.
    - Add gpio level trigger example to represent how to detect both high and low triggered gpio
      - ◆ example\_sources/gpio\_level\_irq
  - I2C
    - Update peripheral example to allow reading data more than 16 bytes.
  - USB camera
    - Separate USB camera stack to several libraries.
    - Support more sets of USB camera
  - OTA
    - Fix the issue of unable to do ota under the configuration of older bootloader and new ota image.
    - Update image checksum execution code for both winx86 and winx64 platform.
  - File checksum tool
    - Provide a md5 file check sum tool
    - tools\file\_check\_sum.c
  - Flash
    - Support new type of flash.
  - Application
    - UART Adapter
      - ◆ Fix compiler error.
  - Other
    - Fix hardfault caused by reusing of GPIO control related memory as heap space.
    - Fix compiler warning under IAR 7.40.
    - Do not show sdram init warning message for 8711AF
  - Document
    - UM0014: Fix some typo.
    - UM0023: Add description for how to disable CMSIS-DAP.
    - UM0034: Add instruction for how to place data in sdram.



## 5.3 v3.4b2

- Wlan
  - Patch: [lib\\_wlan.a](#), [lib\\_wlan\\_mp.a](#)
  - Patch: [wifi\\_conf.c](#), [wifi\\_util.\[c/h\]](#). (only if adaptivity feature is required)
  - Compatibility issue with one AP under AES mode
  - Add API for adaptivity mode and threshold.
  - Revise channel plan to improve tx power of channel 12, 13 in WW13.(Excluding FCC power limit for channel 12, 13)
  - Add Channel plan FCC2, MKK2 and Global.
  - Fix RX packet fail if RDU happened.
  - Fix TPLINK AP disconnect issue in power save mode.
- FreeRTOS
  - Patch: [osdep\\_service.h](#) [MUST]
  - Should open USE\_MUTEX\_FOR\_SPINLOCK in freertos\_service.c to enable spinlock protect for wlanlib.

## 5.4 v3.4b3

- Wlan
  - Patch: [lib\\_wlan.a](#), [lib\\_wlan\\_mp.a](#)
  - Fix memory leak when continuously connect to encrypt AP.
  - Improve stability of wlan long run under power save. RF is off under some condition.
  - Improve stability of wlan long run under power save. One Netgear AP send death to STA under low traffic.
  - Update PHY parameter from v19 to v21.
  - CCK FA counter in MP mode. (wlan mp lib)
  - Fix ping loss in concurrent mode because PHY ODM excute twice in 2 seconds.
  - Add channel plan "Global"
- Toolchain
  - Patch: [platform\\_lib.a](#)
  - Support IAR 7.5
- OTA tool
  - Patch [checksum.exe](#)
  - Fix image checksum calculation incorrect that may lead to OTA fail