

32-bit MCU SDK 5.4.0.0

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This document contains the changes in the 5.4.0.0 version compared to the 5.3.5.0 version released in Q4 2017. The 32-bit MCU SDK 5.4.0.0 is installed with Gecko SDK Suite 2.2.0 in Simplicity Studio for EFM32 products. For detailed changelog for the different components in the MCU SDK then see the various changelog txt files that are placed inside the MCU SDK install location.

1 Release Highlights

1.1 Gecko HAL & Driver:

- ARM mbed TLS: updated to upstream release v2.6.1.
- New NVM3 Non-Volatile Memory Management driver for EFM32 and EFR32. This driver is Beta tested only.
- Removed CrossWorks for ARM and Atollic TrueSTUDIO project files.
- Bugfixes.

1.2 New EFM32 example applications:

- New example applications for EFM32 Tiny Gecko 11
- New persistent_trng example for EFM32 Giant Gecko 11 to demonstrate use of the TRNG peripheral plug-in for mbedTLS and NVM3.

1.3 Using This Release

32-bit MCU SDK 5.4.0.0 is installed with Gecko SDK Suite 2.2.0 in Simplicity Studio for EFM32 and EZR32 products. This release contains the following.

- Gecko HAL & Driver (a part of the Gecko Platform component)
- EFM32 example applications

1.4 Support

Development Kit customers are eligible for training and technical support. You can use the Silicon Laboratories web site <https://www.silabs.com/products/mcu/32-bit> to obtain information about all EFM32 Microcontroller products and services, and to sign up for product support.

You can contact Silicon Laboratories support at <http://www.silabs.com/support>

2 Added Items

2.1 Gecko HAL & Driver:

- EMLIB
 - Added support for LCD dynamic charge distribution (low power feature).
 - Added support for ECC memory initialization using the function `MSC_EccConfigSet()`.
- NVM3 driver (EMDRV)
 - New NVM3 Non-Volatile Memory Management driver for EFM32 and EFR32.
 - This driver is Beta tested only. Silicon Labs will NOT support any production deployments with this Beta release. Production deployments will only be supported with the GA version of NVM3. This version is intended for lab and evaluation purpose only.
 - Performance will be significantly degraded if the number of active objects stored by NVM3 exceeds the cache size. This issue will be fixed in the Q2 GA release.
 - The NVM3 driver provides a way for an application to safely store and retrieve variable size objects in a page based non-volatile memory. Objects are identified with 20-bit object identifiers denoted as keys.
 - The driver is designed to use pages in a sequential order to provide equal usage and wear. The driver is resilient to power loss or reset events, ensuring that objects retrieved from the driver are in a valid state. A valid object will always be the last successfully stored object. NVM3 can detect NVM defects and mark pages as unusable. NVM3 will continue to operate on good pages after defect pages are detected.
 - Full API documentation: http://devtools.silabs.com/dl/documentation/doxygen/5.4/efm32gg11/html/group__NVM3.html

2.2 EFM32 example applications:

- New EFM32 Tiny Gecko 11 example applications: `blink`, `can_board`, `cslib`, `emode`, `helges_demo`, `humitemp`, `lcd`, `micriumos_blink`
- New EFM32 Giant Gecko 11 example application: `persistent_trng`

3 Fixed Issues

3.1 Gecko HAL & Driver:

- EMLIB
 - Fixed bug in assert statement in `CORE_InitNvicVectorTable()`.
 - Fixed hardware bug when switching to EM4S when powering analog peripherals from DVDD. This bugfix is active for EFM32GG11 and EFM32TG11.
 - Ensure that RX/TX is disabled when configuring RX/TX DMA wakeup.
 - Fixed bug with wait state handling when MSC is locked.
 - Renamed `ACMP_CTRL_PWRSEL_VREGVDD` to `ACMP_CTRL_PWRSEL_DVDD`.

3.2 EFM32 example applications:

- SLSTK3701A_EFM32GG11: fixed backspace handling in `micriumos_shell`

4 Changed Items

4.1 Gecko HAL & Driver:

- ARM mbed TLS
 - Updated to upstream release v2.6.1. More info from ARM available at <https://tls.mbed.org/tech-updates/releases/mbedtls-2.6.0-2.1.9-and-1.3.21-released>

4.2 EFM32 example applications:

- Updated all Micrium OS examples to use OS v5.3.0.

5 Removed Items

5.1 Gecko HAL & Driver:

- EMLIB
 - Remove switch to bypass mode when entering EM4S on devices that do this automatically in hardware.

5.2 EFM32 example applications:

- Removed CrossWorks for ARM and Atollic TrueSTUDIO project files.

6 Deprecated Items

6.1 Gecko HAL & Driver:

Complete deprecated API lists for each family can be found in online documentation. For example:

EFM32 Giant Gecko 11: <http://devtools.silabs.com/dl/documentation/doxygen/5.4/efm32gg11/html/deprecated.html>

EFR32 Mighty Gecko 12: <http://devtools.silabs.com/dl/documentation/doxygen/5.4/efr32mg12/html/deprecated.html>