



Wizard Gecko SDK Release Notes



1. SDK Release 1.2.0

Released on September 15, 2021.

1.1 New features

This version includes the following new features:

- Endpoint status event will be sent when USB cable is connected and disconnected
- Hardware failure error added for WiFi module lack of responsivity (for example when there is an insufficient power supply)
- Added possibility to limit tcp client local port range
- Added possibility to set custom Information Elements in AP beacons and probe responses
- Added possibility to scan for Access Points with specified Information Elements
- Added possibility to disable debug interface - this makes pins PF0 and PF1 available to be used as GPIOs
- Added possibility to force closure of TCP server when TCP clients are connected
- Added support for Wi-Fi Direct in BGTool
- Improved data handling in HTTP server
- Added possibility to disable handling GET,POST,PUT,DELETE requests and SD card directory listing in HTTP server
- Added possibility to change size of buffer used during EAP handshake
- Added validation of date and hostname during TLS handshake
- Added possibility to enable detailed HTTP server error
- Added PSkey used for disabling ARP checking mechanism

1.2 Changes in API

The following API changes have been made in this version:

- Commands added:
 - cmd_hardware_dbg_interface_set_active
 - cmd_https_enable_detailed_error
 - cmd_sme_set_ap_custom_ie
 - cmd_sme_add_scan_result_filter
 - cmd_sme_remove_scan_result_filter
 - cmd_tcpip_force_tcp_server_endpoint_close
 - cmd_tcpip_set_tcp_client_port_range
 - cmd_tcpip_tls_set_hostname
 - cmd_util_atou
 - cmd_util_utoa
 - cmd_util_base64encode
 - cmd_util_base64decode
- Events added:
 - evt_sme_scan_result_filter
 - evt_https_error_detailed
- Commands changed:
 - cmd_https_enable - with https parameter it is now possible to disable handling of GET, PUT, POST, DELETE requests and directory listing of SD Card in HTTP server
- Events changed:
 - evt_endpoint_status - added flags field to indicate internal state of the endpoint

1.3 Quality improvements

This version includes the following improvements to previous versions:

- BURTC handling improvement - fixed soft timer handling when switching power modes
- Corrected PS_KEY_DNSS_ANY_URL value checking
- Improved UART data handling in transparent mode
- Improved SPI data handling in BGAPI™ mode
- Improved scanning stability and RSSI averaging in scan results
- Improved UART handling in BGAPI™ mode
- Improved UART flow control handling
- Improved TX bulkdata handling
- Improved handling of out-of-order packets in HTTP API
- Corrected USB CDC in transparent mode input data handling
- Corrected handling of TTL value in DNS hostname resolving
- Corrected handling of Content-Encoding in HTTP response
- Corrected cmd_wifi_off command handling in AP mode and Wi-Fi Direct mode
- Improved DNS cache handling on disconnect
- Improved handling of .gz files in HTTP server
- Improved default 404 message header in http response from HTTP server
- Corrected SPI in DFU boot mode
- Corrected handling of negative numbers in cmd_util_atoi and cmd_util_itoa command
- Corrected examples to use atou and utoa instead of atoi and itoa
- Corrected parsing values above 0x7F in BGTool persistent storage tab
- Added request_id in https_error event
- Fixed issue with TLS packets being dropped during transmission without error message
- Fixed overwriting of Wi-Fi off state when starting WPS session and immediately turning off Wi-Fi
- Fixed overwriting of disconnecting state in specific test case scenario
- Fixed issues with malfunctioning invalidation of few PSKeys
- Added option to make amount of connection retries configurable
- Improved internal resources handling
- Fixed vulnerabilities related to Fragmentation and Aggregation attacks: CVE-2020-24588, CVE-2020-26140, CVE-2020-26143, CVE-2020-26144, CVE-2020-26145

1.4 Known issues

The following issues are known for this release:

- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations.

2. SDK Release 1.1.1

Released on January 22, 2018.

2.1 New features

This release does not include any new features.

2.2 Changes in API

This release does not include any changes in API.

2.3 Quality improvements

This version includes the following improvements to previous versions:

- Wi-Fi Krack vulnerability in WPA2 4-way handshake key reinstalations patch.
- Added licensing information to SDK folder.
- gmail example update

2.4 Known issues

The following issues are known for this release:

- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations.

3. SDK Release 1.1.0

Released on April 5, 2017.

3.1 New features

This version introduces the following features to previous versions:

- Wi-Fi Direct Group Owner functionality, including new example code
- HTTP server capability to create directories in SD card and support for gzip files
- Configurable time window for abrupt disconnection detection
- Maximum number of AP clients increased to 10
- Getting boot event parameters in run-time over USB
- AP isolation mode
- DHCP Server subnet mask and lease time values are configurable
- Resolve *.local domain hostnames via mDNS
- Command to list stations connected to the module in AP mode
- GPIO configuration possible in hw config file

3.2 Changes in API

The following API changes have been made in this version:

- Commands added:
 - cmd_hardware_uart_conf_get
 - cmd_hardware_uart_conf_set
 - cmd_sme_p2p_accept_client
 - cmd_sme_start_p2p_group
 - cmd_sme_stop_p2p_group
 - cmd_sme_ap_client_config
 - cmd_sme_set_ap_client_isolation
 - cmd_tcpip_dhcp_configure
 - cmd_tcpip_mdns_gethostbyname
 - cmd_tcpip_dhcp_clients
- Events added:
 - evt_hardware_uart_conf
 - evt_sme_p2p_group_started
 - evt_sme_p2p_group_stopped
 - evt_sme_p2p_group_failed
 - evt_sme_p2p_client_wants_to_join
 - evt_tcpip_dhcp_configuration
 - evt_tcpip_mdns_gethostbyname_result
 - evt_tcpip_dhcp_client
 - evt_https_error

3.3 Quality improvements

This version includes the following improvements to previous versions:

- TLS certificate management for supporting bridge certificates
- HTTP server timeouts and double events removed
- TCP connection and data management
- DHCP server address pool parsing
- AP mode 11n behavior
- Connection failure event when trying to connect to a non-allowed high channel AP
- Power saving behavior
- Connection time and retry attempts behavior
- Wi-Fi on and off commands and events behavior
- SSID scan behavior
- Connect to the strongest SSID when multiple are present
- WPA2/WPA PTK rekeying
- PBKDF2 optimization for deriving WPA-PSK from passphrase
- RSA behavior with keys smaller than 2048 bits
- Bgbuild output now includes certificate fingerprints
- Software-based RTS/CTS flow control
- PS key management
- BGScript I2C functions timeouts
- System_sync command with MAC address
- RTC behavior
- Timestamps with pin interrupts
- Bootloader detection of HW configuration mistakes in flash
- BGTool overall
- UART DFU configuration
- PC DFU command-line tool timeout
- wifi_dfu tool with flow-control
- Fixed http_serv example while scanning networks
- spi_host example update

3.4 Known issues

The following issues are known for this release:

- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations.

4. SDK Release 1.0.1

Released on September 16, 2016.

4.1 New features

This release does not include any new features.

4.2 Changes in API

The following API changes have been made in this version:

- Event `evt_sme_scan_result` has been updated. Secure status bitmask has 2 new bits defined:
 - bit 2: defines whether the Access Point supports WPA Enterprise
 - bit 3: defines whether SSID is hidden

4.3 Quality improvements

This version includes the following improvements to previous versions:

- Reduced power consumption in module startup
- AES HW acceleration for better performance
- 802.11n support in AP mode
- HTTP server access to SD card
- Handling of hidden SSID networks during scan
- TCP endpoint data handling when client has closed the connection
- Handling of encrypted A-MSDU frames
- UART CTS handling
- I2C read operation
- HW timer allocation
- LFXO initialization

4.4 Known issues

The following issues are known for this release:

- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations.

5. SDK Release 1.0.0

Released on May 23, 2016. This is the first official Wizard Gecko SDK release.

5.1 New features

This version introduces the following features to previous versions:

- Support for IP multicast
- SPI Master mode
- TLS mutual authentication

5.2 Changes in API

The following API changes have been made in this version:

- *cmd_tcpip_multicast_join* has been added
- *cmd_tcpip_multicast_leave* has been added
- *cmd_hardware_spi_transfer* has been added
- *cmd_tcpip_tls_set_user_certificate* has been added
- *cmd_tcpip_ssl_connect* has been renamed to *cmd_tcpip_tls_connect*
- *cmd_tcpip_ssl_set_authmode* has been renamed to *cmd_tcpip_tls_set_authmode*
- *evt_tcpip_ssl_verify_result* has been renamed to *evt_tcpip_tls_verify_result*

5.3 Quality improvements

This version includes the following improvements to previous versions:

- Boot-up time optimized
- Switching endpoints between streaming and BGAPI™ modes enabled
- Throughput increased
- USB driver signed and installed automatically with SDK installer
- BGTool data view improved
- WPA/WPA2 Enterprise is now fully working
- SD card with USB host interface corrected
- HTTP server improved to recognize read-only files in SD card
- UDP packet size limitation of 1024 bytes removed
- BGAPI message size limitation of 1024 bytes removed
- wifi_dfu tool completed to work over all host interfaces
- DHCP improved for better interoperability
- mbedTLS 2.1.4 integrated
- A-MSDU aggregation reception improved
- Unnecessary TCP retransmissions removed
- Unnecessary delays of HTTP Server responses over BGAPI™ removed
- DNS and DHCP ports not reserved anymore when not in use
- UART streaming mode improved to be reliable in any bitrate

5.4 Known issues

The following issues are known for this release:

- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations.

6. SDK Release 0.9.0

Released on February 22, 2016.

6.1 New features

Wizard Gecko SDK version 0.9.0 is the first Beta release for the WGM110 Wi-Fi Module, therefore all supported features are listed here as new features:

- 802.11 b/g/n Wi-Fi stack
 - Bit rate up to 72.2 Mbps
 - 802.11 security
 - WPA/WPA2 Personal
 - WPA/WPA2 Enterprise
 - WEP
 - Station mode
 - Soft Access Point mode, up to 5 clients
 - WPS 1.0
- TCP/IP stack
 - IP version: IPv4
 - TCP: client/server
 - UDP: client/server
 - TCP sockets: 20+
 - DHCP: client/server
 - ARP
 - DNS: client/server
 - mDNS
 - DNS-SD
 - HTTP: server
 - TLS/SSL: client
- BGScript™ support for hosted applications
- BGLib™ ANSI C library for network co-processor (NCP) mode
- BGTool for controlling and updating the module firmware
- Command line DFU tool *wifi_dfu* for firmware update

6.2 Known issues

The following issues are known for Beta release:

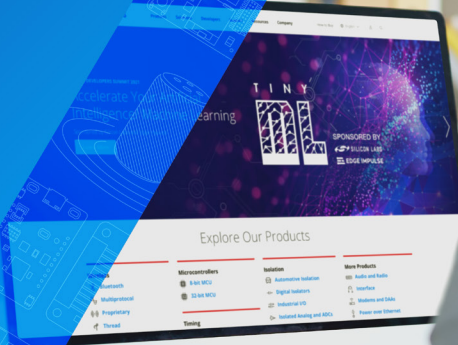
- Software performance not yet fully optimized
- WPA/WPA2 Enterprise feature is not yet stable enough to be used
- UART in streaming mode recommended bitrate is 1Mbps or higher, risk of losing bytes at lower bitrates
- Switching endpoints between streaming and BGAPI™ mode does not work reliably
- The SD card cannot be used together with the USB host interface
- HTTP server cannot read “read only” files from the SD card
- UDP packets cannot be larger than 1024 bytes at the moment
- BGAPI™ SPI cannot handle BGAPI messages larger than 1024 bytes
- The *wifi_dfu* tool, used for DFU upgrades, works only with the UART interface
- The UART-USB converter included in the Wireless Starter Kit SLWSTK6120A may lose bytes in some situations
- The Wireless Starter Kit accelerometer on the Expansion board cannot be used due to SPI master pending implementation

7. Document Revision History

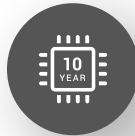
Table 7.1. Document Revision History

Document Revision Number	Effective Date	Change Description
0.9	22.02.2016	Wizard Gecko SDK Beta Release 0.9.0
1.0	23.05.2016	Wizard Gecko SDK Release 1.0.0
1.0.1	16.09.2016	Wizard Gecko SDK Release 1.0.1
1.1	31.03.2017	Wizard Gecko SDK Release 1.1.0
1.1.1	22.01.2018	Wizard Gecko SDK Release 1.1.1
1.2.0	15.09.2021	Wizard Gecko SDK Release 1.2.0

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