Release Notes

SDK v. 6.0.20.1338

SW-B-002

Abstract

This document contains the release notes for Renesas DA14535/DA14531-0x/DA14585/DA14586 Software Development Kit, version 6.0.20.1338

Contents

Tables

1 Terms and Definitions

GA	General access
LA	Limited access
Bluetooth® LE	Bluetooth® low energy
SDK	Software development kit
SUOTA	Software update over the air
TRNG	True random number generator
FW	Firmware
API	Application programming interface
PER	Packet error rate

2 Release Data

Table 1. Information table

Software	Software Development Kit (SDK)
Device Number	DA14535, DA14531-00, DA14531-01, DA14585, DA14586
Software Release Date	September 21, 2023
Software Version Number	6.0.20.1338
Software Release Type (Note 1)	FULL (GA)

Note 1 Releases can be of the following types: FULL (GA), FULL (LA), RELEASE CANDIDATE, ENGINEERING, PATCH or BINARY

3 License

Licenses covering this SDK release are listed in the license.txt file in the SDK document folder.

4 Related Documentation and References

DA14531 Getting Started Guide User Manual	UM-B-117
DA14585/DA14531 SDK Porting Guide	UM-B-118
DA14585/DA14531 SW Platform Reference Manual	UM-B-119

5 Release Description

5.1 Version 6.0.20.1338 overview

This is the GA release of SDK6 that runs on the DA14535, DA14531-0x, and DA14585/6 devices. You can use this release for application development.

5.1.1 Features of 6.0.20.1338

Table 2. 6.0.20.1338 new features

Feature Number	Description
1338_001	Added support for new device DA14535.
1338_002	Added support for the skip slave latency feature.
1338_003	Added API for LE credit-based channels.
1338_004	Added support for AT25XE512C, AT25DF512C, AT25XE011, AT25EU0011A, AT25XE021A, AT25FF081A, AT25DF011, AT25DN011, AT25XE041B, AT25FF041A, AT25SF041B, AT25XE081D SPI flash memories.
1338_005	Added the SPI driver to support the GTL or HCI interface directly over the SPI bus.

5.1.2 Fixes and improvements since 6.0.18.1182.1

Table 3. 6.0.20.1338 fixes and improvements

Fix Number	Description
1338/01	Changed the default Bluetooth addresses of the Bluetooth LE examples.
1338/02	Changed the ADC driver to store and restore the initial offsets before and after an ADC measurement, which may alter them.
1338/03	Fixed a bug in the HPTP profile. No indication was sent after reconnection.
1338/04	Disabled all interrupts when hibernation function is called. The respective hibernation function handles the interrupts disable now.
1338/05	DA14531-0x: Fixed OTP write using the prod_test.exe command line utility. Attempting to write more than one word was failing.
1338/06	Fixed the UART issue that did not allow to empty all Tx FIFO. The chip might go to sleep while unsent bytes were in FIFO.
1338/07	Fixed the async I2C slave driver. It was not possible to receive 2 I2C frames consecutively.
1338/08	Improved the static random Bluetooth address calculation formula.
1338/09	DA14531-0x: Fixed the compilation issue in the dbg_prod_output() function.
1338/10	DA14531-0x: Fixed the prod_test firmware issue when configuring the device in continuous Tx with output power at 2.5 dBm. The Tx power setting did not apply correctly.
1338/11	Always seed the used random number function generator with the random seed generated from the TRNG internal mechanism, which runs once after the power cycle. The TRNG mechanism is now called before the Bluetooth LE stack initialization function, which makes calls to the random number generator functions.
1338/12	DA14531-0x: Improved the XTAL32M configuration settings to make the XTAL32M circuitry more robust.
1338/13	Prevent UART from hanging when configuring the UART baud rate.
1338/14	DA14531-0x: Changed the ADC settling time as the hardware team instructed.

Fix Number	Description
1338/15	Handled on the application level the GATT service changed indication. A confirmation message was required to be sent back to Bluetooth LE stack to prevent system hanging.
1338/16	Fixed the returned error status in the Custom profile. In case of an error, the profile was always returning to the application a generic error code and not the specific one.
1338/17	DA14585/586: Fixed the following Bluetooth LE stack issue: SMP timeout timer was not started upon transmission of the Security Request command.
1338/18	Changed the library patch control mechanism per build. Now, you can control at compile time, which patches are going to be built in your application. Unused patches may be opted out at compile time to save more RAM for the application. For more details, please read the UM-B-119 documentation.
1338/19	Enabled the LTO feature on GCC projects.
1338/20	Improved the scatter file to enable unused RAM areas (gaps) to be used by the application.
1338/21	DA14531-0x: Enabled the extra RF calibration (RF LDO calibration) by default, which fixes possible PER issues in the Rx path.
1338/22	DA14531-0x: Changed the preferred LDO_RET_TRIM value from 0xF to 0xE. The VDD undervoltage can occur when HW_RST or POR is asserted while the device is in sleep mode and LDO_RET_TRIM setting 0xF is used. In some extreme cases (ppm level), this can cause a lockup of the device only recoverable by a full power cycle. Setting LDO_RET_TRIM to 0xE prevents this from happening.

5.1.3 Known issues of 6.0.20.1338

You can find an active list of known limitations maintained online:

http://lpccs-docs.renesas.com/sdk6_kll/index.html

6 Release History

6.1 Version 6.0.18.1182.1 overview

This is the GA release of SDK6 that runs on the DA14531/531-01 and DA14585/6 devices. You can use this release for application development.

6.1.1 Features of 6.0.18.1182.1

Table 4. 6.0.18.1182.1 new features

Feature Number	Description
1182_001	Added support for the DA14531-01 device, which is the ROM variant of DA14531.

6.1.2 Fixes and improvements since 6.0.16.1144

Table 5. 6.0.18.1182.1 fixes and improvements

Fix Number	Description
1182/01	DA14531/585/586: Default C compiler change in Keil projects. All the released Keil projects are built with ARM v6 C compiler with LTO support enabled.
1182/02	DA14531/585/586: The default RAM retention mode changed. All the RAM cells are retained during extended sleep. You can still select which RAM cells can be retained during extended sleep. Because of the default retention mode change, the sleep current increases in some Bluetooth LE examples compared to the previous SDK6 releases.
1182/03	DA14531: Removed redundant 1144/06 patch from the DA14531 library files. The 1144/06 patch had been accidentally added to SDK 6.0.16 patches.

6.1.3 Known issues of 6.0.18.1182.1

You can find an active list of known limitations maintained online:

http://lpccs-docs.renesas.com/sdk6_kll/index.html

6.2 Version 6.0.16.1144 overview

This is the GA release of SDK6 that runs on the DA14531 and DA14585/6 devices. You can use this release for application development.

6.2.1 Features of 6.0.16.1144

Table 6. 6.0.16.1144 new features

Feature Number	Description
1143_001	Added support for the following SPI flash memories: AT25DF021A, AT25XE041D, AT25EU0021A.
1143_002	DA14531: The maximum external DC load current on the VBAT_HIGH rail during booting in boost mode is 50 µA. As a result of this, an external SPI flash memory that is connected to VBAT_HIGH (when the DA14531 is working in boost mode) may not be operational for certain values of VBAT_LOW. This means that the DA14531 is not boot from the SPI flash memory. To overcome this limitation, a dedicated DA14531 pin has been selected in the SPI flash driver to control the SPI flash powering-up procedure.
1143_003	The SPI flash driver can disable the SPI flash memory protection by default (some SPI flash memories like the AT25DF021A are memory-protected after the power cycle) using a compile-time flag.

Feature Number	Description
1143_004	DA14531: Added 1-wire UART support to the secondary bootloader.
1143_005	DA14531: Added the capability to enable/disable the UART or JTAG support in the secondary bootloader.

6.2.2 Fixes and improvements since 6.0.14.1114

Table 7. 6.0.16.1144 fixes and improvements

Fix Number	Description
1144/01	DA14531: Fixed an issue with waking-up from hibernation with no RAM retained. The device was overwriting the booter-applied values of the BANDGAP_REG, CLK_RC32M_REG, and CLK_RC32K_REG registers.
1144/02	DA14585/586: Fixed a secondary bootloader issue with large images. During the run, the decryption of a large image might take longer than the default load value of the watchdog causing the watchdog timer to expire.
1144/03	DA14585/586: Fixed an issue with XTAL16M trimmed devices, where the booter applied CLK_FREQ_TRIM_REG value was overwritten with zeros after device wake-up.
1144/04	Corrected the BMS Server. It was allowing delete operations without an authorization code to happen when an authorization code was required.
1144/05	Fixed: You can use Long Term Key (LTK) with all zeros in the Bluetooth subsystem if the Link Layer Encryption procedure occurs before the completion of the pairing procedure. This is fixed in the default app handler in SDK Bluetooth LE examples.
1144/06	Improved the stack behavior during the setting of data length (HCI_Set_Data_Length command) and Data Length Update procedure to improve interoperability.
1144/07	Fixed: On unexpected reception of Data Physical Channel PDU, the Bluetooth Controller stack terminate the connection using the Link Layer ACL Termination procedure instead of abandoning the connection as specified by the Link Layer part of Bluetooth core specification v5.2.
1144/08	DA14531: Fixed a rare occurrence of a race condition while accessing the exchange memory, which is shared between hardware and firmware, which can result in the loss of the LE ACL packet, and which was successfully received over the air.
1144/09	Additional checks are added in the Security Manager protocol (SMP) of the Bluetooth Host stack to detect reflected random values (Confirm value and Random value) during the LE legacy pairing procedure. On detection of the reflected public key, the pairing procedure fails. This improvement addresses the security vulnerability reported by the researchers in ANSSI regarding the Authentication of the LE Legacy Pairing Protocol.
1144/10	While operating as an LE slave (peripheral role), the Link Layer validates the fields in the received LL_CONNECT_IND / LL_CONNECT_REQ PDU. The connection is considered lost if the received PDU contains one or more fields that are specified as Reserved for Future Use (RFU). This improvement is in accordance with the Link Layer Part of Bluetooth core specification v5.2.

6.2.3 Known issues of 6.0.16.1144

You can find an active list of known limitations maintained online:

http://lpccs-docs.renesas.com/sdk6_kll/index.html

6.3 Version 6.0.14.1114 overview

This was the GA release of SDK6 that runs on the DA14531 and DA14585/6 devices. You can use this release for application development.

6.3.1 Features of 6.0.14.1114

Table 8. 6.0.14.1114 new features

Feature Number	Description
1114_001	White list support in a peripheral role. This feature provides limited functionality on Link Layer privacy by enabling the application to add devices to the white list while operating in the Peripheral role. It facilitates the device to allow connection only from the peer (remote) device that is listed in the white list. The feature works when the peer (remote) device uses the Public device address, or Static Random device address, or Resolvable Private device address. The number of devices that can be added to the white list depends upon the chipset used.
1114_002	DA14531: Adapt VDD clamp level in the hibernation mode based on the static temperature range selection.
1114_003	IAR v8.40.2 support (prox_reporter).
1114_004	Wi-Fi coexistence support.
1114_005	DA14531: State-aware hibernation.

6.3.2 Fixes and improvements since 6.0.12.1020.2

Table 9. 6.0.14.1114 fixes and improvements

Fix Number	Description
1114/01	Fixed known limitation 1020.05: (DA14531) The peripheral examples inside the SDK did not work in the boost mode due to the deactivation of the internal DCDC converter in the system initialization function.
1114/02	Defined an extra free RAM area to be used by applications.
1114/03	DA14531: Improved ADC_VBAT command to read VBAT_LOW (prod_test).
1114/04	Added new HCI command to trigger hardware reset (prod_test).
1114/05	Added extra prod_test binaries per UART configuration.
1114/06	DA14531: Trigger TRNG mechanism every time the RAM3 block was previously off.
1114/07	Fixed Issue: Incorrect handling on the reception of wrongly formed Security Manager Protocol PDU (packets that are less than what is expected for a specific opcode but with correct L2CAP length).
1114/08	Improvement: Incorrect SM_Pairing_Request is ignored without a response. This behavior is as per the Bluetooth specification recommendation for handling invalid behavior of a peer (remote) device.
1114/09	Fixed Issue (only for DA14585): Device instability when handling fragmented data packets is received from the peer (remote) device. If the start of the data packet received is fragmented within L2CAP & ATT header (that is 7 bytes), then corruption happens on the heap memory.
1114/10	Swapped RTS/CTS signals in external processor projects.
1114/11	Passed a connection index to the application in a custom profile write handler.
1114/12	Fixed the write request in custom profile when RI is enabled.
1114/13	DA14531: Added support for ADC the differential mode through the existing ADC configuration structure.

Fix Number	Description
1114/14	DA14531: Restored booter applied register values after hibernation wake-up.
1114/15	Fixed the known issue 1020.01 (DA14531). The Transmit Power Level characteristic represents the current radiated transmit power level in dBm for the specified Bluetooth connection. This is as per Tx Power Service Specification.
1114/16	Fixed a UART peripheral example to not get stuck in the loopback mode.
1114/17	DA14531: Pointer arp_table placed in the retention memory area.
1114/18	DA14531: Changed the order of the ADC registers being restored in conditionally_run_radio_cals().
1114/19	DA14531: Disabled certain ROM SDK functions (SDK functions which have been placed in ROM), which may lead to the software breakpoint.
1114/20	Added function callback to handle line status errors in the UART driver.
1114/21	Enabled the DMA support by default when booting from SPI flash memory (secondary bootloader).
1114/22	Added support to alter the default pairing response message.
1114/23	Moved the range extender initialization function call before GPIO initialization.
1114/24	Handled the I2C_INT_TX_ABORT interrupt properly when a read operation is performed in the DMA mode.
1114/25	Fixed known limitation 1020.02 (DA14585/586/531): In external processor configuration, the GPIO used for waking-up is not programmed immediately after UART flow off. This may lead to missing communication over UART with the external processor if the external processor tries to wake up the device too soon.
1114/26	Improved the RSSI calculation formula.
1114/27	Handled properly the ATT_Handle_Value_Indication by the GATT Client. The device responds with ATT_HANDLE_VALUE_CFM for the ATT_HANDLE_VALUE_IND received for Characteristics where Client Changed Characteristics is not configured for Indication. This change in behavior is as per Generic Attribute Profile (GATT) specification and improves the interoperability with some Android-based phones running Android OS P & Q.
1114/28	DA14531: Used the transparent light sleep (TLS) mode of the RAM cells properly.
1114/29	Fixed inconsistent behavior when trying to start a new ADV event while the previous is already started.
1114/30	Fixed the known issue (DA14531) 1020.04_ DA14531: when _EXCLUDE_ROM_PRF_ is not defined and no Bluetooth LE profiles are used in the application context, BLE_NB_USED_PROFILES must be set to 0. If not, the first four addresses of the executable (initial Stack Pointer, Reset Handler, NMI Handler, and HardFault Handler) is overwritten with zeros. Affected SDK projects: hci; ble_app_noncon; prod_test.
1114/31	DA14531: Fixed the OTP header layout used by SmartSnippets Studio.
1114/32	DA14531: Added support for the OTP write command.
1114/33	Added support for P25Q11U SPI flash memory.
1114/34	DA14531: Added support for 1-wire UART to the prod_test.exe utility.
1114/35	DA14531: Corrected the temperature coefficient value in the ADC driver.
1114/36	DA14531: Modified a flash programmer (UART version) scatter file.
1114/37	Fixed a toolchain version used by SmartSnippets Studio (instead of being "7-2018-q2" was "7-2018q2").
1114/38	DA14585: The processing of LL_CHANNEL_MAP_IND PDU after the Connection Event Counter is specified as an Instant field in the PDU does not lead to the termination of the connection. This change improves the behavior of the stack if the

Fix Number	Description
	peer device (master) erroneously performs the Link Layer Channel Map Update procedure. And the Link Layer Connection Parameters Request procedure is ongoing by processing the LL_CHANNEL_MAP_IND PDU after the Connection Parameters Request procedure is completed. This change in behavior may result in keeping the connection alive during this out-of-specification behavior of the smartphone. Prior to this change, the processing of such LL_CHANNEL_MAP_IND would result in termination of the connection. This change in DA14585 aligns with DA14531 behavior in the handling of LL_CHANNEL_MAP_IND PDU received during the ongoing Connection Parameters Request procedure.

6.3.3 Known issues of 6.0.14.1114

Table 10. 6.0.14.1114 known issues

Issue Number	Description
933.04	DA14585/586/531: The default system rand() function is not true random (not NIST compliant). It is suggested to use the alternative chacha20() function when true random numbers are required (NIST compliant).
722.08	DA14585/586: HCI ACL fragmentation does not work correctly.

6.4 Version 6.0.12.1020.2 overview

This was the second GA release of SDK6 that runs on the DA14531 devices. It also supported DA14585/6 devices. You can use this release for application development. It is released on Dec 9, 2019.

6.4.1 Fixes and improvements since 6.0.12.1020

Table 11. 6.0.12.1020.2 fixes and improvements

Fix Number	Description
1020.02.01	DA14531: Updated calibration for improved radio functionality in applications with fast temperature swings.

6.4.2 Known issues of 6.0.12.1020.2

Table 12. 6.0.12.1020.2 known issues

Issue Number	Description
1020.01	DA14531: The wrong TX power level value is returned by the Tx Power GATT service. The returned value is the setting of the register, not dBm. Furthermore, the returned value refers to the advertising power, even if the connection power is different.
1020.02	DA14585/586/531: In external processor configuration, the GPIO used for waking-up is not programmed immediately after UART flow off. This may lead to missing communication over UART with the external processor if the external processor tries to wake up the device too soon.
1020.03	The prod_test.hex file might have memory alignment issues preventing its usage In SmartSnippets Toolbox RF Master or with Bluetooth tester equipment. The corresponding prod_test.bin files should be used instead.
1020.04	DA14531: When _EXCLUDE_ROM_PRF_ is not defined and no Bluetooth LE profiles are used in the application context, BLE_NB_USED_PROFILES must be set to 0. If not, the first four addresses of the executable (initial Stack Pointer, Reset

Issue Number	Description
	Handler, NMI Handler, and HardFault Handler) is overwritten with zeros. Affected SDK projects: hci; ble_app_noncon; prod_test.
933.04	DA14585/586/531: The default system rand() function is not true random (not NIST compliant). Use the alternative chacha20() function when true random numbers are required (NIST compliant).

6.4.3 Known limitations of 6.0.12.1020.2

Table 13. 6.0.12.1020.2 known limitations

Issue Number	Description
1020.05	DA14531: The peripheral examples inside the SDK do not work in the boost mode due to the deactivation of the internal DCDC converter in the system initialization function.

6.5 Version 6.0.12.1020 overview

This was the first GA release of SDK6 that runs on the DA14531 devices. It also supported DA14585/6 devices. You can use this release for application development. It is released on Oct 31, 2019.

6.5.1 Features of 6.0.12.1020

Table 14. 6.0.12.1020 features

Feature Number	Description
1020/001	Supports DA14531, DA14585, and DA14586 devices.
1020/002	Includes an Eclipse/GCC project example (prox_reporter).
1020/003	Supported by the SmartSnippets tools version 2.0.10.
1020/004	Doxygen documentation of all API functions.
1020/011	Updated 531 radio driver.
1020/012	RF driver for DA14531.
1020/013	DA14531: An API function to dynamically control radio TX power.
1020/014	DA14531: RF power control -20 ...3 dBm.
1020/015	SPI driver for DA14531 (master/slave buffered and DMA driven transactions).
1020/016	I2C driver for DA14585/586/531.
1020/017	RTC driver for DA14531.
1020/018	OTP driver for DA14531.
1020/019	Support for the OTP configuration script in 531.
1020/020	Support for DA14531 ROM functions.
1020/021	The near field mode API for DA14531.
1020/022	The API function to enable/disable the hardware reset pin in DA14531.
1020/023	DA14531 support in the Wakeup and Quadrature Decoder driver.
1020/024	DA14531 support in the GPIO driver.
1020/025	Added the DA14531 target in the project: ble_app_peripheral.
1020/026	Added the DA14531 target in the project: ble_app_profile.

Feature Number	Description
1020/027	Added the DA14531 target in the project: ble_app_barebone.
1020/028	Added the DA14531 target in the project: prox_monitor_ext.
1020/029	Added the DA14531 target in the project: hci.
1020/030	Peripheral examples ported to DA14531.
1020/031	Batt_lvl peripheral example project DA14531.
1020/032	DA14531: Support for 1-wire UART (driver and flash programmer).
1020/033	Temperature sensor driver.
1020/034	Readout of internal temperature.
1020/035	AES driver (data and link).
1020/036	DCDC converter API to control VBAT_H for OTP and GPIOs in the Boost mode.
1020/037	Use of the temperature sensor to trigger RF calibration during run-time.
1020/038	Secondary bootloader project.
1020/039	Proximity reporter example.
1020/040	Prox_reporter application wake-up using RTC or Timer 1 (apart from GPIO).
1020/041	Template example.
1020/042	Prod_Test firmware.
1020/043	OTA example project.
1020/044	Security example.
1020/045	Sleep example.
1020/046	Add support for the shipping (hibernation) mode.
1020/047	ADC driver with DMA support.
1020/048	RCX-only operation (no need for XTAL32K).
1020/049	Added the extra power optimization method using the XTAL16M adaptive settling time algorithm. It is enabled by default and can offer power savings of up to 10% for a 10-ms connection interval.
1020/050	Used the default XTAL16M trim value when the XTAL16M is uncalibrated.
1020/051	POR on Vbat high/low Voltage Monitor.
1020/052	Deep sleep support.
1020/053	Timer1/2 support.
1020/054	Disabled the DC-DC autocalibration (the Buck and Boost mode).
1020/055	Added 38K4 baud rate support in production test firmware.
1020/056	Added support for the Boost mode.
1020/057	Added API for AES-CCM, AES-CBC, and AES-CMAC operations.
1020/101	Compliant with Bluetooth LE 5.0 (DA14585/6) and Bluetooth LE 5.1 (DA14531) Core specifications.
1020/102	Data Packet Length Extension.
1020/103	Enhanced Privacy 1.2.
1020/104	Efficient non-connectable advertising.
1020/105	Added API to support controller privacy (peripheral role).
1020/106	Bluetooth Secure Connections.

Feature Number	Description
1020/107	Function for the unique static random BD address generation using OTP header values.
1020/108	Added a key renewal command that can be called after a number of failed pairing attempts.
1020/109	Added support to disable ROM ECC key generation calculations if the Secure Connections feature is not used.
1020/110	Added support for the URI advertising data type.
1020/111	Added support for the GATT service layer, changed the characteristic of the application layer.

6.5.2 Known issues of 6.0.12.1020

Table 15. 6.0.12.1020 known issues

Issue Number	Description
1020.01	DA14531: Wrong TX power level value is returned by the Tx Power GATT service. The returned value is the setting of the register, not dBm. Furthermore, the returned value refers to advertising power, even if connection power is different.
1020.02	DA14585/586/531: In external processor configuration, the GPIO used for waking-up is not programmed immediately after UART flow off. This may lead to missing communication over UART with the external processor if the external processor tries to wake up the device too soon.
1020.03	The prod_test.hex file might have memory alignment issues preventing its usage In SmartSnippets Toolbox RF Master or with Bluetooth tester equipment. The corresponding prod_test.bin files should be used instead.
1020.04	DA14531: When _EXCLUDE_ROM_PRF_ is not defined and no Bluetooth LE profiles are used in the application context, BLE_NB_USED_PROFILES must be set to 0. If not, the first four addresses of the executable (initial Stack Pointer, Reset Handler, NMI Handler, and HardFault Handler) is overwritten with zeros. Affected SDK projects: hci; ble_app_noncon; prod_test.
933.04	DA14585/586/531: The default system rand() function is not true random (not NIST compliant). Use the alternative chacha20() function when true random numbers are required (NIST compliant).

6.5.3 Known limitations of 6.0.12.1020

Table 16. 6.0.12.1020 known limitations

Issue Number	Description
1020.05	DA14531: The peripheral examples inside SDK do not work in the boost mode due to the deactivation of the internal DCDC converter in the system initialization function.

Appendix A Software Versioning Rules

This describes the software version numbers and does not apply to documentation version numbers (as found in the footer of this document).

Each software version number string consists of four numbers: MAJOR. BRANCH. MINOR. and BUILD.

#MAJOR: It is increased (by one only) if the project undergoes a major modification, for example, major ROM changes. It usually changes only when the project sources undergo major restructuring affecting most of the repository. It is initialized at 1.

#BRANCH: Used in the case of concurrent projects that for special reasons need to be spun off the major repository. It corresponds to different versions of the repository code that have to be supported concurrently. In this case, each branch number corresponds to a different GIT branch. The basic project has BRANCH id 0.

#MINOR: Odd numbers indicate Engineering (or Patch or Binary) versions, and even numbers indicate Full release versions or Release Candidates of Full versions. Each Full release increases this number by one. After the Full release, the number is increased by one again. Therefore, Project releases correspond to release numbers like 2.0.1.xxx, 2.0.2.xxx, and so forth. The #MINOR number is initialized at 1.

#BUILD: The # BUILD number increases by one at every repository update and thus indicates the total number of changes since repository initialization. The BUILD number is initialized at 1.

Document Revision History

This section summarizes the changes made to this document and not to the Software that this document describes.

Revision	Date	Description
1.5	Sep 21, 2023	Updates to software version 6.0.20.1338
1.4	Nov 25, 2022	Updates to software version 6.0.18.1182.1
1.3	Sep 28, 2021	Updates to software version 6.0.16.1144
1.2	Apr 29, 2020	Updates to software version 6.0.14.1114
1.1	Dec 9, 2019	Updates to software version 6.0.12.1020.2
1.0	Oct 31, 2019	The first release. Software version 6.0.12.1020

Status Definitions

Status	Definition
DRAFT	The content of this document is under review and subject to formal approval, which may result in modifications or additions.
APPROVED or unmarked	The content of this document has been approved for publication.

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(Rev.1.0 Mar 2020)

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