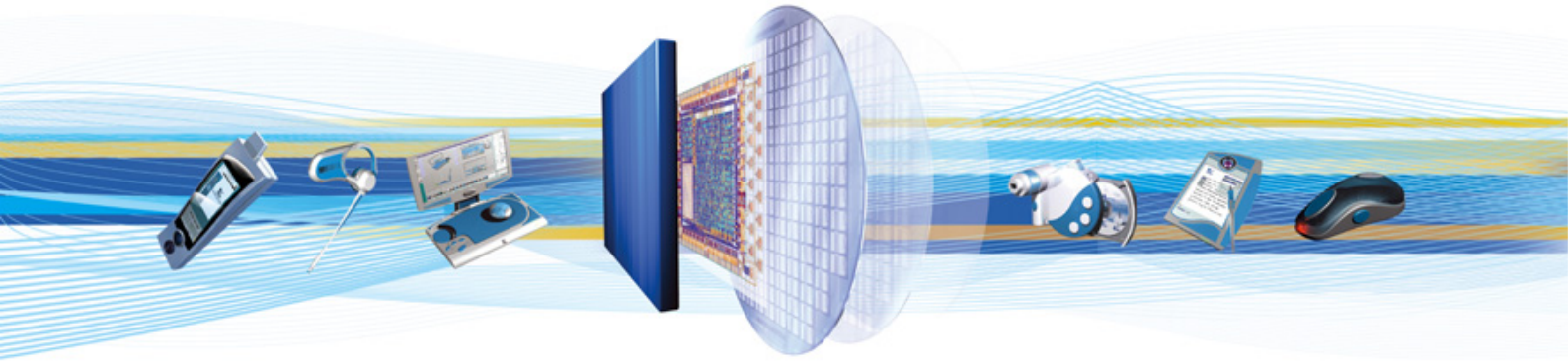
CSR Synergy Bluetooth 18.2.2

Software Release Note

January 2012



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1 Release Highlights

1.1 Synergy BT 18.2.2

This section contains a list of the main new features and improvements that have been implemented in this release. For full list of addressed issues, please see Appendix D.

- AMPM: Added interface to allow powering on a local AMP controller when required during a move, i.e. when the AMP controller is available for Bluetooth but physically powered off

1.2 Synergy BT 18.2.1

This section contains a list of the main new features and improvements that have been implemented in this release. For full list of addressed issues, please see Appendix D.

- CM: Added a new signal CsrBtCmHighPriorityDataInd which must be registered for and is sent when high priority data is been sent.

1.3 Synergy BT 18.2.0

This section contains a list of the main new features and improvements that have been implemented in this release.

New functionality

- HF/HFG
    - IIA implemented according to the specifications.
    - Implemented and verified mandatory features of the WBS enhancement to the HFP spec.
- LE Proximity server
    - An LE proximity server implementation has been added to the list of available profiles in Synergy BT. By means of this implementation it is possible to add the LE proximity server functionality without much other code implementation.
- LE Health Thermometer
    - An LE Health Thermometer implementation has been added to the list of available profiles in Synergy BT. By means of this implementation it is possible to add the LE Health Thermometer server functionality without much other code implementation
- On Chip Encoding
    - AV: support for on-chip audio encoding of A2DP stream data added.

Doc

- Doc: Added AMP Implementation white paper describing how to compile AMP

Build

- Build: To minimize the ROM footprint when running Synergy BT the code has been re-factored. Most of this work has been around adding compiler defines to exclude unneeded code when building for different combinations of profiles. Please see the Synergy BT users Guide for more details regarding combination of profiles and how to use the different compiler defines.

Profiles

- TCS
    - As the TCS profile has been deprecated by the Bluetooth SIG the profile has been removed from Synergy BT.
- AV
    - Previously the AV always told the SD that it had to search for both an AV_AUDIO_SINK and an AV_AUDIO_SOURCE service. This has been changed so the AV can be configured to inform the SD which service to search for. This is done using the compiler flags EXCLUDE_CSR_BT_AV_AUDIO_SOURCE or EXCLUDE_CSR_BT_AV_AUDIO_SINK.
- CM
    - The low energy radio test HCI commands can now be issued via the CM through the new APIs: CsrBtCmLeReceiverTestReqSend(), CsrBtCmLeTransmitterTestReqSend(), and CsrBtCmLeTestEndReqSend(). Each signal has a CFM message.
    - The power level value reported in the CsrBtCmReadTxPowerLevelCfm message was wrongly reported as an unsigned integer. Since the power level can be negative as well, then powerLevel has been changed to a CsrInt8.
- GATT
    - Low energy data signing - via 'write signed command' - support has been added to GATT and SC.
    - A new feature has been added to GATT which allows a GATT application to start the LE the authentication procedure.
    - If the GATT profile is Master of a LE connection and a peer Slave requests to update the connection parameters to an interval that is outside the range of which the application has defined as default, GATT will automatically reject this request. An LE application is now able to decide if a request (from another local application or from a peer Slave) to change the connection parameters shall be accepted or not by subscribing for CSR_BT_GATT_EVENT_MASK_SUBSCRIBE_PARAM_CONN_UPDATE_IND events.
    - In the case that a ATT signed write command failed with ATT_RESULT_SIGNED_DISALLOWED GATT did automatic send a ATT Write Command. Instead of sending the ATT Write Command the error is now instead sent direct to the application, as GATT don't know if it is allowed to issue a ATT write command or not
    - If an abnormal disconnect is received while the GATT Client is cancelling an ongoing procedure a confirm message for this procedure may be sent twice to the application. This has now been fixed, so the application only receives one confirm messages.
- SC
    - 'addressType' members have been added to the SSP compare, notification and passkey signals. When communicating with an LE device the ...Ex() functions shall be used. Existing behaviour on BR/EDR has been preserved.
- SD
    - CSR_BT_SD_SEARCH_ENABLE_LE_PASSIVE_SCAN added to allow the SD to perform passive scanning for LE devices. The scanning speed can be a little faster, while sacrificing the completeness of the device name and supported service in the SD report

      Active scanning stays default in the SD when searching for LE devices.

2 Credits

The included music, which is found in the /applications/generic/sbc_test_02.sbc file, is written and performed by The First Miles, homepage: http://thefirstmiles.com and has been made freely available for use with the CSR Synergy Bluetooth

3 Testing

CSR Synergy Bluetooth has been tested on an ARM11 based development board and on a Windows XP PC platform. Further, CSR Synergy Bluetooth has been tested on the following chip and firmware versions:

Chip Version	Firmware	Build ID
BC4-rom	BT 2.0	3164
BC5-rom	BT 2.1	4698
BC6-rom	BT 2.1 – HCI23	4841
BC7820	BT 2.1	5985
BC7830	BT 2.1	6247
BC8805	BT 3.0	6817
CSR8810	BT 3.0	6817
CSR8811	BT 4.0	7558

Table 1: Tested Chip and Firmware Versions

The testing has included:

- Different host transport tests
  - BCSP + UART
  - SDIO
  - CSPI
  - USB
- Automated regression testing, including
  - Data transfers
  - Inquiry
  - Connection scenarios
  - Authentication
  - Encryption
  - Pairing
- IOP testing against real devices.
- Testing with runtime analysis tools (Purify)
- Statical code analysis
  - Coverity by means of default configuration and default checkers
  - PC-lint

4 Qualification Information

The software has been qualified in two parts. As a host subsystem and as a profile subsystem, both to be compliant with the Bluetooth Core Specification 4.0 + HS.

The host subsystem listing covers core protocols above HCI: L2CAP, SDP and GAP as well as protocols external to core: RFCOMM, SPP, AVDTP, AVCTP, BNEP and MCAP.

The profile subsystem covers the profiles: HSP, FTP, SAP 1.1, FAX, AVRCP 1.4, DUN, OPP, GAVDP, BIP, HID, A2DP, HFP 1.6, BPP 1.2, PBAP, DI 1.3, HDP, MAP and SYNC.

The Bluetooth features supported in this release are described in the Protocol Implementation Confirmation Statement (PICS) documents that are available in the ./doc/ics directory.

In order to be able to use the profile subsystem listing it is necessary that the application uses the profile in the same way as the demo applications use the profiles. If this is not the case, a new qualification is necessary.

5 Compatibility with other CSR Synergy Components

This CSR Synergy BT release is compatible with the following other CSR Synergy Components releases:

Component	Version
CSR Synergy Framework	3.0.X[1]/3.1.X
CSR Synergy WiFi	4.2.X/5.0.X
CSR Synergy FM	2.0.x

Table 2: Compatibility with other CSR Synergy Components

[1] For WBS support within CSR Synergy Bluetooth a version 3.1.0 or later of the CSR Synergy Framework is needed.

6 Release Functionality

CSR Synergy Bluetooth has been developed to comply with the *Bluetooth Core Specification 4.0* + HS.

The profiles within CSR Synergy Bluetooth have been developed with focus on the mobile phone and automotive market but do not exclude use in other markets.

For all implemented profiles all mandatory features have been implemented. In addition to the mandatory features some of the optional features have also been implemented. For the full list of supported features for each profile, see the PICS document for the relevant profiles in the `./doc/ics` directory.

The following features are included in this release.

Synergy BT Feature	Comments	This Release
BT Profiles	DUN (Device + Terminal)	1.1
	OPP (Client + Server)	1.2
	SYNC (Client + Server)	1.1
	HFG/AG	1.6
	HF/HS	1.6
	FTP (Client + Server)	1.2
	CTP/ Intercom	1.1/1.1
	PAN (NAP, GN, PANU)	1.0
	BIP (Client + Server)	1.1
	AV (Source + Sink)	
	• A2DP	1.2
	• GAVDP	1.2
	• VDP	1.0
	AVRCP	1.4
	BPP (Client + Server)	1.2
	SAP (Client + Server)	1.1
	HID (Host + Device)	1.0
	HSP	1.2
	JSR 82	1.1.1
	HCRP (Server)	1.0
	PBAP (Client + Server)	1.0
	SyncML OBEX Binding	1.1
	DI	1.3
	MAP (Client + Server)	1.0
	HDP	1.0
BT Protocols	MCAP	1.0
	SPP	1.1
	AVCTP	1.3
	AVDTP	1.2
	BNEP	1.0
	GAP	BT Core 4.0
	L2CAP	BT Core 4.0
	SDP	BT Core 4.0
	RFCOMM	BT Core 4.0
	A2MP	BT Core 4.0
IEEE Health Spec.	Optimized exchange protocol (IEEE 11073-20601-2008)	✓
	Blood Pressure Monitor (IEEE 11073-10407 -2008)	✓
	Weight Scale (IEEE 11073-10415-2008)	✓
Bluetooth low energy	Central + Peripheral + Broadcaster+ Advertiser	✓✓✓✓
	GATT + ATT + Security	✓✓✓ (excl signing)
	Demo applications implementing	Battery, Proximity, Thermometer, LE HID
Other	GOEP	2.0
	AMP	✓
Core Specification		BT4.0+HS

Table 3: Included Profiles

Appendix A Known Limitations

- If a SCO link is used in a scatternet the voice/audio quality of such a SCO link can be expected to have low quality. This is a deficiency of the Bluetooth specification rather than CSR Synergy Bluetooth and BlueCore implementation. For further information on SCO issues using scatter nets, see *Scatternet Support* on www.csrsupport.com.

Appendix B Known Issues with Other Devices

- The IOP test of SAP revealed an issue with the Nokia 616 Car Kit. When the CSR Synergy Bluetooth has a connection to another device, e.g. a laptop, before the Nokia 616 Car Kit establishes a connection to CSR Synergy Bluetooth, CSR Synergy Bluetooth will request to become master of both connections in order to form a piconet. However, when the Nokia 616 tries to download e.g. SIM contacts it will try to switch the roles again in order to become the master. Since CSR Synergy Bluetooth has detected that it is master of a piconet with multiple peers, CSR Synergy Bluetooth will reject the role switch request from the Nokia 616 Car Kit. If another device in the piconet was to become master this would result in a scatter net situation where degraded audio quality can occur; hence CSR Synergy Bluetooth does not allow anyone to switch the roles. This rejection apparently causes the Nokia 616 to cancel the download and present a general error on the Car Kit display

Appendix C Known CSR Synergy Bluetooth Issues

This section describes the currently known issues for the CSR Synergy Bluetooth software.

ID	Description
D-3110	It is not possible to unregister or register a service in the service discovery server if a SDP channel is open.
D-25742	HF: Set-up of the re-sampling operator is not supported in this version of Synergy BT.

Table C.1: Known CSR Synergy Bluetooth Issues

Appendix D Issues addressed in this release

Synergy BT 18.2.2

Relative to Synergy BT 18.2.1

ID	Description
B-114520	Bluestack: Added check for NULL pointer and removed unintended symbols '...' to allow compilation
D-18374	AV: Added bitrate calculation when an Apt-X A2DP stream exists, for better Bt-WiFi coexistence
D-24778	Bluestack: Added check for NULL pointer before using it
D-24795	AV Demo App: Ensured that the codec is configured correct before streaming starts
D-25031	Generic App: FTP client did not update AMP status after reconnecting to a FTP server. This could result in the demo application not working as expected. This has now been fixed
D-25218	AVRCP Demo app: Added some more AVRCP pass through commands to the demo application
D-26051	AMPM: Added interface to allow powering on a local AMP controller when required during a move, i.e. when the AMP controller is available for Bluetooth but physically powered off
D-26411	Bluestack: Connection_flags which keeps track of an on-going connection is now being reset in the stack de-init.
D-26613	AV API: Added clarification the btConnId field of the CSR_BT_AV_MTU_SIZE_IND message contains the local CID of the L2CAP connection used for the A2DP stream.
D-26634	AV demo app: In some instances assignment statement was used instead of a comparison statement. This has now been fixed.
D-26635	AV demo app: The length of capabilities returned from the function "avrouter_get_caps()" was sometimes wrong. This has now been fixed
D-26663	CM: Removed warning in function CsrBtCmSmKeyRequestResHandler in file csr_bt_dm_sc_hanler.c detected by static code analysis
D-26668	LE proximity and Thermometer: updated the battery service references to comply with the 0.9 draft version of the specification
D-26703	GATT demo: dbElement->currentCharac field initialized before use to avoid NULL pointer access
D-26704	LE thermometer client app: the temperature value received is now deciphered following the IEE 11073 format as mandated by the Bluetooth spec.
D-26723	Bluestack: When pairing failed PDU is received, process SM pairing complete and delete pairing structure.
D-26757	AV: Remove the check on the length of Content Protection from profile, as Content Protection is the application's responsibility.
D-26775	SD: Tidy up when a search operation is cancelled so the SD is not blocked
D-26869	MAPC - If a message listing is returned without a Body (message), return the Message List Length to the application.
D-27058	AV: Removed dead code that was protected by the define "USE_CODEC_GAIN_CONTROL" and referred to non-existing symbols.
D-27065	SC: CSR_BT_SC_LE_SECURITY_CFM now sent to the task that issued the request. This was not always the case before if the bonding operation failed.
D-27385	Bluestack: L2CAP_UNMAP_FIXED_CID_CFM message was sent right after the L2CAP_UNMAP_FIXED_CID_REQ was received. The upper layers got out of sync with the DM layer due to this, if the ACL link had to be released after the L2CAP_UNMAP_FIXED_CID_CFM had been sent. This has now been fixed.
D-27435	AV app: Removed unnecessary and wrong calculation of which endpoint instance to allocate next.
D-27489	CM: Ensured that only 37 bits out of 40 are actually used when setting the ULP AFH channel classification in order to comply with the spec.
D-27491	Av Demo app: Update the AV demo application to ensure that the correct number of Activate requests are send to the AV profile

Table C.1: Issues addressed in Synergy BT 18.2.2

Synergy BT 18.2.1

Relative to Synergy BT 18.2.0

ID	Description
D-22847	GATT: Priority of scan changed, so that Active scan has priority over Passive scan
D-24830	CM: Now take into account LE connections when the Low Power mode is handled.
D-25286	HFG demo app: Removed pop-up window when the HF asks for the list of active calls as it is not relevant for the HFG.
D-25406	CM: Added a new signal CsrBtCmHighPriorityDataInd which must be registered for and is sent when high priority data is been sent.
D-25728	HF: Accept the new configuration settings only if not in the middle of a configuration operation. Each link instance data keeps its own copy of the configuration data. Ensured that the configuration pointers are freed each time a new configuration arrives before taking it in, and also at de-initialization.
D-25776	CM: Fixed a problem due to crossing between incoming and outgoing SCO connections.
D-25931	Config: Configuration definitions used for CTP and ICP removed as they are not relevant any more.
D-25944	Bluestack: FC on/ FC off implemented in RFCOMM.
D-25996	PAN: Role switch now only requested upon connection establishment if the local role is GN or NAP. It was also done when the local role was PANU before, which in some situations was not compliant with the spec.
D-26047	AVRCP: Added NULL pointer checks in AVRCP code.
D-26055	PHDC: Proper initialization of a few phdc related variables. Code analysis tools identified these as potentially used without proper initialization
D-26121	GATT: Claim authentication and encryption, but nor MITM protection when accepting BR/EDR connections.
D-26127	GATT: Proper initialization of a few GATT related variables. Code analysis tools identified these as potentially used without proper initialization
D-26162	CM: During start up a read local name resulted in name event send twice to, this has been fixes.
D-26165	SC: Added local authentication requirements to some SC primitives sent to the application. See the SC API document for details.
D-26214	Thermometer application: initialized pointers to avoid panic when using them.
D-26216	Thermometer: "clientConfigList" initialization done, before it is being used.
D-26313	Dun-GW: Typo corrected: _portVar changed back to _portPar in CsrBtDgPortnegReqSend
D-26354	Bluestack: Ensured that disconnection requests actually do remove the LE link.
D-26358	AVRCP: AV/C fragmented packets now contain only 512 bytes at most. There was a chance that a packet could contain 512 bytes of payload plus an AV/C header of 13 bytes. The length field of each packet reflects now the correct payload length of each fragmented packet. It was set to 0 before.
D-26375	BT: Added converter function for change packet type HCI command and event.
D-26416	Bluestack: Unlock the ACL if security fails when the SM Host is already busy in pairing.
D-26434	AV demo app: Added one more APTX Vendor ID definition and used it as standard. Added one more APTX codec ID definition too.
D-26492	AV: The CsrBtAvSetQosIntervalReqSend macro has been added as it was missing.
D-26624	SD: If a search operation is cancelled while retrieving the name of a remote LE device, the SD now tidies up nicely and its queue is unlocked. This was not the case before.
D-26641	AMPM: The status field of the DM_ACL_CONN_HANDLE_IND message is checked now and an attempt to discover the remote devices AMP capabilities is only performed if the connection succeeded.
D-26660	Converter: De serialization function for the CsrBtGattWriteReq primitive corrected.

Table C.2: Issues addressed in Synergy BT 18.2.1

Synergy BT 18.2.0

Relative to Synergy BT 18.1.0

ID	Description
D-10908	HF/HFG: IIA implemented according to the specifications.
D-12608	AT: When a CSR_BT_AT_DG_ATC_UNKNOWN_EXTENDED_CMD_IND primitive was sent to the app, the ownership of the payload data was not transferred to the app, which could cause attempts to free the memory twice.
D-13436	HFP: API documents for HF and HFG updated to reflect that the Auristream feature is deprecated and will be removed in the future.
D-14774	HF/HFG: Implemented and verified mandatory features of the WBS enhancement to the HFP spec.
D-16770	GATT: Allow links initiated by LE security to assume the central role.
D-17874	MAPC: The client no longer sends empty application header parameters in the message listing command, in order to avoid IOP problems.
D-18197	OBEX Push Demo App: Now possible to send a vcard in a vcard directly from the menu.
D-19203	CM: BR/EDR links with only a GATT connection will now automatically be put in to sniff mode, and detaching the connection takes GATT in to account with the CSR_BT_CM_ACL_DETACH_EXCLUDE_LE flag.
D-19486	GATT: Attempts to modify the white-list while the controller is actively using the white-list feature is not permitted, and GATT will now correctly abort modification attempts and report the HCI error.
D-20084	GATT: Write signed commands are now automatically changed (upgraded) to normal write commands if the LE link is encrypted, or BR/EDR is used. This behaviour can be disabled with the CSR_BT_GATT_FLAGS_NO_AUTO_SIGN_UPGRADE connection flag.
D-20294	SD: The RSSI-based level sorting has been fixed for low energy advertising reports. Also, extended functions for search and proximity search have been added to allow the LE RSSI threshold to be set via the 'leRssiThreshold' member.
D-20593	GATT: Low energy data signing - via 'write signed command' - support has been added to GATT and SC.
D-20646	Proximity: The GATT Proximity demo application now has support for BR/EDR links as well as LE links.
D-20689	GATT: Applications can now subscribe to whitelist changes (add/clear) via the CsrBtGattSetEventMaskReqSend API.
D-20746	GATT: The maximum advertising interval for undirected connections (peripheral) is now calculated correctly.
D-20858	L2CAP: Remember the Bluetooth address of peers for the automatic connection re-establishment in L2CAP.
D-20895	Generic App(FTP): When running on BDB3, the FTP server failed to respond to folder listing requests from clients due to an invalid root folder setting. This has now been fixed.
D-20949	DM: To prevent lock-ups in the DM ACL state machine the disconnect timer is not stopped if connection is already being disconnected.
D-20995	GATT: The CSR_BT_GATT_CHARAC_PROPERTIES_AUTH_SIGNED_WRITES define now sets both 'authenticated writes' and 'write command', which are required for write signed command to function properly.
D-20999	SC_DB: The sc_db.db file is now truncated if the version check does not match.
D-21008	SC: The SC will now filter out the internally used FFFF:FF:FFFFFF address before passing up device database information.
D-21024	DM: As simultaneous BR/EDR and LE connections to the same peer are illegal, logic has been implemented to to prevent this by ensuring that both local and remove systems are prevented from establishing the second connection.
D-21027	L2CAP: L2CAP signals are now re-scheduled if the verification of responses fail.
D-21029	SAPS: A deactivate during a failing connect attempt could end up in a deactivate_cfm not to send. This have now been fixed.

D-21049	HDP: Demo application now set Major COD to Health in order to be able to pass qualification.
D-21065	Bluestack: RFCOMM state machine corrected in case authentication fails.
D-21081	Doc: Updated generic demo application document with description on how to build with AMP support
D-21114	AV: It was not possible to cancel a connection request during SDP search. This have now been fixed.
D-21163	BIP Server demo app: Added possibility to require filtering on "created", "modified" and "pixel-size" when the Automatic Archive client requests the image list from the remote device.
D-21164	FTP-demo app: Updates made so it is now possible to to report back to the FTP client that a folder is read only and can not be modified.
D-21177	SC: LE security keys (LRK, CSRK, ID, etc.) that does not meet the required security level are not automatically discarded. This allows automatic security upgrades from unauthenticated to authenticated in GATT.
D-21178	CM: On rear occasions an ACL_CLOSE_IND could cause free memory to be read, this have now been fixed.
D-21198	GATT: The SDP service search algorithm in GATT has been updated to return start- and end-handles that match ATT results more closely.
D-21223	L2CAP: The L2cap connection were not always closed if rfcomm security failed. This have now been fixed.
D-21224	CM: If the establishment of an RFCOMM connection failed because of security reason while running SSP, the CM did not request the SC/Application to accepting/rejecting a re-bond procedure. This has now been fixed
D-21259	MAP-APP: Pointer in demo app is by error not always set to NULL when contents is send to server and demo app is also not able to handle non-compliant messages when creating a list for client.
D-21260	AVRCP demo app: Csr_Bt_Tg_Get_Attributes_ind message received with UID 0 accepted and handled even if both devices are 1.4 compatible.
D-21276	AVRCP TG demo app: Added track changed notification menu in the AVRCP TG demo app in order to be able to run PTS test case NFY/BV-02-C.
D-21298	AV: AV_CLOSE_CFM was missing due to cross-over on outgoing and incoming stream close request and indications. This has now been fixed.
D-21309	AVRCP TG: If the length field of the 'SetAbsoluteVolume' command is wrong, the TG now rejects the command. Needed for qualification.
D-21360	AVRCP TG: The media item attributes returned are different depending on folder path set from the CT (if any).
D-21367	OBEX: Under certain conditions during an abort operation a data read indication signal could cause a small memory leak. This have now been fixed.
D-21369	OPP demo app: Misc errors found during qualification test corrected.
D-21393	AV demo app: Correct variable used to extract the file name for the file to create.
D-21428	PAS: Phone book size of more than 254 is now supported.
D-21451	GATT: Only add primary services to the GATT SDP service record database.
D-21469	Bootstrap: Patch bundle for Gemini A06 ROM (firmware version 7558) has been upgraded to revision 4
D-21493	OPS demo app: Demo app does now take length of name field into account when calculating the size of the body object in the CSR_BT_OPS_GET_RES.
D-21503	Build: To minimize the ROM footprint when running Synergy BT the code has been re-factored. Most of this work has been around adding compiler defines to exclude unneeded code when building for different combinations of profiles. Please see the Synergy BT users Guide for more details regarding combination of profiles and how to use the different compiler defines.
D-21581	AV: Ensured that the AV always issues a close confirm message when the application issues a close request, no matter how the remote device behaves.
D-21595	SC: 'addressType' members have been added to the SSP compare, notification and passkey signals. When communicating with an LE device the ...Ex() functions shall be used. Existing behaviour on BR/EDR has been preserved.

D-21596	OBEX common: Added code to handle an error situation where a header length within an OBEX packet is greater than the total OBEX packet length.
D-21609	DUN-GW demo app: Deprecated the use of the ATX0 command as default modem setting in order to allow for busy tone detection.
D-21620	GATT: Wait for both ATT and CM to fully initialise before we write scan, advertise and connection parameters.
D-21628	HF demo app: added possibility to establish audio connection using S1 settings or SCO settings to begin negotiation.
D-21650	SAPC: Faulty double declaration of CsrBtSapcFreeDownstreamMessageContents removed
D-21746	Demo App.: Removed "dead" code that was left when AV and HFG was moved into the generic demo application.
D-21763	TPT: Generation of final report operation was failing. This has now been fixed.
D-21783	CM: On receiving disconnect via an ACL_DISCONNECT_IND, the CM contents send to GATT was freed twice. This has now been fixed.
D-21870	Common: The function CsrUcs2ByteStrLen() has been moved from the 'converter' to the 'common' library to allow for complete exclusion of all convert library code.
D-21970	APPLICATIONS: Bootstrap patch bundle for Gemini A06 ROM (Firmware ID 7558) is updated to rev. 7
D-21985	CM: The low energy radio test HCI commands can now be issued via the CM through the new APIs: CsrBtCmLeReceiverTestReqSend(), CsrBtCmLeTransmitterTestReqSend(), and CsrBtCmLeTestEndReqSend(). Each signal has a CFM message.
D-22062	HF: Added a pointer to the HF_instance structure, to provide a convenient way to refer back to the main structure. This is consistent with the HFG implementation
D-22096	Proximity Server: The proximity server now fully supports Client Characteristic Configuration with notifications for Tx Power Changes.
D-22143	CM: The power level value reported in the CsrBtCmReadTxPowerLevelCfm message was wrongly reported as an unsigned integer. Since the power level can be negative as well, then powerLevel has been changed to a CsrInt8.
D-22145	SD: CSR_BT_SD_SEARCH_ENABLE_LE_PASSIVE_SCAN added to allow the SD to perform passive scanning for LE devices. The scanning speed can be a little faster, while sacrificing the completeness of the device name and supported service in the SD report Active scanning stays default in the SD when searching for LE devices.
D-22183	GATT: The API documentation has been updated and now describes why the CsrBtConnId member in CsrBtGattBredrAcceptCfm is zero.
D-22202	HCRP: Renaming CSR_BT_PRINTER_MINOR_DEVICE_MASK to CSR_BT_PRINTER_IMAGING_MINOR_DEVICE_MASK - only used in the profile. (reported via D-21595)
D-22507	AVRCP: Low power time-out handled correctly when the timer fires.
D-22511	SD: The BR/EDR/LE radio capability determination algorithm has been improved.
D-22544	GATT: An invalid supplier may be given in a CSR_BT_GATT_DISCONNECT_IND message if the incoming BD/EDR connection procedure fails. This has now been fixed.
D-22574	CM: If an application has subscribe for CSR_BT_CM_LOGICAL_CHANNEL_TYPES_IND messages, the CM did not always this event. The CM did not sent this event if it has accepted an incoming RFCOMM connection. This has now been fixed.
D-22575	AVRCP: AVRCP 1.4 did only create/accept a browsing channel, if the browsing feature was supported. Now AVRCP 1.4 will always accept an browsing channel and it will create one if peer TG support one of the following feature: category 1, category 3, Media Player Selection or browsing.
D-22576	LE Proximity server: An LE proximity server implementation has been added to the list of available profiles in Synergy BT. By means of this implementation it is possible to add the LE proximity server functionality without much other code implementation.
D-22618	Generic Demo App: LE-Browser functionality added.
D-22652	SD: Issue found during static code analysis has been fixed.

D-22717	LE Health Thermometer: An LE Health Thermometer implementation has been added to the list of available profiles in Synergy BT. By means of this implementation it is possible to add the LE Health Thermometer server functionality without much other code implementation.
D-22744	GAP APP: address type used and not only bd address.
D-22753	AVRCP-TG: Corrected error in calculation of the data payload length in a get element attributes response.
D-22917	AVRCP: The API now makes it clear that calling CsrBtAvrcpTgSetAddressedPlayerReqSend will have no effect if called while no connection is established.
D-22972	GATT: Connections (LE or BR/EDR) which has been used for scan or is in pending mode, are now properly closed down. Before if the controller has been used for scanning or had an pending connection, GATT believed that it was in master role, and could not establish an LE connection in slave role due to the scatter-net limitation in LE.
D-23030	OBEX: The version in the SDP record of OPS, BIPC and BIPS were always set to the old version, even if these profiles support GOEP 2.0. Opposite the version in the SDP record of FTS were always set to version 1.2 even if GOEP 2.0 were excluded. This has now been fixed
D-23057	BIPC: During IOP testing it has been found that while image transfer over BIPC, a disconnect indication after final packet could be send. The connection were disconnected because the other device sets the length of the Image handle header wrong. In order to handle this BIPC has been made more tolerant.
D-23138	Bluestack: Changed the algorithm to select the L2CAP packet in the TX queue that needs to be sent next.
D-23143	Obex Push App: Using correct MIB file for M2107v3 board.
D-23155	TCS: As the TCS profile has been deprecated by the Bluetooth SIG the profile has been removed from Synergy BT.
D-23177	GATT: A new feature has been added to GATT which allows a GATT application to start the LE the authentication procedure.
D-23213	AMPM: Handled status event from the WiFi module with opcode CSR_BT_AMP_HCI_DISCONNECT_PHYSICAL_LINK_CODE even when the result is success. Done to allow fall-back to BT when WiFi physical link creation fails. Bluestack AMP FSM corrected.
D-23214	GATT: If the application receives a CSR_BT_GATT_DB_ACCESS_WRITE_IND or CSR_BT_GATT_DB_ACCESS_READ_IND message GATT may ignore the response sent from the application. This has now been fixed
D-23293	Health Thermometer: The UUIDs used for the Health Thermometer profile have been updated to reflect the ones adopted by the SIG.
D-23300	PROXIMITY: UUID's in the LE proximity server have been updated to reflect the latest definitions from Bluetooth SIG.
D-23368	HF/HFG: Updated API to describe audio configuration for WBS and chips using DSP.
D-23494	PROXIMITY: The attribute permissions for the Immediate Alert Service in the Proximity Server have been updated to reflect the latest specification from the Bluetooth SIG.
D-23511	Proximity: Service UUIDs have been updated to reflect the adopted Bluetooth SIG specifications.
D-23586	Generic demo app: Updated to handle LE security indication
D-23683	AV: Previously the AV always told the SD that it had to search for both an AV_AUDIO_SINK and an AV_AUDIO_SOURCE service. This has been changed so the AV can be configured to inform the SD which service to search for. This is done using the compiler flags EXCLUDE_CSR_BT_AV_AUDIO_SOURCE or EXCLUDE_CSR_BT_AV_AUDIO_SINK.
D-23685	GATT: If the GATT profile is Master of a LE connection and a peer Slave requests to update the connection parameters to an interval that is outside the range of which the application has defined as default, GATT will automatically reject this request. An LE application is now able to decide if a request (from another local application or from a peer Slave) to change the connection parameters shall be accepted or not by subscribing for CSR_BT_GATT_EVENT_MASK_SUBSCRIBE_PARAM_CONN_UPDATE_IND events.
D-23717	SC: The SC now handles remote names read over LE, even if they do not contain a null termination
D-23719	AMPM: A move to AMP could stall, failing to reply to AMP protocol commands in case the local AMP HCI returned error responses.

D-23824	GATT: If an application is Master of a LE connection and it updates its connection parameters runtime and the peer Slave requests to update the connection parameters within the range of what the Master has set, GATT will now accept this request.
D-23856	AVRCP: Upon reception of a CSR_BT_CM_L2CA_DATA_CFM, the AVRCP profile tried to send any pending data packets on both the control and browsing channels. This is wrong and is now corrected: Only the data packets pending on the connection channel the data confirm refers to are now sent.
D-24045	AVRCP: Instead of using a general reject message, when the set addressed player request from the CT, which is wrong, the TG now issues the set addressed player response message with a proper status.
D-24088	AV: support for on-chip audio encoding of A2DP stream data added.
D-24106	GATT: Under some circumstances an ATT_ACCESS_IND primitive was unhandled by the GATT profile. This has been corrected.
D-24113	SC: In rare cases, in the process of bonding, storing the peer device name could course the stack to panic. This has now been fixed.
D-24132	HS: Added UUID 0x1131 in the service class list of the HS service record to comply with adopted spec errata.
D-24166	AMPM: When a move operation started by the remote device is completed, the AMPM now sends an ampm_move_cmp_ind message to the application, as described in the API. It erroneously sent an AMPM_MOVE_CFM message before.
D-24326	Demo App: Demo applications is now working with WiFI 5.X
D-24371	SC: Read the SC database and find the encryption key size when the connections established is of LE type.
D-24472	HF: Added holders for "next" operators to be able to allocate new operators while a set of DSP operators is active.
D-24473	HF: DSPM operators not destroyed when an eSCO connection is released. Instead the operators are kept in order to be reused when the next eSCO is established.
D-24502	DOC: GATT API document have been updated to inform about spec. conformance breakage when using peripheral request from a dual-mode device.
D-24569	GATT: When GATT start security it always set security requirements to CSR_BT_SC_LE_AUTH_IGNORE, which is the default value. This has now been fixed so GATT set security to what the peer device requires
D-24573	HF: Corrected the contents of the AT+BIA command, which were wrong before.
D-24582	GATT: In order to be sure that the GATT and the SC module does not block each other, GATT now read the remote name doing connection setup. Hereby GATT is able to return a name to SC without using the queue.
D-24584	SC: LE Re-bond functionality implemented in SC.
D-24585	GATT: just-in-time security is now able to upgrade from unauthenticated to authenticated link keys correctly. Earlier, upgrading an existing link key where not possible.
D-24587	GATT: If an application calls CSR_BT_GATT_UNREGISTER_REQ while it is connected and have a pending message, GATT may run into a state where it blocks the queue for the given btConnId that it is connected to. This has now been fixed.
D-24592	ATT: The ATT module now takes the value from the database when a read command arrives from the remote device, which demands authorization from the application. It took the data received from the application before, even if there was no data at all.
D-24610	GATT: CsrBtAddrEq() function call substituted with CsrBtAddrEqWithType()
D-24645	GATT: If a peer client writes a long value to an attribute that has the CSR_BT_GATT_ATTR_FLAGS_IRQ_WRITE flag set, the application did not received the last piece of payload. This has now been fixed.
D-24657	GATT: The FSM has be reworked in order to handle multi applications correct.
D-24671	GATT: Redundant macro CSR_BT_GATT_CONN_IS_PENDING removed
D-24675	SC: When the remote slave demands MITM in a security operation, the local master device starts security with MITM enabled to avoid IOP problems.
D-24707	GATT: When doing several "prepare" commands and a "execute" command two access_write_ind

	messages were send to the application. This has now been fixed.
D-24762	CM: A memory leak related to link key indications and responses have been fixed.
D-24769	CM: Wrong local queue restore when a BREDR connection was created via GATT. This has now been fixed.
D-24775	Generic demo app: Added support for DSP patch download.
D-24795	AV Demo App: Ensured that the codec is configured correct before streaming starts.
D-24816	PHDC_MGR: A certain type of scan reports caused a minor memory leak. This have now been fixed.
D-24822	Bootstrap: Patch bundle for BC7830 A16 (Build ID = 6247) upgraded to revision 11.
D-24845	Corestack: Two issue's are seen while the device tries to establish SCO/eSCO connection.The stack puts the link in sniff with unacceptable parameters as soon as the SCO/eSCO is established, earlier when the stack was busy in SCO/eSCO packet negotiations with the controller, it repeatedly does sniff/unsniff. Both the issue have been solved now.
D-24846	DM: When reading remote version information from a device using a random address, the address type field previously returned was wrong.
D-24847	Corestack: In BlueCore a race between LE data and HCI_encryption_change existed. This race is very likely to happen if the slave sends request (which need the status of the link to be changed to be encrypted in the host) immediately after receiving an HCI_encryption_change. A workaround in the security manager was been provided to fixed this issued.
D-24894	AVRCP: The total number of items in a getFolderItems response from the TG is now calculated correctly out of the response from the application. The calculation was wrong before, provoking one item's information to be left unsent.
D-24896	CM: The local queue system for handling LE messages may go into a deadlock if two messages with the same message type are saved simultaneously. This has now been fixed
D-24906	SC: The address type is now correctly cleared between connects.
D-24915	GATT: Gatt may end up in a endless loop if a CSR_BT_GATT_BREDR_ACCEPT_REQ is pending and a CSR_BT_GATT_PERIPHERAL_REQ or a CSR_BT_GATT_CENTRAL_REQ is issued with device address set to 0. This has now been fixed.
D-24958	AT: The AT parser now parses the AT string received only if the terminator character has been received.
D-24969	AVRCP: If a connect request were issued just after a disconnect indication, there were a small change that the request got lost. This have now been fixed.
D-25006	CM: Added check upon reception of a DM_AUTHORISE_IND to verify whether the connection on the PSM associated to it is already authorized.
D-25081	AVRCP: CT would not send UNIT_INFO & SUBUNIT_INFO commands when TG device was v1.0. This has now been fixed.
D-25086	Bluestack: Bluestack now asks the application for the link key when a GATT read operation demands authentication, instead of starting the authentication procedure straight away. This was not done before.
D-25090	SD: Search continues if the remote name search cannot start and no name is available for the device found. Data payload received from remote devices, which cannot be parsed and understood is now discarded.
D-25097	Build: The Core stack debug flags are enabled only if a general core stack debug flag is on. The SM_DEBUG_CRYPTO_CALCULATIONS flag is completely removed from Synergy BT as it was never meant to be used there.
D-25112	MAP server: CSR_BT_OBEX_MESSAGE_ACCESS_SERVER_UUID used instead of CSR_BT_OBEX_MESSAGE_NOTIFICATION_SERVER_UUID when the OBEX map server service starts, in order to comply with the Message Access Service spec.
D-25130	HF/HFG: Added PCM and I2S default configuration parameters for WBS audio. These will only be used if the application does not configure the audio itself.
D-25133	GATT: A crossing GATT_UNREGISTER_REQ and ATT_CONNECT_CFM, could cause a leak of the ATT_CONNECT_CFM message, this have now been fixed.
D-25134	RFCOMM: If an RFCOMM connection is disconnected after a successful RFC_CLIENT_CONNECT_CFM is received, a new RFC_CLIENT_CONNECT_CFM with result = 0x1004 (Normal disconnect) were received. This has been fixed so a

	RFC_CLIENT_DISCONNECT_IND is received instead of the second RFC_CLIENT_CONNECT_CFM message
D-25142	AVRCP: The part of the SDP record for browsing was not correct, this has now been fixed.
D-25143	AVRCP: The response code from TG for Set Addressed Player when the status is Invalid Player Id or Invalid Parameter has been changed to Rejected.
D-25171	HF: Prevent HF from blocking outgoing AT commands when incomplete AT commands received in Transparent AT mode.
D-25221	CM: The CM did not handle a GATT Service Change Indication message the right way and could lead to an exception in the CM. This has now been fixed
D-25229	LE: The LE Proximity server and LE Thermometer server now validates the written values more thoroughly.
D-25235	CM: If peer device configured L2CAP connections with an extended window size option, L2CAP Tx data would be discarded by the local device on those connections.
D-25252	Proximity Server: BR/EDR support have been removed from the proximity server profile in order to comply with the profile specification version 1.0
D-25265	SC: Prevent SC from panic if SC_DB record do not contain any information in the service change list, because previous pairing didn't involve establishing an ATT connection.
D-25279	LE browser: Now handling services without characteristic elements
D-25281	SC: Local and remote IO capabilities taken into account before requesting MITM in a LE pairing response.
D-25285	HF: Two extra bytes were sent after the <CR> character before. This has now been fixed so only the needed number of bytes sent in an AT+BIA command.
D-25295	Proximity Server: The client characteristic configuration written by the peer is now correctly stored.
D-25327	Doc: Added AMP Implementation white paper describing how to compile AMP
D-25356	OPC Demo: Now possible to send two different types of vObjects in one PUT
D-25391	HF: If the cancel pending flag is set when a service search during connection establishment ends, the application now gets the proper error message and the cancel flag is reset. This was not the case before
D-25409	Bluestack: The bluestack requests the link key from the application instead of starting a bonding procedure when a new connection is established that demands authentication. This was not done before.
D-25451	BlueStack: Array bounds read in att.server.c after calling att_access_rsp. This has now been fixed.
D-25514	HFP: Audio configuration data for the DSPM kept in the main instance and applied to all connections if the application issues the audio config request with connection ID set to "all connections".
D-25640	Bluestack: Makes sure to handle that Bluestack has no access to Security Manager database when using LE only
D-25642	Proximity: Memory leaks found during runtime memory analysis removed.
D-25643	HCI: The HCI converter is now able to ignore an HCI event which length is set to zero.
D-25646	Thermometer: Removed a few memory leaks found during runtime memory analysis.
D-25813	AV demo application: When sending SBC frames the number of packets sent in a row has been changed from 3 to 1

Table C.3: Issues addressed in Synergy BT 18.2.0

7 Document References

Document	Reference
Scatternet Support	bcore-me-003Pd

8 Terms and Definitions

API	Application Programming Interface
BlueCore®	Group term for CSR's range of Bluetooth wireless technology chips
Bluetooth®	Set of technologies providing audio and data transfer over short-range radio connections
CSR	Cambridge Silicon Radio
EIR	Extended Inquiry Response
EPR	Encryption Pause Resume
LSTO	Link Supervision Time-Out
NFPBF	Non-Flushable Packet Boundary Flag
PAN	Personal Area Networking
PICS	Protocol Implementation Confirmation Statement
SAP	SIM Access Profile
SSP	Simple Secure Pairing

9 Document History

Revision	Date	History
1	3 NOV 11	Ready for release 18.2.0
2	12 DEC 11	Ready for release 18.2.1
3	23 JAN 12	Ready for release 18.2.2

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