

Generic Attribute Profile (GATT)

Bluetooth® Implementation Conformance Statement (ICS) Proforma

- **Revision:** GATT.ICS.5.1.0
- **Revision Date:** 2018-12-07
- **Group Prepared By:** BTI
- **Feedback Email:** bti-main@bluetooth.org



Revision History

Revision Number	Date	Comments
D09R00	2009-09-29	Rename D09, tracking GATT.QTS D09R00
D09R01	2009-10-15	Simplify tables
D09R03	2010-01-09	Update to track GATT D09R14
D09R04	2010-01-15	Split Table 3 into 3 (Client) and 4 (Server) as per 11 Jan CC Update to track GATT D09R18
D09R05	2010-01-19	Add Read Multiple, GATT D09R19 4.8.4
D09R07	2010-03-09	Add Read and Write of Long Characteristic Descriptors, Tokyo Vol 3 Part G, sections 4.12.2 and 4.12.4
D09R08	2010-04-14	5/1 is Optional, not C.1 C.2 under Table 5 is 4/17, not 5/TBD
D09R09	2010-04-23	Update to track Tokyo v10
D09R10	2010-05-31	Update to track Tokyo v11, accept D09R10 changes
4.0 R10	2010-06-02	Posted for BTI
4.0.0 R11	2010-06-08	Replies to BTI – clean Edit for E3580 – remove number of prepared writes edit for E3683
4.0.0 R12	2010-06-16	Table 4 conditionals, C.2 and C3 added in response to changes made in spec during Cambridge F2F
4.0.0 d13	2010-06-24	Add Table 7 for Attribute Protocol Transport Security features
4.0.0 R14	2010-06-24	Final edits to Table 7
4.0.0	2010-06-30	Publication.
4.0.1r0	2011-02-02	TSE 4236: Remove 5/1, add 3/23 and 4/23, 4. C1 TSE 4252: Table 2 C.1, C.2 additions
4.0.1r1	2011-03-09	TSE 4225: Removal of Table 6 (never tested)
4.0.1r1 (cont.)	2011-03-10	TSE 3862: Add tables 8A and 20A
4.0.1r2	2011-03-16	Per review comments, reinstate Table 6 except for Row 1 TSE 4286: Edit Table 3 and Table 4 titles
4.0.1	2011-07-15	Prepare for publication.



Revision Number	Date	Comments
4.0.2r0	2011-11-21 – 12-16	TSE 4559: Update Table 1 to make server mandatory, client optional. TSE 4661 Additions from GATT-3 Test CR D09r08
4.0.2	2012-03-30	Prepare for publication.
4.0.3r0	2012-09-07	TSE 4915: Note added after Table 1, Changes to Prerequisites and Conditionals in Table 3b and 4b.
4.0.3	2012-11-12	Prepare for Publication
4.0.4rT	2013-08-12	Template Conversion
4.0.4rTr3	2013-09-27	Template Review Comment Resolution
4.0.4rTr4	2013-09-27	TSE 5303: Updated references in Table 2 from 2.2 to 2.4. TSE 5344: Updated C.1 and C.2 for Table 1.
4.1.0r01	2013-10-04	LE Dual Mode Topology CR
4.1.0r02	2013-11-06	Comment resolution
4.1.0	2013-12-03	Prepare for Publication
4.1.1r00	2014-10-20	TSE 5873: Added C.2 to Table 3 and updated the status of 3/1.
4.2.0r00	2014-11-17	Revved version to align with Core Specification Version 4.2 Release.
4.2.0	2014-12-04	Prepare for TCRL 2014-2 publication
4.2.1r00	2015-05-05	TSE 6320: Revised Table 3 conditionals TSE 6274: Added ATT reference to References section and corrected reference in Table 8.
4.2.1r01	2015-06-05	Deleted Section 1.2 (Global Statement of Conformance) per current ICS template standards.
4.2.1	2015-07-14	Prepared for TCRL 2015-1 publication
4.2.2r00	2016-01-15	TSE 6876: Added Item 24, Configured Broadcast, to Tables 3 and 4. Added new conditional statements, C.3 and C.5. (TSE 5448: Change addressed, but not integrated.)
4.2.2r01	2016-03-04	TSE 6651: For Table 3, Item 3, Status changed from C.1 to C.4. Expanded conditional statement C.2 for Table 3. Added new conditional statement C.4 for Table 3. For Table 4, Item 1, Status changed from C.4 to C.6. Added new conditional statement C.6 for Table 4. For Table 7, Items 3, 4, and 7, Status updated. Added three new conditional statements for Table 7.



Revision Number	Date	Comments
4.2.2r02	2016-04-27	Editorial changes.
4.2.2	2016-07-13	Prepared for TCRL 2016-1 publication.
5.0.0r00	2016-08-16	TSE 7430: Updated Status column of and added one conditional to Table 7.
5.0.0r01	2016-10-17	TSE 7573 (erratum 5610): Added item 4/25 – Execute Write Request with empty queue.
5.0.0r02	2016-11-08	Updated Template. Removed unnecessary parentheses.
5.0.0	2016-12-13	Approved by BTI. Prepared for TCRL 2016-2 publication.
5.0.1r00-r03	2018-03-01 - 2018-11-13	<p>TSE 8319 (rating 3):</p> <p>Table 1: For items 1 and 2, added (GATT) to the Capability column. Deleted items 3 and 4. Revised C.2 (changed "or" to "OR"). Deleted C.3, C.4, and Note.</p> <p>Table 1a: Added new table and conditionals.</p> <p>Table 2: For C.1, changed "Mandatory" to "Optional".</p> <p>Table 3: Replaced with new table. Deleted old C.1, renumbered and revised subsequent conditionals.</p> <p>Table 3B: Revised Prerequisite. Changed "Status" column heading to "Prerequisite 1a/5 Status". Added new column "Prerequisite 1a/6 Status".</p> <p>Table 4: Replaced with new table. Revised C.6.</p> <p>Table 4B: Revised Prerequisite. Changed "Status" column heading to "Prerequisite 1a/7 Status". Added new column "Prerequisite 1a/8 Status".</p> <p>Table 6: Revised C.1 and C.2.</p> <p>Table 8: For item 1, changed Status from "O" to "C.1". Added new C.1.</p> <p>Incorporated GATT Caching TEST CR r09. Added items 3/25, 3/26, and new conditionals C.4 and C.5 to Table 3. Added items 4/26, 4/27, and new conditional C.8 to Table 4.</p> <p>Issue 11143: Changes to Table 4 to make the GATT Caching feature optional.</p> <p>Production edits.</p>
5.1.0r00-r01	2018-11-13 - 2018-12-09	<p>Updated revision number from 5.0.1 to 5.1.0 to align with the adoption of Core Specification version 5.1.</p> <p>Corrected Table 4 C.4 to refer to new items 1a/7 and 1a/8 instead of deleted item 1/4.</p>
5.1.0	2018-12-07	Approved by BTI. Prepared for TCRL 2018-2 publication.



Contributors

Name	Company
Elisa Rincón	AT4 wireless
Juan Manuel Hidalgo	AT4 wireless
Elisabeth Dominguez	AT4 Wireless
Aravind Narasimhan	Bluetooth SIG
Alicia Courtney	Broadcom
Norbert Grunert	Broadcom
Joe Decuir	CSR
Magnus Sommansson	CSR
Sebastian Mackaie-Blanchi	Nordic Semiconductor



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1 Identification of the Implementation

Identification of the Implementation Under Test (IUT) shall be filled in to provide as much detail as possible regarding version numbers and configuration options.

An ICS contact person to respond to queries regarding information supplied in this ICS proforma shall be named in Appendix A of the Declaration of Compliance: Summary of Selected Specifications in Implementation.

1.1 Implementation Under Test (IUT) Identification

IUT Name:

IUT Version (Hardware/Software ID):

IUT Supplier:



1.2 Generic Attribute Profile Role

Table 1: Generic Attribute Profile Support

Item	Capability	Reference	Status	Support
1	Generic Attribute Profile (GATT) Client	[1] 2.2 [2] 12	C.1	<input type="radio"/> Yes <input type="radio"/> No
2	Generic Attribute Profile (GATT) Server	[1] 2.2 [2] 12	C.2	<input type="radio"/> Yes <input type="radio"/> No

C.1: Optional to support IF 2/2 “Attribute Protocol Supported over LE”; else IF 2/1 “Attribute Protocol Supported over BR/EDR” is supported it is Mandatory to support at least one of 1/1 “GATT Client” OR 1/2 “GATT Server”.

C.2: Mandatory to support IF 2/2 “Attribute Protocol Supported over LE”; else IF 2/1 “Attribute Protocol Supported over BR/EDR” it is Mandatory to support at least one of 1/1 “GATT Client” OR 1/2 “GATT Server”.

Table 1a: GATT role configuration

Item	Capability	Reference	Status	Support
1	GATT Client over LE	[1] 2.2 [2] 12	C.1	<input type="radio"/> Yes <input type="radio"/> No
2	GATT Client over BR/EDR	[1] 2.2 [2] 12	C.2	<input type="radio"/> Yes <input type="radio"/> No
3	GATT Server over LE	[1] 2.2 [2] 12	C.3	<input type="radio"/> Yes <input type="radio"/> No
4	GATT Server over BR/EDR	[1] 2.2 [2] 12	C.4	<input type="radio"/> Yes <input type="radio"/> No
5	Complete GATT Client layer over LE	[1]	C.5	<input type="radio"/> Yes <input type="radio"/> No
6	Complete GATT Client layer over BR/EDR	[1]	C.6	<input type="radio"/> Yes <input type="radio"/> No
7	Complete GATT Server layer over LE	[1]	C.7	<input type="radio"/> Yes <input type="radio"/> No
8	Complete GATT Server layer over BR/EDR	[1]	C.8	<input type="radio"/> Yes <input type="radio"/> No

C.1: Optional to support IF 2/2 “Attribute Protocol Supported over LE” AND 1/1 “GATT Client” are supported, otherwise Excluded.

C.2: Optional to support IF 2/1 “Attribute Protocol Supported over BR/EDR” AND 1/1 “GATT Client” are supported, otherwise Excluded.

C.3: Optional to support IF 2/2 “Attribute Protocol Supported over LE” AND 1/2 “GATT Server” are supported, otherwise Excluded.

C.4: Optional to support IF 2/1 “Attribute Protocol Supported over BR/EDR” AND 1/2 “GATT Server” are supported, otherwise Excluded.



- C.5: Optional to support IF 1a/1 “GATT Client over LE” is supported, otherwise Excluded.
 C.6: Optional to support IF 1a/2 “GATT Client over BR/EDR” is supported, otherwise Excluded.
 C.7: Optional to support IF 1a/3 “GATT Server over LE” is supported, otherwise Excluded.
 C.8: Optional to support IF 1a/4 “GATT Server over BR/EDR” is supported, otherwise Excluded.

1.3 ATT Bearer Transport

Table 2: Attribute Protocol Transport

Item	Capability	Reference	Status	Support
1	Attribute Protocol Supported over BR/EDR (L2CAP fixed channel support)	[1] 2.4	C.1	<input type="radio"/> Yes <input type="radio"/> No
2	Attribute Protocol Supported over LE	[1] 2.4	C.2	<input type="radio"/> Yes <input type="radio"/> No

C.1: Optional IF (SUM ICS 12/2 “Bluetooth Basic Rate Core Host Configuration” OR SUM ICS 12/9 “Bluetooth Basic Rate and Low Energy Combined Core Host Configuration”) is supported, otherwise Excluded.

C.2: Mandatory IF (SUM ICS 12/7 “Bluetooth Low Energy Core Host Configuration” OR SUM ICS 12/9 “Bluetooth Basic Rate and Low Energy Combined Core Host Configuration”) is supported, otherwise Excluded.

1.4 Generic Attribute Profile Support

Table 3: Generic Attribute Profile Feature Support, by Client

Prerequisite: GATT 1/1 “Generic Attribute Profile Client”

Item	Capability	Reference	Prerequisite 1a/1 Status	Prerequisite 1a/2 Status	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
1	Exchange MTU	[1] 4.3.1	C.1	C.1	C.1	C.1	<input type="radio"/> Yes <input type="radio"/> No
2	Discover All Primary Services	[1] 4.4.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
3	Discover Primary Services by Service UUID	[1] 4.4.2	C.3	C.3	C.3	C.3	<input type="radio"/> Yes <input type="radio"/> No
4	Find Included Services	[1] 4.5.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
5	Discover All characteristics of a Service	[1] 4.6.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
6	Discover Characteristics by UUID	[1] 4.6.2	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/1 Status	Prerequisite 1a/2 Status	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
7	Discover All Characteristic Descriptors	[1] 4.7.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
8	Read Characteristic Value	[1] 4.8.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
9	Read Using Characteristic UUID	[1] 4.8.2	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
10	Read Long Characteristic Values	[1] 4.8.3	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
11	Read Multiple Characteristic Values	[1] 4.8.4	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
12	Write without Response	[1] 4.9.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
13	Signed Write Without Response	[1] 4.9.2	O	Excluded	M	Excluded	<input type="radio"/> Yes <input type="radio"/> No
14	Write Characteristic Value	[1] 4.9.3	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
15	Write Long Characteristic Values	[1] 4.9.4	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
16	Characteristic Value Reliable Writes	[1] 4.9.5	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
17	Notifications	[1] 4.10.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
18	Indications	[1] 4.11.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
19	Read Characteristic Descriptors	[1] 4.12.1	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
20	Read Long Characteristic Descriptors	[1] 4.12.2	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/1 Status	Prerequisite 1a/2 Status	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
21	Write Characteristic Descriptors	[1] 4.12.3	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
22	Write Long Characteristic Descriptors	[1] 4.12.4	O	O	M	M	<input type="radio"/> Yes <input type="radio"/> No
23	Service Changed Characteristic	[1] 7.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
24	Configured Broadcast	[1] 2.7	C.2	C.2	C.2	C.2	<input type="radio"/> Yes <input type="radio"/> No
25	Client Supported Features Characteristic	[1] 7.2	C.4	C.4	C.5	C.5	<input type="radio"/> Yes <input type="radio"/> No
26	Database Hash Characteristic	[1] 7.3	C.4	C.4	C.5	C.5	<input type="radio"/> Yes <input type="radio"/> No

C.1: Mandatory IF GATT 1a/5 “Complete GATT Client layer over LE” AND GATT 2/2 “LE” AND ATT 3/2 “Exchange MTU Request” is supported, otherwise Optional.

C.2: Optional IF GATT 3/14 “Write Characteristic Value” is supported, otherwise Excluded.

C.3: Mandatory IF GATT 1a/5 “Complete GATT Client layer over LE” OR GATT 1a/6 “Complete GATT Client layer over BR/EDR” OR ATT 3/6 “Find by Type Value Request” is supported, otherwise Optional.

C.4: Excluded IF SUM ICS 21/9 “Core v4.0” OR SUM ICS 21/13 “Core v4.1” OR SUM ICS 21/14 “Core v4.2” OR SUM ICS 21/16 “Core v5.0” is supported, otherwise Optional.

C.5: Excluded IF SUM ICS 21/9 “Core v4.0” OR SUM ICS 21/13 “Core v4.1” OR SUM ICS 21/14 “Core v4.2” OR SUM ICS 21/16 “Core v5.0” is supported, otherwise Mandatory.

Table 3B: Profile Attribute Types and Formats

Prerequisite: GATT 1a/5 “Complete GATT Client layer over LE” OR GATT 1a/6 “Complete GATT Client layer over BR/EDR”

Item	Capability	Reference	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
1	Primary Service Declaration	[1] 3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
2	Secondary Service Declaration	[1] 3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
3	Include Declaration	[1] 3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
4	Characteristic Declaration	[1] 3.3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
5	Characteristic Value Declaration	[1] 3.3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
6	Characteristic Extended Properties	[1] 3.3.3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
7	Characteristic User Description Descriptor	[1] 3.3.3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
8	Client Characteristic Configuration Descriptor	[1] 3.3.3.3	M	M	<input type="radio"/> Yes <input type="radio"/> No
9	Server Characteristic Configuration Descriptor	[1] 3.3.3.4	M	M	<input type="radio"/> Yes <input type="radio"/> No
10	Characteristic Format Descriptor	[1] 3.3.3.5	M	M	<input type="radio"/> Yes <input type="radio"/> No
11	Characteristic Aggregate Format Descriptor	[1] 3.3.3.6	M	M	<input type="radio"/> Yes <input type="radio"/> No
12	Characteristic Format: Boolean	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
13	Characteristic Format: 2Bit	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
14	Characteristic Format: nibble	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
15	Characteristic Format: UInt8	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
16	Characteristic Format: UInt12	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
17	Characteristic Format: UInt16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
18	Characteristic Format: UInt24	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
19	Characteristic Format: UInt32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
20	Characteristic Format: UInt48	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
21	Characteristic Format: UInt64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
22	Characteristic Format: UInt128	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/5 Status	Prerequisite 1a/6 Status	Support
23	Characteristic Format: Sint8	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
24	Characteristic Format: Sint12	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
25	Characteristic Format: Sint16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
26	Characteristic Format: Sint24	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
27	Characteristic Format: Sint32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
28	Characteristic Format: Sint48	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
29	Characteristic Format: Sint64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
30	Characteristic Format: Sint128	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
31	Characteristic Format: Float32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
32	Characteristic Format: Float64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
33	Characteristic Format: SFLOAT	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
34	Characteristic Format: FLOAT	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
35	Characteristic Format: Duint16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
36	Characteristic Format: utf8s	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
37	Characteristic Format: utf16s	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
38	Characteristic Format: struct	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No

Table 4: Generic Attribute Profile Support, by Server*Prerequisite: GATT 1/2 "Generic Attribute Server"*

Item	Capability	Reference	Prerequisite 1a/3 Status	Prerequisite 1a/4 Status	Prerequisite 1a/7 Status	Prerequisite 1a/8 Status	Support
1	Exchange MTU	[1] 4.3.1	C.6	C.6	C.6	C.6	<input type="radio"/> Yes <input type="radio"/> No
2	Discover All Primary Services	[1] 4.4.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
3	Discover Primary Services by Service UUID	[1] 4.4.2	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
4	Find Included Services	[1] 4.5.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
5	Discover All characteristics of a Service	[1] 4.6.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
6	Discover Characteristics by UUID	[1] 4.6.2	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
7	Discover All Characteristic Descriptors	[1] 4.7.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
8	Read Characteristic Value	[1] 4.8.1	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
9	Read Using Characteristic UUID	[1] 4.8.2	M	M	M	M	<input type="radio"/> Yes <input type="radio"/> No
10	Read Long Characteristic Values	[1] 4.8.3	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
11	Read Multiple Characteristic Values	[1] 4.8.4	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
12	Write without Response	[1] 4.9.1	C.2	C.2	C.2	C.2	<input type="radio"/> Yes <input type="radio"/> No
13	Signed Write Without Response	[1] 4.9.2	C.4	Excluded	C.4	Excluded	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/3 Status	Prerequisite 1a/4 Status	Prerequisite 1a/7 Status	Prerequisite 1a/8 Status	Support
14	Write Characteristic Value	[1] 4.9.3	C.3	C.3	C.3	C.3	<input type="radio"/> Yes <input type="radio"/> No
15	Write Long Characteristic Values	[1] 4.9.4	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
16	Characteristic Value Reliable Writes	[1] 4.9.5	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
17	Notifications	[1] 4.10.1	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
18	Indications	[1] 4.11.1	C.1	C.1	C.1	C.1	<input type="radio"/> Yes <input type="radio"/> No
19	Read Characteristic Descriptors	[1] 4.12.1	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
20	Read Long Characteristic Descriptors	[1] 4.12.2	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
21	Write Characteristic Descriptors	[1] 4.12.3	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
22	Write Long Characteristic Descriptors	[1] 4.12.4	C.4	C.4	C.4	C.4	<input type="radio"/> Yes <input type="radio"/> No
23	Service Changed Characteristic	[1] 7.1	C.1	C.1	C.1	C.1	<input type="radio"/> Yes <input type="radio"/> No
24	Configured Broadcast	[1] 2.7	C.5	C.5	C.5	C.5	<input type="radio"/> Yes <input type="radio"/> No
25	Execute Write Request with empty queue	[1] 4.9.4, 4.9.5, 4.12.4	C.7	C.7	C.7	C.7	<input type="radio"/> Yes <input type="radio"/> No
26	Client Supported Features Characteristic	[1] 7.2	C.9	C.9	C.9	C.9	<input type="radio"/> Yes <input type="radio"/> No
27	Database Hash Characteristic	[1] 7.3	C.8	C.8	C.8	C.8	<input type="radio"/> Yes <input type="radio"/> No

- C.1: Mandatory IF service definitions on the server can be added, changed, or removed, otherwise Optional.
- C.2: Mandatory IF GATT 4/13 "Signed Write Without Response" is supported, otherwise Optional.
- C.3: Mandatory IF GATT 4/15 "Write Long Characteristic Values" is supported, otherwise Optional.
- C.4: Mandatory IF GATT 1a/7 "Complete GATT Server layer over LE" OR GATT 1a/8 "Complete GATT Server layer over BR/EDR" is supported, otherwise Optional.
- C.5: Optional IF GATT 4/14 "Write Characteristic Value" is supported, otherwise Excluded.
- C.6: Mandatory IF GATT 1a/7 "Complete GATT Server layer over LE" OR GATT 1a/8 "Complete GATT Server layer over BR/EDR" OR ATT 4/3 "Exchange MTU Response" is supported, otherwise Optional.
- C.7: Mandatory IF (SUM ICS 31/18 "Core Spec Version 5.0") AND (GATT 4/15 "Write Long Characteristic Values" OR GATT 4/16 "Characteristic Value Reliable Writes" OR GATT 4/22 "Write Long Characteristic Descriptors") is supported, Optional IF (NOT SUM ICS 31/18 "Core Spec Version 5.0") AND (GATT 4/15 "Write Long Characteristic Values" OR GATT 4/16 "Characteristic Value Reliable Writes" OR GATT 4/22 "Write Long Characteristic Descriptors") is supported, otherwise Excluded.
- C.8: Excluded IF SUM ICS 21/9 "Core v4.0" OR SUM ICS 21/13 "Core v4.1" OR SUM ICS 21/14 "Core v4.2" OR SUM ICS 21/16 "Core v5.0" is supported, otherwise Optional.
- C.9: Excluded IF SUM ICS 21/9 "Core v4.0" OR SUM ICS 21/13 "Core v4.1" OR SUM ICS 21/14 "Core v4.2" OR SUM ICS 21/16 "Core v5.0" is supported, otherwise Mandatory if 4/23 "Service Changed Characteristic" AND 4/27 "Database Hash Characteristic" are supported, otherwise Excluded.

Table 4B: Profile Attribute Types and Characteristic Formats

Prerequisite: GATT 1a/7 "Complete GATT Server layer over LE" OR GATT 1a/8 "Complete GATT Server layer over BR/EDR"

Item	Capability	Reference	Prerequisite 1a/7 Status	Prerequisite 1a/8 Status	Support
1	Primary Service Declaration	[1] 3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
2	Secondary Service Declaration	[1] 3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
3	Include Declaration	[1] 3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
4	Characteristic Declaration	[1] 3.3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
5	Characteristic Value Declaration	[1] 3.3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
6	Characteristic Extended Properties	[1] 3.3.3.1	M	M	<input type="radio"/> Yes <input type="radio"/> No
7	Characteristic User Description Descriptor	[1] 3.3.3.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
8	Client Characteristic Configuration Descriptor	[1] 3.3.3.3	M	M	<input type="radio"/> Yes <input type="radio"/> No
9	Server Characteristic Configuration Descriptor	[1] 3.3.3.4	M	M	<input type="radio"/> Yes <input type="radio"/> No
10	Characteristic Format Descriptor	[1] 3.3.3.5	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/7 Status	Prerequisite 1a/8 Status	Support
11	Characteristic Aggregate Format Descriptor	[1] 3.3.3.6	M	M	<input type="radio"/> Yes <input type="radio"/> No
12	Characteristic Format: Boolean	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
13	Characteristic Format: 2Bit	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
14	Characteristic Format: nibble	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
15	Characteristic Format: Uint8	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
16	Characteristic Format: Uint12	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
17	Characteristic Format: Uint16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
18	Characteristic Format: Uint24	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
19	Characteristic Format: Uint32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
20	Characteristic Format: Uint48	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
21	Characteristic Format: Uint64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
22	Characteristic Format: Uint128	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
23	Characteristic Format: Sint8	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
24	Characteristic Format: Sint12	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
25	Characteristic Format: Sint16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
26	Characteristic Format: Sint24	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
27	Characteristic Format: Sint32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
28	Characteristic Format: Sint48	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No



Item	Capability	Reference	Prerequisite 1a/7 Status	Prerequisite 1a/8 Status	Support
29	Characteristic Format: Sint64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
30	Characteristic Format: Sint128	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
31	Characteristic Format: Float32	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
32	Characteristic Format: Float64	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
33	Characteristic Format: SFLOAT	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
34	Characteristic Format: FLOAT	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
35	Characteristic Format: Duint16	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
36	Characteristic Format: utf8s	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
37	Characteristic Format: utf16s	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No
38	Characteristic Format: struct	[1] 3.3.3.5.2	M	M	<input type="radio"/> Yes <input type="radio"/> No

1.5 Generic Attribute Profile Service

Table 6: SDP Interoperability

Prerequisite: GATT 2/1 "Attribute Protocol Supported over BR/EDR"

Item	Capability	Reference	Status	Support
1	Item no longer used	N/A	N/A	
2	Discover GATT Services using Service Discovery Profile	[1] 4.4	C.1	<input type="radio"/> Yes <input type="radio"/> No
3	Publish SDP record for GATT services support via BR/EDR	[1] 9	C.2	<input type="radio"/> Yes <input type="radio"/> No

C.1: Mandatory IF GATT 1a/2 "Generic Attribute Client over BR/EDR" is supported, otherwise Excluded.

C.2: Mandatory IF GATT 1a/4 "Generic Attribute Server over BR/EDR" is supported, otherwise Excluded.



1.6 Attribute Protocol Transport Security

Table 7: Attribute Protocol Transport

Item	Capability	Reference	Status	Support
1	Security Mode 4	[2] 5	C.1	<input type="radio"/> Yes <input type="radio"/> No
2	LE Security Mode 1	[2] 10.2.1	C.5	<input type="radio"/> Yes <input type="radio"/> No
3	LE Security Mode 2	[2] 10.2.2	C.6	<input type="radio"/> Yes <input type="radio"/> No
4	LE Authentication Procedure	[2] 10.3	C.4	<input type="radio"/> Yes <input type="radio"/> No
5	LE connection data signing procedure	[2] 10.4.1	C.2	<input type="radio"/> Yes <input type="radio"/> No
6	LE Authenticate signed data procedure	[2] 10.4.2	C.2	<input type="radio"/> Yes <input type="radio"/> No
7	LE Authorization Procedure	[2] 10.5	C.3	<input type="radio"/> Yes <input type="radio"/> No

C.1: Mandatory IF GATT 2/1 “Attribute Protocol Supported over BR/EDR” is supported, otherwise Excluded.

C.2: Optional IF GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.

C.3: Mandatory IF ATT 5/7 “LE Authorization Procedure” is supported, Optional IF GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.

C.4: Mandatory IF ATT 5/4 “LE Authentication Procedure” is supported, Optional IF GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.

C.5: Mandatory IF ATT 5/2 “LE Security Mode 1” is supported, Optional IF GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.

C.6: Mandatory IF ATT 5/3 “LE Security Mode 2” is supported, Optional IF GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.

1.7 Multiple Bearer Support

Table 8: Attribute Protocol Transport

Item	Capability	Reference	Status	Support
1	Support for Multiple ATT bearers from same device.	[3] 3.3.3	C.1	<input type="radio"/> Yes <input type="radio"/> No

C.1: Optional IF GATT 2/1 “Attribute Protocol Supported over BR/EDR” AND GATT 2/2 “Attribute Protocol Supported over LE” is supported, otherwise Excluded.



2 References

- [1] Specification of the Bluetooth System, Volume 3, Part G (GATT)
- [2] Specification of the Bluetooth System, Volume 3, Part C (GAP)
- [3] Specification of the Bluetooth System, Volume 3, Part F (ATT)

