

Battery Service (BAS)

Bluetooth® Implementation Conformance Statement (ICS) Proforma

- **Revision:** BAS.ICS.p6
- **Revision Date:** 2025-02-18
- **Prepared By:** BTI
- **Published during TCRL:** TCRL.2025-1



This document, regardless of its title or content, is not a Bluetooth Specification as defined in the Bluetooth Patent/Copyright License Agreement (“PCLA”) and Bluetooth Trademark License Agreement. Use of this document by members of Bluetooth SIG is governed by the membership and other related agreements between Bluetooth SIG Inc. (“Bluetooth SIG”) and its members, including the PCLA and other agreements posted on Bluetooth SIG’s website located at www.bluetooth.com.

THIS DOCUMENT IS PROVIDED “AS IS” AND BLUETOOTH SIG, ITS MEMBERS, AND THEIR AFFILIATES MAKE NO REPRESENTATIONS OR WARRANTIES AND DISCLAIM ALL WARRANTIES, EXPRESS OR IMPLIED, INCLUDING ANY WARRANTY OF MERCHANTABILITY, TITLE, NON-INFRINGEMENT, FITNESS FOR ANY PARTICULAR PURPOSE, THAT THE CONTENT OF THIS DOCUMENT IS FREE OF ERRORS.

TO THE EXTENT NOT PROHIBITED BY LAW, BLUETOOTH SIG, ITS MEMBERS, AND THEIR AFFILIATES DISCLAIM ALL LIABILITY ARISING OUT OF OR RELATING TO USE OF THIS DOCUMENT AND ANY INFORMATION CONTAINED IN THIS DOCUMENT, INCLUDING LOST REVENUE, PROFITS, DATA OR PROGRAMS, OR BUSINESS INTERRUPTION, OR FOR SPECIAL, INDIRECT, CONSEQUENTIAL, INCIDENTAL OR PUNITIVE DAMAGES, HOWEVER CAUSED AND REGARDLESS OF THE THEORY OF LIABILITY, AND EVEN IF BLUETOOTH SIG, ITS MEMBERS, OR THEIR AFFILIATES HAVE BEEN ADVISED OF THE POSSIBILITY OF SUCH DAMAGES.

This document is proprietary to Bluetooth SIG. This document may contain or cover subject matter that is intellectual property of Bluetooth SIG and its members. The furnishing of this document does not grant any license to any intellectual property of Bluetooth SIG or its members.

This document is subject to change without notice.

Copyright © 2012–2025 by Bluetooth SIG, Inc. The Bluetooth word mark and logos are owned by Bluetooth SIG, Inc. Other third-party brands and names are the property of their respective owners.



Contents

- 1 General principles 4**
 - 1.1 Implementation Under Test (IUT) identification 4
 - 1.2 Enforcement of inter-layer dependencies 4
- 2 ICS declarations..... 5**
 - 2.1 Versions 5
 - 2.2 Transports..... 5
 - 2.3 Service requirements 5
 - 2.4 GATT requirements 8
 - 2.5 GAP requirements 9
 - 2.6 SDP requirements..... 9
- 3 References 10**
- 4 Revision history and acknowledgments 11**



1 General principles

1.1 Implementation Under Test (IUT) identification

Using the Bluetooth SIG qualification tool, the implementer is expected to declare details about what will be implemented.

1.2 Enforcement of inter-layer dependencies

This ICS includes one or more tables with inter-layer dependencies (ILDs). ILDs are used for specification requirements that are dependent on other supporting specifications. ILDs can refer to an individual ICS item in a separate layer (individual ILD), or it can refer to the full layer (full-layer ILD).

ILDs residing in an X2Core layer will be enforced from the Bluetooth SIG qualification tool in the following conditions, depending on where the referred ILD is residing:

Referred ILD resides in	Individual ILD	Full-layer ILD
Controller layer	Core-Complete configuration, or Referred layer is supported	N/A
Lower HCI layer	HCI is supported	N/A
Upper HCI layer	Core-Host configuration, or UHCI is supported	N/A
Host layer	Core-Host configuration, or Core-Complete configuration, or Referred layer is supported	N/A
X2Core layer	Core-Host configuration, or Core-Complete configuration, or Referred layer is supported	Core-Host configuration, or Core-Complete configuration

Table 1.1: Enforcement of an ILD within the Bluetooth SIG qualification tool

2 ICS declarations

2.1 Versions

Table 0: X.Y Versions

Item	Version	Reference	Status
1	BAS v1.0	[1]	C.1
2	BAS v1.1	[2]	C.1

C.1: Mandatory to support one and only one.

2.2 Transports

Table 1: Transport Requirements

Item	Transport	Reference	Status
1	Service supported over BR/EDR	[1] 1.5	C.1
2	Service supported over LE	[1] 1.5	C.1

C.1: Mandatory to support at least one.

2.3 Service requirements

Table 2: Service Requirements

Item	Capability	Reference	Status
1	Battery Service	[1] 2	M
2	Battery Service, Multiple Instances	[1] 3.1.2.1	O
3	Battery Level Characteristic	[1] 3.1	M
4	Battery Level Characteristic Presentation Format Descriptor	[1] 3.1.2.1	C.1
5	No longer used	N/A	N/A
6	SDP Interoperability	[1] 5	C.2
7	Battery Level Status Characteristic	[2] 3.2	O
8	Estimated Service Date Characteristic	[2] 3.3	C.3
9	Battery Energy Status Characteristic	[2] 3.5	C.3
10	Battery Time Status Characteristic	[2] 3.6	C.3
11	Battery Information Characteristic	[2] 3.9	C.3
12	Manufacturer Name String Characteristic	[2] 3.10	O
13	Model Number String Characteristic	[2] 3.11	O
14	Serial Number String Characteristic	[2] 3.12	C.3
15	Battery Critical Status Characteristic	[2] 3.4	C.3
16	Battery Health Status Characteristic	[2] 3.7	C.3
17	Battery Health Information Characteristic	[2] 3.8	C.4
18	Battery Level	[2] 3.2.1.4	C.3
19	Additional Status	[2] 3.2.1.5	C.3
20	External Source Power	[2] 3.5.1.2	C.5
21	Present Voltage	[2] 3.5.1.3	C.5

Item	Capability	Reference	Status
22	Available Energy	[2] 3.5.1.4	C.5
23	Available Battery Capacity	[2] 3.5.1.5	C.5
24	Charge Rate	[2] 3.5.1.6	C.5
25	Available Energy at Last Charge	[2] 3.5.1.7	C.5
26	Time until Discharged on Standby	[2] 3.6.1.3	C.6
27	Time until Recharged	[2] 3.6.1.4	C.6
28	Battery Health Summary	[2] 3.7.1.2	C.4
29	Cycle Count	[2] 3.7.1.3	C.4
30	Current Temperature	[2] 3.7.1.4	C.4
31	Deep Discharge Count	[2] 3.7.1.5	C.4
32	Cycle Count Designed Lifetime	[2] 3.8.1.2	C.7
33	Min / Max Designed Operating Temperature	[2] 3.8.1.3	C.7
34	Battery Manufacture Date	[2] 3.9.1.3	C.8
35	Battery Expiration Date	[2] 3.9.1.4	C.8
36	Battery Designed Capacity	[2] 3.9.1.5	C.8
37	Battery Low Energy	[2] 3.9.1.6	C.8
38	Battery Critical Energy	[2] 3.9.1.7	C.8
39	Battery Chemistry	[2] 3.9.1.8	C.8
40	Nominal Voltage	[2] 3.9.1.9	C.8
41	Battery Aggregation Group	[2] 3.9.1.10	C.8
42	Notify or Indicate After Reconnection	[2] 3	C.9
43	Removable battery and can operate without battery	[2] 3, 3.2.1.2, 3.2.1.2.1	O
44	Wired External Power Source Supported	[2] 3.2, 3.2.1.2, 3.2.1.2.2	O
45	Wireless External Power Source Supported	[2] 3.2, 3.2.1.2, 3.2.1.2.3	O
46	Charging Supported	[2] 3.2	O

- C.1: Mandatory IF BAS 2/2 “Battery Service, Multiple Instances”, otherwise Optional.
- C.2: Mandatory IF BAS 1/1 “Service supported over BR/EDR”, otherwise Excluded.
- C.3: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/7 “Battery Level Status Characteristic”, otherwise Excluded.
- C.4: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/16 “Battery Health Status Characteristic”, otherwise Excluded.
- C.5: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/9 “Battery Energy Status Characteristic”, otherwise Excluded.
- C.6: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/10 “Battery Time Status Characteristic”, otherwise Excluded.
- C.7: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/17 “Battery Health Information Characteristic”, otherwise Excluded.

- C.8: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/11 “Battery Information Characteristic”, otherwise Excluded.
- C.9: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 4/3 “Bondable mode” OR BAS 4/4 “Bonding procedure”, otherwise Excluded.

Table 2a: Service Characteristics

Item	Capability	Reference	Status
1	Notify Battery Level characteristic	[1] 3.1	O
2	Battery Service, Multiple Instances	[2] 3.1.2.1	O
3	Notify Battery Level Status	[2] 3.2	C.1
4	Notify Estimated Service Date	[2] 3.3	C.2
5	Notify Battery Energy Status	[2] 3.5	C.3
6	Notify Battery Time Status	[2] 3.6	C.4
7	Notify Battery Health Status	[2] 3.7	C.16
8	Indicate Battery Level Status	[2] 3.2	C.5
9	Indicate Estimated Service Date	[2] 3.3	C.6
10	Indicate Battery Energy Status	[2] 3.5	C.7
11	Indicate Battery Time Status	[2] 3.6	C.8
12	Indicate Battery Information	[2] 3.9	C.9
13	Indicate Manufacturer Name String	[2] 3.10	C.10
14	Indicate Model Number String	[2] 3.11	C.11
15	Indicate Serial Number String	[2] 3.12	C.12
16	Broadcast Battery Level Status	[2] 3.2	C.5
17	Indicate Battery Critical Status	[2] 3.4	C.13
18	Indicate Battery Health Status	[2] 3.7	C.14
19	Indicate Battery Health Information	[2] 3.8	C.15

- C.1: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/7 “Battery Level Status Characteristic”, otherwise Excluded.
- C.2: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/8 “Estimated Service Date Characteristic”, otherwise Excluded.
- C.3: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/9 “Battery Energy Status Characteristic”, otherwise Excluded.
- C.4: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/10 “Battery Time Status Characteristic”, otherwise Excluded.
- C.5: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/7 “Battery Level Status Characteristic” AND BAS 1/2 “Service supported over LE”, otherwise Excluded.
- C.6: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/8 “Estimated Service Date Characteristic”, otherwise Excluded.
- C.7: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/9 “Battery Energy Status Characteristic” AND BAS 2/7 “Battery Level Status Characteristic”, otherwise Optional IF BAS 2/9 “Battery Energy Status Characteristic”, otherwise Excluded.
- C.8: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/10 “Battery Time Status Characteristic”, otherwise Excluded.
- C.9: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/11 “Battery Information Characteristic”, otherwise Excluded.

- C.10: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/12 “Manufacturer Name String Characteristic”, otherwise Excluded.
- C.11: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/13 “Model Number String Characteristic”, otherwise Excluded.
- C.12: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/14 “Serial Number String Characteristic”, otherwise Excluded.
- C.13: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/15 “Battery Critical Status Characteristic”, otherwise Excluded.
- C.14: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Optional IF BAS 2/16 “Battery Health Status Characteristic”, otherwise Excluded.
- C.15: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/17 “Battery Health Information Characteristic”, otherwise Excluded.
- C.16: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2/16 “Battery Health Status Characteristic”, otherwise Excluded.

2.4 GATT requirements

Table 3: GATT Requirements

Item	Capability	Reference	Status	Inter-Layer Dependency
1	No longer used	N/A	N/A	N/A
2	GATT Server over BR/EDR	[1] 1.5	C.1	[3] GATT 1a/4
3	GATT Server over LE	[1] 1.5	C.2	[3] GATT 1a/3
4	Single Notification	[1] 1.4	C.4	[3] GATT 4/17
5	Read Characteristic Descriptors	[1] 1.4	M	[3] GATT 4/19
6	Write Characteristic Descriptors	[1] 1.4	C.3	[3] GATT 4/21
7	Indications	[2] 1.4	C.5	[3] GATT 4/18
8	Configured Broadcast	[2] 1.4	C.6	[3] GATT 4/24

- C.1: Mandatory IF BAS 1/1 “Service supported over BR/EDR”, otherwise not defined.
- C.2: Mandatory IF BAS 1/2 “Service supported over LE”, otherwise not defined.
- C.3: Mandatory IF BAS 3/4 “Notifications” OR BAS 3/7 “Indications” OR BAS 3/8 “Configured Broadcast”, otherwise not defined.
- C.4: Mandatory IF BAS 2a/1 “Notify Battery Level characteristic” OR BAS 2a/3 “Notify Battery Level Status” OR BAS 2a/4 “Notify Estimated Service Date” OR BAS 2a/5 “Notify Battery Energy Status” OR BAS 2a/6 “Notify Battery Time Status” OR BAS 2a/7 “Notify Battery Health Status”, otherwise not defined.
- C.5: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2a/8 “Indicate Battery Level Status” OR BAS 2a/9 “Indicate Estimated Service Date” OR BAS 2a/10 “Indicate Battery Energy Status” OR BAS 2a/11 “Indicate Battery Time Status” OR BAS 2a/12 “Indicate Battery Information” OR BAS 2a/13 “Indicate Manufacturer Name String” OR BAS 2a/14 “Indicate Model Number String” OR BAS 2a/15 “Indicate Serial Number String” OR BAS 2a/17 “Indicate Battery Critical Status” OR BAS 2a/18 “Indicate Battery Health Status” OR BAS 2a/19 “Indicate Battery Health Information”, otherwise not defined.
- C.6: Excluded IF BAS 0/1 “BAS v1.0”, otherwise Mandatory IF BAS 2a/16 “Broadcast Battery Level Status” AND BAS 3/3 “GATT Server over LE”, otherwise Optional.

2.5 GAP requirements

Table 4: GAP Requirements

Prerequisite: BAS 1/2 “Service supported over LE”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Central	[1] 1.3 [2] 1	C.1	[4] GAP 5/4 OR GAP 38/4
2	Peripheral	[1] 1.3 [2] 1	C.1	[4] GAP 5/3 OR GAP 38/3
3	Bondable mode	[1] 3.1.1, 4.1.1 [2] 3.1.1, 3.2.1, 3.5.1, 3.6.1	O	[4] GAP 24/2 OR GAP 34/2
4	Bonding procedure	[1] 3.1.1, 4.1.1 [2] 3.1.1, 3.2.1, 3.5.1, 3.6.1	O	[4] GAP 24/3 OR GAP 34/3

C.1: Mandatory to support at least one.

2.6 SDP requirements

Table 5: SDP Requirements

Prerequisite: BAS 1/1 “Service supported over BR/EDR”

Item	Capability	Reference	Status
1	SDP record present for BAS	[1] 4	M
2–3	No longer used	N/A	N/A

3 References

- [1] Battery Service Specification, Version 1.0 or later
- [2] Battery Service Specification, Version 1.1
- [3] ICS Proforma for Generic Attribute Profile (GATT)
- [4] ICS Proforma for Generic Access Profile (GAP)

4 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	1.0.r3	2011-12-13	Updated to include SDP record
1	1.01r0	2012-05-19	TSE 4672: New Table 2a. Table 2. Modify C.2
	1.0.2r00	2018-02-07	TSE 9945 (rating 1): Updated template and added Table 0.
2	1.0.2	2018-06-27	Approved by BTI. Prepared for TCRL 2018-1 publication.
	1.0.2ed2r00	2022-03-14 – 2022-04-07	TSE 18679 (rating 1): Editorials to align the document with the latest ICS template in anticipation of a future .Z release. Assigned publication number 2 to previous v1.0.2 and aligned the copyright page with v2 of the DNMD. Consistency checker editorials.
	1.0.2 edition 2	2022-04-25	Approved by BTI on 2022-04-25. Prepared for edition 2 publication.
	p3r00–r02	2022-08-10 – 2022-11-01	TSE 16904 (rating 2): Removed unused items (2/5 and related C.2). Updated status of 3/6 and text of C.3. Incorporated CR for BAS v1.1 updates from CR “BAS.ICS.1.1_Cr07”. Added v1.1 to the Major Versions table, added items 7–46 and C.3–C.9 to Table 2, added items 2–19 and C.1–C.16 to Table 2a, added items 7 and 8 and C.4–C.6 to Table 3, and added new Table 4 for GAP requirements. Added SDP references. Conditioned new 1.1 ICS items in support of BAS 1.1.
3	p3	2022-12-27	Approved by BTI on 2022-11-15. BAS v1.1 adopted by the BoD on 2022-12-20. Prepared for publication.
	p4r00–r01	2023-04-05 – 2023-05-01	TSE 22588 (rating 2): Updated C.5 of Table 2a. Editorials to align the document with the latest ICS template. Deleted draft revision history comments prior to p0.
4	p4	2023-06-29	Approved by BTI on 2023-05-28. Prepared for TCRL 2023-1 publication.
	p5r00–r03	2023-08-16 – 2023-12-18	TSE 23437 (rating 2): Updated C.4 of Table 3 to account for BAS 2a/1 “Notify Battery Level characteristic”. TSE 23643 (rating 2): Resolved SDP inter-layer dependencies. In Table 3, marked Item 1 as no longer used and updated the Capability and ILD values for Items 2 and 3. In Table 5, deleted the ILD column, updated the Capability value for Item 1, and marked Items 2 and 3 as no longer used. Updated the references.
5	p5	2024-07-01	Approved by BTI on 2024-04-21. Prepared for TCRL 2024-1 publication.

Publication Number	Revision Number	Date	Comments
	p6r00–r01	2024-11-08 – 2024-12-02	TSE 24823 (rating 2): Updated the capability value for Item 2/43 and the references for Items 2/43, 2/44, and 2/45.
6	p6	2025-02-18	Approved by BTI on 2024-12-23. Prepared for TCRL 2025-1 publication.

Acknowledgments

Name	Company
Virgil Dragomir	Bluetooth SIG, Inc.
Tiberiu Marinescu	Bluetooth SIG, Inc.
Robin Heydon	CSR