Authorization Control Service (ACS)

***Bluetooth*® Implementation Conformance Statement (ICS) Proforma**

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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	ACS v1.0	[1]	M

Table 1: X.Y.Z Versions

Table number reserved but not yet in use.

2.2 Transports

Table 2: Transport Requirements

Item	Transport	Reference	Status
1	Service supported over BR/EDR	[1] 1.7	C.1, C.3
2	Service supported over LE	[1] 1.7	C.2, C.3

C.1: Excluded for this Service IF CORE 41/2 “LE Core Configuration” OR CORE 40/1 “Core-Controller”.

C.2: Excluded for this Service IF CORE 41/1 “BR/EDR Core Configuration” OR CORE 40/1 “Core-Controller”.

C.3: Mandatory to support at least one.

2.3 Features

Table 3: Major Features

Item	Capability	Reference	Status
1	Set Security Controls Switch	[1] 4.4.4.27.1	O
2	Descriptors	[1] 4.4.4.27.1	C.1
3	Multiple Restriction Maps	[1] 4.4.4.27.1	O
4	Resource Handle To UUID Map	[1] 4.4.4.27.1	C.1
5	Initiation of Pairing	[1] 4.4.4.27.1	O
6	OOB Key Exchange	[1] 4.4.4.27.1	O
7	ECDH Key Exchange	[1] 4.4.4.27.1	O
8	KDF Key Exchange	[1] 4.4.4.27.1	O
9	Key URI	[1] 4.4.4.27.1	O
10	Invalidate Established Security	[1] 4.4.4.27.1	O
11	ATT_MTU	[1] 4.4.4.27.1	O
12	Protected Resource Uses Write Request	[1] 4.4.4.27.1	O
13	Protected Resource Uses Read Request	[1] 4.4.4.27.1	O
14	Protected Resource Uses Notification	[1] 4.4.4.27.1	O
15	Protected Resource Uses Indication	[1] 4.4.4.27.1	O

Item	Capability	Reference	Status
16	Key Format AC Server Manufacturer-specific	[1] 4.4.4.27.1	O
17	Key Format AC Client Manufacturer-specific	[1] 4.4.4.27.1	O
18	Key Format AC Server Uncompressed Plain	[1] 4.4.4.27.1	O
19	Key Format AC Client Uncompressed Plain	[1] 4.4.4.27.1	O
20	Key Format AC Server X.509	[1] 4.4.4.27.1	O
21	Key Format AC Client X.509	[1] 4.4.4.27.1	O
22	Nonce is a Sequence Number Even-Odd	[1] 3.6.2, 4.3.2	C.2
23	Nonce is a Sequence Number Different Fixed Parts	[1] 3.6.2, 4.3.2	C.2

C.1: Mandatory to support at least one.

C.2: Mandatory to support one and only one.

Table 4: Protection Methods

Item	Capability	Reference	Status
1	Confidentiality	[1] 4.4.4.27.2	O
2	Integrity	[1] 4.4.4.27.2	O
3	Authentication	[1] 4.4.4.27.2	O
4	Authorization	[1] 4.4.4.27.2	O
5	Non-repudiation	[1] 4.4.4.27.2	O
6	Manufacturer-specific Controls Used	[1] 4.4.4.27.2	O

Table 5: Confirmation OOB Methods

Prerequisite: ACS 3/6 “OOB Key Exchange” OR ACS 3/7 “ECDH Key Exchange”

Item	Capability	Reference	Status
1	Confirmation Input OOB Number Action Used: Push	[1] 4.4.4.18.2, 4.4.4.27.6	C.1, C.2
2	Confirmation Input OOB Number Action Used: Input Numeric	[1] 4.4.4.18.2, 4.4.4.27.6	C.1, C.2
3	Confirmation Output OOB Number Action Used: Beep	[1] 4.4.4.18.2, 4.4.4.27.8	C.1, C.2
4	Confirmation Output OOB Number Action Used: Output Numeric	[1] 4.4.4.18.2, 4.4.4.27.8	C.1, C.2
5	Confirmation Static OOB Number Used	[1] 4.4.4.18.2, 4.4.4.27.4	C.1, C.2
6	No Confirmation OOB Method Used	[1] 4.4.4.18.2, 4.4.4.27.3	C.1

C.1: Mandatory to support at least one IF ACS 3/6 “OOB Key Exchange”, otherwise Optional.

C.2: Mandatory to support at least one IF ACS 3/7 “ECDH Key Exchange”, otherwise Optional.

2.4 Service requirements

Table 6: Service Requirements

Item	Capability	Reference	Status
1	Authorization Control Service	[1] 2	M
2	ACS Status	[1] 4, 4.2	M
3	ACS Data In	[1] 4, 4.3	C.1
4	ACS Data Out Notify	[1] 4, 4.3	C.2
5	ACS Data Out Indicate	[1] 4, 4.3	C.3
6	ACS Control Point	[1] 4, 4.4	M

C.1: Mandatory IF ACS 3/12 “Protected Resource Uses Write Request” OR ACS 3/13 “Protected Resource Uses Read Request”, otherwise Excluded.

C.2: Mandatory IF ACS 3/13 “Protected Resource Uses Read Request” OR ACS 3/14 “Protected Resource Uses Notification”, otherwise Excluded.

C.3: Mandatory IF ACS 3/15 “Protected Resource Uses Indication”, otherwise Excluded.

Table 7: ACS Control Point Procedures

Item	Capability	Reference	Status
1	Get All Active Descriptors	[1] 4.4.1, 4.4.3.1	C.1
2	Get Restriction Map Descriptor	[1] 4.4.1, 4.4.3.2	C.1
3	Get Restriction Map ID List	[1] 4.4.1, 4.4.3.3	C.1
4	Activate Restriction Map	[1] 4.4.1, 4.4.3.4	C.2
5	Get Resource Handle To UUID Map	[1] 4.4.1, 4.4.3.5	C.3
6	Get Service And Characteristic UUIDs For Characteristic Resource Handle	[1] 4.4.1, 4.4.3.6	C.3
7	Get Information Security Configuration Descriptor	[1] 4.4.1, 4.4.3.7	C.1
8	Get Key Descriptor	[1] 4.4.1, 4.4.3.8	C.4
9	Get Current Key List	[1] 4.4.1, 4.4.3.9	C.4
10	Start Key Exchange	[1] 4.4.1, 4.4.3.10	C.5
11	Invalidate All Established Security	[1] 4.4.1, 4.4.3.11	C.6
12	Invalidate Key	[1] 4.4.1, 4.4.3.12	C.7
13	Abort	[1] 4.4.1, 4.4.3.13	C.8
14	Set Security Controls Switch	[1] 4.4.1, 4.4.3.14	C.9
15	Get Key URI	[1] 4.4.1, 4.4.3.15	C.10
16	Get ACS Feature	[1] 4.4.1, 4.4.3.16	M
17	Key Exchange ECDH	[1] 4.4.1, 4.4.3.17.1.1	C.11
18	Key Exchange ECDH Confirmation Code	[1] 4.4.1, 4.4.3.17.1.2	C.11
19	Key Exchange ECDH Confirmation Random Number	[1] 4.4.1, 4.4.3.17.1.3	C.11
20	Set AC Client Nonce Fixed	[1] 4.4.1, 4.4.3.18	C.14
21	Get ATT_MTU	[1] 4.4.1, 4.4.3.19	C.12
22	Initiate Pairing	[1] 4.4.1, 4.4.3.20	C.13
23	Key Exchange KDF	[1] 4.4.1, 4.4.3.17.2.1	C.5

C.1: Mandatory IF ACS 3/2 “Descriptors”, otherwise Excluded.

C.2: Mandatory IF ACS 3/3 “Multiple Restriction Maps”, otherwise Excluded.

C.3: Mandatory IF ACS 3/4 “Resource Handle To UUID Map”, otherwise Excluded.

C.4: Mandatory IF ACS 3/6 “OOB Key Exchange” OR ACS 3/7 “ECDH Key Exchange” OR ACS 3/8 “KDF Key Exchange”, otherwise Optional IF ACS 4/6 “Manufacturer-specific Controls Used”, otherwise Excluded.

C.5: Mandatory IF ACS 3/6 “OOB Key Exchange” OR ACS 3/7 “ECDH Key Exchange” OR ACS 3/8 “KDF Key Exchange”, otherwise Excluded.

C.6: Mandatory IF ACS 3/10 “Invalidate Established Security”, otherwise Excluded.

C.7: Mandatory IF (ACS 3/6 “OOB Key Exchange” OR ACS 3/7 “ECDH Key Exchange” OR ACS 3/8 “KDF Key Exchange”) AND ACS 3/10 “Invalidate Established Security”, otherwise Excluded.

C.8: Mandatory IF ACS 3/2 “Descriptors” OR ACS 3/6 “OOB Key Exchange” OR ACS 3/7 “ECDH Key Exchange” OR ACS 3/8 “KDF Key Exchange”, otherwise Optional.

C.9: Mandatory IF ACS 3/1 “Set Security Controls Switch”, otherwise Excluded.

C.10: Mandatory IF ACS 3/9 “Key URI”, otherwise Excluded.

C.11: Mandatory IF ACS 3/7 “ECDH Key Exchange”, otherwise Excluded.

C.12: Mandatory IF ACS 3/11 “ATT_MTU”, otherwise Excluded.

C.13: Mandatory IF ACS 3/5 “Initiation of Pairing”, otherwise Excluded.

C.14: Mandatory IF ACS 3/23 “Nonce is a Sequence Number Different Fixed Parts”, otherwise Excluded.

2.5 GATT requirements

Table 8: GATT Requirements

Item	Capability	Reference	Status	Inter-Layer Dependency
1	No longer used	N/A	N/A	N/A
1a	GATT Server over BR/EDR	[1] 1.5	C.2	[2] GATT 1a/4
1b	GATT Server over LE	[1] 1.5	C.3	[2] GATT 1a/3
2	Indication	[1] 1.6	M	[2] GATT 4/18
3	Single Notification	[1] 1.6	C.1	[2] GATT 4/17
4	Write Characteristic Value	[1] 1.6	M	[2] GATT 4/14
5	Write Long Characteristic Value	[1] 1.6	O	[2] GATT 4/15
6	Read Characteristic Descriptor	[1] 1.6	M	[2] GATT 4/19
7	Write Characteristic Descriptor	[1] 1.6	M	[2] GATT 4/21

C.1: Mandatory IF ACS 6/4 “ACS Data Out Notify”, otherwise not defined.

C.2: Mandatory IF ACS 2/1 “Service supported over BR/EDR”, otherwise not defined.

C.3: Mandatory IF ACS 2/2 “Service supported over LE”, otherwise not defined.

2.6 SDP requirements

Table 9: SDP Requirements

Prerequisite: ACS 2/1 “Service supported over BR/EDR”

Item	Capability	Reference	Status
1	SDP record present for ACS	[1] 5	M
2–4	No longer used	N/A	N/A

3 References

[1] Authorization Control Service (ACS) Specification, Version 1.0

[2] ICS Proforma for Generic Attribute Profile (GATT)

4 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	p0	2022-09-20	Approved by BTI on 2022-08-31. ACS v1.0 adopted by the BoD on 2022-09-13. Prepared for initial publication.
	p1r00	2023-09-08	TSE 23655 (rating 2): Resolved GATT and SDP inter-layer dependencies: In Table 8, marked Item 1 as no longer used, added Items 1a and 1b, and added C.2 and C.3. In Table 9, updated the Capability value for Item 1 and marked Items 2–4 as no longer used. Updated references. Editorials to align the document with the latest ICS template, including updates to conditionals in Table 2, 3, and 5.
1	p1	2024-07-01	Approved by BTI on 2024-04-21. Prepared for TCRL 2024-1 publication.
	p2r00–r01	2024-11-04 – 2024-12-02	TSE 26094 (rating 2): In Table 5, added Items 5 and 6, updated conditionals 1 and 2, and updated the capability, reference, and status for Items 1–4.
2	p2	2025-02-18	Approved by BTI on 2024-12-23. Prepared for TCRL 2025-1 publication.
	p3r00	2025-04-21	TSE 27308 (rating 1): Updated the Status value for ACS 2/1 and ACS 2/2. Added conditionals C.1 and C.2 to Table 2 and renumbered C.1 as C.3.
3	p3	2025-07-08	Approved by BTI on 2025-05-30. Prepared for TCRL pkg100 publication.
	p4r00–r01	2025-12-04 – 2025-12-29	TSE 28169 (rating 1): Updated the conditions in the transport table to make sure the layer is excluded when the design is an implementation of the Core-Controller Configuration by adding "OR CORE 40/1 “Core-Controller”" to an already excluded transport based on Core Configuration support.
4	p4	2026-02-17	Approved by BTI on 2026-01-21. Prepared for TCRL pkg102 publication.

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Name	Company
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