Object Transfer Service (OTS)

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

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Contents

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	OTS v1.0	[1]	M

Table 1: No longer used

2.2 Transports

Table 2: Transport Requirements

Item	Transport	Reference	Status
1	Service supported over LE	[1] 1.5, 1.6	C.1, C.3
2	Service supported over BR/EDR	[1] 1.5, 1.6	C.2, C.3

C.1: Excluded for this Service IF CORE 41/1 “BR/EDR Core Configuration”.

C.2: Excluded for this Service IF CORE 41/2 “LE Core Configuration”.

C.3: Mandatory to support at least one.

2.3 Service requirements

Table 3: Global Feature Requirements

Item	Feature	Reference	Status
1	Multiple Simultaneous Clients (Concurrency feature)	[1] 1.12	O
2	Storage of multiple objects	[1] 3	O
3	Support for zero objects (Note 1)	[1] 3.3.2.8	O

Note 1: “Support for zero objects” means that the IUT is capable of being placed in a state in which there is no object present on the Server. This could be either the initial state or a state that is achieved by deleting all the objects that are present.

Table 4: GATT Database Requirements

Item	Characteristic or Property	Reference	Status
1	OTS Feature Characteristic	[1] 3.1	M
2	Object Name Characteristic	[1] 3.2.2	M
3	Object Name Characteristic - Write	[1] 3.2.2	C.1
4	Object Name Characteristic – Read Long (longer than default ATT_MTU-1 octets)	[1] 1.4, 3.2.2	C.2
5	Object Name Characteristic – Write Long (longer than default ATT_MTU-3 octets)	[1] 1.4, 3.2.2	O
6	Object Type Characteristic	[1] 3.2.3	M
7	Object Size Characteristic	[1] 3.2.4	M

Item	Characteristic or Property	Reference	Status
8	Object First-Created Characteristic	[1] 3.2.5	O
9	Object First-Created Characteristic - Write	[1] 3.2.5	C.3
10	Object Last-Modified Characteristic	[1] 3.2.6	O
11	Object Last-Modified Characteristic - Write	[1] 3.2.6	C.4
11a	Access to a Real Time Clock (RTC)	[1] 3.2.6.1	O
12	Object ID Characteristic	[1] 3.2.7	C.5
13	Object Properties Characteristic	[1] 3.2.8	M
14	Object Properties Characteristic - Write	[1] 3.2.8	O
15	Object Action Control Point (OACP)	[1] 3.3	M
16	Object List Control Point (OLCP)	[1] 3.4	C.5
17	Object List Filter Characteristic	[1] 3.5	C.6
18	Object List Filter Characteristic – Read Long (longer than default ATT_MTU-1 octets)	[1] 1.4, 3.5	C.7
19	Object List Filter Characteristic – Write Long (longer than default ATT_MTU-3 octets)	[1] 1.4, 3.5	O
20	Object Changed Characteristic	[1] 3.6	O

C.1: Mandatory IF OTS 5/1 “OACP Create Procedure”, otherwise Optional.

C.2: Mandatory IF OTS 4/5 “Object Name Characteristic – Write Long (longer than default ATT_MTU-3 octets)”, otherwise Optional.

C.3: Mandatory IF OTS 4/8 “Object First-Created Characteristic” AND OTS 5/1 “OACP Create Procedure”, otherwise Optional.

C.4: Mandatory IF OTS 4/10 “Object Last-Modified Characteristic” AND NOT OTS 4/11a ”Access to a Real Time Clock (RTC)”, otherwise Excluded.

C.5: Mandatory IF OTS 3/2 “Storage of multiple objects”, otherwise Optional.

C.6: Optional IF OTS 3/2 “Storage of multiple objects”, otherwise Excluded.

C.7: Mandatory IF OTS 4/19 “Object List Filter Characteristic – Write Long (longer than default ATT_MTU-3 octets)”, otherwise Optional.

Table 5: OACP Features

Prerequisite: OTS 4/15 “Object Action Control Point (OACP)”

Item	Feature	Reference	Status
1	OACP Create Procedure	[1] 3.3.2.1	O
2	OACP Delete Procedure	[1] 3.3.2.2	O
3	OACP Calculate Checksum Procedure	[1] 3.3.2.3	O
4	OACP Execute Procedure	[1] 3.3.2.4	O
5	OACP Read Procedure	[1] 3.3.2.5	O
6	OACP Write Procedure	[1] 3.3.2.6	O
7	Appending Additional Data (increasing the object’s Allocated Size)	[1] 3.3.2.6	O
8	Truncation of Objects (decreasing the object’s Current Size)	[1] 3.3.2.6	O
9	Patching of Objects (over-writing a portion of the object’s contents)	[1] 3.3.2.6	O

Item	Feature	Reference	Status
10	OACP Abort Procedure	[1] 3.3.2.7	C.1

C.1: Optional IF OTS 5/5 “OACP Read Procedure”, otherwise Excluded.

Table 6: OLCP Features

Prerequisite: OTS 4/16 “Object List Control Point (OLCP)”

Item	Feature	Reference	Status
1	OLCP First Procedure	[1] 3.4.2.1	M
2	OLCP Last Procedure	[1] 3.4.2.2	M
3	OLCP Previous Procedure	[1] 3.4.2.3	M
4	OLCP Next Procedure	[1] 3.4.2.4	M
5	OLCP Go To Procedure	[1] 3.4.2.5	O
6	OLCP Order Procedure	[1] 3.4.2.6	O
7	OLCP Request Number of Objects Procedure	[1] 3.4.2.7	O
8	OLCP Clear Marking Procedure	[1] 3.4.2.8	O

Table 7: Directory Listing Object

Prerequisite: OTS 3/2 “Storage of multiple objects”

Item	Capability	Reference	Status
1	Generation of Directory Listing Object	[1] 4.1	O

2.4 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] 1.4	C.3	[2] GATT 1a/4
1b	GATT Server over LE	[1] 1.4	C.4	[2] GATT 1a/3
2	Read Long Characteristic Values	[1] 1.4	C.1	[2] GATT 4/10
3	Write Characteristic Value	[1] 1.4	M	[2] GATT 4/14
6	Write Long Characteristic Values	[1] 1.4	C.2	[2] GATT 4/15
4	Indications	[1] 1.4	M	[2] GATT 4/18
7	Read Characteristic Descriptors	[1] 1.4	M	[2] GATT 4/19
8	Write Characteristic Descriptors	[1] 1.4	M	[2] GATT 4/21

C.1: Mandatory IF OTS 4/4 “Object Name Characteristic – Read Long (longer than default ATT_MTU-1 octets)” OR OTS 4/18 “Object List Filter Characteristic – Read Long (longer than default ATT_MTU-1 octets)”, otherwise not defined.

C.2: Mandatory IF OTS 4/5 “Object Name Characteristic – Write Long (longer than default ATT_MTU-3 octets)” OR OTS 4/19 “Object List Filter Characteristic – Write Long (longer than default ATT_MTU-3 octets)”, otherwise not defined.

C.3: Mandatory IF OTS 2/2 “Service supported over BR/EDR”, otherwise not defined.
C.4: Mandatory IF OTS 2/1 “Service supported over LE”, otherwise not defined.

3 References

[1] Object Transfer Service, 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	1.0.0	2015-11-17	Spec adopted by BoD. Prepared for publication.
	1.0.0 edition 2r00	2018-11-26	Editorial changes only. Template updated. Revision History and contributors moved to the end of the document.
	1.0.0 edition 2	2020-01-08	Updated copyright page and confidentiality markings to support new Documentation Marking Requirements, performed minor formatting updates, and accepted all tracked changes to prepare for edition 2 publication.
	p1r00–r02	2022-03-23 – 2022-05-02	TSE 18598 (rating 3): Deleted Core versions table. Added 4/11a, with a corresponding update to C.4. TSE 18723 (rating 1): Editorials to align the document with the latest ICS template in anticipation of a future .Z release. Assigned publication number 0 to previous v1.0.0 and aligned copyright page with v2 of the DNMD. Consistency checker update.
1	p1	2022-06-28	Approved by BTI on 2022-05-31. Prepared for TCRL 2022-1 publication.
	p1ed2 r00–r03	2025-01-29 – 2025-02-27	TSE 27093 (rating 1): Updated Table 1 heading and Version entry. Updated Table 2 status values and conditional C.1 and added C.2 and C.3. Added items 1a and 1b and conditionals C.3 and C.4 to Table 8. Updated References section and cross-references throughout. Updated to current ICS template.
	p1 edition 2	2025-03-14	Approved by BTI on 2025-03-11. Prepared for edition 2 publication.

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