# HID Over GATT Profile (HOGP)

Bluetooth® Implementation Conformance Statement (ICS) Proforma

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# 1 Identification of the implementation

# 1.1 Implementation Under Test (IUT) identification

Identification of the Implementation Under Test (IUT) is to 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 is named in the Declaration of Compliance: Summary of Selected Specifications in Implementation.

#### 1.2 Version

Table 0: Major Versions (X.Y)

Item	Version	Reference	Status
1	HOGP v1.0	[1] 1.0	М

## 1.3 Roles

**Table 1: Role Requirements** 

Item	Role	Reference	Status
1	HID Device	[1] 2.1	C.1
2	Report Host	[1] 2.1	C.1
3	Boot Host	[1] 2.1	C.1

C.1: Mandatory to support at least one of HOGP 1/1 "HID Device" OR HOGP 1/2 "Report Host" OR HOGP 1/3 "Boot Host".

# 1.4 Transports

**Table 2: Transport Requirements** 

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

C.1: Excluded for this Profile.

## 1.5 HID Device

#### 1.5.1 Services – HID Device

Table 3: Services - HID Device

Prerequisite: HOGP 1/1 "HID Device"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	HID Service	[1] 3.1	М	[2] HIDS 2/1
2	Multiple Service instances – HID Service	[1] 3.1	0	N/A
3	Battery Service	[1] 3.2	М	[5] BAS 2/1
4	Device Information Service	[1] 3.3	М	[6] DIS 2/1
5	Scan Parameters Service	[1] 3.4	0	[7] SCPS 2/1

#### 1.5.2 Features – HID Device

Table 4: Features - HID Device

Prerequisite: HOGP 1/1 "HID Device"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Include HID Service UUID in AD in GAP Discoverable Mode	[1] 3.1.3	0	N/A
2	Include Local Name in AD or Scan Response Data	[1] 3.1.4	0	N/A
3	Include Appearance in AD or Scan Response Data	[1] 3.1.5	0	N/A
4	PnP ID	[1] 3.3.2	М	[6] DIS 2/11
5	Report Characteristic	[1] 4.8	C.1	[2] HIDS 2/12
6	Non-HID Service characteristic described within Report Map characteristic	[1] 4.8.1	C.1	N/A
7	Report Map Characteristic - External Report Reference Characteristic descriptor	[1] 4.8.1	C.2	[2] HIDS 2/11a

C.1: Mandatory to support at least one of HOGP 4/5 "Report Characteristic" OR HOGP 4/6 "Non-HID Service characteristic described within Report Map characteristic".

## 1.5.3 GAP Requirements – HID Device

Table 5: GAP Requirements - HID Device

Prerequisite: HOGP 1/1 "HID Device"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Peripheral	[1] 2.4	M	[4] GAP 5/3 or GAP 38/3
2	Directed connectable mode	[1] 5.1.3	0	[4] GAP 23/2
3	Undirected connectable mode	[1] 5.1.3	М	[4] GAP 23/3
4	Bondable mode (Peripheral)	[1] 6.1	M	[4] GAP 24/2
5	Bonding procedure (Peripheral)	[1] 6.1	M	[4] GAP 24/3
6	LE security mode 1 (Peripheral)	[1] 6.1	М	[4] GAP 25/1
7	Unauthenticated Pairing (LE security mode 1 level 2) (Peripheral)	[1] 6.1	M	[4] GAP 25/8
8	Authenticated Pairing (LE security mode 1 level 3) (Peripheral)	[1] 6.1	0	[4] GAP 25/7

Table 6: No longer used



C.2: Mandatory IF HOGP 4/6 "Non-HID Service characteristic described within Report Map characteristic", otherwise not defined.

## 1.6 HID Host

## 1.6.1 Client Services Support – Report Host

Table 7: No longer used

**Table 7a: GATT based Profile Support – Report Host** 

Prerequisite: HOGP 1/2 "Report Host"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Scan Client	[1] 4.2	М	[8] SCPP 1/2

Table 8: No longer used

## 1.6.2 Discover Services and Characteristics – Report Host

Table 9: Discover Service and Characteristics – Report Host

Prerequisite: HOGP 1/2 "Report Host"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Discover HID Service	[1] 4.5.1	М	N/A
2	Discover Battery Service	[1] 4.5.3	М	N/A
3	Discover Device Information Service	[1] 4.5.2	М	N/A
4	Discover Scan Parameters Service	[1] 4.2	M	[8] SCPP 7/1
5	Discover HID Service characteristic: Report Map	[1] 4.6.1.1	M	N/A
6	Discover HID Service characteristic: Report Map – External Report Reference characteristic descriptor	[1] 4.6.1.1	M	N/A
7	Discover HID Service characteristic: Report	[1] 4.6.1.2	M	N/A
8	Discover HID Service characteristic: Report – Client Characteristic Configuration characteristic descriptor	[1] 4.6.1.2	M	N/A
9	Discover HID Service characteristic: Report – Report Reference characteristic descriptor	[1] 4.6.1.2	M	N/A
10	Discover HID Service characteristic: HID Information	[1] 4.6.1.4	М	N/A
11	Discover HID Service characteristic: HID Control Point	[1] 4.6.1.3	M	N/A
12	Discover HID Service characteristic: Protocol Mode	[1] 4.6.1.5	0	N/A
13	Discover Battery Service characteristic: Battery Level	[1] 4.6.3.1	М	N/A

Item	Capability	Reference	Status	Inter-Layer Dependency
14	Discover Battery Service characteristic: Battery Level – Client Characteristic Configuration characteristic descriptor	[1] 4.6.3.1	M	N/A
15	Discover Device Information Service characteristic: PnP ID	[1] 4.6.2.1	M	N/A
16	Discover non-HID Service characteristic: Report Reference characteristic descriptor	[1] 4.8.1	М	N/A

#### 1.6.3 Discover Services and Characteristics – Boot Host

Table 10: Discover Service & Characteristics - Boot Host

Prerequisite: HOGP 1/3 "Boot Host"

Item	Capability	Reference	Status
1	Discover HID Service	[1] 4.3.1	М
2	Discover Battery Service	[1] 4.3.3	0
3	Discover Device Information Service	[1] 4.3.2	0
4	Discover HID Service characteristic: Protocol Mode	[1] 4.4.1.1	M
5	Discover HID Service characteristic: Boot Keyboard Input Report	[1] 4.4.1.2	C.1, C.2
6	Discover HID Service characteristic: Boot Keyboard Input Report – Client Characteristic Configuration characteristic descriptor	[1] 4.4.1.2	C.3
7	Discover HID Service characteristic: Boot Keyboard Output Report	[1] 4.4.1.3	C.1, C.2
8	Discover HID Service characteristic: Boot Mouse Input Report	[1] 4.4.1.4	C.1
9	Discover HID Service characteristic: Boot Mouse Input Report  — Client Characteristic Configuration characteristic descriptor	[1] 4.4.1.4	C.4
10	Discover Battery Service characteristic: Battery Level	[1] 4.4.3	0
11	Discover Battery Service characteristic: Battery Level – Client Characteristic Configuration characteristic descriptor	[1] 4.4.3.1	0
12	Discover Device Information Service characteristic: PnP ID	[1] 4.4.2.1	0

- C.1: Mandatory to support at least one of HOGP 10/5 "Discover HID Service characteristic: Boot Keyboard Input Report" OR HOGP 10/7 "Discover HID Service characteristic: Boot Keyboard Output Report" OR HOGP 10/8 "Discover HID Service characteristic: Boot Mouse Input Report".
- C.2: Mandatory to support none or all of HOGP 10/5 "Discover HID Service characteristic: Boot Keyboard Input Report" OR HOGP 10/7 "Discover HID Service characteristic: Boot Keyboard Output Report".
- C.3: Mandatory IF HOGP 10/5 "Discover HID Service characteristic: Boot Keyboard Input Report", otherwise Excluded.
- C.4: Mandatory IF HOGP 10/8 "Discover HID Service characteristic: Boot Mouse Input Report", otherwise Excluded.

# 1.6.4 Features – Report Host

Table 11: Features - Report Host

Prerequisite: HOGP 1/2 "Report Host"

Item	Capability	Reference	Status
1	Read Report Map characteristic	[1] 4.7	М
2	Read Report Map characteristic: External Report Reference characteristic descriptor	[1] 4.7	М
3	Read Report characteristic: Report Type: Input Report	[1] 4.8	C.2
4	Write Report characteristic: Report Type: Input Report	[1] 4.8	C.2
5	Read Report characteristic: Report Type: Output Report	[1] 4.8	C.3
6	Write - Report characteristic: Report Type: Output Report	[1] 4.8	C.3
7	Read - Report characteristic: Report Type: Feature Report	[1] 4.8	C.4
8	Write - Report characteristic: Report Type: Feature Report	[1] 4.8	C.4
9	Read Report characteristic: Report Reference characteristic descriptor	[1] 4.8	М
10	Read Report characteristic: Input Report: Client Characteristic Configuration characteristic descriptor	[1] 4.8	М
11	Report characteristic configuration: enable notifications	[1] 4.8	M
11a	Report characteristic configuration: disable notifications	[1] 4.8	C.2
12	Read HID Information characteristic	[1] 4.10	0
13	Suspend State	[1] 4.9	0
14	Exit Suspend State	[1] 4.9	C.1
15	Write HID Control Point characteristic: Suspend command	[1] 4.9	C.1
16	Write HID Control Point characteristic: Exit Suspend command	[1] 4.9	C.1
17	Read Protocol Mode characteristic: Get Protocol command	[1] 4.8	0
18	Write Protocol Mode characteristic: Set Report Protocol Mode command	[1] 4.8	0
19	Read Battery Level characteristic	[1] 4.15	C.5
20	Read Battery Level characteristic: Client Characteristic Configuration characteristic descriptor	[1] 4.15	C.6
21	Battery Level characteristic configuration: enable notifications	[1] 4.15	C.6
21a	Battery Level characteristic configuration: disable notifications	[1] 4.15	0
22	Read non-HID Service characteristic: Report Reference characteristic descriptor	[1] 4.8	М
23	Read PnP ID characteristic	[1] 4.16	M
24	Notify Report characteristic	[1] 4.8	М
25	Notify Battery Level characteristic	[1] 4.15	C.5
26	Report Characteristic: Input Report type supported	[1] 4.8	М
27	Report Characteristic: Output Report type supported	[1] 4.8	0
28	Report Characteristic: Feature Report type supported	[1] 4.8	0

C.1: Mandatory IF HOGP 11/13 "Suspend State", otherwise Excluded.

C.2: Optional IF HOGP 11/26 "Report Characteristic: Input Report type supported", otherwise Excluded.



- C.3: Optional IF HOGP 11/27 "Report Characteristic: Output Report type supported", otherwise Excluded.
- C.4: Optional IF HOGP 11/28 "Report Characteristic: Feature Report type supported", otherwise Excluded.
- C.5: Mandatory to support at least one of HOGP 11/19 "Read Battery Level characteristic" OR HOGP 11/25 "Notify Battery Level characteristic".
- C.6: Mandatory IF HOGP 11/25 "Notify Battery Level characteristic", otherwise Excluded.

#### 1.6.5 Features – Boot Host

Table 12: Features – Boot Host

Prerequisite: HOGP 1/3 "Boot Host"

Item	Capability	Reference	Status
1	Read Protocol Mode characteristic: Get Protocol Mode command	[1] 4.11	М
2	Write Protocol Mode characteristic: Set Boot Protocol Mode command	[1] 4.11	М
3	Read HID Service characteristic: Boot Keyboard Input Report	[1] 4.12	C.1
4	Write HID Service characteristic: Boot Keyboard Input Report	[1] 4.12	C.1
5	Read Client Characteristic Configuration characteristic descriptor for Boot Keyboard Input Report	[1] 4.12	C.1
6	Boot Keyboard Input Report characteristic configuration: enable notifications	[1] 4.12	C.1
6a	Boot Keyboard Input Report characteristic configuration: disable notifications	[1] 4.12	0
7	Read HID Service characteristic: Boot Keyboard Output Report	[1] 4.13	C.1
8	Write HID Service characteristic: Boot Keyboard Output Report	[1] 4.13	C.1
9	Read HID Service characteristic: Boot Mouse Input Report	[1] 4.14	C.2
10	Write HID Service characteristic: Boot Mouse Input Report	[1] 4.14	C.2
11	Read Client Characteristic Configuration characteristic descriptor for Boot Mouse Input Report	[1] 4.14	C.2
12	Boot Mouse Input Report characteristic configuration: enable notifications	[1] 4.14	C.2
12a	Boot Mouse Input Report characteristic configuration: disable notifications	[1] 4.14	0
13	Notify Boot Keyboard Input Report characteristic	[1] 4.12	C.1
14	Notify Boot Mouse Input Report characteristic	[1] 4.14	C.2
15	Read Battery Level characteristic	[1] 4.15	0
16	Read Battery Level characteristic: Client Characteristic Configuration characteristic descriptor	[1] 4.15	0
17	Battery Level characteristic configuration: enable notifications	[1] 4.15	0
17a	Battery Level characteristic configuration: disable notifications	[1] 4.15	0
18	Notify Battery Level characteristic	[1] 4.15	0
19	Read PnP ID characteristic	[1] 4.16	0

- C.1: Mandatory IF HOGP 10/5 "Discover HID Service characteristic: Boot Keyboard Input Report" OR HOGP 10/7 "Discover HID Service characteristic: Boot Keyboard Output Report", otherwise Excluded.
- C.2: Mandatory IF HOGP 10/8 "Discover HID Service characteristic: Boot Mouse Input Report", otherwise Excluded.

#### 1.6.6 GATT Requirements – Report Host

Table 13: GATT Requirements - Report Host

Prerequisite: HOGP 1/2 "Report Host"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	GATT Client over LE	[1] 4.1	М	[3] GATT 1a/1
2	No longer used	N/A	N/A	N/A
3	Discover All Primary Services	[1] 4.1	C.1	[3] GATT 3/2
4	Discover Primary Services by Service UUID	[1] 4.1	C.1	[3] GATT 3/3
5	Find Included Services	[1] 4.1	М	[3] GATT 3/4
6	Discover All Characteristics of a Service	[1] 4.1	C.2	[3] GATT 3/5
7	Discover Characteristics by UUID	[1] 4.1	C.2	[3] GATT 3/6
8	Discover All Characteristic Descriptors	[1] 4.1	М	[3] GATT 3/7
9	Read Characteristic Value	[1] 4.1	C.3	[3] GATT 3/8
10	Read Using Characteristic UUID	[1] 4.1	C.3	[3] GATT 3/9
11	Read Long Characteristic Values	[1] 4.1	C.4	[3] GATT 3/10
12	Read Characteristic Descriptors	[1] 4.1	М	[3] GATT 3/19
13	Write without Response	[1] 4.1	М	[3] GATT 3/12
14	Write Characteristic Value	[1] 4.1	М	[3] GATT 3/14
15	Write Characteristic Descriptors	[1] 4.1	М	[3] GATT 3/21
16	Notifications	[1] 4.1	М	[3] GATT 3/17
17	Exchange MTU	[1] 4.1	0	[3] GATT 3/1

- C.1: Mandatory to support at least one of HOGP 13/3 "Discover All Primary Services" OR HOGP 13/4 "Discover Primary Services by Service UUID".
- C.2: Mandatory to support at least one of HOGP 13/6 "Discover All Characteristics of a Service" OR HOGP 13/7 "Discover Characteristics by UUID".
- C.3: Mandatory to support at least one of HOGP 13/9 "Read Characteristic Value" OR HOGP 13/10 "Read Using Characteristic UUID".
- C.4: Mandatory IF HOGP 13/9 "Read Characteristic Value" OR HOGP 13/10 "Read Using Characteristic UUID", otherwise not defined.

## 1.6.7 GATT Requirements – Boot Host

Table 14: GATT Requirements - Boot Host

Prerequisite: HOGP 1/3 "Boot Host"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	GATT Client over LE	[1] 4.1	M	[3] GATT 1a/1
2	No longer used	N/A	N/A	N/A
3	Discover All Primary Services	[1] 4.1	C.1	[3] GATT 3/2
4	Discover Primary Services by Service UUID	[1] 4.1	C.1	[3] GATT 3/3
5	Discover All Characteristics of a Service	[1] 4.1	0	[3] GATT 3/5
6	Discover Characteristics by UUID	[1] 4.1	0	[3] GATT 3/6
7	Discover All Characteristic Descriptors	[1] 4.1	M	[3] GATT 3/7
8	Read Characteristic Value	[1] 4.1	М	[3] GATT 3/8
9	Read Using Characteristic UUID	[1] 4.1	M	[3] GATT 3/9
10	Read Characteristic Descriptors	[1] 4.1	М	[3] GATT 3/19
11	Write without Response	[1] 4.1	M	[3] GATT 3/12
12	Write Characteristic Value	[1] 4.1	M	[3] GATT 3/14
13	Write Characteristic Descriptors	[1] 4.1	M	[3] GATT 3/21
14	Notifications	[1] 4.1	M	[3] GATT 3/17

C.1: Mandatory to support at least one of HOGP 14/3 "Discover All Primary Services" OR HOGP 14/4 "Discover Primary Services by Service UUID".

## 1.6.8 GAP Requirements – HID Host

Table 15: GAP Requirements – HID Host

Prerequisite: HOGP 1/2 "Report Host" OR HOGP 1/3 "Boot Host"

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Central	[1] 2.4	M	[4] GAP 5/4 or GAP 38/4
2	LE security mode 1 (Central)	[1] 6.2	М	[4] GAP 35/1
3	Unauthenticated Pairing (LE security mode 1 level 2) (Central)	[1] 6.2	M	[4] GAP 35/8
4	Authenticated Pairing (LE security mode 1 level 3) (Central)	[1] 6.2	0	[4] GAP 35/7

Table 16: No longer used



# 2 References

- [1] HID over GATT Profile Specification, Version 1.0
- [2] ICS Proforma for HID Service (HIDS)
- [3] ICS Proforma for Generic Attribute Profile (GATT)
- [4] ICS Proforma for Generic Access Profile (GAP)
- [5] ICS Proforma for Battery Service (BAS)
- [6] ICS Proforma for Device Information Service (DIS)
- [7] ICS Proforma for Scan Parameters Service (SCPS)
- [8] ICS Proforma for Scan Parameters Profile (SCPP)

# 3 Revision history and acknowledgments

## Revision History

Publication Number	Revision Number	Date	Comments
	D09r01	2011-07-12	First draft
	D09r02	2011-08-09	Updated for option 1a
	D09r03	2011-08-14	Added feature set tables 3, 7 for the HID TS D07Dr01
	D09r04	2011-08-29	Addressed some comments on the D09r03 and made changes to HID device features table 3
	D09r05	2011-09-21	Rewritten and released as clean version
	D09r06	2011-09-22	Changes to Tables 7, 8 9 and 10
	D09r07	2011-09-24	Changes to table 9, clean version issued
	D09r08	2011-09-26	Renamed to HID over GATT
	D09r09	2011-11-07	BTI review comments addressed, updated to match latest versions of HID over GATT profile (r42) and HID service (r40).
	D09r10	2011-11-09	Corrected item numbering in table 14 to begin from 1 instead of 18
	D10r00	2011-11-30	Submitted to BTI as v1.0
	D10r00	2011-12-12	Addressed BTI review comments
	D10r00	2011-12-15	Addressed BTI review comments, renamed document HOGP.ICS (was HOG.ICS), added 3 items to Table 4 to allow mapping of Test Case for external report reference descriptor (no impact on HOGP.TS, only maps from TCMT into HIDS.TS)
	D10r00	21011-12-15	Fixed incorrect ICS number in Table 11 conditional (11 -> 14)
	D10r00	2011-12-19	Fixed references
0	1.0.0	2011-12-27	Adopted by the Bluetooth SIG Board of Directors
	1.0.1r0	2012-06-05	TSE 4728: Add item 11a to Table 11.
1	1.0.1	2012-07-24	Prepare for publication.
	1.0.2r1	2012-09-04	TSE 4888: Removed conditionals in Table 1, Profile Roles.
			TSE 4868: Table 13: GATT Requirements – Report Host, change item 10 from M to O.
			Added Version table, Table 0 per BQRB decision.
2	1.0.2	2012-10-30	Prepare for Publication
	1.0.3r01	2013-09-30	TSE 5313: Addition of Table 7a
3	1.0.3	2013-12-03	Prepare for Publication
	1.0.4r00	2015-05-10	TSE 6257: Revised status of item 13/17 (Exchange MTU) to Optional

Publication Number	Revision Number	Date	Comments
	1.0.4r01	2015-05-12	Updated to the current ICS template and revised per the standard conventions for items like conditionals and pre-requisites.
4	1.0.4	2015-07-14	Prepared for TCRL 2015-1 publication
	1.0.5r00	2015-10-01	TSE 6412: In Table 11 of Section 1.5.5 - updated conditionals; revised capability characteristics for items 11/6, 11/7, and 11/8; changed item 11/12 status to Optional; and added new items 11/26, 11/27, and 11/28. In Table 13 of Section 1.5.7 - updated conditionals.  TSE 6653: Revised and added multiple capability characteristics in Section 1.5.5, Table 11 and Section 1.5.6, Table 12.
5	1.0.5	2015-12-22	Prepared for TCRL 2015-2 publication.
	1.0.6r00	2017-05-25	TSE 9148: Template conversion. Correct copy/paste table numbering errors (3 Table 5's).
6	1.0.6	2017-06-26	Approved by BTI. Prepared for TCRL 2017-1 publication.
	p7r00–r05	2022-09-14 – 2022-11-15	TSE 19166 (rating 2): Updated the ILD column for Table 4, Item 7. Other edits for this TSE made for TSE 19178.  TSE 19178 (rating 1): Updated to align with current ICS conventions/template. Removed Support columns and added an Inter-Layer Dependency column where appropriate. Added a Publication Number column to the Revision History. Revised the document numbering convention, setting the last release publication of 1.0.6 as p6.  Performed additional template-related formatting fixes. Replaced Bluetooth logo in footer and updated the copyright page to align with v2 of the DNMD.
7	p7	2023-02-07	Approved by BTI on 2022-12-28. Prepared for TCRL 2022-2 publication.

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