

Glucose Profile (GLP)

Bluetooth® Implementation Conformance Statement (ICS) Proforma

- **Revision:** GLP.ICS.p3
- **Revision Date:** 2022-01-25
- **Group Prepared By:** Medical Devices Working Group



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 © 2011–2022 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	Identification of the implementation	4
1.1	Implementation Under Test (IUT) identification	4
1.2	Versions	5
1.3	Roles	5
1.4	Transports	5
1.5	Sensor Role	6
1.5.1	Services – Sensor Role	6
1.5.2	DIS Requirements – Sensor Role	6
1.5.3	GAP Requirements – Sensor Role	7
1.5.4	SM Requirements – Sensor Role	7
1.6	Collector Role	7
1.6.1	Service Support – Collector Role	7
1.6.2	Discover Services and Characteristics – Collector Role	7
1.6.3	Features – Collector Role	8
1.6.4	Discover DIS and Related Characteristics – Collector Role	11
1.6.5	GATT Requirements – Collector Role	11
1.6.6	GAP Requirements – Collector Role	12
1.6.7	SM Requirements – Collector Role	12
2	References	13
3	Revision history and acknowledgments	14

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 Versions

Table 0: Major Versions (X.Y)

Item	Version	Reference	Status
1	GLP v1.0	[1]	C.1

C.1: Mandatory to support together with an active minor version after the date of deprecation.
Deprecated 2023-02-01. Withdrawn 2025-02-01.

Table 0a: Minor Versions (X.Y.Z)

Item	Version	Reference	Status
1	GLP v1.0.1	[1]	C.1

C.1: Optional IF GLP 0/1 “GLP v1.0” is supported AND “GLP v1.0” is Not Deprecated, otherwise
Mandatory IF GLP 0/1 “GLP v1.0” is supported AND “GLP v1.0” is Deprecated, otherwise
Excluded.

1.3 Roles

Table 1: Role Requirements

Item	Role	Reference	Status
1	Glucose Sensor	[1] 2.1	C.1
2	Collector	[1] 2.1	C.1

C.1: Mandatory to support at least one of GLP 1/1 “Glucose Sensor” OR GLP 1/2 “Collector”.

1.4 Transports

Table 2: Transport Requirements

Item	Transport	Reference	Status
1	Profile supported over BR/EDR	[1] 2.5	C.1
2	Profile supported over LE	[1] 2.5	M

C.1: Excluded for this Profile.

1.5 Sensor Role

1.5.1 Services – Sensor Role

Table 3: Services – Sensor Role

Prerequisite: GLP 1/1 “Glucose Sensor”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Glucose Service	[1] 3	M	[2] GLS
2	Service UUID	[1] 3.1.1	O	[5] GAP 20a/1
3	Local Name	[1] 3.1.2	O	[5] GAP 20a/2
4	Public Target Address	[1] 3.1.4	C.3	[5] GAP 20a/12
4a	Random Target Address	[1] 3.1.4	C.3	[5] GAP 20a/13
4b	Target Address in AD or Scan Response	[1] 3.1.4	C.1	N/A
5	Item no longer used	N/A	N/A	N/A
6	Item no longer used	N/A	N/A	N/A
7	Device Information Service	[1] 3	M	[3] DIS
8	Support for Multiple Bonds	[1] 3.1.4	C.2	N/A
9	Support for Single Bond	[1] 3.1.4	C.2	N/A

C.1: Optional IF GLP 3/8 “Support for Multiple Bonds” is supported, otherwise Excluded.

C.2: Mandatory to support at least one of GLP 3/8 “Support for Multiple Bonds” OR GLP 3/9 “Support for Single Bond”.

C.3: Mandatory to support at least one of GLP 3/4 “Public Target Address” OR GLP 3/4a “Random Target Address” IF GLP 3/4b “Target Address in AD or Scan Response” is supported, otherwise not defined.

1.5.2 DIS Requirements – Sensor Role

Table 4: DIS Requirements – Sensor Role

Prerequisite: GLP 1/1 “Glucose Sensor”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Manufacturer Name String Characteristic	[1] 3.2	M	[3] DIS 2/2
2	Model Number String Characteristic	[1] 3.2	M	[3] DIS 2/3
3	System ID Characteristic	[1] 3.2	M	[3] DIS 2/8

1.5.3 GAP Requirements – Sensor Role

Table 5: GAP Requirements - Sensor Role

Prerequisite: GLP 1/1 “Glucose Sensor”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Peripheral	[1] 2.4	M	[5] GAP 5/3 or GAP 38/3
2	LE security mode 1	[1] 6.1	M	[5] GAP 25/1
3	Writable Device Name	[1] 3.1.3	O	[5] GAP 27/6
4	Bondable mode	[1] 5.1.1	M	[5] GAP 24/2

1.5.4 SM Requirements – Sensor Role

Table 6: SM Requirements - Sensor Role

Prerequisite: GLP 1/1 “Glucose Sensor”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Unauthenticated no MITM protection	[1] 6.1	C.1	[6] SM 2/2
2	Authenticated MITM protection	[1] 6.1	C.1	[6] SM 2/1

C.1: Mandatory to support at least one of GLP 6/1 “Unauthenticated no MITM protection” OR GLP 6/2 “Authenticated MITM protection”.

1.6 Collector Role

1.6.1 Service Support – Collector Role

Table 7: Client Services Supported

Prerequisite: GLP 1/2 “Collector”

Item	Capability	Reference	Status
1	Glucose Service	[1] 4	M
2	Device Information Service	[1] 4	O

1.6.2 Discover Services and Characteristics – Collector Role

Table 8: Discover Services and Characteristics – Collector Role

Prerequisite: GLP 1/2 “Collector”

Item	Capability	Reference	Status
1	Discover Glucose Service	[1] 4.2.1	M
2	Discover Glucose Measurement characteristic	[1] 4.3.1.1	M
3	Discover Glucose Measurement - Client Characteristic Configuration Descriptor	[1] 4.3.1.1	M

Item	Capability	Reference	Status
4	Discover Glucose Measurement Context characteristic	[1] 4.3.1.2	M
5	Discover Glucose Measurement Context - Client Characteristic Configuration Descriptor	[1] 4.3.1.2	M
6	Discover Glucose Feature characteristic	[1] 4.3.1.3	M
6a	Discover Glucose Feature - Client Characteristic Configuration Descriptor	[7] 4.3.1.3	M
7	Discover Record Access Control Point characteristic	[1] 4.3.1.4	M
8	Discover Record Access Control Point - Client Characteristic Configuration Descriptor	[1] 4.3.1.4	M

1.6.3 Features – Collector Role

Table 9: Features – Collector Role

Prerequisite: GLP 1/2 “Collector”

Item	Role/Service	Reference	Status
1	Configure Glucose Measurement characteristic for notifications	[1] 4.4	M
2	Receive Glucose Measurement characteristic notifications	[1] 4.4	M
3	Configure Glucose Measurement Context characteristic for notifications	[1] 4.5	M
4	Receive Glucose Measurement Context characteristic notifications	[1] 4.5	M
5	Configure Record Access Control Point characteristic for indications	[1] 4.7	M
6	Receive Record Access Control Point characteristic indications	[1] 4.7	M
7	Write to Record Access Control Point characteristic	[1] 4.7	M
8	RACP Characteristic - Report Stored Records Op Code	[1] 4.7.3.4, 4.7.2	M
9	RACP Characteristic - Delete Stored Records Op Code	[1] 4.7.3.3, 4.7.2	O
10	RACP Characteristic - Abort Operation Op Code	[1] 4.7.3.5, 4.7.2	O
11	RACP Characteristic - Report Number of Stored Records Op Code	[1] 4.7.3.2, 4.7.2	O
12	Sequence Number Filter Type of RACP Characteristic	[1] 4.7.2	M
13	User Facing Time Filter Type of RACP Characteristic	[1] 4.7.2	O
14	Read Glucose Feature characteristic	[1] 4.6	M
15	Verify Bond Status on Reconnection	[1] 5.2.2	M
16	Support for Multiple Bonds	[1] 5.2.2	O

Item	Role/Service	Reference	Status
17	Configure characteristic for indications to determine supported features	[7] 4.6	C.1

C.1: Optional IF GLP 0/1 "GLP v1.0" is supported AND GLP 0a/1 "GLP v1.0.1" is not supported, otherwise Mandatory.

Table 9a: Determining Supported Features - Configure Characteristic for Indications

Prerequisite: GLP 9/17 "Configure characteristic for indications to determine supported features"

Item	Capability	Reference	Status
1	Configure and receive Glucose Feature characteristic indications	[7] 4.3.1.3, 4.6	C.1
2	Read Glucose Feature characteristic on reconnection	[7] 4.6	C.1

C.1: Mandatory to support at least one of GLP 9a/1 "Configure and receive Glucose Feature characteristic indications" OR GLP 9a/2 "Read Glucose Feature characteristic on reconnection" IF GLP 9/16 "Support for Multiple Bonds" is supported, otherwise Excluded.

Table 10: Report Stored Records Operators and Filter Parameters

Prerequisite: GLP 9/8 "RACP Characteristic - Report Stored Records Op Code"

Item	Capability	Reference	Status
1	All records Operator	[1] 4.7.3.4, 4.7.2	M
2	Less than or equal to Operator	[1] 4.7.3.4, 4.7.2	O
3	Less than or equal to Operator – Sequence Number Operand	[1] 4.7.3.4, 4.7.2	C.1
4	Less than or equal to Operator – User Facing Time Operand	[1] 4.7.3.4, 4.7.2	C.2
5	Greater than or equal to Operator	[1] 4.7.3.4, 4.7.2	M
6	Greater than or equal to Operator – Sequence Number Operand	[1] 4.7.3.4, 4.7.2	M
7	Greater than or equal to Operator – User Facing Time Operand	[1] 4.7.3.4, 4.7.2	C.3
8	Within range of (inclusive) Operator	[1] 4.7.3.4, 4.7.2	O
9	Within range of (inclusive) Operator – Sequence Number Operand	[1] 4.7.3.4, 4.7.2	C.4
10	Within range of (inclusive) Operator – User Facing Time Operand	[1] 4.7.3.4, 4.7.2	C.5
11	First record Operator	[1] 4.7.3.4, 4.7.2	O
12	Last record Operator	[1] 4.7.3.4, 4.7.2	O

C.1: Mandatory IF GLP 10/2 "Less than or equal to Operator" is supported, otherwise Excluded.

C.2: Optional IF GLP 10/2 "Less than or equal to Operator" is supported, otherwise Excluded.

C.3: Optional IF GLP 10/5 "Greater than or equal to Operator" is supported, otherwise Excluded.

C.4: Mandatory IF GLP 10/8 "Within range of (inclusive) Operator" is supported, otherwise Excluded.

C.5: Optional IF GLP 10/8 "Within range of (inclusive) Operator" is supported, otherwise Excluded.



Table 11: Delete Stored Records Operators and Filter Parameters*Prerequisite: GLP 9/9 "RACP Characteristic - Delete Stored Records Op Code"*

Item	Capability	Reference	Status
1	All records Operator	[1] 4.7.3.3, 4.7.2	M
2	Less than or equal to Operator	[1] 4.7.3.3, 4.7.2	O
3	Less than or equal to Operator – Sequence Number Operand	[1] 4.7.3.3, 4.7.2	C.1
4	Less than or equal to Operator – User Facing Time Operand	[1] 4.7.3.3, 4.7.2	C.2
5	Greater than or equal to Operator	[1] 4.7.3.3, 4.7.2	O
6	Greater than or equal to Operator – Sequence Number Operand	[1] 4.7.3.3, 4.7.2	C.3
7	Greater than or equal to Operator – User Facing Time Operand	[1] 4.7.3.3, 4.7.2	C.4
8	Within range of (inclusive) Operator	[1] 4.7.3.3, 4.7.2	O
9	Within range of (inclusive) Operator – Sequence Number Operand	[1] 4.7.3.3, 4.7.2	C.5
10	Within range of (inclusive) Operator – User Facing Time Operand	[1] 4.7.3.3, 4.7.2	C.6
11	First record Operator	[1] 4.7.3.3, 4.7.2	O
12	Last record Operator	[1] 4.7.3.3, 4.7.2	O

C.1: Mandatory IF GLP 11/2 "Less than or equal to Operator" is supported, otherwise Excluded.

C.2: Optional IF GLP 11/2 "Less than or equal to Operator" is supported, otherwise Excluded.

C.3: Mandatory IF GLP 11/5 "Greater than or equal to Operator" is supported, otherwise Excluded.

C.4: Optional IF GLP 11/5 "Greater than or equal to Operator" is supported, otherwise Excluded.

C.5: Mandatory IF GLP 11/8 "Within range of (inclusive) Operator" is supported, otherwise Excluded.

C.6: Optional IF GLP 11/8 "Within range of (inclusive) Operator" is supported, otherwise Excluded.

Table 12: Report Number of Stored Records Operators and Filter Parameters*Prerequisite: GLP 9/11 "RACP Characteristic - Report Number of Stored Records Op Code"*

Item	Capability	Reference	Status
1	All records Operator	[1] 4.7.3.2, 4.7.2	M
2	Less than or equal to Operator	[1] 4.7.3.2, 4.7.2	O
3	Less than or equal to Operator – Sequence Number Operand	[1] 4.7.3.2, 4.7.2	C.1
4	Less than or equal to Operator – User Facing Time Operand	[1] 4.7.3.2, 4.7.2	C.2
5	Greater than or equal to Operator	[1] 4.7.3.2, 4.7.2	M
6	Greater than or equal to Operator – Sequence Number Operand	[1] 4.7.3.2, 4.7.2	M
7	Greater than or equal to Operator – User Facing Time Operand	[1] 4.7.3.2, 4.7.2	C.3
8	Within range of (inclusive) Operator	[1] 4.7.3.2, 4.7.2	O

Item	Capability	Reference	Status
9	Within range of (inclusive) Operator – Sequence Number Operand	[1] 4.7.3.2, 4.7.2	C.4
10	Within range of (inclusive) Operator – User Facing Time Operand	[1] 4.7.3.2, 4.7.2	C.5
11	First record Operator	[1] 4.7.3.2, 4.7.2	O
12	Last record Operator	[1] 4.7.3.2, 4.7.2	O

C.1: Mandatory IF GLP 12/2 “Less than or equal to Operator” is supported, otherwise Excluded.

C.2: Optional IF GLP 12/2 “Less than or equal to Operator” is supported, otherwise Excluded r.

C.3: Optional IF GLP 12/5 “Greater than or equal to Operator” is supported, otherwise Excluded.

C.4: Mandatory IF GLP 12/8 “Within range of (inclusive) Operator” is supported, otherwise Excluded.

C.5: Optional IF GLP 12/8 “Within range of (inclusive) Operator” is supported, otherwise Excluded.

1.6.4 Discover DIS and Related Characteristics – Collector Role

Table 13: Client Services Supported

Prerequisite: GLP 1/2 “Collector” AND GLP 7/2 “Device Information Service”

Item	Capability	Reference	Status
1	Discover Device Information Service	[1] 4.2.2	C.1
2	Manufacturer Name String Characteristic	[1] 3.2, 4.3.2, 4.8	O
3	Model Number String Characteristic	[1] 3.2, 4.3.2, 4.8	O
4	System ID Characteristic	[1] 3.2, 4.3.2, 4.8	O

C.1: Mandatory IF GLP 13/2 “Manufacturer Name String Characteristic” OR GLP 13/3 “Model Number String Characteristic” OR GLP 13/4 “System ID Characteristic” is supported, otherwise Optional.

1.6.5 GATT Requirements – Collector Role

Table 14: GATT Requirements – Collector Role

Prerequisite: GLP 1/2 “Collector”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Generic Attribute Profile (GATT) Client	[1] 2.1	M	[4] GATT 1/1
2	Attribute Protocol Supported over LE	[1] 2.5	M	[4] GATT 2/2
3	Discover All Primary Services	[1] 4.2	C.1	[4] GATT 3/2
4	Discover Primary Services by Service UUID	[1] 4.2	C.1	[4] GATT 3/3
5	Discover All Characteristics of a Service	[1] 4.3.1, 4.3.2	C.2	[4] GATT 3/5
6	Discover Characteristics by UUID	[1] 4.3.1, 4.3.2	C.2	[4] GATT 3/6
7	Discover All Characteristic Descriptors	[1] 4.3.1	M	[4] GATT 3/7
8	Notifications	[1] 4.5	M	[4] GATT 3/17
9	Write Characteristic Value	[1] 4.5	M	[4] GATT 3/14

Item	Capability	Reference	Status	Inter-Layer Dependency
10	LE Authentication Procedure	[1] 5.2, 6.2	M	[4] GATT 7/4
11	Read Characteristic Descriptors	[1] 4.1	M	[4] GATT 3/19
12	Write Characteristic Descriptors	[1] 4.1	M	[4] GATT 3/21

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

C.2: Mandatory to support at least one of GLP 14/5 “Discover All Characteristics of a Service” OR GLP 14/6 “Discover Characteristics by UUID”.

1.6.6 GAP Requirements – Collector Role

Table 15: GAP Requirements – Collector Role

Prerequisite: GLP 1/2 “Collector”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Central	[1] 2.4	M	[5] GAP 5/4 or GAP 38/4
2	LE security mode 1	[1] 6.2	M	[5] GAP 35/1

1.6.7 SM Requirements – Collector Role

Table 16: SM Requirements – Collector Role

Prerequisite: GLP 1/2 “Collector”

Item	Capability	Reference	Status	Inter-Layer Dependency
1	Unauthenticated no MITM protection	[1] 6.2	M	[6] SM 2/2
2	Authenticated MITM protection	[1] 6.2	M	[6] SM 2/1

2 References

- [1] Glucose Profile Specification, Version 1.0 or later
- [2] ICS Proforma for Glucose Service
- [3] ICS Proforma for Device Information Service 1.1
- [4] ICS Proforma for Generic Attribute Profile (GATT)
- [5] ICS Proforma for Generic Access Profile (GAP)
- [6] ICS Proforma for Security Manager (SM)
- [7] Glucose Profile Specification, Version 1.0.1

3 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
	D0.9.0	2011-11-18	First draft based on Blood Pressure Profile ICS. Incorporated feedback from Ray.
	D0.9.1	2011-11-20	Submitted for WG review. Removed mandatory fields from Table 9.
	D0.9.2	2011-12-14	Submitted for WG and BTI review. Incorporated changes from BTI.
	D1.0.0	2012-01-06	Updated based on feedback from BTI.
	D1.0.1	2012-02-23	Accepted all changes. Incorporated feedback from MED WG review. Resubmitted for BTI review.
	D1.0.2	2012-02-23	Accepted all changes. Resubmitted for BTI review.
	D1.0.3	2012-03-23	BTI approved. Accepted all changes, updated revision.
0	1.0.0	2012-04-03	Adopted by the Bluetooth SIG Board of Directors
	1.0.1r00	2015-05-10	Added functioning references throughout document. Updated conditional language to current conventions. TSE 6282: Added item 8 to table 3 for Single Bond.
1	1.0.1	2015-07-14	Prepared for TCRL 2015-1 publication
	1.0.2r00	2016-10-04	TSE 7516: Added Table 0. Added reference to "GAP 27/6" in GLP.ICS 5/3. Editorial changes to conditionals in Tables 10 – 12. Editorial changes to References.
2	1.0.2	2016-12-13	Approved by BTI. Prepared for TCRL 2016-2 publication.
	p3r00–r06	2021-03-10 – 2021-12-21	<p>TSE 16856 (rating 4): Updated ICS conditionals in Table 0 for GLP v1.0. Addition of new ICS item 0a/1 for CGMP v1.0.1 and new conditionals in Table 0a. Added new ICS items 6a and 9/17 and table (Table 9a) for E16276 - proper handling of changing supported features by characteristic indication. Added a reference for Glucose Profile Specification v1.0.1.</p> <p>TSE 18150 (rating 3): Added ILDs to Table 3 and aligned to the GAP ICS. Added new ICS items 4a - Random Target Address (C.3) (ILD = GAP 20a/13), and 4b - Target Address in AD or Scan Response (C.1) (No ILD). Changed the conditional of item 4 "Public Target Address" to C.3 and ILD = GAP 20a/12. Added C.3 - Mandatory to support either GLP 3/4 "Public Target Address" OR GLP 3/4a "Random Target Address" IF GLP 4b "Target Address in AD or Scan Response" is supported, otherwise not defined. Removed ICS items 3/5 and 3/6.</p> <p>TSE 18151 (rating 1): Corrected the description of item 9/10 from "Abort Procedure" to "Abort Operation" to correspond with the opcodes in Table 4.4.</p>

Publication Number	Revision Number	Date	Comments
			Editorials, including updating the ICS to the latest template, making consistency checker fixes, and aligning the copyright data with v2 of the DNMD.
3	p3	2022-01-25	Approved by BTI on 2022-01-06. Prepared for TCRL 2021-2 publication.

Acknowledgments

Name	Company
Jörg Brakensiek	Bluetooth SIG, Inc.
Ismail Mohamud	Bluetooth SIG, Inc.
Alicia Courtney	Broadcom
Laurence Richardson	CSR
Robert D. Hughes	Intel
Ray Strickland	Roche Diagnostics