

Device Identification Profile (DID)

Bluetooth® Test Suite

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1 Scope

This Bluetooth document contains the Test Suite Structure (TSS) and test cases to test the implementation of the Bluetooth Device Identification Profile Specification with the objective to provide a high probability of air interface interoperability between the tested implementation and other manufacturers' Bluetooth devices.

2 References, definitions, and abbreviations

2.1 References

This document incorporates provisions from other publications by dated or undated reference. These references are cited at the appropriate places in the text, and the publications are listed hereinafter. Additional definitions and abbreviations can be found in [1] and [3].

- [1] Bluetooth Core Specification, Version 2.0 or later
- [2] Device Identification Profile Specification, Version 1.2 or later
- [3] Test Strategy and Terminology Overview
- [4] ICS Proforma for Device Identification Profile
- [5] Service Discovery Protocol (SDP), SDP.TS

2.2 Definitions

In this Bluetooth document, the definitions from [1] and [3] apply.

2.3 Acronyms and abbreviations

In this Bluetooth document, the definitions, acronyms, and abbreviations from [1] and [3] apply.

3 Test Suite Structure (TSS)

3.1 Overview

The DID profile defines how device identification (DID) information may be exported by devices in a standardized way, and in the Bluetooth SDP [1] framework. The DID Profile defines a SDP record, called DID Service record which enables devices to properly identify other devices that come into range with Bluetooth wireless technology.

There are no roles define for this profile. Conformance to the DID profile is wholly accomplished by implementation of a valid DID Service Record.

The DID profile is dependent on and is an extension of the behaviors defined by the Service Discovery Profile, as shown in [Figure 3.1](#).

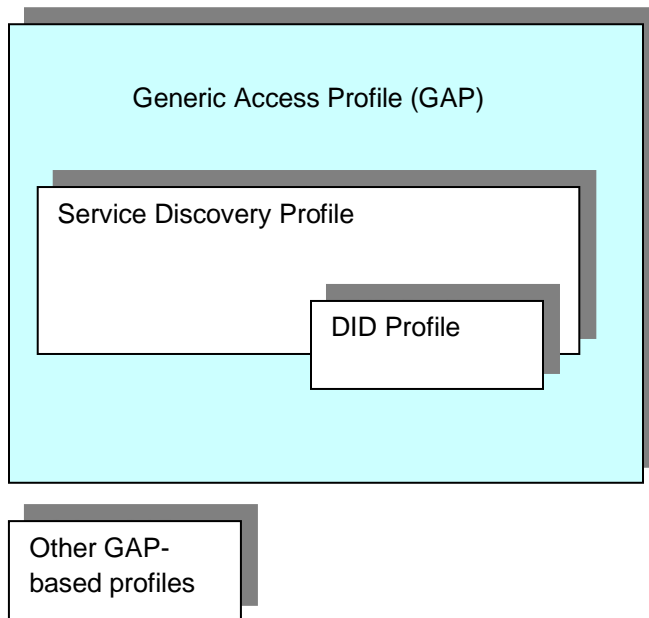


Figure 3.1: Relationship of DID Profile to SDP

3.2 Test Strategy

The test objectives are to verify the functionality of the DID profile within a Bluetooth Host and enable interoperability between Bluetooth Hosts on different devices. The testing approach covers mandatory and optional requirements in the specification and matches these to the support of the IUT as described in the ICS. Any defined test herein is applicable to the IUT if the ICS logical expression defined in the Test Case Mapping Table (TCMT) evaluates to true.

The test equipment provides an implementation of the Radio Controller and the parts of the Host needed to perform the test cases defined in this Test Suite. A Lower Tester acts as the IUT's peer device and interacts with the IUT over-the-air interface. The configuration, including the IUT, needs to implement similar capabilities to communicate with the test equipment. For some test cases, it is necessary to stimulate the IUT from an Upper Tester. In practice, this could be implemented as a special test interface, a Man Machine Interface (MMI), or another interface supported by the IUT.

This Test Suite contains Valid Behavior (BV) tests complemented with Invalid Behavior (BI) tests where required. The test coverage mirrored in the Test Suite Structure is the result of a process that started with catalogued specification requirements that were logically grouped and assessed for testability enabling coverage in defined test purposes.

3.3 Test groups

The following test groups have been defined:

- Generic SDP Integrated Tests

4 Test cases (TC)

4.1 Introduction

4.1.1 Test case identification conventions

Test cases are assigned unique identifiers per the conventions in [3]. The convention used here is: **<spec abbreviation>/<IUT role>/<class>/<feat>/<func>/<subfunc>/<cap>/<xx>-<nn>-<y>**.

Additionally, testing of this specification includes tests from the SDP Test Suite [5] referred to as Generic SDP Integrated Tests (GSIT); when used, the test cases in GSIT are referred to through a TCID string using the following convention:

<spec abbreviation>/<IUT role>/<GSIT test group>/< GSIT class >/<xx>-<nn>-<y>.

Identifier Abbreviation	Spec Identifier <spec abbreviation>
DID	Device Identification Profile
Identifier Abbreviation	Role Identifier <IUT role>
SR	Device Identification Server
Identifier Abbreviation	Reference Identifier <GSIT test group>
SGSIT	Server Generic SDP Integrated Tests
Identifier Abbreviation	Reference Identifier <GSIT class>
ATTR	Attribute
OFFS	Attribute ID Offset String
SERR	Service Record

Table 4.1: DID TC feature naming conventions

4.1.2 Conformance

When conformance is claimed for a particular specification, all capabilities are to be supported in the specified manner. The mandated tests from this Test Suite depend on the capabilities to which conformance is claimed.

The Bluetooth Qualification Program may employ tests to verify implementation robustness. The level of implementation robustness that is verified varies from one specification to another and may be revised for cause based on interoperability issues found in the market.

Such tests may verify:

- That claimed capabilities may be used in any order and any number of repetitions not excluded by the specification
- That capabilities enabled by the implementations are sustained over durations expected by the use case
- That the implementation gracefully handles any quantity of data expected by the use case
- That in cases where more than one valid interpretation of the specification exists, the implementation complies with at least one interpretation and gracefully handles other interpretations
- That the implementation is immune to attempted security exploits

A single execution of each of the required tests is required to constitute a Pass verdict. However, it is noted that to provide a foundation for interoperability, it is necessary that a qualified implementation consistently and repeatedly pass any of the applicable tests.

In any case, where a member finds an issue with the test plan generated by the Bluetooth SIG qualification tool, with the test case as described in the Test Suite, or with the test system utilized, the member is required to notify the responsible party via an erratum request such that the issue may be addressed.

4.1.3 Pass/Fail verdict conventions

Each test case has an Expected Outcome section. The IUT is granted the Pass verdict when all the detailed pass criteria conditions within the Expected Outcome section are met.

The convention in this Test Suite is that, unless there is a specific set of fail conditions outlined in the test case, the IUT fails the test case as soon as one of the pass criteria conditions cannot be met. If this occurs, then the outcome of the test is a Fail verdict.

4.2 Generic SDP Integrated Tests

Execute the Generic SDP Integrated Tests defined in Section 6.3, Server test procedures (SGSIT), in [5] using Table 4.2 below as input:

TCID	Reference	Attribute ID name	Attribute ID definition source (Universal, Profile)	Value/secondary value	Attribute presence (Present/Present for [role], Optionally present, TCMT defined)
DID/SR/SGSIT/SERR/BV-01-C [Service record GSIT – Device ID]	[2] 4	ServiceClassIDList	Universal	“PnPInformation” (UUID)	Present
DID/SR/SGSIT/ATTR/BV-01-C [Attribute GSIT – SpecificationID]	[2] 5.1	SpecificationID	Profile	skip (UInt16)	Present
DID/SR/SGSIT/ATTR/BV-02-C [Attribute GSIT – VendorID]	[2] 5.2	VendorID	Profile	skip (UInt16)	Present
DID/SR/SGSIT/ATTR/BV-03-C [Attribute GSIT – ProductID]	[2] 5.3	ProductID	Profile	skip (UInt16)	Present
DID/SR/SGSIT/ATTR/BV-04-C [Attribute GSIT – Version]	[2] 5.4	Version	Profile	skip (UInt16)	Present
DID/SR/SGSIT/ATTR/BV-05-C [Attribute GSIT – PrimaryRecord]	[2] 5.5	PrimaryRecord	Profile	skip (Boolean)	Present
DID/SR/SGSIT/ATTR/BV-06-C [Attribute GSIT – VendorIDSource]	[2] 5.6	VendorIDSource	Profile	skip (UInt16)	Present
DID/SR/SGSIT/ATTR/BV-07-C [Attribute GSIT – ClientExecutableURL]	[2] 5.11	ClientExecutableURL	Universal	skip (URL)	TCMT defined
DID/SR/SGSIT/ATTR/BV-08-C [Attribute GSIT – DocumentationURL]	[2] 5.11	DocumentationURL	Universal	skip (URL)	TCMT defined

Table 4.2: Input for the SGSIT SDP test procedure



4.2.1 Device Identification Profile – Attribute ID Offset String tests

Execute the Generic SDP Integrated Tests defined in Section 6.3, Server test procedures (SGSIT), in [5] using Table 4.3 below as input:

TCID	Reference	ServiceSearchPattern	Attribute ID name	Attribute ID Offset	Attribute presence (Present/Present for [role], Optionally present, TCMT defined)
DID/SR/SGSIT/OFFS/BV-01-C [Attribute ID Offset String GSIT – Service Description]	[2] 5.11	PnPInformation	ServiceDescription	0x0001	TCMT defined

Table 4.3: Input for the Device Identification Profile SGSIT Attribute ID Offset String tests



5 Test case mapping

The Test Case Mapping Table (TCMT) maps test cases to specific requirements in the ICS. The IUT is tested in all roles for which support is declared in the ICS document.

The columns for the TCMT are defined as follows:

Item: Contains a logical expression based on specific entries from the associated ICS document. Contains a logical expression (using the operators AND, OR, NOT as needed) based on specific entries from the applicable ICS document(s). The entries are in the form of y/x references, where y corresponds to the table number and x corresponds to the feature number as defined in the ICS document for Device Identification Profile [4].

Feature: A brief, informal description of the feature being tested.

Test Case(s): The applicable test case identifiers are required for Bluetooth Qualification if the corresponding y/x references defined in the Item column are supported. Further details about the function of the TCMT are elaborated in [3].

For the purpose and structure of the ICS/IXIT, refer to [3].

Item	Feature	Test Case(s)
DID 1/11	Device ID Service record	DID/SR/SGSIT/SERR/BV-01-C
DID 1/1	SDP Server Requirements – Specification ID	DID/SR/SGSIT/ATTR/BV-01-C
DID 1/2	SDP Server Requirements – Vendor ID	DID/SR/SGSIT/ATTR/BV-02-C
DID 1/3	SDP Server Requirements – Product ID	DID/SR/SGSIT/ATTR/BV-03-C
DID 1/4	SDP Server Requirements – Version	DID/SR/SGSIT/ATTR/BV-04-C
DID 1/5	SDP Server Requirements – Primary Record	DID/SR/SGSIT/ATTR/BV-05-C
DID 1/6	SDP Server Requirements – Vendor Information Source	DID/SR/SGSIT/ATTR/BV-06-C
DID 1/7	SDP Server Requirements – Client Executable URL	DID/SR/SGSIT/ATTR/BV-07-C
DID 1/8	SDP Server Requirements – Service Description	DID/SR/SGSIT/OFFS/BV-01-C
DID 1/9	SDP Server Requirements – Documentation URL	DID/SR/SGSIT/ATTR/BV-08-C

Table 5.1: Test case mapping

6 Revision history and acknowledgments

Revision History

Publication Number	Revision Number	Date	Comments
0	0.9	2004/08/20	Initial release
	0.9r01	2004/10/11	Added text to Expected outcome section for Vendor ID Test
	0.9r02	2004/11/03	Added Test for SpecificationID attribute
	0.9r03	2004/11/08	Editorial changes
	0.9r04	2005/01/27	Editorial changes, Added appendix B – test Case Mapping table
	D12_r00	2005/04/19	Editorial changes
	1.0.1r0	2005/05/05	Editorial changes
	1.2.1r0	2005/05/13	Change to numbering to reflect v1.2 related specification level
	1.2.1r1	2005/05/16	Magnus S: Changes to harmonize TS with SIG standards
	1.2.1r2	2005/06/28	Removed Invalid Behavior paragraph; applied new Test Spec template
	1.2.1r3	2005/07/26	Editorial pass; changed header and footer
	1.2.1r4	2005/08/22	Edits by HID Chair
	1.2.1r5	2005/09/15	Added caption to figure in Appendix A; Removed Uncertainties heading. Moved Uncertainties content to Notes section. Change to numbering to reflect v1.0 related specification level
	1.2.1r6	2006/01/05	Editorial and technical updates
	1.2.1r7	2006/01/11	Formatting updates to title, TOC, footer, Sec 2.1, Sec. 2.2 Added –I to TP/SDI/BV-03 in Appx A Removed 2 nd sentence in Appx B.
1	1.2.1	2006/01/12	Prepare for publication.
	1.2.2r0	2008/09/01	TSE 2443: TP/SDI/BV-02-I
2	1.2.2	2008/12/02	Prepare for publication.
	1.3.3r0	2011/10/14	TSE 4183: TP/SDI/BV-04-I: Modify Pass verdict
3	1.3.3	2012/03/30	Prepare for publication.
	1.3.4r00	2016/10/10	Converted to new Test Case ID conventions as defined in TSTO v4.1.
	1.3.4r01	2016/11/02	Converted to current template. Moved Annex A to Section 3.3.3 Annex B is now Section 5 TCMT. Renamed DI to DID in most instances.
	1.3.4r01	2016-11-08	Adjusted “Device” to IUT and “Host” to Lower Tester in TCs according to the TSTO conventions

Publication Number	Revision Number	Date	Comments
4	1.3.4	2016-12-13	Approved by BTI. Prepared for TCRL 2016-2 publication.
	1.3.5r00	2017-01-30	TSE 8442: Remove reference to the IXIT.
	1.3.5r01	2017-05-04	Added 2 rows to TC ID Convention table for “Role Identifier” and “Feature Identifier.”
5	1.3.5	2017-07-03	Approved by BTI. Prepared for TCRL 2017-1 publication.
	p6r00–r06	2023-11-22 – 2024-04-29	<p>TSE 24503 (rating 4): Added a new GSIT section with new TCs DID/SR/SGSIT/SERR/BV-01-C, DID/SR/SGSIT/ATTR/BV-01-C – -08-C, and DID/SR/SGSIT/OFFS/BV-01-C. Deleted TCID DID/SR/SDI/BV-01-I – -04-I. Updated the TCMT accordingly. Added a reference to the SDP TS, added GSIT to the Test Groups section, and updated the TCID Conventions section.</p> <p>Performed template-related formatting fixes, including moving the revision history to the end of the document and updating the title page, scope, references, TCID conventions, Conformance, Pass/Fail verdict conventions, TCMT introduction and table, and Acknowledgments. Added a Publication Number column to the Revision History table and revised the document numbering convention, setting the last released publication of v1.3.5 as p5. Replaced Bluetooth logo in footer and updated the copyright page to align with the latest version of the DNMD.</p>
6	p6	2024-07-01	Approved by BTI on 2024-05-22. Prepared for TCRL 2024-1 publication.

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