Car Connectivity Consortium

MirrorLink®

UPnP Client Profile Service Test Specification

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1 VERSION HISTORY

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1 TABLE OF CONTENTS

30

31

1 TERMS AND ABBREVIATIONS

2   UPnP   Universal Plug and Play

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4   MirrorLink is a trademark of the Car Connectivity Consortium LLC.

5   Bluetooth is a registered trademark of Bluetooth SIG Inc.

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1 ABOUT

This document specifies all MirrorLink protocol conformance test cases for the UPnP Client Profile service [2].

The specification lists a series of requirements, either explicitly or within the text, which are mandatory elements for a compliant solutions. Recommendations are given, to ensure optimal usage and to provide suitable performance. All recommendations are optional.

The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", and "OPTIONAL" in this document are following the notation as described in RFC 2119 [1].

1. MUST: This word, or the terms "REQUIRED" or "SHALL", mean that the definition is an absolute requirement of the specification.

2. MUST NOT: This phrase, or the phrase "SHALL NOT", mean that the definition is an absolute prohibition of the specification.

3. SHOULD: This word, or the adjective "RECOMMENDED", mean that there may exist valid reasons in particular circumstances to ignore a particular item, but the full implications must be understood and carefully weighed before choosing a different course.

4. SHOULD NOT: This phrase, or the phrase "NOT RECOMMENDED" mean that there may exist valid reasons in particular circumstances when the particular behavior is acceptable or even useful, but the full implications should be understood and the case carefully weighed before implementing any behavior described with this label.

5. MAY: This word, or the adjective "OPTIONAL", means that an item is truly optional. One vendor may choose to include the item because a particular marketplace requires it or because the vendor feels that it enhances the product while another vendor may omit the same item. An implementation which does not include a particular option MUST be prepared to interoperate with another implementation which does include the option, though perhaps with reduced functionality. In the same vein an implementation which does include a particular option MUST be prepared to interoperate with another implementation which does not include the option (except, of course, for the feature the option provides.)

2 DEFINITIONS

2.1 Execution of Test Cases

Every test case is uniquely identified by an identifier.

- A MirrorLink server MUST pass all test cases, starting with SR.
- A MirrorLink client MUST pass all test cases, starting with CL

Every test case description includes an entry, whether the test cases is considered mandatory or not.

- Test cases marked as MANDATORY, MUST be executed.
- Test cases marked as CONDITIONAL, MUST be executed if the given condition is met.
- Test cases marked as CONDITIONAL, MUST NOT be executed if the given condition is not met.
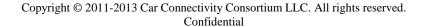- Test cases marked as NONE, MUST NOT be executed

2.2 Server Definitions

None

2.3 Client Definitions

None

3 SERVER FEATURE TEST CASES

3.1 Client Profile Actions

3.1.1 *SR/UPNP/PROFILE/GetMaxNumProfiles*

Requirement: MANDATORY

Condition: None

The test requests the number of profiles from the TmClientProfile:1 service by invoking the 'GetMaxNumProfiles' action.

Step	Name	Description	Expected Result
1	UPnP Server Connect	See definitions in [3]	
2	UPnP Action GetMaxNum Profiles	Invoke UPnP Get Max Num Profiles action.	• Valid response • No error response • Returned value is unsigned integer
3	UPnP Server Disconnect	See definitions in [3]	

Table 1: UPnP Action GetMaxNumProfiles – Test Steps

3.1.2 *SR/UPNP/PROFILE/SetClientProfile*

Requirement: MANDATORY

Condition: None

After invoking the 'SetClientProfile' action of the TmClientPro-file:1 service with an empty client profile, the test checks if the re-turned client profile contains a 'clientID'.

Step	Name	Description	Expected Result
1	UPnP Server Connect	See definitions in [3]	
2	UPnP Action GetMaxNum Profiles	Invoke UPnP Get Max Num Profiles action.	• Valid response • No error response • Returned value is unsigned integer
3	UPnP Action SetClientProfile	Invoke UPnP Set Client Profile action for all allowed profile IDs with only clientID set. The test checks if the returned client profile contains a 'clientID'	• Response with valid client profile • Correct clientID
4	UPnP Server Disconnect	See definitions in [3]	

Table 2: UPnP Action SetClientProfile – Test Steps

3.1.3 *SR/UPNP/PROFILE/GetClientProfile*

Requirement: MANDATORY

1   Condition: None

2   The test requests the a client profile from the TmClientProfile:1 service by invoking the 'GetClientProfile'
3   action.

Step	Name	Description	Expected Result
1	UPnP Connect	See definitions	
2	UPnP Action GetMaxNum Profiles	Invoke UPnP Get Max Num Profiles action.	• Valid response • No error response • Returned value is unsigned integer
3	UPnP Action SetClientProfile	Invoke UPnP Set Client Profile action for all allowed profile IDs with only clientID set.	• Response with valid client profile • Correct clientID
4	UPnP Action GetClientProfile	Invoke UPnP Set Client Profile action for all allowed profile IDs	• Response with valide client profile • Profile identical to previously received valu
5	UPnP Server Disconnect	See definitions in [3]	

4   Table 3: UPnP Action GetClientProfile – Test Steps

1 ## **3.2 Client Profile Events**

2 ### *3.2.1 SR/UPNP/PROFILE/UnusedProfileIDsSubscribe*

3 Requirement: MANDATORY

4 Condition: None

5 Subscribe for the evented variable. Set the client profile for TmClientProfile:1 to change the list of unused
6 profile id's. Checking if the list is comma separated, whether all list items are unsigned integers and unique
7 within the list.

Step	Name	Description	Expected Result
1	UPnP Server Con-nect	See definitions in [3]	
2	Subscribe to Unused Pro-file IDs event	Subscribe to the Unused Profile IDs event	• Receive initial event • All items are unsigned integers • All items are unique within the list • At list one element in the list
3	UPnP Server Dis-connect	See definitions in [3]	

8   Table 4: UPnP Event UnusedProfileIDs – Test Steps

9 ### *3.2.2 SR/UPNP/PROFILE/ UnusedProfileIDsEvent*

10 Requirement: MANDATORY

11 Condition: None

12 Test the App Status Update event by launching or terminating any VNC based application and wait for an
13 incoming event.

Step	Name	Description	Expected Result
1	UPnP Server Con-nect	See definitions in [3]	
2	Subscribe to Unused Pro-file IDs event	Subscribe to the Unused Profile IDs event	• Receive initial event • All items are unsigned integer • All items are unique within the list • At least one element in the list
3	UPnP Action SetCli-entProfile	Invoke UPnP Set Client Profile action for a profile ID, which is marked as unused. Set some values.	• Response with valid client pro-file
4	Unused Pro-file IDs event	No further action	• Receive update event • All items are unsigned integer • All items are unique within the list • Set profile ID is missing from the list
5	UPnP Server Dis-connect	See definitions in [3]	

1   Table 5: UPnP Event AppStatusUpdate – Test Steps

2 ## 3.3 PICS Validation

3 The PICS validation test cases will independently detect the existence of MirrorLink features in the DUT. All
4 features, which are detectable, could in practice be used from a connected MirrorLink device, and are there-
5 fore subject to validation in the certification program through other test cases. Hence the objective of the
6 PICS validation test cases is not to assess whether the feature is implemented correctly, but to collect sup-
7 ported features from the DUT and to check this against the entries made in the PICS document.

8 A feature, which is detected, but marked as "not implemented" in the PICS document will fail the test
9 case. A feature, which is not detected, but marked as "implemented" in the PICS document, will fail the
10 test case.

11 ### 3.3.1 SR/UPNP/PROFILE/PICS/ServiceXml

12 Requirement: MANDATORY

13 Condition: None

14 This test case validates the PICS entries with respect to the Client Profile Service XML settings.

Step	Name	Description	Expected Result
1	UPnP Server Connect	See Definitions	
2	Check PICS feature	FEAT_SERVER_UPNP_UnusedProfileIDs	• UnusedProfileIDs listed as evented variable in Client Profile Service description.
3	Check PICS feature	FEAT_SERVER_UPnP_GetMaxNumProfiles	• GetMaxNumProfiles listed as action in Client Profile Service description.
4	Check PICS feature	FEAT_SERVER_UPnP_SetClientProfile	• SetClientProfile listed as action in Client Profile Service description.
5	Check PICS feature	FEAT_SERVER_UPnP_GetClientProfile	• GetClientProfile listed as action in Client Profile Service description.

15   Table 6: MirrorLink Server Client Profile Service XML settings PICS Checkup

4 CLIENT FEATURE TEST CASES

4.1 Client Profile Actions

4.1.1 CL/UPPP/PROFILE/GetMaxNumProfiles

Requirement: CONDITIONAL

Condition: Client supports Client Profile Service AND

                Client supports Get Max Num Profiles action

This test checks if the client sent a GetMaxNumProfiles request

Step	Name	Description	Expected Result
1	UPnP Control Point Connect	See definitions in [3]	
2	UPnP Action Get Max Num Profiles	User is asked to execute the know steps to trigger a Get Max Num Profiles action.	• Receive valid action

Table 7: UPnP Action GetMaxNumProfiles – Test Steps

4.1.2 CL/UPPP/PROFILE/GetClientProfile

Requirement: CONDITIONAL

Condition: Client supports Client Profile Service AND

                Client supports Get Client Profile action

This test checks if the client sends a GetClientProfile request.

Step	Name	Description
1	UPnP Control Point Connect	See definitions in [3]
2	UPnP Action Get Client Profile	User is asked to execute the know steps to trigger a Get Client Profile action.

Table 8: UPnP Action GetClientProfile – Test Steps

4.1.3 CL/UPPP/PROFILE/SetClientProfile

Requirement: CONDITIONAL

1   Condition: Client supports Client Profile Service AND

2   Client supports Set Client Profile action

3   This test checks if the client sends a SetClientProfile request.

Step	Name	Description	Expected Result
1	UPnP Control Point Connect	See definitions in [3]	
2	UPnP Action Set Client Profile	User is asked to execute the know steps to trigger a set Client Profile action.	• Receive valid action

4   Table 9: UPnP Action SetClientProfile – Test Steps

5   4.2 Client Profile Events

6   4.2.1 CL/UPNP/APP/UnusedProfileIDsSubscribe

7   Requirement: CONDITIONAL

8   Condition: Client supports Client Profile Service AND

9   Client support UPnP Unused Profile IDs event

10   Test if the UPnP Control Point subscribes to the evented variable.

Step	Name	Description	Expected Result
1	UPnP Control Point Connect	See definitions in [3]	
2	Subscribe to Unused Profile IDs event	User is asked to execute known steps to start eventing	• Receive event subscription for Unused Profile IDs

11   Table 10: UPnP Event Unused Profile IDs – Test Steps

5 REFERENCES

[1] IETF, RFC 2119, Keys words for use in RFCs to Indicate Requirement Levels, March 1997.
http://www.ietf.org/rfc/rfc2119.txt

[2] Car Connectivity Consortium, "MirrorLink – UPnP Client Profile Service", Version 1.1; CCC-TS-026

[3] Car Connectivity Consortium, "MirrorLink – UPnP Server Device Test Specification", Version 1.1; CCC-TS-031