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Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 10: UPnP Client Profile Service

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Intelligent Transport Systems (ITS).

The present document is part 10 of a multi-part deliverable. Full details of the entire series can be found in part 1 [i.1].

Modal verbs terminology

In the present document "**shall**", "**shall not**", "**should**", "**should not**", "**may**", "**need not**", "**will**", "**will not**", "**can**" and "**cannot**" are to be interpreted as described in clause 3.2 of the [ETSI Drafting Rules](#) (Verbal forms for the expression of provisions).

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1 Scope

The present document is part of the MirrorLink® specification which specifies an interface for enabling remote user interaction of a mobile device via another device. The present document is written having a vehicle head-unit to interact with the mobile device in mind, but it will similarly apply for other devices, which provide a color display, audio input/output and user input mechanisms.

The *TmClientProfile* service is a UPnP service that allows control points to register client profiles with the MirrorLink Server device and notifies it regarding MirrorLink Client preferences, settings and capabilities, which is used for governing the interaction between the MirrorLink Server and the Client.

2 References

2.1 Normative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

Referenced documents which are not found to be publicly available in the expected location might be found at <https://docbox.etsi.org/Reference>.

NOTE: While any hyperlinks included in this clause were valid at the time of publication, ETSI cannot guarantee their long-term validity.

The following referenced documents are necessary for the application of the present document.

[1] UPnP™ Forum: "UPnP™ Device Architecture 1.1", 15 October 2008.

NOTE: Available at <http://upnp.org/specs/arch/UPnP-arch-DeviceArchitecture-v1.1.pdf>.

[2] ETSI TS 103 544-2 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 2: Virtual Network Computing (VNC) based Display and Control".

[3] ETSI TS 103 544-3 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 3: Audio".

[4] ETSI TS 103 544-26 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 26: Consumer Experience Principles and Basic Features".

[5] W3C Recommendation 11 April 2013: "XML Signature Syntax and Processing Version 1.1".

NOTE: Available at <http://www.w3.org/TR/xmlsig-core/>.

[6] Unicode Consortium: "Unicode 12.1 Character Code Charts".

NOTE: Available at <http://www.unicode.org/charts/>.

[7] ETSI TS 103 544-4 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 4: Device Attestation Protocol (DAP)".

[8] IETF RFC 5280: "Internet X.509 Public Key Infrastructure Certificate", May 2008.

NOTE: Available at <http://tools.ietf.org/html/rfc5280>.

2.2 Informative references

References are either specific (identified by date of publication and/or edition number or version number) or non-specific. For specific references, only the cited version applies. For non-specific references, the latest version of the referenced document (including any amendments) applies.

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The following referenced documents are not necessary for the application of the present document but they assist the user with regard to a particular subject area.

- [i.1] ETSI TS 103 544-1 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 1: Connectivity".

3 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 Abbreviations

Void.

4 Service Modeling Definitions

4.1 Service Type

The following service type identifies a service that is compliant with the present document:

urn:schemas-upnp-org:service:TmClientProfile:1.

TmClientProfile service is used herein to refer to this service type. The *TmClientProfile* service shall follow defined UPnP behaviour within the UPnP Device Architecture 1.1 [1].

4.2 State Variables

4.2.1 State Variable Overview

Table 4-1: Service State Variables

Variable Name	Req. or Opt.	Data Type	Allowed Value	Default Value	Eng. Units
UnusedProfileIDs	R	string	Undefined	Empty string	N/A
A_ARG_TYPE_ClientProfile	R	string	Undefined	Empty string	N/A
A_ARG_TYPE_ProfileID	R	ui4	Undefined	0	N/A
A_ARG_TYPE_String	R	string	Undefined	Empty string	N/A

Variable Name	Req. or Opt.	Data Type	Allowed Value	Default Value	Eng. Units
A_ARG_TYPE_INT	R	integer	Undefined	0	N/A
A_ARG_TYPE_Bool	R	string	true false	false	N/A
MaxNumProfiles	R	ui2	Undefined	1	N/A
R = REQUIRED. O = OPTIONAL. X = Non-standard.					

4.2.2 UnusedProfileIDs

A string formatted as UTF-8 which consists of a comma separated list of *profileIDs* that are currently not being used by any MirrorLink service hosted on the device. Each entry in the list is of type *A_ARG_TYPE_ProfileID*.

This state variable is evented hence, any MirrorLink UPnP Control Point is notified using eventing mechanisms whenever the list of unused *profileIDs* changes.

Support for multiple Client Profiles reserved for future use, therefore only *profileID=0* shall be initially available.

4.2.3 A_ARG_TYPE_ClientProfile

A string formatted as UTF-8 XML represents identification and monitoring capability information of the MirrorLink Client. Its structure is given in Table 4-2.

Table 4-2: Structure of A_ARG_TYPE_ClientProfile

Element	Description	Parent	Availability
clientProfile	Profile Information about a MirrorLink Client	-	Mandatory
clientID	ID of the MirrorLink Client (A_ARG_TYPE_String)	clientProfile	Mandatory
friendlyName	Short user-friendly description of client (A_ARG_TYPE_String)	clientProfile	Optional
manufacturer	Manufacturer Name (A_ARG_TYPE_String)	clientProfile	Mandatory
modelName	Model Name (A_ARG_TYPE_String)	clientProfile	Optional
modelNumber	Model Number (A_ARG_TYPE_String)	clientProfile	Mandatory
iconPreference	Desired properties for icons delivered from the MirrorLink Server device	clientProfile	Optional
mimetype	Type of icon image (A_ARG_TYPE_String) Default: "image/png"	iconPreference	Optional
width	Width of icon (A_ARG_TYPE_INT) Default: "128"	iconPreference	Optional
height	Height of icon (A_ARG_TYPE_INT) Default: "128"	iconPreference	Optional
depth	Color depth of icon (A_ARG_TYPE_INT) Default: "24"	iconPreference	Optional
connectivity	Client Connectivity settings	clientProfile	Optional

Element	Description	Parent	Availability
bluetooth ⁺	Bluetooth settings	connectivity	Optional
bdAddr	Bluetooth MAC address (BD_ADDR). Indicates device support for Bluetooth on the MirrorLink Client. (A UTF-8 encoded string representing an unsigned 48-bit integer in hexadecimal format (without any "0x" prefix).)	bluetooth	Optional
startConnection	A_ARG_TYPE_Bool Bluetooth Connection will be initiated from MirrorLink Client Default: "true"	bluetooth	Optional
wifi	WiFi settings of the device	connectivity	Optional
macAddr	WiFi MAC address (A UTF-8 encoded string representing an unsigned 48-bit integer in hexadecimal format (without any "0x" prefix, and without any grouping using ":", ".", or "-"))	wifi	Mandatory
ssid	Service Set Identifier (SSID), Base64 encoded (A_ARG_TYPE_String)	wifi	Optional
roles	Comma separated list of supported roles. Allowed values are <ul style="list-style-type: none"> AP (Access Point role) Client (Client role) P2P (Infrastructure-less) (A_ARG_TYPE_String) Default: AP,Client,P2P	wifi	Optional
protectionList	List of WiFi access protection	wifi	Optional
protection*	Access protection	protectionList	Optional
protocol	Security protocol used to protect WiFi access. Allowed values are <ul style="list-style-type: none"> WEP WPA WPA2 WPS NOTE: WEP/WPA is listed for legacy reasons, and should not be used (A_ARG_TYPE_String)	protection	Mandatory
passkey	Passkey/Shared key, Base64 encoded Shall be left empty, if transmitted over an unprotected or shared transport channel (e.g. WiFi) (A_ARG_TYPE_String)	protection	Mandatory
rtpStreaming	RTP streaming parameters (optional in ≤ MirrorLink 1.2)	clientProfile	Mandatory
payloadType	Comma separated list of supported RTP payload types. (A_ARG_TYPE_String) Default: "99"	rtpStreaming	Optional
audioIPL	Audio Initial Playback Latency in reference to payload type 99. (A_ARG_TYPE_INT) Default: "4800"	rtpStreaming	Optional

Element	Description	Parent	Availability
audioMPL	Audio Maximum Playback Length in reference to payload type 99. (A_ARG_TYPE_INT) Default: "9600"	rtpStreaming	Optional
lssMax	Maximum Latency Switched Sources time as defined in [3]. Value is in ms. (A_ARG_TYPE_INT) (≥ MirrorLink 1.3)	rtpStreaming	Mandatory
lssAvg	Average Latency Switched Sources time as defined in [3]. Value is in ms. (A_ARG_TYPE_INT) (≥ MirrorLink 1.3)	rtpStreaming	Mandatory
contentRules	Application UI content rules Deprecated	clientProfile	Deprecated
rule*	User Interface property Deprecated	contentRules	Deprecated
ruleId	Rule identifier Deprecated (A_ARG_TYPE_INT)	rule	Deprecated
ruleValue	Specific value Deprecated (A_ARG_TYPE_String)	rule	Deprecated
services	Profile information on different services supported from the client	clientProfile	Optional
notification	Configuration of the UPnP TmNotificationService	services	Optional
notiUiSupport	Support for native notification UI (A_ARG_TYPE_Boolean) Default: "false"	notification	Optional
maxActions	Maximum number of actions Shall be equal or greater than 2. MirrorLink Client should support at least 2 actions. (A_ARG_TYPE_INT) Default: "2"	notification	Optional
actionName MaxLength	Maximum supported length of the action name Shall be equal or greater than 10. (A_ARG_TYPE_INT) Default: "10"	notification	Optional
notiTitle MaxLength	Maximum supported length of the notification title. Shall be equal or greater than 20. (A_ARG_TYPE_INT) Default: "20"	notification	Optional
notiBody MaxLength	Maximum supported length of the notification body. Shall be equal or greater than 80. (A_ARG_TYPE_INT) Default: "80"	notification	Optional
mirrorLink Version	MirrorLink Client version	clientProfile	Mandatory

Element	Description	Parent	Availability
majorVersion	Major Version A_ARG_TYPE_INT	mirrorLink Version	Mandatory
minorVersion	MinorVersion A_ARG_TYPE_INT	mirrorLink Version	Mandatory
presentations	Presentation protocols supported from the MirrorLink Client. (≥ MirrorLink 1.2; optional in MirrorLink 1.2)	clientProfile	Mandatory
presentation	Comma-separated list of presentation protocols supported from the MirrorLink Client. <ul style="list-style-type: none"> • hsm1 • wfd • vncu • vncw (A_ARG_TYPE_String) Default: "vncu"	presentations	Mandatory
misc	Miscellaneous information (≥ MirrorLink 1.2; optional in MirrorLink 1.2)	clientProfile	Mandatory
driverDistractionSupport	Boolean flag, which Indicates whether MirrorLink Client supports driver distraction regulation. (A_ARG_TYPE_Bool) Default: "true"	misc	Mandatory
mUiMode	Supported MirrorLink modes from the MirrorLink Client. (≥ MirrorLink 1.3)	misc	Mandatory
mode*	Supported MirrorLink mode. Allowed values are: <ul style="list-style-type: none"> • immersive • classic (A_ARG_TYPE_String)	mUiMode	Mandatory
mUiControl	Supported UI control mechanisms from the MirrorLink Client. (≥ MirrorLink 1.3)	misc	Mandatory
control*	Supported UI control mechanisms. Allowed values are: <ul style="list-style-type: none"> • pointer • touch • knob • vc_bt_hfp • vc_rtp • ptt (A_ARG_TYPE_String)	mUiControl	Mandatory
serverInfo	Server status information presented from the MirrorLink Client. (≥ MirrorLink 1.3)	misc	Mandatory
info*	Server status information shown from MirrorLink Client. Allowed values are: <ul style="list-style-type: none"> • battery • time • operator • signalStrength • none (A_ARG_TYPE_String)	serverInfo	Mandatory