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Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 19: Network Information Data 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 19 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 present document specifies Network Information Data Service based on SBP (Service Binary Protocol) framework [1]. The service is used to provide network capabilities and status information of Access Point to 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.

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

[1] ETSI TS 103 544-6 (V1.3.0): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 6: Service Binary Protocol (SBP)".

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 (V1.3.0): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 1: Connectivity".

3 Abbreviations

For the purposes of the present document, the following abbreviations apply:

AP Access Point
SBP Service Binary Protocol

4 Data Service Definition

4.1 Network Info Data Server Version 1.0

```
/** The purpose of Network Information service is to provide network
 *  capabilities and status of the Access Point to Client.
 *  When MirrorLink Server and Client are connected though Wi-Fi
 *  technology of Wi-Fi Alliance, both the ML Server and the Client
 *  can be either an Access Point (AP) or Client. In-vehicle setting,
 *  it is important for Client to know network status information of
 *  the AP, as network delay on AP may cause poor response time of
 *  applications requiring Internet connectivity on Client. MirrorLink
 *  Client can select the "best" network interface to be used for the
 *  Internet access with regard to network capabilities and the status
 *  information of AP. The algorithm for a selection of the network
 *  interface for the Internet access on Client is out of scope of
 *  this document. Wi-Fi connection established between the MirrorLink
 *  Server and the Client shall be maintained while the Client
 *  configures its network interfaces to access the Internet.
 *  @version 1.0
 */
SERVICE com.mirrorlink.networkinfo {
ENUM<LONG> networkTypes {
  /** GSM
   */
  GSM = 0x0000000000000001;
  /** GPRS
   */
  GPRS = 0x0000000000000002;
  /** EDGE
   */
  EDGE = 0x0000000000000004;
  /** UMTS
   */
  UMTS = 0x0000000000000100;
  /** HSDPA
   */
  HSDPA = 0x0000000000000200;
  /** HSUPA
   */
  HSUPA = 0x0000000000000400;
  /** HSPA+
   */
  HSPA_plus = 0x0000000000000800;
  /** EV-DO
   */
  EV_DO = 0x0000000000010000;
  /** 1xRTT
   */
  OnexRTT = 0x0000000000020000;
  /** LTE
   */
  LTE = 0x0000000100000000;
  /** WiMax
   */
  WiMAX = 0x0000000200000000;
  /** Others
   */
  Others = 0x0001000000000000;
  };
/** High-level status information of the active network.
 */
ENUM<BYTE> connectivityStatusValues {
  /** Active and tethering enabled
   */
  ACTIVE_TETHER_ENABLED = 0x01;
  /** Active but tethering disabled
   */
  ACTIVE_TETHER_DISABLED = 0x02;
  /** Inactive
   */
  INACTIVE = 0x03;
  /** Disabled
   */
  DISABLED = 0x04;
```

```
  };
/** Signal strength of the active network.
 */
ENUM<INT> signalStrengthValues {
  /** No signal
   */
  NO_SIGNAL = 0;
  /** Weakest signal
   */
  WEAKEST_SIGNAL = 1;
  /** Weak signal
   */
  WEAK_SIGNAL = 2;
  /** Medium signal
   */
  MEDIUM_SIGNAL = 3;
  /** Strong signal
   */
  STRONG_SIGNAL = 4;
  /** Strongest signal
   */
  STRONGTEST_SIGNAL = 5;
  };
/** Network Support Object carrying network capabilities of Access
 *  Point.
 *  @mandatory, @readable, @version 1.0, @uid 0x157ec746
 */
OBJECT NetworkSupport {
  /** Bit wise OR of all supported Network Types.
   *  A zero value indicates that there is no network support for
   *  head-unit connectivity
   *  @uid 0x4de85dff
   */
  LONG supportedNetworkType;
  };
/** NetworkStatus Object returns the current network status
 *  information directly. If the current network information is not
 *  available, Server shall return "Not available" error code. This
 *  applies to the case when the NetworkInfo Object is subscribed.
 *  @mandatory, @readable, @version 1.0, @uid 0xa57409fb
 */
OBJECT NetworkStatus {
  /** Current network type being used.
   *  Allowed values defined in ENUM<networkTypes>.
   *  @uid 0x4de85dff
   */
  ENUM<networkTypes> supportedNetworkType;
  /** High-level status information of the active network.
   *  Allowed values defined in ENUM<connectivityStatusValues>
   *  @uid 0x7a16876e
   */
  ENUM<connectivityStatusValues> connectivityStatus;
  /** Signal strength of the active network.
   *  Allowed values defined in ENUM<signalStrengthValues>
   *  @uid 0xac3c518e
   */
  ENUM<signalStrengthValues> signalStrength;
  };
/** DataBalanceStatus Object carrying current data balance status of
 *  Access Point
 *  @optional, @readable, @uid 0xae17bc3f
 */
OBJECT DataBalanceStatus {
  /** Roaming status of Access Point.
   *  - True: Access Point is in roaming mode.
   *  - False: Access Point is not in roaming mode
   *  @uid 0x8b23237c
   */
  BOOLEAN dataRoamingStatus;
  /** Mobile data limit. The unit is Byte.
   *  A zero value indicates mobile data is unlimited.
   *  @uid 0xfcc18cca
   */
  LONG mobileDataLimit;
  /** Amount of mobile data used during the data usage cycle.
```

```
    *  The unit is Byte.
    *  @uid 0x2b6a50b0
    */
   LONG mobileDataUsage;
   };
};
```

5 SBP Binding

The Network Information Data Services uses the following objects and their access capabilities:

Object Name	Access Type	Subscription Type
NetworkSupport	READABLE	
NetworkStatus	READABLE	ON_CHANGE, AUTO
DataBalanceStatus	READABLE	

The data sink should first Get *NetworkSupport* Object, and then it should subscribe *NetworkStatus* Object. The data source shall not provide *DataBalanceStatus* Object if required information is not available or not accurate. For instance, data balance or data usage information is valid only if a user inputs a billing cycle of the data plan on the Server device.

Annex A (informative): Authors and Contributors

The following people have contributed to the present document:

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History

Document history		
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