

ETSI TS 103 544-19 V1.3.1 (2019-10)



**Publicly Available Specification (PAS);
Intelligent Transport Systems (ITS);
MirrorLink®;
Part 19: Network Information Data Service**

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Contents

Intellectual Property Rights	4
Foreword.....	4
Modal verbs terminology.....	4
1 Scope	5
2 References	5
2.1 Normative references	5
2.2 Informative references.....	5
3 Definition of terms, symbols and abbreviations.....	5
3.1 Terms.....	5
3.2 Symbols.....	5
3.3 Abbreviations	6
4 Data Service Definition.....	6
4.1 Network Info Data Server Version 1.0.....	6
5 SBP Binding.....	8
Annex A (informative): Authors and Contributors.....	9
History	10

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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 [i.2]. 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 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".
 - [i.2] ETSI TS 103 544-6 (V1.3.1): "Publicly Available Specification (PAS); Intelligent Transport Systems (ITS); MirrorLink®; Part 6: Service Binary Protocol (SBP)".
-

3 Definition of terms, symbols and abbreviations

3.1 Terms

Void.

3.2 Symbols

Void.

3.3 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 through 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
 * the present 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

```

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```

    */
    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.

Table 1

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

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