



Implementation Agreement for the DB-2 Interface

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MultiService Forum Implementation Agreement

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Editor: Dan Warren, Vodafone

Contact Information: Tel - +44 7795 300783

e-mail – dan.warren@vodafone.com

Working Group Chairperson: Chris Gallon, Fujitsu

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Abstract: As part of GMI 2006, MSF is defining network elements and interfaces that draw heavily on the definition of IMS as defined in Release 6 of 3GPP specifications. This part of the GMI 2006 architecture thus has considerable similarity to the 3GPP architecture itself and so the interfaces that 3GPP define can be greatly re-used and need only minor modifications to become applicable to their equivalent interfaces in GMI 2006. Amongst the interfaces in GMI 2006 IMS are a number that connect to the HSS and, where required, the SLF. Addressed in this IA are those reference points to the HSS and SLF that are similar to the Sh and Dh interfaces defined in 3GPP TS 29.328 [1] and 3GPP TS 29.329 [2], specifically the DB-2 interface between the Service Broker/SCIM and HSS (and SLS where required), between the Parlay X Gateway and HSS (and SLS where required) and between the SIP Application Server and HSS (and SLS where required).

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To date the MSF has defined a number of detailed Implementation Agreements and detailed Test Plans for the signaling protocols between network components and is developing additional Implementation Agreements and Test Plans addressing some of the other technical issues such as QoS and Security to assist vendors and operators in deploying interoperable solutions.

The MSF welcomes feedback and comment and would encourage interested parties to get involved in this work program. Information about the MSF and membership options can be found on the MSF website <http://www.msforum.org/>

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For addition information contact:

MultiService Forum

39355 California Street, Suite 307

Fremont, CA 94538

USA

Phone: +1 510 608-5922

Fax: +1 510 608-5917

info@msforum.org

<http://www.msforum.org>

I. Introduction

Within the MSF Release 3 Architecture in MSF-ARCH-003.00-FINAL [3] for GMI 2006, a number of devices that can be seen to be either identical or very similar to those defined in 3GPP IMS architecture (see 3GPP TS 23.228 [4]) are identified. Within MSF-ARCH-003.00-FINAL [3], a number of new IA's are also identified and in some cases, these IA's refer closely to 3GPP reference points or interfaces. This IA addresses one such 3GPP defined interface and the equivalent MSF interface that requires an IA – the 3GPP Sh interface and the DB-2 interface within the MSF architecture.

The HSS is a 3GPP defined element where subscriber information relating to identity, contactability, service preferences and other subscription information relating to IMS and other 3GPP defined network domains is stored (see 3GPP TS 23.002 [5]). The Subscriber Location Function (SLF) in 3GPP is defined as a Diameter redirect that is used in networks where more than one HSS has been deployed. Nodes wishing to contact the HSS that holds subscription records for a specific subscriber send their requests to the SLF first, where the correct HSS address for the subscriber is inserted into the message. The SLF then returns the message to the node, which can then route the message to the correct HSS. Figure I.1 below shows the interfaces defined for GMI 2006 to the HSS and to the SLS (the MSF equivalent of the SLF), including the DB-2 interface to the Service Broker/SCIM, the Parlay X Gateway and the Application Server.

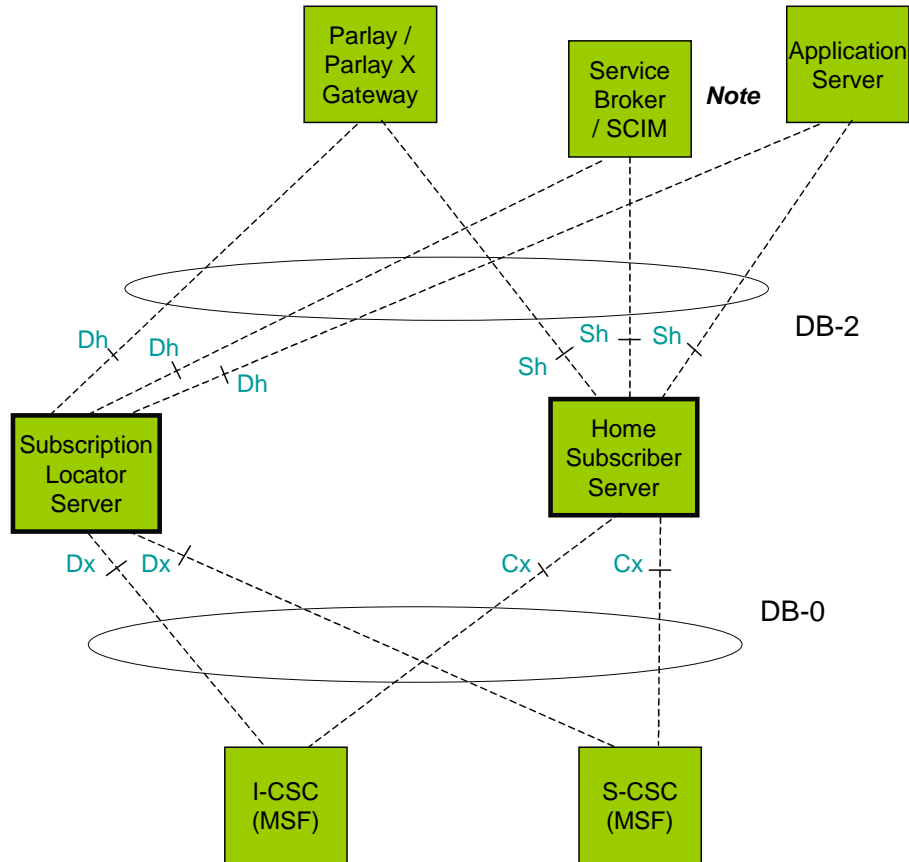


Figure I.1: Interfaces to the HSS

Sh and Dh interfaces in 3GPP are identified in 3GPP TS 23.002 [5], have requirements for its functionality defined in 3GPP TS 23.228 [4], and have the protocol implementation on the Sh interface defined in 3GPP TS 29.328 [1] and 3GPP TS 29.329 [2]. The Application used on the Sh and Dh interfaces is specified as a Vendor specific application that is implemented on the DIAMETER Base Protocol (RFC3588 [6]). The DB-2 interface has very similar requirements and function as the Sh interface and so can draw almost entirely on the 3GPP documents for definition.

I.A. References

- [1] 3GPP TS 29.328: "IP Multimedia (IM) Subsystem Sh interface; signalling flows and message contents".
- [2] 3GPP TS 29.329: "Sh Interface based on the Diameter protocol – Protocol details".
- [3] MSF-ARCH-003.00-FINAL: "MSF Release 3 Architecture".
- [4] 3GPP TS 23.228: "IP Multimedia (IM) Subsystem – Stage 2".

- [5] 3GPP TS 23.002: "Network architecture".
- [6] IETF RFC3588: "Diameter Base Protocol".
- [7] 3GPP TS 29.230: "Diameter applications; 3GPP specific codes and identifiers".
- [8] ETSI TS 183 037: "Endorsement of the Sh Interface based on the Diameter protocol; Protocol details (Release 6), NGN Release 1".

II. General on Diameter Sh Application

The protocol used on the Sh and Dh interfaces within 3GPP is defined as a Vendor-Specific Diameter Application. This means that implementations of the Sh and Dh interfaces need to support the Diameter Base Protocol as described in RFC3588 [6].

II.A. Identification of the Sh Application

At establishment of a Diameter Session, Diameter Base Protocol (RFC3588 [6]) requires the two nodes engaging in the session to send Capability-Exchange-Request/Answer (CER/CEA) message pairs to establish which Diameter Applications can be used within that Session. When Sh Application is to be used, the nodes SHALL include the application identification of the Sh Application as described in 3GPP TS 29.230 [7].

Because Sh Application is defined by 3GPP, the nodes SHALL to include the IANA allocated vendor identity for 3GPP (10415) within an instance of the Supported-Vendor-Id AVP in the CER/CEA exchange, as well as the Sh Application identity, see section 5 of 3GPP TS 29.329 [2]. The description for how vendor identity is transported in Diameter messages, AVPs and in the CER/CEA exchange is defined in RFC3588 [6].

The implication of this is that manufacturers implementing the DB-2 interface based on Sh interface SHALL include the 3GPP Vendor Identity in an instance of the Supported-Vendor-Id AVP of their CER/CEA implementations.

II.A.1. Identification of extensions to the Sh Application

Diameter Base Protocol (RFC3588 [6]) provides the possibility for individual vendors to extend applications in 'proprietary' ways. This is done by identifying the specific Vendor by use of the Vendor-Id AVP as described in RFC3588 [6].

TISPAN may use this mechanism to define extensions to the 3GPP Sh application. When TISPAN defined extensions are used on the Sh interface, the ETSI vendor identity (13019) also SHALL be included in an instance of the Supported-Vendor-Id AVP in the CER/CEA exchange so that extensions using the vendor identity are advertised as being available for use, and AVP's utilized in the extension include the ETSI Vendor Identity in their structure (as described in RFC3588 [6]). When a Sh interface implementation does not advertise the ETSI Vendor Identity in the CER/CEA exchange at the initiation of a Diameter session, any AVP's that include the ETSI vendor identity SHALL be ignored, as described in RFC 3588 [6]. ETSI extensions to Sh application will be defined in ETSI TS 183 037 [8].

III. Sh Interface Profile

Unless stated, implementation of DB-2 interface in MSF GMI 2006 architecture SHALL be in accordance with definitions in 3GPP TS 29.328 [1] and 3GPP TS 29.329 [2].

Note: The key words "MUST", "MUST NOT", "REQUIRED", "SHALL", "SHALL NOT", "SHOULD", "SHOULD NOT", "RECOMMENDED", "MAY", "OPTIONAL", "CONDITIONAL" and "IF" in this document are to be interpreted as described in the Technical Committee Operating Procedures.

III.A. DB-2 Interface to the HSS

III.A.1. *Commands*

The DB-2 interface to the HSS from the Service Broker/SCIM, the Parlay X Gateway and the Application Server SHALL implement the following commands:-

- User-Data-Request/Answer (UDR/UDA) command pair as defined in 3GPP TS 29.328 [1] section 6.1.1.
- Profile-Update-Request/Answer (PUR/PUA) command pair as defined in 3GPP TS 29.328 [1] section 6.1.2.
- Subscribe-Notifications-Request/Answer (SNR/SNA) command pair as defined in 3GPP TS 29.328 [1] section 6.1.3.
- Push-Notification-Request/Answer (PNR/PNA) command pair as defined in 3GPP TS 29.328 [1] section 6.1.4.

III.B. DB-2 Interface to the SLS

III.B.1. *Commands*

The DB-2 interface to the SLS from the Service Broker/SCIM, the Parlay X Gateway and the Application Server SHALL implement the following commands:-

- User-Data-Request (UDR) command as defined in 3GPP TS 29.328 [1] section 6.1.1.
- Profile-Update-Request (PUR) command as defined in 3GPP TS 29.328 [1] section 6.1.2.
- Subscribe-Notifications-Request (SNR) command as defined in 3GPP TS 29.328 [1] section 6.1.3.

NOTE: Only Request messages are sent to the SLS. The SLS only inserts the HSS address information in the Diameter message header, to allow the Service Broker/SCIM, the Parlay X Gateway or the Application Server to route the request to the correct HSS for the subscriber whom the request relates to.