**3GPP TSG-CT WG4 Meeting #102-eC4-211abc**

**E-Meeting, 23rd Feb – 05th Mar 2021 *was* C4-211352**

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| *CR-Form-v12.1* | | | | | | | | |
| **CHANGE REQUEST** | | | | | | | | |
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|  | **29.338** | **CR** | **0039** | **rev** | **1** | **Current version:** | **16.1.0** |  |
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| *For* [***HE******LP***](http://www.3gpp.org/3G_Specs/CRs.htm#_blank)*on using this form: comprehensive instructions can be found at* [*http://www.3gpp.org/Change-Requests*](http://www.3gpp.org/Change-Requests)*.* | | | | | | | | |
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| ***Proposed change affects:*** | UICC apps |  | ME |  | Radio Access Network |  | Core Network | **X** |

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|  | | | | | | | | | | |
| ***Title:*** | Corrections on SM-Delivery-Not-Intended | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Source to WG:*** | Huawei | | | | | | | | | |
| ***Source to TSG:*** | CT4 | | | | | | | | | |
|  |  | | | | | | | | | |
| ***Work item code:*** | TEI16 | | | | |  | ***Date:*** | | | 2021-02-16 |
|  |  | | | |  | |  | | |  |
| ***Category:*** | **F** |  | | | | | ***Release:*** | | | Rel-16 |
|  | *Use one of the following categories:* ***F*** *(correction)* ***A*** *(mirror corresponding to a change in an earlier release)* ***B*** *(addition of feature),* ***C*** *(functional modification of feature)* ***D*** *(editorial modification)*  Detailed explanations of the above categories can be found in 3GPP [TR 21.900](http://www.3gpp.org/ftp/Specs/html-info/21900.htm). | | | | | | | | *Use one of the following releases: Rel-8 (Release 8) Rel-9 (Release 9) Rel-10 (Release 10) Rel-11 (Release 11) … Rel-15 (Release 15) Rel-16 (Release 16) Rel-17 (Release 17) Rel-18 (Release 18)* | |
|  |  | | | | | | | | | |
| ***Reason for change:*** | | 1.The AVP name of SM-Delivery-Not-Intended is incorrect (like SM-Delivery Not Intended) in some places.  2.And AVP name of SM-Delivery-Failure-Cause is also incorrect (SM-Delivery- Failure-Cause) in some places.  3.And incorrect reference 5.3.3.x (should be 5.3.3.21) in table 5.2.3.1-1 | | | | | | | | |
|  | |  | | | | | | | | |
| ***Summary of change:*** | | Corrected the incorrect name of AVP SM-Delivery-Not-Intended.  Corrected the incorrect name of AVP SM-Delivery-Failure-Cause. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Consequences if not approved:*** | | The incorrect name of the AVP will lead to different interpretations and implementations which may raise trouble in interoperability between different vendors. | | | | | | | | |
|  | |  | | | | | | | | |
| ***Clauses affected:*** | | 5.2.1.1, 5.2.3.1 6.2.1.1, 6.2.2.1, 6.3.2.4, 6.3.2.6, 6.3.3.1 | | | | | | | | |
|  | |  | | | | | | | | |
|  | | **Y** | **N** |  | | | |  | | |
| ***Other specs*** | |  | **X** | Other core specifications | | | | TS/TR ... CR ... | | |
| ***affected:*** | |  | **X** | Test specifications | | | | TS/TR ... CR ... | | |
| ***(show related CRs)*** | |  | **X** | O&M Specifications | | | | TS/TR ... CR ... | | |
|  | |  | | | | | | | | |
| ***Other comments:*** | |  | | | | | | | | |
|  | |  | | | | | | | | |
| ***This CR's revision history:*** | | Rev1:   1. Corrected ***Source to WG:*** and ***Source to TSG:*** on cover sheet***.*** | | | | | | | | |

\* \* \* First Change \* \* \* \*

#### 5.2.1.1 General

This procedure shall be used between the SMS-GMSC or the IP-SM-GW and the HSS to retrieve the routing information needed for routing the short message to the serving MSC or MME or SGSN or SMSF. This procedure is also used between the SMS-GMSC and the SMS Router or the IP-SM-GW, and between the HSS and the SMS Router or the IP-SM-GW in order to enforce routing of the SM delivery via the HPLMN of the receiving MS.

This procedure is applicable to an IP-SM-GW for its SMS Router function when using the S6c interface.

This procedure is used according to the call flows described in 3GPP TS 23.040 [2] clause 10.

Table 5.2.1.1-1 specifies the involved information elements for the request.

Table 5.2.1.1-2 specifies the involved information elements for the answer.

This procedure is mapped to the commands Send-Routing-Info-for-SM-Request/Answer (SRR/SRA) in the Diameter application specified in clause 5.3.2.

Table 5.2.1.1-1: Send Routing Info for SM Request

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| MSISDN | MSISDN | C | This information element shall be present when the MSISDN exists and shall contain the MSISDN of the user. |
| IMSI | User-Name  (See IETF RFC 6733 [20]) | C | This information element shall be present when the MSISDN does not exist and shall contain  - the IMSI of the user in the context of T4 device triggering (see 3GPP TS 23.682 [18];  - or the HSS ID value in the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]),. |
| SMSMI Correlation ID | SMSMI-Correlation-ID | C | This information element indicates by its presence that the request is sent in the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]).  This information element shall contain the SIP-URI of the (MSISDN-less) destination user. The SIP-URI of the originating user and the HSS-ID shall be absent from this information element. |
| Service Centre Address | SC-Address | M | This information element shall contain the Service Centre address. |
| SM-RP-MTI | SM-RP-MTI | C | This information element shall contain the RP-Message Type Indicator of the Short Message. It is used to distinguish a SM sent to the mobile station in order to acknowledge an MO-SM initiated by the mobile from a normal MT-SM. |
| SM-RP-SMEA | SM-RP-SMEA | C | This information element shall contain the RP-Originating SME-address of the Short Message Entity that has originated the SM. This information element shall be present if the SMS-GMSC supports receiving of the two numbers from the HSS. Used by the short message service relay sub-layer protocol it shall be formatted according to the formatting rules of address fields as described in 3GPP TS 23 040 [2]. |
| SRR Flags | SRR-Flags | C | This Information Element contains a bit mask. See 5.3.3.4 for the meaning of the bits and the condition for each bit to be set or not. |
| SM-Delivery Not Intended | SM-Delivery-Not-Intended | O | This information element, when present, shall indicate that delivery of a short message is not intended. It further indicates whether only IMSI or only MCC+MNC are requested.  This information element may be set by entities that request the service without intending to deliver a short message, and shall be evaluated by the SMS Router and may be evaluated by the HSS. |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this Information Element shall contain the list of features supported by the origin host. |

Table 5.2.1.1-2: Send Routing Info for SM Answer

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| Result | Result-Code / Experimental-Result | M | Result of the request.  Result-Code AVP shall be used for errors defined in the Diameter base protocol (see IETF RFC 6733 [20]).  Experimental-Result AVP shall be used for S6c errors. This is a grouped AVP which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP. This information element shall contain the result of the operation with an indication of the success / errors.  The following errors are applicable in this case:  - Unknown User;  - Service Barred;  - Teleservice Not Provisioned;  - Absent User;  - Facility Not Supported. |
| IMSI | User-Name  (See IETF RFC 6733 [20]) | C | This information element:   * either shall contain the IMSI of the user. * or, if enforcement of routing an SM via the HPLMN of the receiving MS or UE is deployed, shall contain an MT Correlation ID instead of an IMSI when the service is used between SMS-GMSC and SMS Router (see 3GPP TS 23.040 [2] for more information). * or, if the "SM-Delivery-Not-Intended" Information Element was present in the request with a value of "only MCC+MNC requested", may contain MCC+MNC+dummy MSIN.   This information element shall be present in a successful answer.  This information element shall be present in an answer from the HSS to the IP-SM-GW, if an Absent User result is returned and the UNRI is not set. |
| Serving-Node | Serving-Node | C | If the "SM-Delivery-Not-Intended" Information Element was not present in the request, this information element shall contain the identity of one serving node on which the user is registered. This identity shall either be:   * the Diameter identity and the Diameter realm of the MME registered for MT SMS plus the E.164 number of the MME for MT SMS; * or the ISDN number of the MSC; * or the Diameter identity and the Diameter realm of the SGSN, if they are available, and the ISDN number of the SGSN, * or the Diameter identity and the Diameter realm of the IP-SM-GW, if they are available, and the ISDN number of the IP-SM-GW; * or the Diameter identity and the Diameter realm of the SMSF registered for 3GPP access, if they are available, and the E.164 number of the SMSF registered for 3GPP access; * or the Diameter identity and the Diameter realm of the SMSF registered for non 3GPP access, if they are available, and the E.164 number of the SMSF registered for non 3GPP access.   If the "SM-Delivery-Not-Intended" Information Element was present in the request, this information element may be absent.  This information element shall be present in a successful answer.  See NOTE. |
| LMSI | LMSI | C | The HSS shall include the LMSI in a successful response, if the VLR has used the LMSI and if there is the ISDN number of an MSC in the answer. |
| Additional Serving Node | Additional-Serving-Node | C | This information element, when present shall either contain:   * the Diameter identity and the Diameter realm of the MME registered for MT SMS plus the E.164 number of the MME for MT SMS. * or the ISDN number of the MSC * or the Diameter identity and the Diameter realm of the SGSN, if they are available, and the ISDN number of the SGSN; * or the Diameter identity and the Diameter realm of the SMSF registered for 3GPP access, if they are available, and the E.164 number of the SMSF registered for 3GPP access; * or the Diameter identity and the Diameter realm of the SMSF registered for non 3GPP access, if they are available, and the E.164 number of the SMSF registered for non 3GPP access.   It shall not contain information delivered in the Serving Node information element.  See NOTE. |
| User Identifier Alert | User-Identifier | C | This information element shall contain the MSISDN stored in the HSS, when available. |
| MWD Status | MWD-Status | C | This Information Element is sent when appropriate and shall contain a bit mask. See 5.3.3.8 for the meaning of the bits. |
| MME Absent User Diagnostic SM | MME-Absent-User-Diagnostic-SM | C | This information element shall contain the reason of the absence of the user when given by the MME and stored in the HSS |
| MSC Absent User Diagnostic SM | MSC-Absent-User-Diagnostic-SM | C | This information element shall contain the reason of the absence of the user when given by the MSC and stored in the HSS |
| SGSN Absent User Diagnostic SM | SGSN-Absent-User-Diagnostic-SM | C | This information element shall contain the reason of the absence of the user when given by the SGSN and stored in the HSS |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this information element shall contain the list of features supported by the origin host. |
| SMSF 3GPP Address | SMSF-3GPP-Address | C | If the "SM-Delivery-Not-Intended" Information Element was not present in the request, this information element shall contain the identity of the registered SMSF for 3GPP access.  If the "SM-Delivery-Not-Intended" Information Element was present in the request, this information element may be absent.  See NOTE. |
| SMSF Non 3GPP Address | SMSF-Non-3GPP-Address | C | If the "SM-Delivery-Not-Intended" Information Element was not present in the request, this information element shall contain the identity of the registered SMSF or Non-3GPP access.  If the "SM-Delivery-Not-Intended" Information Element was present in the request, this information element may be absent.  See NOTE. |
| SMSF 3GPP Absent User Diagnostic SM | SMSF-3GPP-Absent-User-Diagnostic-SM | C | This information element shall contain the reason of the absence of the user when given by the SMSF registered for 3GPP access.  See NOTE |
| SMSF Non 3GPP Absent User Diagnostic SM | SMSF-Non-3GPP-Absent-User-Diagnostic-SM | C | This information element shall contain the reason of the absence of the user when given by the SMSF registered for Non-3GPP access.  See NOTE |
| NOTE: If the feature "SMSF-Support" is not supported by the SMS-GMSC, IP-SM-GW, or SMS Router, the AVPs SMSF-3GPP-Address, SMSF-Non-3GPP-Address, SMSF-3GPP-Absent-User-Diagnostic and SMSF-Non-3GPP-Absent-User-Diagnostic shall not be present. In this case the SMSF 3GPP Address and/or the SMSF Non 3GPP Address may be populated in the existing Serving-Node and Additional-Serving-Node AVPs as applicable. | | | |

\* \* \* Next Change \* \* \* \*

#### 5.2.3.1 General

This procedure shall be used between the SMS-GMSC or the IP-SM-GW and the HSS to update the Message Waiting Data in the HSS or to inform the HSS of a successful SM transfer after polling. This procedure is invoked by the SMS-GMSC or the IP-SM-GW.

This procedure is applicable to an IP-SM-GW for its SMS Router function when using the S6c interface.

This procedure is used according to the call flows described in 3GPP TS 23.040 [2] clause 10.

Table 5.2.3.1-1 specifies the involved information elements for the request.

Table 5.2.3.1-2 specifies the involved information elements for the answer.

This procedure is mapped to the commands Report-SM-Delivery-Status-Request/Answer (RDR/RDA) in the Diameter application specified in clause 5.3.2.

Table 5.2.3.1-1: Report SM Delivery Status Request

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| User Identifier | User-Identifier | M | This information element shall contain:   * the MSISDN of the user when it exists. * or the IMSI of the UE if MSISDN is not available in the context of a SM delivery status report following a T4 Submit Trigger (see 3GPP TS 23.682 [18] . * or the value of the HSS ID within the User-Name AVP in a retry context of SMS for IMS UE to IMS UE without MSISDN (see 3GPP TS 23.204 [17]), |
| SMSMI-Correlation ID | SMSMI-Correlation-ID | C | In a retry context of SMS for IMS UE to IMS UE without MSISDN (see 3GPP TS 23.204 [17]), this information element shall contain the SIP-URI of the (MSISDN-less) destination user. The originating SIP-URI and the HSS-ID shall be absent from this information element. |
| Service Centre Address | SC-Address | M | This information element shall contain the Service Centre address. |
| SM Delivery Outcome | SM-Delivery-Outcome | M | This information element shall contain the causes for setting the message waiting data in the HSS according to the network node(s) used for the SM delivery:   * MSC * MME * SGSN * IP-SM-GW * SMSF-3GPP * SMSF-Non3GPP.   At least one cause shall be present. A cause originated from a MSC and a cause originated from a MME shall not be both present.  When the cause is Absent User, the Absent User Diagnostic, if available, shall be associated to the cause. |
| RDR Flags | RDR-Flags | O | This Information Element contains a bit mask. See 5.3.3.21 for the meaning of the bits and the condition for each bit to be set or not. |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this Information Element shall contain the list of features supported by the origin host. |

Table 5.2.3.1-2: Report SM Delivery Status Answer

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| Result | Result-Code / Experimental-Result | M | This information element shall contain the Result of the request.  The Result-Code AVP shall be used for errors defined in the Diameter base protocol (see IETF RFC 6733 [20]).  The Experimental-Result AVP shall be used for S6c errors. This is a grouped AVP which contains the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP. This information element shall contain the result of the operation with an indication of the success / errors. The following errors are applicable:  - Unknown User;  - Message Waiting List Full. |
| MSISDN- Alert | User-Identifier | C | This information element shall contain the Alert MSISDN of the user if it is different from the MSISDN received in the request. |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this information element shall contain the list of features supported by the origin host. |

\* \* \* Next Change \* \* \* \*

#### 6.2.1.1 General

This procedure shall be used between the serving MME or SGSN or IP-SM-GW and the SMS-IWMSC to forward mobile originated short messages from a mobile user to a Service Centre.

This procedure is used according to the call flows described in 3GPP TS 23.040 [3] clause 10.

This procedure may also be used between the SMS-IWMSC and the MTC-IWF to forward mobile originated short messages from a mobile user to an MTC-IWF; see 3GPP TS 23.682 [18].

Table 6.2.1.1/1 specifies the involved information elements for the request.

Table 6.2.1.1/2 specifies the involved information elements for the answer.

This procedure is mapped to the commands MO-Forward-Short-Message-Request/Answer (OFR/OFA) in the Diameter application specified in clause 6.3.2.

Table 6.2.1.1/1: MO Forward Short Message Request

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| SM RP DA | SC-Address | M | When used between MME or SGSN or IP-SM-GW and SMS-IWMSC, this information element shall contain the Service Centre address received from the mobile station.  When used between SMS-IWMSC and MTC-IWF, this information element shall contain the MTC-IWF address as pre-configured in the SMS-SC. |
| SM RP OA | User-Identifier | M | This information element shall contain:  - the IMSI if it is available;  - the MSISDN of the user when it exists.  - a dummy MSISDN value in the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]), if IMSI is not available. In this case the originating user is identified by the Originating SIP-URI (see SMSMI-Correlation ID). |
| SM RP UI | SM-RP-UI | M | This information element shall contain the short message transfer protocol data unit |
| SMSMI-Correlation ID | SMSMI-Correlation-ID | C | This information element indicates by its presence that the request is sent in the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]).  When present, this information element shall contain an HSS-ID identifying the destination user's HSS, a Destination SIP-URI identifying the MSISDN-less destination user, and an Originating SIP-URI identifying the MSISDN-less originating user. |
| OFR Flags | OFR-Flags | C | This information element shall contain a bit mask. See 6.3.3.12 for the meaning of the bits. |
| SM Delivery Outcome | SM-Delivery-Outcome | C | This information element shall be present if the SMSMI Correlation ID is present and shall contain the IP-SM-GW SM Delivery Outcome with the causes for setting the message waiting data in the HSS. |
| Supported Features | Supported-Features | O | If present, this information element shall contain the list of features supported by the origin host. |

NOTE: In the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]), the IP-SM-GW gets the HSS-ID and the SM Delivery Outcome from the SIP message coming from the IMS network of the destination user and indicating a temporary SMS delivery failure.

Table 6.2.1.1/2: MO-Forward Short Message Answer

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| Result | Result-Code / Experimental-Result | M | This information element shall contain the result of the operation.  The Result-Code AVP shall be used to indicate success / errors as defined in the Diameter base protocol (see IETF RFC 6733 [20]).  The Experimental-Result AVP shall be used for SGd/Gdd/T4 errors. This is a grouped AVP which shall contain the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP. The following errors are applicable:   * Facility Not Supported; * SM Delivery Failure. |
| SM Delivery Failure Cause | SM-Delivery-Failure-Cause | C | If the Experimental-Result-Code is set to DIAMETER\_ERROR\_SM\_DELIVERY\_FAILURE, this information element shall be present and indicate one of the following:   * unknown Service Centre/MTC-IWF address; * Service Centre/MTC-IWF congestion; * invalid Short Message Entity address; * user not Service Centre/SCS-AS user.   It may be completed with a Diagnostic information element. |
| SM RP UI | SM-RP-UI | O | If present, this information element shall contain a short message transfer protocol data unit in the message delivery acknowledgement from the SMS-IWMSC to the MME or SGSN |
| Supported Features | Supported-Features | O | If present, this information element shall contain the list of features supported by the origin host. |
| External-Identifier | External-Identifier | C | This information element shall contain the External Identifier identifying the sender of the short message. Shall be present when the answer is sent over T4 to the SMS-IWMSC for charging. |

\* \* \* Next Change \* \* \* \*

#### 6.2.2.1 General

This procedure shall be used between the SMS-GMSC and the serving MME or SGSN (transiting an SMS Router, if present) or IP-SM-GW to forward mobile terminated short messages.

This procedure is used according to the call flows described in 3GPP TS 23.040 [3] clause 10.

Table 6.2.2.1/1 specifies the involved information elements for the request.

Table 6.2.2.1/2 specifies the involved information elements for the answer.

This procedure is mapped to the commands MT-Forward-Short-Message-Request/Answer (TFR/TFA) in the Diameter application specified in clause 6.3.2.

Table 6.2.2.1/1: MT Forward Short Message Request

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| SM RP DA | User-Name (See IETF RFC 6733 [20]) | M | This information element shall contain  - either an IMSI  - or a HSS ID value if an SMSMI-Correlation ID is present, the destination user being identified by the Destination SIP-URI within the SMSMI Correlation ID. |
| SM RP OA | SC-Address | M | This information element shall contain the Service Centre address. |
| SMSMI Correlation ID | SMSMI-Correlation-ID | C | This information element indicates by its presence that the request is sent in the context of MSISDN-less SMS delivery in IMS (see 3GPP TS 23.204 [17]).  When present, this information element shall contain the Destination SIP-URI identifying the (MSISDN-less) destination user and the Originating SIP-URI identifying the (MSISDN-less) originating user. The HSS-ID shall be absent from this information element. |
| SM RP UI | SM-RP-UI | M | This information element shall contain the short message transfer protocol data unit. |
| MME Number for MT SMS | MME-Number-for-MT-SMS | C | This Information Element contains the ISDN number of the MME (see 3GPP TS 23.003 [3]) and shall be present when the request is sent to a MME. |
| SGSN Number | SGSN-Number | C | This Information Element contains the ISDN number of the SGSN (see 3GPP TS 23.003 [3]) and shall be present when the request is sent to a SGSN. |
| TFR-Flags | TFR-Flags | C | This information element shall contain a bit mask. Bit 0 indicates when set if the Service Centre has more messages to send |
| SM Delivery Timer | SM-Delivery-Timer | C | This information element should be included. When present, it shall indicate the SM Delivery Timer value set in the SMS-GMSC to the IP-SM-GW, MME or S4-SGSN. |
| SM Delivery Start Time | SM-Delivery- Start-Time | C | This information element should be included. When present, it shall indicate the timestamp (in UTC) at which the SM Delivery Supervision Timer was started in the SMS-GMSC. |
| Maximum Retransmission Time | Maximum-Retransmission-Time | O | This information element, when present, shall indicate the maximum retransmission time (in UTC) until which the SMS-GMSC is capable to retransmit the MT Short Message. |
| SMS-GMSC Address | SMS-GMSC-Address | C | This IE shall be present if the Maximum Retransmission Time IE is present in the message.  When present, this IE shall contain the E.164 number of the SMS-GMSC in the request sent by the SMS-GMSC or the E.164 number of the SMS Router in the request sent by the SMS Router. |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this information element shall contain the list of features supported by the origin host. |

Table 6.2.2.1/2: MT Forward Short Message Answer

|  |  |  |  |
| --- | --- | --- | --- |
| Information element name | Mapping to Diameter AVP | Cat. | Description |
| Result | Result-Code / Experimental-Result | M | This information element shall contain the result of the operation.  The Result-Code AVP shall be used to indicate success / errors as defined in the Diameter base protocol (see IETF RFC 6733 [20]).  The Experimental-Result AVP shall be used for SGd/Gdd errors. This is a grouped AVP which shall contain the 3GPP Vendor ID in the Vendor-Id AVP, and the error code in the Experimental-Result-Code AVP. The following errors are applicable:   * Unknown User; * Absent User; * User busy for MT SMS; * Illegal User; * Illegal Equipment; * SM Delivery Failure. |
| Absent User Diagnostic SM | Absent-User-Diagnostic-SM | O | This information element may be present when Experimental-Result-Code is set to DIAMETER\_ERROR\_ABSENT\_USER and it shall contain the reason of the absence of the user given by the MME or the SGSN. |
| SM Delivery Failure Cause | SM-Delivery-Failure-Cause | C | If Experimental-Result-Code is set to DIAMETER\_ERROR\_SM\_DELIVERY\_FAILURE, this information element shall be present and indicate one of the following:   * memory capacity exceeded in the mobile equipment; * UE error; * mobile equipment not equipped to support the mobile terminated short message service.   It may be completed with a Diagnostic information element |
| SM RP UI | SM-RP-UI | O | If present, this information element shall contain a short message transfer protocol data unit in the message delivery acknowledgement from the MME to the Service Centre. |
| Requested Retransmission Time | Requested-Retransmission-Time | O | This information element may only be present if the Experimental-Result-Code is set to DIAMETER\_ERROR\_ABSENT\_USER and if the Maximum Retransmission Time information element is present in the MT Forward Short Message Request. It may be included if the UE is using a power saving mechanism (such as extended idle mode DRX) and the UE is currently not reachable.  When present, this shall indicate the retransmission time (in UTC) at which the SMS-GMSC is requested to retransmit the MT Short Message. The Requested Retransmission Time shall not exceed the Maximum Retransmission Time received from the SMS-GMSC. |
| User Identifier Alert | User-Identifier | C | This IE shall be present in the message from the SMS Router to the SMS-GMSC, if the Requested Retransmission Time IE is present in the message. When present, this information shall contain an MT Correlation ID (encoded in the User-Name AVP). |
| Supported Features | Supported-Features  (See 3GPP TS 29.229 [5]) | O | If present, this information element shall contain the list of features supported by the origin host. |

\* \* \* Next Change \* \* \* \*

#### 6.3.2.4 MO-Forward-Short-Message-Answer (OFA) Command

The MO-Forward-Short-Message-Answer Command (OFA) command, indicated by the Command-Code field set to 8388645 and the 'R' bit cleared in the Command Flags field, is sent from the SMS-IWMSC to the MME / SGSN and it is also sent from the MTC-IWF to the SMS-IWMSC.

Message Format

< MO-Forward-Short-Message-Answer > ::= < Diameter Header: 8388645, PXY, 16777313 >

< Session-Id >

[ DRMP ]

[ Vendor-Specific-Application-Id ]

[ Result-Code ]

[ Experimental-Result ]

{ Auth-Session-State }

{ Origin-Host }

{ Origin-Realm }

\*[ Supported-Features ]

[ SM-Delivery-Failure-Cause ]

[ SM-RP-UI ]

[ External-Identifier ]

\*[ AVP ]

[ Failed-AVP ]

\*[ Proxy-Info ]

\*[ Route-Record ]

\* \* \* Next Change \* \* \* \*

#### 6.3.2.6 MT-Forward-Short-Message-Answer (TFA) Command

The MT-Forward-Short-Message-Answer Command (TFA) command, indicated by the Command-Code field set to 8388646 and the 'R' bit cleared in the Command Flags field, is sent from the MME / SGSN to the SMS-GMSC (transiting an SMS Router, if present).

Message Format

< MT-Forward-Short-Message-Answer > ::= < Diameter Header: 8388646, PXY, 16777313 >

< Session-Id >

[ DRMP ]

[ Vendor-Specific-Application-Id ]

[ Result-Code ]

[ Experimental-Result ]

{ Auth-Session-State }

{ Origin-Host }

{ Origin-Realm }

\*[ Supported-Features ]

[ Absent-User-Diagnostic-SM ]

[ SM-Delivery-Failure-Cause ]

[ SM-RP-UI ]

[ Requested-Retransmission-Time ]

[ User-Identifier ]

\*[ AVP ]

[ Failed-AVP ]

\*[ Proxy-Info ]

\*[ Route-Record ]

\* \* \* Next Change \* \* \* \*

#### 6.3.3.1 General

The following table specifies the Diameter AVPs defined for the SGd/Gdd interface protocol, their AVP Code values, types, possible flag values and whether or not the AVP may be encrypted. The Vendor-ID header of all AVPs defined in this specification shall be set to 3GPP (10415).

For all AVPs which contain bit masks and are of the type Unsigned32, e.g., TFR-Flags, bit 0 shall be the least significant bit. For example, to get the value of bit 0, a bit mask of 0x0001 should be used.

Table 6.3.3.1/1: SGd/Gdd specific Diameter AVPs

|  | | | | AVP Flag rules | | | |  |
| --- | --- | --- | --- | --- | --- | --- | --- | --- |
| Attribute Name | AVP Code | Clause defined | Value Type | Must | May | Should not | Must not | May Encr. |
| SC-Address | 3300 | 6.3.3.2 | OctetString | M, V |  |  |  | No |
| SM-RP-UI | 3301 | 6.3.3.3 | OctetString | M, V |  |  |  | No |
| TFR-Flags | 3302 | 6.3.3.4 | Unsigned32 | M, V |  |  |  | No |
| SM-Delivery-Failure-Cause | 3303 | 6.3.3.5 | Grouped | M, V |  |  |  | No |
| SM-Enumerated-Delivery-Failure-Cause | 3304 | 6.3.3.6 | Enumerated | M, V |  |  |  | No |
| SM-Diagnostic-Info | 3305 | 6.3.3.7 | OctetString | M, V |  |  |  | No |
| SM-Delivery-Timer | 3306 | 6.3.3.10 | Unsigned32 | M, V |  |  |  | No |
| SM-Delivery-Start-Time | 3307 | 6.3.3.11 | Time | M, V |  |  |  | No |
| SMSMI-Correlation-ID | 3324 | 6.3.3.13 | Grouped | V |  |  | M | No |
| HSS-ID | 3325 | 6.3.3.14 | OctetString | V |  |  | M | No |
| Originating-SIP-URI | 3326 | 6.3.3.15 | UTF8String | V |  |  | M | No |
| Destination-SIP-URI | 3327 | 6.3.3.16 | UTF8String | V |  |  | M | No |
| OFR-Flags | 3328 | 6.3.3.12 | Unsigned32 | V |  |  | M | No |
| Maximum-Retransmission-Time | 3330 | 6.3.3.17 | Time | V |  |  | M | No |
| Requested-Retransmission-Time | 3331 | 6.3.3.18 | Time | V |  |  | M | No |
| SMS-GMSC-Address | 3332 | 6.3.3.19 | OctetString | V |  |  | M | No |
| NOTE 1: The AVP header bit denoted as "M", indicates whether support of the AVP is required. The AVP header bit denoted as "V" indicates whether the optional Vendor-ID field is present in the AVP header. For further details, see IETF RFC 6733 [20].  NOTE 2: If the M-bit is set for an AVP and the receiver does not understand the AVP, it shall return a rejection. If the M-bit is not set for an AVP, the receiver shall not return a rejection, whether or not it understands the AVP. If the receiver understands the AVP but the M-bit value does not match with the definition in this table, the receiver shall ignore the M-bit. | | | | | | | | |

The following table specifies the Diameter AVPs re-used from existing Diameter Applications, including a reference to their respective specifications and when needed, a short description of their use within this interface.

Any other AVPs from existing Diameter Applications, except for the AVPs from Diameter base protocol specified in IETF RFC 6733 [20], do not need to be supported. The AVPs from Diameter base protocol specified in IETF RFC 6733 [20] are not included in table 6.3.3.1/2, but they may be re-used for this interface.

Table 6.3.3.1/2: SGd/Gdd re-used Diameter AVPs

| Attribute Name | Reference | Comments | M-bit |
| --- | --- | --- | --- |
| User-Name | IETF RFC 6733 [20] |  | Must |
| User-Identifier | 3GPP TS 29.336 [15] |  |  |
| MME-Number-for-MT-SMS | 3GPP TS 29.272 [4] |  |  |
| SGSN-Number | 3GPP TS 29.272 [4] |  | Must not |
| Absent-User-Diagnostic-SM | 3GPP TS 29.338 | It is defined for the S6c interface, see clause 5.3.3.20 |  |
| Supported-Features | 3GPP TS 29.229 [5] |  |  |
| Feature-List-ID | 3GPP TS 29.229 [5] | See clause 6.3.3.8 |  |
| Feature-List | 3GPP TS 29.229 [5] | See clause 6.3.3.9 |  |
| DRMP | IETF RFC 7944 [19] | see clause 6.3.3.20 | Must not set |
| External-Identifier | 3GPP TS 29.336 [15] |  | Must not |
| NOTE 1: The M-bit settings for re-used AVPs override those of the defining specifications that are referenced. Values include: "Must set", "Must not set". If the M-bit setting is blank, then the defining specification applies.  NOTE 2: If the M-bit is set for an AVP and the receiver does not understand the AVP, it shall return a rejection. If the M-bit is not set for an AVP, the receiver shall not return a rejection, whether or not it understands the AVP. If the receiver understands the AVP but the M-bit value does not match with the definition in this table, the receiver shall ignore the M-bit. | | | |

\* \* \* End of Changes \* \* \* \*