

**3GPP TSG-T (Terminals) Meeting #16
Marco Island, FL, USA, 5 - 7 June, 2002**

Tdoc TP-020158

Agenda Item: 5.2.3

Source: T2

Title: CR069 to 23.140 on MMS MM7 stage 3

Document for: Approval

Spec	CR	Rev	Rel	Subject	Cat	Vers-	Vers-	T2 Tdoc	Workitem
23.140	069	-	Rel-5	MM7 stage 3	B	5.2.0	5.3.0	T2-020587	MESS5-MMS

CHANGE REQUEST

⌘ **23.140 CR 069** ⌘ rev **-** ⌘ Current version: **5.2.0** ⌘

For **HELP** on using this form, see bottom of this page or look at the pop-up text over the ⌘ symbols.

Proposed change affects: ⌘ (U)SIM ME/UE Radio Access Network Core Network

Title:	⌘ MM7 stage 3		
Source:	⌘ T2		
Work item code:	⌘ MESS5-MMS	Date:	⌘ 15/05/2002
Category:	⌘ B	Release:	⌘ Rel-5
Use <u>one</u> of the following categories: F (correction) A (corresponds to a correction 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 .		Use <u>one</u> of the following releases: 2 (GSM Phase 2) R96 (Release 1996) R97 (Release 1997) R98 (Release 1998) R99 (Release 1999) REL-4 (Release 4) REL-5 (Release 5)	

Reason for change:	⌘ To provide standardised connectivity between VASPs and MMS Relay/Servers from different manufacturers.
Summary of change:	⌘ Definition of the protocol and specification of the SOAP Schema that will be used for MM7 communication.
Consequences if not approved:	⌘ There would be no standardised connectivity between VASPs and MMS Relay/Servers from different manufacturers.

Clauses affected:	⌘
	1. Section 2 – added references for SOAP and other RFCs used 2. Section 3.1 - added definition for SOAP attachment 3. Section 3.2 – added new abbreviations 4. Section 6.9 – specifying the protocols that will be used for MM7 5. Section 7.1.13.1 – added statement to last paragraph about authentication procedures for MM7 6. Section 7.2.3 – added explanatory text for MM1 to MM7 mapping including ID's. 7. Section 8.7 – new sections with specification of the MM7 Stage 3 8. New Annex X containing the XML schema

Other specs ⌘ Other core specifications ⌘

affected:	<input type="checkbox"/>	Test specifications	<input type="text"/>
	<input type="checkbox"/>	O&M Specifications	<input type="text"/>
Other comments:	⌘	<input type="text"/>	

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2 References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 22.140: "Multimedia Messaging Service; Stage 1".
- [2] 3GPP TR 21.905: "Vocabulary for 3GPP Specifications".
- [3] WAP Forum: "Wireless Application Environment Specification, Version 1.2", WAP-WAESpec-19991104, . URL: <http://www.wapforum.org/>.
- [4] 3GPP TS 23.057: "Mobile Execution Environment (MExE); Functional description; Stage 2".
- [5] IETF; STD 0011 (RFC 2822): "Internet Message Format", URL: <http://www.ietf.org/rfc/rfc2822.txt>.
- [6] IETF; RFC 2046: "Multipurpose Internet Mail extension (MIME) Part Two: Media Types", URL: <http://www.ietf.org/rfc/rfc2046.txt>.
- [7] The Unicode Consortium: "The Unicode Standard", Version 2.0, Addison-Wesley Developers Press, 1996. URL: <http://www.unicode.org/>.
- [8] ANSI X3.4, 1986: "Information Systems; Coded Character Set 7 Bit; American National Standard Code for Information Interchange".
- [9] ISO/IEC 8859-1:1998: "Information Processing; 8-bit Single-Byte Coded Graphic Character Sets; Part 1: Latin Alphabet No. 1".
- [10] IETF; RFC 2279: "UTF-8, A Transformation format of ISO 10646", URL: <http://www.ietf.org/rfc/rfc2279.txt>.
- [11] 3GPP TS 24.011: "Point-to-Point (PP) Short Message Service (SMS) support on mobile radio interface".
- [12] 3GPP TS 26.090: "Mandatory Speech Codec speech processing functions; AMR Speech Codec Transcoding Functions".
- [13] 3GPP TS 26.093 (V3.1.0): "Mandatory Speech Codec speech processing functions; AMR Speech Codec; Source Controlled Rate Operation".
- [14] [ISO/IEC 11172-3:1993](#): "Information technology; Coding of moving pictures and associated audio for digital storage media at up to about 1,5 Mbit/s; Part 3: Audio" (MP3, MPEG1-Audio, MPEG2-Audio)
- [15] MIDI Manufacturers Association Incorporated, Los Angeles, California: "MIDI Sample Dump Standard (SDS)"; URL: <http://www.midi.org>.
- [16] ISO/IEC 14496-2:1999/FDAM4, ISO/IEC JTC1/SC 29/WG11 N3904, Pisa, January, 2001
- [17] ITU-T Recommendation T.81 | [ISO/IEC 10918-1:1994](#): "Information technology; Digital compression and coding of continuous-tone still images: Requirements and guidelines".

- [18] CompuServe Incorporated, Columbus, Ohio (1990): "Graphics Interchange Format (Version 89a)".
- [19] [ISO/IEC 14496-2:1999](#): "Information technology; Coding of audio-visual objects; Part 2: Visual".
- [20] ITU-T Recommendation H.263 (1998): "Video coding for low bit rate communication".
- [21] ITU-T Recommendation H.263 (1998): "Video coding for low bit rate communication - Annex X, Profiles and Levels Definition"
- [22] IETF; STD 0010 (RFC 2821): "Simple Mail Transfer Protocol", URL: <http://www.ietf.org/rfc/rfc2821.txt>.
- [23] WAP Forum (November 1999): "WAP Wireless Session Protocol", WAP-WSP-19991105- , URL: <http://www.wapforum.org/>.
- [24] WAP Forum (November 1999): "WAP Push Access Protocol", WAP-PAP-19991108, URL: <http://www.wapforum.org/>.
- [25] WAP Forum (November 1999): "WAP User Agent Profile Specification", WAP-UAProf-19991110, URL: <http://www.wapforum.org/>.
- [26] W3C Recommendation 22 February 1999 "Resource Description Framework (RDF) Model and Syntax Specification", URL: <http://www.w3.org/TR/REC-rdf-syntax>.
- [27] WAP Forum (November 1999): "WAP Wireless Markup Language Specification, Version 1.2 ", WAP-WML-19991104, URL: <http://www.wapforum.org/>.
- [28] W3C Recommendation 15-June-1998: "Synchronized Multimedia Integration Language (SMIL) 1.0 Specification" - <http://www.w3.org/TR/REC-smil/>.
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- [30] WAP Forum (November 1999): "WAP Identity Module Specification", WAP-WIM-19991105, URL: <http://www.wapforum.org/>.
- [31] ITU-T Recommendation T.37 (06/98): "Procedures for the transfer of facsimile data via store-and-forward on the Internet".
- [32] ITU-T Recommendation T.30 (1996): "Procedures for document facsimile transmission in the general switched telephone network".
- [33] IETF; RFC 2421 (Sept. 1998): "Voice Profile for Internet Mail – version 2, VPIM" , URL: <http://www.ietf.org/rfc/rfc2421.txt>.
- [34] IETF; STD 0053 (RFC 1939): "POP 3, Post Office Protocol - Version 3" , URL: <http://www.ietf.org/rfc/rfc1939.txt>.
- [35] IETF; RFC 1730 (December 1994): "IMAP4, Internet Message Access Protocol - Version 4" , URL: <http://www.ietf.org/rfc/rfc1730.txt>..
- [36] Adobe Systems: "Tag Image File Format (TIFF), Version 6", URL:, <http://www.adobe.com>.
- [37] 3GPP TR 23.039: "Interface protocols for the connection of Short Message Service Centres (SMSCs) to Short Message Entities (SMEs)".
- [38] [ISO/IEC TR 13818-5:1997/Amd 1:1999](#) "Advanced Audio Coding (AAC)"
- [39] IETF; Internet draft: "RTP payload format and file storage format for AMR and AMR-WB audio"; URL: <http://search.ietf.org/internet-drafts/draft-ietf-avt-rtp-amr-10.txt>..

NOTE: Reference [39] is work in progress in IETF/AVT working group and to be replaced by the appropriate RFC number once the Internet draft is approved within the IETF (IESG approval is scheduled to spring/summer 2001).

- [40] 3GPP TS 26.233: "End-to-end transparent streaming Service (PSS); General Description".
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- [42] IETF; Internet Draft: "TCP over 2.5G and 3G Wireless Networks"; URL:
<http://search.ietf.org/internet-drafts/draft-ietf-pilc-2.5g3g-03.txt>
- NOTE: Reference [42] has to be replaced by the appropriate RFC number once the Internet draft is approved within the IETF.
- [43] WAP Forum: "Wireless profiled TCP", WAP-225-TCP-20010331-a, URL:
<http://www.wapforum.org>
- [44] IETF; RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies", URL: <http://www.ietf.org/rfc/rfc2045.txt>
- [45] IETF; RFC 2047: "Multipurpose Internet Mail Extensions (MIME) Part Three: Message Header Extensions for Non-ASCII-Text", URL: <http://www.ietf.org/rfc/rfc2047.txt>.
- [46] IETF; RFC 2048: "Multipurpose Internet Mail Extensions (MIME) Part Four: Registration Procedures", URL: <http://www.ietf.org/rfc/rfc2048.txt>.
- [47] IETF; RFC 2049: "Multipurpose Internet Mail Extensions (MIME) Part Five: Conformance Criteria and Examples", URL: <http://www.ietf.org/rfc/rfc2049.txt>.
- [48] IETF; RFC 2616: "Hypertext Transfer Protocol, HTTP/1.1", URL:
<http://www.ietf.org/rfc/rfc2616.txt>.
- [49] IETF; STD 13 (RFC 1034, 1035): "Domain Names -- concepts and facilities", "Domain names – implementation and specification", URL: <http://www.ietf.org/rfc/rfc1034.txt>,
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- [51] IETF; RFC 2076: "Common Internet Message Headers", URL: <http://www.ietf.org/rfc/rfc2076.txt>.
- [52] IETF; RFC 1893: "Enhanced Mail System Status Codes", URL:
<http://www.ietf.org/rfc/rfc1893.txt>.
- [53] IETF; RFC 1327: "Mapping between X.400(1988)/ISO 10021 and RFC 822", URL:
<http://www.ietf.org/rfc/rfc1327.txt>.
- [54] 3GPP TS 29.061: "Interworking between the Public Land Mobile Network (PLMN) supporting Packet Based Services and Packet Data Networks (PDN)"
- [55] WAP-183-ProvCont, Provisioning Content, URL: <http://www.wapforum.org>
- [56] WAP-209-MMSEncapsulation, MMS Encapsulation Protocol, URL: <http://www.wapforum.org>
- [57] IETF; RFC 1870: "SMTP Service Extension for Message Size Declaration", URL:
<http://www.ietf.org/rfc/rfc1870.txt>
- [58] IETF; RFC 1652: "SMTP Service Extension for 8bit-MIME transport", URL:
<http://www.ietf.org/rfc/rfc1652.txt>
- [59] 3GPP TS 32.235: "Charging Management; Charging Data Description for Application Services".
- [60] IETF, RFC 2915: "The Naming Authority Pointer (NAPTR) DNS Resource Record", URL:
<http://www.ietf.org/rfc/rfc2915.txt>
- [61] IETF, RFC 2916: "E.164 number and DNS", URL: <http://www.ietf.org/rfc/rfc2916.txt>
- [62] 3GPP TS 29.002: "Mobile Application Part (MAP) specification".

- [63] 3GPP TS 22.066: "Support of Mobile Number Portability (MNP); Service description. Stage 1".
- [64] 3GPP TS 23.066: "Support of Mobile Number Portability (MNP); Technical realization. Stage 2".
- [65] IETF; RFC 2617 "Access Authentication", URL:<http://www.ietf.org/rfc/rfc2617.txt>
- [66] IETF; RFC 2246 "TLS protocol, version 1.0" , URL:<http://www.ietf.org/rfc/rfc2246.txt>
- [67] 3GPP TS 31.102 "Characteristics of the USIM Application".
- [68] [W3C Note 08 May 2000 "Simple Object Access Protocol \(SOAP\) 1.1", URL: http://www.w3.org/TR/SOAP](http://www.w3.org/TR/SOAP)
- [69] [W3C Note 11 December 2000 "SOAP Messages with Attachments", URL: http://www.w3.org/TR/SOAP-attachments](http://www.w3.org/TR/SOAP-attachments)
- [70] IETF; RFC 2376: "XML Media Type", URL: <http://www.ietf.org/rfc/rfc2376.txt>.
- [71] IETF; RFC 2387: "The MIME Multipart/Related Content Type", URL: <http://www.ietf.org/rfc/rfc2387.txt>.
- [72] IETF; RFC 2111: "Content-ID and Message-ID Uniform Resource Locators", URL: <http://www.ietf.org/rfc/rfc2111.txt>.
- [73] IETF; RFC 2557: "MIME Encapsulation of Aggregate Documents, such as HTML (MHTML)", URL: <http://www.ietf.org/rfc/rfc2557.txt>.

3 Definitions and Abbreviations

3.1 Definitions

For the purposes of the present document, the terms and definitions defined in 3GPP TR 21.905 [2] and 3GPP TS 22.140 [1] and the following apply:

Abstract message: information which is transferred between two MMS entities used to convey an MM and/or associated control information between these two entities

NOTE 1: The application protocol framework and technical realisation of MMS service features is described in terms of abstract messages in the present document.

Delivery Report: feedback information provided to an originator of MM (MMS User Agent or VASP) by an MMS Relay/Server about the status of the delivery of an MM

External Server: network entity/application of an external system such as Internet email, unified messaging system or facsimile to which MMs may be sent to and/or from which MMs may be received by an MMS User Agent via an MMS service provider

NOTE 2: An External Server is connected to that MMS Service Provider via non-MMS-specific protocols.

Forwarding MMS User Agent: MMS User Agent that is the intended recipient of an MM, that requests forwarding of the MM for delivery to other recipient(s) without having to first download the MM

Forwarded MM: MM originally sent from a sender to an intended recipient which is then forwarded to other recipient(s) and to which a delivery report and/or read-reply report may refer and which may be subject to further forwarding

Message ID: a unique identifier for an MM

Message Reference: a unique identifier for an MM indicating the location of the MM

MMBox: network storage associated with a user into which MMs, along with MM State and MM Flags, may be stored, retrieved, and deleted

MM State: the state of an MM within the MMBox, as one of several, mutually-exclusive enumerated values

MM Flags: a list of zero, one, or more keyword flags, defined by the MMS User Agent, associated with the MM

MM Delivery: act of a recipient MMS Relay/Server delivering an MM to a recipient MMS User Agent

MM Submission: act of an originator MMS User Agent submitting an MM to the originator MMS Relay/Server

MMSNA: Multimedia Messaging Service Network Architecture encompasses all the various elements that provide a complete MMS to a user

MMSE: collection of MMS-specific network elements under the control of a single administration

MMS Relay/Server: MMS-specific network entity/application that is under the control of an MMS service provider

NOTE 3: An MMS Relay/Server transfers messages, provides operations of the MMS that are specific to or required by the mobile environment and provides (temporary and/or persistent) storage services to the MMS.

MMS User Agent: application residing on a UE, an MS or an external device that performs MMS-specific operations on a user's behalf

NOTE 4: An MMS User Agent is not considered part of an MMSE.

MMS VAS Applications: Applications providing Value Added Services (e.g. news service or weather forecasts) to MMS users.

Original MM: (initial) MM sent from a sender to a recipient and to which a delivery report and/or a read-reply report and/or a reply-MM may refer and/or which may be subject to being forwarded

Originator MMSE: MMSE associated with the sender of an MM

Originator MMS Relay/Server: MMS Relay/Server associated with the sender of an MM

Originator MMS User Agent: MMS User Agent associated with the sender of an MM

Originator VASP: VASP which is sending an MM

Read-Reply Report: feedback information to an originator MMS User Agent by a recipient MMS User Agent about the status of handling/rendering of an original MM in a recipient MMS User Agent

Recipient MMSE: MMSE associated with the recipient of an MM

Recipient MMS Relay/Server: MMS Relay/Server associated with the recipient of an MM

Recipient MMS User Agent: MMS User Agent associated with the recipient of an MM

Recipient VASP: VASP which is receiving an MM

Reply-MM: the first reply accepted by the recipient MMS Relay/Server (after checking the reply charging limitations, such as the latest time of submission) in case of reply-charging

Short code: Service provider specific address which is a string of alphanumeric characters

SOAP Attachment: [Multimedia content, e.g. audio, image, text, presentation or a combination of different media types and/or formats, transferred from an MMS VASP to an MMS Relay/Server or vice versa.](#)

Transaction: message pair sent between an MMS User Agent and MMS Relay/Server, or between MMS Relay/Servers

3.2 Abbreviations

For the purposes of the present document, the abbreviations defined in [1] and [2] and the following apply:

CDR	Charging Data Record
DNS	Domain Name System
EMA	Electronic Message Association
E-Mail	Electronic Mail
ENUM	Electronic Numbering
FQDN	Fully Qualified Domain Name
GW	Gateway
HTTP	Hypertext Transfer Protocol
IANA	Internet Assigned Numbering Authority

IETF	Internet Engineering Task Force
IMAP4	Internet Message Access Protocol
MIME	Multipurpose Internet Mail Extensions
MM	Multimedia Message
MMS	Multimedia Messaging Service
MMSE	Multimedia Messaging Service Environment
MMSNA	Multimedia Messaging Service Network Architecture
MTA	Mail Transfer Agent
PDU	Protocol Data Unit
POP3	Post Office Protocol Version 3
RADIUS	Remote Authentication Dial In User Service
RDF	Resource Description Format
RFC	Request for Comments
RTSP	Real Time Streaming Protocol
SDP	Session Description Protocol
SMIL	Synchronised Multimedia Integration Language
SMTP	Simple Mail Transfer Protocol
SOAP	Simple Object Access Protocol
UA	User Agent
UAProf	User Agent Profile
URI	Uniform Resource Identifiers
VAS	Value Added Service
VASP	Value Added Service Provider
VPIM	Voice Profile for Internet Mail
W3C	WWW Consortium
WAP	Wireless Application Protocol
WIM	WAP Identity Module
WML	Wireless Markup Language
WSP	WAP Session Protocol
WTLS	Wireless Transport Layer Security
XML	Extensible Markup Language

6.9 MM7: MMS Relay/Server – MMS VAS Applications

Reference point MM7 is used to transfer MMs from MMS Relay/Server to MMS VAS applications and to transfer MMs from MMS VAS applications to MMS Relay/Server. This functionality is further elaborated in section 7.1.13. This reference point shall be based on [existing protocols e.g. SMTP or HTTP for this release of the specification. Future releases may propose a mandatory protocol and encoding schemes. The service provider may decide to use an encoding format in this reference point, which uses the encoding implementation used in the MM1 reference point. SOAP 1.1 \[68\] and SOAP messages with attachments \[69\] using an HTTP transport layer. Future releases may update this protocol decision to use a standardized version of SOAP and support additional transport layer implementations.](#)

7.1.13.1 Authentication

MM7 should use transport layer security mechanisms to authenticate the VASP in this release.

For example, if HTTP is used as an MM7 transport, many optional authentication mechanisms are available. The MMS Relay/Server or the VASP may use the mechanisms defined in [65],” basic” and “digest” authentication to authenticate the VASP during each session established for message submission. Each VASP may send a VASP ID and a password before any transactions will be allowed by the MMS Relay/Server. For additional security, HTTP may be carried over a TLS [66] session to the MM7 interface.

Alternatively, authentication mechanisms based on public/private key cryptography and certificates may also be used. Key management is out of scope for this release.

The VASP may authenticate the MMS Relay/Server using similar mechanisms. [The exact nature of these authentication procedures is not dictated by this document, however the MMS Relay/Server may supply its identification as part of the request information.](#)

7.2.3 Address Formats on MM7

The MMS addressing model on MM7 contains two addresses: The address of the originator MMS User Agent or VAS/VASP and the address(es) of the recipient MMS User Agent(s) or VAS/VASP.

The reference point MM7 shall support E.164 (MSISDN) addresses and e-mail addresses (RFC2822). In addition Short Codes should be supported.

In the case of a multimedia message terminated at the VAS/VASP, the recipient(s)' address(es) may be the VAS/VASP address or the intended recipient(s)' address and the originator's address shall be user's address (e.g. MSISDN address) or a user's terminal address. For this release the user's terminal addresses (e.g. terminal IP addresses) are not supported. [The VASP will identify itself using one \(or more\) of three possible identifiers – the VASP identification number, the VAS identification number, or an address MM1 compliant to MM1 address format. The MMS Relay/Server shall translate the identification of the VASP to an appropriate address format for transfer across other reference points, e.g. address as defined in section 7.2.2 for messages sent on MM1.](#)

[The MMS Relay/Server shall also translate addresses that originate from the MM1 interface into the appropriate URL of the VASP, for example when an MM7 deliver.REQ results from an MM1 submit.REQ from the MMS User Agent. The format of the MM1 address is defined in section 7.2.2 of this specification.](#)

In the case of a multimedia message originated from the VAS/VASP, the originator's address may be the VAS/VASP address and the recipient(s)' address(es) shall be either a user's address or a user's terminal address. For this release the user's terminal addresses (e.g. terminal IP addresses) are not supported. The VASP's responsibility is to format these addresses before it submits the message to the MMS Relay/Server. The user's address shall be E.164 (MSISDN) address or e-mail address (RFC2822).

The reference point MM7 defines also other addressing like information elements: VASP ID, VAS ID and MMS Relay/Server ID. These fields are used only to identify VASP, VAS and MMS Relay/Server and are not used for addressing purpose.

NOTE: The users' addresses referred to above may be replaced by appropriate coded addresses in order not to harm the users' privacy.

[8.7.8 Implementation of the MM7 Abstract Messages](#)

[The interface between a VASP and the MMS Relay/Server, over the MM7 reference point, shall be realised using SOAP 1.1\[68\] as the formatting language. The VASP and the MMS Relay/Server shall be able to play dual roles of sender and receiver of SOAP messages. HTTP \[48\] shall be used as the transport protocol of the SOAP messages. The SOAP message shall bind to the HTTP request/response model by providing SOAP request parameters in the body of the HTTP POST request and the SOAP response in the body of the corresponding HTTP response.](#)

[8.7.8.1 SOAP Message Format and Encoding Principles](#)

[The following principles shall be used in the design of the SOAP implementation of the MM7 interface:](#)

- [The schema shall be based on the W3C SOAP 1.1 schema . The schema shall include an indication of the version of the MM7 specification that is supported.](#)

[Note: The W3C SOAP 1.1 schema will be published by the 3GPP. The URI shall be XXX.](#)

- [The MM7 SOAP messages shall consist of a SOAP envelope, SOAP Header element and SOAP Body element, as described in \[68\].](#)
- [The SOAP EncodingStyle \[68\] should not be used.](#)

- [Transaction management shall be handled in the SOAP Header element. The TransactionID shall be included as a SOAP Header entry. The SOAP actor \[68\] attribute should not be specified in the SOAP Header entry. The SOAP mustUnderstand \[68\] attribute should be specified with value “1”.](#)
- [All MM7 information elements, except for the TransactionID, shall be included in the SOAP Body element.](#)
- [XML element names shall use Upper Camel Case convention, where words are concatenated to form an element name with the first letter of each word in upper case \(e.g. EarliestDeliveryTime\). The only exception to this rule is where an acronym \(e.g. VASP\) is used - in such cases all of the letters of the acronym shall be in upper case \(e.g. VASPHeader\).](#)

8.7.8.1.1 Binding to HTTP

[MM7 request messages shall be transferred in an HTTP POST request. MM7 responses shall be transferred in an HTTP Response message. The media type “text/xml” \[70\] shall be used for messages containing only the SOAP envelope.](#)

[MM7 requests that carry a SOAP attachment shall have a “multipart/related” \[71\] Content-Type. The SOAP envelope shall be the first part of the MIME message and shall be indicated by the Start parameter of the multipart/related Content-Type. If a SOAP attachment is included it shall be encoded as a MIME part and shall be the second part of the HTTP Post message. The MIME part should have the appropriate content type\(s\) to identify the payload. Figures XX and XX provide few examples of the message structure. This MIME part shall have two MIME headers - Content-Type and Content-ID fields. The Content-ID shall be referenced by the MM7 request <Content> element using the format specified in \[69\].](#)

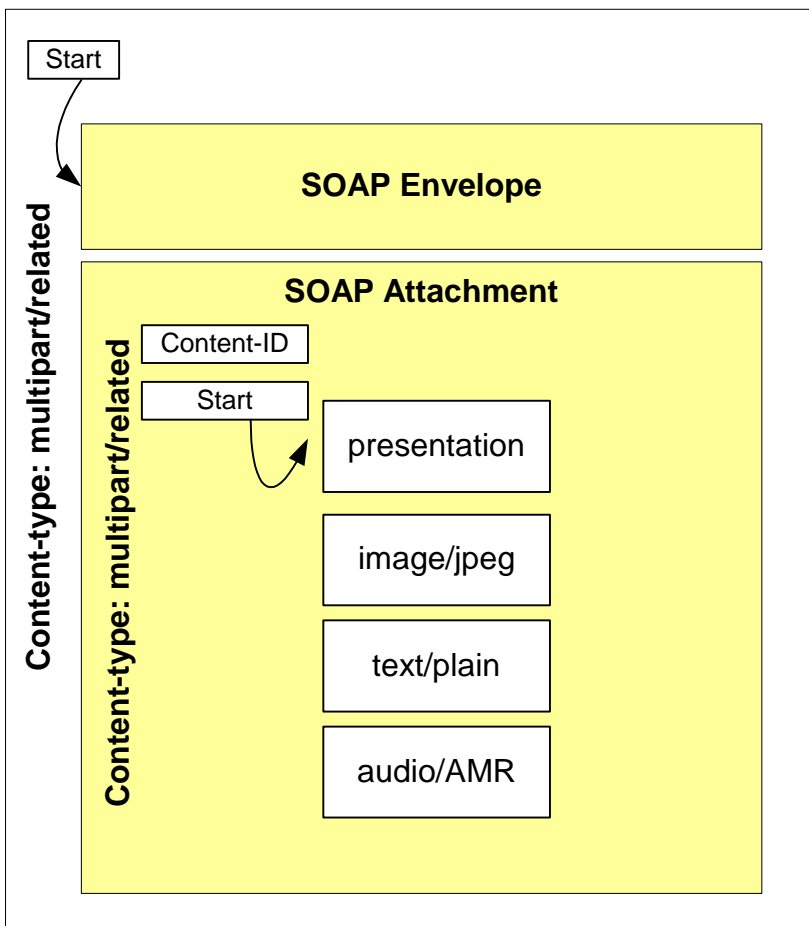


Figure XX: Message structure for a message with a SOAP Attachment (multipart/related payload)

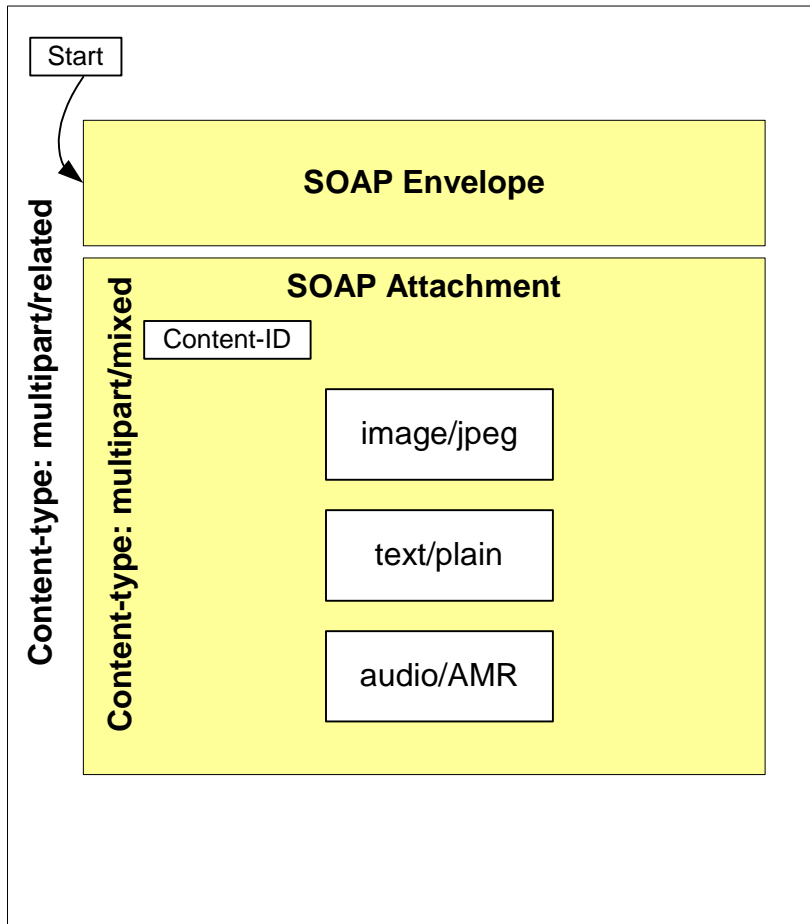


Figure XX: Message structure for a message with a SOAP Attachment (multipart/mixed payload)

For specific examples see the section describing SOAP HTTP examples.

8.7.8.1.3 SOAPAction Header Field

The SOAPAction HTTP request header field [68] should be set to the NULL string (i.e. "").

8.7.8.2 MM7 Addressing Considerations

In order to bind properly to HTTP, the MMS Relay/Server and the VASP shall be addressable by a unique URI type address [48]. This address shall be placed in the host header field in the HTTP POST method.

In the SOAP body, when the recipient MMS User Agent is addressed, the address-encoding scheme for MM1 shall be used. For these purposes the VASP shall be identified by a MM1 addressable address.

8.7.8.3 Status Reporting

The MM7 response messages shall be carried within a HTTP Response. The response may carry status at three levels:

- network errors shall be indicated by the HTTP level, e.g. as an HTTP 403 “Server not found” and shall be carried in the HTTP response back to the originating application.
- request processing errors shall be reported as a SOAP Fault as defined in [68]. The SOAP fault shall include the *faultcode* [68], *faultstring*[68], and *detail*[68] elements. The *detail* element shall include the status elements described below and in table X. Errors relating to the TransactionID shall be reported as a SOAP Fault. The *faultcode* shall be “Client.TransactionID” and the *faultstring* shall be used to indicate the human-readable description of the error. No *detail* element shall appear.
- success or partial success shall be reported in a MM7 response message that will include the following status elements.

All status responses shall be reported with three XML elements in the response, i.e. the details of the SOAP Fault and the status of the MM7 response message –

- StatusCode shall indicate a numerical code that identifies different classes of error or successful completion of the operation. The StatusCode is a four-digit number of which the two high-order digits are defined in section 8.7.8.3.1, the two low-order digits are implementation specific.
- StatusText shall contain a predefined human readable description of the numerical code that indicates the general type of the error.
- Details, optionally, gives particular details of the error or partial success, e.g. indicates the address that cannot be resolved or message-id that is not recognized. The format of the details element is implementation specific.

8.7.8.3.1 Request and Error Status Codes

The StatusText element (for application-level situations) shall be used to carry a human readable explanation of the error or success situation, e.g. partial success. In Table X below the status text should be used by the VASP or MMS Relay/Server when indicating status information to the originator. In addition to this there will be status codes consisting of a four digit numeric value. The first digit of the status code indicates the class of the code. There are 4 classes:

- 1xxx: Success in the operation,
- 2xxx: Client errors,
- 3xxx: Server errors,
- 4xxx: Service errors.

Status codes are extensible. The VASP and the MMS Relay/Server must understand the class of a status code. Unrecognised codes shall be treated as the x000 code for that class. Codes outside the 4 defined class ranges shall be treated as 3000. For implementation specific codes, the numbers in the range x500-x999 shall be used.

The following Table X shows the StatusCodes and StatusTexts that are currently defined.

Table X: StatusCode and StatusText

<u>StatusCode</u>	<u>StatusText</u>	<u>Meaning</u>

1000	Success	This code indicates that the request was executed completely
1100	Partial success	This code indicates that the request was executed partially but some parts of the request could not be completed. Lower order digits and the optional Details element may indicate what parts of the request were not completed.
2000	Client error	Client made an invalid request
2001	Operation restricted	The request was refused due to lack of permission to execute the command.
2002	Address Error	The address supplied in the request was not in a recognized format or the MMS Relay/Server ascertained that the address was not valid for the network because it was determined not to be serviced by this MMS Relay/Server. When used in response-result, and multiple recipients were specified in the corresponding push submission, this status code indicates that at least one address is incorrect.
2003	Address Not Found	The address supplied in the request could not be located by the MMS Relay/Server. This code is returned when an operation is requested on a previously submitted message and the MMS Relay/Server cannot find the message for the address specified.
2004	Multimedia content refused	The server could not parse the MIME content that was attached to the SOAP message and indicated by the Content element or the content size or media type was unacceptable.
2005	Message ID Not found	This code is returned when an operation is requested on a previously submitted message and the MMS Relay/Server cannot find the message for the message ID specified or when the VASP receives a report concerning a previously submitted message and the message ID is not recognized.
2006	LinkedID not found	This code is returned when a LinkedID was supplied and the MMS Relay/Server could not find the related message.
2007	Message format corrupt	An element value format is inappropriate or incorrect.
3000	Server Error	The server failed to fulfill an apparently valid request.
3001	Not Possible	The request could not be carried out because it is not possible. This code is normally used as a result of a cancel or status query on a message that is no longer available for cancel or status query. The MMS Relay/Server has recognized the message in question, but it cannot fulfill the request because the message is already complete or status is no longer available.
3002	Message rejected	Server could not complete the service requested.
3003	Multiple addresses not supported	The MMS Relay/Server does not support this operation on multiple recipients. The operation MAY be resubmitted as multiple single recipient operations.
4000	General service error	The requested service cannot be fulfilled.
4001	Improper identification	Identification header of the request does not uniquely identify the client (either the VASP or MMS Relay/Server).
4002	Unsupported version	The version indicated by the MM7 Version element is not supported.
4003	Unsupported operation	The server does not support the request indicated by the MessageType element in the header of the message.
4004	Validation error	The SOAP and XML structures could not be parsed, mandatory fields are missing, or the message-

		format is not compatible to the format specified. Details field may specify the parsing error that caused this status.
4005	Service error	The operation caused a server (either MMS Relay/Server or VASP) failure and should not be resent.
4006	Service unavailable	This indication may be sent by the server when service is temporarily unavailable, e.g. when server is busy
4007	Service denied	The client does not have permission or funds to perform the requested operation.

[8.7.9 Mapping of Information Elements to SOAP Elements](#)

[The following subsections detail the mapping of the information elements of the abstract messages to SOAP elements. The full XML Schema definition of the MM7 reference point appears in Annex X of this document. Specification of the format of SOAP element values appear in the schema.](#)

8.7.9.1 MM7_submit.REQ mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
<u>Transaction ID</u>	<u>SOAP Header</u>	<u>TransactionID</u>	
<u>Message-Type</u>	<u>SOAP Body</u>	<u>MessageType</u>	<u>Defined as Root element of SOAP Body</u>
<u>MM7 Version</u>	<u>SOAP Body</u>	<u>MM7Version</u>	<u>Value is number of this specification, e.g. 5.2.0</u>
<u>VASP ID</u>	<u>SOAP Body</u>	<u>VASPID</u>	
<u>VAS ID</u>	<u>SOAP Body</u>	<u>VASID</u>	
<u>Sender Address</u>	<u>SOAP Body</u>	<u>SenderAddress</u>	
<u>Recipient Address</u>	<u>SOAP Body</u>	<u>Recipients</u>	<u>Different address format will be specified as part of element value</u>
<u>Service code</u>	<u>SOAP Body</u>	<u>ServiceCode</u>	<u>Information supplied for billing purposes – exact format is implementation dependent</u>
<u>Linked ID</u>	<u>SOAP Body</u>	<u>LinkedID</u>	<u>Message-ID of linked message</u>
<u>Message class</u>	<u>SOAP Body</u>	<u>MessageClass</u>	<u>Enumeration – possible values: Informational, Advertisement, Auto</u>
<u>Date and time</u>	<u>SOAP Body</u>	<u>TimeStamp</u>	
<u>Time of Expiry</u>	<u>SOAP Body</u>	<u>ExpiryDate</u>	
<u>Earliest delivery time</u>	<u>SOAP Body</u>	<u>EarliestDeliveryTime</u>	
<u>Delivery report</u>	<u>SOAP Body</u>	<u>DeliveryReport</u>	<u>Boolean: True or False</u>
<u>Read reply</u>	<u>SOAP Body</u>	<u>ReadReply</u>	<u>Boolean: True or False</u>
<u>Reply-Charging</u>	<u>SOAP Body</u>	<u>ReplyCharging</u>	<u>No value – presence implies True!</u>
<u>Reply-Deadline</u>	<u>SOAP Body</u>	<u>replyDeadline</u>	<u>Attribute of <i>ReplyCharging</i> element Date format – absolute or relative</u>
<u>Reply-Charging-Size</u>	<u>SOAP Body</u>	<u>replyChargingSize</u>	<u>Attribute of <i>ReplyCharging</i> element</u>
<u>Priority</u>	<u>SOAP Body</u>	<u>Priority</u>	<u>Enumeration – possible values: High, Normal, Low</u>
<u>Subject</u>	<u>SOAP Body</u>	<u>Subject</u>	
<u>Adaptations</u>	<u>SOAP Body</u>	<u>allowAdaptations</u>	<u>Attribute of <i>Content</i> element Boolean: True or False</u>
<u>Charged Party</u>	<u>SOAP Body</u>	<u>ChargedParty</u>	<u>Enumeration – possible values: Sender, Recipient, Both, Neither</u>
<u>Message Distribution Indicator</u>	<u>SOAP Body</u>	<u>DistributionIndicator</u>	<u>Boolean: True or False</u>
<u>Content type</u>	<u>MIME header – Attachment</u>	<u>Content-Type</u>	
<u>Content</u>	<u>SOAP Body</u>	<u>Content</u>	<u>href:cid attribute links to attachment</u>

8.7.9.2 MM7_submit.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Message ID	SOAP Body	MessageID	
Request Status	SOAP Body	StatusCode	See section 8.7.8.4
Request Status Text	SOAP Body	StatusText & Details	See section 8.7.8.4

[Sample message submission](#)

[POST /mms-rs/mm7 HTTP/1.1](#)

[Host: mms.omms.com](#)

[Content-Type: multipart/related; boundary="NextPart_000_0028_01C19839.84698430"; type=text/xml; start="<tnn-200102/mm7-submit>"](#)

[Content-Length: nnnn](#)

[SOAPAction: ""](#)

[-- NextPart_000_0028_01C19839.84698430](#)

[Content-Type:text/xml: charset="utf-8"](#)

[Content-ID: <tnn-200102/mm7-submit>](#)

[<?xml version='1.0' ?>](#)

[<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">](#)

[<env:Header>](#)

[<mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"](#)

[env:mustUnderstand="1">](#)

[vas00001-sub](#)

[</mm7:TransactionID>](#)

[</env:Header>](#)

[<env:Body>](#)

[<mm7:SubmitReq xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0">](#)

[<MM7Version>5.3.0</MM7Version>](#)

[<SenderIdentification>](#)

[<VASPID>TNN</VASPID>](#)

[<VASID>News</VASID>](#)

[</SenderIdentification>](#)

[<Recipients>](#)

[<To>](#)

[<Number>7255441234</Number>](#)

[<RFC2822Address displayOnly="True">7255442222@OMMS.com</RFC2822Address>](#)

[</To>](#)

[<Cc>](#)

[<Number>7255443333</Number>](#)

[</Cc>](#)

[<Bcc>](#)

[<RFC2822Address>7255444444@OMMS.com</RFC2822Address>](#)

[</Bcc>](#)

[</Recipients>](#)

[<ServiceCode>gold-sp33-im42</ServiceCode>](#)

[<LinkedID>mms00016666</LinkedID>](#)

[<MessageClass>Informational</MessageClass>](#)

[<TimeStamp>2002-01-02T09:30:47-05:00</Date>](#)

[<EarliestDeliveryTime>2002-01-02T09:30:47-05:00</EarliestDeliveryTime>](#)

[<ExpiryDate>P90D</ExpiryDate>](#)

[<DeliveryReport>True</DeliveryReport>](#)

[<Priority>Normal</Priority>](#)

[<ChargedParty>Sender</ChargedParty>](#)

[<DistributionIndicator>True</DistributionIndicator>](#)

[<Subject>News for today</Subject>](#)

[<Content href="cid:SaturnPics-01020930@news.tnn.com"; allowAdaptations="True"/>](#)

[</mm7:SubmitReq>](#)

[</env:Body>](#)

[</env:Envelope>](#)

-- NextPart 000 0028 01C19839.84698430
 Content-Type: multipart/mixed; boundary="StoryParts 74526 8432 2002-77645"
 Content-ID:< SaturnPics-01020930@news.tnn.com>

-- StoryParts 74526 8432 2002-77645
 Content-Type: text/plain; charset="us-ascii"

[Science news, new Saturn pictures...](#)

-- StoryParts 74526 8432 2002-77645
 Content-Type: image/gif;
 Content-ID:<saturn.gif>

[R0IGODdhZAAwAOMAAAAAIGJjGltcDE00OfWo6Ochbi1n1pmcbGojpKbnP/lpW54fBMTE1RYXEFO](#)

...

-- StoryParts 74526 8432 2002-77645 --
 -- NextPart 000 0028 01C19839.84698430--

[The response message is sent by the MMS Relay/Server back to the VASP for the VAS application in a HTTP Response message.](#)

HTTP/1.1 200 OK
 Content-Type: text/xml; charset="utf-8"
 Content-Length: nnnn

```
<? xml version='1.0' ?>
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">
  <env:Header>
    <mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <MM7Version>5.3.0</MM7Version>
    <Status>
      <StatusCode>1000</StatusCode>
      <StatusText> Success</StatusText>
    </Status>
    <MessageID>041502073667</MessageID>
  </env:Body>
</env:Envelope>
```

8.7.9.3 MM7_deliver.REQ Mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
MMS Relay/Server ID	SOAP Body	MMSRelayServerID	
Linked ID	SOAP Body	LinkedID	Message-ID of linked message
Sender address	SOAP Body	Sender	
Recipient address	SOAP Body	Recipients	If none appear then Sender Address is used
Date and time	SOAP Body	TimeStamp	
Reply-Charging-ID	SOAP Body	ReplyChargingID	Should correspond to an ID that appeared in previous MM7_submit.REQ
Priority	SOAP Body	Priority	Enumeration – possible values: High, Normal, Low
Subject	SOAP Body	Subject	
Content type	MIME header of attachment	Content-Type	
Content	SOAP Body	Content	href:cid attribute links to attachment

8.7.9.4 MM7_deliver.RES

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Service code	SOAP Body	ServiceCode	
Request status	SOAP Body	StatusCode	See section 8.7.8.4
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.4

Sample Deliver request and response

POST /mms/weather.xml HTTP/1.1

Host: www.yahoo.com

Content-Type: multipart/related; boundary="NextPart_000_0125_01C19839.7237929064"; type=text/xml;

start="</cmvt256/mm7-deliver>"

Content-Length: nnnn

SOAPAction: ""

-- NextPart_000_0125_01C19839.7237929064

Content-Type:text/xml; charset="utf:8"

Content-ID: </cmvt256/mm7-submit>

<? xml version='1.0' ?>

<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">

<env:Header>

<mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"

env:mustUnderstand="1"/>

vas00324-dlvr

</mm7:TransactionID>

</env:Header>

<env:Body>

<!-- Example of MM7_deliverReq -->

```

<mm7:DeliverReq xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0">
  <MM7Version>5.3.0</MM7Version>
  <MMSRelayServerID>240.110.75.34</MMSRelayServerID>
  <Sender>97254265781@OMMS.com</Sender>
  <LinkedID>wthr8391</LinkedID>
  <TimeStamp>2002-04-15T14:35:21-05:00</TimeStamp>
  <Priority>Normal</Priority>
  <Subject>Weather Forecast</Subject>
  <Content href=cid:forecast-location200102-86453/>
</mm7:DeliverReq>
</env:Body>
</env:Envelope>

```

-- NextPart 000 0125 01C19839.7237929064
 Content-Type:text/plain;charset="utf-8"
 Content-ID:<forecast-location2000102-86453>

Los Angeles, Calif, USA
 -- NextPart 000 0125 01C19839.7237929064--

The deliver response message might look like this (with an application error code):

```

HTTP/1.1 200 OK
Content-Type: text/xml; charset="utf-8"
Content-Length: nnnn

<? xml version='1.0' ?>
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/soap-envelope">
  <env:Header>
    <mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"
env:mustUnderstand="1">
      vas00324-dlvr
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <mm7:DeliverRsp xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0">
      <MM7Version>5.3.0</MM7Version>
      <ServiceCode>wthr-badl-6521</ServiceCode>
      <Status>
        <StatusCode>4006</StatusCode>
        <StatusText>Service Unavailable</ServiceText>
        <Detail>Location not covered in service </Detail>
      </Status>
    </mm7:DeliverRsp>
  </env:Body>
</env:Envelope>

```

8.7.9.5 MM7_cancel.REQ mapping

Information Element	Location	Element-name	Comments
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
VASP ID	SOAP Body	VASPID	
VAS ID	SOAP Body	VASID	
Sender Address	SOAP Body	SenderAddress	
Message ID	SOAP Body	MessageID	

8.7.9.6 MM7_cancel.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.4
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.4

The following shows an interchange of a MM7_cancel.REQ and MM7_cancel.RES to illustrate a SOAP message that does not include a multimedia content part.

POST /mms-rs/mm7 HTTP/1.1

Host: mms.omms.com

Content-Type: text/xml; charset="utf-8"

Content-Length: nnnn

SOAPAction: ""

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">
  <env:Header>
    <mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"
env:mustUnderstand="1">
      vas0000—can
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <mm7:CancelReq xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0">
      <MM7Version>5.3.0</MM7Version>
      <SenderIdentification>
        <VASPID>TNN</VASPID>
        <VASID>Reminder</VASID>
      </SenderIdentification>
      <MessageID>mms00022222</MessageID>
    </mm7:CancelReq>
  </env:Body>
</env:Envelope>
```

HTTP/1.1 200 OK

Content-Type: text/xml; charset="utf-8"

Content-Length: nnnn

```
<env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope">
  <env:Header>
    <mm7:TransactionID xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"
env:mustUnderstand="1">
      vas0000—can
    </TransactionID>
  </env:Header>
  <env:Body>
    <mm7:CancelRsp xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0">
      <MM7Version>5.3.0</MM7Version>
      <Status>
        <StatusCode>1000</StatusCode>
        <StatusText>Success</StatusText>
      </Status>
    </mm7:CancelRsp>
  </env:Body>
</env:Envelope>
```

8.7.9.7 MM7_replace.REQ mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
VASP ID	SOAP Body	VASPID	
VAS ID	SOAP Body	VASID	
Sender address	SOAP Body	SenderAddress	
Message ID	SOAP Body	MessageID	
Service code	SOAP Body	ServiceCode	Information supplied for billing purposes – exact format is implementation dependent
Date and time	SOAP Body	TimeStamp	
Earliest delivery time	SOAP Body	EarliestDeliveryTime	Date format – absolute or relative
Read reply	SOAP Body	ReadReply	Boolean – true or false
Adaptations	SOAP Body	allowAdaptations	Attribute of Content element Boolean – true or false
Content type	MIME part Header	Content-Type	
Content	SOAP Body	Content	href:cid attribute links to attachment
Message Distribution Indicator	SOAP Body	DistributionIndicator	Boolean: True or False

8.7.9.8 MM7_replace.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	Transaction-ID	
Message-Type	SOAP Body	Message-Type	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7-Version	Value is number of this specification, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.4
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.4

8.7.9.9 MM7_delivery_report.REQ mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
MMS Relay/Server ID	SOAP Body	MMSRelayServerID	
Message ID	SOAP Body	MessageID	
Recipient address	SOAP Body	Recipient	
Sender address	SOAP Body	Sender	
Date and time	SOAP Body	TimeStamp	
MM Status	SOAP Body	MMStatus	Enumeration – possible values: Expired, Retrieved, Rejected, Indeterminate, Forwarded
Status text	SOAP Body	StatusText	

8.7.9.10 MM7_delivery_report.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Request Status	SOAP Body	StatusCode	See section 8.7.8.4
Request Status text	SOAP Body	StatusText & Details	See section 8.7.8.4

8.7.9.11 MM7_read_reply.REQ mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
MMS Relay/Server ID	SOAP Body	MMSRelayServerID	
Message ID	SOAP Body	MessageID	
Recipient address	SOAP Body	Recipient	
Sender address	SOAP Body	Sender	
Date and time	SOAP Body	TimeStamp	
Read Status	SOAP Body	MMStatus	Enumeration – possible values: Indeterminate, Read, Deleted without Read
Status text	SOAP Body	StatusText	

8.7.9.12 MM7_read_reply.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.4
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.4

8.7.9.13 MM7_RS_error.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>ElementName</u>	<u>Comments</u>
Transaction ID	SOAP Header	TransactionID	
Message-Type	SOAP Body	MessageType	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7Version	Value is number of this specification, e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 8.7.8.4
Error status text	SOAP Body	StatusText & Details	See section 8.7.8.4

8.7.9.14 MM7_VASP_error.RES mapping

<u>Information Element</u>	<u>Location</u>	<u>Element-name</u>	<u>Comments</u>
Transaction ID	SOAP Header	Transaction-ID	
Message-Type	SOAP Body	Message-Type	Defined as Root element of SOAP Body
MM7 Version	SOAP Body	MM7-Version	Value is number of this specification, e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 8.7.8.4
Error status text	SOAP Body	StatusText & Details	See section 8.7.8.4

Annex X (normative): MM7 XML Schema

```

<?xml version="1.0" encoding="UTF-8"?>
<xs:schema targetNamespace="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0"
xmlns:soap="http://schemas.xmlsoap.org/soap/envelope/" xmlns:xs="http://www.w3.org/2001/XMLSchema"
xmlns:tns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-0" elementFormDefault="qualified"
attributeFormDefault="unqualified">
  <xs:element name="TransactionID" type="xs:NMTOKEN">
    <xs:annotation>
      <xs:documentation>The transaction ID that shall be included in the SOAP Header</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="SubmitReq" type="tns:submitReqType">
    <xs:annotation>
      <xs:documentation>VASP to MMS : Sending MM from the VASP to one or more recipients</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="SubmitRsp" type="tns:submitRspType">
    <xs:annotation>
      <xs:documentation>MMS to VASP: Response to a VASP after MM submission request</xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="DeliverReq" type="tns:deliverReqType">
    <xs:annotation>
      <xs:documentation>MMS to VASP : Delivery of MM from the MMS Relay/Server to the VASP </xs:documentation>
    </xs:annotation>
  </xs:element>
  <xs:element name="DeliverRsp" type="tns:deliverRspType">

```



```

</xs:annotation>
<xs:documentation>VASP to MMS : Response to a message delivered to the VASP from the MMS
Relay/Server</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="CancelReq" type="tns:cancelReqType">
<xs:annotation>
<xs:documentation>VASP to MMS: Request to cancel a message submission </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="CancelRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>MMS to VASP: Response to a VASP after MM cancellation request </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ReplaceReq" type="tns:replaceReqType">
<xs:annotation>
<xs:documentation>VASP to MMS: Request to replace a message which was submitted </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ReplaceRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>MMS to VASP: Response to a VASP after MM replace request </xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="DeliveryReportReq" type="tns:deliveryReportReqType">
<xs:annotation>
<xs:documentation>MMS to VASP : Delivery Report from one of the MM recipients</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="DeliveryReportRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>VASP to MMS: Response to a delivery report delivered to the VASP</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ReadReplyReq" type="tns:readReplyReqType">
<xs:annotation>
<xs:documentation>MMS to VASP : Delivery Report from one of the MM recipients</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="ReadReplyRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>VASP to MMS: Response to a read reply delivered to the VASP</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="RSErrorRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>MMS to VASP: Error response to a any bad request sent to the MMS
Relay/Server</xs:documentation>
</xs:annotation>
</xs:element>
<xs:element name="VASPErrrorRsp" type="tns:genericResponseType">
<xs:annotation>
<xs:documentation>VASP to MMS: Error response to a any bad request sent to the VASP</xs:documentation>
</xs:annotation>
</xs:element>
<xs:complexType name="senderIDType">
<xs:sequence>
<xs:element name="VASPID" type="tns:entityIDType" minOccurs="0"/>
<xs:element name="VASID" type="tns:entityIDType" minOccurs="0"/>
<xs:element name="SenderAddress" type="xs:string" minOccurs="0"/>
</xs:sequence>
</xs:complexType>
<xs:complexType name="submitReqType">
<xs:complexContent>
<xs:extension base="tns:genericVASPRequestType">
<xs:sequence>
<xs:element name="Recipients" type="tns:recipientsType"/>
<xs:element name="ServiceCode" type="tns:serviceCodeType" minOccurs="0"/>
<xs:element name="LinkedID" type="tns:messageIDType" minOccurs="0"/>
<xs:element name="MessageClass" type="tns:messageClassType" default="Informational"
minOccurs="0"/>

```

```

<xs:element name="TimeStamp" type="xs:dateTime" minOccurs="0"/>
<xs:element name="ReplyCharging" minOccurs="0">
  <xs:complexType>
    <xs:attribute name="replyChargingSize" type="xs:positiveInteger" use="optional"/>
    <xs:attribute name="replyDeadline" type="tns:relativeOrAbsoluteDateType" use="optional"/>
  </xs:complexType>
</xs:element>
<xs:element name="EarliestDeliveryTime" type="tns:relativeOrAbsoluteDateType" minOccurs="0"/>
<xs:element name="ExpiryDate" type="tns:relativeOrAbsoluteDateType" minOccurs="0"/>
<xs:element name="DeliveryReport" type="xs:boolean" minOccurs="0"/>
<xs:element name="ReadReply" type="xs:boolean" minOccurs="0"/>
<xs:element name="Priority" type="tns:priorityType" minOccurs="0"/>
<xs:element name="Subject" type="xs:string" minOccurs="0"/>
<xs:element name="ChargedParty" type="tns:chargedPartyType" minOccurs="0"/>
<xs:element name="DistributionIndicator" type="xs:boolean" minOccurs="0"/>
<xs:element name="Content" type="tns:contentReferenceType" minOccurs="0"/>
</xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="submitRspType">
  <xs:complexContent>
    <xs:extension base="tns:genericResponseType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="deliverReqType">
  <xs:complexContent>
    <xs:extension base="tns:genericRSReqType">
      <xs:sequence>
        <xs:element name="LinkedID" type="tns:messageIDType" minOccurs="0"/>
        <xs:element name="Sender" type="tns:addressType"/>
        <xs:element name="Recipients" type="tns:recipientsType" minOccurs="0"/>
        <xs:element name="TimeStamp" type="xs:dateTime" minOccurs="0"/>
        <xs:element name="ReplyChargingID" type="tns:messageIDType"/>
        <xs:element name="Priority" type="tns:priorityType" minOccurs="0"/>
        <xs:element name="Subject" type="xs:string" minOccurs="0"/>
        <xs:element name="Content" type="tns:contentReferenceType" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="deliverRspType">
  <xs:complexContent>
    <xs:extension base="tns:genericResponseType"/>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="cancelReqType">
  <xs:complexContent>
    <xs:extension base="tns:genericVASPRequestType">
      <xs:sequence>
        <xs:element name="MessageID" type="tns:messageIDType"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="replaceReqType">
  <xs:complexContent>
    <xs:extension base="tns:genericVASPRequestType">
      <xs:sequence>
        <xs:element name="MessageID" type="tns:messageIDType"/>
        <xs:element name="ServiceCode" type="tns:serviceCodeType" minOccurs="0"/>
        <xs:element name="TimeStamp" type="xs:dateTime" minOccurs="0"/>
        <xs:element name="ReadReply" type="xs:boolean" minOccurs="0"/>
        <xs:element name="EarliestDeliveryTime" type="tns:relativeOrAbsoluteDateType" minOccurs="0"/>
        <xs:element name="DistributionIndicator" type="xs:boolean" minOccurs="0"/>
        <xs:element name="Content" type="tns:contentReferenceType" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="deliveryReportReqType">
  <xs:complexContent>

```

```

<xs:extension base="tns:genericRSReqType">
  <xs:sequence>
    <xs:element name="MessageID" type="tns:messageIDType"/>
    <xs:element name="Recipient" type="tns:addressType"/>
    <xs:element name="Sender" type="tns:addressType"/>
    <xs:element name="Date" type="xs:dateTime"/>
    <xs:element name="MMStatus" type="tns:mmDeliveryStatusType"/>
    <xs:element name="StatusText" type="xs:string" minOccurs="0"/>
  </xs:sequence>
</xs:extension>
</xs:complexContent>
</xs:complexType>
<xs:complexType name="readReplyReqType">
  <xs:complexContent>
    <xs:extension base="tns:genericRSReqType">
      <xs:sequence>
        <xs:element name="MessageID" type="tns:messageIDType"/>
        <xs:element name="Recipient" type="tns:addressType"/>
        <xs:element name="Sender" type="tns:addressType"/>
        <xs:element name="TimeStamp" type="xs:dateTime"/>
        <xs:element name="MMStatus" type="tns:mmReadStatusType"/>
        <xs:element name="StatusText" type="xs:string" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>
<xs:complexType name="genericRSReqType">
  <xs:annotation>
    <xs:documentation>base for all request messages from R/S to VASP</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="MM7Version" type="tns:versionType"/>
    <xs:element name="MMSRelayServerID" type="tns:entityIDType" minOccurs="0"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="genericVASPRequestType">
  <xs:annotation>
    <xs:documentation>Base type for all requests from VASP to R/S</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="MM7Version" type="tns:versionType"/>
    <xs:element name="SenderIdentification" type="tns:senderIDType"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="genericResponseType">
  <xs:annotation>
    <xs:documentation>Any simple response sent</xs:documentation>
  </xs:annotation>
  <xs:sequence>
    <xs:element name="MM7Version" type="tns:versionType"/>
    <xs:element name="Status" type="tns:responseStatusType"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="responseStatusType">
  <xs:annotation>
    <xs:documentation>Status information conveyed in responses</xs:documentation>
  </xs:annotation>
  <xs:all>
    <xs:element name="StatusCode">
      <xs:simpleType>
        <xs:restriction base="tns:statusCodeType"/>
      </xs:simpleType>
    </xs:element>
    <xs:element name="StatusText" type="tns:statusTextType"/>
    <xs:element name="Details" type="tns:anyDataType" minOccurs="0"/>
  </xs:all>
</xs:complexType>
<xs:simpleType name="mmDeliveryStatusType">
  <xs:annotation>
    <xs:documentation>Statuses for MM7 delivery report</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">

```

```

<xs:enumeration value="Expired"/>
<xs:enumeration value="Retrieved"/>
<xs:enumeration value="Rejected"/>
<xs:enumeration value="Indeterminate"/>
<xs:enumeration value="Forwarded"/>
</xs:restriction>
</xs:simpleType>
<xs:simpleType name="mmReadStatusType">
  <xs:annotation>
    <xs:documentation>Statuses for MM7_read_reply</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="Indeterminate"/>
    <xs:enumeration value="Read"/>
    <xs:enumeration value="Deleted"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="messageIDType">
  <xs:annotation>
    <xs:documentation>Message ID</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:NMTOKEN"/>
</xs:simpleType>
<xs:group name="AddressGroup">
  <xs:choice>
    <xs:element name="RFC2822Address">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:string">
            <xs:attribute name="displayOnly" type="xs:boolean" use="optional" default="False"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="Number">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:NMTOKEN">
            <xs:attribute name="displayOnly" type="xs:boolean" use="optional" default="False"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="ShortCode">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:NMTOKEN">
            <xs:attribute name="displayOnly" type="xs:boolean" use="optional" default="False"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
  </xs:choice>
</xs:group>
<xs:complexType name="multiAddressType">
  <xs:sequence maxOccurs="unbounded">
    <xs:group ref="tns:AddressGroup"/>
  </xs:sequence>
</xs:complexType>
<xs:complexType name="addressType">
  <xs:group ref="tns:AddressGroup"/>
</xs:complexType>
<xs:complexType name="serviceCodeType">
  <xs:annotation>
    <xs:documentation>Used to identify the specific service given for billing purposes</xs:documentation>
  </xs:annotation>
  <xs:simpleContent>
    <xs:extension base="xs:string">
      <xs:anyAttribute namespace="##other" processContents="lax"/>
    </xs:extension>
  </xs:simpleContent>
</xs:complexType>

```

```

<xs:simpleType name="entityIDType">
  <xs:annotation>
    <xs:documentation>String used to identify the VAS, VASP and MMSC</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:NMTOKEN"/>
</xs:simpleType>
<xs:complexType name="recipientsType">
  <xs:annotation>
    <xs:documentation>At least one of To,CC,Bcc</xs:documentation>
  </xs:annotation>
  <xs:sequence maxOccurs="unbounded">
    <xs:choice>
      <xs:element name="To" type="tns:multiAddressType"/>
      <xs:element name="Cc" type="tns:multiAddressType"/>
      <xs:element name="Bcc" type="tns:multiAddressType"/>
    </xs:choice>
  </xs:sequence>
</xs:complexType>
<xs:simpleType name="messageClassType">
  <xs:annotation>
    <xs:documentation>Message class</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="Personal"/>
    <xs:enumeration value="Informational"/>
    <xs:enumeration value="Advertisement"/>
    <xs:enumeration value="Auto"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="priorityType">
  <xs:annotation>
    <xs:documentation>Priority of MM</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="Normal"/>
    <xs:enumeration value="High"/>
    <xs:enumeration value="Low"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="relativeOrAbsoluteDateType">
  <xs:annotation>
    <xs:documentation>Date which can be relative or absolute</xs:documentation>
  </xs:annotation>
  <xs:union memberTypes="xs:dateTime xs:duration"/>
</xs:simpleType>
<xs:simpleType name="chargedPartyType">
  <xs:annotation>
    <xs:documentation>Allows specification of which party - Sender or Reciever pays for
transmission</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="Sender"/>
    <xs:enumeration value="Recipient"/>
    <xs:enumeration value="Both"/>
    <xs:enumeration value="Neither"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="versionType">
  <xs:annotation>
    <xs:documentation>Version number in the format of x.y.z </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string">
    <xs:enumeration value="5.3.0"/>
  </xs:restriction>
</xs:simpleType>
<xs:simpleType name="statusCodeType">
  <xs:annotation>
    <xs:documentation>request status resonse codes in RES </xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:positiveInteger"/>
</xs:simpleType>
<xs:complexType name="contentReferenceType">

```

```
<xs:annotation>
  <xs:documentation>content element including only href</xs:documentation>
</xs:annotation>
<xs:attribute name="href" type="xs:anyURI" use="required"/>
<xs:attribute name="allowAdaptations" type="xs:boolean" use="optional"/>
</xs:complexType>
<xs:complexType name="anyDataType">
  <xs:annotation>
    <xs:documentation>Any element and attribute </xs:documentation>
  </xs:annotation>
  <xs:complexContent>
    <xs:restriction base="xs:anyType">
      <xs:sequence>
        <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
      </xs:sequence>
    </xs:restriction>
  </xs:complexContent>
</xs:complexType>
<xs:simpleType name="statusTextType">
  <xs:annotation>
    <xs:documentation>list of standard human-readable status descriptions</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:string"/>
</xs:simpleType>
</xs:schema>
```