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MMS MM7 VASP Interworking Stage 3

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MMS MM7 VASP Interworking Stage 3

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FOREWORD

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1 Introduction

The MMSE may support Value Added Services in addition to the basic messaging services defined for MMS. These Value Added Services may be provided by the network operator of the MMSE or by third-party Value Added Service Providers (VASP). This section defines the technical realization of the interworking between the MMS Relay/Server and the VASP.

The following figure (taken from the 3GPP2 MMS Stage 2 Functional Specification [[MMS Stage2](#)]) illustrates an example data-flow of the message exchange involved in a VAS distribution of a MM as outlined by the abstract messages specified in [[MMS Stage2](#)]:

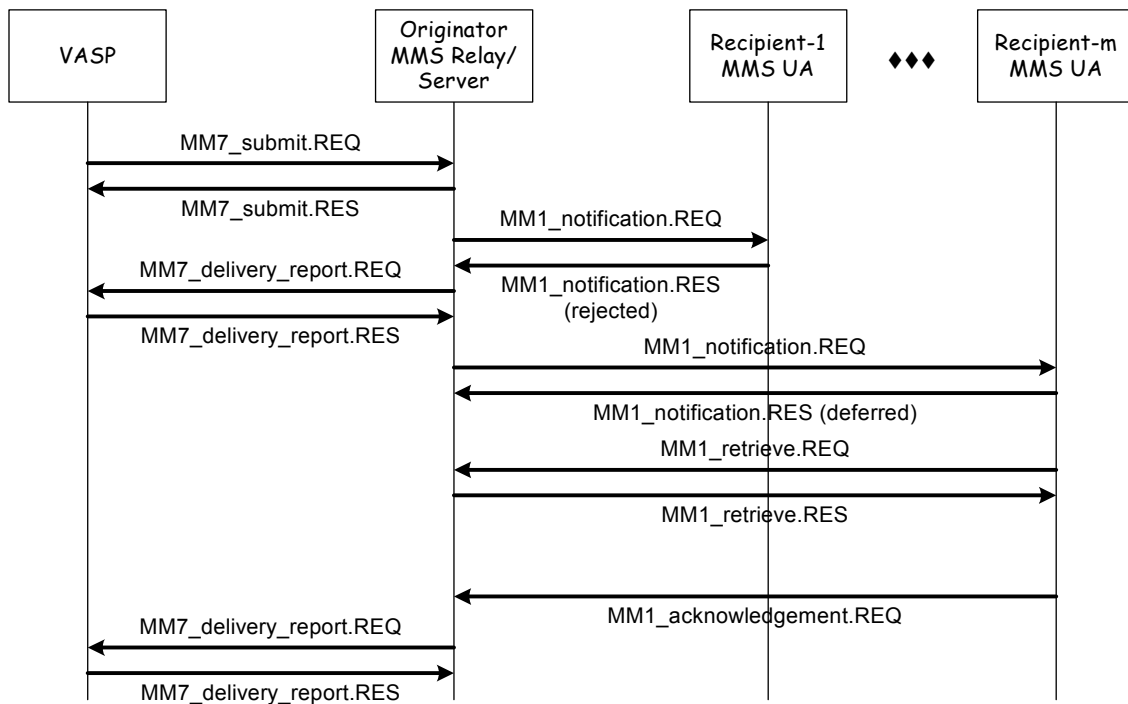


Figure 1 - Sample data flow of MM7 message distribution

Subsequent sub-sections will specify the technical realizations of the abstract messages that are defined for the MM7 interface.

1.1 Scope

This document describes the technical realization (Stage 3) of the Value-Added Service Provider (VASP) interface, also known as the MM7 reference point.

1.2 References

3GPP2

- [MMS Stage1] S.R0064-0, Multimedia Messaging Services (MMS) Stage 1 Requirements, October 2002, 3GPP2.
- [MMS Stage2] X.S0016-200-~~0-1~~-0 v2.0/TIA-934-200-1, Multimedia Messaging Services (MMS) Stage 2 Functional Specifications, ~~April 2003~~, 3GPP2.

ITU

- [E.164] ITU-T Recommendation Series E: E.164: The international public telecommunication numbering plan; May 1997.

IETF

- [RFC2387] RFC 2387, The MIME Multipart/Related Content-type, IETF. <http://www.ietf.org/rfc/rfc2387>
- [RFC2376] RFC 2376: "XML Media Type", IETF. <http://www.ietf.org/rfc/rfc2376.txt>
- [RFC2616] RFC 2616: "Hypertext Transfer Protocol, HTTP/1.1", IETF. <http://www.ietf.org/rfc/rfc2616.txt>
- [\[RFC2045\]](#) RFC 2045: "IETF; RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One: Format of Internet Message Bodies". <http://www.ietf.org/rfc/rfc2045.txt>

World-Wide-Web Consortium (W3C)

- [SMIL] SMIL, Synchronized Multimedia Integration Language (SMIL) 1.0 Specification, June 1998, W3C. <http://www.w3.org/TR/REC-smil>
- [SOAP] W3C Note 08, "Simple Object Access Protocol (SOAP) 1.1", May 2000. <http://www.w3.org/TR/SOAP>
- [SOAPMSGS] W3C Note 11, "SOAP Messages with Attachments", December 2000, W3C. <http://www.w3.org/TR/SOAP-attachments>

1.3 Terminology

This document uses the following “verbal forms” and “verbal form definitions”:

1. “shall” and “shall not” identify items of interest that are to be strictly followed and from which no deviation is recommended,
2. “should” and “should not” indicate items of interest that are highly desirable and particularly suitable, without identifying or excluding other items; or (in the negative form) indicate items of interest that are not desirable, are not particularly suitable, or are not recommended but not prohibited, and
3. “may” and “may not” indicate items of interest that are optional but permissible within the limits of this recommendation.

1.4 Glossary

In addition to the glossary items in [[MMS Stage1](#)] and [[MMS Stage2](#)], the following items used within this document.

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.

1.5 Abbreviations

For the purposes of the present document, the following abbreviations apply in addition to those defined in [[MMS Stage1](#)] and [[MMS Stage2](#)]:

HTTP	Hypertext Transfer Protocol
IETF	Internet Engineering Task Force
MIME	Multipurpose Internet Mail Extensions
MM	Multimedia Message
MMS	Multimedia Messaging Service
MMSE	MMS Environment (under a single administrative control)
OMA	Open Mobile Alliance
RFC	Request for Comments
VASP	Value-Added Service Provider

2 MM7 Stage 3 VASP Interworking Specification

2.1 Introduction (Informative)

Reference point MM7 is used to transfer MMs between an MMS Relay/Server to MMS VAS applications. This reference point, which is elaborated in the sections below, is based on SOAP 1.1 [SOAP] transported over HTTP [[RFC2616](#)].

Address formats for MM7 are also specified in the MMS Stage 2 Functional Specification [[MMS Stage2](#)], but are basically email addresses or [[E.164](#)] (MSISDN) addresses. Short codes may also be supported in some implementations.

2.2 Stage 2 Amendments (Normative)

None

2.3 Stage 3 Implementation of the MM7 Abstract Messages (Normative)

The interface between a VASP and the MMS Relay/Server, over the MM7 reference point, shall be realized using SOAP 1.1 [[SOAP](#)] 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 [[RFC2616](#)] 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.

2.3.1 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

http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4

- The MM7 SOAP messages shall consist of a SOAP envelope, SOAP Header element and SOAP Body element, as described in [SOAP].
- The SOAP EncodingStyle [SOAP] 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* [SOAP] attribute should not be specified in the SOAP Header entry. The SOAP *mustUnderstand* [SOAP] 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).

2.3.1.1 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” [RFC2376] shall be used for messages containing only the SOAP envelope.

MM7 requests that carry a SOAP attachment shall have a “multipart/related” [RFC2387] 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. ~~Figure 2~~ ~~Figure 2~~ ~~Figure 2~~ and ~~Figure 3~~ ~~Figure 3~~ ~~Figure 3~~ 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 [SOAPMSG].

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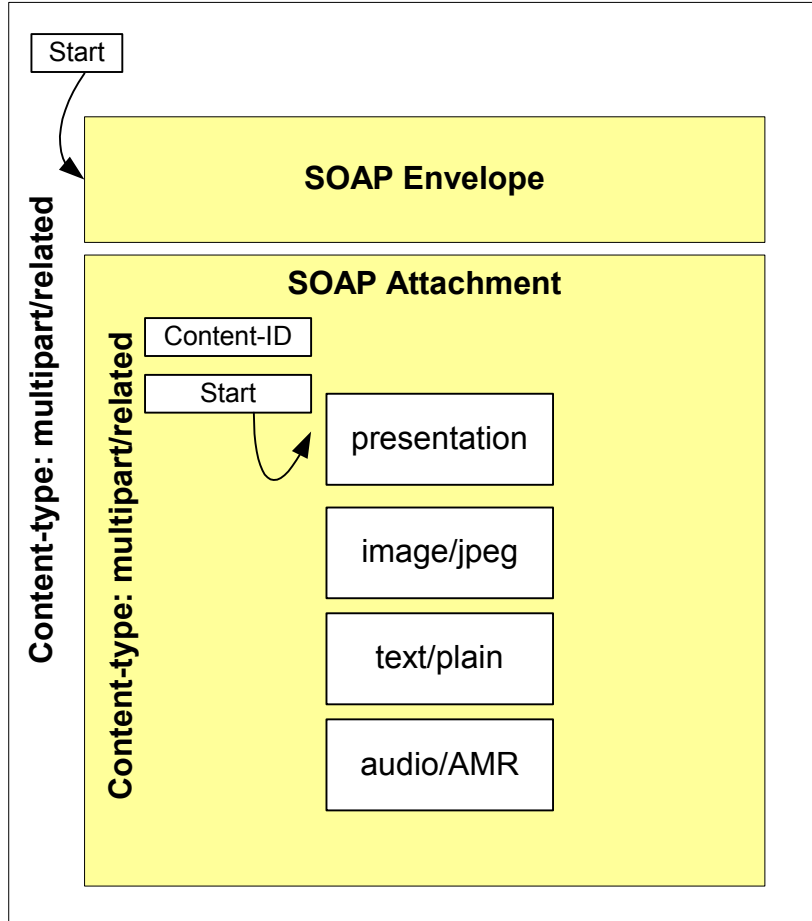


Figure 2 - Message structure for a message with a SOAP Attachment (multipart/related payload)

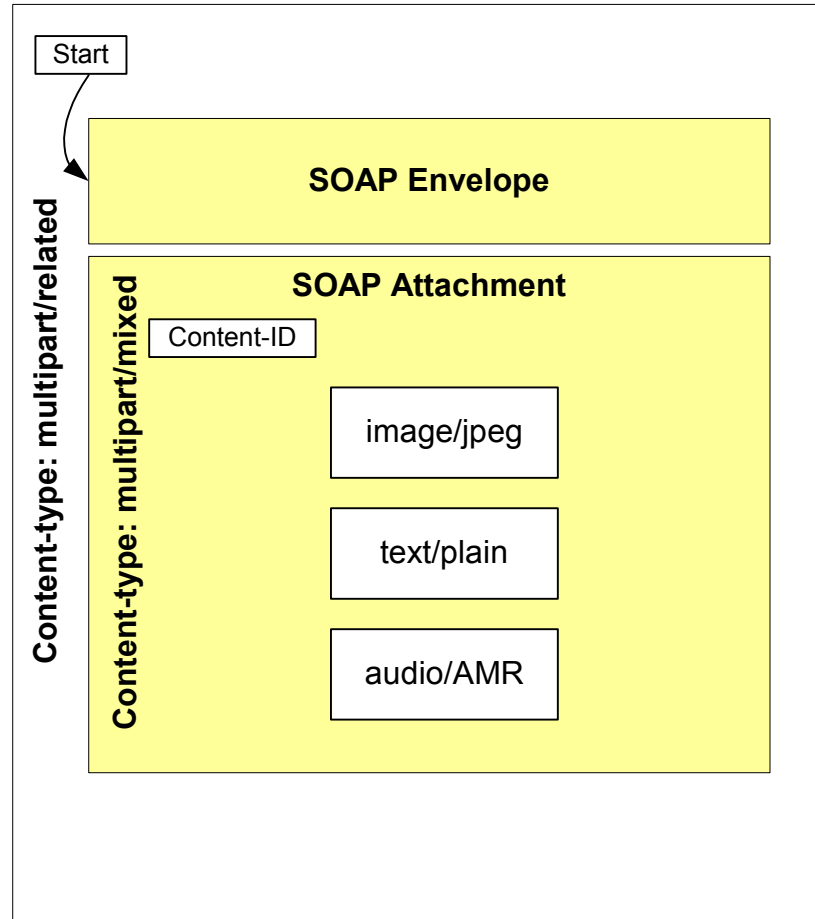


Figure 3 - Message structure for a message with a SOAP Attachment (multipart/mixed payload)

For specific examples see the section describing SOAP HTTP examples.

2.3.1.2 SOAPAction Header Field

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

2.3.2 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 [[RFC2616](#)]. 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.

2.3.3 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 ([status codes in the range of 2xxx – 9xxx](#)) shall be reported as a SOAP Fault as defined in [\[SOAP\]](#). The SOAP fault shall include the *faultcode* [\[SOAP\]](#), *faultstring* [\[SOAP\]](#), and *detail* [\[SOAP\]](#) elements. The *detail* element shall include the status elements described below and in [Table 1](#)~~Table 1~~[Table 1](#). [The SOAP detail element shall include VASPErrrorRsp or RSErrrorRsp element as direct child elements. VASPErrrorRsp element shall be included if the SOAP Fault is generated by the VASP and RSErrrorRsp element shall be sent if the SOAP Fault is generated by the MMS Relay/Server.](#) 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 ([status codes from the success class, i.e. with format 1xxx](#)) shall be reported in a MM7 response message that will include the following status elements, [contained in the Status element of the response messages](#).

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 2.3.4, 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.

2.3.4 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 1 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 four 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 1 shows the StatusCodes and StatusTexts that are currently defined.

Table 1: StatusCode and StatusText

Status Code	StatusText	Meaning
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 fulfil 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 fulfil 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.

2.4 Mapping of Information Elements to SOAP Elements (Normative)

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 Section 2.6. Specification of the format of SOAP element values appear in the schema.

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2.4.1 MM7_submit Information Element Mappings

Table 2 - MM7_submit.REQ mapping

Information Element	Location	ElementName	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 in which the schema has changed most recently, e.g. 5.2.0
VASP ID	SOAP Body	VASPID	
VAS ID	SOAP Body	VASID	
Sender Address	SOAP Body	SenderAddress	
Recipient Address	SOAP Body	Recipients	Different address format will be specified as part of element value
Service code	SOAP Body	ServiceCode	Information supplied for billing purposes – exact format is implementation dependent
Linked ID	SOAP Body	LinkedID	Message-ID of linked message
Message class	SOAP Body	MessageClass	Enumeration – possible values: Informational, Advertisement, Auto
Date and time	SOAP Body	TimeStamp	
Time of Expiry	SOAP Body	ExpiryDate	
Earliest delivery time	SOAP Body	EarliestDeliveryTime	
Delivery report	SOAP Body	DeliveryReport	Boolean: - True-true or Falsefalse
Read reply	SOAP Body	ReadReply	Boolean: - True-true or Falsefalse
Reply-Charging	SOAP Body	ReplyCharging	No value – presence implies True-true !
Reply-Deadline	SOAP Body	replyDeadline	Attribute of <i>ReplyCharging</i> element Date format – absolute or relative
Reply-Charging-Size	SOAP Body	replyChargingSize	Attribute of <i>ReplyCharging</i> element
Priority	SOAP Body	Priority	Enumeration – possible values: High, Normal, Low
Subject	SOAP Body	Subject	
Adaptations	SOAP Body	allowAdaptations	Attribute of <i>Content</i> element Boolean: - True-true or Falsefalse
Charged Party	SOAP Body	ChargedParty	Enumeration – possible values: Sender, Recipient, Both, Neither
Message Distribution Indicator	SOAP Body	DistributionIndicator	Boolean: - True-true or Falsefalse
Content type	MIME header –	Content-Type	

	Attachment		
Content	SOAP Body	Content	href:cid attribute links to attachment

Table 3 - MM7_submit.RES mapping

Information Element	Location	ElementName	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 the number of the specification in which the schema has changed most recently , e.g. 5.2.0
Message ID	SOAP Body	MessageID	
Request Status	SOAP Body	StatusCode	See section 2.3.4
Request Status Text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.1.1 Sample message submission and response (Informative)

```

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-MM7-1-4"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <mm7:SubmitReq xmlns
xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4">
      <MM7Version>5.2.0</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>
    </mm7:SubmitReq>
  </env:Body>
</env:Envelope>

```

```

1         </Bcc>
2         </Recipients>
3         <ServiceCode>gold-sp33-im42</ServiceCode>
4         <LinkedID>mms00016666</LinkedID>
5         <MessageClass>Informational</MessageClass>
6         <TimeStamp>2002-01-02T09:30:47-05:00</TimeStamp>
7         <EarliestDeliveryTime>2002-01-02T09:30:47-05:00</EarliestDeliveryTime>
8         <ExpiryDate>P90D</ExpiryDate>
9         <DeliveryReport>True</DeliveryReport>
10        <Priority>Normal</Priority>
11        <Subject>News for today</Subject>
12        <ChargedParty>Sender</ChargedParty>
13        <DistributionIndicator>True</DistributionIndicator>
14        <Subject>News for today</Subject>
15        <Content href="cid:SaturnPics-01020930@news.tnn.com">
16        allowAdaptations="True"/>
17        </mm7:SubmitReq>
18    </env:Body>
19 </env:Envelope>
20
21 --NextPart_000_0028_01C19839.84698430
22 Content-Type: multipart/mixed; boundary="StoryParts 74526 8432 2002-77645"
23 Content-ID:<-SaturnPics-01020930@news.tnn.com>
24
25 --StoryParts 74526 8432 2002-77645
26 Content-Type: text/plain; charset="us-ascii"
27
28 Science news, new Saturn pictures...
29
30 --StoryParts 74526 8432 2002-77645
31 Content-Type: image/gif;
32 Content-ID:<saturn.gif>
33 Content-Transfer-Encoding: base64
34
35 R0lGODdhZAAwAOMAAAAAIGJjGltcDE00ofWo6OchbilnlpmcbGojpKbnP/lpW54fBMTElRYXEFO
36 ...
37
38 --StoryParts 74526 8432 2002-77645 --
39 --NextPart_000_0028_01C19839.84698430--
40
41 Note: the different encoding mechanisms, as defined by \[RFC2045\], may be utilized for content encoding.
42
43 The response message is sent by the MMS Relay/Server back to the VASP for the VAS application in a HTTP Response message.
44
45 HTTP/1.1 200 OK
46 Content-Type: text/xml; charset="utf-8"
47 Content-Length: nnnn
48
49 <?xml version='1.0' ?>
50 <env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope#">
51     <env:Header>
52         <mm7:TransactionID
53             xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
54             env:mustUnderstand="1">
55             vas00001-sub
56         </mm7:TransactionID>
57     </env:Header>
58     <env:Body>
59         <mm7:SubmitRsp
60             xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
61             <MM7Version>5.8.0</MM7Version>
62             <Status>
63                 <StatusCode>1000</StatusCode>
64                 <StatusText>-Success</StatusText>
65             </Status>
66             <MessageID>041502073667</MessageID>
67         </mm7:SubmitRsp>
68     </env:Body>
69 </env:Envelope>
70
71
72

```

2.4.2 MM7_deliver Information Element Mappings

Table 4 - MM7_deliver.REQ Mapping

Information Element	Location	ElementName	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 the number of the specification in which the schema has changed most recently, 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

Table 5 - MM7_deliver.REQ Mapping

Information Element	Location	ElementName	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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Service code	SOAP Body	ServiceCode	
Request status	SOAP Body	StatusCode	See section 2.3.4
Request status text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.2.1 Sample Deliver request and response (Informative)

POST /mms/weather.xml HTTP/1.1
Host: www.yahoo.com

```

1 | Content-Type: multipart/related; boundary="=NextPart_000_0125_01C19839.7237929064";
2 | type=text/xml;
3 | start="=cmvt256/mm7-deliver">=
4 | Content-Length: nnnn
5 | SOAPAction: ""=
6 |
7 | ---NextPart_000_0125_01C19839.7237929064
8 | Content-Type:text/xml; charset="utf:8"=
9 | Content-ID: </cmvt256/mm7-submit>
10 |
11 | <?xml version="1.0"=?">
12 | <env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
13 |   <env:Header>
14 |     <mm7:TransactionID
15 |       xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"=
16 |       env:mustUnderstand="1"/>
17 |       vas00324-dlvr
18 |     </mm7:TransactionID>
19 |   </env:Header>
20 |   <env:Body>
21 |     <!-- Example of MM7_deliverReq -->
22 |     <mm7:DeliverReq xmlns
23 |       mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"=
24 |       <MM7Version>5.8.0</MM7Version>
25 |       <MMSRelayServerID>240.110.75.34</MMSRelayServerID>
26 |       <LinkedID>wthr8391</LinkedID>
27 |       <Sender>
28 |         <RFC2822address>97254265781@OMMS.com</RFC2822Address>
29 |       </Sender>
30 |       <LinkedID>wthr8391</LinkedID>
31 |       <TimeStamp>2002-04-15T14:35:21-05:00</TimeStamp>
32 |       <Priority>Normal</Priority>
33 |       <Subject>Weather Forecast</Subject>
34 |       <Content href="cid:forecast-location200102-86453"/>
35 |     </mm7:DeliverReq>
36 |   </env:Body>
37 | </env:Envelope>
38 |
39 | ---NextPart_000_0125_01C19839.7237929064
40 | Content-Type:text/plain;charset="utf-8"=
41 | Content-ID:<forecast-location200102-86453>
42 |
43 | Los Angeles, Calif, USA
44 |
45 | --NextPart_000_0125_01C19839.7237929064--

```

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

```

38 | HTTP/1.1 200 OK
39 | Content-Type: text/xml; charset="utf-8"=
40 | Content-Length: nnnn
41 |
42 | <?xml version="1.0"=?">
43 | <env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap/envelope/">
44 |   <env:Header>
45 |     <mm7:TransactionID
46 |       xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"=
47 |       env:mustUnderstand="1">
48 |       vas00324-dlvr
49 |     </mm7:TransactionID>
50 |   </env:Header>
51 |   <env:Body>
52 |     <env:Fault>
53 |       <faultcode>env:Client</faultcode>
54 |       <faultstring>Clnet error</faultstring>
55 |       <detail>
56 |         <mm7:DeliverResp_VASPErrrorRsp xmlns
57 |           mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"=
58 |           <MM7Version>5.8.0</MM7Version>
59 |           <ServiceCode>wthr-bad1-6521</ServiceCode>
60 |           <Status>
61 |             <StatusCode>4006</StatusCode>

```

```

<StatusText>Service Unavailable</ServiceText>
<Details>
  <app: Reason: xmlns:app="http://vendor.example.com/MM7extension">Location
not covered in service </app:Reason>
</Details>
</Status>
</mm7:DeliverReqVASPErrRsp>
</detail>
</env:fault>
</env:Body>
</env:Envelope>

```

2.4.3 MM7_cancel Information Element Mappings

Table 6 - 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 the number of the specification in which the schema changed most recently, 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	

Table 7 - MM7_cancel.RES mapping

Information Element	Location	ElementName	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 the number of the specification in which the schema changed most recently, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 2.3.4
Request status text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.3.1 MM7 cancel request and response example (Informative)

The following shows an interchange of an MM7_cancel.REQ and an 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: ""

1 |
2 |
3 |
4 | <?xml version="1.0"?>
5 | <env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap-envelope">
6 |   <env:Header>
7 |     <mm7:TransactionID
8 |       xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
9 |       env:mustUnderstand="1"
10 |       vas0000-can
11 |     </mm7:TransactionID>
12 |   </env:Header>
13 |   <env:Body>
14 |     <mm7:CancelReq xmlns:mm7="
15 |       http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
16 |       <MM7Version>5.8.0</MM7Version>
17 |       <SenderIdentification>
18 |         <VASPID>TNN</VASPID>
19 |         <VASID>Reminder</VASID>
20 |       </SenderIdentification>
21 |       <MessageID>mms00022222</MessageID>
22 |     </mm7:CancelReq>
23 |   </env:Body>
24 | </env:Envelope>
25 |
26 | HTTP/1.1 200 OK
27 | Content-Type: text/xml; charset="utf-8"
28 | Content-Length: nnnn
29 |
30 | <?xml version="1.0"?>
31 | <env:Envelope xmlns:env="http://schemas.xmlsoap.org/soap-envelope">
32 |   <env:Header>
33 |     <mm7:TransactionID xmlns:mm7="
34 |       http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
35 |       env:mustUnderstand="1"
36 |       vas0000-can
37 |     </mm7:TransactionID>
38 |   </env:Header>
39 |   <env:Body>
40 |     <mm7:CancelRsp xmlns:mm7="
41 |       http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-4"
42 |       <MM7Version>5.8.0</MM7Version>
43 |       <Status>
44 |         <StatusCode>1000</StatusCode>
45 |         <StatusText>Success</StatusText>
46 |       </Status>
47 |     </mm7:CancelRsp>
48 |   </env:Body>
49 | </env:Envelope>
50 |
51 |
52 |
53 |
54 |
55 |
56 |
57 |

```

2.4.4 MM7_replace Information Element Mappings

Table 8 - MM7_replace.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 the number of the specification in which the schema changed most recently , 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 <i>Content</i> 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-true or Falsefalse

Table 9 - MM7_replace.RES 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 the number of the specification in which the schema changed most recently , e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 2.3.4
Request status text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.5 MM7_delivery_report Information Element Mappings

Table 10 - MM7_delivery_report.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 the number of the specification in which the schema changed most recently , 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	

Table 11 - MM7_delivery_report.RES 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 the number of the specification in which the schema changed most recently , e.g. 5.2.0
Request Status	SOAP Body	StatusCode	See section 2.3.4
Request Status text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.6 MM7_read_reply Information Element Mappings

Table 12 - MM7_read_reply.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 the number of the specification in which the schema changed most recently, 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	MMSStatus	Enumeration – possible values: Indeterminate, Read, Deleted without Read
Status text	SOAP Body	StatusText	

Table 13 - MM7_read_reply.RES 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 the number of the specification in which the schema changed most recently, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 2.3.4
Request status text	SOAP Body	StatusText & Details	See section 2.3.4

2.4.7 MM7 Error Response Information Element Mappings

Table 14 - MM7_RS_error.RES 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 the number of the specification in which the schema changed most recently , e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 2.3.4
Error status text	SOAP Body	StatusText & Details	See section 2.3.4

Table 15 - MM7_VASP_error.RES 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 the number of the specification in which the schema changed most recently , e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 2.3.4
Error status text	SOAP Body	StatusText & Details	See section 2.3.4

2.5 MM1, MM4 <=> MM7 header mapping (Informative)

This section maps the abstract messages from MM1 and MM4 to MM7 and the corresponding information elements found on MM1 and MM4 onto the information elements of MM7.

The mappings between MM1 and MM7 abstract messages are:

MM1_Submit.REQ	<=>	MM7_Deliver.REQ
MM7_Submit.REQ	<=>	MM1_Notification.REQ and MM1_Retrieve.RES
MM1_Read_Reply_Recipient.REQ	<=>	MM7_Read_Reply_Report.REQ
MM1_Forward.REQ	<=>	MM7_Deliver.REQ

The mappings between MM4 and MM7 abstract messages are:

MM4_Forward.REQ	<=>	MM7_Deliver.REQ
-----------------	-----	-----------------

MM7_Submit.REQ <=> MM4_Forward.REQ
 MM4_Delivery_Report.REQ <=> MM7_Delivery_Report.REQ
 MM4_Read_Reply_Report.REQ <=> MM7_Read_Reply.REQ

The tables below shows the mapping and are provided to give an end-to-end description of MMS. There is a table for each MM1, MM4 abstract message that maps to a MM7 abstract message. In many cases there is no mapping between MM1, MM4 and MM7 information elements, this is according to specifications. These information elements are included in the tables below in order to give a complete picture of how the information elements are handled.

There are also several abstract messages over MM1, MM4 that have no relevant mapping to MM7 and vice versa. These abstract messages are omitted from this annex.

Table 16 - Mapping MM1_submit.REQ -> MM7_deliver.REQ

Information elements in MM1_submit.REQ	Information elements in MM7_deliver.REQ
Recipient address, -	Recipient address, - (NOTE 1)
Content type	Content type
Sender address	Sender address, - (NOTE 2)
Message class	-
Date and time	Date and time
Time of Expiry	-
Earliest delivery time	-
Delivery report	-
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Priority	Priority
Sender visibility	-
Store	-
MM State	-
MM Flags	-
Read reply	-
Subject	Subject
Reply-Charging-ID	Reply-Charging-ID
Content	Content
-	Transaction ID
-	Message type
-	MM7 version
-	MMS Relay/Server ID
-	Linked ID
NOTE 1: The recipient address over MM1 may or may not be mapped to recipient address over MM7. The recipient address over MM7 may also be independent of the recipient address over MM1.	
NOTE 2: If the Sender Visibility flag is set over MM1, the Sender address from MM1 is not mapped onto MM7.	

Table 17 - Mapping MM7_submit.REQ -> MM1_notification.REQ, MM1_Retrieve.RES

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Information elements in MM7_submit.REQ	Information elements in MM1_notification.REQ	Information elements in MM1_retrieve.RES
Message class	Message class	Message class
Time of Expiry	Time of expiry	-
Subject	Subject	Subject
Priority	Priority	Priority
Sender address	Sender address	Sender address
Reply-Charging	Reply-Charging	Reply-Charging
Reply-Deadline	Reply-Deadline	Reply-Deadline
Reply-Charging-Size	Reply-Charging-Size	Reply-Charging-Size
Transaction ID	-	-
Message type	-	-
MM7 version	-	-
VASP ID	-	-
VAS ID	-	-
Recipient address	-	Recipient address
Service code	-	-
Linked ID	-	-
Date and time	-	Date and time
Earliest delivery time	-	-
Delivery report	-	-
Read reply	-	Read reply
Adaptations	-	-
Content type	-	Content type
Content	-	Content
Message Distribution Indicator	Message Distribution Indicator	-Message Distribution Indicator
Charged Party	-	-
-	Message size	-
-	Message Reference	-
-	Stored	-
-	Delivery report	Delivery report
-	Reply-Charging-ID	-
-	Element-Descriptor	-
-	-	Message ID
-	-	MM State
-	-	MM Flags
-	-	Status
-	-	Status Text
-	-	Previously-sent-by
-	-	Previously-sent-date-and-time

Table 18 - Mapping MM1_read_reply_recipient.REQ -> MM7_read_reply_report.REQ

Information elements in MM1_read_reply_recipient.REQ	Information elements in MM7_read_reply_report.REQ
Recipient address	Recipient address
Originator address	Originator address
Message-ID	Message-ID
Date and Time	Date and Time
Read Status	Read Status
-	Transaction ID
-	Message Type
-	MM7 Version
-	MMS Relay/Server ID
-	Status text

Table 19 - Mapping MM1_Forward.REQ -> MM7_Deliver.REQ

Information elements in MM1_Forward.REQ	Information elements in MM7_Deliver.REQ
Recipient address	Recipient address
Forwarding address	Sender address
Date and time	Date and time
Time of Expiry	-
Earliest delivery time	-
Store	-
MM State	-
MM Flags	-
Delivery report	-
Read reply	-
Message Reference	<Content>, Content Type, Subject, Priority (NOTE)
-	Transaction ID
-	Message type
-	MM7 version
-	MMS Relay/Server ID
-	Linked ID
NOTE: The message reference is used to map fields and content from the original MM. The mapping of these fields is identical to the MM1_Submit.REQ/MM7_Deliver.REQ mapping in Table 16 Table 16 Table 16 .	

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Table 20 - Mapping MM4_Forward.REQ -> MM7_Deliver.REQ

Information elements in MM4_Forward.REQ	Information elements in MM7_Deliver.REQ
3GPP MMS Version	-
Message Type	-
Transaction ID	-
Message ID, -	Linked ID, - (NOTE 1)
Recipient(s) address	Recipient address
Sender address	Sender address (NOTE 2)
Content type	Content type
Message class	-
Date and time	Date and time
Time of Expiry	-
Delivery report	-
Priority	Priority
Sender visibility	-
Read reply	-
Subject	Subject
Acknowledgement Request	-
Forward counter	-
Previously-sent-by	-
Previously-sent-date and-time	-
Content	Content
-	Transaction ID
-	Message type
-	MM7 version
-	MMS Relay/Server ID
-	Recipient address
-	Reply-Charging-ID
NOTE 1: The Message ID over MM1 may or may not be mapped to the Linked ID over MM7. The Linked ID over MM7 may also be independent of the Message ID over MM1.	
NOTE 2: If the Sender Visibility flag is set over MM4, the Sender address from MM4 is not mapped onto MM7.	

Table 21 - Mapping MM7_Submit.REQ -> MM4_Forward.REQ

Information elements in MM4_Forward.REQ	Information elements in MM7_Submit.REQ
3GPP MMS Version	-
Message Type	-
Transaction ID	-
Message ID	-
Recipient(s) address	Recipient address
Sender address	Sender address
Content type	Content type
Message class	Message class
Date and time	Date and time
Time of Expiry	Time of Expiry
Delivery report	Delivery report
Priority	Priority
Sender visibility	-
Read reply	Read reply
Subject	Subject
Acknowledgement Request	-
Forward counter	-
Previously-sent-by	-
Previously-sent-date and-time	-
Content	Content
-	Transaction ID
-	Message type
-	MM7 version
-	VASP ID
-	VAS ID
-	Service code
-	Linked ID
-	Earliest delivery time
-	Delivery report
-	Reply-Charging
-	Reply-Deadline
-	Reply-Charging-Size
-	Adaptations
	Distribution-Indicator

Table 22 - MM4_delivery_report.REQ -> MM7_delivery_report.REQ

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Information elements in MM4_delivery_report.REQ	Information elements in MM7_delivery_report.REQ
3GPP MMS Version	-
Message Type	-
Transaction ID	-
MM Message ID	Message ID
Recipient address	Sender address
Sender address	Recipient address
MM Date and time	Date and time
Acknowledgement Request	-
MM Status Code	MM Status
Status Text	Status text
-	Transaction ID
-	Message Type
-	MM7 Version
-	MMS Relay/Server ID

Table 23 - MM4_Read_reply_report.REQ -> MM7_read_reply_report.REQ

Information elements in MM4_Read_reply_report.REQ	Information elements in MM7_read_reply.REQ
3GPP MMS Version	-
Message Type	-
Transaction ID	-
Recipient address	Recipient address
Sender address	Sender address
Message-ID	Message-ID
Date and time	Date and time
Acknowledgement Request	-
Read Status	Read Status
Status text	Status text
-	Transaction ID
-	Message Type
-	MM7 Version
-	MMS Relay/Server ID

2.6 MM7 XML Schema (Normative)

```

<?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-
1-4" 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-MM7-1-4"
elementFormDefault="qualified" attributeFormDefault="unqualified">

<xs:import namespace="http://schemas.xmlsoap.org/soap/envelope/"
schemaLocation="http://schemas.xmlsoap.org/soap/envelope/" />

<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:complexType>
<xs:simpleContent>

```

```

<xs:extension base="xs:string">
  <xs:attribute ref="soap:mustUnderstand"/>
  <xs:attribute ref="soap:encodingStyle"/>
  <xs:attribute ref="soap:actor"/>
</xs:extension>
</xs:simpleContent>
</xs:complexType>

</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">

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1         <xs:documentation>VASP to MMS: Response to a read reply delivered to the
2 VASP</xs:documentation>
3     </xs:annotation>
4     </xs:element>
5     <xs:element name="RSErrorRsp" type="tns:genericResponseType">
6         <xs:annotation>
7             <xs:documentation>MMS to VASP: Error response to a any bad request sent to the
8 MMS Relay/Server</xs:documentation>
9         </xs:annotation>
10        </xs:element>
11        <xs:element name="VASPErrorRsp" type="tns:genericResponseType">
12            <xs:annotation>
13                <xs:documentation>VASP to MMS: Error response to a any bad request sent to the
14 VASP</xs:documentation>
15            </xs:annotation>
16            </xs:element>
17            <xs:complexType name="senderIDType">
18                <xs:sequence>
19                    <xs:element name="VASPID" type="tns:entityIDType" minOccurs="0"/>
20                    <xs:element name="VASID" type="tns:entityIDType" minOccurs="0"/>
21                    <xs:element name="SenderAddress" type="tns:string" minOccurs="0"/>
22                </xs:sequence>
23            </xs:complexType>
24            <xs:complexType name="submitReqType">
25                <xs:complexContent>
26                    <xs:extension base="tns:genericVASPRequestType">
27                        <xs:sequence>
28                            <xs:element name="Recipients" type="tns:recipientsType"/>
29                            <xs:element name="ServiceCode" type="tns:serviceCodeType" minOccurs="0"/>
30                            <xs:element name="LinkedID" type="tns:messageIDType" minOccurs="0"/>
31                            <xs:element name="MessageClass" type="tns:messageClassType"
32                                default="Informational" minOccurs="0"/>
33                            <xs:element name="TimeStamp" type="xs:dateTime" minOccurs="0"/>
34                            <xs:element name="ReplyCharging" minOccurs="0">
35                                <xs:complexType>
36                                    <xs:attribute name="replyChargingSize" type="xs:positiveInteger"
37                                        use="optional"/>
38                                    <xs:attribute name="replyDeadline"
39                                        type="tns:relativeOrAbsoluteDateType" use="optional"/>
40                                </xs:complexType>
41                            </xs:element>
42                            <xs:element name="EarliestDeliveryTime"
43                                type="tns:relativeOrAbsoluteDateType" minOccurs="0"/>
44                            <xs:element name="ExpiryDate" type="tns:relativeOrAbsoluteDateType"
45                                minOccurs="0"/>
46                            <xs:element name="DeliveryReport" type="xs:boolean" minOccurs="0"/>
47                            <xs:element name="ReadReply" type="xs:boolean" minOccurs="0"/>
48                            <xs:element name="Priority" type="tns:priorityType" minOccurs="0"/>
49                            <xs:element name="Subject" type="xs:string" minOccurs="0"/>
50                            <xs:element name="ChargedParty" type="tns:chargedPartyType"
51                                minOccurs="0"/>
52                            <xs:element name="DistributionIndicator" type="xs:boolean" minOccurs="0"/>
53                            <xs:element name="Content" type="tns:contentReferenceType" minOccurs="0"/>
54                        </xs:sequence>
55                    </xs:extension>
56                </xs:complexContent>
57            </xs:complexType>
58            <xs:complexType name="submitRspType">
59                <xs:complexContent>
60                    <xs:extension base="tns:genericResponseType">
61                        <xs:sequence>
62                            <xs:extension base="tns:genericResponseType">
63                                <xs:sequence>
64                                    <xs:element name="MessageID" type="tns:MessageIDType"/>
65                                </xs:sequence>
66                            </xs:extension>
67                        </xs:sequence>
68                    </xs:extension>
69                </xs:complexContent>
70            </xs:complexType>
71            <xs:complexType name="deliverReqType">
72                <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"
minOccurs="0"/>
    <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:sequence>
        <xs:element name="ServiceCode" type="tns:ServiceCodeType" minOccurs="0"/>
      </xs:sequence>
    </xs:extension>
  </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="DateTimestamp" 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:sequence>
    </xs:extension>
  </xs:complexContent>
</xs:complexType>

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1         <xs:element name="Sender" type="tns:addressType"/>
2         <xs:element name="TimeStamp" type="xs:dateTime"/>
3         <xs:element name="MMStatus" type="tns:mmReadStatusType"/>
4         <xs:element name="StatusText" type="xs:string" minOccurs="0"/>
5     </xs:sequence>
6 </xs:extension>
7 </xs:complexContent>
8 </xs:complexType>
9 <xs:complexType name="genericRSReqType">
10     <xs:annotation>
11         <xs:documentation>base for all request messages from R/S to
12 VASP</xs:documentation>
13     </xs:annotation>
14     <xs:sequence>
15         <xs:element name="MM7Version" type="tns:versionType"/>
16         <xs:element name="MMSRelayServerID" type="tns:entityIDType" minOccurs="0"/>
17     </xs:sequence>
18 </xs:complexType>
19 <xs:complexType name="genericVASPRequestType">
20     <xs:annotation>
21         <xs:documentation>Base type for all requests from VASP to R/S</xs:documentation>
22     </xs:annotation>
23     <xs:sequence>
24         <xs:element name="MM7Version" type="tns:versionType"/>
25         <xs:element name="SenderIdentification" type="tns:senderIDType"/>
26     </xs:sequence>
27 </xs:complexType>
28 <xs:complexType name="genericResponseType">
29     <xs:annotation>
30         <xs:documentation>Any simple response sent </xs:documentation>
31     </xs:annotation>
32     <xs:sequence>
33         <xs:element name="MM7Version" type="tns:versionType"/>
34         <xs:element name="Status" type="tns:responseStatusType"/>
35     </xs:sequence>
36 </xs:complexType>
37 <xs:complexType name="responseStatusType">
38     <xs:annotation>
39         <xs:documentation>Status information conveyed in responses</xs:documentation>
40     </xs:annotation>
41     <xs:all>
42         <xs:element name="StatusCode">
43             <xs:simpleType>
44                 <xs:restriction base="tns:statusCodeType"/>
45             </xs:simpleType>
46         </xs:element>
47         <xs:element name="StatusText" type="tns:statusTextType"/>
48         <xs:element name="Details" type="tns:anyDataType" minOccurs="0"/>
49     </xs:all>
50 </xs:complexType>
51 <xs:simpleType name="mmDeliveryStatusType">
52     <xs:annotation>
53         <xs:documentation>Statuses for MM7_delivery_report</xs:documentation>
54     </xs:annotation>
55     <xs:restriction base="xs:string">
56         <xs:enumeration value="Expired"/>
57         <xs:enumeration value="Retrieved"/>
58         <xs:enumeration value="Rejected"/>
59         <xs:enumeration value="Indeterminate"/>
60         <xs:enumeration value="Forwarded"/>
61     </xs:restriction>
62 </xs:simpleType>
63 <xs:simpleType name="mmReadStatusType">
64     <xs:annotation>
65         <xs:documentation>Statuses for MM7_read_reply</xs:documentation>
66     </xs:annotation>
67     <xs:restriction base="xs:string">
68         <xs:enumeration value="Indeterminate"/>
69         <xs:enumeration value="Read"/>
70         <xs:enumeration value="Deleted"/>
71     </xs:restriction>
72 </xs:simpleType>
73 <xs:simpleType name="messageIDType">
74     <xs:annotation>
75         <xs:documentation>Message ID</xs:documentation>

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</xs:annotation>
<xs:restriction base="xs:NMTOKENstring"/>
</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="Falsefalse"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="Number">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:NMTOKENstring">
            <xs:attribute name="displayOnly" type="xs:boolean" use="optional"
default="Falsefalse"/>
          </xs:extension>
        </xs:simpleContent>
      </xs:complexType>
    </xs:element>
    <xs:element name="ShortCode">
      <xs:complexType>
        <xs:simpleContent>
          <xs:extension base="xs:NMTOKENstring">
            <xs:attribute name="displayOnly" type="xs:boolean" use="optional"
default="Falsefalse"/>
          </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
MMS</xs:documentation>
  </xs:annotation>
  <xs:restriction base="xs:NMTOKENstring"/>
</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>

```

```

1   <xs:simpleType name="messageClassType">
2     <xs:annotation>
3       <xs:documentation>Message class</xs:documentation>
4     </xs:annotation>
5     <xs:restriction base="xs:string">
6       <xs:enumeration value="Personal"/>
7       <xs:enumeration value="Informational"/>
8       <xs:enumeration value="Advertisement"/>
9       <xs:enumeration value="Auto"/>
10    </xs:restriction>
11  </xs:simpleType>
12  <xs:simpleType name="priorityType">
13    <xs:annotation>
14      <xs:documentation>Priority of MM</xs:documentation>
15    </xs:annotation>
16    <xs:restriction base="xs:string">
17      <xs:enumeration value="Normal"/>
18      <xs:enumeration value="High"/>
19      <xs:enumeration value="Low"/>
20    </xs:restriction>
21  </xs:simpleType>
22  <xs:simpleType name="relativeOrAbsoluteDateType">
23    <xs:annotation>
24      <xs:documentation>Date which can be relative or absolute</xs:documentation>
25    </xs:annotation>
26    <xs:union memberTypes="xs:dateTime xs:duration"/>
27  </xs:simpleType>
28  <xs:simpleType name="chargedPartyType">
29    <xs:annotation>
30      <xs:documentation>Allows specification of which party - Sender or Reciever pays
31      for transmission</xs:documentation>
32    </xs:annotation>
33    <xs:restriction base="xs:string">
34      <xs:enumeration value="Sender"/>
35      <xs:enumeration value="Recipient"/>
36      <xs:enumeration value="Both"/>
37      <xs:enumeration value="Neither"/>
38    </xs:restriction>
39  </xs:simpleType>
40  <xs:simpleType name="versionType">
41    <xs:annotation>
42      <xs:documentation>Version number in the format of x.y.z </xs:documentation>
43    </xs:annotation>
44    <xs:restriction base="xs:string">
45      <xs:enumeration value="5.8.0"/>
46      <xs:enumeration value="5.63.0"/>
47      <xs:enumeration value="5.5.0"/>
48      <xs:enumeration value="5.3.0"/>
49    </xs:restriction>
50  </xs:simpleType>
51  <xs:simpleType name="statusCodeType">
52    <xs:annotation>
53      <xs:documentation>request status resonse codes in RES </xs:documentation>
54    </xs:annotation>
55    <xs:restriction base="xs:positiveInteger"/>
56  </xs:simpleType>
57  <xs:complexType name="contentReferenceType">
58    <xs:annotation>
59      <xs:documentation>content element including only href</xs:documentation>
60    </xs:annotation>
61    <xs:attribute name="href" type="xs:anyURI" use="required"/>
62    <xs:attribute name="allowAdaptations" type="xs:boolean" use="optional"/>
63  </xs:complexType>
64  <xs:complexType name="anyDataType">
65    <xs:annotation>
66      <xs:documentation>Any element and attribute </xs:documentation>
67    </xs:annotation>
68    <xs:complexContent>
69      <xs:restriction base="xs:anyType">
70        <xs:sequence>
71          <xs:any processContents="lax" minOccurs="0" maxOccurs="unbounded"/>
72        </xs:sequence>
73      </xs:restriction>
74    </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>
```

2.7 Exceptions (Informative)

None.

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