

3GPP TSG-T (Terminals) Meeting #25
Palm Springs, CA, USA
8 - 10 September 2004

TP-040143

3GPP TSG-T2 #26
Montreal, Canada
23-27 August 2004

T2-040365

Title: Enabling MMS transmission and reception to UICC
Response to: -
Release: REL-6
Work Item: -

Source: T2
To: T3
Cc: T

Contact Person:

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Attachments: T2-040347 CR 23140 REL-6 Introducing Application Addressing in MMS.

1. Overall Description:

T2 has discussed the subject matter of enabling MMS transmission and reception to UICC.

T2 would like to inform T3 that T2 has just completed and approved work on an application identification mechanism. Please find the approved CR attached. We invite T3 to assess the usefulness of the MMS Application ID mechanism to satisfy T3's requirements for REL-6 and onwards.

Please note that there may be other mechanisms that could be used for the same purpose.

In the event, the MMS Application ID mechanism is utilized in T3, please note that there is no further work required in T2 to support MMS transmission and reception to the UICC.

2. Actions: None

3. Date of next T2 Meetings:

T2#27	8th – 12th November 2004	Cape Town South Africa
T2#28	February 2005 tbd	Sophia Antipolis tbd

CHANGE REQUEST

⌘ **23.140 CR CRNum** ⌘ rev - ⌘ Current version: **6.6.0** ⌘

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

Proposed change affects: UICC apps ME Radio Access Network Core Network

Title:	⌘ Introducing Application Addressing in MMS		
Source:	⌘ Infineon Technologies AG		
Work item code:	⌘ MMS6	Date:	⌘ 27/08/2004
Category:	⌘ B	Release:	⌘ Rel-6
	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) Rel-6 (Release 6)

Reason for change: ⌘ A requirement is identified in TS 22.140 that application addressing in MMS needs to be supported.

Summary of change: ⌘ Introduction of three new optional information elements for application addressing into the following MMS abstract messages:

- MM1_submit.REQ
- MM1_notification.REQ
- MM1_retrieve.RES
- MM1_delivery_report.REQ
- MM1_read_reply_recipient.REQ
- MM1_read_reply_originator.REQ

- MM4_forward.REQ
- MM4_delivery_report.REQ
- MM4_read_reply_report.REQ

- MM7_submit.REQ
- MM7_deliver.REQ
- MM7_cancel.REQ
- MM7_replace.REQ
- MM7_delivery_report.REQ
- MM7_read_reply_report.REQ

The new information elements added are:
 'Applic-ID', 'Reply-Applic-ID' and 'Aux-Applic-Info'.

Consequences if not approved: ☼ The associated requirement defined in TS 22.140 will not be met.

Clauses affected: ☼

- 3.1 Definition
- 5.1 MMS User Agent
 - 5.1.1 MMS Retrieval Modes
- 5.2 MMS Relay/Server
 - 7.1.3.1 Terminal Capability Negotiation
 - 7.1.6 Read-Reply Report
 - 7.1.13.1 (NEW) Identification of applications that reside on MMS VAS Applications
 - 7.1.17 (NEW) Support for transporting Application Data
- 8.1.3 Submission of Multimedia Message
- 8.1.4 Multimedia Message Notification
- 8.1.5 Retrieval of Multimedia Message
- 8.1.7 Delivery Report
- 8.1.8 Read-Reply Report
- 8.4.1 Routing Forward of a Multimedia Message
- 8.4.2 Routing Forward of a Delivery Report
- 8.4.3 Routing Forward of a Read-Reply Report
- 8.4.4 Message format on MM4
- 8.7.1 Submitting a VAS MM
- 8.7.2 Delivery Request
- 8.7.3 Cancel and replace of MM
- 8.7.4 Delivery reporting to VASP
- 8.7.5 Read-Reply Report for VASP
- 8.7.9 Mapping of Information Elements to SOAP Elements
- Annex C (charging data records)
- Annex I (MM1 <-> MM4 header mapping)
- Annex K (MM1, MM4 <-> MM7 header mapping)

Other specs affected:	Y	N	Other core specifications ☼ 3GPP TS 32.270; OMA MMS v1.3 (MM1 stage 3 specs)
	X		
		X	
		X	Test specifications
		X	O&M Specifications

Other comments: ☼

How to create CRs using this form:

Comprehensive information and tips about how to create CRs can be found at <http://www.3gpp.org/specs/CR.htm>. Below is a brief summary:

- 1) Fill out the above form. The symbols above marked ☼ contain pop-up help information about the field that they are closest to.
- 2) Obtain the latest version for the release of the specification to which the change is proposed. Use the MS Word "revision marks" feature (also known as "track changes") when making the changes. All 3GPP specifications can be downloaded from the 3GPP server under <ftp://ftp.3gpp.org/specs/> For the latest version, look for the directory name with the latest date e.g. 2001-03 contains the specifications resulting from the March 2001 TSG meetings.
- 3) With "track changes" disabled, paste the entire CR form (use CTRL-A to select it) into the specification just in front of the clause containing the first piece of changed text. Delete those parts of the specification which are not relevant to the change request.

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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.

Application Data: [Information / data specific to an application other than the MMS User Agent / VASP which is intended to be transported without alteration by using MMS. Application Data may be of any content type and format.](#)

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

MMSBox: 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 MMSBox, 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 [and/or on another application'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

Service provider identification: an identification for a service provider, e.g. a domain name, MCC+MNC, or a subset of the IMSI identifying the service provider. It is possible for the MMS Relay/Server to host several service providers. Mechanisms for this are implementation- and operator-specific.

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.

Time stamp: The date, time and the additional information, e.g. UTC, GMT or time zone, which allows the unambiguous identification of time.

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

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5.1 User Agent

5.1.1 MMS User Agent operations

The MMS User Agent shall provide the following application layer functionalities:-

- the retrieval of MMs (initiate MM delivery to the MMS User Agent);
- terminal capability negotiation.

The MMS User Agent may provide additional application layer functionalities such as:-

- the MM composition ;
- the presentation of the MM Size (as defined in clause 4.4) prior to MM submission;
- the MM submission;
- the MM presentation;
- the presentation of notifications to the user;
- the signing of an MM on an end-user to end-user basis;

- the decryption and encryption of an MM on an end-user to end-user basis;
- all aspects of storing MMs on the terminal;
- handling of MMS-related information on the (U)SIM;
- management and presentation of MMBox content;
- the handling of external devices;
- the user profile management;
- [transport of application data.](#)

This optional list of additional functionalities of the MMS User Agent is not exhaustive.

5.1.1.1 MMS Retrieval Modes

MMS allows for the retrieval of MMs in a manual or automatic fashion. The retrieval mode is a terminal behavior and is based on different factors. These factors may include roaming conditions, message size, MMS User Agent configuration, recommendation from the MMS Relay/Server for retrieval, ~~and~~ the originator of an MM, [and transport of application data.](#)

In automatic mode the retrieval of an MM and its storage to local memory is accomplished without any interaction with the end user. Depending on terminal implementation, the MM may be displayed to the end user with or without any pre-notice. In this mode the end user is probably not aware of the MM notification and whether it's stored on the device or not.

In manual mode the end user is made aware of the MM notification and is allowed to make a decision whether to download the MM or not. In this mode the end user is aware of an MM notification and where it's stored on the terminal.

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5.2 MMS Relay/Server

The MMS Relay/Server is responsible for storage and notification, reports, and general handling of messages. The MMS Relay/Server may also provide convergence functionality between External Servers and MMS User Agents and thus enable the integration of different server types across different networks. An Example can be found in Annex A.

It is possible to separate the MMS Relay/Server element into MMS Relay and MMS Server elements, but an allocation of the MMS Relay/Server functionalities to such elements is not defined in this release.

The MMS Relay/Server shall provide the following functionalities:

- receiving and sending MM;
- conversion of messages arriving at the recipient MMS Relay/Server from legacy messaging systems to MM format (e.g. facsimile to MM) if interworking with legacy messaging systems (MM3) is supported;
- conversion of MMs leaving the originator MMS Relay/Server to legacy messaging systems to the appropriate message format (e.g. MM to internet email) if interworking with legacy messaging systems (MM3) is supported;
- message content retrieval;
- MM notification to the MMS User Agent;
- generating delivery reports;
- routing forward MMs and read-reply reports;

- address translation;
- temporary storage of messages;
- ensuring that messages are not lost until successfully delivered to another MMSE element;
- DRM functionalities according to section 7.1.15;

The MMS Relay/Server should provide additional functionalities such as:

- generating charging data records (CDR);
- negotiation of terminal capabilities;
- [transport of application data](#).

The MMS Relay/Server may provide additional functionalities such as:

- MM forwarding;
- address hiding;
- persistent storage of messages;
- controlling the reply-charging feature of MMS;
- relaying Message Distribution Indicator.

The MMS Relay/Server can provide additional functionalities which are not further specified in this release such as:-

- enabling/disabling MMS function;
- personalising MMS based on user profile information;
- MM deletion based on user profile or filtering information;
- media type conversion;
- media format conversion;
- screening of MM;
- checking terminal availability;
- managing the message properties on servers (e.g. voicemail or email server) integrated in the MMSE (consistency) (only applicable if interworking with legacy messaging systems (MM3) is supported).

This list of additional optional functionalities of the MMS Relay/Server is not exhaustive.

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7.1.3.1 Terminal Capability Negotiation

An MMS User Agent shall support Terminal Capability Negotiation. An MMS Relay/Server shall support Terminal Capability Negotiation.

Within a request for delivery of an MM the recipient MMS User Agent shall be able to indicate its capabilities towards the recipient MMS Relay/Server.

The recipient MMS User Agent may indicate its capabilities towards the recipient MMS Relay/Server by transmitting:

- a set of information describing the terminal's capabilities
- a link (e.g. URI) to a database where the MMS Relay/Server can fetch a set of information describing the terminal's capabilities, and/or
- a differential set of information indicating changes to a previously indicated set of terminal capability information.

The detailed definition of the specific mechanism for terminal capability negotiation shall be defined by the MM1 implementation (WAP etc.). The mechanism for terminal capability negotiation shall ensure that the MMS Relay/Server

is provided with the information describing the MMS User Agent's capabilities within every request for delivery of an MM.

E.g. in the WAP implementation of MMS, in case an underlying WSP session is established between the MMS User Agent and an intermediate WAP Gateway, the MMS User Agent indicates its capabilities towards the WAP Gateway only after the initial set-up of the underlying WSP session or spontaneously following a change in terminal capabilities. The WAP Gateway, however, caches the terminal capability information and passes these on to the MMS Relay/Server within every request for delivery of an MM. Intermediate proxies on the MM1 reference point may also be involved in terminal capability negotiation and/or content adaptation.

Upon reception of such a delivery request the recipient MMS Relay/Server should use the information about the capabilities of the recipient MMS User Agent in preparation of MMs to be delivered to the recipient MMS User Agent. The MMS Relay/Server should adjust an MM to be delivered that contains media types and media formats that are not supported by the recipient MMS User Agent. This adjustment might involve the deletion or adaptation of those unsupported media types and media formats.

The MMS User Agent's capability information should include

- the maximum supported size of an MM,
- the maximum supported resolution of an image,
- a list of supported media types and media formats (e.g. MIME types),
- a list of supported character sets,
- a list of preferred languages,
- the maximum supported colour depth,
- an indication whether or not the recipient MMS User Agent supports streaming for the retrieval of MM contents as specified in clause 7.1.7₄,
- [an indication if the recipient MMS User Agent supports transporting application data.](#)

The MMS User Agent's capability information shall include:

- an indication of which Digital Rights Management methods are supported by the recipient MMS User Agent for protecting MM elements as specified in clause 7.1.15.

This information may include additional information related to the MMS implementation (WAP etc.).

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7.1.6 Read-Reply Report

The MMS Relay/Server shall support the read-reply reporting service. Read-reply reports shall only be generated for MMs.

Upon MM submission the originator MMS User Agent or VASP may be able to request a read-reply report for a specific MM.

Upon MM retrieval the recipient MMS User Agent may receive an indication that a read-reply report is requested for the MM.

After having handled/rendered the MM the recipient MMS User Agent may generate a read-reply report if requested by the originator (MMS User Agent or VASP) and if the originator address (MMS User Agent or VASP address) is available. [In case of transporting of application data acc. to clause 7.1.17 the recipient MMS User Agent shall not generate a read-reply report unless it has successfully delivered the MM related information to the application addressed by the destination application identifier.](#)

The originator MMS User Agent or VASP, i.e. the MMS User Agent or VASP receiving the read-reply report, may match the read-reply report to the sent MM by retaining the message identification of the sent MM and comparing it to the received read-reply report, which shall contain the message identification of the original MM. In case of multiple

MM recipients, it is necessary for the originator MMS User Agent or VASP to retain the MM recipient addresses as well as to match the read-reply report to the sent MM.

If a read-reply report has been requested by the originator MMS User Agent or VASP and if the recipient MMS User Agent supports the read-reply feature and if the recipient allows its creation the recipient MMS User Agent shall submit the read-reply report to the recipient MMS Relay/Server at the earliest opportunity.

NOTE: Since the MM recipient has the right to deny this service not receiving a read-reply report does not mean the message has not been rendered / [handled by the recipient MMS User Agent](#).

A read-reply report:

- shall contain the MM originator's address
- shall contain the MM recipient's address
- shall contain the message identification of the original MM for which the read-reply report has been generated.
- shall provide status information how the MM was rendered (e.g. read, deleted without being read)
- shall provide a time stamp for when the MM was rendered

The recipient MMS User Agent shall store read-reply reports in the UE until the recipient MMS Relay/Server becomes reachable (subject to support of the read-reply reporting service by the recipient MMS User Agent and storage place being available).

Upon reception of a read-reply report from a recipient MMS User Agent the recipient MMS Relay/Server

- may provide a time stamp for the read-reply report, i.e. it may also override the MMS User Agent's time stamp,
- shall pass the MM originator address unaltered when routing the read-reply report towards the originator MMS User Agent or originator VASP (i.e. the recipient MMS User Agent or recipient VASP of the read reply report)
- shall insert the MM recipient's address into the read-reply report if not yet provided
- may override the recipient's address provided by the recipient MMS User Agent in the read-reply report (subject to MMS service provider's preferences)
- shall resolve the MM originator's address,
- shall route the read-reply report towards the originator MMS User Agent or originator VASP of the original MM.

A special case is where the recipient MMS Relay/Server is also the originator MMS Relay/Server. In this case the MM does not have to be routed forward.

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7.1.13 Support for Value Added Services (VAS) in MMS

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[7.1.13.6 Identification of applications that reside on MMS VAS Applications](#)

[Applications that reside on a MMS VAS Application \(see section 7.1.17\) may trigger a VAS to submit or receive abstract messages over the MM7 reference point. These applications shall be identified in the abstract messages separately from the identification of the VASP and VAS. The identification of the VASP and VAS should not be affected by the addition of these new application identification fields. It is the responsibility of the VASP and VAS to maintain the connection of the identification to the applications that reside on the MMS VAS Application, and, as such, is out-of-scope for this specification.](#)

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7.1.17 Support for transporting Application Data

Apart from using MMS as a service for users to exchange messages, MMS may also be used to transport data specific to applications. Applications that intend to transport application specific data using MMS may either reside on an MMS User Agent or on an MMS VAS Application. Details of these applications or how an MMS User Agent or an MMS VAS Application would interface with them are outside the scope of this specification.

NOTE: Applications that want to transport data specific to applications other than MMS will initially need to register with the appropriate MMS User Agent or MMS VAS Application. During this registration process the application provisions an MMS User Agent or an MMS VAS Application with its application identification value and may negotiate with the MMS User Agent or MMS VAS Application the details (amount and format) of information to be exchanged between the two entities. The application registration process is outside the scope of this specification. The registration may be an inherent process e.g., in the application's integration into a mobile phone. It may also be the initial step after the download of a downloadable application to a mobile phone. Whatever the details of the application registration process are, an MMS User Agent or an MMS VAS Application acts according to the negotiated results from the application registration process.

Applications that reside on a MMS VAS Application are differentiated from the MMS VAS Application. These applications may trigger the MMS VAS Application as a MMS front-end to transmit or receive information formatted in MMS abstract messages. Such applications have an additional level of addressing – in addition to the identification of the VASP and the MMS VAS Application.

When MMS is used to transport data specific to applications between two MMS User Agents or an MMS User Agent and an MMS VAS Application (or vice versa) the following exceptions to the normal MMS service behaviour apply:

7.1.17.1 Application Identifiers

The application identifier of the destination application shall be present in an abstract message, while the identifier of a “reply-path” and some additional application/implementation specific control information may be present in an abstract message.

The additional application/implementation specific control information shall be used for all future needs that are not supported by the application identifier of the destination application and the identifier of the originating application, such as specifying a particular logical channel in the application addressing method (e.g., "discussion thread #05") or distinguishing between multiple instances of the same application (e.g., “chess application #02”).

The format of the application identifiers' values shall be text string.

NOTE: The syntax of the application identifiers' values is outside the scope of this specification, i.e. an industry group other than 3GPP may define these and shall guarantee their global uniqueness.

7.1.17.2 Applications sending and receiving abstract messages

7.1.17.2.1 Sending abstract messages

Based on the negotiated details upon application registration process an application may trigger an MMS User Agent or an MMS VAS Application to submit certain abstract messages. Upon triggering an MMS User Agent or an MMS VAS Application to send an abstract message the MMS User Agent or MMS VAS Application may receive information from the application. The MMS User Agent or MMS VAS Application may insert this information in both the information elements and/or payload (if present) of the abstract message. The details for the above are according to the results of the application registration process.

Abstract messages that are sent by an MMS User Agent or an MMS VAS Application on behalf of an originating application shall contain a destination application identifier. They may, in addition, contain an application identifier which is to be used in reply-MMs and they may contain additional application/implementation specific control information.

7.1.17.2.2 Receiving abstract messages

If an MMS Relay/Server finds from the recipient MMS User Agent's capability indication that the recipient MMS User Agent does not support the transport of application data, the MMS Relay/Server

- should delete the content of the MM before notifying the MMS User Agent or before retrieval. In such a case the recipient MMS Relay/Server shall apply the normal reporting behaviour towards receiving as well as sending entities;
- may decide about the deletion of content based on user setting in the user's profile and/or configuration by network operator and/or MMS service provider.

If the MMS Relay/Server finds from the recipient MMS User Agent's capability indication that the recipient MMS User Agent supports transport of application data, the MMS Relay/Server

- shall not perform any type of content adaptation to a multimedia message (MM) that may be contained in the payload of an abstract message that contains a destination application identifier;
- shall pass on the destination application identifier, the "reply-path" identifier (if present) and the additional application/implementation specific control information (if present) unaltered.

Upon reception of an abstract message containing a destination application identifier, the receiving MMS User Agent or MMS VAS Application shall first check if the destination application resides on it.

If the destination application resides on a receiving MMS VAS Application, the MMS VAS Application shall immediately route the received MMS information on to the destination application that is referred to by the destination application identifier (based on the negotiated details upon application registration process).

If the destination application resides on a receiving MMS User Agent, the MMS User Agent shall immediately route the received MMS information on to the destination application that is referred to from the destination application identifier (based on the negotiated details upon application registration process) without presentation to the user.

NOTE: The further handling and processing of the information by the destination application is outside the scope of this specification.

If the destination application does not reside on the receiving MMS User Agent or MMS VAS Application, the MMS User Agent or MMS VAS Application shall discard the corresponding abstract message.

7.1.17.2.3 End User Confirmation

An MMS User Agent may ask for end user confirmation before any submission or retrieval of an MM triggered by an application due to charging, privacy or security reasons.

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8.1.3 Submission of Multimedia Message

This part of MMS service covers the submission of an MM. For sending purposes a terminal-originated MM shall always be submitted from the originator MMS User Agent to the corresponding MMS Relay/Server. Involved abstract messages are outlined in Table 1 from type and direction points of view.

Table 1: Abstract messages for submission of MM in MMS

Abstract messages	Type	Direction
MM1_submit.REQ	Request	MMS UA -> MMS Relay/Server
MM1_submit.RES	Response	MMS Relay/Server -> MMS UA

8.1.3.1 Normal operation

The originator MMS User Agent shall submit a terminal-originated MM to the originator MMS Relay/Server using the MM1_submit.REQ, which contains MMS control information and the MM content. If the Store information element is present, the MM will also be copied to the MMBox, if the MMBox is supported and enabled for the subscriber.

The MMS Relay/Server shall respond with an MM1_submit.RES, which provides the status of the request. The MM1_submit.RES shall unambiguously refer to the corresponding MM1_submit.REQ.

Support for MM1_submit.REQ is optional for the MMS UA, support for MM1_submit.RES is mandatory for the MMS Relay/Server.

8.1.3.2 Abnormal Operation

In this case the originator MMS Relay/Server shall respond with a MM1_submit.RES encapsulating a status which indicates the reason the multimedia message was not accepted, e.g. no subscription, corrupt message structure, service not available, MMBox not supported, MMBox not enabled, MMBox over quota, MMBox system full, MMBox I/O error.

If the MMS Relay/Server does not provide the MM1_submit.RES the MMS User Agent should be able to recover.

8.1.3.3 Features

Addressing: One or several MM recipients of a submitted MM shall be indicated in the addressing-relevant information field(s) of the MM1_submit.REQ. The originator of a submitted MM may be indicated in addressing-relevant information field(s) of the MM1_submit.REQ. The originator MMS User Agent may request to hide its identity from the MM recipient.

Time stamping: The originator MMS User Agent may time stamp the MM.

Time constraints: The originator MMS User Agent may also request an earliest desired time of delivery of the MM. The originator MMS User Agent may request a time of expiry for the MM. In case of reply-charging the originator MMS User Agent may also request a deadline for the latest time of submission of reply-MMs granted to the recipient(s).

Reply-Charging: The originator MMS User Agent may indicate that the sender wants to pay for a reply-MM and convey the reply-charging limitations (e.g. the latest time of submission and/or the maximum size of a reply-MM) in the MM1_submit.REQ.

Message class, priority and subject: The MM may be qualified further by adding a message class, priority and/or subject to the MM in the MM1_submit.REQ. Additional qualifiers may be added.

Reporting: The originator MMS User Agent may request a delivery report for the MM. In addition, the originator MMS User Agent may request a read-reply report when the user has viewed the MM.

Identification: The originator MMS Relay/Server shall always provide a message identification for an MM, which it has accepted for submission in the MM1_submit.RES. In case of reply-charging the MMS User Agent which submits a reply-MM (i.e. the MMS User Agent that received the original MM) shall provide the message ID of the original MM which it replies to in the MM1_submit.REQ.

Persistent storage: In addition to being submitted for normal delivery, the MMS User Agent may request that the submitted MM be stored into the MMBox, by the presence of the Store information element. As part of the store request, the MM State and MM Flags can be set with the use of corresponding information elements. The response to a Store request shall include a Message Reference to the newly stored MM, as well as the associated MM State and optional MM Flags.

Store Status: The MMS Relay/Server shall indicate the store status of the MM1_submit.REQ in the Store Status information element of the associated MM1_submit.RES. The Store Status information element of the MM1_submit.RES may be supported with an explanatory text. If this text is available in the Store Status Text information element the MMS User Agent should bring it to the user's attention. The choice of the language used in the Store Status Text information element is at the discretion of the MMS service provider

Content Type: The MIME type of the multimedia content shall always be identified in the MM1_submit.REQ.

Content: The originator MMS User Agent may add content in the MM1_submit.REQ.

Request Status: The originator MMS Relay/Server shall indicate the status of the MM1_submit.REQ in the associated MM1_submit.RES. The reason code given in the status information element of the MM1_submit.RES may be supported with an explanatory text further qualifying the status. If this text is available in the Request status text information element the MMS User Agent should bring it to the user's attention. The choice of the language used in the Request status text information element is at the discretion of the MMS service provider.

Transaction Identification: The originator MMS User Agent shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Version: The MMS protocol shall provide unique means to identify the current version of the particular protocol environment.

Message Type: The type of the message used on the reference point MM1 indicating MM1_submit.REQ and MM1_submit.RES as such.

Applic-ID: The presence of this information element indicates that this abstract message shall be provided to an application residing on an MMS User Agent or MMS VAS Application. It contains the identification of the destination application.

Reply-Applic-ID: If present, this information element indicates a “reply path”, i.e. the identifier of the application to which delivery reports, read-reply reports and reply-MMs are addressed if any.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1).

8.1.3.4 Information Elements

Table 2: Information elements in the MM1_submit.REQ.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_submit.REQ
Transaction ID	Mandatory	The identification of the MM1_submit.REQ/MM1_submit.RES pair.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS UA.
Recipient address	Mandatory	The address of the recipient(s) of the MM. Multiple addresses are possible.
Content type	Mandatory	The content type of the MM's content.
Sender address	Optional	The address of the MM originator.
Message class	Optional	The class of the MM (e.g., personal, advertisement, information service)
Date and time	Optional	The time and date of the submission of the MM (time stamp).
Time of Expiry	Optional	The desired time of expiry for the MM or reply-MM (time stamp).
Earliest delivery time	Optional	The earliest desired time of delivery of the MM to the recipient (time stamp).
Delivery report	Optional	A request for delivery report.
Reply-Charging	Optional	A request for reply-charging.
Reply-Deadline	Optional	In case of reply-charging the latest time of submission of replies granted to the recipient(s) (time stamp).
Reply-Charging-Size	Optional	In case of reply-charging the maximum size for reply-MM(s) granted to the recipient(s).
Priority	Optional	The priority (importance) of the message.
Sender visibility	Optional	A request to show or hide the sender's identity when the message is delivered to the recipient.
Store	Optional	A request to store a copy of the MM into the user's MMBox, in addition to the normal delivery of the MM.
MM State	Optional	The value to set in the MM State information element of the stored MM, if Store is present.
MM Flags	Optional	One or more MM Flag keywords to set in the MM Flags information element of the stored MM, if Store is present
Read reply	Optional	A request for read reply report.
Subject	Optional	The title of the whole multimedia message.
Reply-Charging-ID	Optional	In case of reply-charging when the reply-MM is submitted within the MM1_submit.REQ this is the identification of the original MM that is replied to.
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs, delivery reports and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.
Content	Optional	The content of the multimedia message

Table 3: Information elements in the MM1_submit.RES.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_submit.RES.
Transaction ID	Mandatory	The identification of the MM1_submit.REQ/MM1_submit.RES pair.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server.
Request Status	Mandatory	The status of the MM submit request.
Request Status Text	Optional	Description which qualifies the status of the MM submit request.
Message ID	Conditional	The identification of the MM if it is accepted by the originator MMS Relay/Server.
Store Status	Conditional	If the Store request was present in MM1_submit.REQ, the status of the store request.
Store Status Text	Optional	The explanatory text corresponding to the Store Status, if present.
Stored Message Reference	Conditional	If the Store request was present in MM1_submit.REQ, the message reference to the newly stored MM.

8.1.4 Multimedia Message Notification

This part of the MMS service covers the notification about MM from the recipient MMS Relay/Server to the corresponding recipient MMS User Agent and involving abstract messages are outlined in Table 4 from type, and direction points of view.

Table 4: abstract messages for notification of MM in MMS

Abstract message	Type	Direction
MM1_notification.REQ	Request	MMS Relay/Server -> MMS UA
MM1_notification.RES	Response	MMS UA -> MMS Relay/Server

8.1.4.1 Normal Operation

Upon receiving the MM1_notification.REQ, the recipient MMS User Agent shall respond with the MM1_notification.RES to the recipient MMS Relay/Server to acknowledge the successful reception of the MM1_notification.REQ.

The MM1_notification.RES shall unambiguously refer to the corresponding MM1_notification.REQ.

8.1.4.2 Abnormal Operation

In this case the MMS UA shall respond with a MM1_notification.RES encapsulating a status which indicates the reason the notification could not be processed. If the MMS UA does not provide the MM1_notification.RES the MMS Relay/Server should be able to retransmit the notification at a later state.

8.1.4.3 Features

Addressing: The MM originator address may be provided to the recipient MMS User Agent in the MM1_notification.REQ. The MM originator address shall not be provided to the recipient MMS User Agent if the MM originator has requested her address to be hidden from the MM recipient. In the case of forwarding, the address of the latest forwarding MMS User Agent shall be provided.

Time constraints: The recipient MMS User Agent shall be provided a time of expiry of the MM. In case of reply-charging the deadline for the latest time of submission of a reply-MM should be conveyed within the MM1_notification.REQ.

Reply-Charging: In case of reply-charging the MMS Relay/Server may indicate in the MM1_notification.REQ that a reply to the notified original MM is free of charge and the reply-charging limitations.

Message class, message size, priority and subject: The MM shall be qualified further by adding a message class and an approximate size to the MM in the MM1_notification.REQ. The MM may be qualified further by adding a priority and/or subject to the MM. Additional qualifiers may be added.

Reporting: If the originator MMS User Agent has requested to have a delivery report, the recipient MMS Relay/Server may convey this information to the recipient MMS User Agent in the MM1_notification.REQ. The recipient MMS User Agent may indicate in the MM1_notification.RES that it would not wish a delivery report to be created.

Identification: In case of reply-charging when a reply-MM is notified within the MM1_notification.REQ the MMS Relay/Server should convey the identification of the original MM replied to within the same MM1_notification.REQ.

Persistent storage: When the MMBBox is configured such that incoming MMs are stored automatically, the MM1_notification.REQ shall contain the Stored information element.

Message Reference: The recipient MMS Relay/Server shall always provide a reference, e.g., URI, for the MM in the MM1_notification.REQ. When incoming MMs are stored automatically, the Message Reference will refer to the newly stored MM within the MMBBox.

MM Status: The recipient MMS User Agent may indicate in the MM1_notification.RES how it intends the MM to be handled, e.g. the immediate rejection of the MM.

MM element descriptor: The recipient MMS Relay/Server may provide one or more description(s) of message elements in the MM1_notification.REQ. A description shall contain a reference to the message element, e.g. a URI, an index number etc.. A description of a message element may be further qualified by adding one or more of such parameters as:

- name of the message element
- type and format of the message element
- approximate size of the message element

Message Distribution Indication: The VASP may indicate whether the content of the MM is intended for redistribution.

NOTE: From REL-6 onwards, in case of misalignment, DRM-protection rules shall prevail over the Message Distribution Indication feature.

Transaction Identification: The originator MMS Relay/Server shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Version: The MMS protocol shall provide unique means to identify the current version of the particular protocol environment.

Message Type: The type of the message used on the reference point MM1 indicating MM1_notification.REQ and MM1_notification.RES as such.

MM recommended retrieval mode: the MMS Relay/Server may include an indication about the recommended manual retrieval mode of the MM. This indication code may be supported with an explanatory text (e.g. indication about charging related information if recipient has to pay for the retrieval or roaming condition) further expliciting why the manual retrieval mode is recommended for the MM.

Applic-ID: [This information element contains the identification of the destination application. Upon reception, the recipient MMS User Agent shall provide this MM1_notification.REQ to the specified destination application.](#)

Reply-Applic-ID: [If present, this information element may be used by the originating application to indicate a “reply path” to the destination application residing on the receiving MMS User Agent or MMS VAS Application. It contains the application identifier which shall be used by the recipient MMS User Agent when a reply-MM or a read-reply report is created.](#)

Aux-Applic-Info: [If present, this information element indicates additional application/implementation specific control information \(cf. 7.1.17.1\).](#)

8.1.4.4 Information Elements

Table 5: Information elements in the MM1_notification.REQ.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_notification.REQ
Transaction ID	Mandatory	The identification of the MM1_notification.REQ/MM1_notification.RES pair.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server.
Message class	Mandatory	The class of the MM (e.g., personal, advertisement, information service; default = personal)
Message size	Mandatory	The approximate size of the MM
Time of expiry	Mandatory	The time of expiry for the MM (time stamp).
Message Reference	Mandatory	a reference, e.g., URI, for the MM
Subject	Optional	The title of the whole MM.
Priority	Optional	The priority (importance) of the message.
Sender address	Conditional	The address of the MMS User Agent that most recently handled the MM, i.e. that either submitted or forwarded the MM. If the originator MMS User Agent has requested her address to be hidden from the recipient her address shall not be provided to the recipient.
Stored	Optional	Indicates that the MM was automatically stored into the MMBox.
Delivery report	Optional	Request for delivery report
Reply-Charging	Optional	Information that a reply to this particular original MM is free of charge.
Reply-Deadline	Optional	In case of reply-charging the latest time of submission of a reply granted to the recipient (time stamp).
Reply-Charging-Size	Optional	In case of reply-charging the maximum size of a reply-MM granted to the recipient.
Reply-Charging-ID	Optional	The identification of the original MM replied to if this notification indicates a reply-MM.
Element-Descriptor	Optional	The reference for an element of the MM, which may contain further information about the referenced element of the MM, e.g. the name, the size and/or the type and format of the message element
MM recommended retrieval mode	Optional	Indication that manual retrieval mode is recommended for this MM
Text explaining MM recommended retrieval mode	Optional	Description that explicits why the manual retrieval mode is recommended for the MM.
Message Distribution Indicator	Optional	If set to "false" the VASP has indicated that content of the MM is not intended for redistribution. If set to "true" the VASP has indicated that content of the MM can be redistributed (NOTE).
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.
NOTE:		From REL-6 onwards, in case of misalignment between the value assigned to MDI and DRM-protection rules, the latter shall prevail.

Table 6: Information elements in the MM1_notification.RES.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_notification.RES.
Transaction ID	Mandatory	The identification of the MM1_notification.REQ/MM1_notification.RES pair.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS User Agent.
MM Status	Optional	The status of the MM's retrieval
Report allowed	Optional	Request to allow or disallow the sending of a delivery report to the MM originator

8.1.5 Retrieval of Multimedia Message

This part of MMS service covers the retrieval of an MM. For retrieval purposes an MM shall always be retrieved by the recipient MMS User Agent from the recipient MMS Relay/Server. Involved abstract messages are outlined in Table 7 from type and direction points of view.

Table 7: Abstract messages for retrieval of MM in MMS

Abstract messages	Type	Direction
MM1_retrieve.REQ	Request	MMS UA -> MMS Relay/Server
MM1_retrieve.RES	Response	MMS Relay/Server -> MMS UA
MM1_acknowledgement.REQ	Request	MMS UA -> MMS Relay/Server

8.1.5.1 Normal Operation

The recipient MMS User Agent shall issue an MM1_retrieve.REQ to the recipient MMS Relay/Server to initiate the retrieval process. The MMS Relay/Server shall respond with an MM1_retrieve.RES, which contains MMs control information and the MM content.

After receiving the MM1_retrieve.RES, the recipient MMS User Agent shall send an MM1_acknowledgement.REQ to the corresponding MMS Relay/Server, if requested by the MMS Relay/Server. The MM1_acknowledgement.REQ shall unambiguously refer to the corresponding MM1_retrieve.RES.

8.1.5.2 Abnormal Operation

If the recipient MMS Relay/Server can not process the MM1_retrieve.REQ, for example due to invalid content location or expiration of the message, the recipient MMS Relay/Server shall respond with either an MM1_retrieve.RES or a lower protocol layer error message encapsulating a status which indicates the reason to the MMS User Agent the multimedia message was not delivered.

If the MMS Relay/Server does not provide the MM1_retrieve.RES or the lower protocol layer error message the MMS User Agent should be able to recover.

8.1.5.3 Features

Message Reference: The recipient MMS User Agent shall provide a reference, e.g., URI, for the MM in the MM1_retrieve.REQ.

This reference was previously delivered to the MMS User Agent from MM1_notification.REQ, MM1_submit.RES, MM1_forward.RES, MM1_mmbox_view.RES, MM1_mmbox_upload.RES, or MM1_mmbox_store.RES. In the latter cases, the Message Reference will address an MM that resides in the MMBox.

Addressing: The MM originator address may be provided to the recipient MMS User Agent in the addressing-relevant information field of MM1_retrieve.RES. The MM originator address shall not be provided to the recipient MMS User Agent if the MM originator has requested her address to be hidden from the MM recipient. In the case of forwarding, the address of the latest forwarding MMS User agent shall be provided and the address(es) of the previous forwarding MMS User Agent(s) and the address of the originator MMS User Agent may be provided. One or several address(es) of the MM recipient(s) may be provided to the recipient MMS User Agent in the addressing-relevant information field(s) of the MM1_retrieve.RES.

Time stamping: The MM1_retrieve.RES shall carry the time and date of the most recent handling of the MM by an MMS User Agent (i.e. either submission or the most recent forwarding of the MM). In the case of forwarding, the MM1_retrieve.RES may in addition carry the time and date of the submission of the MM.

Time constraints: In case of reply-charging the deadline for the latest time of submission of a reply-MM shall be conveyed within the MM1_retrieve.RES.

Message class, priority and subject: Information about class, priority, subject of the MM shall be included in the MM1_retrieve.RES according to their presence and value received at the MMS Relay/Server. Information about additional end-to-end qualifiers of the MM should be included in the MM1_retrieve.RES according to their presence and value received at the MMS Relay/Server.

Reporting: If the originator MMS User Agent has requested to have a read-reply report, the recipient MMS Relay/Server shall convey this information in the MM1_retrieve.RES. If the originator MMS User Agent has requested to have a delivery report, the recipient MMS Relay/Server may convey this information to the recipient MMS User Agent in the MM1_retrieve.RES.

If a request for a delivery report is included in the MM1_retrieve.RES the recipient MMS User Agent shall convey the information whether it accepts or denies the sending of a delivery report to the MM originator in MM1_acknowledgement.REQ.

If a delivery report is not requested, it is up to the recipient MMS User Agent to include this information in MM1_acknowledgement.REQ or not.

Reply-Charging: In case of reply-charging the MMS Relay/Server should indicate in the MM1_retrieve.RES that a reply to this particular original MM is free of charge and the reply-charging limitations.

Identification: The MMS Relay/Server shall provide a message identification for a message, which it has accepted for delivery in the MM1_retrieve.RES. In case of reply-charging the MMS Relay/Server shall provide the message ID of the original MM which is replied to in the MM1_retrieve.RES.

Persistent storage: In the MM1_retrieve.RES, the MMS Relay/Server shall convey the MM State and/or MM Flags information elements if they have been previously set for the persistently stored MM.

Content Type: The type of the MM's content shall always be identified in the MM1_retrieve.RES.

Content: The content of the multimedia message if added by the originator MMS User Agent of the MM may be conveyed in the MM1_retrieve.RES.

Request Status: In case of normal operation the recipient MMS Relay/Server may indicate in the MM1_retrieve.RES that the retrieval of the MM was processed correctly. In case of abnormal operation the recipient MMS Relay/Server shall indicate in the MM1_retrieve.RES the reason why the multimedia message could not be retrieved. The corresponding reason codes should cover application level errors (e.g. "the media format could not be converted", "insufficient credit for retrieval"). Lower layer errors may be handled by corresponding protocols.

The reason code given in the status information element of the MM1_retrieve.RES may be supported with an explanatory text further qualifying the status. If this text is available in the Request status text information element the MMS User Agent should bring it to the user's attention. The choice of the language used in the Request status text information element is at the discretion of the MMS service provider.

Previously-sent-by: The address(es) of the MMS User Agent(s) that submitted or forwarded the MM prior to the last forwarding MMS User Agent. In the multiple forwarding case the order of the provided addresses shall be indicated and the address of the originator MMS User Agent shall be indicated, if present.

NOTE: The address of the last forwarding MMS User Agent is carried in other addressing elements.

Message Distribution Indication: The VASP may indicate whether the content of the MM is intended for redistribution.

NOTE: From REL-6 onwards, in case of misalignment, DRM-protection rules shall prevail over the Message Distribution Indication feature.

Transaction Identification: The originator MMS User Agent shall provide unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Version: The MMS protocol shall provide unique means to identify the current version of the particular protocol environment.

Message Type: The type of the message used on the reference point MM1 indicating MM1_retrieve.RES and MM1_acknowledgement.REQ as such.

[Applic-ID:](#) This information element contains the identification of the destination application. Upon reception, the recipient MMS User Agent shall provide this MM1_retrieve.RES to the specified destination application.

[Reply-Applic-ID:](#) If present, this information indicates a "reply path". It contains the application identifier which shall be used by the recipient MMS User Agent when a reply-MM or a read-reply report is created.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1).

8.1.5.4 Information Elements

Table 8: Information elements in the MM1_retrieve.REQ

Information element	Presence	Description
Message Reference	Mandatory	Location of the content of the MM to be retrieved.

Table 9: Information elements in the MM1_retrieve.RES

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_retrieve.RES.
Transaction ID	Conditional	If the MMS Relay/Server requests an acknowledgement from the recipient MMS User Agent then the Transaction ID shall be present. It then identifies the MM1_retrieve.RES/MM1_acknowledgement.REQ messages.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server.
Message ID	Conditional	The message ID of the MM. Condition: this information element shall be present when the MM1_retrieve.RES contains the requested MM content.
Sender address	Conditional	The address of the MMS User Agent that most recently handled the MM, i.e. that either submitted or forwarded the MM. If the originator MMS User Agent has requested her address to be hidden from the recipient her address shall not be provided to the recipient.
Content type	Mandatory	The content type of the MM's content.
Recipient address	Optional	The address of the MM recipient. Multiple addresses are possible.
Message class	Optional	The class of the message (e.g., personal, advertisement, information service)
Date and time	Mandatory	The time and date of the most recent handling (i.e. either submission or forwarding) of the MM by an MMS User Agent (time stamp).
Delivery report	Conditional	A request for delivery report if a delivery report has been requested by the originator MMS User Agent.
Priority	Conditional	The priority (importance) of the message if specified by the originator MMS User Agent..
Read reply	Conditional	A request for read-reply report if the originator MMS User Agent of the MM has requested a read-reply report.
Subject	Conditional	The title of the whole multimedia message if specified by the originator MMS User Agent of the MM.
MM State	Conditional	The MM State. May be absent for incoming MMs; shall be present for persistently stored MMs
MM Flags	Optional	Present only for persistently stored MMs. One or more keyword flags, which shall be present if they have been previously set for the MM.
Request Status	Optional	The status of the MM retrieve request.
Request Status Text	Optional	Description which qualifies the status of the MM retrieve request.
Reply-Charging	Optional	Information that a reply to this particular original MM is free of charge.
Reply-Charging-ID	Optional	In case of reply-charging this is the identification of the original MM replied to.
Reply-Deadline	Optional	In case of reply-charging the latest time of submission of a reply granted to the recipient (time stamp).
Reply-Charging-Size	Optional	In case of reply-charging the maximum size of a reply-MM granted to the recipient.
Previously-sent-by	Optional	In case of forwarding this information element contains one or more address(es) of MMS User Agent(s) that handled (i.e. forwarded or submitted) the MM prior to the MMS User Agent whose address is contained in the Sender address information element. The order of the addresses provided shall be marked. The address of the originator MMS User Agent shall be marked, if present.
Previously-sent-date-and-time	Optional	The date(s) and time(s) associated with submission and forwarding event(s) prior to the last handling of the MM by an MMS User Agent (time stamp).
Message Distribution Indicator	Optional	If set to "false" the VASP has indicated that content of the MM is not intended for redistribution. If set to "true" the VASP has indicated that content of the MM can be redistributed. (NOTE)
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs and read-reply reports are addressed.

Aux-Applic-Info	Optional	Auxiliary application addressing information.
Content	Conditional	The content of the multimedia message if specified by the originator MMS User Agent of the MM.
NOTE: From REL-6 onwards, in case of misalignment between the value assigned to MDI and DRM-protection rules, the latter shall prevail.		

Table 10: Information elements in the MM1_acknowledgement.REQ

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_acknowledgment.REQ.
Transaction ID	Conditional	If an acknowledgement is requested by the MMS Relay/Server then the Transaction ID shall be present. It then identifies the MM1_retrieve.RES/MM1_acknowledgement.REQ messages.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS User Agent.
Report allowed	Optional	Request to allow or disallow the sending of a delivery report to the MM originator

8.1.6 Forwarding of Multimedia Message

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8.1.7 Delivery Report

This part of MMS service covers the sending of delivery report from originator MMS Relay/Server to the originator MMS User Agent. The involved abstract message is outlined in Table 14 from type and direction points of view.

Table 1144: abstract message for sending delivery reports in MMS

Abstract Message	Type	Direction
MM1_delivery_report.REQ	Request	MMS Relay/Server -> MMS UA

8.1.7.1 Normal Operation

The originator MMS Relay/Server shall (subject to user, MMS service provider and/or operator preferences) create the MM1_delivery_report.REQ and send it to the originator MMS User Agent when the appropriate information for the creation of a delivery report is available.

Support for MM1_delivery_report.REQ is optional for the MMS User Agent but mandatory for the MMS Relay/Server.

8.1.7.2 Abnormal Operation

The MMS protocol framework does not provide mechanisms to cover and handle the unsuccessful delivery of MM1_delivery_report.REQ.

The underlying protocols shall provide reliable transport of MM1_delivery_report.REQ. Moreover, underlying protocol layers may provide a mechanism for the MMS User Agent to acknowledge successful reception of a MM1_delivery_report.REQ to the MMS Relay/Server.

8.1.7.3 Features

Identification: In the MM1_delivery_report.REQ the MMS Relay/Server shall always provide the original message identification of the MM that the delivery report corresponds to.

Addressing: The MM recipient address shall be provided to the originator MMS User Agent in the addressing-relevant information field of MM1_delivery_report.REQ.

Time stamping: The MM1_delivery_report.REQ shall carry the time and date of handling of the MM (e.g. retrieval, expiry, rejection).

MM Status: The MM1_delivery_report.REQ shall carry the status of the MM delivery, e.g. retrieved, forwarded, rejected, expired or indeterminate.

Version: The MMS protocol shall provide unique means to identify the current version of the particular protocol environment.

Message Type: The type of the message used on the reference point MM1 indicating MM1_delivery_report.REQ as such.

Applic-ID: [This information element indicates the identification of the application that the delivery report is intended for. If a Reply-Applic-ID was indicated in the corresponding original MM, the recipient MMS Relay/Server shall set its value to that Reply-Applic-ID value. Otherwise, the recipient MMS Relay/Server shall set its value to the Applic-ID value that was indicated in the corresponding original MM.](#)

Reply-Applic-ID: [If present, this information element indicates a “reply path” to this delivery report, i.e. the identification of an application to which reply-MMs are addressed. The recipient MMS Relay/Server shall insert it into the MM1_delivery_report.REQ if the values of Applic-ID and Reply-Applic-ID in the corresponding original MM differ, in which case its value shall equal the Applic-ID value that was indicated in the corresponding original MM.](#)

Aux-Applic-Info: [If present, this information element indicates additional application/implementation specific control information \(cf. 7.1.17.1\). The recipient MMS Relay/Server shall insert it if Aux-Applic-Info was indicated in the corresponding original MM, in which case its value shall equal that Aux-Applic-Info value.](#)

8.1.7.4 Information Elements

Table 1245: Information elements in the MM1_delivery_report.REQ.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_delivery_report.REQ.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server.
Message ID	Mandatory	The identification of the original MM.
Recipient address	Mandatory	The address of the MM recipient of the original MM.
Date and Time	Mandatory	Date and time the MM was handled (retrieved, expired, rejected, etc.) (time stamp)
MM Status	Mandatory	Status of the MM, e.g. retrieved, forwarded, expired, rejected
Applic-ID	Optional	The identification of the application that this delivery report is intended for.
Reply-Applic-ID	Optional	Identification of a “reply path” to this delivery report.
Aux-Applic-Info	Optional	Auxiliary application addressing information as indicated in the original MM.

8.1.8 Read-Reply Report

This part of MMS service covers the sending of read-reply report from the recipient MMS User Agent to the recipient MMS Relay/Server and the sending of read-reply report from the originator MMS Relay/Server to the originator MMS User Agent. The involved abstract messages are outlined in Table 16 from type and direction points of view.

Table 1346: Abstract messages for sending and receiving read-reply report in MMS

Abstract messages	Type	Direction
MM1_read_reply_recipient.REQ	Request	MMS UA -> MMS Relay/Server
MM1_read_reply_originator.REQ	Request	MMS Relay/Server -> MMS UA

8.1.8.1 Normal Operation

If a read-reply report is requested for an MM, the recipient MMS User Agent may create the MM1_read_reply_recipient.REQ and send it to the recipient MMS Relay/Server.

The originator MMS Relay/Server shall (subject to user, MMS service provider and/or operator preferences) create the MM1_read_reply_originator.REQ and send it to the originator MMS User Agent when the appropriate information for the creation of a read-reply report is available.

Support for MM1_read_reply_recipient.REQ and MM1_read_reply_originator.REQ is optional for the MMS User Agent but mandatory for the MMS Relay/Server.

8.1.8.2 Abnormal Operation

The MMS protocol framework does not provide mechanisms to cover and handle the unsuccessful delivery of MM1_read_reply_recipient.REQ and MM1_read_reply_originator.REQ.

The underlying protocols shall provide reliable transport of MM1_read_reply_recipient.REQ and MM1_read_reply_originator.REQ. Moreover, underlying protocol layers may provide a mechanism for the MMS Relay/Server to acknowledge successful reception of a MM1_read_reply_recipient.REQ to the MMS User Agent. Underlying protocol layers may also provide a mechanism for the MMS User Agent to acknowledge successful reception of a MM1_read_reply_originator.REQ to the MMS Relay/Server.

8.1.8.3 Features

Identification: In the MM1_read_reply_recipient.REQ the recipient MMS User Agent shall provide the original message identification of the MM that the read-reply report corresponds to. In the MM1_read_reply_originator.REQ the originator MMS Relay/Server shall provide the original message identification of the MM that the read-reply report corresponds to.

Addressing: The MM originator address shall be provided in the addressing-relevant information field(s) of MM1_read_reply_recipient.REQ. The MM recipient address shall be provided in the addressing-relevant information field(s) of MM1_read_reply_recipient.REQ. Both, the MM recipient and MM originator addresses shall be provided in the addressing-relevant information field(s) of the MM1_read_reply_originator.REQ. If the MM recipient address is not yet provided in the MM1_read_reply_recipient.REQ the MM1_read_reply_originator.REQ shall carry the MM recipient address set by the recipient MMS Relay/Server.

Time stamping: The MM1_read_reply_recipient.REQ may carry the time and date of user handling the MM depending on the status of the MM. The MM1_read_reply_originator.REQ shall carry the time-stamp from the corresponding MM1_read_reply_recipient.REQ if provided. If this time-stamp is not yet provided the MM1_read_reply_originator.REQ shall carry the time-stamp set by the recipient MMS Relay/Server.

Read Status: Both the MM1_read_reply_recipient.REQ and MM1_read_reply_originator.REQ shall carry the status of the MM handling, e.g. read or without being read.

Version: The MMS protocol shall provide unique means to identify the current version of the particular protocol environment.

Message Type: The type of the message used on the reference point MM1 indicating MM1_read_reply_recipient.REQ and MM1_read_reply_originator.REQ as such.

Applic-ID: [This information element indicates the identification of the application that the read-reply report is intended for. If a Reply-Applic-ID was indicated in the corresponding original MM, the recipient MMS User Agent shall set its value to that Reply-Applic-ID value. Otherwise, the recipient MMS User Agent shall set its value to the Applic-ID value that was indicated in the corresponding original MM.](#)

Reply-Applic-ID: [If present, this information element indicates a “reply path” to this read-reply report, i.e. the identifier of the application to which reply-MMs to this read-reply report are addressed if any.](#)

Aux-Applic-Info: [If present, this information element indicates additional application/implementation specific control information \(cf. 7.1.17.1\).](#)

8.1.8.4 Information Elements

Table 1417: Information elements in the MM1_read_reply_recipient.REQ.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_read_reply_recipient.REQ.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS User Agent.
Recipient address	Mandatory	The address of the MM recipient of the original MM, i.e, the originator of the read-reply report.
Originator address	Mandatory	The address of the MM originator of the original MM, i.e, the recipient of the read-reply report.
Message ID	Mandatory	The message ID of the original MM.
Date and Time	Optional	Date and time the MM was handled (read, deleted without being read, etc.) (time stamp)
Read Status	Mandatory	Status of the MM, e.g. Read, Deleted without being read
Applic-ID	Optional	The identification of the application that the read-reply report is intended for.
Reply-Applic-ID	Optional	The identification of a "reply path" to this read-reply report.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

Table 1518: Information elements in the MM1_read_reply_originator.REQ.

Information element	Presence	Description
Message Type	Mandatory	Identifies this message as MM1_read_reply_originator.REQ.
MMS Version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server.
Recipient address	Mandatory	The address of the MM recipient of the original MM, i.e, the originator of the read-reply report.
Originator address	Mandatory	The address of the MM originator of the original MM, i.e, the recipient of the read-reply report.
Message ID	Mandatory	The message ID of the original MM.
Date and Time	Mandatory	Date and time the MM was handled (read, deleted without being read, etc.) (time stamp)
Read Status	Mandatory	Status of the MM, e.g. Read, Deleted without being read
Applic-ID	Optional	The identification of the application that the read-reply report is intended for.
Reply-Applic-ID	Optional	The identification of a "reply path" to this read-reply report.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

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8.4 Technical realisation of MMS on reference point MM4

An MMSE shall be able to discover a peer MMSE as described in clause 7.2.2. This clause defines the interworking between MMS Relay/Servers once the peer systems are aware of each other being an MMSE.

8.4.1 Routing Forward of a Multimedia Message

This part of MMS service covers the routing forward of an MM from an originator MMS Relay/Server to a recipient MMS Relay/Server of different MMSEs. Involved abstract messages are outlined in Table 31 from type and direction points of view.

Table 31: Abstract messages for forwarding of MM in MMS

Abstract messages	Type	Direction
MM4_forward.REQ	Request	Originator MMS Relay/Server -> recipient MMS Relay/Server
MM4_forward.RES	Response	Recipient MMS Relay/Server -> originator MMS Relay/Server

8.4.1.1 Normal operation

After successful discovery of its peer entity the originator MMS Relay/Server shall route an MM forward to the recipient MMS Relay/Server using a separate MM4_forward.REQ per MM recipient. The MM4_forward.REQ contains MMS control information and the MM content. The recipient MMS Relay/Server shall respond with a MM4_forward.RES, which provides the status of the request if an MM4_forward.RES was requested. If multiple recipients are addressed in the MM4_Forward.REQ the recipient MMS Relay/Server may respond with any of the following to the originator MMS Relay/Server: a single MM4_Forward.RES message, multiple MM4_Forward.RES messages, or any combination of single or multiple MM4_Forward.RES messages. E.g. this will allow for multiple status indications or a single collective status indication in the MM4_Forward.RES in case of partial addressing failures.

Support for MM4_forward.REQ and MM4_forward.RES is mandatory for the MMS Relay/Server.

8.4.1.2 Abnormal Operation

In this case the recipient MMS Relay/Server shall respond with a MM4_forward.RES, which includes a status that indicates the reason the multimedia message was not accepted, e.g. no subscription, bad address, network not reachable, etc., if an MM4_forward.RES was requested.

8.4.1.3 Features

Addressing: The recipient(s) of a routed forward MM shall be indicated in the addressing-relevant information field(s) of the MM4_forward.REQ. If the addresses of several MM recipients of the MM are associated with a single MMS Relay/Server then more than one MM recipient may be indicated in the addressing-relevant information field(s) of the MM4_forward.REQ. Addresses of all MM recipients of the MM (including those that are not associated with the MMS Relay/Server the MM is forwarded to) shall be conveyed in the MM4_forward.REQ for the MM recipient's informational purposes.

The MM originator of a routed forward MM shall be indicated in addressing-relevant information field(s) of the MM4_forward.REQ. If the originator MMS User Agent requested to hide its identity from the MM recipient then the information about this request shall also be conveyed in the MM4_forward.REQ.

Time stamping: The MM4_forward.REQ shall carry the date and time-of the most recent handling of the MM by an MMS User Agent (i.e. either submission or forwarding of the MM). In the case of forwarding the MM4_forward.REQ may carry the date and time of the submission of the MM.

Time constraints: If the originator MMS User Agent requested a time of expiry for the MM then this information shall be conveyed in the MM4_forward.REQ.

Message class, priority and subject: If the MM is qualified further by message class, priority, subject and/or additional qualifiers then this information shall be conveyed in the MM4_forward.REQ.

Reporting: If either the originator MMS User Agent, or the originator MMS Relay/Server requested a delivery report for the MM then the information about this request shall be conveyed in the MM4_forward.REQ. If, in addition, the originator MMS User Agent requested a read-reply report then the information about this request shall be conveyed in the MM4_forward.REQ.

Identification: The originator MMS Relay/Server shall always provide a unique message identification for an MM, which it routed forward to a peer MMS Relay/Server in the MM4_forward.REQ.

Content Type: The type of the multimedia content shall always be identified in the MM4_forward.REQ.

Acknowledgement Request: The originator MMS Relay/Server may request a MM4_forward.RES from the recipient MMS Relay/Server acknowledging the successful reception of the MM.

Request Status: The recipient MMS Relay/Server shall indicate the status of the MM4_forward.REQ in the associated MM4_forward.RES if requested.

Request Recipients: A list of recipients to whom the request status applies.

Message Type: The type of message used on reference point MM4 indicating MM4_forward.REQ and MM4_forward.RES as such.

Transaction Identification: If the originator MMS Relay/Server requests an MM4_forward.RES from the recipient MMS Relay/Server it shall provide a transaction identification within an MM4_forward.REQ. The MM4_forward.RES shall unambiguously refer to the corresponding MM4_forward.REQ using the same transaction identification.

Forward_Counter: A Counter indicating the number of times the particular MM was forwarded.

Previously-sent-by: The address(es) of the MMS User Agent(s) that submitted or forwarded the MM prior to the last forwarding MMS User Agent. In the multiple forwarding case the order of the provided addresses shall be indicated and the address of the originator MMS User Agent shall be marked, if present.

NOTE: The address of the last forwarding MMS User Agent is carried in other addressing elements.

Version: The MMS protocol shall provide unique means to identify the current version in the particular protocol environment.

Applic-ID: This information element specifies the identification of the application that the routed forward MM is intended for. Its value shall equal the Applic-ID value of the MM which is being routed forward with this MM4_forward.REQ.

Reply-Applic-ID: If present, this information element indicates a “reply path” to this MM, i.e. the identifier of the application to which a destination application shall address reply-MMs if any. The Reply-Applic-ID value shall equal the Reply-Applic-ID value of the MM which is being routed forward with this MM4_forward.REQ.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1). The Aux-Applic-Info value shall equal the Aux-Applic-Info value of the MM which is being routed forward with this MM4_forward.REQ.

8.4.1.4 Information Elements

Table 32: Information elements in the MM4_forward.REQ.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the originator MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_forward.REQ".
Transaction ID	Mandatory	The identification of the MM4_forward.REQ/MM4_forward.RES pair.
Message ID	Mandatory	The identification of the MM.
Recipient(s) address	Mandatory	The address(es) of the MM recipient(s). Multiple addresses are possible.
Sender address	Mandatory	The address of the MMS User Agent that most recently handled the MM, i.e. that either submitted or forwarded the MM. If the originator MMS User Agent has requested her address to be hidden from the recipient her address shall not be provided to the recipient.
Content type	Mandatory	The content type of the MM's content.
Message class	Conditional	The class of the MM (e.g., personal, advertisement, information service) if specified by the originator MMS User Agent
Date and time	Mandatory	The time and date of the most recent handling (i.e. either submission or forwarding) of the MM by an MMS User Agent (time stamp).
Time of Expiry	Conditional	The desired time of expiry for the MM if specified by the originator MMS User Agent (time stamp).
Delivery report	Conditional	A request for delivery report if the originator MMS User Agent has requested a delivery report for the MM.
Originator R/S delivery report	Conditional	A request for delivery report that, when set to "Yes", means the originator MMS Relay/Server has requested a delivery report for the MM. Interpret as "No" in the absence of this Information element.
Priority	Conditional	The priority (importance) of the message if specified by the originator MMS User Agent.
Sender visibility	Conditional	A request to show or hide the sender's identity when the message is delivered to the MM recipient if the originator MMS User Agent has requested her address to be hidden from the recipient.
Read reply	Conditional	A request for read reply report if the originator MMS User Agent has requested a read-reply report for the MM..
Subject	Conditional	The title of the whole MM if specified by the originator MMS User Agent.
Acknowledgement Request	Optional	Request for MM4_forward.RES
Forward_counter	Conditional	A counter indicating the number of times the particular MM was forwarded.
Previously-sent-by	Optional	In case of forwarding this information element contains one or more address(es) of MMS User Agent(s) that handled (i.e. forwarded or submitted) the MM prior to the MMS User Agent whose address is contained in the Sender address information element. The order of the addresses provided shall be marked. The address of the originator MMS User Agent shall be marked, if present.
Previously-sent-date-and-time	Optional	The date(s) and time(s) associated with submission and forwarding event(s) prior to the last handling of the MM by an MMS User Agent (time stamps).
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of a "reply-path" to this MM.
Aux-Applic-Info	Optional	Auxiliary application addressing information.
Content	Conditional	The unaltered content of the multimedia message if specified by the originator MMS User Agent.

Table 33: Information elements in the MM4_forward.RES.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the recipient MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_forward.RES".
Transaction ID	Mandatory	The identification of the MM4_forward.REQ/MM4_forward.RES pair.
Message ID	Mandatory	The Message ID of the MM which has been forwarded within the corresponding MM4_forward.REQ
Request Recipients	Conditional	List of recipients to whom the Request Status value applies. If this element is absent the Request Status value is applicable to all recipients of the corresponding MM4_forward.REQ
Request Status	Mandatory	The status of the request to route forward the MM.
Request Status text	Optional	Status text corresponding to the Request Status

8.4.2 Routing Forward of a Delivery Report

This part of MMS service covers the routing forward of a delivery report from recipient MMS Relay/Server to originator MMS Relay/Server. The involved abstract messages are outlined in Table 34 from type and direction points of view.

Table 34: Abstract messages for routing delivery reports forward in MMS

Abstract Message	Type	Direction
MM4_delivery_report.REQ	Request	Recipient MMS Relay/Server -> originator MMS Relay/Server
MM4_delivery_report.RES	Response	Originator MMS Relay/Server -> recipient MMS Relay/Server

8.4.2.1 Normal Operation

After successful discovery of its peer entity the recipient MMS Relay/Server shall route a previously created delivery report forward to the originator MMS Relay/Server using the MM4_delivery_report.REQ which contains MMS control information only. The originator MMS Relay/Server shall respond with a MM4_delivery_report.RES, which provides the status of the MM4_delivery_report.REQ if an MM4_delivery_report.RES was requested.

Support for MM4_delivery_report.REQ and MM4_delivery_report.RES is mandatory for the MMS Relay/Server.

8.4.2.2 Abnormal Operation

In this case the originator MMS Relay/Server shall respond with a MM4_delivery_report.RES encapsulating a status which indicates the reason the delivery report was not accepted, if an MM4_delivery_report.RES was requested.

8.4.2.3 Features

Addressing: Both the address of the recipient (which is the MM originator) and the address of the originator (which is the MM recipient) of a routed forward delivery report shall be provided to the originator MMS Relay/Server in the addressing-relevant information field of MM4_delivery_report.REQ.

Identification: In the MM4_delivery_report.REQ the recipient MMS Relay/Server shall always provide the original message identification of the MM that the delivery report corresponds to as obtained from the associated MM4_forward.req.

MM Time stamping: The MM4_delivery_report.REQ shall carry the time and date of handling of the MM (e.g. retrieval, expiry, rejection).

MM Status: The MM4_delivery_report.REQ shall carry the status of the MM delivery, e.g. retrieved, rejected, expired or indeterminate. The MM Status Extension may be used to provide more granularity.

Acknowledgement Request: The recipient MMS Relay/Server may request a MM4_delivery_report.RES from the originator MMS Relay/Server acknowledging the successful reception of the delivery report.

Forward To originator UA: The recipient MMS Relay/Server shall indicate if the originator MMS Relay/Server is allowed to forward the Delivery Report to the originator MMS User Agent.

Request Status: The originator MMS Relay/Server shall indicate the status of the MM4_delivery_report.REQ in the associated MM4_delivery_report.RES if requested.

Version: The MMS protocol shall provide unique means to identify the current version in the particular protocol environment.

Message Type: The type of message used on reference point MM4 indicating MM4_delivery_report.REQ and MM4_delivery_report.RES as such.

Transaction Identification: If the originator MMS Relay/Server requests an MM4_delivery_report.RES from the recipient MMS Relay/Server it shall provide a transaction identification within an MM4_delivery_report.REQ. The MM4_delivery_report.RES shall unambiguously refer to the corresponding MM4_delivery_report.REQ using the same transaction identification.

Applic-ID: This information element indicates the identification of the application that the delivery report is intended for. The recipient MMS Relay/Server shall insert this Applic-ID in a MM4_delivery_report.REQ if an Applic-ID was present in the corresponding original MM. If a Reply-Applic-ID was indicated in the corresponding original MM, the Applic-ID value shall equal that Reply-Applic-ID value. Otherwise, its value shall equal the Applic-ID value that was indicated in the corresponding original MM.

Reply-Applic-ID: If present, this information element indicates the application that the original MM was delivered to. The recipient MMS Relay/Server shall insert this Reply-Applic-ID if the values of Applic-ID and Reply-Applic-ID in the corresponding original MM differ. Its value shall equal the Applic-ID value that was indicated in the corresponding original MM.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1). The recipient MMS Relay/Server shall insert this Aux-Applic-Info if Aux-Applic-Info was present in the corresponding original MM. Its value shall equal the Aux-Applic-Info value that was indicated in the corresponding original MM.

8.4.2.4 Information Elements

Table 35: Information elements in the MM4_delivery_report.REQ.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the recipient MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_delivery_report.REQ".
Transaction ID	Mandatory	The identification of the MM4_delivery_report.REQ/MM4_delivery_report.RES pair.
Message ID	Mandatory	The identification of the original MM.
Recipient address	Mandatory	The address of the MM recipient of the original MM.
Sender address	Mandatory	The address of the MM originator of the original MM.
Date and time	Mandatory	Date and time the MM was handled (retrieved, expired, rejected, etc.) (time stamp).
Acknowledgement Request	Optional	Request for MM4_delivery_report.RES
Forward to Originator UA	Optional	If "No", indicates that the originator MMS Relay/Server is not allowed to forward the Delivery Report to the originator MMS User Agent. Interpret as "Yes" in the absence of this Information element.
MM Status	Mandatory	Status of the MM, e.g. retrieved, expired, rejected
MM Status Extension	Optional	Extension of the MM Status, to provide more granularity.
MM Status text	Optional	Status text corresponding to the MM Status
Applic-ID	Optional	The identification of the originating application of the original MM.
Reply-Applic-ID	Optional	The identification of the destination application of the original MM.
Aux-Applic-Info	Optional	Auxiliary application addressing information as indicated in the original MM.

Table 36: Information elements in the MM4_delivery_report.RES.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the recipient MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_delivery_report.RES".
Transaction ID	Mandatory	The identification of the MM4_delivery_report.REQ/MM4_delivery_report.RES pair.
Message ID	Mandatory	The Message ID of the MM which caused the delivery report
Request Status	Mandatory	The status of the associated MM4_delivery_report.REQ.
Request Status text	Optional	The text explanation corresponding to the Request Status

8.4.3 Routing Forward of a Read-Reply Report

This part of MMS service covers the routing forward of a read-reply report from the recipient MMS Relay/Server to the originator MMS Relay/Server. The involved abstract messages are outlined in Table 37 from type and direction points of view.

Table 37: Abstract messages for sending and receiving read-reply reports in MMS

Abstract messages	Type	Direction
MM4_read_reply_report.REQ	Request	Recipient MMS Relay/Server -> originator MMS Relay/Server
MM4_read_reply_report.RES	Response	Originator MMS Relay/Server -> recipient MMS Relay/Server

8.4.3.1 Normal Operation

After successful discovery of its peer entity the recipient MMS Relay/Server shall route a read-reply report forward, that has been previously submitted by the recipient MMS User Agent, to the originator MMS Relay/Server using the MM4_read_reply_report.REQ which contains MMS control information only. The recipient MMS Relay/Server shall respond with a MM4_read_reply_report.RES, which provides the status of the MM4_read_reply_report.REQ if an MM4_read_reply_report.RES was requested.

Support for MM4_read_reply_report.REQ and MM4_read_reply_report.RES is mandatory for the MMS Relay/Server.

8.4.3.2 Abnormal Operation

In this case the originator MMS Relay/Server shall respond with a MM4_read_reply_report.RES encapsulating a status which indicates the reason the read-reply report was not accepted, if an MM4_read_reply_report.RES was requested.

8.4.3.3 Features

Addressing: Both, the address of the recipient (which is the MM originator) and the address of the originator (which is the MM recipient) of a routed forward read-reply report shall be provided to the originator MMS Relay/Server in the addressing-relevant information field of MM4_read_reply_report.REQ.

Identification: In the MM4_read_reply_report.REQ the recipient MMS Relay/Server shall always provide the original message identification of the MM that the read-reply report corresponds to as obtained from the associated MM4_forward.req.

MM Time Stamping: The MM4_read_reply_report.REQ shall carry the time-stamp associated with the read-reply report.

Read Status: The MM4_read_reply_report.REQ shall carry the status of the MM handling, e.g. read or without being read.

Acknowledgement Request: The recipient MMS Relay/Server may request a MM4_read_reply_report.RES from the originator MMS Relay/Server acknowledging the successful reception of the read-reply report.

Request Status: The originator MMS Relay/Server shall indicate the status of the MM4_read_reply_report.REQ in the associated MM4_read_reply_report.RES if requested.

Version: The MMS protocol shall provide unique means to identify the current version in the particular protocol environment.

Message Type: The type of message used on reference point MM4 indicating MM4_read_reply_report.REQ and MM4_read_reply_report.RES as such.

Transaction Identification: If the originator MMS Relay/Server requests an MM4_read_reply_report.RES from the recipient MMS Relay/Server it shall provide a transaction identification within an MM4_read_reply_report.REQ. The MM4_read_reply_report.RES shall unambiguously refer to the corresponding MM4_read_reply_report.REQ using the same transaction identification.

Applic-ID: This information element indicates the identification of the application that the read-reply report is intended for. If a Applic-ID was indicated in the corresponding MM1_read_reply_recipient.REQ, the Applic-ID value shall equal that Applic-ID value.

Reply-Applic-ID: If present, this information element indicates the application that the original MM was delivered to. If a Reply-Applic-ID was present in the corresponding MM1_read_reply_recipient.REQ, the Reply-Applic-ID value shall equal that Reply-Applic-ID value.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1). It shall be present if Aux-Applic-Info was indicated in the corresponding MM1_read_reply_recipient.REQ, in which case its value shall equal the Aux-Applic-Info value that was indicated in the corresponding original MM.

8.4.3.4 Information Elements

Table 38: Information elements in the MM4_read_reply_report.REQ.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the recipient MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_read_reply_report.REQ".
Transaction ID	Mandatory	The identification of the MM4_read_reply_report.REQ/MM4_read_reply_report.RES pair.
Recipient address	Mandatory	The address of the MM recipient of the original MM, i.e. the originator of the read-reply report.
Sender address	Mandatory	The address of the MM originator of the original MM, i.e. the recipient of the read-reply report.
Message ID	Mandatory	The message ID of the original MM.
Date and time	Mandatory	Date and time the MM was handled (read, deleted without being read, etc.) (time stamp)
Acknowledgement Request	Optional	Request for MM4_read_reply_report.RES
Read Status	Mandatory	Status of the MM, e.g. Read, Deleted without being read
Read Status text	Optional	The text explanation corresponding to the Read Status
Applic-ID	Optional	The identification of the originating application of the original MM.
Reply-Applic-ID	Optional	The identification of the destination application of the original MM.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

Table 39: Information elements in the MM4_read_reply_report.RES.

Information element	Presence	Description
3GPP MMS Version	Mandatory	The MMS version of the recipient MMS Relay/Server as defined by the present document.
Message Type	Mandatory	The type of message used on reference point MM4: "MM4_read_reply_report.RES".
Transaction ID	Mandatory	The identification of the MM4_read_reply_report.REQ/MM4_read_reply_report.RES pair.
Request Status	Mandatory	The status of the associated MM4_read_reply_report.REQ.
Request Status text	Optional	The textual explanation for the Request Status

8.4.4 Message format on MM4

All elements of an MM shall be included within a single SMTP "mail" message which shall be organised as MIME message with the appropriate 'Content-Type' [44] header field value (e.g. multipart/related, multipart/mixed, image/jpeg, text/plain). All MM elements shall be of standard MIME content types. In addition to the MM elements this SMTP "mail" message should reflect all MMS information elements according to the definitions in clauses 6 and 8.4.

All other MMS-related messages, such as delivery reports, read-reply reports, transfer acknowledgements shall each be transferred as a single SMTP "mail" message which shall be organised as MIME type text/plain. This SMTP "mail" message should reflect all MMS information elements as defined above.

8.4.4.1 Message header fields

MMS information elements should be reflected as "header fields" according to STD 11 in the SMTP "mail" message. See RFC 1327 [53] for a detailed description of the X.400 header to STD 11 headers mappings. Some of the mappings are context dependent.

For those information elements that cannot be mapped to standard STD 11 "header fields" the "X-" extensions mechanism shall be used with an "X-MMS-" prefix.

The mapping of information elements to commonly used (RFC 1327) [53] or standard STD 11 "header fields" is shown in following tables.

8.4.4.2 MM4_Forward.REQ Header Mappings

The MM4 Forward request header mappings are detailed below.

Table 40: MM4_Forward.REQ Information Elements to STD 11 Header Mappings

Information element	STD 11 Headers
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Message ID	X-Mms-Message-ID:
Recipient(s) address	To:, Cc: , Bcc:
Sender address	From:
Content type	Content-Type:
Message class	X-Mms-Message-Class:
Date and time	Date:
Time of Expiry	X-Mms-Expiry:
Delivery report	X-Mms-Delivery-Report:
Originator R/S delivery report	X-Mms-Originator-R/S-Delivery-Report
Priority	X-Mms-Priority:
Sender visibility	X-Mms-Sender-Visibility:
Read reply	X-Mms-Read-Reply:
Subject	Subject:
Acknowledgement Request	X-Mms-Ack-Request:
Forward counter	X-Mms-Forward-Counter:
Previously-sent-by	X-Mms-Previously-sent-by:
Previously-sent-date and-time	X-Mms-Previously-sent-date-and-time:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
Content	<message body>
-	Sender:
-	X-Mms-Originator-System:
-	Message-ID:

The table above indicates the mappings from MM4_Forward.REQ information elements to the corresponding STD 11 [5] headers.

The MM4 information element Message ID is not directly mapped to a corresponding STD 11 "Message-ID:" header. Each STD 11 message must have a unique message id, which is carried in the "Message-ID:" header.

Content-type maps directly since both are defined as being MIME content types as specified in RFC 2046 [6].

The STD 11 "From:" header is determined by the mail user agent, or, in this case, the MMS User Agent. This corresponds to the MM4 information element Sender address, as set by the MMS User Agent or MMS Relay/Server.

STD 11 messages are required to have a "Sender:" header that indicates the originator address (as determined by the SMTP "MAIL From" command).

The STD 11 "X-Mms-Originator-System:" header shall be used to indicate the address that the recipient MMS Relay/Server shall use as the recipient address with MM4_Forward.RES.

In case there are only blind carbon-copy recipient(s) (“Bcc:”), the behaviour shall be as recommended by RFC2821 [22], Appendix B, i.e. the originating MMS Relay/Server shall only insert an empty “Bcc:” header and no “To:” or “Cc:” headers. The recipient(s) shall then only be indicated in the SMTP command layer (RCPT TO:).

In case there are both “To:” / “Cc:” and “Bcc:” recipients, the “Bcc:” headers shall be removed by the originating MMS Relay/Server and the “Bcc:” recipients shall only be indicated in the SMTP command level (RCPT TO:). This is in accordance with the functionality recommended by RFC2821 [22], Appendix B.

The SMTP RCPT TO: shall convey the MM to the recipient, one recipient at a time.

For example, if an MMS originator sends an MM to 3 recipients (e.g., To: userA, Cc: userB; Bcc: userC), all served by the same MMS Relay/Server, differing from the originator’s MMS Relay/Server; the originator MMS Relay/Server shall send:

- an SMTP MM4_Forward.REQ, with RCPT To: = userA,
- a different SMTP MM4_Forward.REQ, with RCPT To: = userB,
- and another SMTP MM4_Forward.REQ, with RCPT To: = userC.

8.4.4.3 MM4_Forward.RES Header Mappings

The MM4 Forward response information element mappings are detailed in the table below.

The transmission of the Forward Response from the recipient MMS Relay/Server requires a properly addressed STD 11 message. While the addressing of the MM4_Forward.REQ is clearly that of the intended recipients and originator, the MM4_Forward.RES addressing is related to neither the recipients nor the originator of the original MM. Instead, the MM4_Forward.RES addressing is based on special systems addresses. MMS Service Provider should configure appropriate system addresses which will be used as both the recipient and originator of these administrative messages. It is suggested that the administrative addressing be based on the pattern:

system-user@mms-relay-host.mmse-domain.

The STD 11 “To:” header value shall be according to the STD 11 “X-Mms-Originator-System:” header value provided in MM4_Forward.REQ.

Table 41: MM4_Forward.RES Information Elements to STD 11 Header Mappings

Information element	STD 11 Header
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Message ID	X-Mms-Message-ID:
Request Status	X-Mms-Request-Status-Code:
Request Status text	X-Mms-Status-Text:
Request Recipients	X-Mms-Request-Recipients
-	Sender:
-	To:
-	Message-ID:
-	Date:

The STD 11 "Sender: " and "To:" headers contain system addresses as described above, and do not map to MM4_Forward.RES information elements. The STD 11 message requires a "Date:" header, but there currently is no corresponding MM4_Forward.RES information element.

8.4.4.4 MM4_Delivery_report.REQ Header Mappings

The mappings of the MM4_Delivery_report.REQ information elements to STD 11 headers is detailed in the table below.

Table 42: MM4_Delivery_report.REQ Information Elements to STD 11 Header Mappings

Information element	STD 11 Header
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Message ID	X-Mms-Message-ID:
Recipient address	From:
Sender address	To:
Date and time	Date:
Acknowledgement Request	X-Mms-Ack-Request:
Forward to Originator UA	X-Mms-Forward-To-Originator-UA
MM Status	X-Mms-MM-Status-Code:
MM Status Extension	X-Mms-MM-Status-Extension
MM Status Text	X-Mms-Status-text:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
-	Sender:
-	Message-ID:

The meaning of Recipient address is that of the original MM, from whose MMS User Agent this Delivery-report is being generated. The meaning of Sender address is that of the original MM, to whom the Delivery-report is being sent.

The value of the STD 11 "Sender:" header is a system administration address, to which the corresponding response will be sent.

The STD 11 "Sender:" header value is automatically set to the system address of the MMS Relay/Server.

The STD 11 "Message-ID:" value is automatically generated by the MMS Relay/Server, in conformance to STD 11 [5].

The other header mappings from information elements are similar to those already described above.

8.4.4.5 MM4_Delivery_report.RES Header Mappings

The mappings of the M4_Delivery_report.RES information elements to STD 11 headers is detailed in the table below.

Table 43: MM4_Delivery_report.RES Information Elements to STD 11 Header Mappings

Information element	STD 11 Header
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Message ID	X-Mms-Message-ID:
Request Status	X-Mms-Request-Status-Code:
Request Status text	X-Mms-Status-Text:
-	Sender:
-	To:
-	Message-ID:
-	Date:

The STD 11 "Sender:" header value is automatically set to the system address of the MMS Relay/Server that is replying to the MM4_Delivery_report.REQ.

The STD 11 "To:" header value of the MM4_Delivery_report.RES abstract message is obtained from the STD 11 "Sender:" header value of the corresponding MM4_Delivery_report.REQ.

The STD 11 "Date" and "Message-ID:" headers, which have no corresponding MM4_Forward.RES information elements, are automatically provided values by the MMS Relay/Server.

8.4.4.6 MM4_Read_reply_report.REQ Header Mappings

The mappings of the MM4_Read_reply_report.REQ information elements to STD 11 headers is detailed in the table below.

Table 44: MM4_Read_reply_report.REQ Information Elements to STD 11 Header Mappings

Information element	STD 11 Header
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Recipient address	From:
Sender address	To:
Message ID	X-Mms-Message-ID:
Date and time	Date:
Acknowledgement Request	X-Mms-Ack-Request:
Read Status	X-Mms-Read-Status:
Read Status text	X-Mms-Status-Text:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
-	Sender:
-	Message-ID:
-	Date:

The meaning of Recipient address is that of the original MM, from whose MMS User Agent this Read-reply-report is being generated. The meaning of Sender address is that of the original MM, to whom the Read-reply-report is being sent.

The value of the Sender: header is a system address, to which the corresponding MM4_Read_reply_report.RES shall be sent.

The "Message-ID:", and "Date:" headers, which have no corresponding information element in the MM4_Read_reply_report.REQ, are automatically provided appropriate values by the MMS Relay/Server.

8.4.4.7 MM4_Read_reply_report.RES Header Mappings

The mappings of the MM4_Read_reply_report.RES information elements to STD 11 headers is detailed in the table below.

Table 45: MM4_Read_reply_report.RES Information Elements to STD 11 Header Mappings

Information element	STD 11 Header
3GPP MMS Version	X-Mms-3GPP-MMS-Version:
Message Type	X-Mms-Message-Type:
Transaction ID	X-Mms-Transaction-ID:
Request Status	X-Mms-Request-Status-Code:
Request Status text	X-Mms-Status-Text:
-	Sender:
-	To:
-	Message-ID:
-	Date:

The STD 11 "Sender:" header value shall be the system address of the MMS Relay/Server that is replying to the MM4_Read_reply_report.REQ.

The STD 11 "To:" header value of the MM4_Delivery_report.RES abstract message shall be obtained from the corresponding MM4_Read-reply_report.REQ Sender: header value.

The STD 11 "Date:" and "Message-ID:" headers, which do not have corresponding information elements, shall be provided appropriate values automatically by the MMS Server/Relay.

8.4.4.8 Header Field Value Range

MMS information elements that are mapped to standard STD 11 "header fields", i.e. which do not have an "X-Mms-" prefix, should be used according to [5].

The rest of the header definitions used in this clause, including the mechanisms and pre-defined tokens, are described in an augmented Backus-Naur Form (BNF) defined in [48], similar to that used by RFC 2822 [5]. Implementers will need to be familiar with the notation in order to understand these definitions.

For the residual MMS information elements the following applies:

X-Mms-3GPP-MMS-Version:

```
3GPP-MMS-Version = "X-Mms-3GPP-MMS-Version" ":" 1*DIGIT "." 1*DIGIT "."
1*DIGIT
```

Note that the numbers MUST be treated as separate integers and that each may be incremented higher than a single digit. Thus, 2.1.4 is a lower version than 2.1.13, which in turn is lower than 2.3.0. Leading zeros shall be ignored by recipient MMS Relay/Server and shall NOT be sent. The version is according to the version of the present document (see also clause "Foreword").

X-Mms-Message-Type:

```
Message-type = "X-Mms-Message-Type" ":" ( "MM4_forward.REQ" |
"MM4_forward.RES" | "MM4_delivery_report.REQ" | "MM4_delivery_report.RES" |
"MM4_read_reply_report.REQ" | "MM4_read_reply_report.RES" )
```

X-Mms-Transaction-Id:

```
Transaction-id = "X-Mms-Transaction-ID" ":" quoted-string
```

X-Mms-Message-Id:

```
Message-id = "X-Mms-Message-ID" ":" quoted-string
```

X-Mms-Message-Class:

```
Message-class = "X-Mms-Message-Class" ":" ( Class-identifier | quoted-string
)
```

```
Class-identifier = "Personal" | "Advertisement" | "Informational" | "Auto"
```

X-Mms-Expiry:

```
Expiry-value = "X-Mms-Expiry" ":" ( HTTP-date | delta-seconds )
```

X-Mms-Delivery-Report:

```
Delivery-report = "X-Mms-Delivery-Report" ":" ( "Yes" | "No" )
```

X-Mms-Originator-R/S-Delivery-Report:

```
Originator-R/S-Delivery-Report = "X-Mms-Originator-R/S-Delivery-Report" ":"
( "Yes" | "No" )
```

X-Mms-Priority:

```
Priority = "X-Mms-Priority" ":" ( "Low" | "Normal" | "High" )
```

X-Mms-Sender-Visibility:

```
Sender-visibility = "X-Mms-Sender-Visibility" ":" ( "Hide" | "Show" )
```

X-Mms-Read-Reply:

```
Read-reply = "X-Mms-Read-Reply" ":" ( "Yes" | "No" )
```

X-Mms-Ack-Request:

```
Ack-Request = "X-Mms-Ack-Request" ":" ( "Yes" | "No" )
```

X-Mms-Forward-To-Originator-UA:

```
Forward-To-Originator-UA = "X-Mms-Forward-To-Originator-UA" ":" ( "Yes" | "No" )
```

X-Mms-Request-Status-Code:

```
Request-status-Code = "X-Mms-Request-Status-Code" ":" ( "Ok" | "Error-
unspecified" | "Error-service-denied" | "Error-message-format-corrupt" |
"Error-sending-address-unresolved" | "Error-message-not-found" | "Error-
network-problem" | "Error-content-not-accepted" | "Error-unsupported-
message" )
```

The meaning of the X-Mms-Request-Status-Code header field is further described in section 8.4.4.10 of this specification.

X-Mms-MM-Status-Code:

```
MM-Status-Code = "X-Mms-MM-Status-Code" ":" ( "Expired" | "Retrieved" |
"Rejected" | "Deferred" | "Indeterminate" | "Forwarded" | "Unrecognised" )
```

X-Mms-MM-Status-Extension:

```
MM-Status-Extension = "X-Mms-MM-Status-Extension" ":" ( "Rejection-By-MMS-
Recipient" | "Rejection-by-Other-RS" )
```

The meaning of the X-Mms-MM-Status-Extension header field is further described in section 8.4.4.11 of this specification.

X-Mms-Read-Status:

```
Read-Status = "X-Mms-Read-Status" ":" ( "Read" | "Deleted without being read" )
```

X-Mms-Forward-Counter

```
Forward-Counter = "X-Mms-Forward-Counter" ":" 1*DIGIT
```

X-Mms-Previously-sent-by

```
Previously-sent-by = "X-Mms-Previously-sent-by" ":" 1*DIGIT "," mailbox
```

The address should be machine-usable, as defined by "mailbox" in RFC 2822 [5].

NOTE: The number indicates the chronological order of the submission and forwarding event(s). The number "0" is associated with the submission of the MM. A higher number indicates an event at a later point in time.

X-Mms-Previously-sent-date-and-time

```
Previously-sent-date-and-time = "X-Mms-Previously-sent-date-and-time" ":"
1*DIGIT "," HTTP-date
```

The date should be machine-usable, as defined by "HTTP-date" in RFC 2616 [48].

NOTE: The number indicates the chronological order of the submission and forwarding events. The number "0" is associated with the submission of the MM. The number indicates the correspondence to the MMS User Agent's address in the "X-Mms-Previously-sent-by" header field with the same number.

X-Mms-Applic-ID

```
Applic-ID = "X-Mms-Applic-ID" ":" quoted-string
```

X-Mms-Reply-Applic-ID

```
Reply-Applic-ID = "X-Mms-Reply-Applic-ID" ":" quoted-string
```

X-Mms-Aux-Applic-Info

Aux-Applic-Info = "X-Mms-Aux-Applic-Info" ":" quoted-string

...

8.7.1 Submitting a VAS MM

This section addresses the operations necessary for a VASP to provide the service by sending a multimedia message to one or more subscribers or to a distribution list. The involved abstract messages are outlined in Table 47 from type and direction points of view.

Table 47: Abstract messages for submitting VAS message

Abstract messages	Type	Direction
MM7_submit.REQ	Request	VASP -> MMS Relay/Server
MM7_submit.RES	Response	MMS Relay/Server -> VASP

8.7.1.1 Normal Operation

The VASP submits a message to the MMS Relay/Server by sending the MM7_submit.REQ supplying the multimedia message (MM) as the payload of the message. The message may be directed to one or more subscribers or to a distribution list. If the MMS Relay/Server accepts the submission, the MMS Relay/Server must send a MM7_submit.RES with a “success” status. This in no way indicates that the MM was actually delivered to the destinations but states that the request has been accepted.

Support for MM7_submit.REQ and MM7_submit.RES is mandatory for all MMS Relay/Servers that support MM7.

8.7.1.2 Abnormal Operation

The MMS Relay/Server should reject the MM7_submit.REQ if the VAS cannot be authorized or if the parameters of the request exceed the service level for the service being employed, or if the Relay/Server does not support third party charging. Similarly, if none of the destinations can be resolved then the response status should indicate an error. If one or several (but not all) addresses can be resolved, the MMS Relay/Server should deliver the message to those addresses and respond to the VAS using the MM7_submit.RES with a partial success to the VASP. Partial success does not indicate that the MM was actually delivered to the destinations but states that the request has been at least partially accepted.

8.7.1.3 Features

Authorisation: The VASP must supply its own identifier or the VAS identifier as part of the request.

Addressing: The VASP may direct the MM to a one or more subscribers or to a distribution list. In the addressing information, it may be indicated whether a recipient address is meant for informational purposes only or to be used for routing. In the addressing information, it may be indicated whether a recipient address has been encrypted or obfuscated. The originator of a submitted MM may be indicated in addressing-relevant information field(s) of the MM7_submit.REQ

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message Type: The type of message used on reference point MM7 indicating MM7_submit.REQ and MM7_submit.RES as such.

Transaction Identification: The VASP shall provide an unambiguous transaction identification within an MM7_submit.REQ. The MM7_submit.RES shall unambiguously refer to the corresponding MM7_submit.REQ using the same transaction identification.

Linked message identification: The VASP will supply a message identifier when submitting a message, that defines a correspondence to a previous message that was delivered by the MMS Relay/Server to the VASP.

NOTE: Use case examples:

- 1) The Linked ID can be used by the Relay/Server to logically relate a VASP reply (MM7_Submit.REQ) to an original user's request (MM1_Submit.REQ, and MM7_Deliver.REQ), in which case the Linked ID corresponds to the Message ID returned in the original MM1_Submit.RES.
- 2) The LinkedID can as well be used by the VASP to keep track of a sequence of MM7_Submit.REQ (e.g. MMs to multiple users) triggered by a single MM7_Deliver.REQ (e.g. which was triggered by a user's MM1_submit.REQ).

Message class, priority, and subject: The VASP may qualify the MM further by adding a message class, a priority and/or subject to the MM7_submit.REQ.

Service code: The VASP may mark the content of the message with a service code that may be transferred by the MMS Relay/Server in the form of charging information for use by the billing system to properly bill the user for the service being supplied.

Time stamping: The VASP may time stamp the MM.

Time constraints: The VASP may request an earliest desired time of delivery of the MM. The VASP may request a time of expiry for the MM

Reply-Charging: The originator VASP may indicate that it wants to pay for a reply-MM and convey the reply-charging limitations (e.g. the latest time of submission and/or the maximum size of a reply-MM) in the MM7_submit.REQ.

Delivery reporting: The VASP may request a delivery report for the MM

Read reporting: The VASP may request a read-reply report when the user has viewed the MM.

Content adaptation restriction: The VASP may request that the content of the MM will not be subjected to content adaptation.

NOTE: From REL-6 onwards, in case of misalignment, DRM-protection rules shall prevail on the Content Adaptation Restriction feature.

Content type: The MIME type of the multimedia content shall always be identified in the MM7_submit.REQ.

Content: The VASP may add content in the MM7_submit.REQ.

Message identification: The MMS Relay/Server shall always provide a message identification for an MM, which it has accepted for submission in the MM7_submit.RES.

Request status: The MMS Relay/Server shall indicate the status of the MM7_submit.REQ in the associated MM7_submit.RES. The reason code given in the status information element of the MM7_submit.RES may be supported with an explanatory text further qualifying the status.

Charged-Party: The VASP may indicate in the MM7_submit.REQ which party is expected to be charged for an MM submitted by the VASP, e.g. the sending, receiving, both parties or neither.

Charged party ID: The address of the third party which is expected to pay for the MM.

Message Distribution Indication: The VASP may indicate whether the content of the MM is intended for redistribution.

NOTE: From REL-6 onwards, in case of misalignment, DRM-protection rules shall prevail on the Message Distribution Indication feature.

Delivery Condition: The VASP may indicate a condition which needs to be met to allow delivery. If the condition is not met the MM shall be discarded by the MMS Relay/Server.

Applic-ID: [The presence of this information element indicates that this abstract message shall be provided to an application residing on an MMS User Agent. It contains the identification of the destination application.](#)

Reply-Applic-ID: If present, this information element indicates a “reply path”, i.e. the identifier of the application to which delivery reports, read-reply reports and reply-MMs are addressed if any.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1).

8.7.1.4 Information Elements

Table 48: Information elements in the MM7_submit.REQ .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_submit.REQ/MM7_submit.RES pair.
Message type	Mandatory	Identifies this message as a MM7_submit request.
MM7 version	Mandatory	Identifies the version of the interface supported by the VASP
VASP ID	Optional	Identifier of the VASP for this MMS Relay/Server.
VAS ID	Optional	Identifier of the originating application.
Sender address	Optional	The address of the MM originator.
Recipient address	Mandatory	The address of the recipient MM. Multiple addresses are possible or the use of the alias that indicates the use of a distribution list. It is possible to mark an address to be used only for informational purposes. It is possible to mark that a recipient address is provided in encrypted or obfuscated format. E.g. the address was originally provided in encrypted or obfuscated form in an associated MM7_deliver.REQ.
Service code	Optional	Information supplied by the VASP which may be included in charging information. The syntax and semantics of the content of this information are out of the scope of this specification.
Linked ID	Optional	This identifies a correspondence to a previous valid message delivered to the VASP.
Message class	Optional	Class of the MM (e.g. advertisement, information service, accounting)
Date and time	Optional	The time and date of the submission of the MM (time stamp).
Time of Expiry	Optional	The desired time of expiry for the MM (time stamp).
Earliest delivery time	Optional	The earliest desired time of delivery of the MM to the recipient (time stamp).
Delivery report	Optional	A request for delivery report.
Read reply	Optional	A request for confirmation via a read report to be delivered as described in section 8.1
Reply-Charging	Optional	A request for reply-charging.
Reply-Deadline	Optional	In case of reply-charging the latest time of submission of replies granted to the recipient(s) (time stamp).
Reply-Charging-Size	Optional	In case of reply-charging the maximum size for reply-MM(s) granted to the recipient(s).
Priority	Optional	The priority (importance) of the message.
Subject	Optional	The title of the whole multimedia message.
Adaptations	Optional	Indicates if VASP allows adaptation of the content (default True) (NOTE 1)
Charged Party	Optional	An indication which party is expected to be charged for an MM submitted by the VASP, e.g. the sending, receiving, both parties third party or neither.
Content type	Mandatory	The content type of the MM's content.
Content	Optional	The content of the multimedia message
Message Distribution Indicator	Optional	If set to "false" the VASP has indicated that content of the MM is not intended for redistribution. If set to "true" the VASP has indicated that content of the MM can be redistributed. (NOTE 2)
Charged Party ID	Optional	The address of the third party which is expected to pay for the MM
Delivery Condition	Optional	If the condition is met the MM shall be delivered to the recipient MMS User Agent, otherwise the MM shall be discarded. The initial values are: MMS capable only; HPLMN only; any other values can be added based on bilateral agreements between the MMS Relay/Server operator and the VASP.
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs, delivery reports and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

NOTE 1: From REL-6 onwards, in case of misalignment between the value assigned to Adaptations and DRM-protection rules, the latter shall prevail.

NOTE 2: From REL-6 onwards, in case of misalignment between the value assigned to MDI and DRM-protection rules, the latter shall prevail.

Table 49: Information elements in the MM7_submit.RES .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_submit.REQ/MM7_submit.RES pair.
Message type	Mandatory	Identifies this message as a MM7_submit response.
MM7 version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server
Message ID	Conditional	If status indicates success then this contains the MMS Relay/Server generated identification of the submitted message. This ID may be used in subsequent requests and reports relating to this message.
Request Status	Mandatory	Status of the completion of the submission, no indication of delivery status is implied.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status.

8.7.2 Delivery Request

This section addresses cases where a message that is passed by the MMS Relay/Server to a VASP for processing. For example, this may include cases where the message originated from the MMS User-Agent.

The involved abstract messages are outlined in Table 50 from type and direction points of view.

Table 50: Abstract messages for demanding a service from a VASP

Abstract messages	Type	Direction
MM7_deliver.REQ	Request	MMS Relay/Server -> VASP
MM7_deliver.RES	Response	VASP -> MMS Relay/Server

8.7.2.1 Normal Operation

The MMS Relay/Server will deliver messages to the VASP by supplying the MM as the payload of the MM7_deliver.REQ. The message originates, for example, from a MMS User Agent, an external application, or from outside the MMSE. This delivery may include an identification of the request that may be used by the VASP to correlate a response to the message. The VASP should reply with a MM7_deliver.RES message indicating that the message has been successfully received and will be processed.

The following figure illustrates the data flow of a use case where a MMS User Agent requesting a service from a VAS that requires a response.

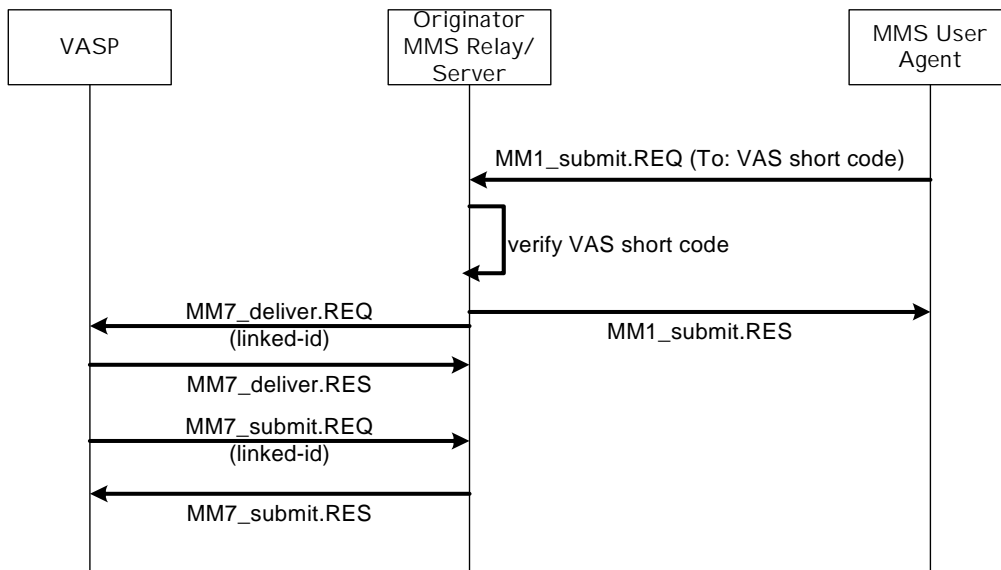


Figure 9: Use of MM7_deliver and subsequent response

Support for MM7_deliver.REQ and MM7_deliver.RES is mandatory for a MMS Relay/Server that supports MM7

8.7.2.2 Abnormal Operation

If the VASP cannot identify the requested content then it should indicate the failure in the MM7_deliver.RES status fields.

8.7.2.3 Features

Authentication: The MMS Relay/Server may supply its own identifier as part of the request.

Addressing: All relevant address information for the delivery of the message to the VASP – including the addressing information from the original message and from the MMS Relay/Server should be included in the relevant information elements of MM7_deliver.REQ. In the addressing information, it may be indicated whether a certain recipient address is meant for informational purposes only or to be used for routing. In the addressing information, it may be indicated whether the sender address has been encrypted or obfuscated.

Previously-sent-by: The address(es) of the MMS User Agent(s) that submitted or forwarded the MM prior to the last forwarding MMS User Agent. In the multiple forwarding case the order of the provided addresses shall be indicated and the address of the originator MMS User Agent shall be marked, if present.

NOTE: The address of the last forwarding MMS User Agent is carried in other addressing elements.

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message Type: The type of message used on reference point MM7 indicating MM7_deliver.REQ and MM7_deliver.RES as such.

Transaction Identification: The VASP shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Message priority and subject: The MMS Relay/Server may qualify the MM further by adding a priority and/or subject to the MM7_deliver.REQ. This information will originate from the end-user’s original request.

Linked message identification: The MMS Relay/Server will supply an identifier for the request that may be used by the VASP.

NOTE: Use case examples:

- 1) The Linked ID can be used by the Relay/Server to logically relate a VASP reply (MM7_Submit.REQ) to an original user's request (MM1_Submit.REQ, and MM7_Deliver.REQ), in which case the Linked ID corresponds to the Message ID returned in the original MM1_Submit.RES.
- 2) The LinkedID can as well be used by the VASP to keep track of a sequence of MM7_Submit.REQ (e.g. MMs to multiple users) triggered by a single MM7_Deliver.REQ (e.g. which was triggered by a user's MM1_submit.REQ).

Service code: The VASP may mark the response to the message with a service code that will be transferred to the charging information for use by the billing system to properly bill the user for the service being supplied.

Service Provider Identification: The MMS Relay/Server may provide the SPI (Service Provider Identification) for the sender. In case a message is delivered to a VASP based on the recipient address, the MMS Relay/Server may provide the SPI for the recipient. The SPI information can originate from e.g. a user profile or a MAP query.

Time stamping: The MM may include the date and time-of the most recent handling of the MM by an MMS User Agent (i.e. either submission or forwarding of the MM). In the case of forwarding the MM7_deliver.REQ may carry the date and time of the submission of the MM.

Reply-Charging: In case of reply-charging when the reply-MM is submitted within the MM7_deliver.REQ MMS Relay/Server should indicate that the message is free-of-charge reply.

Content type: The MIME type of the multimedia content shall always be identified in the MM7_deliver.REQ.

Content: The originator of the MM may supply content that is delivered to the VASP in the MM7_deliver.REQ.

Request status: The MMS Relay/Server shall indicate the status of the request in the associated response. The reason code given in the status information element of the response may be supported with an explanatory text further qualifying the status.

[Applic-ID:](#) This information element contains the identification of the destination application. Upon reception, the recipient MMS VAS Application shall provide this MM7_retrieve.REQ to the specified destination application.

[Reply-Applic-ID:](#) If present, this information element indicates a "reply path". It contains the application identifier which shall be used by the recipient MMS VAS Application when a reply-MM or a read-reply report is created.

[Aux-Applic-Info:](#) If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1).

8.7.2.4 Information Elements

Table 51: Information elements in the MM7_deliver.REQ .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_deliver.REQ/ MM7_deliver.RES pair.
Message type	Mandatory	Identifies this message as a MM7_deliver request.
MM7 version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server
MMS Relay/Server ID	Optional	Identifier of the MMS Relay/Server
Linked ID	Optional	Identifier that may be used by the VASP in a subsequent MM7_submit.REQ
Sender address	Mandatory	The address of the MM originator. It is possible to mark that the sender address has been encrypted or obfuscated by the MMS Relay/Server.
Recipient address	Optional	The address(es) of the intended recipients of the subsequent processing by the VASP or the original recipient address(es). It is possible to mark an address to be used only for informational purposes.
Previously-sent-by	Optional	In case of forwarding this information element contains one or more address(es) of MMS User Agent(s) that handled (i.e. forwarded or submitted) the MM prior to the MMS User Agent whose address is contained in the Sender address information element. The order of the addresses provided shall be marked. The address of the originator MMS User Agent shall be marked, if present.
Previously-sent-date-and-time	Optional	The date(s) and time(s) associated with submission and forwarding event(s) prior to the last handling of the MM by an MMS User Agent (time stamps).
Sender SPI	Optional	The SPI of the MM originator.
Recipient SPI	Optional	The SPI of the intended MM recipient, in case the MM was delivered to VASP based on the recipient address.
Date and time	Optional	The time and date of the submission of the MM (time stamp).
Reply-Charging-ID	Optional	In case of reply-charging when the reply-MM is submitted within the MM7_deliver.REQ this is the identification of the original MM that is replied to.
Priority	Optional	The priority (importance) of the message.
Subject	Optional	The title of the whole MM.
Content type	Mandatory	The content type of the MM's content.
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.
Content	Optional	The content of the multimedia message

Table 52: Information elements in the MM7_deliver.RES .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_deliver.REQ/ MM7_deliver.RES pair.
Message type	Mandatory	Identifies this message as a MM7_deliver response.
MM7 version	Mandatory	Identifies the version of the interface supported by the VASP
Service code	Optional	Information supplied by the VASP which may be included in charging information. The syntax and semantics of the content of this information are out of the scope of this specification.
Request Status	Mandatory	Status of the completion of the request.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status

8.7.3 Cancel and replace of MM

This section details the requests that should be supported in MM7 to allow a VASP to control or change the distribution of a message. These operations will allow the VASP to cancel a submitted message prior to delivery or replace a submitted message with a new message.

The involved abstract messages are outlined in Table 53 from type and direction points of view.

Table 53: Abstract messages for controlling Distribution MM

Abstract messages	Type	Direction
MM7_cancel.REQ	Request	VASP -> MMS Relay/Server
MM7_cancel.RES	Response	MMS Relay/Server -> VASP
MM7_replace.REQ	Request	VASP -> MMS Relay/Server
MM7_replace.RES	Response	MMS Relay/Server -> VASP

The following figure illustrates the interaction between the different MMS entities in canceling a VASP message.

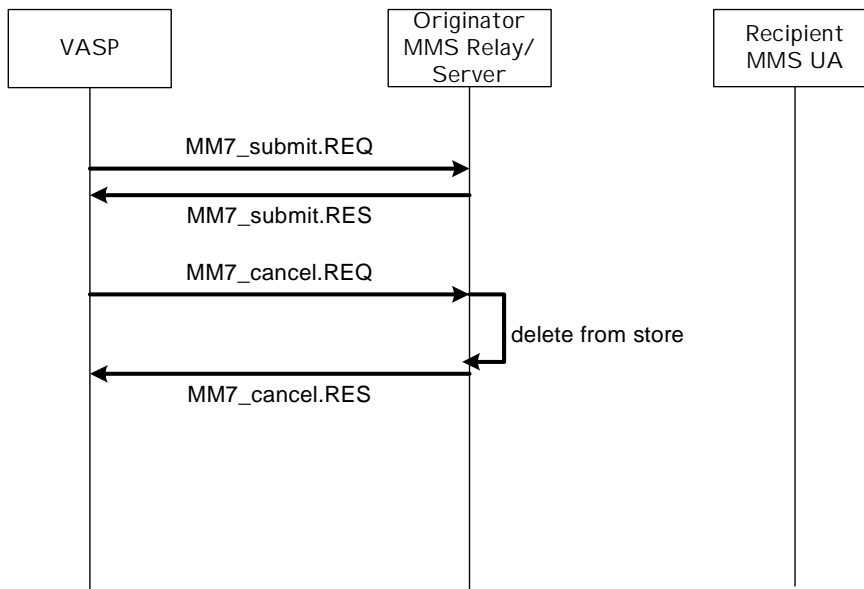


Figure 10: Data flow of VASP canceling a submitted message

8.7.3.1 Normal Operation

If the VASP has decided to cancel the delivery of a MM that it has already submitted, then the VASP should indicate this by sending the MM7_cancel.REQ message to the MMS Relay/Server. The MMS Relay/Server should check the status of the message indicated by the Message ID and cancel delivery to all destinations for which the MMS Relay/Server has not sent out a notification. The MMS Relay/Server should respond to the request with a MM7_cancel.RES indicating that the request was processed.

If the VASP has new content that it wishes to submit in place of the content that was originally submitted it should submit the new replacement content using the MM7_replace.REQ message. The MMS Relay/Server should check the status of the message indicated by the Message ID and replace the message content for all destinations that have not retrieved or forwarded the message as yet. The MMS Relay/Server should redistribute the new content to the destination list from the original MM7_submit.REQ. Optional information elements that appear in the MM7_replace.REQ message shall replace the corresponding information elements of the original submission (the VASP shall not replace information elements that were already provided in the previously sent notification),

information elements that do not appear in the MM7_replace.REQ message shall retain the original submission values. Replacement of messages that have been retrieved may be specified in future releases.

Support for MM7_cancel.REQ, MM7_cancel.RES, MM7_replace.REQ, and MM7_replace.RES is optional for all MMS Relay/Server that support MM7

8.7.3.2 Abnormal Operation

The MMS Relay/Server should reject a request to cancel or replace a message if it is unable to authorise the VAS to cancel or replace MMs, or find the Message ID indicated in the request, or cannot determine that the indicated message was originally submitted by the VASP.

8.7.3.3 Features

Authorisation: The VASP must supply its own identifier or the VAS identifier as part of the request. [An application which resides on a MMS VAS application may supply its own identifiers as part of the request.](#)

Addressing: When replacing a previously sent message the replacement shall be addressed to the same recipients as the original being replaced.

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message type: The type of message used on reference point MM7 indicating MM7_cancel.REQ, MM7_cancel.RES, MM7_replace.REQ, and MM7_replace.RES as such.

Transaction identification: The VASP shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Service code: The VASP may mark the content of the message with a service code that may be transferred by the MMS Relay/Server in the form of charging information for use by the billing system to properly bill the user for the service being supplied.

Time stamping: The VASP may time stamp the MM.

Time constraints: The VASP may also request the earliest desired time of delivery of the MM to be changed.

Read reporting: The VASP may request a read-reply report when the user has viewed the MM.

Content adaptation restriction: The VASP may request that the content of the MM will not be subjected to content adaptation.

NOTE: From REL-6 onwards, in case of misalignment, DRM-protection rules shall prevail on the Content Adaptation Restriction feature.

Content type: The MIME type of the multimedia content shall always be identified in the MM7_replace.REQ if content is replaced.

Content: The content of the multimedia message if provided by the VASP may be conveyed in the MM7_replace.REQ.

Message identification: The MMS Relay/Server shall always provide a message identification for an MM, which it has accepted for submission in either the MM7_replace.REQ or in the MM7_cancel.REQ. The VASP shall supply this message identification when requesting to cancel or replace a previously submitted message. When replacing a MM the updated message retains the identification of the original (replaced) message.

Request status: The MMS Relay/Server shall indicate the status of the request in the associated response. The reason code given in the status information element of the response may be supported with an explanatory text further qualifying the status.

Applic-ID: [The presence of this information element indicates that this abstract message shall be provided to an application residing on an MMS User Agent. It contains the identification of the destination application.](#)

Reply-Applic-ID: [If present, this information element indicates a “reply path”, i.e. the identifier of the application to which delivery reports, read-reply reports and reply-MMs are addressed if any.](#)

[Aux-Applic-Info](#): If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1).

8.7.3.4 Information Elements

Table 54: Information elements in the MM7_cancel.REQ .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_cancel.REQ/ MM7_cancel.RES pair.
Message type	Mandatory	Identifies this message as a MM7_cancel request.
MM7 version	Mandatory	Identifies the version of the interface supported by the VASP
VASP ID	Optional	Identifier of the VASP for this MMS Relay/Server.
VAS ID	Optional	Identifier of the originating application.
Sender address	Optional	The address of the MM originator.
Message ID	Mandatory	Identifier of the message to cancel.
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs, delivery reports and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

Table 55: Information elements in the MM7_cancel.RES .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_cancel.REQ/ MM7_cancel.RES pair.
Message type	Mandatory	Identifies this message as a MM7_cancel response.
MM7 version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server
Request Status	Mandatory	Status of the completion of the request.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status

Table 56: Information elements in the MM7_replace.REQ .

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_replace.REQ/ MM7_replace.RES pair.
Message type	Mandatory	Identifies this message as a MM7_replace request.
MM7 version	Mandatory	Identifies the version of the interface supported by the VASP
VASP ID	Optional	Identifier of the VASP for this MMS Relay/Server.
VAS ID	Optional	Identifier of the originating application.
Message ID	Mandatory	Identifier of the message that current message replaces.
Service code	Optional	Information supplied by the VASP which may be included in charging information. The syntax and semantics of the content of this information are out of the scope of this specification.
Date and time	Optional	The time and date of the submission of the MM (time stamp).
Earliest delivery time	Optional	The earliest desired time of delivery of the MM to the recipient (time stamp).
Read reply	Optional	A request for confirmation via a read report to be delivered as described in section 8.1
Adaptations	Optional	Indicates if VASP allows adaptation of the content (default True)
Content type	Conditional	The content type of the MM's content. If the Content IE appears, then the Content type IE must appear. (NOTE 1)
Applic-ID	Optional	Identification of the destination application.
Reply-Applic-ID	Optional	Identification of an application to which reply-MMs, delivery reports and read-reply reports are addressed.
Aux-Applic-Info	Optional	Auxiliary application addressing information.
Content	Optional	The content of the multimedia message
Message Distribution Indicator	Optional	If set to "false" the VASP has indicated that content of the MM is not intended for redistribution. If set to "true" the VASP has indicated that content of the MM can be redistributed. (NOTE 2)
NOTE 1: From REL-6 onwards, in case of misalignment between the value assigned to Adaptations and DRM-protection rules, the latter shall prevail.		
NOTE 2: From REL-6 onwards, in case of misalignment between the value assigned to MDI and DRM-protection rules, the latter shall prevail.		

Table 57: Information elements in the MM7_replace.RES.

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_replace.REQ/ MM7_replace.RES pair.
Message type	Mandatory	Identifies this message as a MM7_replace response.
MM7 version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server
Request Status	Mandatory	Status of the completion of the request.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status

8.7.4 Delivery reporting to VASP

This part of MMS service covers the generation of a delivery report from the MMS Relay/Server to the VASP. The involved abstract messages are outlined in Table 58 from type and direction points of view.

Table 58: Abstract messages for delivery reports to VASP

Abstract Message	Type	Direction
MM7_delivery_report.REQ	Request	MMS Relay/Server -> VASP
MM7_delivery_report.RES	Response	VASP -> MMS Relay/Server

8.7.4.1 Normal Operation

The MMS Relay/Server shall create the MM7_delivery_report.REQ and send it to the VASP when the appropriate information is available.

Support for MM7_delivery_report.REQ and MM7_delivery_report.RES is mandatory for a MMS Relay/Server that supports MM7.

8.7.4.2 Abnormal Operation

In case the VASP cannot identify the MMS Relay/Server or the Message ID is not recognized, then the VASP shall respond with a MM7_delivery_report.RES including a status which indicates the reason the delivery report was not accepted.

8.7.4.3 Features

Addressing: Both the address of the VAS (which is the original MM originator) and the address of the recipient of the original MM shall be provided in the addressing-relevant information fields of MM7_delivery_report.REQ.

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message Type: The type of message used on reference point MM7 indicating MM7_delivery_report.REQ and MM7_delivery_report.RES as such.

Transaction Identification: The VASP shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Time stamping: The MM7_delivery_report.REQ shall carry the time and date of handling of the MM (e.g. retrieval, expiry, rejection).

Message identification: In the MM7_delivery_report.REQ the MMS Relay/Server shall always provide the original message identification of the MM that the delivery report corresponds to as generated in response to the associated MM7_submit.REQ.

MM Status: The MM7_delivery_report.REQ shall carry the status of the MM delivery, e.g. retrieved, rejected, expired or indeterminate. If there is no match between delivery condition and user status, delivery condition not met shall be returned.

Request Status: The VASP shall indicate the status of the MM7_delivery_report.REQ in the associated MM7_delivery_report.RES. The reason code given in the status information element of the response may be supported with an explanatory text further qualifying the status.

Applic-ID: This information element indicates the identification of the application that the delivery report is intended for. If a Reply-Applic-ID was indicated in the corresponding original MM, the recipient MMS Relay/Server shall set its value to that Reply-Applic-ID value. Otherwise, the recipient MMS Relay/Server shall set its value to the Applic-ID value that was indicated in the corresponding original MM.

Reply-Applic-ID: If present, this information element indicates a “reply path”, i.e. the identification of an application to which reply-MMs are addressed. The recipient MMS Relay/Server shall insert it into the MM7_delivery_report.REQ if the values of Applic-ID and Reply-Applic-ID in the corresponding original MM differ, in which case its value shall equal the Applic-ID value that was indicated in the corresponding original MM.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1). The recipient MMS Relay/Server shall insert it if Aux-Applic-Info was indicated in the corresponding original MM, in which case its value shall equal that Aux-Applic-Info value.

8.7.4.4 Information Elements

Table 59: Information elements in the MM7_delivery_report.REQ.

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_delivery_report.REQ/MM7_delivery_report.RES pair.
Message Type	Mandatory	The type of message used on reference point MM7 "MM7_delivery_report.REQ".
MM7 Version	Mandatory	The version of MM7 supported by the MMS Relay/Server
MMS Relay/Server ID	Optional	Identifier of the MMS Relay/Server
Message ID	Mandatory	The identification of the original MM.
Recipient address	Mandatory	The address of the recipient of the original MM.
Sender address	Mandatory	The address of the VAS that submitted the original MM.
Date and time	Mandatory	Date and time the MM was handled (retrieved, expired, rejected, etc.) (time stamp)
MM Status	Mandatory	Status of the MM, e.g. retrieved, expired, rejected
MM Status Extension	Optional	Extension of the MM Status, to provide more granularity.
MM Status text	Optional	Text description of the status for display purposes, should qualify the MM Status
Applic-ID	Optional	The identification of the originating application of the original MM.
Reply-Applic-ID	Optional	Identification of an application to which the originating application of the original MM shall address reply-MMs if any.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

Table 60: Information elements in the MM7_delivery_report.RES.

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_delivery_report.REQ/MM7_delivery_report.RES pair.
Message Type	Mandatory	The type of message used on reference point MM7: "MM7_delivery_report.RES".
MM7 Version	Mandatory	The version of MM7 supported by the VASP
Request Status	Mandatory	The status of the associated MM7_delivery_report.REQ.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status

8.7.5 Read-Reply Report for VASP

This part of MMS service covers the delivery of a read-reply report from the MMS Relay/Server to the VASP. The involved abstract messages are outlined in Table 61 from type and direction points of view.

Table 61: Abstract messages for sending and receiving read-reply reports in MM7

Abstract messages	Type	Direction
MM7_read_reply.REQ	Request	MMS Relay/Server -> VASP
MM7_read_reply.RES	Response	VASP -> MMS Relay/Server

8.7.5.1 Normal Operation

If the VASP requested a read-reply report then the recipient MMS User Agent may create and send a read-reply to the MMS Relay/Server. The MMS Relay/Server must identify that this read-reply report is associated with a MM originating from the MM7 reference point and must create the MM7_read_reply.REQ and send it to the VASP. The VASP shall return a MM7_read_reply.RES that reflects the successful reception of the read-reply report.

Support for MM7_read_reply_report.REQ and MM7_read_reply_report.RES is optional for a MMS Relay/Server that supports MM7.

8.7.5.2 Abnormal Operation

In case the VASP cannot identify the MMS Relay/Server or the Message ID is not recognized, then the VASP shall respond with a MM7_read_reply.RES including a status which indicates the reason the read reply report was not accepted.

8.7.5.3 Features

Addressing: Both, the address of the VASP (which is the MM originator), and the address of the originator (which is the MM recipient) of a read-reply report shall be provided in the addressing-relevant information fields of MM7_read_reply_report.REQ.

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message Type: The type of message used on reference point MM7 indicating MM7_read_reply.REQ and MM7_read_reply.RES as such.

Transaction Identification: The VASP shall provide an unambiguous transaction identification within a request. The response shall unambiguously refer to the corresponding request using the same transaction identification.

Message identification: In the MM7_read_reply_report.REQ the MMS Relay/Server shall always provide the original message identification of the MM that the read-reply report corresponds to as generated for the MM7_submit.RES.

Time Stamping: The MM7_read_reply_report.REQ shall carry the time-stamp associated with the read-reply report.

Read Status: The MM7_read_reply_report.REQ shall carry the status of the MM retrieval, e.g. read or deleted without being read.

Request Status: The VASP shall indicate the status of the MM7_read_reply.REQ in the associated MM7_read_reply.RES. The reason code given in the status information element of the response may be supported with an explanatory text further qualifying the status.

Applic-ID: In case of application addressing, this information element indicates the identification of the application that the read-reply report is intended for. The recipient MMS Relay/Server shall set its value to the Applic-ID value indicated in the corresponding MM1_read_reply.REQ or MM4_read_reply_recipient.REQ.

Reply-Applic-ID: If present, this information element indicates a “reply path”, i.e. the identifier of the application to which reply-MMs to this read-reply report are addressed if any. The recipient MMS Relay/Server shall set its value to the Reply-Applic-ID value indicated in the corresponding MM1_read_reply.REQ or MM4_read_reply_recipient.REQ.

Aux-Applic-Info: If present, this information element indicates additional application/implementation specific control information (cf. 7.1.17.1). The recipient MMS Relay/Server shall set its value to the Aux-Applic-Info value indicated in the corresponding MM1_read_reply.REQ or MM4_read_reply_recipient.REQ.

8.7.5.4 Information Elements

Table 62: Information elements in the MM7_read_reply_report.REQ.

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_read_reply_report.REQ/MM7_read_reply_report.RES pair.
Message Type	Mandatory	Identifies this message as a MM7_read_reply_report request.
MM7 Version	Mandatory	The version of MM7 supported by the MMS Relay/Server.
MMS Relay/Server ID	Optional	Identifier of the MMS Relay/Server
Recipient address	Mandatory	The address of the MM recipient of the original MM, i.e. the originator of the read-reply report.
Sender address	Mandatory	The address of the VASP (originator of the original MM) i.e. the recipient of the read-reply report.
Message ID	Mandatory	The message ID of the original MM.
Date and time	Mandatory	Date and time the MM was handled (read, deleted without being read, etc.) (time stamp)
Read Status	Mandatory	Status of the MM, e.g. Read, Deleted without being read
Read Status text	Optional	Text description of the status for display purposes, should qualify the Read Status
Applic-ID	Optional	The identification of the originating application of the original MM.
Reply-Applic-ID	Optional	Identification of an application to which the originating application of the original MM shall address reply-MMs if any.
Aux-Applic-Info	Optional	Auxiliary application addressing information.

Table 63: Information elements in the MM7_read_reply_report.RES.

Information element	Presence	Description
Transaction ID	Mandatory	The identification of the MM7_read_reply_report.REQ/MM7_read_reply_report.RES pair.
Message Type	Mandatory	Identifies this message as a MM7_read_reply_report response.
MM7 Version	Mandatory	The version of MM7 supported by the VASP.
Request Status	Mandatory	The status of the associated MM7_read_reply_report.REQ.
Request Status text	Optional	Text description of the status for display purposes, should qualify the Request Status.

8.7.6 Generic Error Handling

When the MMS Relay/Server or VASP receives a MM7 abstract message that cannot be replied to with the specific response it shall reply using a generic error message as described here. To get a correlation between the original send REQ and the error response, every abstract message on the MM7 reference point shall include a Transaction ID.

The involved abstract messages are outlined in Table 64 from type and direction points of view.

Table 64: Abstract message for generic error notification

Abstract message	Type	Direction
MM7_RS_error.RES	Response	MMS Relay/Server -> VASP
MM7_VASP_error.RES	Response	VASP->MMS Relay/Server

8.7.6.1 Normal Operation

If the MMS Relay/Server has received a message over the MM7 interface and does not recognize the Message Type, or the requested feature is not supported and the normal response message is not supported, then the MMS Relay/Server must generate a MM7_RS_error.RES message to reply to the VASP.

If the VASP has received a message over the MM7 interface and does not recognize the Message Type, or the requested feature is not supported and the normal response message is not supported, then the VASP must generate a MM7_VASP_error.RES message to reply to the MMS Relay/Server.

Support for the MM7_RS_error.RES and MM7_VASP_error.RES is Mandatory for a MMS Relay/Server that supports MM7

8.7.6.2 Features

Version: The MM7 protocol shall provide unique means to identify the version supported by both the MMS Relay/Server and VASP.

Message Type: The type of message used on reference point MM7 indicating MM7_RS_error.RES or MM7_VASP_error.RES as such.

Transaction Identification: The response shall unambiguously refer to the corresponding request using the same transaction identification.

Error Status: The MMS Relay/Server or VASP shall indicate the error condition that caused the generation of the error response. The reason code given in the status information element of the response may be supported with an explanatory text further qualifying the status.

8.7.6.3 Information Elements

Table 65: Information elements in the MM7_RS_error.RES .

Information element	Presence	Description
Transaction ID	Mandatory	Identifier that corresponds to the Transaction ID of the incoming message.
Message type	Mandatory	Identifies this message as a MM7_RS_error response.
MM7 version	Mandatory	Identifies the version of the interface supported by the MMS Relay/Server
Error Status	Mandatory	Error code (e.g. Message type not-supported, MM7 version not supported).
Error Status text	Optional	Text description of the status for display purposes, should qualify the Error Status.

Table 66: Information elements in the MM7_VASP_error.RES .

Information element	Presence	Description
Transaction ID	Mandatory	Identifier that corresponds to the Transaction ID of the incoming message.
Message type	Mandatory	Identifies this message as a MM7_VASP_error response.
MM7 version	Mandatory	Identifies the version of the interface supported by the VASP
Error Status	Mandatory	Error code (e.g. Message type not-supported, MM7 version not supported).
Error Status text	Optional	Text description of the status for display purposes, should qualify the Error Status.

8.7.7 Administrating the Distribution List

After a Value Added Service becomes available users may subscribe to the service using direct contact to the VASP (e.g. by sending a MM via MM1_submit.REQ to the service provider including registration information). The distribution list may be maintained by the MMS Relay/Server. The full definition of the administration of the distribution list may be specified in future releases of this specification.

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

- 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 11 and 12 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].

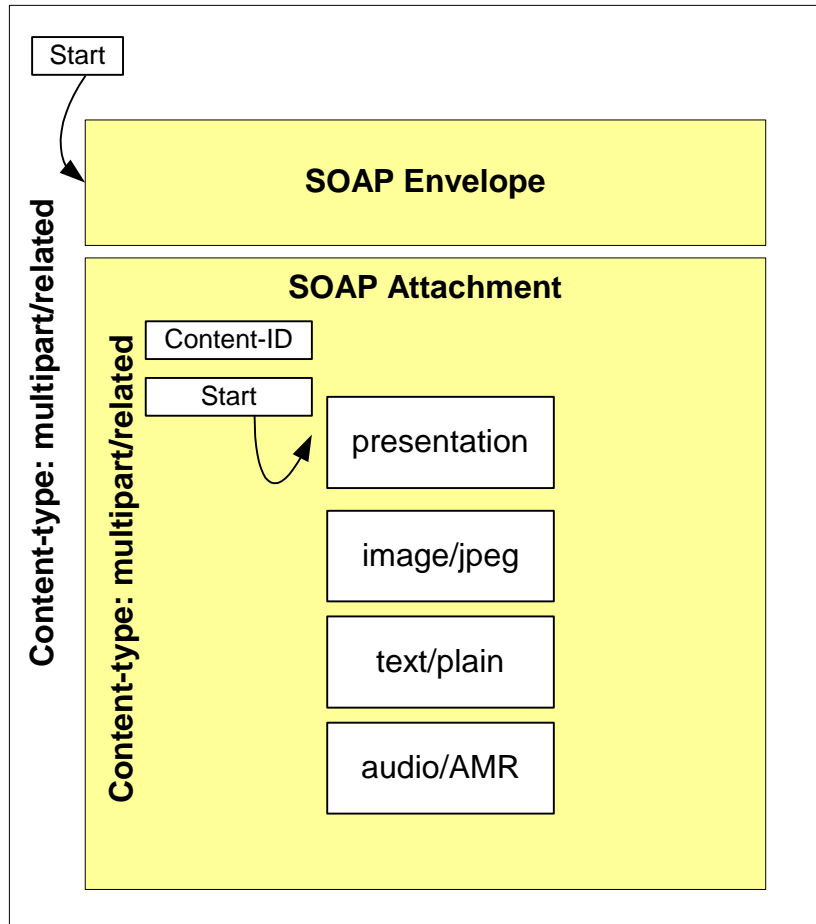


Figure 11: Message structure for a message with a SOAP Attachment (multipart/related payload)

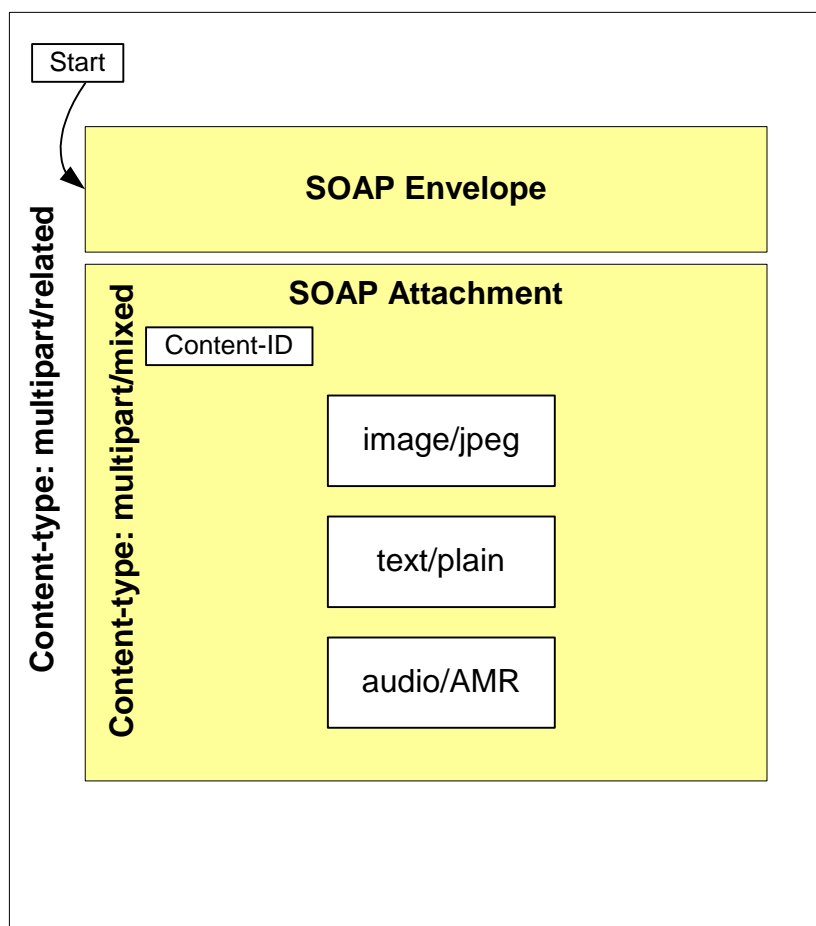


Figure 12: Message structure for a message with a SOAP Attachment (multipart/mixed payload)

For specific examples see the section describing SOAP HTTP examples.

8.7.8.1.2 SOAPAction Header Field

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

8.7.8.1.3 DRM-related media types in SOAP messages

In case MM elements are DRM-protected these MM elements shall be of media types as defined in [76] and [78].

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 (status codes in the range 2xxx-9xxx) 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 67. 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 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 67 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 67 shows the StatusCodes and StatusTexts that are currently defined.

Table 1649: StatusCode and StatusText

StatusCode	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 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 L of this document. Specification of the format of SOAP element values appear in the schema.

8.7.9.1 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 the number of the 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 or false
Read reply	SOAP Body	ReadReply	Boolean – true or false
Reply-Charging	SOAP Body	ReplyCharging	No value – presence implies 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 or false
Charged Party	SOAP Body	ChargedParty	Enumeration – possible values: Sender, Recipient, Both, Neither
Message Distribution Indicator	SOAP Body	DistributionIndicator	Boolean – true or false
Delivery Condition	SOAP Body	DeliveryCondition	Possible values include MMS capable only, HPLMN only
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	
Content type	MIME header – Attachment	Content-Type	
Content	SOAP Body	Content	href:cid attribute links to attachment

8.7.9.2 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 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 8.7.8.3
Request Status Text	SOAP Body	StatusText & Details	See section 8.7.8.3

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-MM7-1-3"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <SubmitReq xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-
MM7-1-3">
      <MM7Version>5.6.0</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</TimeStamp>
      <EarliestDeliveryTime>2002-01-02T09:30:47-05:00</EarliestDeliveryTime>
      <ExpiryDate>P90D</ExpiryDate>
      <DeliveryReport>>true</DeliveryReport>
      <Priority>Normal</Priority>
      <Subject>News for today</Subject>
      <ChargedParty>Sender</ChargedParty>
      <DistributionIndicator>>true</DistributionIndicator>

      <Content href="cid:SaturnPics-01020930@news.tnn.com" allowAdaptations="true"/>
    </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>
Content-Transfer-Encoding: base64

R0lGODdhZAAwAOMAAAAAIGJjGltcDE00ofWo6OchbilnlpmcbGo jpKbnP/lpW54fBMTElRYXEFO
...

--StoryParts 74526 8432 2002-77645--
--NextPart_000_0028_01C19839.84698430--
```

NOTE: The different encoding mechanisms, as defined by RFC2045 [44], can be utilized for content encoding.

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-MM7-1-3"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <SubmitRsp xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-3">
      <MM7Version>5.6.0</MM7Version>
      <Status>
        <StatusCode>1000</StatusCode>
        <StatusText>Success</StatusText>
      </Status>
      <MessageID>041502073667</MessageID>
    </SubmitRsp>
  </env:Body>
</env:Envelope>
```

Sample message submission with application addressing

```
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-6-MM7-6-7"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <SubmitReq xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-6-
```

```

MM7-6-7">
  <MM7Version>6.7.0</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</TimeStamp>
  <EarliestDeliveryTime>2002-01-02T09:30:47-05:00</EarliestDeliveryTime>
  <ExpiryDate>P90D</ExpiryDate>
  <DeliveryReport>>true</DeliveryReport>
  <Priority>Normal</Priority>
  <Subject>News for today</Subject>
  <ChargedParty>Sender</ChargedParty>
  <DistributionIndicator>>true</DistributionIndicator>
  <ApplicID>ifx.com.neon.MyPackage.MAFIA</ApplicID>
  <ReplyApplicID>ifx.com.neon.downloadedPackage.MAFIA</ReplyApplicID>
  <AuxApplicID>MAFIA instance #04</AuxApplicID>
  <Content href="cid:SaturnPics-01020930@news.tnn.com" allowAdaptations="true"/>
</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>
Content-Transfer-Encoding: base64

```

```
R01G0DdhZAAwAOMAAAAAIGjJGltcDE00fWo60chbilnlpmcbGojpKbnP/lpW54fBMTE1RYXEFO
```

```

::

```

```

--StoryParts 74526 8432 2002-77645--
--NextPart_000_0028_01C19839.84698430--

```

NOTE: The different encoding mechanisms, as defined by RFC2045 [44], can be utilized for content encoding.

Again, 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-6-MM7-6-7"
env:mustUnderstand="1">
      vas00001-sub
    </mm7:TransactionID>
  </env:Header>
<env:Body>

```

```

<SubmitRsp xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-6-
MM7-6-7">
  <MM7Version>6.7.0</MM7Version>
  <Status>
    <StatusCode>1000</StatusCode>
    <StatusText>Success</StatusText>
  </Status>
  <MessageID>041502073667</MessageID>
  <ApplicID>ifx.com.neon.downloadedPackage.MAFIA</ApplicID>
  <ReplyApplicID>ifx.com.neon.MyPackage.MAFIA</ReplyApplicID>
  <AuxApplicID>session.ABC.DEF</AuxApplicID>
</SubmitRsp>
</env:Body>
</env:Envelope>

```

8.7.9.3 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 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	
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	
Content	SOAP Body	Content	href:cid attribute links to attachment

8.7.9.4 MM7_deliver.RES

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 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 8.7.8.3
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.3

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-deliver>

<?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-MM7-1-3"
env:mustUnderstand="1">
      vas00324-dlvr
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <!-- Example of MM7_deliverReq -->
    <DeliverReq xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-
MM7-1-3">
      <MM7Version>5.6.0</MM7Version>
      <MMSRelayServerID>240.110.75.34</MMSRelayServerID>
      <LinkedID>wthr8391</LinkedID>
      <Sender>
        <RFC2822Address>97254265781@OMMS.com</RFC2822Address>
      </Sender>
      <TimeStamp>2002-04-15T14:35:21-05:00</TimeStamp>
      <Priority>Normal</Priority>
      <Subject>Weather Forecast</Subject>
      <Content href="cid:forecast-location200102-86453"/>
    </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/envelope/">
  <env:Header>
    <mm7:TransactionID
xmlns:mm7="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-3"
env:mustUnderstand="1">
      vas00324-dlvr
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <env:Fault>
      <faultcode>env:Client</faultcode>
      <faultstring>Client error</faultstring>
      <detail>
        <VSPErrorRsp xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-
MM7-1-3">
          <MM7Version>5.6.0</MM7Version>
          <Status>
            <StatusCode>4006</StatusCode>
            <StatusText>Service Unavailable</StatusText>
            <Details>

```

```

        <app:Reason xmlns:app="http://vendor.example.com/MM7Extension">Location
not covered in service</app:Reason>
      </Details>
    </Status>
  </ VASPErrorsRsp>
</detail>
</env:Fault>
</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 the number of the 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	
Message ID	SOAP Body	MessageID	
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	

8.7.9.6 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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.3
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.3

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: ""

<?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-MM7-1-3"
env:mustUnderstand="1">
      vas0000-can
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <CancelReq xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-3">
      <MM7Version>5.6.0</MM7Version>
    </CancelReq>
  </env:Body>
</env:Envelope>

```

```

        <SenderIdentification>
          <VASPID>TNN</VASPID>
          <VASID>Reminder</VASID>
        </SenderIdentification>
        <MessageID>mms00022222</MessageID>
      </CancelReq>
    </env:Body>
  </env:Envelope>

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-MM7-1-3"
env:mustUnderstand="1">
      vas0000-can
    </mm7:TransactionID>
  </env:Header>
  <env:Body>
    <CancelRsp xmlns="http://www.3gpp.org/ftp/Specs/archive/23_series/23.140/schema/REL-5-MM7-1-3">
      <MM7Version>5.6.0</MM7Version>
      <Status>
        <StatusCode>1000</StatusCode>
        <StatusText>Success</StatusText>
      </Status>
    </CancelRsp>
  </env:Body>
</env:Envelope>

```

8.7.9.7 MM7_replace.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 the number of the 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	
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 or false
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	

8.7.9.8 MM7_replace.RES mapping

Information Element	Location	ElementName	Comments
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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.3
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.3

8.7.9.9 MM7_delivery_report.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 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	
Message ID	SOAP Body	MessageID	
Recipient address	SOAP Body	Recipient	
Sender address	SOAP Body	Sender	
Date and time	SOAP Body	Date	
MM Status	SOAP Body	MMStatus	Enumeration – possible values: Expired, Retrieved, Rejected, Indeterminate, Forwarded, Delivery Condition Not Met
Status text	SOAP Body	StatusText	
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	

8.7.9.10 MM7_delivery_report.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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Request Status	SOAP Body	StatusCode	See section 8.7.8.3
Request Status text	SOAP Body	StatusText & Details	See section 8.7.8.3

8.7.9.11 MM7_read_reply.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 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	
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	
Applic-ID	SOAP Body	ApplicID	
Reply-Applic-ID	SOAP Body	ReplyApplicID	
Aux-Applic-Info	SOAP Body	AuxApplicInfo	

8.7.9.12 MM7_read_reply.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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Request status	SOAP Body	StatusCode	See section 8.7.8.3
Request status text	SOAP Body	StatusText & Details	See section 8.7.8.3

8.7.9.13 MM7_RS_error.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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 8.7.8.3
Error status text	SOAP Body	StatusText & Details	See section 8.7.8.3

8.7.9.14 MM7_VASP_error.RES mapping

Information Element	Location	Element-name	Comments
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 the number of the specification in which the schema has changed most recently, e.g. 5.2.0
Error status	SOAP Body	StatusCode	See section 8.7.8.3
Error status text	SOAP Body	StatusText & Details	See section 8.7.8.3

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Annex C (informative): Charging Data Records

This annex describes information of MMs/abstract messages which may be required for inclusion into Charging Data Records (CDR's) for MMS for the purpose of Billing and Traceability in the operators post-processing system. Further details on the CDR content and transport for MMS are described in the 3GPP TS 32.270 [81].

This list may include:

- Message -ID of Multimedia Message
- Recipient address(es)
- Sender address
- Message size
- Time stamp for submission time, earliest delivery time and time of expiry
- Duration of transmission (for streaming purposes)
- Duration of storage (in the MMS Relay/Server)
- Type of message: (e.g. notification, message MM, delivery report, read-reply)
- Bearer type used
- Content information (e.g. audio, picture, video, text,)
- Message class (e.g. advertisement/informational)
- Delivery Report Request
- Read Reply Request
- Charging Indicator (e.g. Pre paid charging, Reply charging, Charged Party)
- MM7 service code
- MM Status (e.g. delivered, rejected, expired, delivery pending).
- Indication of forwarding
- Conversion of type and media

- Priority of the MM
- Linked ID
- VASP ID
- VAS ID
- Reply-Charging
- Content type
- Reply-Charging-ID
- Charged Party, Charged Party ID
- MCC + MNC

- [Applic-ID](#)

- [Reply-Applic-ID](#)

- [Aux-Applic-Info](#)

The following information elements at least will be considered for the future.

-
- Identification if a message has been sent to a pre-defined group

NOTE: Some of the above fields may not be available in the MMS Relay/Server e.g. due to network implementation options. Also some fields may not be directly available from MMS Relay/Server CDRs but defined in the Charging and Billing system.

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Annex I (normative): MM1 <-> MM4 header mapping

This annex maps the information elements found on MM1 onto the STD 11 header fields of MM4.

The tables below are provided to give a normative end-to-end description of MMS. It provides mapping of MM1 with respect to MM4/STD11.

In many cases there is no mapping between MM1 information elements and MM4 STD 11 header fields, this is according to specifications. These information elements are included in the tables below in order to give a complete picture of how the MM1 information elements are handled.

Table I.1: Mapping MM1_submit.REQ -> MM4_forward.REQ

Information elements in MM1_submit.REQ	STD11 Header fields in Egress MM4_forward.REQ
Message Type	-
MMS Version	-
Transaction ID	-
Recipient address	To:, Cc:, Bcc: (NOTE 1, NOTE 2)
Content type	Content-Type:
Sender address	From:
Message class	X-Mms-Message-Class:
Date and time	Date:
Time of Expiry	X-Mms-Expiry:
Earliest Delivery Time	-
Delivery report	X-Mms-Delivery-Report:
-	X-Mms-Originator-R/S-Delivery-Report
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Priority	X-Mms-Priority:
Sender visibility	X-Mms-Sender-Visibility:
Store	-
MM State	-
MM Flags	-
Read reply	X-Mms-Read-Reply:
Subject	Subject:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
Reply-Charging-ID	-
Content	<message body>
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Message-Id
-	X-Mms-Acq-Request
-	X-Mms-Forward-Counter
-	X-Mms-Previously-sent-by
-	X-Mms-Previously-sent-date-and-time
<p>NOTE 1: A "Bcc:" field is created on MM4 only when the original MM on MM1 contains only blind-carbon-copy recipient(s). In this case the "Bcc:" field is left blank, see clause 8.4.4.2.</p> <p>NOTE 2: Recipient addresses for blind-carbon-copy recipient(s) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.</p>	

Table I.2: Mapping MM1_submit.RES -> MM4_forward.REQ

Information elements in MM1_submit.RES	STD11 Header fields in Egress MM4_forward.REQ
Message Type	-
MMS Version	-
Transaction ID	-
Request Status	-
Request Status Text	-
Message ID	X-Mms-Message-ID:
Store Status	-
Store Status Text	-
Stored Message Reference	-
-	X-Mms-Applic-ID
-	X-Mms-Reply-Applic-ID
-	X-Mms-Aux-Applic-Info
-	To:, Cc:, Bcc: (NOTE 1, NOTE 2)
-	Content-Type:
-	From:
-	X-Mms-Message-Class:
-	Date:
-	X-Mms-Expiry:
-	X-Mms-Delivery-Report:
-	X-Mms-Originator-R/S-Delivery-Report
-	X-Mms-Priority:
-	X-Mms-Sender-Visibility:
-	X-Mms-Read-Reply:
-	Subject:
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Acq-Request
-	X-Mms-Forward-Counter
-	X-Mms-Previously-sent-by
-	X-Mms-Previously-sent-date-and-time
<p>NOTE 1: A "Bcc:" field is created on MM4 only when the original MM on MM1 contains only blind-carbon-copy recipient(s). In this case the "Bcc:" field is left blank, see clause 8.4.4.2.</p> <p>NOTE 2: Recipient addresses for blind-carbon-copy recipient(s) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.</p>	

Table I.3: Mapping MM1_notification.REQ <- MM4_forward.REQ

Information elements in MM1_notification.REQ	STD11 Header fields in Ingress MM4_forward.REQ
Message Type	-
MMS Version	-
Transaction ID	-
Message class	X-Mms-Message-Class:
Message size	-
Time of expiry	X-Mms-Expiry:
Message Reference	-
Subject	Subject:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
Priority	X-Mms-Priority:
Sender address	From:
Stored	-
Delivery report	X-Mms-Delivery-Report:
-	X-Mms-Originator-R/S-Delivery-Report
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Reply-Charging-ID	-
Element-Descriptor	-
Message Distribution Indicator	-
-	To:, Cc:, Bcc: (NOTE 1, NOTE 2)
-	Content-Type:
-	Date:
-	X-Mms-Sender-Visibility:
-	X-Mms-Read-Reply:
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Acq-Request
-	X-Mms-Forward-Counter
-	X-Mms-Previously-sent-by
-	X-Mms-Previously-sent-date-and-time
<p>NOTE 1: A "Bcc:" field is created on MM4 only when the original MM on MM1 contains only blind-carbon-copy recipient(s). In this case the "Bcc:" field is left blank, see clause 8.4.4.2.</p> <p>NOTE 2: Recipient addresses for blind-carbon-copy recipient(s) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.</p>	

Table I.4: Information elements in the MM1_notification.RES.

Information elements in MM1_notification.RES	MM4 STD 11 Header fields
Message Type	-
MMS Version	-
Transaction ID	-
MM Status	-
Report allowed	-

Table I.5: Information elements in the MM1_retrieve.REQ

Information elements in MM1_retrieve.REQ	MM4 STD 11 Header fields
Message Reference	-

Table I.6: Mapping MM1_retrieve.RES <- MM4_forward.REQ

Information elements in MM1_retrieve.RES	STD11 Header fields in Ingress MM4_Forward.REQ
Message Type	-
MMS Version	-
Transaction ID	-
Message ID	X-Mms-Message-ID:
Sender address	From:
Content type	Content-type:
Recipient address	To:
Message class	X-Mms-Message-Class:
Date and time	Date:
Delivery report	X-Mms-Delivery-Report:
-	X-Mms-Originator-R/S-Delivery-Report
Priority	X-Mms-Priority:
Read reply	X-Mms-Read-Reply:
Subject	Subject:
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info
Request Status	-
MM State	-
MM Flags	-
Request Status Text	-
Reply-Charging	-
Reply-Charging-ID	-
Reply-Deadline	-
Reply-Charging-Size	-
Previously-Sent-By	X-Mms-Previously-Sent-By
Previously-Sent-Date	X-Mms-Previously-Sent-Date
Content	<message body>
Message Distribution Indicator	-
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Expiry
-	X-Mms-Sender-Visibility:
-	X-Mms-Read-Reply:
-	X-Mms-Acq-Request
-	X-Mms-Forward-Counter

Table I.7: Information elements in the MM1_acknowledgement.REQ

Information elements in MM1_acknowledgement.REQ	MM4 STD 11 Header fields
Message Type	-
MMS Version	-
Transaction ID	-
Report allowed	-

Table I.8: Mapping MM1_forward.REQ -> MM4_forward.REQ

Information elements in MM1_forward.REQ	STD11 Header fields in Egress MM4_Forward.REQ
Message Type	-
MMS Version	-
Transaction ID	-
Recipient address	To:, Cc:, Bcc: (NOTE 1, NOTE 2)
Forwarding address	From:
Date and time	Date:
Time of Expiry	X-Mms-Expiry:
Earliest delivery time	-
Store	-
MM State	-
MM Flags	-
Delivery report	X-Mms-Delivery-Report:
-	X-Mms-Originator-R/S-Delivery-Report
Read reply	X-Mms-Read-Reply:
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Message Reference	-
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Message-ID:
-	Content-Type:
-	X-Mms-Message-Class:
-	X-Mms-Priority:
-	X-Mms-Sender-Visibility:
-	Subject:
-	X-Mms-Acq-Request
-	X-Mms-Forward-Counter
-	X-Mms-Previously-Sent-By
-	X-Mms-Previously-Sent-Date
-	Content
-	X-Mms-Applic-ID
-	X-Mms-Reply-Applic-ID
-	X-Mms-Aux-Applic-Info
NOTE 1: A "Bcc:" field is created on MM4 only when the original MM on MM1 contains only blind-carbon-copy recipient(s). In this case the "Bcc:" field is left blank, see clause 8.4.4.2.	
NOTE 2: Recipient addresses for blind-carbon-copy recipient(s) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.	

Table I.9: Information elements in the MM1_forward.RES.

Information elements in MM1_forward.RES	MM4 STD 11 Header fields
Message Type	-
MMS Version	-
Transaction ID	-
Request Status	-
Request Status Text	-
Message ID	-
Store Status	-
Store Status Text	-
Stored Message Reference	-

Table I.10: Mapping MM1_delivery_report.REQ <- MM4_delivery_report.REQ

Information elements in MM1_delivery_report.REQ	STD11 Header fields in Ingress MM4_delivery_report.REQ
Message Type	-
MMS Version	-
Message ID	X-Mms-Message-ID
Recipient address	From:
Date and Time	Date:
MM Status	X-Mms-MM-Status-Code
-	X-Mms-MM-Status-Extension
-	X-Mms-Forward-To-Originator-UA
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info

Table I.11: Mapping MM1_read_reply_recipient.REQ -> MM4_read_reply_report.REQ

Information elements in MM1_read_reply_recipient.REQ	STD11 Header fields in Egress MM4_read_reply_report.REQ
Message Type	-
MMS Version	-
Recipient address	From:
Originator address	To:
Message ID	X-Mms-Message-ID:
Date and Time	Date:
Read Status	X-Mms-Read-Status:
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Acq-Request
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info

Table I.12: Mapping MM1_read_reply_originator.REQ <- MM4_read_reply_report.REQ

Information elements in MM1_read_reply_originator.REQ	Ingress STD11 Header fields in MM4_read_reply_report.REQ
Message Type	-
MMS Version	-
Recipient address	From:
Originator address	To:
Message ID	X-Mms-Message-ID:
Date and Time	Date:
Read Status	X-Mms-Read-Status:
-	X-Mms-3GPP-MMS-Version
-	X-Mms-Message-Type
-	X-Mms-Transaction-Id
-	X-Mms-Acq-Request
Applic-ID	X-Mms-Applic-ID
Reply-Applic-ID	X-Mms-Reply-Applic-ID
Aux-Applic-Info	X-Mms-Aux-Applic-Info

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Annex K (informative): MM1, MM4 <-> MM7 header mapping

This annex maps the abstract messages from MM1 and MM4 to MM7.

The abstract messages mapped between MM1 and MM7 are:

- MM1_Submit.REQ to the MM7_Deliver.REQ
- MM7_Submit.REQ to the MM1_Notification.REQ and the MM1_Retrieve.RES
- MM1_Read_Reply_Recipient.REQ to the MM7_Read_Reply_Report.REQ
- MM1_Forward.REQ to the MM7_Deliver.REQ

The abstract messages mapped between MM4 and MM7 are:

- MM4_Forward.REQ to the MM7_Deliver.REQ
- MM7_Submit.REQ to the MM4_Forward.REQ
- MM4_Delivery_Report.REQ to the MM7_Delivery_Report.REQ
- MM4_Read_Reply_Report.REQ to the MM7_Read_Reply.REQ

The tables below show 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 K.1: Mapping MM1_submit.REQ -> MM7_deliver.REQ

Information elements in MM1_submit.REQ	Information elements in MM7_deliver.REQ
Message Type	-
Transaction ID	-
MMSVersion	-
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
Applic-ID	Applic-ID
Reply-Applic-ID	Reply-Applic-ID
Aux-Applic-Info	Aux-Applic-Info
Content	Content
-	Transaction ID
-	Message type
-	MM7 version
-	MMS Relay/Server ID
-	Linked ID
-	Sender SPI
-	Recipient SPI
<p>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.</p> <p>NOTE 2: If the Sender Visibility flag is set over MM1, the Sender address from MM1 is not mapped onto MM7.</p>	

Table K.2: Mapping MM7_submit.REQ -> MM1_notification.REQ, MM1_Retrieve.RES

Information elements in MM7_submit.REQ	Information elements in MM1_notification.REQ	Information elements in MM1_retrieve.RES
-	Message Type	-
-	Transaction ID	-
-	MMS Version	-
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-Charging-ID
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	-	-
Charged Party ID	-	-
-	Message size	-
-	Message Reference	-
-	Stored	-
-	Delivery report	Delivery report
-	Reply-Charging-ID	-
-	Element-Descriptor	-
-	-	Message ID
-	-	MM State
-	-	MM Flags
-	-	Request Status
-	-	Request Status Text
-	-	Previously-sent-by
-	-	Previously-sent-date-and-time
-	-	Message Type
-	-	Transaction ID
-	-	MMS Version
Applic-ID	Applic-ID	Applic-ID
Reply-Applic-ID	Reply-Applic-ID	Reply-Applic-ID
Aux-Applic-Info	Aux-Applic-Info	Aux-Applic-Info

Table K.3: 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
Message Type	-
MMS Version	-
Recipient address	Recipient address
Originator address	Sender 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
Applic-ID	Applic-ID
Reply-Applic-ID	Reply-Applic-ID
Aux-Applic-Info	Aux-Applic-Info

Table K.4: Mapping MM1_Forward.REQ -> MM7_Deliver.REQ

Information elements in MM1_Forward.REQ	Inform in MM
Message Type	-
Transaction ID	-
MMS Version	-
Recipient address	Recipient a
Forwarding address	Sender ad
Date and time	Date and t
Time of Expiry	-
Earliest delivery time	-
Store	-
MM State	-
MM Flags	-
Delivery report	-
Read reply	-
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Message Reference	<Content> Subject, P
-	Transactio
-	Message t
-	MM7 vers
-	MMS Rela
-	Linked ID
-	Reply Cha
-	Sender SP
-	Recipient S
-	Applic-ID
-	Reply-App
-	Aux-Applic
NOTE: The message reference is us content from the original MM these fields is identical to the MM1_Submit.REQ/MM7_De table K.1.	

Table K.5: 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-by
Previously-sent-date and-time	Previously-sent-date-and-time
Content	Content
-	Transaction ID
-	Message type
-	MM7 version
-	MMS Relay/Server ID
-	Recipient address
-	Reply-Charging-ID
-	Sender SPI
-	Recipient SPI
Applic-ID	Applic-ID
Reply-Applic-ID	Reply-Applic-ID
Aux-Applic-Info	Aux-Applic-Info
<p>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.</p> <p>NOTE 2: If the Sender Visibility flag is set over MM4, the Sender address from MM4 is not mapped onto MM7.</p>	

Table K.6: 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
-	Reply-Charging
-	Reply-Deadline
-	Reply-Charging-Size
-	Adaptations
-	Message Distribution-Indicator
-	Charged Party ID

Table K.7: MM4_delivery_report.REQ -> MM7_delivery_report.REQ

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

Table K.8: 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
Applic-ID	Applic-ID
Reply-Applic-ID	Reply-Applic-ID
Aux-Applic-Info	Aux-Applic-Info

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