3GPP TSG-T (Terminals) Meeting #21 ***TP-030203***
Frankfurt, Germany
17 - 19 September, 2003

3GPP TSG-T2 #22 ***T2-030531***
Cambridge, UK
25 -29 August 2003

Title:	**Reply-LS on Enhancements to DRM Support in MMS**
Response to:	LS T2-030390 (May 22, 2003) on "Proposed use of OMA DRM with MMS" from OMA-MAG
Release:	Release 6
Work Item:	MMS6
Source:	T2
To:	OMA-MAG, OMA-MAG-DLDRM
Cc:	TSG-T, OMA-MAG-MMSG, SA1, OMA-REQ

Contact Person:
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Attachments: T2-030473 (Change Request to TS 23.140 Rel-6: Enhancement to DRM Support in MMS)

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1. Overall Description:

T2 wishes to thank OMA-MAG for their LS "Proposed use of OMA DRM with MMS", dated 22-05-2003 T2-030390 and bring to their attention the recently approved CR T2-030473 (attached) which implements the changes suggested in their LS.

T2 believes that with the approved changes the MMS provides full support of Forward Lock, Combined Delivery and Separate Delivery functionalities, as specified in OMA DRM Release 1 specifications.

These are changes for MMS Release 6 which are still open to further improvements, if needed.

2. Actions:

To OMA-MAG, OMA-MAG-DLDRM group.

ACTION: T2 kindly asks OMA-MAG and OMA-MAG-DLDRM group to confirm whether they also understand that the approved changes in attached T2-030473 allow the MMS to fully support the OMA DRM specification and provide additional detailed feedback in case they feel it appropriate.

3. Date of next T2 Meetings:

T2#23	17-21 Nov 2003	US

3GPP TSG-T2 #22
Cambridge, UK
25 - 29 August 2003

T2-030473

CR-Form-v7

CHANGE REQUEST

⌘ **23.140** **CR** **CRNum** ⌘ **rev** **-** ⌘ Current version: **6.2.0** ⌘

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

Proposed change affects: UICC apps⌘ ☐ ME ☒ Radio Access Network ☐ Core Network ☒

Title:	⌘	Enhancements to DRM support in MMS
Source:	⌘	Vodafone, Ericsson, AT&T Wireless
Work item code:	⌘	MMS6
Date:	⌘	19/08/2003
Category:	⌘	**B**
Release:	⌘	REL-6

Use one 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 one 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:	⌘	Protection of copyright content in MMS is seen an essential need for mobile content providers. The current support of DRM in MMS does not specify all the mechanisms standardised in OMA DRM Release 1. In particular, the MMS behaviour related to Forward Lock and Combined Delivery functionalities, which require network side support, is not specified. In addition, the Message Distribution Indicator IE becomes redundant and a potential source of ambiguities if used jointly with the new proposed DRM mechanisms.
Summary of change:	⌘	The specification of the terminal and network side behaviour related to Forward Lock and Combined Delivery functionalities is added. A clarification about the support of Separate Delivery is provided. The Message Distribution Indicator IE is made obsolete, i.e. its usage is discouraged although it is maintained for backward compatibility.
Consequences if not approved:	⌘	Forward Lock and Combined Delivery wouldn't be supported in MMS. Uncomplete and non interoperable support of OMA DRM functionalities would result. Ambiguities could result in the interpretation of OMA DRM functionalities with respect to earlier content protection mechanisms, i.e. Message Distribution Indicator information element.

Clauses affected:	⌘	5.1.2.12; 5.2; 7.1.3.1; 7.1.13.5; 7.1.15; 8.1.4.3.; 8.1.4.4; 8.1.5.3; 8.1.5.4; 8.7.1.3; 8.7.1.4; 8.7.3.3; 8.7.3.4

Y | **N**

Other specs affected:	⌘	X		Other core specifications	⌘
			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.

<modified clause>

5.1.2 Minimum set of supported formats

In order to guarantee a minimum support and compatibility between multimedia messaging capable terminals, the following media and file formats shall be supported as defined below and in 3GPP TS 26.140 [74].

5.1.2.1 Interoperability with SMS

In order to guarantee SMS interoperability, SMS 3GPP TS 24.011 [11] RP-DATA RPDU encapsulation defined in clause 7.3.1 shall be supported. MIME type "application/vnd.3gpp.sms" shall be used for this purpose. In order to maintain backward compatibility, MIME type "application/x-sms" shall be supported by the MMS UA for mobile-terminated messages only.

5.1.2.2 Plain Text

Plain Text coding used inside MMS shall be according to [74].

5.1.2.3 Speech

Speech coding used inside MMS shall be according to [74].

5.1.2.4 Audio

Audio coding used inside MMS shall be according to [74].

5.1.2.5 Synthetic audio

Synthetic audio coding used inside MMS shall be according to [74].

5.1.2.6 Still Image

Still image coding used inside MMS shall be according to [74].

5.1.2.7 Bitmap graphics

Bitmap graphics coding used inside MMS shall be according to [74].

5.1.2.8 Video

Video coding used inside MMS shall be according to [74].

5.1.2.9 Vector graphics

Vector graphics coding used inside MMS shall be according to [74].

5.1.2.10 File Format for dynamic media

Support for file formats for dynamic media used inside MMS shall be according to [74].

5.1.2.11 Media synchronization and presentation format

Support for media synchronization and presentation format used inside MMS shall be according to [74].

5.1.2.12 DRM format

Support for DRM protected MM elements (i.e. ‘DRM Message’ and ‘DRM Content Format (DCF)’) shall be according to section 7.1.15.

<modified clause>

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.

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.

<modified clause>

7.1.3.1 Terminal Capability Negotiation

An MMS User Agent shall support Terminal Capability Negotiation. An MMS Relay/Server ~~should~~ 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 7.1.7.

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.).

<modified clause>

7.1.13.5 Message Distribution Indicator

A Message Distribution Indicator may be provided for the whole Multimedia Message coming from a VASP. The indicator is purely informational, e.g. an MMS User Agent is not responsible for any functionality regarding message redistribution. The aim is to indicate that the MM content is not to be redistributed.

NOTE: DRM-protection of an MM, as specified in section 7.1.15, takes precedence over Message Distribution Indicator from REL-6 onwards.

<modified clause>

7.1.15 Support for Digital Rights Management in MMS

The support of DRM in MMS shall conform to the OMA DRM specifications [76], [77] and [78].

DRM-protection of an MM shall take precedence over Message Distribution Indication and over MM7 Content Adaptation Restriction from REL-6 onwards.

The following sections describe the application of DRM protection to MMS.

7.1.15.1 DRM-protected content within an MM

~~An MMS User Agent may support Digital Rights Management, DRM. The following descriptions apply when DRM is supported.~~

An MM may include one or more DRM-protected MM elements. DRM protection of MM elements shall be performed according to [76], [77] and [78], with each MM element being protected separately. Each DRM-protected MM element shall be encapsulated as a DRM object, i.e. 'DRM Message' or 'DCF'.

In particular, DRM protection shall neither be applied to an MM as a whole (MMS PDU), nor to any presentation description (e.g. SMIL) within an MM.

~~NOTE: When "DRM message" according to [76] is used in MMS, i.e. DRM protection without content encryption, the DRM protection might be harmed by forwarding operations triggered by the MMS User Agent and carried out by the MMS Relay/Server (e.g. forwarding without prior retrieval).~~

The headers (i.e. content-location or content-ID) used by the presentation description (e.g. SMIL) to refer to a DRM object shall be placed as MMS body part headers, due to MIME-based structure of the MM.

In case of Separate Delivery, the 'X-Oma-Drm-Separate-Delivery' header, if present, shall be placed as MMS body part header, due to MIME-based structure of the MM.

MMS body part headers shall not be DRM-protected.

7.1.15.2 DRM-related User Agent beaviour

An MMS User Agent may support Digital Rights Management, DRM according to [76], [77], [78]. An MMS User Agent that supports the DRM restrictions shall indicate this support in its terminal capability profile, as defined in the DRM specifications.

NOTE: E.g. after having received an MM containing a 'DRM Message' object, an MMS User Agent does neither use that DRM-protected MM element while composing a new MM nor store it into a user accessible persistent network storage (e.g. MMBox).

7.1.15.3 DRM-related Relay/Server behaviour

An MMS Relay/Server shall support Forward Lock, Combined Delivery and Separate Delivery DRM functionalities according to [76], [77], [78].

7.1.15.3.1 Support for Forward Lock and Combined Delivery

For Forward Lock and Combined Delivery support, the MMS Relay/Server shall ensure that no single DRM-protected MM element is conveyed to any receiving entity, such as an MMS User Agent, an MMS Relay/Server, a user-accessible persistent network-storage (e.g. MMBox), which does not comply with OMA DRM specifications [76], [77].

In particular, the MMS Relay/Server shall not:

- deliver any DRM-protected MM elements ('DRM Message') to an MMS User Agent which does not support DRM;
- route forward any DRM-protected MM elements ('DRM Message') over MM3, MM4 or MM7 to a receiving entity which does not support DRM;
- store any DRM-protected MM elements ('DRM Message') into a user accessible persistent network storage (e.g. MMBox);
- forward any DRM-protected MM elements ('DRM Message') prior to MM retrieval or from the MMBox.

The MMS Relay/Server shall not alter or strip-off any part of the 'DRM Message' header (e.g. the Boundary parameter declaration).

7.1.15.3.2 Support for Separate Delivery

For DRM Separate Delivery the MMS Relay/Server shall relay any DCF object unaltered. In particular it shall not strip-off any part of the DCF body or headers (e.g. the 'X-Oma-Drm-Separate-Delivery' header).

<modified clauses>

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 MMBox 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 MMBox.

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.

8.1.4.4 Information Elements

Table 15: 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
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)
NOTE: from REL-6 onwards, in case of misalignment between the value assigned to MDI and DRM-protection rules, the latter shall prevail.		

<modified clauses>

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.

8.1.5.4 Information Elements

Table 2~~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 39: 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)
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.

<modified clauses>

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

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.

8.7.1.4 Information Elements

Table 4~~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
- 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.		

<modified clauses>

8.7.3.3 Features

Authorisation: The VASP must supply its own identifier or the VAS identifier 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.

8.7.3.4 Information Elements

Table 554: 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.

Table 6~~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 7~~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). (NOTE 1)
Content type	Conditional	The content type of the MM's content. If the Content IE appears, then the Content type IE must appear.
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.		