

3GPP2 X.S0016-340-0

Version 2.0

Version Date: June 2004



3RD GENERATION
PARTNERSHIP
PROJECT 2
"3GPP2"

MMS MM4 Stage 3 Intercarrier Interworking

COPYRIGHT

3GPP2 and its Organizational Partners claim copyright in this document and individual Organizational Partners may copyright and issue documents or standards publications in individual Organizational Partner's name based on this document. Requests for reproduction of this document should be directed to the 3GPP2 Secretariat at secretariat@3gpp2.org. Requests to reproduce individual Organizational Partner's documents should be directed to that Organizational Partner. See www.3gpp2.org for more information.

Revision History

Revision	Initial Publication	Date
Rev. 0	Initial Publication	April 2003
	<u>First Point Release</u>	<u>June 2004</u>

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

MMS MM4 Stage 3 Inter-carrier Interworking

Contents

1	<i>Introduction</i>	1
1.1	Scope	1
1.2	References	2
1.3	Terminology	3
1.4	Definitions	3
1.5	Abbreviations	4
2	<i>Stage 2 Amendments (Normative)</i>	5
3	<i>MM4 Stage 3 Complete Description</i>	6
3.1	Introduction (Informative)	6
3.2	Stage 3 Specification (Normative)	6
3.2.1	Message format on MM4	6
3.2.2	Message Transfer Protocol on MM4	14 13
3.2.3	MM1 <-> MM4 header mapping	15 15
3.3	Sample Application (Informative)	20 20 19

FOREWORD

This Technical Specification has been produced by the 3rd Generation Partnership Project 2 (3GPP2).

This document contains portion of material copied from 3GPP TS 23.140. The copyright on the 3GPP document is owned by the Organizational Partners of 3GPP (ARIB – Association of Radio Industries and Businesses, Japan; CWTS – China Wireless Telecommunications Standard group, China; ETSI – European Telecommunications Standards Institute; Committee T1, USA; TTA – Telecommunication Technology Association, Korea; and TTC – Telecommunication Technology Committee, Japan), which have granted license for reproduction and for use by 3GPP2 and its Organizational Partners.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

1 Introduction

1.1 Scope

This is a complete Stage 3 specification for the MM4 reference point, and adheres to the 3GPP2 Stage 2 for MM4. This specification is compatible with 3GPP MMS MM4.

This document defines the stage 3 description of the non-real time Multimedia Messaging Service, MMS. Stage 3 identifies the protocols and formats needed to support the functional capabilities and information flows described in stage 2.

This document includes information applicable to network operators, service providers and switch and database manufacturers.

The present document contains the core protocol and formats for interworking between network operators in support of Multimedia Messaging Services.

The following figure shows an example abstract message flow when a multimedia message is sent from an originator MMS User Agent to a recipient MMS User Agent. The scope of this figure is limited to abstract messages on reference points MM1 and MM4 only.

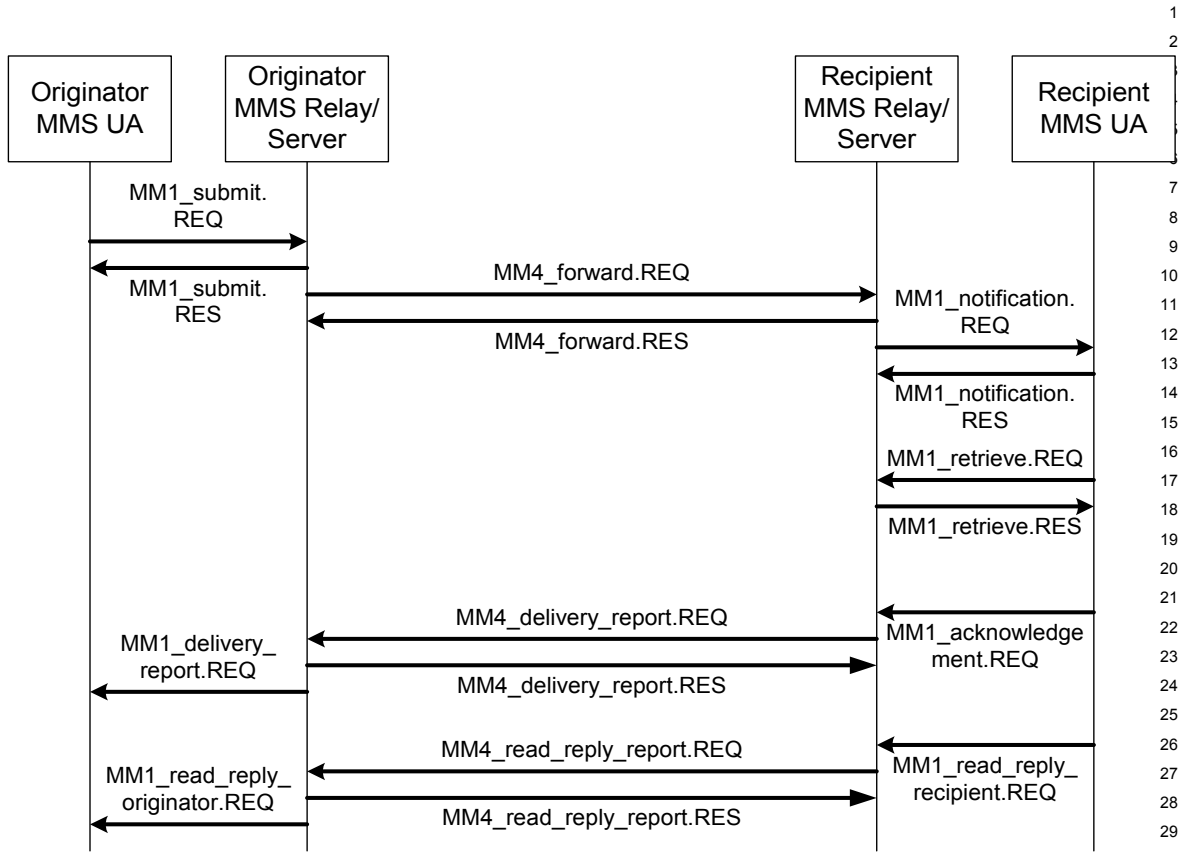


Figure 1: Example Abstract Message Flow

1.2 References

3GPP2:

[S.R0064] 3GPP2 S.R0064; "Multimedia Messaging Service; Stage 1 Requirements" October 2002.

[MMS Stage 2]3GPP2 X.S0016-200/TIA-934-200 [v1](#); "Multimedia Messaging Service; Stage 2."

ITU:

[E.164] ITU-T Recommendations Series E: E.164: The international public telecommunication numbering plan; May 1997
 <<http://www.itu.int/rec/recommendation.asp?type=folders&lang=e&parent=T-REC-E.164>>

IETF:

[RFC2822] IETF; RFC 2822: "Internet Message Format", URL:
<http://www.ietf.org/rfc/rfc2822.txt>.

- 1
2 [RFC2046] IETF; RFC 2046: "Multipurpose Internet Mail extension (MIME) Part Two: Media
3 Types", URL: <http://www.ietf.org/rfc/rfc2046.txt>.
4
- 5 [RFC2821] IETF; RFC 2821: "Simple Mail Transfer Protocol", URL:
6 <http://www.ietf.org/rfc/rfc2821.txt>.
7
8
- 9 [RFC2045] IETF; RFC 2045: "Multipurpose Internet Mail Extensions (MIME) Part One:
10 Format of Internet Message Bodies", URL: <http://www.ietf.org/rfc/rfc2045.txt>
11
12
- 13 [RFC2616] IETF; RFC 2616: "Hypertext Transfer Protocol, HTTP/1.1", URL:
14 <http://www.ietf.org/rfc/rfc2616.txt>.
15
16
- 17 [RFC1327] IETF; RFC 1327: "Mapping between X.400(1988)/ISO 10021 and [RFC 822](#)", URL:
18 <http://www.ietf.org/rfc/rfc1327.txt>.
19
20
- 21 [RFC1870] IETF; RFC 1870: "SMTP Service Extension for Message Size Declaration", URL:
22 <http://www.ietf.org/rfc/rfc1870.txt>
23
24
- 25 [RFC1652] IETF; RFC 1652: "SMTP Service Extension for 8bit-MIME transport", URL:
26 <http://www.ietf.org/rfc/rfc1652.txt>
27
28
- 29 [RFC2076] IETF; RFC 2076: Common Internet Message Headers, URL:
30 <http://www.ietf.org/rfc/rfc2076.txt>.
31
32
33

34 1.3 Terminology

35
36
37 This document uses the following "verbal forms" and "verbal form definitions":

- 38
39 a. "shall" and "shall not" identify items of interest that are to be strictly followed and from which
40 no deviation is recommended,
41
42 b. "should" and "should not" indicate items of interest that are highly desirable and particularly
43 suitable, without identifying or excluding other items; or (in the negative form) indicate items of
44 interest that are not desirable, are not particularly suitable, or are not recommended but not
45 prohibited, and
46
47 c. "may" and "may not" indicate items of interest that are optional but permissible within the
48 limits of this recommendation.
49
50

51 1.4 Definitions

52
53 For the purposes of the present document, the following apply:

54
55 **Abstract message:** information, which is transferred between two MMS entities, used to convey an MM
56 and/or associated control information between these two entities.

57
58 **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.

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

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

MMS Relay/Server: MMS-specific network entity/application, under the control of an MMS service provider, which 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, a MS or an external device that performs MMS-specific operations on a user's behalf.

Mobile Station: A station, fixed or mobile, which serves as the end user's wireless communication link with the base station. Mobile Stations include portable units (e.g., hand-held mobile units) and units installed in vehicles.

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 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

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

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

1.5 Abbreviations

For the purposes of this document, the abbreviations defined in [S.R0064] and the following apply:

E-Mail	Electronic Mail
ENUM	The IETF working group that produced RFC2916 "E.164 and DNS"
FQDN	Fully Qualified Domain Name
HTTP	Hypertext Transfer Protocol
IETF	Internet Engineering Task Force
IPSec	Internet Protocol Security Extensions
MIME	Multipurpose Internet Mail Extensions
MM	Multimedia Message

1		
2	MMS	Multimedia Messaging Service
3	MMSE	Multimedia Messaging Service Environment
4	RFC	Request for Comments
5	SMTP	Simple Mail Transfer Protocol
6	VASP	Value Added Service Provider
7		

2 Stage 2 Amendments (Normative)

11 None.

12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58

3 MM4 Stage 3 Complete Description

3.1 Introduction (Informative)

This section defines the Stage 3 for interworking between MMS Relay/Servers once the peer systems are aware of each other being an MMSE. This involves routing forward of an MM from an originator MMS Relay/Server to a recipient MMS Relay/Server. This specification defines the protocols used to transmit the MM, and the information elements within and the format of the MM.

3.2 Stage 3 Specification (Normative)

3.2.1 Message format on MM4

All elements of an MM shall be included within a single SMTP "mail" message, which shall be organised as a MIME message with the appropriate 'Content-Type' [RFC2045] 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 the Stage 2 specification [MMS Stage 2].

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.

3.2.1.1 Message header fields

MMS information elements should be reflected as "header fields" according to [RFC2822] and [RFC2076] in the SMTP "mail" message. Some of the mappings are context dependent.

For those information elements that are not mapped to standard [RFC2822] "header fields" the "X-" extensions mechanism shall be used with an "X-MMS-" prefix.

The mapping of information elements to commonly used [RFC2076], standard [RFC2822], or "x-mms-" header fields is shown in following tables.

3.2.1.2 MM4_Forward.REQ Header Mappings

The MM4 Forward request header mappings are detailed below.

Table 1: MM4_Forward.REQ Information Elements to [RFC2822] Header Mappings

Information element	[RFC2822] 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:, CCc: , 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:
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:
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 [RFC2822] headers.

The MM4 information element Message ID is not directly mapped to a corresponding [RFC2822] "Message-ID:" header. Each [RFC2822] 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 [RFC2046].

The [RFC2822] "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.

The [RFC2822] "Sender:" header may be used to indicate the originator address when this differs from the address in the "From:" header.

The "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 behavior shall be as recommended by \[RFC2821\], 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 \[RFC2821\], Appendix B.](#)

3.2.1.3 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 [RFC2822] 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 [RFC2822] "To:" header value shall be according to the "X-Mms-Originator-System:" header value provided in MM4_Forward.REQ.

Table 2: MM4_Forward.RES Information Elements to [RFC2822] Header Mappings

Information element	[RFC2822] 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 [RFC2822] "Sender:" and "To:" headers contain system addresses as described above, and do not map to MM4_Forward.RES information elements. The [RFC2822] message requires a "Date:" header, but there currently is no corresponding MM4_Forward.RES information element.

3.2.1.4 MM4_Delivery_report.REQ Header Mappings

The mappings of the MM4_Delivery_report.REQ information elements to [RFC2822] headers is detailed in the table below.

Table 3: MM4_Delivery_report.REQ Information Elements to [RFC2822] Header Mappings

Information element	[RFC2822] 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:
MM Status	X-Mms-MM-Status-Code:
MM Status Text	X-Mms-Status-text:
-	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 [RFC2822] "Sender:" header is a system administration address, to which the corresponding response will be sent.

The [RFC2822] "Sender:" header value is automatically set to the system address of the MMS Relay/Server.

The [RFC2822] "Message-ID:" value is automatically generated by the MMS Relay/Server, in conformance to [RFC2822].

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

3.2.1.5 MM4_Delivery_report.RES Header Mappings

The mappings of the M4_Delivery_report.RES information elements to [RFC2822] headers is detailed in the table below.

Table 4: MM4_Delivery_report.RES Information Elements to [RFC2822] Header Mappings

Information element	[RFC2822] 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 [RFC2822] "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 [RFC2822] "To:" header value of the MM4_Delivery_report.RES abstract message is obtained from the [RFC2822] "Sender:" header value of the corresponding MM4_Delivery_report.REQ.

The [RFC2822] "Date" and "Message-ID:" headers, which have no corresponding MM4_Forward.RES information elements, are automatically provided values by the MMS Relay/Server.

3.2.1.6 MM4_Read_reply_report.REQ Header Mappings

The mappings of the MM4_Read_reply_report.REQ information elements to [RFC2822] headers is detailed in the table below.

Table 5: MM4_Read_reply_report.REQ Information Elements to [RFC2822] Header Mappings

Information element	[RFC2822] 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:
-	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.

3.2.1.7 MM4_Read_reply_report.RES Header Mappings

The mappings of the MM4_Read_reply_report.RES information elements to [RFC2822] headers is detailed in the table below.

Table 6: MM4_Read_reply_report.RES Information Elements to [RFC2822] Header Mappings

Information element	RFC2822 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 [RFC2822] "Sender:" header value shall be the system address of the MMS Relay/Server that is replying to the [MM4_Delivery_report.REQ](#)[MM4_Read_reply_report.REQ](#).

The [RFC2822] "To:" header value of the MM4_Delivery_report.RES abstract message shall be obtained from the corresponding [MM4_Delivery_report.REQ](#)[MM4_Read_reply_report.REQ](#) Sender: header value.

The [RFC2822] "Date:" and "Message-ID:" headers, which do not have corresponding information elements, shall be provided appropriate values automatically by the MMS Server/Relay.

3.2.1.8 Header Field Value Range

MMS information elements that are mapped to standard [RFC2822] "header fields", i.e., which do not have an "X-Mms-" prefix, should be used according to [RFC2822] and [RFC2076].

The rest of the header definitions used in this section, including the mechanisms and pre-defined tokens, are described in an augmented Backus-Naur Form (BNF) defined in [RFC2616], similar to that used by [RFC2822]. 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 .

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-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-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 3.2.1.10 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-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 [RFC2822].

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 [RFC2616].

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.

3.2.1.9 Message Encoding on MM4

The SMTP "mail" message shall be encoded according to [RFC2822].

3.2.1.10 Request Status Codes Clarification

The table below dictates how the originator MMS Relay/Server should interpret the possible values of the X-Mms-Request-Status-Code header field.

Table 7: Clarification of the Request Status Codes

X-Mms-Request-Status-Code	Meaning
Ok	The corresponding request and some or all of its contents were accepted without errors.
Error-undefined	An unspecified error occurred during the processing or reception of the corresponding request.
Error-service-denied	The corresponding request was rejected due to failure of authentication or authorisation of the originating MMS Relay/Server.
Error-message-format-corrupt	An inconsistency with the message format was detected when the corresponding request was parsed.
Error-sending-address-unresolved	There were no MMS address (From:, To:, Cc:, Bcc:) in its proper format or none of the addresses belong to the recipient MMS Relay/Server.
Error-message-not-found	This status code is obsolete
Error-network-problem	The recipient MMS Relay/Server was not able to accept the corresponding request due to capacity overload.
Error-content-not-accepted	The MM content was not accepted due to size, media type, copyrights or some other reason.
Error-unsupported-message	The recipient MMS Relay/Server does not support the corresponding request abstract message.

3.2.2 Message Transfer Protocol on MM4

Interworking between different MMSEs shall be based on SMTP according to [RFC2821].

The originator MMS Relay/Server should use an SMTP connection to transfer MMs/abstract messages. The originator MMS Relay/Server should use the sender's address as indicated in the corresponding MM/abstract message in the SMTP "MAIL FROM:" command (subject to the sender's visibility) and should use the recipient's address(es) as indicated in the corresponding MM/abstract message in the SMTP "RCPT TO:" command. The originator MMS Relay/Server should use SMTP "DATA" command to transfer the message.

Private agreements may utilise additional connection and security (e.g., IPSec) methods. Such methods are out of the scope of standardisation for this release.

3.2.2.1 Address Encoding

In the case where [E.164] addressing is used and the address resolution returns an [RFC2822] recipient address (ENUM based resolution), this address shall become the 'forward-path' argument to the 'RCPT TO:' SMTP command as it is described in [RFC2821]. The 'Reverse-Path' argument to the 'MAIL FROM:' SMTP command shall be determined by the originator MMS Relay/Server as it is described in [RFC2821].

In the case where E.164 addressing is used and the address resolution returns only the domain of the recipient MMSE, the addresses shall be encoded in the following way:

SMTP protocol level:

```
SMTP-address = "<" MMS-address "@" domain ">"
MMS-address = "+" E.164 "/TYPE=PLMN"
E.164 = 1*DIGIT
domain = dom-fragment *( "." dom-fragment )
dom-fragment = ( ALPHA | DIGIT ) *( ALPHA | DIGIT | "-" )
```

Example:

If the originator's address was an [E.164] address, the address fields used in RCPT shall be converted to the following format by the sender's MMS Relay/Server:

```
+E.164/TYPE=PLMN@recipient-mmse
```

where recipient-mmse is a FQDN of the recipient's MMS Relay/Server, e.g.,

```
+358401234567/TYPE=PLMN@mmse.sonera.net
```

SMTP commands:

SMTP commands should be then used in the following way:

```
MAIL FROM: SMTP-address
RCPT TO: SMTP-address
DATA
X-MMS-3GPP-MMS-version: 4.2.0
X-MMS-Message-Type: MM4_forward.REQ
```

1
2 *X-MMS-Transaction-ID: "ABCDEFGHJIJ0123456789"*
3
4 *X-MMS-Message-ID: "originator-mmse/originator-username/123456789"*
5
6 *Date: Wed, 16 May 2001 10:35:00 +0800*
7
8 *From: MMS-address*
9
10 *To: MMS-address*
11
12 *Subject: Greetings from Greece*
13
14
15 *Content-Type: text/plain*

16
17 *Hi, ...*
18
19 *.*

20 NOTE 1: In the example above the "X-MMS-3GPP-MMS-version" header may not refer to the current
21 version of the present document.

22 [NOTE 2: In the case where "Bcc:" \(blind carbon-copy\) recipients are used, what is specified in section
23 3.2.1.2 takes precedence.](#)

24 25 26 3.2.2.2 SMTP Service Extensions

27
28 This section specifies the usage of SMTP service extensions [RFC2821] over MM4.

29
30 The following SMTP service extensions should be supported by the MMS Relay/Server for the
31 interworking over MM4:

- 32
- 33 • SMTP Service Extension for Message Size Declaration [RFC1870]
- 34
- 35 • SMTP Service Extension for 8bit-MIME transport [RFC1652]
- 36

37 38 39 3.2.3 MM1 <-> MM4 header mapping

40
41 This section maps the information elements found on MM1 onto the [RFC2822] header fields of MM4.

42
43 The tables below are provided to give a normative end-to-end description of MMS. There is a table for
44 each MM1 abstract message with all its information elements in the left column, the right column shows
45 how the MM1 information elements are mapped onto the [RFC2822] headers of MM4.

46
47 In many cases there is no mapping between MM1 information elements and MM4 [RFC2822] header
48 fields, this is according to specifications. These information elements are included in the tables below in
49 order to give a complete picture of how the MM1 information elements are handled.

50
51
52
53
54
55
56
57
58

Table 8: Mapping MM1_submit.REQ -> MM4_forward.REQ

Information elements in MM1_submit.REQ	[RFC2822] 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:
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:
Reply-Charging-ID	-
Content	<message body>

[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 section 3.2.1.2.](#)

[Note 2: Recipient addresses for blind-carbon-copy recipient\(s\) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.](#)

Table 9: Mapping MM1_submit.RES -> MM4_forward.REQ

Information elements in MM1_submit.RES	[RFC2822] 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	-

Table 10: Mapping MM1_notification.REQ <- MM4_forward.REQ

Information elements in MM1_notification.REQ	[RFC2822] 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:
Priority	X-Mms-Priority:
Sender address	From:
Stored	-
Delivery report	X-Mms-Delivery-Report:
Reply-Charging	-
Reply-Deadline	-
Reply-Charging-Size	-
Reply-Charging-ID	-
Element-Descriptor	-

Table 11: Information elements in the MM1_notification.RES.

Information elements in MM1_notification.RES	MM4 [RFC2822] Header fields
Message Type	-
MMS Version	-
Transaction ID	-
MM Status	-
Report allowed	-

Table 12: Information elements in the MM1_retrieve.REQ

Information elements in MM1_retrieve.REQ	MM4 [RFC2822] Header fields
Message Reference	-

Table 13: Mapping MM1_retrieve.RES <- MM4_forward.REQ

Information elements in MM1_retrieve.RES	[RFC2822] 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:
Priority	X-Mms-Priority:
Read reply	X-Mms-Read-Reply:
Subject	Subject:
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>

Table 14: Information elements in the MM1_acknowledgement.REQ

Information elements in MM1_acknowledgement.REQ	MM4 [RFC2822] Header fields
Message Type	-
MMS Version	-
Transaction ID	-
Report allowed	-

Table 15: Mapping MM1_forward.REQ -> MM4_forward.REQ

Information elements in MM1_forward.REQ	[RFC2822] 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:
Read reply	X-Mms-Read-Reply:
Message Reference	-

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 section 3.2.1.2.

Note 2: Recipient addresses for blind-carbon-copy recipient(s) on MM1 are mapped onto <RCPT TO:> commands on SMTP level on MM4.

Table 16: Information elements in the MM1_forward.RES.

Information elements in MM1_forward.RES	MM4 [RFC2822] Header fields
Message Type	-
MMS Version	-
Transaction ID	-
Request Status	-
Request Status Text	-
Message ID	-
Store Status	-
Store Status Text	-
Stored Message Reference	-

Table 17: Mapping MM1_delivery_report.REQ <- MM4_delivery_report.REQ

Information elements in MM1_delivery_report.REQ	[RFC2822] 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

Table 18: Mapping MM1_read_reply_recipient.REQ -> MM4_read_reply_report.REQ

Information elements in MM1_read_reply_recipient.REQ	[RFC2822] 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:

Table 19: Mapping MM1_read_reply_originator.REQ <- MM4_read_reply_report.REQ

Information elements in MM1_read_reply_originator.REQ	Ingress [RFC2822] 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:

3.3 Sample Application (Informative)

When two MMS Relay/Servers wish to exchange messages, they may do so using the protocol and message formats specified here.

1
2
3
4
5
6
7
8
9
10
11
12
13
14
15
16
17
18
19
20
21
22
23
24
25
26
27
28
29
30
31
32
33
34
35
36
37
38
39
40
41
42
43
44
45
46
47
48
49
50
51
52
53
54
55
56
57
58