

# Multimedia Messaging in H.323 Systems

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DRAFT



## Summary

This document is presented as a community specification for Multimedia Messaging. It relies on the Generic Extensibility Framework to negotiate capabilities and exchange messages and, as such, is presented in the form of an H.460.x extension.

It contains a mechanism to transmit multimedia messages outside of the context of a call. It takes into consideration how to utilize existing H.460 NAT traversal mechanisms to successfully transmit multimedia messages and attachments synchronously and asynchronously between H.323 devices.

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## Acknowledgements

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# Multimedia Messaging in H.323 Systems

## 1 Scope

This Recommendation defines the capability and procedures for facilitating Multimedia Messaging (MM) between H.323 Endpoints. The MM feature can be used to establish a connection between 2 H.323 enabled devices for the purpose of transmitting stored textual, multimedia or binary data outside the context of a call.

## 2 References

The following ITU-T Recommendations and other references contain provisions, which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

- [1] ITU-T Recommendation H.323 (2006), *Packet-based multimedia communications systems*.
- [2] ITU-T Recommendation H.225.0 (2006), *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*.
- [3] ITU-T Recommendation H.460.1 (2002), *Guidelines for the Use of the Generic Extensible Framework*.
- [4] ITU-T Recommendation H.245 (2006), *Control Protocol for Multimedia Communications*.
- [5] ITU-T Recommendation H.235.0 (2006), *Security Framework for H series Multimedia Communications*.
- [6] IETF RFC 4975 (2007), *The Message Session Relay Protocol (MSRP)*.
- [7] 3GPP2 X.S0016-311, *Using M-IMAP for Message Submission and Retrieval*.

## 3 Terms and Definition

**Multimedia Messaging (MM)** – Method of exchanging text and binary information outside the context of a call.

## 4 Abbreviations

For the purpose of this Recommendation the following abbreviations are used.

MM	Multimedia messaging feature
TFTP	Trivial File Transfer Protocol (RFC 1350)

## 5 Feature Description

This Recommendation defines a procedure wherein a calling endpoint may establish a lightweight call for the purpose of transmitting a text message and optionally a block of stored binary information such as a multimedia file. When a called Endpoint receives a Setup message from a calling endpoint advertising the MM feature as a supported feature and when that called endpoint supports the MM feature, the two devices are capable of sending and receiving stored binary information in accordance with this Recommendation. Calls are established solely for the purpose of transmitting textual and/or binary information (using the **conferenceGoal** of **callIndependentSupplementaryService**).

## 6 Capability Advertisement

Endpoints capable of supporting MM shall advertise this capability via the Generic Extensibility Framework defined in Recommendations H.323 and H.460.1. Endpoints shall advertise this capability in the Setup message as a supported feature of a call with conferenceGoal of **callIndependentSupplementaryService**. Called endpoints that are capable of supporting MM shall advertise this capability when responding to the incoming call via the Call Proceeding message and other response messages.

Table 1 below defines the Multimedia Messaging feature in this Recommendation.

**Table 1 – Indication of the Multimedia Messaging Feature**

Feature name:	Multimedia Messaging (MM)
Feature Description:	This feature allows for the establishment of connections for non-call related services for the purpose of transmitting textual and binary information.
Feature identifier type:	OID
Feature identifier value:	iso(1) org(3) dod(6) internet(1) private(4) enterprise(1) packetizer(17090) gef (0) mm (11)

Parameters associated with the advertisement of this capability are specified in the following clauses. In consideration of backward compatibility with further revisions to this Recommendation, the recipient shall simply ignore any parameters received other than those specified in this document.

## 7 Sending a multimedia message

An H.323 device requesting to send a multimedia message call shall send a Setup message with the **conferenceGoal** set to **callIndependentSupplementaryService** and the MM feature present in the **neededFeatures** field. The advertisement of the MM feature shall also contain the “MM Type” parameter as shown in Table 2. At present the parameter shall be set to 1 to allow for the support of future MM format types.

Table 2 – MM TYPE Parameter

Parameter name:	MM Type
Parameter description:	Indicates the type of MM requesting establishment.
Parameter identifier type:	standard
Parameter identifier value:	1
Parameter type:	number8
Parameter cardinality:	Once

Called endpoints not supporting MM, on recognition of the **conferenceGoal** set to **callIndependentSupplementaryService** in the Setup message and this feature listed, as needed feature shall automatically return a Release Complete with a reason **neededFeatureNotSupported**.

Note – Some older endpoints may discard the Generic Extensibility Framework fields and attempt to treat the call as a normal call. The calling endpoint shall be prepared to release the call in the event that support for the MM feature is not advertised by the called endpoint by the time the Connect message is received. At such time, the calling device shall send a Release Complete with a reason **neededFeatureNotSupported**.

### 7.1 Multimedia capabilities

The MM Setup message shall also include 2 capabilities to facilitate the transmission of the MM, the **h460mmControlCapability** for the transmission of textual component of the multimedia message and the File Transfer Capability (refer File Transfer in H.323 Systems) for the transmission of binary data attachments (if any).

Table 3 – h460mmControlCapability Capability Identifier

Capability name	H460mmControlCapability
Capability class	Generic Control
Capability identifier type	OID
Capability identifier value	iso(1) org(3) dod(6) internet(1) private(4) enterprise(1) packetizer(17090) gef (0) mm (11) control (2)
maxBitRate	This field shall not be included.

nonCollapsingRaw	This field shall not be included.
transport	This field shall not be included

## 8 Sending Multimedia Messages

Table 4 below lists the messages defined for this clause.

Table 4 – subMessageIdentifier values

SubMessageIdentifier	Message name	Message type	Content Type
1	MMmessage	GenericRequest	octetString
2	MMmessageEncoded	GenericRequest	octetString
4	MMattachment	GenericRequest	octetString
5	MMacknowledge	GenericResponse	unsignedMin

**MMmessage:** Textual content of the message as an encoded BMPString .

**MMmessageEncoded:** Filename (encoded String) of the encoded text message. Textual content of the message is A Base64 encoded file and is to be sent via the TFTP Capability (refer Annex A)

**MMmessageAttachment:** Filename of a MM attachments (encoded String)

**MMacknowledge:** Acknowledgement by the called endpoint to the caller of the acceptance of the MM GenericRequest. Values 1 - success, 2 - declined.

**Note:** MM textual message component may be transmitted via a Generic Message in the **MMmessage** element or as a Base64 file attachment with the filename specified in the **MMmessageEncoded** element.

Upon successful establishment of the MM connection (receipt of the connect message) the caller shall send an h460mmControlCapability **GenericRequest** to the called party containing either a single **MMmessage** or **MMmessageEncoded** element and, optionally, one or more **MMattachment** elements.

The called shall respond with a Generic Response containing an **MMacknowledge** element indicating whether the Request is to be accepted or not. If the element is set to 2- Declined then the caller shall immediately abort the MM transmission and end the call by sending a Release Complete with reason **genericDataReason**.

Once the Generic Request has been accepted, the caller may open one or many File Transfer Capability channels for the transmission of **MMattachments**. Attachments may be sent synchronously (via 1 File Transfer channel sent one file after another) or asynchronously (multiple files sent at the same time).

Once the called endpoint is satisfied that it has received the MM and all attachments (if any) then it shall send a Release Complete to close the connection.

## 9 Gatekeeper Considerations

For the purpose of billing and MM routing, the Gatekeeper shall be notified that the call is a MM by advertising the MM feature in the generic data field of the ARQ message. The Gatekeeper may then choose to route or bill MM calls differently to traditional calls. For instance the gatekeeper may choose to forward MM calls to a specific gateway for interworking with 3G multimedia systems or to route over a SIP network. How a gatekeeper routes or bills a call is for further study.

**Note:** Implementers shall ensure the gatekeeper is kept notified of the status of calls that utilize this feature just as with any other call, such as by transmitting IRR messages.

## 10 Interworking with other MM Systems

Message Session Relay Protocol (MSRP) RFC4975 is a method of sending multimedia messages. Interworking between this recommendation and MSRP is for further study.

3GPP2 MMS MM1 provides various methods to send and receive multimedia messages to/from 3G systems including the use of a custom IMAP4 interface. A proposed interface between H.323 and MMS MM1 requires further study.