



MMS Requirements

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Open Mobile Alliance

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1. Scope

(Informative)

The Open Mobile Alliance (OMA) specifications are the result of an ongoing effort to define mechanisms for enabling industry-wide interoperable applications and services for deployment over wireless networks.

To continue the enhancement and evolution of the Multimedia Messaging Service OMA is developing a new set of specifications that will define the MMS v1.3 release. This release will expand and build upon the existing MMS v1.2 specifications.

The scope of work for the MMS 1.3 release can be briefly outlined as:

1. Guaranteeing the uninterrupted evolution of the MMS Enabler Release v1.2 into MMS Enabler Release v1.3 based on the requirements (stage 1) and functional service behaviour description (stage 2) specified by 3GPP. V1.3 shall be based on 3GPP MMS Rel-6 and efforts will be made to consolidate and collaborate with other relevant MMS standardisation fora, in particular with 3GPP2.
2. Enabling the MMSG to fulfill its duties with respect to maintenance of previous MMS release packages that have been developed either in the WAP Forum (MMS v1.0) or inside OMA (OMA MMS Enabler Releases v1.1, v1.2 and later).
3. Investigating and developing mechanisms and frameworks for extending MMS in a manner that maintains compatibility with existing MMS implementations.
4. Investigating and developing service aspects for MMS that include:
 - Functionalities for Content-to-Person use
 - Functionalities for Person-to-Person use
 - Functionalities for Person-to-Service use
 - Improvements to contents/presentation language
 - Need and, if required, solutions for support of larger pictures in MMS
 - Need and, if required, solutions for simplifying the authoring/downloading/distribution of templates in MMS

The release realizes end-to-end interoperability as requested in 3GPP requirements and functional behavior descriptions ([TS22140] and [TS23140]) and relevant 3GPP2 documents ([SR0064] and [XS0016-200])

2. References

2.1 Normative References

- [MMSCONF] "MMS Conformance Document", Version 1.2, Open Mobile Alliance™, OMA-MMS-CONF-v1_2-C. URI: <http://www.openmobilealliance.org/>
- [OMADRM] "Digital Rights Management version 1.0", Open Mobile Alliance™, OMA-DRM-v1_0-C. URI: <http://www.openmobilealliance/documents.asp>
- [RFC2119] "Key words for use in RFCs to Indicate Requirement Levels", S. Bradner, March 1997, URL: <http://www.ietf.org/rfc/rfc2119.txt>
- [SMIL] "Synchronized Multimedia Integration Language (SMIL 2.0)", W3C Recommendation 07 August 2001. URI: <http://www.w3.org/TR/smil20/>
- [SR0064] "Multimedia Messaging Service: Requirements, Stage 1", 3rd Generation Partnership Project 2 (3GPP2), S.R0064-A. URL: http://www.3gpp2.org/Public_html/specs/index.cfm
- [TS22140] "Multimedia Messaging Service; Stage 1", 3rd Generation Partnership Project TS 22.140 Release 6. URI: <http://www.3gpp.org/ftp/Specs/>
- [TS23140] "Multimedia Messaging Service: Functional description; Stage 2", 3rd Generation Partnership Project TS 23.140 Release 6. URI: <http://www.3gpp.org/ftp/Specs/>.
- [XHTML] "XHTML Mobile Profile 1.1", WAP-XHTMLMP-V1_1-C, Open Mobile Alliance™, , URI: <http://www.openmobilealliance.org>.
- [XS0016-200] "Multimedia Messaging Service: Functional description, Stage 2", 3rd Generation Partnership Project 2 (3GPP2), X.S0016-200-C. URL: http://www.3gpp2.org/Public_html/specs/index.cfm

2.2 Informative References

- [MMSARCH] "MMS Architecture", Version 1.2, Open Mobile Alliance™. URI: <http://www.openmobilealliance.org>.

3. Terminology and Conventions

3.1 Conventions

The key words “MUST”, “MUST NOT”, “REQUIRED”, “SHALL”, “SHALL NOT”, “SHOULD”, “SHOULD NOT”, “RECOMMENDED”, “MAY”, and “OPTIONAL” in this document are to be interpreted as described in [RFC2119].

All sections and appendixes, except “Scope” and “Introduction”, are normative, unless they are explicitly indicated to be informative.

3.2 Definitions

Content messaging	Multimedia messaging of content which is optimised for person-to-application and content-to-person services but usable to person-to-person services with assisting techniques.
Content MM	A Multimedia Message containing content which is optimised for person-to-application and content-to-person services but usable to person-to-person services with assisting techniques.
Image messaging	Multimedia messaging using image basic, image rich and megapixel content classes which are optimised for person-to-person use cases but usable for content-to-person and application to person use cases (as specified in OMA MMS Conformance Document 1.2 [MMSCONF])
MMS Client	The MMS service endpoint located on the WAP client device.
MMS SMIL	A SMIL [SMIL] subset defined for MMS purposes in [MMSCONF]
Multimedia Message Content Class	A Multimedia Message Content Class is a set of Multimedia Messages defined in terms of media types, size, media formats, presentation formats and applicable DRM mechanisms
Multimedia Messaging Service	A system application by which a MMS client is able to provide a messaging operation with a variety of media types.
Template	A structure, activated in a user device but created by a "service", that serves as a model or pattern to allow the user to easily aggregate in a coherent and pleasing manner elements of different Multimedia Message content classes for transmission to another user or service in a MM. Examples of Templates are MMS postcards, electronic greeting cards and multimedia stationery.
Video messaging	Multimedia messaging using video basic and video rich content classes which are optimised for person-to-person use cases but usable for content-to-person and application to person use cases (as specified in OMA MMS Conformance Document 1.2 [MMSCONF])

3.3 Abbreviations

DRM	Digital Rights Management
I&E	Information and Entertainment
MM	Multimedia Message
MM Content Class	Multimedia Message Content Class
MMS	Multimedia Messaging Service
OMA	Open Mobile Alliance
P2P	Person-to-Person communication
SMIL	Synchronized Multimedia Integrated Language
SVG	Scalable Vector Graphics
TPSP	Third Party Service Providers
XHTML	Extensible Hypertext Markup Language

4. Introduction (Informative)

The MMS 1.2 enabler release establishes the basis for interoperable device-to-device multimedia messaging. In this release, the rules of interoperable multimedia messaging are developed by: introducing the concepts of the MM core content domain and MM content classes; bridging the gaps in interoperability between the content classes by introducing functions for content adaptation and creation modes; and guaranteeing interoperability by defining a minimum set of conformance requirements.

The functionality of the MMS 1.2 release provides a sound foundation for applications focused on person-to-person use cases with an emphasis on image and video messaging. The functionality of the MMS 1.3 release, while emphasizing backward compatibility and interoperability, is enhanced to improve the user experience with richer content capability, especially with regard to imaging and presentation features. In addition, the concept of Template is introduced as an enabling mechanism to facilitate the implementation of applications utilizing many of these new features. With this release, it is expected that applications for contents-person and person-service use cases will have the potential to greatly expand.

4.1 Extensibility

The MMS 1.3 release extends the potential of MMS to easily support new applications and third-party services for content-to-person and person-to-service use cases. Current MMS specifications define a closed set of protocols. As a result, when a new service is to be provided that is not directly supported by the existing MMS protocol it may need 3GPP, 3GPP2 and OMA to define the Stage 1, Stage 2, & Stage 3 -- incrementally re-engineering the MMS protocol. This process is costly and risks affecting compatibility with existing MMS implementations. Extensibility is concerned with developing mechanisms and frameworks for extending the MMS protocol with an emphasis on the MMS_M interface between the MMS Client and the MMS Proxy-Relay. For example, these extensions would support: Services that use MMS as a bearer and need to extend information normally encapsulated in an MMS Information Element; services that use MMS as a bearer and need to extend information normally encapsulated in the MMS message payload (i.e., new media types, formats, and structures); and services that require a service-specific user agent to process a service-specific MT message

4.2 Advanced Content Messaging

The MMS 1.3 release develops enhancements for image messaging. For example, these enhancements will enable applications for high resolution cameras, i.e. higher than VGA, the maximum resolution in MMS 1.2. With an emphasis on exploiting the potential of new use cases for content-to-person and person-to-service, it will be necessary to introduce new media types, enable more sophisticated presentation methods, and include the functionality of DRM to protect the premium content associated with server-to-person applications.

4.2.1 Enhancements to Image messaging

One of the compelling drivers for MMS is the new development in handset camera technologies, which allow device manufacturers to enhance image resolution beyond VGA, the resolution available in the MMS 1.2 release. To cover this, the RD contains a new use case for the support of cameras with enhanced resolution compared to MMS 1.2, and, consequently, larger message sizes. Also, in order to allow users to communicate with existing MMS enabled phones, an extended content adaptation is required.

4.2.2 Content Messaging

The emphasis in MMS 1.2 is on interoperable image and video messaging focused on device-to-device use cases. In MMS 1.3, it is also important to address the content-to-device and device-to-application use cases. An enhanced interoperability achieved by narrowing down the alternatives the service providers have, will eventually boost up the service market. In this RD use cases are proposed for person-to-server as well as for server-to-person communication for rich content.

One of the predominant applications currently for content messaging is MMS Postcard, where an MM is sent to a service which prints out the multimedia content and sends in a normal postcard via post. To enable this service domain, some requirements have been introduced to cover the fundamental needs for interoperable implementations.

4.3 Templates

The concept of Template is introduced in MMS 1.3 as an enabling mechanism to facilitate implementation of applications utilizing many of the new features in the release.

Template is defined as a structure, activated in a user device but created by a "service", that serves as a model or pattern to allow the user to easily aggregate in a coherent and pleasing manner elements of different Multimedia Message content classes for transmission to another user or service in a MM. Examples of Templates are MMS postcards, electronic greeting cards and multimedia stationery.

There are three categories of messaging applications: person-person, content-to-person, and person-to-application. The template concept does not apply in all instances of these applications. However, for a very large set of conceivable services and applications, the template concept could be a very useful (and possibly necessary) enabling mechanism to give the user the full benefit of the rich multimedia experience suggested by the new functionality of MMS 1.3, especially in improving the user experience with richer imaging and presentation possibilities. Furthermore, in many cases the template concept, as a framework or underlying structure, might be the only way to effectively initiate certain services or user experiences embracing this additional functionality.

As a result, Template has the potential of increasing the addressable market and lowering the cost for MMS-based transactional services. In other words, services can author device-independent MMS-based forms that execute on the device and send results back to the service. Services can author greeting card templates that can be sent to many different handsets. In addition, super distribution business model for MMS content services are enabled; services can author greeting card templates, which can be sent from one subscriber to another subscriber. Template supports the goals of interoperability and simplifying the user experience. VASPs would have opportunities to offer rich services by using the template as a window for the services.

4.4 Requirements Fulfilled

All the requirements as defined in the present RD are met in the present Enabler Release apart from those listed below.

Category	Requirement ID/Number	Notes
Table 7: MMS Client requirements for MMS Advanced Contents	CL-1-6, CL-1-7	Partially fulfilled only, in order to allow the concept of partial conformance. These requirements must not be misinterpreted to disallow the Content Basic MM Content Class.
	CL-1-8, CL-1-9, CL-1-10, CL-1-12	Partially fulfilled only, in order to allow the concept of partial conformance.
Table 9: VASP requirements for MMS Advanced Contents	VS-1-1 to VS-1-23	Not fulfilled. A VASP cannot be tested in the scope of MMS.
Table 12: MMS Client requirements for MMS Templates	CL-2-1, CL-2-2, CL-2-13, CL-2-15	Partially fulfilled. Support of MMS Templates is optional for an MMS Client.
	CL-2-3, CL-2-4, CL-2-16, CL-2-17	Not fulfilled, to reduce the complexity of the MMS Message Template Specification.
	CL-2-5	Partially fulfilled. The "multi-state selector" aspect is not realized. All the other aspects are fully realized.

Category	Requirement ID/Number	Notes
	CL-2-7 to CL-2-11	Partially fulfilled. Support of MMS Wizard part is optional for an MMS Client.
Table 13: MMS Client requirements for MMS Templates (2)	CL-2-26, CL-2-27	Not fulfilled. These requirements are not supported.
	CL-2-29	Partially fulfilled. Support of MMS Templates is optional for an MMS Client.
Table 14: MMS Client requirements for MMS Voting	CL-2-100 to CL-2-106	Not fulfilled. No input contribution received.
Table 15: MMS Client requirements for MMS Headline News	CL-2-110 to CL-2-121	Not fulfilled. No input contribution received.
Table 17: VASP requirements for MMS Templates and Interactivity	VS-2-1 to VS-2-3	Not fulfilled. A VASP cannot be tested in the scope of MMS.
Table 19: Overall System requirements for MMS Extensibility	GEN-2-10, GEN-2-11	Not fulfilled. No input contribution received.
Table 21: Originating Device, MMS Client or Service requirements for MMS Extensibility	ORIG-7	Partially fulfilled. For the different versions of MMS SMIL, this feature is in principal supported by the SMIL semantics, but it is not applicable due to only one MMS SMIL version number used. For the different content classes, this requirement cannot be fulfilled.
	ORIG-8	Partially fulfilled. Support of the application addressing feature is optional for an MMS Client.
	ORIG-9, ORIG-14	Not fulfilled. No input contribution received.
Table 23: Recipient Device or MMS Client requirements for MMS Extensibility	RECP-1	Partially fulfilled. Support of the application addressing feature is optional for an MMS Client.
	RECP-2	Not fulfilled. No input contribution received.

Table 1: RD requirements not met in this enabler release

5. Use Cases (Informative)

5.1 MMS Advanced Contents

5.1.1 Use Case P2P and TPSP, Images with high Resolution

5.1.1.1 Short Description

These use cases describes the basic device-to-device, device-to-device-to-service and device-to-service use cases for the use of cameras with higher resolution than in OMA MMS 1.2 (i.e. >VGA).

5.1.1.2 Actors

- Matti
- Maija
- Operator

5.1.1.2.1 Actor Specific Issues

- Matti has mobile device with enhanced camera resolution and wants to use it as widely as possible
- Maija does not have camera phone but wants to receive multimedia messages from Matti
- Operator wants to provide services using enhanced resolution images

5.1.1.2.2 Actor Specific Benefits

- Matti is able to send multimedia messages with enhanced resolution
- Maija is able to receive multimedia messages with enhanced resolution and use the images locally and with other services
- Operator is able to provide services using enhanced resolution images

5.1.1.3 Pre-conditions

- Matti has enabled MMS service
- Maija has enabled MMS service

5.1.1.4 Post-conditions

- Maija has received a multimedia message with high resolution image from Matti

5.1.1.5 Normal Flow

1. Matti takes high-resolution picture with his device and writes some text for the message
2. Matti sends the composed multimedia message. It is submitted by his device to his home MMSC
3. Mattis home MMSC delivers the MM to Maijas home MMSC
4. Maijas device retrieves Mattis multimedia message
5. Maija is able to view the multimedia message with high-resolution image on her device.

5.1.1.6 Alternative Flow 1

1. Matti takes high-resolution picture with his device and writes some text for the message
2. Matti sends the composed multimedia message to his home MMSC
3. Mattis home MMSC delivers the MM to Maijas home MMSC
4. Maijas device retrieves Mattis multimedia message
5. Maija is able to forward the received multimedia message to an MMS service such as postcard service
6. Maija is able to print locally the high-resolution image with text

5.1.1.7 Alternative Flow 2

1. Matti takes high-resolution picture with his device and writes some text for the message
2. Matti sends the composed multimedia message to a MMS service, such as postcard service

5.1.1.8 Operational and Quality of Experience Requirements

None

5.1.2 Use Case TPSP, Content messaging

5.1.2.1 Short Description

These use cases describe the basic device-to-application and service-to-device use cases for content messaging (=creating/submitting and receiving/representing rich content).

5.1.2.2 Actors

- Matti
- Maija
- Operator

5.1.2.2.1 Actor Specific Issues

- Matti has mobile device capable of creating messages with complex presentations and/or enhanced multimedia support (rich content)
- Maija has mobile device capable of receiving and presenting messages with complex presentations and/or enhanced multimedia support(rich content)
- Operator wants to offer services using enhanced presentation capabilities and/or multimedia support
- MMS content service offering e.g. news service or web album

5.1.2.2.2 Actor Specific Benefits

- Matti is able to create and send multimedia messages with enhanced presentation and/or multimedia support to a MMS service.
- Maija is able to receive and present multimedia messages with enhanced presentation and/or multimedia support
- Operator is able to provide MMS person-to-application services using enhanced presentation and/or multimedia support

- Operator is able to offer MMS content provider services using enhanced presentation capabilities and/or multimedia support
- MMS content service is able to offer his services

5.1.2.3 Pre-conditions

- Matti has enabled MMS service and subscribed to some MMS person-to-application service
- Maija has enabled MMS service and subscribed to some MMS content service

5.1.2.4 Post-conditions

- Matti has created multimedia message with enhanced presentation and/or multimedia content and sent it to some MMS content service
- Maija has received content with enhanced presentation and/or multimedia content from some content-provider

5.1.2.5 Normal Flow

1. Maija receives a multimedia message with enhanced presentation and/or multimedia content from an MMS content service, such as news service.
2. Maija is able to view the message and use the content according to DRM rules.

5.1.2.6 Alternative Flow

1. Matti creates an multimedia message with complex presentation aspects and/or enhanced multimedia support
2. Matti sends the composed multimedia message to some MMS person-to-application service.

5.1.2.7 Operational and Quality of Experience Requirements

None

5.1.3 Use Case TPSP, MMS Postcard

5.1.3.1 Short Description

These use cases describes the basic device-to-postcard service cases for MMS postcard.

5.1.3.2 Actors

- Matti
- Maija
- Operator

5.1.3.2.1 Actor Specific Issues

- Matti has mobile device capable of creating multimedia messages
- Maija acts as a MMS postcard recipient
- Operator wants to offer MMS postcard service

5.1.3.2.2 Actor Specific Benefits

- Matti is able to create and send postcards using his MMS service, such as as holiday cards

- Maija is able to receive postcards via MMS postcard service
- Operator is able to provide MMS Postcard service as one of the person-to-application MMS service

5.1.3.3 Pre-conditions

- Matti has enabled MMS service and subscribed to MMS postcard service

5.1.3.4 Post-conditions

- Matti has created multimedia message and sent it to MMS postcard service
- Maija has received Mattis postcard via post.

5.1.3.5 Normal Flow

1. Matti takes one or more pictures with his camera phone
2. Matti composes the postcard message as multimedia message (note that MMS Postcard will take a single image only)
3. Matti adds greeting (free) text for the multimedia message
4. Matti adds Maijas postal address to the multimedia message
5. Matti sends the composed multimedia message to MMS postcard service
6. Maija receives the MMS postcard via post.

5.1.3.6 Alternative Flow

None

5.1.3.7 Operational and Quality of Experience Requirements

None

5.2 MMS Templates and Interactivity

5.2.1 Use Case P2P, Multimedia Stationery

5.2.1.1 Short Description

A subscriber pays \$2 and downloads a Beckham bundle containing two MMS stationeries – one with Beckham’s image on the town, and another one of Beckham scoring a goal against Manchester United. The subscriber selects one of the stationery when composing a message to another subscriber. When the second subscriber receives the message, they see the appropriate multimedia message. Subsequently, the second subscriber can buy the stationery and then use it.

5.2.1.2 Actors

- Alice
- Bob
- Operator
- MMS Stationery Service

5.2.1.2.1 Actor-Specific Issues

- Alice wants to be a trendsetter. She wants to be able have MMs that reflect cultural icons of the moment. She wants to be the first on the block to have new music, movie stars, and sport figures populate her MMs.
- Bob wants to be part of the in-crowd, but does not want to take risks. He is not likely to buy a trendy item until he has seen someone else using it.
- Operator wants create a ring tone –like business around MMS and not be dis-intermediated.
- MMS stationery service wants a low cost and easy way of promoting fresh content. The MMS stationery service knows that youth respond to viral & clandestine marketing programs better than traditional promotions.
- The MMS stationery service does not want pirating to loot the bank.

5.2.1.2.2 Actor-Specific Benefits

- Alice's gets to refresh her MMS stationery as quickly as the cycles of pop culture turn.
- Bob can purchase and download MMS stationery based on a message he has received
- Operator has fresh product as quickly as the cycles of pop culture turn
- MMS stationery service does not have to redesign stationery for every device.

5.2.1.3 Pre-conditions

- Alice has acquired the stationery bundle. The bundle was delivered via MMS or OMA Download.

5.2.1.4 Post-conditions

- Bob has received a stylized message from Alice and saves the stationery for his personal use.

5.2.1.5 Normal Flow

1. Alice runs her MMS composer and chooses a "Use Stationery" option.
2. Alice sees a list of MMS stationery that she has loaded on her device. Alice selects the "Beckham Scores" menu item.
3. Alice sees a composition window in which there is a field for the message and button labelled "Choose Message from Beckham".
4. After typing in her message text, Alice presses the button and gets a list of audio files from Beckham. She chooses an audio file.
5. Alice presses the preview button. She sees an image of Beckham and hears the audio file. Once the audio file is complete, her text message appears.
6. Alice presses the send button and the message is sent to Bob.
7. Bob receives the message and plays it.
8. After playing the message, Bob presses the menu button and selects the "Download Stationery" button
9. Bob sees a prompt that says that the stationery has been downloaded and saved.

5.2.1.6 Alternative Flow 1 (Protected Content)

1. Alice runs her MMS composer and chooses a "Use Stationery" option.

2. Alice sees a list of MMS stationery that she has loaded on her device. Alice selects the "Beckham Scores" menu item.
3. Alice sees a composition window in which there is a field for the message and button labelled "Choose Message from Beckham".
4. After typing in her message text, Alice presses the button and gets a list of audio files from Beckham. She chooses an audio file.
5. Alice presses the preview button. She sees an image of Beckham and hears the audio file. Once the audio file is complete, her text message appears.
6. Alice presses the send button, sending the message to Bob.
7. Bob receives the message and plays it.
8. After playing the message, Bob presses the menu button and selects the "Download Stationery" button.
9. Bob sees a prompt that says that the stationery is protected. The prompt asks him whether he wants to go to the store to buy the stationery.
10. Bob replies "yes" and he is taken to the stationery store.

5.2.1.7 Alternative Flow 1 (Legacy Device)

1. Alice runs her MMS composer and chooses a "Use Stationery" option.
2. Alice sees a list of MMS stationery that she has loaded on her device. Alice selects the "Beckham Scores" menu item.
3. Alice sees a composition window in which there is a field for the message and button labelled "Choose Message from Beckham".
4. After typing in her message text, Alice presses the button and gets a list of audio files from Beckham. She chooses an audio file.
5. Alice presses the preview button. She sees an image of Beckham and hears the audio file. Once the audio file is complete, her text message appears.
6. Alice presses the send button, sending the message to Bob.
7. Bob receives the message and plays it.

5.2.1.8 Operational and Quality of Experience Requirements

None

5.2.2 Use Case TPSP, MMS-originated Postcards

5.2.2.1 Short Description

A subscriber downloads a postcard template from a service that allows you to use 4 pictures in a composed postcard that is printed and sent to somebody. The subscriber selects four pictures, a title, the message text, and the destination address. The message is sent to a service that prints a postcard and sends it to the recipient via standard post.

5.2.2.2 Actors

- Alice
- Bob

- Operator
- MMS Postcard Service

5.2.2.2.1 Actor-Specific Issues

- Alice wants to be able to send a picture postcard to a friend of hers that does not have an MMS device.
- Bob wants to receive pictures from Alice, but does not about the benefits of buying an MMS device.
- Operator wants to extend picture service beyond MMS phones to create awareness of MMS capability among non-subscribers.
- MMS postcard service wants to offer a service that reaches non-MMS users.

5.2.2.2.2 Actor-Specific Benefits

- Alice's has a simple way of building a postcard and sending it to a friend.
- Bob can benefit from MMS phones without having to buy one.
- Operator has standard mechanism for offering different postcard services without customize clients.
- MMS stationery service does not have to redesign postcard service for every device.

5.2.2.3 Pre-conditions

- Alice has acquired the postcard template.
- Alice knows the name and address of the recipient (Bob).
- The MMS postcard service is provisioned with the operator to provide the service.

5.2.2.4 Post-conditions

- Bob receives a postcard from Alice.

5.2.2.5 Normal Flow

1. Alice runs her MMS composer and chooses a "Use Template" option.
2. Alice sees a list of MMS templates that she has loaded on her device. Alice selects the "Postcard Printing" menu item.
3. Alice is prompted to select the first picture. Alice selects a picture from her photo album.
4. Alice is prompted to take a photo for the second picture. Alice takes a photo from camera input.
5. Alice is prompted to select the third picture. Alice selects a picture from her photo album.
6. Alice is prompted to select the fourth picture. Alice selects a picture from her photo album.
7. Alice is prompted to enter a title for the four pictures and the message text. She enters appropriate text.
8. Alice is prompted to enter the name and address of the recipient (Bob). She select city of recipient (Bob) address from selection lists and enters appropriate text.
9. Alice presses the send button and the message is sent to the postcard service.
10. The postcard service receives the message, prints a postcard, and sends the postcard to Bob. On the back of the postcard, in addition to the message text, is information about the operator's mms service.

11. Bob receives the postcard.

5.2.2.6 Operational and Quality of Experience Requirements

None

5.2.3 Use Case TPSP, MMS-based Voting

5.2.3.1 Short Description

A subscriber is watching a music video program and sees an advertisement indicating that you can vote on what song will be played next. The subscriber sends a short code and receives a message containing the names of five songs. The subscriber navigates and selects the song they wish to hear. The selected song is sent back to the voting service via MMS.

5.2.3.2 Actors

- Alice
- Operator
- Voting service provider

5.2.3.2.1 Actor-Specific Issues

- Alice wants an easy way to vote for songs.
- The operator wants to charge for each vote, as they get a share of the revenue.
- The voting service provider wants to charge for each vote, as they get a share of the revenue.

5.2.3.2.2 Actor-Specific Benefits

- Alice does not have to remember short code values for each song; rather, she gets a list of songs and she can simply select the song she wants.
- The operator leverages their existing MMS billing scheme to charge for each vote.
- The voting service can reuse the same short code throughout the program, essentially creating and reinforcing their brand.

5.2.3.3 Pre-conditions

- Alice knows the short code for the voting service.
- A revenue sharing agreement is in place between the operator and the voting service.

5.2.3.4 Post-conditions

- Alice votes for a song.

5.2.3.5 Normal Flow

1. Alice sends a message to the voting service's short code.
2. The voting service composes and sends a message containing the names and images of a set of candidate songs.
3. Alice receives a message containing a list of songs for which she can vote
4. Alice selects a song in the list.
5. A "vote" message is composed and sent to the voting service.

5.2.3.6 Operational and Quality of Experience Requirements

None

5.2.4 Use Case TPSP, Headline News via MMS

5.2.4.1 Short Description

A subscriber uses her MMS client to use a headline news service. The headline consists of a title and one or two sentences. The subscriber has an option for "more" information that retrieves more detailed news items in the device's browser.

5.2.4.2 Actors

- Alice
- Operator
- Newscast service provider

5.2.4.2.1 Actor-specific Issues

- Alice wants to use the same news feeds that provide her headline news on her PC.
- Alice wants to use her existing message client for headlines.
- The operator wants to leverage their existing MMS infrastructure to attract users into their mainline browsing-based data business.
- Newscast service provider wants rich text formatting and animated graphics for the headline with "links" to more detailed stories.

5.2.4.2.2 Actor-specific Benefits

- Alice can receive headline news as soon as she has her MMS service provisioned.
- Operator maintains billing relationship with subscribers for premium MMS service.
- Newscast service leverages their existing XHTML content.

5.2.4.3 Pre-Conditions

- A newscast service exists that allows consumers to subscribe to various news feeds.
- The newscast service supplies XHTML+SVG content that is appropriate for mobile devices.
- Handsets with the appropriate client exist.
- Alice has subscribed to the newscast service.

5.2.4.4 Post-Conditions

- Alice receives the headline news.

5.2.4.5 Normal Flow

1. At a scheduled interval, the newscast service aggregates several news feeds into an XHTML+SVG message
2. The newscast service pushes the XHTML+SVG message to consumers who have subscribed to the service via MMS
3. Alice's device receives the service-specific MM and it is placed in her inbox. Because these MMs are automatically replaced with new ones, the headline is kept up to date.

4. Alice opens the MM containing the headlines.
5. Alice sees a headline that she is interested in and requests more information by following a hyperlink in the headlines.
6. Alice's browser is launched and navigates to the article.

5.2.4.6 Operational & Quality of Experience Requirements

None

5.3 MMS Extensibility

5.3.1 Use Case I&E, Consumer Webcam Service

5.3.1.1 Short Description

Two subscribers use a consumer webcam service that allows them to receive periodic snapshots from their home webcam. With this service, a webcam in their home sends images over a broadband connection to the webcam service. The webcam service periodically sends these images to the subscriber's device. The first subscriber has a device with a dedicated webcam client. The second subscriber has a device with a standard MMS client.

5.3.1.2 Actors

- Alice
- Bob
- Operator
- Webcam Service

5.3.1.2.1 Actor-Specific Issues

- Alice wants to use a device that makes it easy to manage stale webcam images.
- Bob wants to use his existing standard MMS device to view webcam images.
- Operator wants to leverage their existing MMS infrastructure to deliver billable premium MMS services.
- Webcam service wants to send image updates to the subscribers who have their special client as well as subscribers who have regular MMS clients.

5.3.1.2.2 Actor-Specific Benefits

- Alice's MMS inbox is not cluttered with stale webcam images.
- Alice has an easy to use and easy to discover user interface for managing her webcam images and the webcam service
- Bob is able to use the webcam service without having to invest in a new device.
- Operator maintains billing relationship with subscribers for premium MMS service.
- Webcam service has large addressable market.

5.3.1.3 Pre-conditions

- Both Alice and Bob have set-up accounts with the webcam service and have the cameras in place to deliver the images from their home to the webcam service at regular intervals.

5.3.1.4 Post-conditions

- Both Alice and Bob receive the webcam images per their subscriptions with the webcam service.

5.3.1.5 Normal Flow (Alice)

1. The webcam service receives an image from the source at a predefined interval.
2. The webcam service formats the image into an appropriate MMS message and sends the message to Alice's device.
3. Alice's device receives the webcam MM.
4. Alice's device determines that the MM should be handled by the webcam client; the MM is placed in the webcam client's inbox.

5.3.1.6 Alternative Flow 1 (Bob)

1. The webcam service receives an image from the source at a predefined interval.
2. The webcam service formats the image into an appropriate MMS message and sends the message to Bob's device.
3. Bob's device receives the webcam MM.
4. Bob's device determines that while the MM should be handled by a service-specific client, that such a client does not exist on the device.
5. Bob's device determines that the service-specific MM can be handled by a standard MMS client and places the MM in the standard MMS inbox.

5.3.1.7 Operational and Quality of Experience Requirements

- The dedicated client shall be able to manage the webcam images without displaying non-service MMs.
- A standard MMS client shall be able to display a service-based MM when it is not handled by a dedicated client and the message can be handled by a standard MMS client.
- A standard MMS client shall not be able to display service-specific MMs that have been handled by a dedicated client.

5.3.2 Use Case I&E, Multiplayer Chess Game

5.3.2.1 Short Description

Two subscribers use MMS to play a game of chess. Moves can be timed and the players can pause and resume the game at any time.

5.3.2.2 Actors

- Alice
- Bob
- Operator
- Chess game service provider

5.3.2.2.1 Actor-Specific Issues

- Alice and Bob want to receive images of the game board and make moves using common alphanumeric notation.
- Alice and Bob want to be able to play with a clock that limits how the time per move.

- Alice and Bob want to be able to pause and resume playing the game at anytime.
- Alice wants to be able to initiate a game without having to have previously conversed with Bob.
- Both players want their opponents moves validated as legal moves.
- Operator wants to leverage their existing MMS infrastructure to provide billable MMS-based games.
- Chess game service provider wants to preserve a session between messages sent to a player, messages returned by the player (via a reply), and between players.
- Chess game service provider does not want to have to create a service-specific client.

5.3.2.2 Actor-Specific Benefits

- It is easy for Alice to start a game. She does not have to pre-arrange with Bob how to start a game.
- Alice and Bob can trust that their opponent has made a valid move.
- Alice and Bob can ensure that their opponent is making a move within the time allowed.
- Operator maintains billing relationship with subscribers for premium MMS service.
- Chess game service can serve a large addressable market.

5.3.2.3 Pre-conditions

- Alice knows how to use a short code to initiate a game with Bob.
- Alice knows Bob's phone number.

5.3.2.4 Post-conditions

- Alice and Bob play a game of chess.

5.3.2.5 Normal Flow

1. Alice initiates a game by sending Bob's phone number to the chess game short code.
2. Bob and Alice receive an MM indicating the initial board positions and who has the next move.
3. Bob replies to the message with alphanumeric text indicating his first move.
4. The game server validates that the move is legal and sends an MM of the resulting board to Alice and Bob, indicating that it is Alice's move.
5. Moves are exchanged between each player in a similar fashion until Alice capture's Bob's king and wins the game

5.3.2.6 Alternative Flow 1 (Invalid Move)

1. Alice initiates a game by sending Bob's phone number to the chess game short code.
2. Bob and Alice receive an MM indicating the initial board positions and who has the next move.
3. Bob replies to the message with alphanumeric text indicating his first move.
4. The game server determines that Bob made an invalid move and sends Bob an MM indicating that he must make another move.
5. Bob replies to the message with alphanumeric text indicating his alternate move.

6. The game server validates that the move is legal and sends an MM of the resulting board to Alice and Bob, indicating that it is Alice's move.
7. Moves are exchanged between each player in a similar fashion until Alice captures Bob's king and wins the game

5.3.2.7 Alternative Flow 2 (Time-Out)

1. A chess game service exists that knows how to generate chessboard images, validate moves, time player moves, and manage the session between players.
2. A short code exists that allows a player to initiate a game with another player, pause a game, and resume a game.
3. Both players have appropriately enabled MMS handsets. Alice initiates a game by sending Bob's phone number to the chess game short code.
4. Bob and Alice receive an MM indicating the initial board positions and who has the next move.
5. Bob replies to the message with alphanumeric text indicating his first move.
6. The game server validates that the move is legal and sends an MM of the resulting board to Alice and Bob, indicating that it is Alice's move.
7. Alice replies to the message using the phrase "pause", which tells the game server to pause the game.
8. The game server pauses the game and sends a message to both players that the game is paused and that they should reply to the message with the phrase "resume" when they wish to resume playing the game. It also indicates that they must resume playing within some time interval or the saved game will be lost.
9. Some time later, Alice replies to the message with the phrase "resume" and play is resumed.

5.3.2.8 Operational and Quality of Experience Requirements

None

5.3.3 Use Case TPSP, Consumer Headline News Service

5.3.3.1 Short Description

A subscriber uses a headline news service that is displayed on their device's idle screen. The service provider delivers this headline news service using standard XHTML+SVG technology.

5.3.3.2 Actors

- Alice
- Operator
- Newscast service provider

5.3.3.2.1 Actor-specific Issues

- Alice wants to use the same news feeds that provide her headline news on her PC.
- Alice wants a dedicated user interface that makes it easy to discover the headlines whenever she uses her device.
- Alice wants a TV-like presentation of the news – a mixture of formatted text and animated vector graphics.
- The operator wants to leverage their existing MMS infrastructure to deliver billable news services.
- Newscast service provider wants to use XHTML for rich text formatting and SVG for scaleable graphics and animation.

5.3.3.2 Actor-specific Benefits

- Alice can receive headline news as soon as she has her MMS service provisioned.
- Operator maintains billing relationship with subscribers for premium MMS service.
- Newscast service leverages their existing news feeds used to deliver headline information to PCs and other devices.

5.3.3.3 Pre-Conditions

- A newscast service exists that allows consumers to subscribe to various news feeds.
- The newscast service supplies XHTML+SVG content that is appropriate for mobile devices.
- Handsets with the appropriate client exist.
- Alice has subscribed to the newscast service.

5.3.3.4 Post-Conditions

- Alice receives the headline news.

5.3.3.5 Normal Flow

1. At a scheduled interval, the newscast service aggregates several news feeds into an XHTML+SVG message
2. The newscast service sends the XHTML+SVG message to consumers who have subscribed to the service
3. Alice's device receives the service-specific MM
4. Alice's device determines that the MM should be handled by the newscast client; the MM is placed in the newscast client's inbox and displayed by an appropriate XHTML+SVG renderer.

5.3.3.6 Operational & Quality of Experience Requirements

None

6. Requirements (Normative)

6.1 MMS Advanced Contents

6.1.1 High-Level Functional Requirements

	MMS 1.3 SHALL provide end-to-end interoperability with [MMSCONF]
	MMS 1.3 SHALL provide end-to-end interoperability on Images with higher resolution than allowed by [MMSCONF]
	MMS 1.3 SHALL provide end-to-end interoperability on content messaging

Table 2: High-Level Functional Requirements for MMS Advanced Contents

6.1.1.1 Administration and Configuration

ADM – 1-1	MMS 1.3 SHALL support creation modes which allow to set an interoperability policy similar to OMA MMS 1.2
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Table 3: High-Level Functional Requirements for MMS Advanced Contents – Administration and Configuration Items

6.1.1.2 Interoperability

IOP-1-1	MMS 1.3 Servers SHALL support messaging with MMS 1.2 Clients
IOP-1-2	MMS 1.3 Clients SHALL support messaging with MMS 1.2 Servers

Table 4: High-Level Functional Requirements for MMS Advanced Contents – Interoperability Items

6.1.2 Overall System Requirements

GEN-1-1	MMS 1.3 SHALL include support for MMS 1.2 functionality
GEN-1-2	MMS 1.3 SHALL include support for MMS 1.2 content domains and classes
GEN-1-7	If MMS 1.3 client is creation and submission conformant to Content class(es), the client SHALL be fully conformant to one or more Image basic, Image rich, Megapixel, Video basic, Video rich
GEN-1-8	If MMS 1.3 client is retrieval and presentation conformant to Content class(es), the client SHALL be fully conformant to one or more Image basic, Image rich, Megapixel, Video basic, Video rich
GEN-1-9	MMS 1.3 SHALL include support for operator choice regarding the deployment of enhanced services in an operator's network over the basic MMS functions for creation, submission, and retrieval of MMS messages.

Table 5: High-Level Functional Requirements for MMS Advanced Contents

6.1.3 System Elements

System Element CL	MMS Client	
System Element PR	MMS Proxy-Relay	
System Element VS	VASP (Value Added Service Provider)	

Table 6: System Elements for MMS Advanced Contents

6.1.3.1 MMS Client Requirements

CL-1-1	An MMS Client which supports the Megapixel MM Content Class SHALL be able to create, submit, retrieve and present MMs which contain all content permitted by the Image rich MM Content Class
CL-1-2	An MMS Client which supportst the Megapixel MM Content Class SHALL be able to create, submit, retrieve and present MMs which contain all content permitted by the Video rich MM Content Class
CL-1-3	An MMS Client which supports the Megapixel MM Content Class SHALL be able to create, submit, retrieve and present MMs which have a maximum size of 300 kbytes.
CL-1-4	An MMS Client which supports the Megapixel MM Content Class SHALL be able to create, submit, retrieve and present MMs which contain images with higher resolution than allowed by the the Image rich MM Content Class
CL-1-5	An MMS Client which supports the Megapixel MM Content Class MAY be able to create, submit, retrieve and present MMs which contain JPEG images with EXIF parameters.
CL-1-6	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which contain all content permitted by the Megapixel MM Content Class
CL-1-7	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which contain all content permitted by the Video Rich MM Content Class
CL-1-8	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which have a maximum size of 100 kbytes or a maximum size of 300 kbytes.
CL-1-9	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which contain a presentation language which supports content synchronization and layout
CL-1-10	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which contain formatted text objects.
CL-1-11	An MMS Client which supports content messaging MAY be able to create, submit, retrieve and present MMs which contain JPEG images with EXIF extensions.
CL-1-12	An MMS Client which supports content messaging SHALL be able to create, submit, retrieve and present MMs which utilise one or many of the DRM mechanisms described in [OMADRM],
CL-1-13	An MMS Client which supports content messaging MAY be able to create, submit, retrieve and present MMs which contain graphics of better quality than allowed by [MMSCONF].

CL-1-14	An MMS Client which supports content messaging MAY be able to create, submit, retrieve and present MMs which contain audio of better quality than allowed by [MMSCONF]. E.g. by using AAC as codec.
CL-1-21	An MMS Client which supports the MMS Postcard Service SHALL be able to create and submit MMs which contain recipient name and postal address.
CL-1-22	An MMS Client which supports the MMS Postcard Service MAY be able to create and submit MMs which contain a text object which is marked specially so that the service may lay out the text separately from the multimedia content layout.
CL-1-23	An MMS Client which supports the MMS Postcard Service SHALL be able to create and submit MMs which contain the postcard service address.
CL-1-24	An MMS Client MAY be able to create an MM according to OMA MMS 1.2 content classes
CL-1-25	An MMS Client MAY be able to create an Megapixel MM
CL-1-26	An MMS Client MAY be able to create an MM which represents an MMS Postcard content
CL-1-27	An MMS Client MAY be able to create a content messaging
CL-1-28	An MMS Client MAY be able to submit an MM according to OMA MMS 1.2 content classes
CL-1-29	An MMS Client MAY be able to submit an Megapixel MM
CL-1-30	An MMS Client MAY be able to submit a content messaging to MMS service recipient
CL-1-31	An MMS Client SHALL submit MMs to mobile recipients only according to creation mode requirements of one the classes Image basic, Image rich, Megapixel, Video basic and Video rich.
CL-1-32	An MMS Client MAY be able to submit an MM modified according to MMS Postcard content to postcard service
CL-1-33	An MMS Client SHALL be able to retrieve an MM according to OMA MMS 1.2 content classes
CL-1-34	An MMS Client MAY be able to retrieve an Megapixel MM
CL-1-35	An MMS Client MAY be able to retrieve a content messaging
CL-1-36	An MMS Client SHALL be able to present an MM according to OMA MMS 1.2 MM content classes
CL-1-37	An MMS Client MAY be able to present an Megapixel MM
CL-1-38	An MMS Client MAY be able to present a Content MM

Table 7, MMS Client requirements for MMS Advanced Contents

6.1.3.2 MMS Proxy-Relay Requirements

PR-1-1	An MMS Proxy-Relay which supports the Megapixel MM Content Class SHALL be able to receive and deliver MMs which contain all content permitted by the Image rich MM Content Class
PR-1-2	An MMS Proxy-Relay which supports the Megapixel MM Content Class SHALL be able to receive and deliver MMs which contain all content permitted by the Video rich MM Content Class
PR-1-3	An MMS Proxy-Relay which supports the Megapixel MM Content Class SHALL be able to receive and deliver MMs which have a maximum size of 300 kbytes.

PR-1-4	An MMS Proxy-Relay which supports the Megapixel MM Content Class SHALL be able to receive and deliver MMs which contain images with higher resolution than allowed by the the Image rich MM Content Class
PR-1-5	An MMS Proxy-Relay which supports the Megapixel MM Content Class MAY be able to receive and deliver MMs which contain JPEG images with EXIF parameters.
PR-1-6	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which contain all content permitted by the Megapixel MM Content Class
PR-1-7	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which contain all content permitted by the Video Rich MM Content Class
PR-1-8	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which have a maximum size of 100 kbytes or a maximum size of 300 kbytes.
PR-1-9	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which contain an advanced presentation language.
PR-1-10	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which contain formatted text objects.
PR-1-11	An MMS Proxy-Relay which supports Content MM MAY be able to receive and deliver MMs which contain JPEG images with EXIF extensions.
PR-1-12	An MMS Proxy-Relay which supports Content MM SHALL be able to receive and deliver MMs which utilise one or many of the DRM mechanisms described in [OMADRM].
PR-1-13	An MMS Proxy-Relay which supports Content MM MAY be able to receive and deliver MMs which contain enhanced graphics.
PR-1-14	An MMS Proxy-Relay which supports Content MM MAY be able to receive and deliver MMs which contain quality audio.
PR-1-21	An MMS Proxy-Relay which supports the MMS Postcard Service SHALL be able to receive and deliver MMs which contain recipient name and postal address.
PR-1-22	An MMS Proxy-Relay which supports the MMS Postcard Service MAY be able to receive and deliver MMs which contain a text object which is marked specially so that the service may lay out the text separately from the multimedia content layout.
PR-1-23	An MMS Proxy-Relay which supports the MMS Postcard Service SHALL be able to receive and deliver MMs which contain the postcard service address.
PR-1-31	An MMS Proxy-Relay SHALL be able to send and receive an MM according to OMA MMS 1.2 content classes via MMS _M [MMSARCH] interface
PR-1-32	MMS Proxy-Relays SHALL be able to exchange an MM according to OMA MMS 1.2 content classes via MMS _R [MMSARCH] interface
PR-1-33	MMS Proxy-Relay SHALL be able to send and receive an Megapixel MM via the MMS _M interface
PR-1-34	MMS Proxy-Relay SHALL be able to send and receive a Content MM via the MMS _M interface
PR-1-35	MMS Proxy-Relays SHALL be able to exchange an Megapixel MM via the MMS _R interface
PR-1-36	MMS Proxy-Relays MAY be able to exchange a Content MM via the MMS _R interface
PR-1-41	MMS Proxy-Relay SHALL support content adaptation defined for MMS 1.2 release

PR-1-42	MMS Proxy-Relay SHALL support content adaptation from Megapixel towards MMS 1.2 classes
PR-1-43	If an MMS Client is to receive an Megapixel message which it does not support, MMS Proxy-Relay SHOULD provide means to retrieve the whole message by other means

Table 8, MMS Proxy-Relay requirements for MMS Advanced Contents

6.1.3.3 VASP Requirements

VS-1-1	A VASP which supports the Megapixel MM Content Class SHALL be able to submit MMs which contain all content permitted by the Image rich MM Content Class
VS-1-2	A VASP which supports the Megapixel MM Content Class SHALL be able to submit MMs which contain all content permitted by the Video rich MM Content Class
VS-1-3	A VASP which supports the Megapixel MM Content Class SHALL be able to submit MMs which have a maximum size of 300 kbytes.
VS-1-4	A VASP which supports the Megapixel MM Content Class SHALL be able to submit MMs which contain images with higher resolution than allowed by the the Image rich MM Content Class
VS-1-5	A VASP which supports the Megapixel MM Content Class MAY be able to submit MMs which contain JPEG images with EXIF parameters.
VS-1-6	A VASP which supports Content MM SHALL be able to submit MMs which contain all content permitted by the Megapixel MM Content Class
VS-1-7	A VASP which supports Content MM SHALL be able to submit MMs which contain all content permitted by the Video MM Content Class
VS-1-8	A VASP which supports Content MM SHALL be able to submit MMs which have a maximum size of 100 kbytes or a maximum size of 300 kbytes.
VS-1-9	A VASP which supports Content MM SHALL be able to submit MMs which contain an advanced presentation language.
VS-1-10	A VASP which supports Content MM SHALL be able to submit MMs which contain formatted text objects.
VS-1-11	A VASP which supports Content MM MAY be able to submit MMs which contain JPEG images with EXIF extensions.
VS-1-12	A VASP which supports Content MM SHALL be able to submit MMs which utilise one or many of the DRM mechanisms described in [OMADRM],
VS-1-13	A VASP which supports Content MM MAY be able to submit MMs which contain enhanced graphics.
VS-1-14	A VASP which supports Content MM MAY be able to submit MMs which contain quality audio.
VS-1-21	A VASP which supports the MMS Postcard Service SHALL be able to submit MMs which contain recipient name and postal address.

VS-1-22	A VASP which supports the MMS Postcard Service MAY be able to submit MMs which contain a text object which is marked specially so that the service may lay out the text separately from the multimedia content layout.
VS-1-23	A VASP which supports the MMS Postcard Service SHALL be able to submit MMs which contain the postcard service address.

Table 9, VASP requirements for MMS Advanced Contents

6.2 MMS Templates and Interactivity

6.2.1 High-Level Functional Requirements

	The MMS system SHALL provide for user a method to compose conformant MMS message using “Templates”.
	The MMS system SHALL enable service providers to deliver services through MMS.
	The MMS system SHOULD support client-based integration with other device applications such as browser, editor, camera application. There is no current requirement for network based integration with the device applications (i.e., a network service that remotely uses the device application).
	The MMS system SHALL leverage existing standards.

Table 10, High-level Functional Requirements for MMS Templates and Interactivity

6.2.2 Functional System Elements

System Element CL	MMS Client	
System Element PR	MMS Proxy-Relay	
System Element VS	VASP (Value Added Service Provider)	

Table 11, Functional System Elements for MMS Templates and Interactivity

6.2.2.1 MMS Client Requirements

CL-2-1	The MMS Client SHALL be able to use Templates to create MMs conformant to a particular MM Content Class.
CL-2-2	The MMS Client SHALL be able to use Templates to create MMs which format is specified by Template-based service provider.
CL-2-3	The MMS Client SHALL be able to include a reference to the MMS Template-based application or MMS Template-based service as part of a message built using the template.
CL-2-4	The MMS Client SHOULD be able to retrieve MMS Template-based application from a reference to the MMS Template-based service when that reference is included in an MM.
CL-2-5	The MMS Client SHOULD be able to present the following to the user: plain text, images, selection lists, multi-state selectors, video, audio, formatted text (bold, italicized, etc.), hyperlinks, MMS-SMIL content, plain text input, formatted text input, image selectors, video input, camera input, audio recorder

CL-2-6	The MMS Client SHOULD be able to acquire the following from the user: plain text, images, list selection, state selection, video, audio, typed data (address book entries, phone numbers, calendars, etc.)
CL-2-7	The MMS Client SHALL be able to present MMS Template-based application which specifies a linear sequence of interactions with the user.
CL-2-8	The MMS Client SHALL be able to present MMS Template-based application which specifies a sequence of user interactions that do not require a user action.
CL-2-9	The MMS Client SHALL be able to present MMS Template-based application which specifies a sequence of user interactions that require user actions.
CL-2-10	The MMS Client SHALL be able to present MMS Template-based application which specifies what user inputs are mandatory (mandatory means that the user must complete the input before sending the message).
CL-2-11	The MMS Client SHALL be able to present MMS Template-based application which describes the user interaction model by using standard protocols, markup languages, and scripting languages.
CL-2-12	The MMS Client SHOULD be able to present MMS Template-based application which describes the user interaction model using protocols supported by OMA conformance profiles
CL-2-13	The MMS Client SHALL be able to interpret the user interaction model specified by the Template-based application
CL-2-14	The MMS Client SHALL be able to acquire information from the user
CL-2-15	The MMS Client SHALL be able to present MMS Template-based application which specifies how the user interaction inputs map or format into the device originated message (i.e., maps to the resulting message sent to the recipient).
CL-2-16	When an MMS Client generates an MMS 1.3 conformant message, the resulting message SHALL contain the Template-based service reference and Template-based application reference if available.
CL-2-17	When an MMS Client generates an MMS 1.2 conformant message, the resulting message MAY contain the Template-based service reference and Template-based application reference if available (assumes that this still allows the message to be compliant)

Table 12, MMS Client requirements for MMS Templates and Interactivity – MMS Templates

CL-2-18	The MMS Client SHALL be able to download MMS Templates via MMS – either as part of an otherwise MMS 1.2 conformant MM or as the only part of an MM (i.e., an MM without person-to-person –type data).
CL-2-19	The MMS Client SHALL be able to download MMS Templates via OMA Download (i.e., the MMS template is not contained in an MM)

CL-2-20	The MMS Client SHALL be able to express what type of MMS Template it could handle (i.e., MMS content classes)
CL-2-21	The MMS Client SHALL be able to distinguish an MM containing a Template from a MMS 1.2 conformant MM.
CL-2-22	The MMS Client SHALL be able to distinguish an MMS Template from other downloadable content types.
CL-2-23	The MMS Client SHALL be able to validate that an MMS Template is non-malicious and compliant with the MMS Client conformance profile.
CL-2-24	The MMS Client SHALL support DRM constraints and policies of the MMS Template.
CL-2-25	The MMS Client SHOULD be able to store, retrieve, and remove MMS Templates.
CL-2-26	The MMS Client SHOULD be able to recognize when an MMS Template has already been stored on the device.
CL-2-27	The MMS Client SHOULD have a means of updating existing MMS Templates.
CL-2-28	The MMS Client SHALL be able to present human-readable information about an MMS Template.
CL-2-29	The MMS Client SHALL be able to compose and send a message based on the Template
CL-2-30	The MMS Client SHALL honor service-specified non-modifiable & non-extendable information elements (such as the recipient address)
CL-2-31	The MMS Client SHALL map or format user inputs, as specified by the Template, into the mobile originated message that is sent back to the VASP

Table 13, MMS Client requirements for MMS Templates and Interactivity – MMS Templates(2)

CL-2-100	If the MMS Client supports MMS Voting the MMS Client SHALL be able to display a selection list.
CL-2-101	If the MMS Client supports MMS Voting the MMS Client SHALL support selection lists containing plain text.
CL-2-102	If the MMS Client supports MMS Voting the MMS Client SHALL support selection lists containing multimedia (images and text, for example).

CL-2-103	If the MMS Client supports MMS Voting the MMS Client SHALL support single-selection lists.
CL-2-104	If the MMS Client supports MMS Voting the MMS Client SHALL support multiple-selection lists.
CL-2-105	If the MMS Client supports MMS Voting the selection list SHOULD support hyperlinks, where activation of a hyperlink results in a "vote" MM being sent back to the voting service
CL-2-106	If the MMS Client supports MMS Voting the MMS Client SHALL support the MMS URI schemes

Table 14, MMS Client requirements for MMS Templates and Interactivity – MMS Voting

CL-2-110	If the MMS Client supports MMS Headline News the MMS Client SHALL support at least MMS Service "Basic" Content Class.
CL-2-111	If the MMS Client supports MMS Headline News the MMS Client supporting the MMS Services "Basic" Content Class SHALL support the following: XHTML-MP in [XHTML]
CL-2-112	If the MMS Client supports MMS Headline News the MMS Client supporting the MMS Services "Rich" Content Class SHALL support the following: SHALL: XHTML Mobile Profile, as specified by OMA SHOULD: SVG Tiny Mobile Profile, as specified by OMA
CL-2-113	If the MMS Client supports MMS Headline News the MMS system SHALL be able to distinguish between service-originated messages & person-originated messages
CL-2-114	If the MMS Client supports MMS Headline News the MMS Client MAY provide a means for the user to distinguish between service-originated messages & person-originated messages
CL-2-115	If the MMS Client supports MMS Headline News the MMS Client supporting the MMS Services "Basic" Content Class SHALL support the following: the <a> element in XHTML content http:// URIs in XHTML content mms:// URIs in XHTML content the <a> element in MMS SMIL content
CL-2-116	If the MMS Client supports MMS Headline News the MMS Client SHALL be able to distinguish when a received message is meant to replace a previously received message.
CL-2-117	If the MMS Client supports MMS Headline News the MMS Client SHALL allow the user to enable or disable the replacement of (service-originated & person-originated) messages
CL-2-118	If the MMS Client supports MMS Headline News the MMS Client SHALL verify that a replacement message is "safe"
CL-2-119	If the MMS Client supports MMS Headline News the MMS Client SHALL delete a message in its inbox or folder when it receives a "safe" replacement/updated message

CL-2-120	If the MMS Client supports MMS Headline News the MMS Client SHALL be able to associated a received message (as a result of a service request message) with the original service request message
CL-2-121	If the MMS Client supports MMS Headline News the MMS Client MAY retrieve the received message rather than sending an equivalent service request message when the received message has not expired

Table 15, MMS Client requirements for MMS Templates and Interactivity – MMS Headline News

6.2.2.2 MMS Proxy-Relay Requirements

PR-2-1	An MMS Proxy-Relay which supports Template MAY be able to receive and deliver MMs which contain Template.
PR-2-2	MMS Proxy-Relay SHALL be able to send and receive MMs which contain Template via MMS _M interface.
PR-2-3	MMS Proxy-Relay SHALL be able to send and receive MMs which contain Template via MMS_M interface.
PR-2-4	MMS Proxy-Relays SHALL be able to exchange MMs which contain Template via MMS _M interface.
PR-2-5	MMS Proxy-Relays MAY be able to exchange MMs which contain Template via MMS _R interface.

Table 16, MMS Proxy-Relay requirements for MMS Templates and Interactivity

6.2.2.3 VASP Requirements

VS-2-1	A VASP which supports Template MAY be able to submit MMs which contain Template.
VS-2-2	A VASP which supports Template MAY be able to receive MMs which contain Template.
VS-2-3	A VASP which supports Template MAY be able to process MMs which contain Template.

Table 17, VASP requirements for MMS Templates and Interactivity

6.3 MMS Extensibility

6.3.1 High-Level Functional Requirements

	The MMS system SHALL support services that wish to extend MMS information elements, content types, and state information for use by service-specific clients or general-purpose clients of differing capabilities.
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Table 18, High-level functional requirements for MMS Extensibility

6.3.2 Overall System Requirements

GEN-2-1	The MMS system SHALL support services that send MMS messages intended to replace an MMS message previously sent.
GEN-2-2	The MMS system SHALL support services that send MMS messages intended for use by service-specific clients and not for use by general-purpose MMS clients.

GEN-2-3	The MMS system SHALL support services that send MMS messages intended for use by service-specific clients, but usable by general-purpose MMS clients.
GEN-2-4	The MMS system SHALL NOT display service-specific MMS messages in a general-purpose MMS client when not intended for use by the general-purpose MMS client.
GEN-2-5	The MMS system SHALL NOT send service-specific MMS messages that cannot be handled by a general-purpose MMS client when the recipient device does not support the service-specific MMS client.
GEN-2-6	The MMS system SHALL support services in which state information can be stored in an MMS message sent from client A to client B and when client B replies to the message, the state information is retained.
GEN-2-7	The MMS system SHALL support services that send MMS messages for use by a service-specific client, to include content types specific to the service-specific client (i.e., content types not processed by general-purpose MMS clients).
GEN-2-8	The MMS system SHALL support services that send MMS messages for use by a service-specific client, to include information elements specific to the service-specific client.
GEN-2-9	The MMS system SHALL support services that send MMS messages with service-specific content types, information elements, and state information, as long as the overall size of the message conforms to MMS infrastructure constraints.
GEN-2-10	The MMS system SHALL support MMS messages that contain multiple presentations of the same message, where different presentations conform to different device capabilities (i.e., different versions of MMS-SMIL, or different content classes).
GEN-2-11	The MMS system MAY adapt MMS messages containing multiple presentations of the same message to the device capabilities of the recipient device.

Table 19, Overall System Requirements for MMS Extensibility

6.3.3 System Elements

System Element ORIG:	Originating Device, MMS Client, or Service	
System Element MMSINF:	MMS Infrastructure	
System Element RECP:	Recipient Device or MMS Client	

Table 20, Functional System Elements for MMS Extensibility

6.3.3.1 Originating Device, MMS Client, or Service

ORIG-1	An originating MMS service SHALL be able to send an MMS message intended for use by a service specific client and not for use by a general-purpose MMS client.
ORIG-2	An originating MMS service SHALL be able to send an MMS message intended for use by a service specific client, but usable by a general-purpose MMS client.
ORIG-3	An originating MMS service SHALL be able to store state information in an MMS message intended for use by a service specific client.

ORIG-4	An originating MMS service SHALL be able to send non-standard MMS content types in an MMS message intended for use by a service specific client.
ORIG-5	An originating MMS service SHALL be able to send non-standard MMS information elements in an MMS message intended for use by a service specific client.
ORIG-6	An originating MMS service SHALL be able to send MMS messages with service-specific content types, information elements, and state information, as long as the overall size of the message conforms to MMS infrastructure constraints.
ORIG-7	An originating MMS service SHALL be able to send an MMS message containing multiple presentations of the same message, where different presentations conform to different device capabilities (i.e., different versions of MMS-SMIL, or different content classes).
ORIG-8	An originating MMS client SHALL be able to send an MMS message intended for use by a service specific client or service and not for use by a general-purpose MMS client.
ORIG-9	An originating MMS client SHALL be able to send an MMS message intended for use by a service specific client, but usable by a general-purpose MMS client.
ORIG-10	An originating MMS client SHALL be able to store state information in an MMS message intended for use by a service specific client or service.
ORIG-11	An originating MMS client SHALL be able to send non-standard MMS content types in an MMS message intended for use by a service specific client or service.
ORIG-12	An originating MMS client SHALL be able to send non-standard MMS information elements in an MMS message intended for use by a service specific client or service.
ORIG-13	An originating MMS client SHALL be able to send MMS messages with service-specific content types, information elements, and state information, as long as the overall size of the message conforms to MMS infrastructure constraints.
ORIG-14	An originating MMS client SHALL be able to send an MMS message containing multiple presentations of the same message, where different presentations conform to different device capabilities (i.e., different versions of MMS-SMIL, or different content classes).
ORIG-15	An originating MMS client that can send state information in an MMS message, SHALL be able to display state information contained in an MMS message before the message is sent (this is to protect the privacy of the user).

Table 21, Originating Device, MMS Client or Service requirements for MMS Extensibility

6.3.3.2 MMS Infrastructure

MMSINF-1	The MMS infrastructure SHALL support the transmittal of service-specific MMS messages that contain non-standard MMS content types, information elements, and state information
MMSINF-2	The MMS infrastructure SHALL NOT support sending a service-specific MMS message that cannot be supported by the recipient device.
MMSINF-3	The MMS infrastructure SHALL support the transmittal of MMS messages that contain multiple presentations of the same message, where different presentations conform to different device capabilities (i.e., different versions of MMS-SMIL, or different content classes).
MMSINF-4	The MMS infrastructure MAY adapt MMS messages containing multiple presentations of the same message to the device capabilities of the recipient device.

Table 22, MMS Infrastructure requirements for MMS Extensibility

6.3.3.3 Recipient Device or MMS Client

RECP-1	The MMS device receiving a service-specific MMS message that can be handled by a service specific-specific client, MUST send that message to the service-specific client and MUST NOT send that message to the general-purpose client.
RECP-2	The MMS client receiving an MMS message containing multiple presentations of the same message MUST be able to select the best presentation based on its own device capabilities.
RECP-3	An MMS client replying to an MMS message containing state information, MAY include the state information in the reply.
RECP-4	The MMS device MUST be able to describe the capabilities of its service-specific clients (so that the MMS infrastructure knows whether or not it can receive service-specific messages).

Table 23, Recipient Device or MMS Client requirements for MMS Extensibility

6.4 MMS Evolution

GEN-EVO-1	Backward compatibility to previous OMA MMS Enabler Releases shall be maintained when OMA MMS Enabler Release v1.3 is specified.
GEN-EVO-2	The requirements relevant to MM1 as defined by [TS22140] and [TS23140] SHALL be fulfilled by the MMS _M interface.
GEN-EVO-3	The requirements relevant to MM1 as defined by [SR0064] and [XS0016-200] SHALL be fulfilled by the MMS _M interface.

Table 24, MMS Evolution Requirements

Appendix A. Change History

(Informative)

A.1 Approved Version 1.3 History

Reference	Date	Description
OMA-RD-MMS-V1_3-20110913-A	13 Sep 2011	Status changed to Approved by TP: OMA-TP-2011-0329-INP_MMS_V1_3_ERP_for_final_Approval