MMS Content Guidelines

for Third Parties

V 1.1
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1 Introduction

Third party services do typically send one MMS to many handsets. These handsets do normally have very different capabilities. They do not display the same content in the same way. Additionally due to different device capabilities devices may not display some content types.

Swisscom Mobile has meanwhile introduced a new transcoder from Siemens/Mobixell which does improve the process of content adaptation for MMS to the capabilities of the destination handset. However, this adaptation does still depend on the type of content which is being sent.

So it is important to know how to build MM messages which are displayed on many handsets in a good quality. This document gives our third party service providers recommendations how to build such MM messages.

1.1 Purpose

Third party service providers should get through this document and all referenced documents all the information they need to build MMS, which are displayed on most handsets in a good quality. With this document we also centralize all available information in one place. In the future we will improve the document based on incoming input from third party providers and test teams.
1.2 Scope

This document is based on the MMS Standards 1.1 and 1.2 as defined in [4] and [5]. The MMS Standard 1.3 is not yet covered.

This document is limited to the parts which are relevant for third party services. It does cover all relevant information from the following sources:

- Internal knowledge
- Knowledge from evaluations of the systems
- Vendor information
- Vodafone
- Knowledge from Third Party Service providers
- Recommendations from the test team

The document does not cover test results from acceptance tests for our systems, as the scope is to give positive recommendations how to build MMS and not which special cases generate errors.

As soon as we get feedback from third party content providers the scope of this document will be extended to reflect their feedback as well.

Although the acceptance of content by end customers would be an interesting extension, this is not in the scope of this document.

As we are currently investigating the possibilities of DRM, this issue is currently out of scope for this version of this document. Currently DRM is not supported by Swisscom Mobile.

Delivering content via WAP-Push is out of scope of this document.

The document does not cover all recommendations from Vodafone as many recommendations for device specific issues are solved or handled by the transcoder from Swisscom Mobile.

We constantly improve our deployed system. So we have always an updated list of known errors, which can change on a daily basis. Those errors are not handled in this document. So feel free to contact the support from Swisscom Mobile to get information about the latest issues.
1.3 Target readership, requirements of the reader

The target readership is:

- Third party content providers which provide MMS services for Swisscom Mobile
- Project team content adapter
- Swisscom Mobile intern

The requirements of the reader:

- Good technical understanding of MMS, media types and the role of third party content providers
1.4 Terms and abbreviations

<table>
<thead>
<tr>
<th>Term</th>
<th>Short explanation</th>
</tr>
</thead>
<tbody>
<tr>
<td>3GPP</td>
<td>3rd Generation Partnership Project</td>
</tr>
<tr>
<td>Content</td>
<td>Data provided by content providers</td>
</tr>
<tr>
<td>Content Provider</td>
<td>An organisation offering up-to-date information on a dynamic event or situation, such as traffic, stock brokers, or weather reports</td>
</tr>
<tr>
<td>DRM</td>
<td>Digital Rights Management. Several methods which should prevent uncontrolled distribution of content</td>
</tr>
<tr>
<td>GPRS</td>
<td>General Packet Radio Service</td>
</tr>
<tr>
<td>iServer</td>
<td>Component from Swisscom Mobile, which does handle all communication of MMS between Swisscom Mobile and the content providers</td>
</tr>
<tr>
<td>Legacy support</td>
<td>Technical system which does allow our customers to receive MMS even if they do not have a MMS handset. They can retrieve and play the received MM messages on the internet</td>
</tr>
<tr>
<td>MM message</td>
<td>Multi-Media Message is a message which is sent via MMS</td>
</tr>
<tr>
<td>MM7</td>
<td>Interface to the MMSC which does transport the MMS between the iServer and the MMSC</td>
</tr>
<tr>
<td>MMS</td>
<td>Multimedia Messaging Service</td>
</tr>
<tr>
<td>MMSC</td>
<td>Multimedia Message Service Centre</td>
</tr>
<tr>
<td>NB-AMR</td>
<td>Audio Format for handsets</td>
</tr>
<tr>
<td>OMA</td>
<td>Open Mobile Alliance</td>
</tr>
<tr>
<td>SMS</td>
<td>Short Message Service</td>
</tr>
<tr>
<td>Transcoder</td>
<td>Component from Swisscom Mobile, which does adapt the MMS to the capabilities of the handsets at the time the MMS is fetched by the handset</td>
</tr>
<tr>
<td>URL</td>
<td>Uniform Resource Locator. For example <a href="http://www.swisscom-mobile.com">http://www.swisscom-mobile.com</a></td>
</tr>
<tr>
<td>URI</td>
<td>Universal Resource Indicator</td>
</tr>
<tr>
<td>WAP</td>
<td>Wireless Application Protocol</td>
</tr>
<tr>
<td>WAV</td>
<td>Audio format which does have not a compression</td>
</tr>
<tr>
<td>W3C</td>
<td>World Wide Web Consortium</td>
</tr>
</tbody>
</table>
1.5 Referenced documents

<table>
<thead>
<tr>
<th>Reference</th>
<th>Title / Description</th>
<th>Document</th>
</tr>
</thead>
<tbody>
<tr>
<td>[1]</td>
<td>MMS content guidelines Vodafone</td>
<td>MMS Content Guidelines, Vodafone, Version 3.2</td>
</tr>
<tr>
<td>[7]</td>
<td>Test Results Vodafone Test send MMS with URL</td>
<td>Test Results Vodafone Test send MMS with URL.xls</td>
</tr>
</tbody>
</table>

1.6 Typographical conventions

Recommendations related to Vodafone terminals are taken from the content guidelines Vodafone [1]. They are marked with the following logo:

![Vodafone Logo]

Not marked are recommendations from [1] which have been adapted as the transcoder from Swisscom Mobile does allow simplifying many of the Vodafone recommendations.
2 MMS Overview

Multimedia Messaging Service or MMS is a standard developed by the Open Mobile Alliance (OMA) on top of requirements by 3GPP and 3GPP2 that lets users of mobile terminals create, send, receive and present Multimedia messages with formatted text, audio, graphics, photographs and for video capable terminals video clips. MM messages can be forwarded to other MMS-enabled mobile phones, e-mail addresses or to legacy terminals. MM messages can be stored in the terminal for later viewing, editing or to forward to other terminals. MM messages can be considered as presentations or slide shows. A slide within an MM message can have normally up to two regions – one for an image and one for text, and attachments for video and audio content. The layout and ordering of the media content and the slides are specified in an XML Standard called MMS SMIL 1.1 [4]. There is also a newer version MMS SMIL 1.2 [5], which is currently not supported by the MMSC from Swisscom Mobile. By end of 2005 there will come newer devices, which support PSS-SMIL, which does allow for example more regions.

3 Goal of the recommendations

MM messages shall arrive and be presented on the destination handset of the recipient in the following way:

- They should arrive (which is not always possible, depending on content and device)
- The content of MM message is played in a way which is easy to understand to recipient:
  - The texts are easy to understand
  - The images can easily be seen
  - Audios are played automatically
  - Videos are played automatically
  - Pages are displayed automatically
  - Scrolling or special actions to display the MMS should not be necessary

In respect of content creation and the selection of technical features for building MM messages it is important to keep in mind that the finally quality perception of a MM message is not only a pure technical issue but the final decision for the quality will be made by:

- End customers which are in a hurry
- End customers which do not know that they have to press buttons to see more of the MM message. They do not know for example that it is necessary to press buttons to scroll down a page
- End customers who are not willing to explore a long time the technical possibilities of their handsets
- End customers who do not have the latest handsets or latest firmware for their handsets
- End customers who have difficulties to press small buttons on the handset
- End customers which do not see very well (or their handsets have a small display)
- End customers who have changed their handset
- End customers who do not know who is responsible in case of errors. They will interpret many errors as personal trouble with the device. So each difficulty or error does result in a long time decrease of acceptance of MMS!
4 Boundary conditions in relation to the quality of MM messages

For a better understanding of the recommendations it is important to understand that MM messages are processed in many systems and some of them do interpret or change parts of the message:

- Technical System from 3. party
- iServer does have the following influences:
  - Message rejection if they are bigger as agreed in the contract
- MMSC from Ericsson:
  - Does internally split the message in its parts to store it in the database. On delivery the message is recombined
  - As soon as DRM is supported by Swisscom Mobile interpretation of the DRM fields
  - Check if the destination address is enabled for MMS. If not, the message is delivered to the legacy support
  - Does adapt the character set of all texts
- Transcoder from Siemens/Mobixell. In comparison to the other components this component does have the biggest influence on the MMS. It does adapt the content to the technical possibilities of the destination handset. So terminals with some lower capabilities can receive higher capability-requiring content. The following is adapted by the transcoder (unless transcoding is not turned off as described in chapter 6.8):
  - Media formats
  - Size of the MMS, if necessary the size of single objects
  - Video are converted to animated gif + audio if the destination handset does not have video support
  - SMIL
  - The message is rebuilt after conversion. If MMS cannot be converted they are send to the legacy support. In this case only the SMS notification will arrive on the handsets and the clients can access and play the MM message on the internet.

- WAP Gateway from OpenWave
- Handsets from many vendors with multiple versions of hardware and software
- Another handset if the message is forwarded

In addition we have a very rapid change in the market of handsets, which does permanently influence the last two parameter (handsets) and indirect the settings in the transcoder. There is also a time gap between the first availability of a new handset and the availability of optimized dedicated special profile for the handset on the transcoder. In this short period we use a default profile for medium handsets which may limit the capabilities of certain handsets.
5 Most important rule

As easily can be seen from the goal and boundary conditions it is almost impossible to find rules which do guarantee an optimal delivery on each handset. So the most important recommendation is:

**KISS**

This is a short term for: Keep it Simple and Stupid.

Build your MMS as simple as possible. Just put together some media objects from the list of formats in chapter 6 and combine it to a MM message. Do always use SMIL formatting. But do not base a mass-market MM message on special formatting, many and large pages, many content types per slide (exception audio), large pictures, long audios, latest features of high end devices, special mime types, special combinations of text and graphics on one page etc. Those ‘sophisticated’ MM messages might look very good on some terminals and enhance the multimedia experience, but they will be certainly unsatisfactory to many others users, as the majority of them is unable to read the complete MM message properly.

For mass-market MM message focus instead on the content of the texts, images, audios and videos. Try to use always the same structure of MMS with the same content types and parameters. For example a page with a banner, then a page with a text and a page with a video.
6 More detailed general recommendations

6.1 General recommendations

We recommend:

- If you want to distribute high quality content as for example large pictures or long videos create **different services for different classes of terminals**. For example high tier, mid tier, low tier. Create content which is most optimally suited for each class of terminals.

**Argumentation:** It is impossible to generate a generic MMS, which are after conversion to the capabilities of the destination handset is still perfect. The transcoder adapts incoming MMS for all terminals in a most optimal way, but each adaptation results principally in a loss of information (see Picture 1). It is much better if content providers do decide for each class of handset how much to show and the transcoder does small adaptations which are necessary for each terminal. For example large maps should contain more streets and smaller fonts as small maps. A small map with a few streets or details does look much better (see Picture 2) as a map with many streets or objects where the picture size was reduced (see Picture 1).

![Picture 1](image1.png)

**Picture 1:** A map which was send as 464*369 and which was resized by the terminal (or the transcoder) to 233*165 because it did not fit on the screen.

![Picture 2](image2.png)

**Picture 2:** The same area optimized for 233*165 pixels. Please note: The scale is the same as in the above picture!

- Do use typical terminal formats for multimedia content, not Windows formats. For example AMR instead of WAV.
Argumentation: The windows formats do have many sub flavors of parameters which are not always supported by the transcoder or by the terminal itself.

- Do not use special media types which are optimal for one terminal unless it is a dedicate MM message for such terminals. It does not make sense because many such media types are converted internally in the transcoder to a general format which is in turn converted to the configured format which the destination terminal can play (and which we have tested successfully). Following this recommendation it shall also be easier to create such MM messages.
- Do always generate your final images, audios and videos with the same tools and try to use in the MM messages the same set of medias and parameters. Do not copy the media objects directly from your sources as there might be changes in the internal file structure which can introduce unexpected changes in the quality of the MMS.
- Do not use special characters for the different file names. At the moment special characters causes an error situation in the transcoder.
6.2 Recommendations for subject line

It is required that subject information is included as part of the message. Content providers should create contextual subject line information for the message.

It is very important that the subject line does convey to the user at a glance what the message is about. Since, on many terminals, as few as 12–15 characters of a subject line are visible when the message is in the INBOX, make subject lines short and clear. Or at least the first 12–15 characters.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Length subject line</td>
<td>39 including spaces and punctuation</td>
<td>recommendation Vodafone</td>
</tr>
</tbody>
</table>
| Format daily ‘live’ alerts | An abbreviated headline should be created for the subject field. If required, date and time information should also be added to the subject line but after the headline text. For example:  
  • Olympic winners! 16-Aug-04 11:00  
  For other types of alerts the name of the alert can be included. For example:  
  • Your horoscope 16-Mar-04 11:00 | recommendation Vodafone |
6.3 Recommendations for texts

Texts should have the following format:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>UTF-8</td>
<td>Unlike many other formats, it handles all ASCII characters and language-specific Latin characters like the German Sharp S “ß” and umlaut “ü”, Danish slashes “ø”, French accents “é”, Spanish tildes “~”, ligatures “æ” and “œ” and digraphs, as well as the Greek and Cyrillic alphabets and the euro symbol</td>
</tr>
</tbody>
</table>
| Recommended max number of characters per slide | 160 (8–9 lines) | • recommendation Vodafone.  
• If there are more characters per slide or if the message is send to a device with a very small screen (Siemens CV65) scrolling will be necessary. |
| Duration for texts                 | 1.5 sec per line, but not more than 14 seconds per slide (whenever possible allow manual slide transition) | • recommendation Vodafone. |
| Just for info: Max characters per line | Depends on the terminal. Vodafone terminals do have in the minimum 17 characters. In the mean they have around 20 characters per line | According documentation Vodafone |

The following factors should be taken into consideration:

- **Do always use SMIL**, also if the MM message does only contain texts. If only UTF-8 text files without smil file are sent, it is possible, that some MMS are not showed properly on some handsets. The transcoder will also not add SMIL files if the original MMS does not contain a SMIL file.
Some terminals do not provide on-screen support to the user prompting them to scroll down in order to read the text in full. So some users do not check if there is more text further down or they simply have problems scrolling long texts.

If messages are automated, it is recommended that content providers create individual slides for each part of the message, so that end-users don’t need to scroll down.

Each MMS capable terminal has a different method of displaying text. By default, the text can be left or centre aligned depending on the terminal.

The Euro symbol is not supported on most “Vodafone live!” terminals. It is therefore recommended to use the word “Euro” instead.

Text rendering is determined by the telephone in most cases and cannot be influenced by the content provider.

Each terminal has its own default font for the text display and some of them may disregard formatting attributes. Therefore, it is recommended to not rely on the text formatting to enhance a title, a word or a sentence.

Only the Sharp GX30, Nokia 6600 and 7610 and the SonyEricsson K700i, Z600 and perhaps later models respect SMIL font colour and size tags. Other terminals will simply ignore these tags and render the text in a default size and font and usually black. Note that if no background colour is defined, the SonyEricsson K700i and Z600 define grey and blue respectively as background colours by default.

All text and SMIL files should be created using a non-formatting text editor or programming editor like Notepad or Emacs.

An advantage of using a programming editor is that SMIL tags will be appropriately and automatically indented for easier reading and debugging. Another option is the use a SMIL generator or SMIL authoring tool for example LimSee2: http://wam.inrialpes.fr/software/limsee2/index.php
6.4 Recommendations for images

We recommend distinguishing between photo-like images and graphical images, which do have a lot of equal colors:

6.4.1 Recommendations for photographs and other high definition images

These are all photo-like images, which do contain changes in colors from pixel to pixel. Typical examples are pictures taken with a camera.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>JPEG baseline</td>
<td>Worldwide standard, efficient for photo-like images where adjacent pixels do almost often have different colors</td>
</tr>
<tr>
<td>quality factor</td>
<td>80%. Some editors do use other units for this factor</td>
<td>Good quality which still does reduce the size of the picture</td>
</tr>
</tbody>
</table>

6.4.2 Recommendations for limited colors and line drawings

These are all images which do contain palettes and which do often not change the color between adjacent pixels. Typical examples are figures, comics or maps without shading.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>GIF 87 or 89a</td>
<td>Worldwide standard, compression is in case of palettes better than jpg!</td>
</tr>
<tr>
<td>number of colors</td>
<td>128 or more</td>
<td>Recommendation Siemens/Mobixell</td>
</tr>
</tbody>
</table>
6.4.3 Recommendations for image size

We recommend for pictures the following size:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Recommended resolution</td>
<td>• low tier and mid tier devices: 120x160 pixels</td>
<td>Does fit on most devices without any loss of information during rescaling. See also chapter 6.1, General recommendations. A resizing by the transcoder should be avoided to get clear pictures.</td>
</tr>
<tr>
<td></td>
<td>• mainly services with high tier devices: 240*320 pixels</td>
<td></td>
</tr>
<tr>
<td>Max possible resolution (not recommended!)</td>
<td>1024*768 pixels</td>
<td>Current implementation of the transcoder. Will be increased in the future</td>
</tr>
<tr>
<td>Aspect ratio</td>
<td>4:3</td>
<td>Can be shown by all terminals, although we have terminals which do have 3:4</td>
</tr>
</tbody>
</table>

6.4.4 Other recommendations for images

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration for images</td>
<td>3–4 seconds per image page</td>
<td>recommendation Vodafone.</td>
</tr>
<tr>
<td>Max number of colors</td>
<td>Not more than 65,000 colors or more than 16 bit color depth</td>
<td>recommendation Vodafone.</td>
</tr>
</tbody>
</table>

The following factors should also be taken into consideration:

- **Do not use other image file formats**: It does not make sense to use other file formats than specified above as according the OMA-MMS-CONF ([4] or [5]) indicate that only these format belong to the core content domain. If the terminal does need a special format, the transcoder will automatically convert the input to the mentioned format.
The more you increase the image size, the resulting images on low range devices will become un-sharp or blurred.

If you decrease the image size, the images will be perfectly displayed on all devices, but they can get very small on high range devices with high-resolution displays.

If you increase the picture size and put a lot of information into the image, you will get more low range handsets where the MM messages are displayed in a way which is unacceptable for the customers. The resulting small images will have the medium color of the original image, but the main structure of the content cannot be seen any more. (The transcoder cannot decide which information to ignore during conversion to smaller pictures!) Example: Maps which cannot be recognized any more. Specially if there are symbols on the maps!

Photo-images are less critical to changes in the size as graphical images.

Graphical images do always appear sharp on the displays.

Do avoid texts embedded in images, as they can become blurred if the image is resized in order to fit to the screen area. On some terminals with very small screens these texts are not readable any more.

Do not use terminal display sizes to determine the maximum MMS display size, as the image display size is usually smaller than the full terminal display. The pictures are usually not shown fullscreen. Not all end-users do use menu options to watch pictures full-screen.

If an image is used on the first slide, it may not be fully viewable because the subject line could also be displayed on the first page as is the case on Series 60 terminals (e.g. Nokia 6600/7610). Therefore, if an image is used on the first slide, it should not use the entire height of the display or the user will be forced to scroll to see the whole image.

Of the “Vodafone live!” terminals, a variety of sizes and ratios are represented and care must be taken to assure that images in MM messages are displayed properly. Automatic slideshows will scale according to ratio determined by width. In manual mode, images will appear in original size and centered.

While many of the latest “Vodafone live!” terminals have relatively large, visually crisp displays (more than 128x160 and at least 65K color support), others like the Nokia 6220 and 6230 as well as a significant number of older terminals such as the Panasonic GD–87 have more modest display capabilities. These terminals still exist in great numbers among customers and must still be supported. For this important reason, special care must be taken to create content which works on the majority of terminals.

The use of WBMP is discouraged, as it offers no advantages over JPEG and GIF.

When using GIF, be aware that GIF87a supports only limited colors (256).

Transparent layers should be avoided, as they are not consistently supported between terminals and not supported on the Sagem my–V65 and my–X6. When transparent images are send to this devices, the image will not be displayed correctly and broken image icons appear instead (The transcoder cannot introduce features which are not available on the terminals).
• Do not use tunneling (i.e. sending a GIF87a image with the file extension .jpg) it leads to an error situation in the transcoder and the content of the MMS will not be adapted to the receiving terminal.
### 6.5 Recommendations for audio content

#### 6.5.1 Recommendations for speech content

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>AMR–NB</td>
<td>Standard on handsets. Is based on a compression and therefore much better than wav</td>
</tr>
<tr>
<td>Bit rate</td>
<td>12.2 kbps</td>
<td>More is not needed as normal mobile phone calls are typically transferred with 9 kbps</td>
</tr>
</tbody>
</table>

#### 6.5.2 Recommendations for music content

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>MP3</td>
<td>Standard and good compression. Our transcoder will convert it to suitable audio formats of the handsets</td>
</tr>
<tr>
<td>Mode</td>
<td>Stereo</td>
<td>Our transcoder will convert it to mono if necessary</td>
</tr>
<tr>
<td>Bit rate</td>
<td>96kbps</td>
<td>Recommendation Siemens/Mobixell. If necessary the bit rate will be automatically reduced according the max. size of the MMS and the capabilities of the destination handset</td>
</tr>
<tr>
<td>Sampling frequency</td>
<td>44.1 kHz</td>
<td>Recommendation Siemens/Mobixell</td>
</tr>
</tbody>
</table>

#### 6.5.3 Recommendations for note-based audio (including ringtones)

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Format</td>
<td>SP-Midi. Encoded as MIDI 0</td>
<td>• MIDI is the most general-purpose sound data. It can also be converted to specific formats by the transcoder if a device does only support a specific note-based ringtone format. • MIDI 0 encoding does ensure</td>
</tr>
</tbody>
</table>
MMS Content Guidelines
for Third Parties

<table>
<thead>
<tr>
<th>Max number of instruments</th>
<th>16</th>
</tr>
</thead>
<tbody>
<tr>
<td>General compatibility across terminals</td>
<td></td>
</tr>
<tr>
<td>• It is also not recommended to include an iMelody file, which activates terminal-specific effects like lights and vibrations as it severely limits the general applicability of the MMS</td>
<td></td>
</tr>
<tr>
<td>• According to recommendation of the MMS standards [4] and [5]</td>
<td></td>
</tr>
<tr>
<td>Max number of instruments</td>
<td>16</td>
</tr>
<tr>
<td>• Not all MIDI synthesizers support 24 instruments</td>
<td></td>
</tr>
<tr>
<td>• In respect to the very basic speakers for terminals there is no noticeable quality improvement if more than 16 instruments are used</td>
<td></td>
</tr>
</tbody>
</table>

Please note:

• **Synthesizer's inconsistencies**: Midi files do have a different sound across the terminals because they have implemented in their software different MIDI Synthesizer’s. This is also true for other midi like formats

6.5.4 Other recommendations for audio

The following factors should be taken into consideration:

• **Hardware inconsistencies**: Sound files have very different sound across the terminals because of very different quality of the speakers used in the terminals

• **Do not use other audio file formats**: It does not make sense to use other file formats than specified above as all files will be converted by the transcoder to the formats supported by the terminals
## Recommendations for video:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
</table>
| Format movie (without audio) | H.263 video profile 0 level 10 | - Standard on handsets  
- Recommendation Siemens/Mobixell  
- Recommendation Vodafone |
| Format of audio part – NB–AMR 12.2kbps | AMR–NB 12.2kbps | More is not needed as normal mobile phone calls are typically transmitted with 9 kbps |
| Resolution | QCIF (176x144) and sub-QCIF (128x96). Recommendation: Use sub-QCIF | - Standard  
- Recommendation Vodafone |
<p>| Frame rate | 10 to max15 frames per second | Less than 15 does result in a visible freeze of videos, more than 15 does not improve the quality but do consume unnecessary space or cannot be played quickly enough by the hardware of the handsets. In addition a frame rate of &gt;15 is not supported by almost all devices! |
| Length | Depending on the max size of the message and the above parameters. With 100k a maximum of 5 seconds is possible with acceptable quality. | Internal experience |
| Bitrate | For low bit rate use 15–20kbps and 5–6fps, for medium bit rates use 50kbps and 7–8fps. Target frame rate should be a factor of the source file frame rate. For example, if the source file is 24 fps, then the target frame rate should be 6 fps or 12 fps. Since 12fps is | Recommendation Vodafone |</p>
<table>
<thead>
<tr>
<th><strong>Audio rate of videos</strong></th>
<th>Audio rates of 8kHz and 16 bit and use AMR-NB encoding.</th>
<th>recommendation Voyoafone</th>
</tr>
</thead>
<tbody>
<tr>
<td><strong>File format</strong></td>
<td>.3gp</td>
<td>recommendation Voyoafone</td>
</tr>
</tbody>
</table>

Higher than recommended on most video capable terminals, 6fps is the best choice. Should not exceed 64kbps.
Please note for video the following:

- Note that most devices just support video’s up to 95kB which conforms to the MMS Standard 1.1 [4]. Only devices which have implemented the MMS standard 1.2 [5] (and few earlier ones) support a higher MM message size up to 300kB.

- Do send videos in a size which the majority of the destination handsets can handle without conversion. Our transcoder will decrease the size if necessary. For example from 300kB to 95 kB, but this will always result in a visible quality reduction. Reason: 3gp (H.263 Profile 0 level 10 video with AMR-NB audio) and mp4 (MPEG4 visual simple profile level 0) videos are already strongly compressed for all non-visible parts and so all each loss of information can immediately be seen.

- Do only send videos to handsets which are capable to play videos. Nevertheless if videos are sent to handsets which are not able to play them, the transcoder does convert them to animated gif and audio, which does give a rough impression of the original video. Reason: animated gif does have a far lower compression factor as for example 3gp and mp4. So a lot of information is omitted, especially if the video is already on 95kB.
### 6.7 Other recommendations

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Date format</td>
<td>choose the format appropriately for each target country or write the month in words and the year in 4 digits.</td>
<td>Different conventions between the countries. Our transcoder will not change the formats.</td>
</tr>
<tr>
<td>Time format</td>
<td>Use the 24 hour time format in the format hh:mm. For example 20:03.</td>
<td>Different conventions between the countries. Our transcoder will not change the formats.</td>
</tr>
</tbody>
</table>
| Max size of MMS      | 94 Kbytes for non 300k Terminals and 292 Kbytes for terminals which are capable to handle 300k. This values do include the size of all objects (text, audio, images, video and SMIL). Please note: The transcoder will always check and reduce the max size if necessary. But it is better to send MMS which do already have the right size to minimize the loss of information during transcoding (specially Videos). | • Recommendation for 100k MMS according recommendation Vodafone [1]  
• Some devices do not follow the standards and support only 300'000 bytes which are 292 KBytes + 992 Bytes.  
• MMS gateways do calculate the size of the MMS differently. They can reject MMS if they are too big according their calculation. |
| Max number of objects| 14                                                                            | Configuration Swisscom Mobile.                                                 |
6.8 Impact of the option “turn off transcoder”

After April 2005 it is possible for third party services to send the MMS without adaptations. They can turn off the transcoder from Swisscom Mobile for specifically marked MM messages. For details please check document [6], chapter “5.4.2 MMS Submit Request”, keyword “Adaptions”. The result for these MM messages will be:

- They are **not** adapted to the capabilities of the destination handset. Images, audios, videos, SMIL files and any combinations of these content types will not be adapted to the capabilities of the device. For example jpeg2000 will not be converted to jpg. There will be also no adaptation according the bugs of the software of the handsets. Messages are also not re-sized to the size handsets can handle, and there is also no optimization to the specific content types a handset supports (for example a size limitation for gif images).

- This can result in MM messages which the device cannot display. The following will happen in this case to end-users depending on the handset and the software-version they are using:

  - MM messages are rejected by the device in a way the end-user will not notice it (**but it is possible they have to pay for it!**)
  - MM messages are rejected by the device in a way the end-user will notice something is going wrong. But they do not notice which service it was (and they are paying for)
  - MM messages are rejected by the device and the end-user will get the details why it is rejected, e.g. a broken message is displayed. They are perhaps not aware that they still pay for it
  - They get MMS with all kind of problems like:
    - images are missing, invisible, white, too big, with bad or no colors
    - audios do not play or are not synchronized to the videos
    - videos do not play
    - all kind of problems with the page structure of the MMS
    - audios are limited to a few seconds only or the loudness is not correct
    - combinations of content types do result in many additional problems
    - etc.

    - And in the worst case: Blocking the handset (as the software decoder can remain in an endless loop)

- If the end-users do have a long time service and change in the meantime their handset the MM message will still be sent in the format which was correct for the old handset but it may be inappropriate for the new handset (see above what can happen in this case)

- Please be aware that the MMS is not delivered 1:1 to the handset. Our MMSC does still optimize very basic elements of the MMS:

  - Mime type headers are converted to well-known types
  - There will be additional X-Headers (which do not affect terminals)
- Text types are adapted
• Some MMS will be rejected if they contain exotic mime types (this will also happen if transcoder is on)

→ Transcoder off should be strictly limited to services which do always deliver the same type of message to the same devices and where these message types are tested successfully on the devices where they are intended for. Example special ringtones for special devices.

→ We strongly recommend not turning off the transcoder for any messages with exception of ringtones send to dedicated devices!
6.9 SMIL

In addition to adherence to technical parameters, the creation of MMS content should follow general guidelines for the presentation, layout and timing of multiple slides. This section does not intend to be a definitive or comprehensive guide to SMIL or MMS SMIL, rather it will outline the basic functionality of MMS SMIL and where applicable note the limitations and potential problems associated with MMS SMIL development on core terminals.

6.9.1 MMS SMIL overview

MM messages are considered as slide shows containing one or more assets, which are presented in a certain order. The layout and timing of the MM messages is defined in a SMIL file, which is attached to the message. This file does contain all parameters of the presentation of the other objects which are part of the message.

The SMIL file is an xml file, as defined in [2]. The keywords are defined according SMIL 2.0, as defined in [3]. SMIL 2.0 is an xml Standard for multimedia presentations on PCs. As the screens and the processors of handsets do have very strict limitations in comparison to a PC, only a small subset of SMIL 2.0 is supported by the terminals, which is called “MMS SMIL”. There are currently two versions of MMS SMIL. The older version is defined in MMS Standard 1.1 [4]. Newer handsets have implemented the version as defined in MMS Standard 1.2 [5]. Please refer to this specification for a complete understanding how to build MMS. For a wider understanding the SMIL 2.0 definition can be considered [3] or the xml Standard in [2].

For required and optional MMS SMIL tags see the following table:

<table>
<thead>
<tr>
<th>Tag and corresponding close tag</th>
<th>Description and use</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;smil&gt; &lt;/smil&gt;</code></td>
<td>Required</td>
</tr>
<tr>
<td><code>&lt;head&gt; &lt;/head&gt;</code></td>
<td>Required</td>
</tr>
<tr>
<td><code>&lt;meta ... /&gt;</code></td>
<td>Optional – element name can be used to define title and author</td>
</tr>
<tr>
<td><code>&lt;layout&gt; &lt;/layout&gt;</code></td>
<td>Required</td>
</tr>
<tr>
<td><code>&lt;region id=&quot;Text&quot; ... /&gt;</code></td>
<td>Identifies region layout – referred to by <code>&lt;img&gt;</code></td>
</tr>
</tbody>
</table>
Tabelle 1: MMS SMIL tags

<table>
<thead>
<tr>
<th>Tag</th>
<th>Description</th>
</tr>
</thead>
<tbody>
<tr>
<td><code>&lt;body&gt;</code> <code>&lt;/body&gt;</code></td>
<td>Required</td>
</tr>
<tr>
<td><code>&lt;seq&gt;</code> <code>&lt;/seq&gt;</code></td>
<td>Optional – not supported on most terminals</td>
</tr>
<tr>
<td><code>&lt;par&gt;</code> <code>&lt;/par&gt;</code></td>
<td>Identifies each slide. Can include <code>&lt;par dur=&quot;xs&quot;&gt;</code> to recommend slide duration</td>
</tr>
<tr>
<td><code>&lt;text region=&quot;Text&quot; src=&quot;someFile.txt&quot;&gt;</code></td>
<td>Identifies specific region defined in <code>&lt;layout&gt;</code>. Also used as img src=&quot;imageFile.gif&quot;, Audio src=&quot;audioFile.amr&quot;, Video src=&quot;videoFile.3gp&quot;</td>
</tr>
<tr>
<td><code>&lt;! Comment &gt;</code></td>
<td>Optional – may cause problems on some terminals</td>
</tr>
</tbody>
</table>

Failure to follow XML syntax rules can render a SMIL file non-functional. For example:

- an open tag `<body>` without the corresponding close tag `</body>`
- `<root-layout />` rather than `<root-layout>`
- incorrect capitalisation syntax `<SMIL> </Smil>`
- smil text encoded other than “UTF-8” and character set “US-ASCII” may cause problems.

6.9.2 SMIL: Layout

When MMS SMIL is used for the presentation of multimedia messages, the size of the window is limited by the resolution and appearance of the terminal display. The layout of a MM message represents the content as created by the originator, but it is possible that the original layout simply does not fit into the display of the receiving terminal. Therefore SMIL exchange must be simple enough to ensure that – if the displays of the originator and receiver terminal are different – the content can still be displayed, possibly by changing the relative position of the different elements.

It is for this reason that the first implementation of MMS-capable terminals worked best with a maximum of one image region and one text region per slide. A terminal may replace any incoming layout information with its own fixed layout—one that it uses for all MM messages regardless of their specified layouts. However, this does not mean that you can compose MM messages without layout sections. You must include them for terminals that are capable of handling flexible layouts. This restriction will not only make MM messages easier to display on a wide variety of terminals but allow some control on terminal which support layout and timing.
The order in which slides are presented has a direct bearing on the end user experience. For example, an image slide could be explained in a text slide, which either directly precedes or follows. Two unrelated contiguous image slides might leave the end user confused.

Font colour and size tags are not supported on the majority of “Vodafone live!” terminals and should not be considered a viable method to control the look and feel of the content, as it will be ignored on phones that do not support SMIL font and colour formatting. The same applies to Background colours.

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Max number of slides</td>
<td>8</td>
<td>If a terminal does not support more than 8, additional slides will appear blank or be dropped completely. A limit on the number of slides is important for aesthetic purposes as well as technical limitations.</td>
</tr>
<tr>
<td>Format of MMS alerts</td>
<td></td>
<td>experience</td>
</tr>
<tr>
<td></td>
<td>Introduction slide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One image slide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>One text slide</td>
<td></td>
</tr>
<tr>
<td></td>
<td>[repeat one image slide and one text slide as necessary]</td>
<td></td>
</tr>
<tr>
<td></td>
<td>A sign off or branding slide</td>
<td></td>
</tr>
</tbody>
</table>

Recommendation:

- Avoid using font and color tags inside SMIL.
- Care should be taken to assure that contiguous slides complement or relate to one another.
- When date and time information is added, it should not ‘clutter’ the main body of the message, as the user needs to access the content as soon as possible. It is recommended that it is displayed at the end of the message, for example, just before the provider name if this is also required.
- SMIL region formatting may not be accepted on all terminals so organise content accordingly.
- SMIL formatting should be as simple as possible.
- SMIL file should always be the first part of the encoded MMS.
- The Content-Type for SMIL files is always application/smil.
- Avoid the use of sequence tags.
- Avoid comments.
6.9.3 SMIL: Slide with image only

We recommend for slides with exact one image the following:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Duration</td>
<td>3 seconds</td>
<td>recommendation Vodafone</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• Override different default settings of the terminals</td>
</tr>
<tr>
<td>Manual slide transition</td>
<td>Whenever possible</td>
<td>Easier to handle by the clients</td>
</tr>
</tbody>
</table>

6.9.4 SMIL: Slide with audio

The sound within slide format is only supported by a limited number of devices as for example Sharp GX-20, GX-30, Samsung E310, E710 and E810 and perhaps some SonyEricsson devices.

6.9.5 SMIL: Message creation

6.9.5.1 SMIL: Example generic templates

This section illustrates the creation of SMIL MMS content for generic terminals. The SMIL code corresponding to each message type (text only, image and text, single or multiple slides) is provided in this section.

Please note that the xml standard as defined in [2] does require a xml header as for example:

```xml
<?xml version="1.0" encoding="UTF-8" ?>
<!-- DOCTYPE smil PUBLIC "-/W3C//DTD SMIL 2.0//EN"
http://www.w3.org/2001/SMIL20/SMIL20.dtd" -->
<smil xmlns="http://www.w3.org/2001/SMIL20/SMIL20/language">
<head> ....
</head>
</smil>
```

Most terminals do not support such headers! They expect a much simpler header:

```xml
<smil>
<head> ....
</head>
```

Here an example with text only:
Text and Image:

```xml
<smil>
  <head>
    <layout>
      <root-layout width="12" height="160" />
      <region id="Image" width="100%" height="80" />
      <region id="Text" width="100%" top="80" height="20" />
    </layout>
  </head>
  <body>
    <par>
      <img region="Image" src="fancy.jpg" />
      <text region="Text" src="message.txt" />
    </par>
  </body>
</smil>
```

Text, Image and Audio (audio plays 3 seconds) on terminals, which support duration:

```xml
<smil>
  <head>
    <layout>
      <root-layout />
      <region id="Image" top="0" left="0" height="50%" width="100%"/>
      <region id="Text" top="0" left="0" height="50%" width="100%"/>
    </layout>
  </head>
  <body>
    <par>
      <img region="Image" src="fancy.jpg" />
      <text region="Text" src="message.txt" />
      <audio src="feel.amr" dur="3s" />
    </par>
  </body>
</smil>
```

Currently, none of the “Vodafone live!” terminals support the same background audio source for all slides. Each slide must have its own audio source.

Here an example with text and video with embedded Audio (video plays 10 seconds) on terminals, which support video and duration:

```xml
<smil>
  <head>
    <layout>
      <root-layout />
      <region id="Video" top="0" left="0" height="90%" width="100%"/>
      <region id="Text" top="90%" left="0" height="10%" width="100%"/>
    </layout>
  </head>
  <body>
```

Swisscom (Schweiz) AG  
CH-3050 Bern  
Version 1.1  
14. January 2015
<par>
  <video region="Video" src="advert.3gp" dur="10s"/>
  <text region="Text" src="advert.txt" />
</par>
</body>
</smil>

Note: The correct style to adopt when programming SMIL, as in any other programming language, is a personal decision. Nevertheless, some basic standards should be observed to make your code more readable and easier to debug.

Be consistent! If you write:

```xml
<text region="Text" .../text>
```

do not later change close tags

```xml
<text region="text" ../>
```

Do also avoid any keyword capitalisation or a mix of capitalisations

```xml
<text region="Text" .. </Text>
```

Adopt a readable format to facilitate later editing. This has no influence on the functionality but makes reading much easier. An example of an alternate style is:

```xml
<region
  id="Image"
  top="0"
  left="0"
  height="50%"
  width="100%"/>
...
or
<img
  region="Image"
  src="fancy.jpg"/>
<text
  region="Text"
  src="message.txt"/>
<audio
```
6.9.5.2 SMIL: Message layout

Text area and image area dimensions cannot be changed from one slide to another within the same message because these settings are specified in the MMS SMIL code for the whole message and not each slide.

Layout can be manipulated with the <layout>, <region> and <root-layout> elements. They take as attributes top, left, width and height. It is possible this may change in the future with MMS-v1.3 and PSS-SMIL].

Example:

```
<layout>
  <root-layout />
  <region id="Text" top="0" left="0" height="50%" width="100%"/>
  <region id="Image" top="0" left="0" height="50%" width="100%"/>
</layout>
```

6.9.5.3 SMIL: Region

Region tags can be given either as percentages or pixels. When writing for specific terminals, it is possible to use pixels but this must be avoided when writing for multiple terminals as the display may be distorted.

This example of an image and accompanying text is not recommended:

```
<layout>
  <root-layout />
  <region id="Image" top="32" left="112" height="80" width="80"/>
  <region id="Text" top="144" left="80" height="48" width="160"/>
</layout>
```

The following style is recommended. It is the same example rewritten as a generic SMIL for all “Vodafone live!” terminals:

```
<layout>
  <root-layout />
  <region id="Image" top="0" left="0" height="75%" width="100%"/>
  <region id="Text" top="75%" left="0" height="25%" width="100%"/>
</layout>
```

**Warning:** MMS SMIL is defined such as a terminal can override SMIL tags to assure the best display for a given terminal display. Therefore the region tag is sometimes ignored and the terminal will default to its own region settings.
6.9.5.4 SMIL: Timing

MMS SMIL supports attributes to specify the layout and presentation of the message; `<dur>` is one example. It is used in conjunction with the element `<par>`.

The specification of duration within a MM message is optional but manual slide transition is recommended. If the `<dur>` attribute is not included however – some terminals will default to their own duration settings for each slide.

The `<par>` </par> tag pairs define a page in the MM message. The `<dur>` attribute indicates how long this page should be displayed. Inside the ‘par’ section the different objects for this page are specified (e.g. img, text, audio). For each object a different duration (dur attribute) can be specified.

According to the SMIL standards [4] and [5] an object can only be played as long as its parent object is active. If the page duration is for example 10 seconds and the audio duration is 20 seconds, the audio is only played for 10 seconds. Unfortunately there are different implementations of this. All Nokia devices which support SMIL do follow this rule, others do extend the time the page is played to the maximum length of the included objects.

SMIL allows the following time values:

<table>
<thead>
<tr>
<th>Value</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Milliseconds</td>
<td>“100ms” or “0.1s”</td>
</tr>
<tr>
<td>Seconds</td>
<td>“10s” or “10”</td>
</tr>
<tr>
<td>Minutes</td>
<td>“10m”</td>
</tr>
<tr>
<td>Hours</td>
<td>“10h”</td>
</tr>
<tr>
<td>Minutes:seconds</td>
<td>“10:10”</td>
</tr>
</tbody>
</table>

Tabelle 2: SMIL Duration Parameters

Recommendations:

- To maintain consistency and avoid errors, it is recommended to give all times in seconds (s). Values less than 20 ms should never be used as the terminal cannot react to speeds faster than this and the user experience is diminished. Some terminals cannot react to less than 1 second.
• If the MMS does only contain one slide we recommend to not specify the duration so that the user can scroll down the texts as long as he wants.

Please note:

• If the duration is specified and the MM message contains more than one slide the message will play on its own. No user intervention is required until the message reaches the last slide. Within the same slide, for some terminals it is possible to set duration for an element that differs from another element. An image can be displayed for 3 seconds – which is the total duration of the whole slide – while, on supported terminals, a sound is played for 2 seconds starting after 1 second. For some terminals this is possible by using the attributes: ‘begin’ and ‘end’.

<par dur="3s"
   <img region="image" src="Img1.gif" />
   <audio src="sound1.amr" begin="1s" end="3s" />
</par>

• According to the rendering and SMIL interpretation capabilities of the receiving terminals, the timing attributes ‘begin’ and ‘end’ associated to single media elements may be neglected or overridden by user control.
• If the MM message...
  o contains more than one slide...
  o and the duration is not specified...
  o and the terminal does not have a default timing set up for slide duration
  the user is forced to manually scroll forward to see the next slide by using the terminal’s soft keys.

• If the text within a message is extremely short, it is recommended from a user experience point of view for the message to be automated although this depends on the message content and desired effect.
6.9.5.5 SMIL: Links

It is always possible to put URLs in the body of text areas. For example: http://www.swisscom-mobile.com. Many terminals do interpret these links as “active links”: They can be selected by the user which does start from the MMS viewer the browser positioned on this URL.

Technically these URLs are URIs (Universal Resource Indicator). In order to be considered as an active link, the URI of the targeted site has to be complete and correct. Here an example which is correct:

<table>
<thead>
<tr>
<th>You can get more updated news about your favorite football team on the “Vodafone live!” site - <a href="http://live.vodafone.com">http://live.vodafone.com</a> or by subscribing to our football alerts by sending a SMS to 8888</th>
</tr>
</thead>
</table>

Both “http://live.vodafone.com” and “8888” are interpreted as active links and are therefore clickable when the user plays the MM message on automatic/manual mode depending on the terminal.

This example is incorrect:

<table>
<thead>
<tr>
<th>You can get more updated news about your favorite football team on the “Vodafone live!” site live.vodafone.com</th>
</tr>
</thead>
</table>

Here some more recommendations:

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Recommendation</th>
<th>Argumentation</th>
</tr>
</thead>
<tbody>
<tr>
<td>Location of active links</td>
<td>Final side with a introduction as for example “Read the full story online here:”</td>
<td>• Some terminals (e.g. Nokia 3200, 6220, Panasonic X60, Samsung E710) do show links only as plain text. End-users do not recognize these text parts as links</td>
</tr>
<tr>
<td></td>
<td></td>
<td>• On certain terminals it is not possible for links to be activated until the user views the message in full and then manually clicks back through the message until they come to the slide with the URL – then it can be highlighted and clicked on. → links on last side</td>
</tr>
<tr>
<td>Number of links in a slide</td>
<td>One</td>
<td></td>
</tr>
<tr>
<td>Line breaks in links</td>
<td>Allowed</td>
<td>Line breaks within URLs should not have any impact for terminals that support active links</td>
</tr>
</tbody>
</table>
Please note:

- Ideally links should be contextual and only be included if they are an obvious next step for the user.
- A link can also be:
  - a short code: 8888
  - a MSISDN: +447788992244
  - an email address: user@domain.com

- Terminals support for active links varies widely and there is no common way to include them in a consistent manner across all terminals. The most commonly supported active link is an HTTP URL (http://www.vodafone.de/live) but even this is not consistent.
- Active links on the Siemens CV65, CXV65 and M65 as well as the Panasonic X60, Nokia 3220, 6220 and Samsung E710 are difficult to access.
- If terminals do support active links, they do support more than one link per slide.
- URLs should point to pages which are optimized for handsets with very small screens and strong restrictions of the internet browsers.
- Please check [7] to see which terminals do support active links and how difficult they are to access.
6.10 MMS HTTP header information

The following sections are included only as references as most MMS creation tools will automate the creation of the HTTP header. It is, of course, possible to construct MMS SMIL messages from scratch rather than using a MMS creation tool but doing so is not recommended for non-programmers.

6.10.1 MIME

As with other message formats, MMS conforms to standard Internet protocols and as such requires a header, which gives basic information concerning the message. MMS uses MIME (Multipurpose Internet Mail Extension) and SMTP (Simple Message Transfer Protocol) to access a MMSC (Multimedia Messaging Service Centre) or gateway server. MIME is used to bundle all separate files like audio, image and text together – including the SMIL document. An extension to MIME known as ‘MIME Encapsulation of Aggregate Documents’ is used to inform the client program of all parts of the message and how they relate to one another. MMS is in this respect a presentation layer for email protocols.

Within the message header part of the message that is constructed at the message encapsulation stage there are a number of information fields that can be completed.

Similar to the construction of an email, the following fields are displayed by default to the user:

- From
- Subject
- Date, time

Additional data can be included e.g. CC (copy), BCC (blind copy), etc.

Please consult for a list of required and optional MMS http parameters our third party manual [6].
6.10.2 Content-Types

Here are several content elements in a MM message:

- Content-Type header field should be set to multipart/related
- Content-ID header field should identify a unique id for each part of the message
- Content-Location header field is a relative URL reference (for example xyz.jpg in the SMIL code <img src="xyz.jpg">)

Content-Type indicates how the MMS viewer should parse and display the message. Some possibilities are:

- application/smil: charset="UTF-8" – this is the content type for SMIL
- text/plain: should only be used to display a single slide text document
- image/jpeg: is used for image slide (can also be image/gif, image/png, etc)
- audio/amr: identifies an AMR audio file. Also audio/wav, audio/midi, audio/iMelody when supported
- video/mp4: identifies an MP4 video file. Also video/3gpp
- multipart/related: will parse the SMIL code
- multipart/alternative: could be used to mix SMIL and xHTML but as currently most terminals do not support XHTML this should be avoided

Recommendation:

The following are the only possible header Content-Types:

- application/vnd.wap.multipart.related: type="application/smil" used with a SMIL presentation.
- application/vnd.wap.multipart.mixed used when there is no presentation just several objects included in the MMS or to exchange vCard or vCalendar information.

And for best results:

- Subject headers should be limited to 40 characters
- Content-Location is limited to 100 characters
- MMSC URL or X-WAP-Content-URI should not exceed 50 characters
- Content-ID should not exceed 40 characters

To assure proper syntax and header inserts, it is highly recommended to verify all SMIL files using a MMS conformance tool or syntax checker prior to binary encoding. Also text should be created using the US-ASCII character set and encoded using a UTF-8 capable editor or are saved as unformatted plain text. A programming editor is a personal choice and thousands of free and commercial programs are available to suit any needs.