



ALCATEL's ONE TOUCH™ 535



Multimedia Message Service (MMS) Reference Manual

SW/BH4R1/REFMAN/MMS - Document issue 1.0

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Document History

Version	Date	Author	Type of Modification
0.1	17/12/2002	J. DEVRIES	Creation of the draft
0.2	17/04/2003	J. DEVRIES	Corrected version after reviews
0.3	23/04/2003	J. DEVRIES	Corrected version after further comments received
	24/04/2003	J. DEVRIES	First official release

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WARNING:

The illustrations in this document are exemplary but non-contractual. They resemble as nearly as possible at the time the manual was written the display cards (and contents) actually embedded in the final ONE TOUCH™ 535 handset.

1 Introduction

This document defines the Multimedia Messaging Service (MMS) implementation embedded in Alcatel's ONE TOUCH™ 535 handsets. Intended for mobile telecommunications operators and value-added service providers (VASPs), it includes presentations of the MMS MMI, technical discussions of the applications modules that comprise the MMS Suite, a look at complementary tools embarked in the handset and information on the user agent profile (UA Profile) and supported formats.

The display, choice and data-entry "cards" (i.e.: screens) used to illustrate this manual are not contractual but do represent the actual operating features of the handset.

1.1 *About MMS*

The Multimedia Messaging Service enables mobile communications equipment (ME) end users, announcers, operators and other users of the mobile telecommunications infrastructure—as well as users of the Internet/World Wide Web infrastructure—to produce and send multimedia messages. MMS messages can include still or animated image components, sound components and text components integrated into unitary, transmissible, multipart message files.

1.1.1 **Generating/Enhancing Revenue from MMS**

The end user's main motive for MMS use is person-to-person(s) personal/professional use. In that case the operator must finance their participation in MMS messaging by invoicing peer-to-peer use.

1.1.2 **Convergent Technologies in MMS**

MMS draws from and improves on its SMS and EMS ancestors.

MMS messages originating from or downloaded to ME handsets always go through the Wireless Applications Protocol (W@P) communications stack. The W@P stack's structure is analogous to—and provides access to—the Internet's TCP-IP communications stack. MMS programs interact with end users in the same high-level applications layer of that stack as do W@P browsers: the Wireless Applications Environment (WAE).

Since both the MMS and the browser are WAE applications, they share certain characteristics and certain handset resources. Among the latter are:

- MMS and W@P browser connection profiles, similarly allotted (some profiles are operator-customised while others may be left free for end user configuring);
- general and specific CPI definitions, in one comprehensive Resource Description Framework (RDF) XML document;

MMS messages sent from the ONE TOUCH™ 535 are receivable by other W@P-enabled mobile handset(s) with embedded MMS applications, and vice versa. MMS messages can also descend to the Internet Protocol (IP) network and link layers and be accessible to connected data terminal equipment (DTE) with appropriate E-mail or MMS reception programs installed, such as PC's or certain PIM's.

Alternatively, MMS messages can be composed and sent to the ONE TOUCH™ 535 using MMS creation-enabling programs installed on internet-connected equipment, such as PC's

and PIM's. In any case, an E-mail program can respond to a received MMS with an SMS message. E-mail reception of MMS messages is as yet imperfect, but improving.

MMS-broker Internet websites exist and are being created. Most of them are growing out of the existing SMS- and EMS-broker sites. Those sites are VASP's that, for a fee, propose content and facilitate message creation/despatch/downloading.

1.1.3 MMS Transmission Basics

The multipart file that contains an MMS message's diverse image, audio, text and applications parts is encapsulated as it descends the Mobile Equipment's (ME's) W@P protocol stack to the wireless link level and is sent.

Intermediary message processing is performed by an MMS Server/MMS Relay "Store and Forward System" (SFS) entity known as an MMS centre, or MMSC. The MMSC determines whether the message's designated recipient is another MMS-enabled ME or an Internet user. It does so by consulting and updating a routing registry called the Home Location Register (HLR)/DNS.

The appropriate radiotransmission of the message to another handset then takes place, or the message may be transferred to the TCP/IP "wireline" communications stack. During the transmission and delivery process, one server in the process may consult the receiving handset's UA Profile and reformat the original message for optimal playback by the recipient.

A lot of work has already been done to develop the CCPP vocabulary and adapt it to XML requirements, but this metadata solution remains under-exploited by operators and VASP's alike. Demand will grow as MMS messaging, WAP sessioning (downloads!), over-the-air provisioning (OTAP) and push broadcasts grow in popularity. Commercial players in mobile telecoms have an interest in developing their RDF toolkit now.

More information on RDF documents is presented in chapter 9, *UA Profile MMS Aspects*.

1.2 Prerequisites

Full understanding of this document requires some knowledge of the standards MMS applications need to meet, presented in chapter 2, *References*. A general knowledge of the compression and formatting used to create and encapsulate audio, graphics and text files is also assumed.

1.3 Document Organisation

This document is organised as follows:

- | | |
|------------|---|
| Chapter 1: | Introduction. Identifies the scope of the document and tells how it is organised. Provides an overview of MMS macro and micro architectures (message structure, radio transmission particulars, content types supported, features list for this handset). |
| Chapter 2: | References. Lists reference documents and presents a brief glossary of the terms, initials, abbreviations and acronyms used. |
| Chapter 3: | MMS Modules. This chapter provides an overview of the MMS Applications Suite's distributed existence among four different functional modules. It is illustrated with diagrams and graphics from the MMI. |

The four chapters following this general presentation each explore one of the modules in greater detail. Further presentations of the end user MMI accompany technical information.

Chapter 4:	Close-up on the Unified Mail Box (UMB) Message Manager. Tells how MMS messages are placed in and removed from the handset's UMB (shared with other embedded recording/messaging devices). Presents the characteristics and capabilities of the handset's UMB, where MMS is concerned.
Chapter 5:	Close-up on the MMS Viewer. Describes use of the message viewer. Presents the characteristics and capabilities of the handset, where the viewer is concerned. This section provides details on the various image, audio, text and application formats the handset supports and/or interprets.
Chapter 6:	Close-up on MMS Composer. Tells how the end user composes a multimedia message and presents the characteristics and capabilities of the handset where message composition is concerned.
Chapter 7:	Close-up on the MMS Settings menu. Presents operator customisation possibilities and tells how the end user may set her or his personal MMS parameters. Presents the characteristics and capabilities of MMS parametering.
Chapter 8:	MMS Complements and Tools. Discusses those embarked applications that the MMS Suite makes ancillary use of.
Chapter 9:	UA Profile MMS Aspects. Presents the UA Profile generally and details the RDF XML namespace schema component that concerns MMS directly.
Chapter 10:	Appendices, including a standards conformance statement.

1.4 ***MMS Features List***

The following table provides a bird's-eye view of the features and constraints inherent in Alcatel's MMS implementation in the ONE TOUCH™ 535.

MMS Capability Category	Specific Capability	Supported
Message management	Message sending	YES
	Message retrieval	YES
	Handling of incoming delivery reports	YES
	Handling of incoming read-reply reports	NO
	Rejection of read-reply report generation	NO
	Rejection of delivery report generation	NO
	Message archive	YES
	Unified mail box	YES
	Persistent storage	NO
	Management of read-reply report specific PDU	NO
	Transport via WSP	YES
	Transport via HTTP	NO
	Message Distribution Indicator	NO
	Object Distribution Indicator (Ericsson)	NO

MMS Capability Category	Specific Capability	Supported
Mailbox	User Prompt Indicator (Ericsson)	NO
	Management of user personal folders	NO
	Reply by MMS to originator	YES
	Reply by MMS to all	YES
	Reply by SMS/EMS to originator	YES
	Reply by SMS/EMS to all	YES
	Forward message by MMS	YES
	Forward from notification by MMS	NO
	Sorting by date	YES
	Sorting by originator	NO
	Sorting by message size	NO
MMS Message Composition	Inline display of message size	YES
	Display of message size before sending	YES
	Save message	YES
	Archive message	YES
	Edition of non-native messages	NO
	Request for delivery report	YES
	Request for read-reply report	NO
	Reply charging parameters	NO
	Set message priority	NO
	Set inter-slide timing	YES
	Set intra-slide timing	NO
	Earliest delivery time	NO
	Sender visibility	NO
	Multiple slide	YES
	Bookmark insertion	NO
	Multiple recipients	YES
Message size	Maximum message size	50 Kbytes
Message viewing	Bookmark extraction	NO
	Browsing from message viewing	YES
	Phone features (call, save phone number)	YES
Message retrieval	Immediate retrieval	YES
	Deferred retrieval	YES
	Fallback deferred retrieval when roaming	YES
Message sending	Synchronous sending	NO
	Asynchronous sending	YES

MMS Capability Category	Specific Capability	Supported
	Send from Camera	YES
	Send from Phone Book	YES
	Send from Browser (mailto:)	NO
	Send from Album	YES
MMS settings	MMSC address	YES
	WAP profile	20 (up to 4 available for OTAP)
	Request for delivery report	YES
	Request for read-reply report	NO
	Rejection of delivery report generation	NO
	Rejection of read-reply report generation	NO
	Auto-archive of outgoing messages	YES
	Default inter-slide timing	YES
	Message priority	NO
	Configuration for immediate/deferred retriev.	YES
	Sender visibility	NO
	Earliest delivery time	NO
	Management of settings in USIM/SIM	NO
	OTA provisioning Openwave	YES
	OTA provisioning (Nokia/Ericsson)	NO
	OTA provisioning (WAP Forum)	NO
MMS Message Notification	Management of notifications in USIM	NO
	Basic parameters (To, Cc, Class, etc.)	YES
	Element descriptor	NO
	Message distribution indicator	NO
	Priority	NO
Objects downloadable via MMS	Images	BMP
		JPEG
		GIF
		PNG
	Animated images	GIF
	Audio	iMelody
		MIDI
SP-MIDI		
AMR IETF		
Object sendable via MMS	Images	BMP

MMS Capability Category	Specific Capability	Supported
		JPEG
		GIF
		PNG
	Animated images	GIF
		JPA converted to MMS slides
Audio		iMelody
		MIDI
		SP-MIDI
		AMR IETF
		Programmable melody converted into MIDI

A further functional specification list containing precise information about the Alcatel implementation's compliance with standard requirements is provided as an Appendix in Chapter 10, *Appendices*. It covers:

- client transactions and wireless protocols;
- MMS encapsulation with regard to OMA requirements;
- MMI characteristics;
- encoding;
- presentation;
- memory and storage;
- interactions between MMS and other services.

1.5 **Standards Compliance**

The MMS applications suite embedded in Alcatel's ONE TOUCH™ 535 handset is fully compliant with required 3GPP and OMA (W@P Forum) standards. For more information, see the relevant section in chapter 2, *References*, and in *Appendix A*.

1.6 **Customisation Options**

The main set of operator customisation options is presented in section 7.2.2, *Profiles and Modes: Alcatel By-defaults and Operator Customisables*. Other operator customisation possibilities, as well as customisation options made available or that can be made available to end users are dealt with punctually throughout the manual.

2 References and Terminology

This chapter presents the references of documents consulted during the writing of the manual. It also provides a terminology guide, composed of a short glossary of terms and an explanatory list of abbreviations, acronyms and initials that recur in the text.

2.1 External Documents

External documents used include Third Generation Partnership Project (3GPP) standards documents, Open Mobile Alliance (W@P Forum) standards documents, proprietary documents produced by developers whose software is included in Alcatel's MMS offering and other external documentation on MMS.

2.1.1 3GPP Standards Documents

Document Title	Reference	Version
MMS Stage 1, Release 99	3GPP TS 22.140	
MMS Stage 2, Release 99	3GPP TS 23.140	V5.5.0

2.1.2 OMA (W@P Forum) Standards Documents

Document Title	Reference	Version
MMS Architecture Overview	W@P_205 (OMA [W@P Forum])	1.0
MMS Client Transactions	W@P_206 (OMA [W@P Forum])	1.0
MMS Conformance	MMS_Conformance (MMS Interoperability Group)	V2.0
MMS Encapsulation	W@P_209 (OMA [W@P Forum])	1.0

2.2 Internal Documents

Internally-produced Alcatel technical documents dealing with the ONE TOUCH™ 535 implementations of the following components and actors were also consulted: MMS; Unified Mail Box (UMB); WAP connection profiles; Transport Adapter; Camera Manager; Multi-application; W@P Download; OEM Specification; Features List; Standards Compliance.

2.3 Terminology

A short glossary of definitions, followed by an explanatory list of abbreviations, acronyms and initials that recur in the manual are presented below.

2.3.1 Definitions

Term	Means
Mobile-originated (MO)	Message sent from the handset, whether native or non-native
Mobile-terminated (MT)	Message received by the handset
Native message	A message composed with the product (i.e., handset) it is present in.
Non-native message	A message present in a product, but not created by it.
System	The set of software modules that provide MMS capability and features. Other software modules that interact with the "system" without being part of it are called actors.

2.3.2 Abbreviations, Acronyms and Initials

Term	Means
AMR	Adaptive Multi Rate (audio object file format)
APN	Access Point Name
CCITT	Consultative Committee on International Telephone and Telegraph
CC/PP, CCP	Composite Capabilities / Preference Profiles
CHAP	Challenge-Handshake Protocol
CPI	Capability and Performance Information
CSD	Circuit-switched Data (GSM connection used for data transmission/reception)
EHF	Embedded Hands Free
EMS	Enhanced Message Service
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
IP	Internet Protocol
ISDN	Integrated Services Digital Network
LS	Loud Speaker
ME	Mobile (telecommunications) Equipment
MMI	Man-Machine Interface
MMS	Multimedia Messaging Service
MO	Mobile-originated (see definition in glossary)
MSISDN	Mobile Station ISDN number
MT	Mobile-terminated (see definition in glossary)
MTC	Mobile Terminated Call
MYM	Melody Manager
OTAP	Over the Air Provisioning

Term	Means
PAP	Password Access Protocol
PDA	Personal Data Assistant (see also: PIM)
PDP	Packet Data Protocol
PIM	Personal Information Manager (see also: PDA)
PPG	Push Proxy Gateway
PPP	Point to Point Protocol
RAS	Remote Access Server
RDF	Resource Description Framework
RSA	Rivest-Shamir-Adleman
SBV	Speaker Buzzer Vibrator (hardware component)
SHA-1	Secure Hash Algorithm
SIM	Subscriber Identity Module
SMIL	Synchronised Multimedia Integration Language
SMS	Short Message Service
SMSC	SMS Center
TCP	Transmission Control Protocol
TTL	Time To Live
UI	User Interface
UMB	Unified Mail Box
UA Profile, UAProf	User Agent Profile
UP	Unwired Planet
VFM	Voice Function Manager
W3C	World Wide Web Consortium
W@P	Wireless Application Protocol
WGP	Wireless Gateway Proxy
WSP	Wireless Session Protocol
XML	Extensible Markup Language

3 MMS Applications Suite

The definition of MMS specifications has required a tremendous workload from several standardisation development organisations. Mainly, the work is being carried out within the framework of the 3GPP and W@P Forum standardisation processes.

The 3GPP deals with high-level service requirements, architectural aspects of MMS, message structure and content formats. It also defines the technical realisations for selected interfaces allowing interactions between communicating network elements.

The W@P Forum deals with the technical realisations of the interface bridging the mobile device and the network on the basis of W@P and Internet transport protocols. Consequently, specifications defining the service are scattered over a high number of documents maintained by different organisations.

So the work of developers is quite challenging. At the time of writing this article, the 3GPP has provided three releases of the service definition and the W@P Forum has finished the completion of two of them. The first technical realisation is based on W@P transport protocols and is named MMS 1.0. The second technical realisation is based on either W@P or Internet transport protocols and is named MMS 1.1.

The ONE TOUCH™ 535 is fully compliant with MMS 1.0. Via its interface, whose general characteristics are described below, it offers an efficient and attractive means for producing, sending, receiving, viewing and storing MMS messages.

3.1 *Man Machine Interface (MMI) Generalities*

The MMI of the ONE TOUCH™ 535 consists of manipulable physical elements on the handset—buttons and the alphanumeric keypad—and of screen displays. Displayed screens are called "cards". Generally speaking, there are three types of card: Display (provides information and contains no data-entry fields); Choice (an item may be selected and confirmed in a list of such items); and Entry-field (while this card is displayed, the handset is switched to a variable "Edit" mode and specific data can be keyed in).

Logically, the deck of cards belonging to each of the embedded applications or services shown in the handset's main menu is organised in a tree structure. The end user navigates through that tree structure, reading display cards, making choices in contextual popup menu and options lists and inputting data as desired or required.

3.1.1 **Keypad Distribution**

In addition to the CCITT keypad, the Mobile Equipment (ME) includes dedicated keys and two "soft keys"—with their hardware counterparts—that open contextual (options) menus. The availability of soft keys is signalled by graphical icons displayed beneath choice and

data-entry cards. There is also a navigation/validation  key, designated as such in this document and also called the *Drive Key*™. See succeeding chapters for more details concerning the interfaces that serve the MMS applications suite's programs and tools.

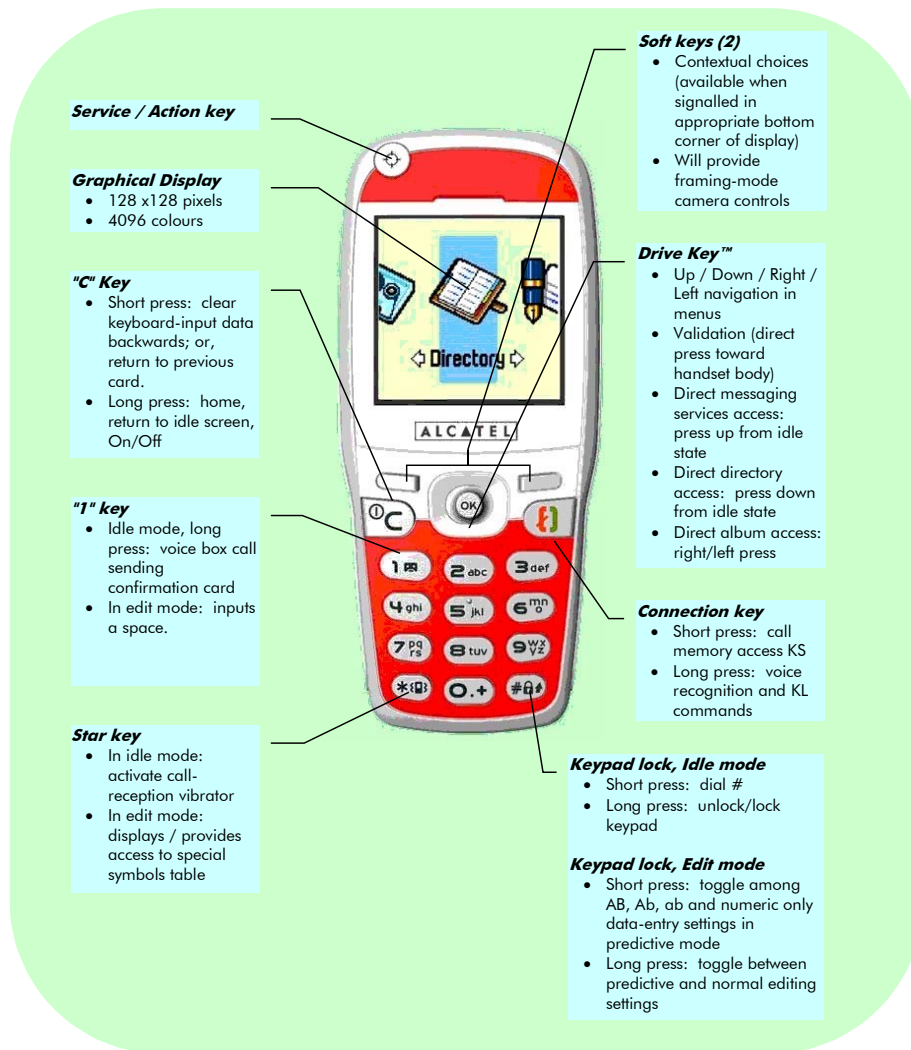



Figure 1: The dedicated keys of the MMI

3.1.2 Navigation Behaviour

General and messaging service-specific MMI behaviours include the following.

3.1.2.1 Navigation, or "Drive" (OK) Key

The Drive key, or OK  button enables the end-user to accomplish five different actions when working with the messaging applications suite:

Upward press	=	Move upward through items listed in the card.
Downward press	=	Move downward through items listed in the card.
Leftward press	=	Move leftward to another card. This may be a messaging service submenu or a slide in a message.
Rightward press	=	Move rightward to another card. This may be a messaging service submenu or a slide in a message.
OK	=	(direct press toward back of handset) Same as pressing the right-hand correspondent of the right-

hand softkey. Confirms the selected choice or action.

3.1.2.2 Scroll Bars

Scroll bars and their cursor buttons appear alongside choice card lists that contain more items than can be displayed at once. According to the size they assume, these buttons indicate the length of the list involved. A long button signals a fairly short list. A short button signals a longer list. That is because the shorter button will "take longer" to reach the bottom of the list as scrolling occurs. No scroll bar button means the list is fully displayed on one card.

Scroll bars may appear both in basic choice cards and in contextual "softkey" popup menus displayed inside them, when the "options" softkey is active and the end user selects it.

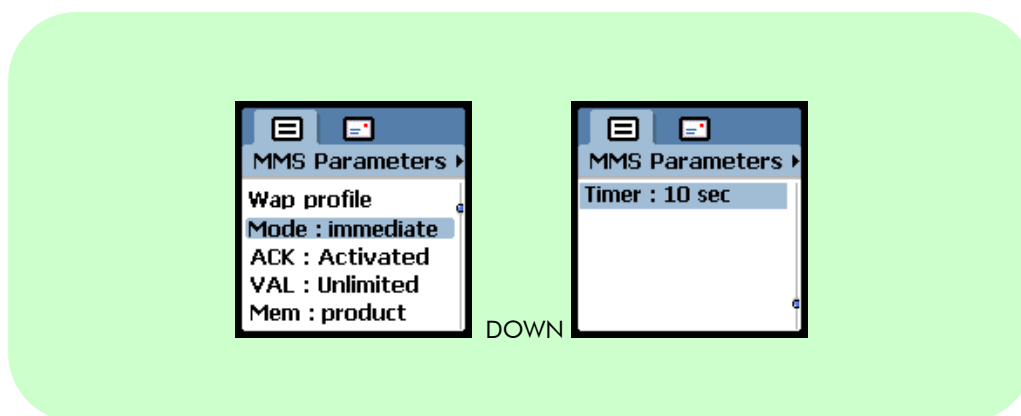


Figure 2: Scroll bar button signals selected item's position in list

3.1.3 Display Resolution and Fonts

Resizable fonts are used. The by-default font size allow the display of a title + five lines of text (or seven lines of text and no title). A smaller-sized font can be displayed by zooming out, which is done by selecting a ZOOM item in a menu (the My Setup menu, e.g.). In Zoom Out mode, a title + seven lines of text (or eight lines of text and no title) can be displayed.

The ONE TOUCH™ 535 is "complex-enabled", that is, it can display complex characters such as Chinese ideograms: it is therefore possible to browse Chinese W@P sites. When browsing in Chinese or in other complex languages, display characteristics are the same as those available for standard Western characters in zoom mode.

The fonts being proportional, the number of characters that can be displayed on a single line varies approximately from 13 to 40 (in the normal display mode).

Standard (Zoom in) display	L x 14 (Latin).
Zoom out display	L x 10 (Latin).
Complex mode	L x 14 (Complex).
Selected menu items	Standard (Zoom in) display: reverse Lx14. Zoom out display: reverse Lx10.
Precision	Standard (Zoom in) display: 1 pixel between characters, 3 pixels between lines. Zoom out and Complex display: 1 pixel between characters, 4 pixels between lines.

LCD characteristics:

LCD display resolution: 128 x 128 pixels

Colour display 4096 colours

Total MMS message display capability at a time is approximately 121x121 pixels, since the MMS message Viewer imposes a seven (7) pixel-high soft keys display zone at the bottom of the screen and the scroll bar on the side also takes up some width. Note that larger images can be "contained" by the viewer (640 width x 480 height). In that case, full vertical viewing is possible via Drive key scrolling. Viewing an image of greater than 121 pixel width from the centre is optimisable by handset software-driven image resizing (which might also resize vertical pixellisation). Otherwise, some of a too-wide image is effectively cropped.

3.2 Entry-level Messaging Service MMI

The basic appearance of messaging services in the ONE TOUCH™ 535 handset, and how to run one or another of the applications concerned, are described below.

3.2.1 Look of Messaging Services Cards

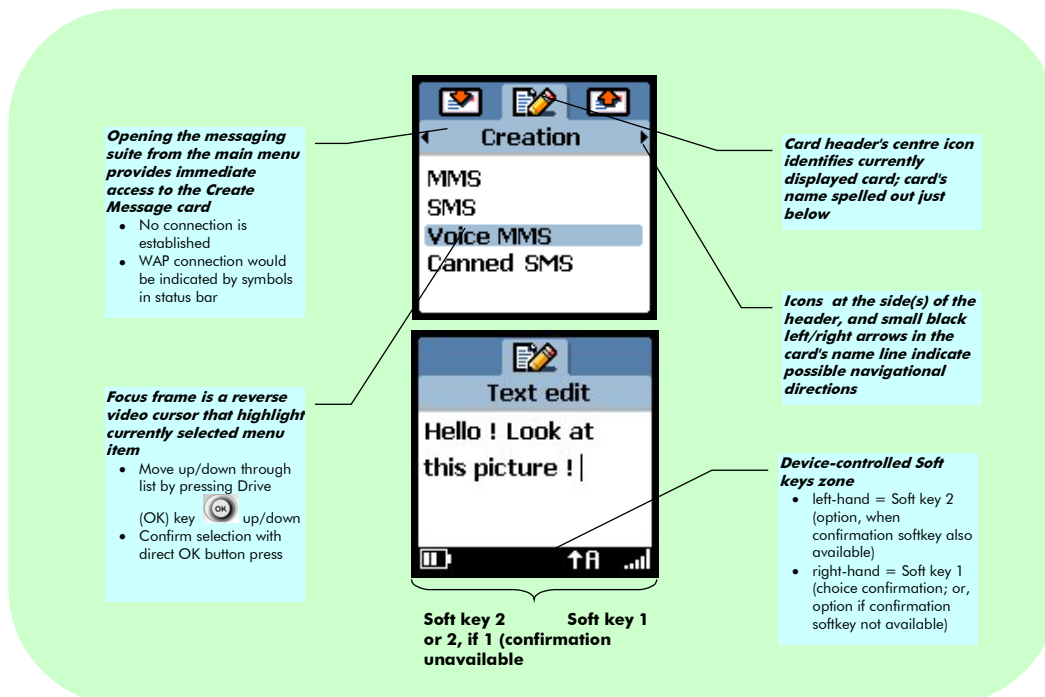


Figure 4: Appearance of Create Message/Edit Message cards

3.2.2 Launch Messaging Applications Suite

The ways the W@P browser can be opened are described below. The menu item, or icon that triggers loading and running of the messaging services is placed at the root level of the menu tree. Selecting and confirming it opens the Create Message choice card directly.




The root-level palette of menu items is presented in a colourful, graphics-oriented display. Each item is represented by one large icon that, when selected and confirmed, triggers display of an explanatory text near the bottom of the screen. A double-headed lateral arrow indicates that navigation from item to item is accomplished via right and/or left drive key pushes.

The user can reach the Messages feature from:

- the root-level menu (lateral presses to go from item to item until Messages item reached, confirm with OK)
- the idle screen (shortcut = upward press on Drive key). Menu opens directly to Messages item;
- the alert window when incoming message is notified (shortcut = upward press on Drive key).
- the keypad (if the end-user has programmed Messages to correspond with a given key)
- voice command (if the end-user has programmed recorded voice command to correspond with one key)
- service key (if the end user so programs that key; factory default programming from idle mode = Games);
- from Events card, when MMS notification (for example) is selected;
- during a communications session, via the Messages icon.

If the end user has no unread messages in the Inbox, going to the Messages feature displays the Creation card by default. If the end user enters the Messages feature in response to message notification, the Inbox card is displayed.

In any case, if any one of the first-level Messages cards is displayed, access to all the others is only a drive key "press" or two away. Gain access by navigating laterally through them or, in one case, by making a subsequent selection in a menu choice card (to open the Viewer). The other submenu cards of the messaging suite are selectable from the displayed card via

lateral (left/right) pushes on the Drive  key.

Drive key directional possibilities are indicated by small left/right arrow symbols located at the side of the screen just below its header. They are, starting from the Create Message card:

- (left push) Inbox; or
- (first right push) Outbox;
- (second right push) Setup.

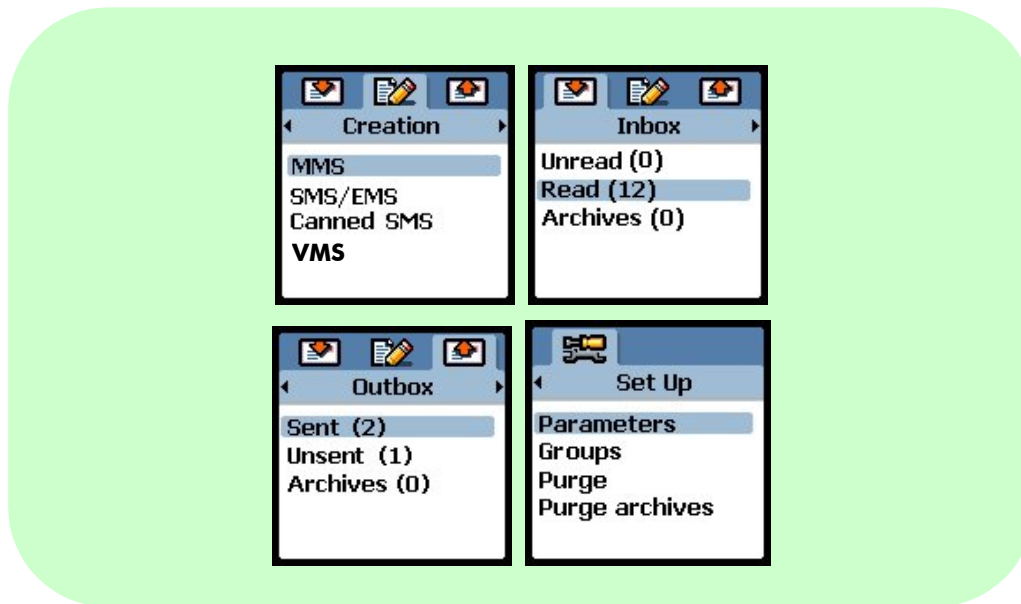


Figure 5: Lateral presses display successive choice cards

3.2.3 Launch Each Messaging Module

Contents and the basic ergonomic behaviour of the four first-level Messages choice cards are described below. Secondary access to the Viewer component and the Viewer component itself are also briefly described:

- **Creation.** MMS, SMS, Voice Message Service [Vox/MMS] and Canned SMS menu items are proposed in a choice card. Vox/MMS is a simplified MMS containing a voice message only. Selection and confirmation of the MMS or Vox/MMS item triggers the Composer application, which guides the end user through the message creation process. The Viewer can then be accessed from Create MMS message, for previewing purposes;
- **Unified Mailbox.** This is presented in the messaging context as two separate choice cards each of which has three menu items. Selecting and confirming one of those menu items opens its directory and shows the end user every document she or he has stored therein. Each listed document is accompanied by a special icon identifying the message as an MMS (including Vox/MMS) or SMS message. The choice cards are:
 - **Inbox.** Inbox proposes the menu items: Unread, Read and Archived;
 - **Outbox.** Outbox proposes the menu items: Unsent, Sent and Archived.

REMINDER: *MMS and Vox/MMS messages are stored or archived only in the handset's persistent memory, never in the SIM card.*

- **MMS Message Viewer.** The Viewer runs when:
 - any selected Unread, Read or Archived MMS or Vox/MMS message in the Inbox or the Outbox of the UMB is confirmed. It enables playback of the message;
 - the end user previews a new MMS message she or he has built/is building. MMS message viewing can either comply with the temporisation the message composer scheduled, or the person viewing can move manually back and forth through the slides);
- **Set Up.** Set Up is presented as a choice card that proposes the following menu items:

- Sending param.;
- Distribution list;
- Delete SIM msg.;
- Delete prod. msg.

WARNING: Only SMS/EMS messages can be stored in SIM memory, never MMS messages. Confirming Delete SIM msg. does not therefore delete any MMS messages.

MMS messages are stored in product memory only, never in SIM memory. SMS messages may be stored in either, according to the following rules: Unsent, Sent, Unread and Read SMS/EMS messages are stored in SIM memory. SMS/EMS messages moved to Archives in either the Inbox or the Outbox are stored in product memory.

Selecting and confirming Delete prod. msg. deletes any all MMS messages in both the Outbox and the Inbox. Any "archived" SMS/EMS messages are also deleted.

3.3 **MMS Modules and Tools Overview:**

The MMS Applications Suite embedded in the ONE TOUCH™ 535 uses four interactive software modules:

- Unified Mail Box (UMB);
- Message Viewer;
- Message Composer;
- MMS Settings.

The MMS suite developed by Alcatel uses both proprietary and purchased software.

IMPORTANT: the UMB serves as respository for all incoming/outgoing message types, including SMS, EMS and Vox/MMS as well as MMS.

3.3.1 **MMS Modules**

3.3.1.1 Unified Mail Box (UMB)

The UMB is a shared feature. It receives and stores all the types of message that the ONE TOUCH™ 535 is enabled to handle in its In- and Outboxes:

- MMS messages;
- Vox/MMS messages;
- SMS/EMS messages;
- SMS notification.

That means it is capable of receiving and storing, or of receiving, converting and storing MMS documents composed of the several different audio, video, text and "application" file types supported by the handset.

There are two ways the end user can manage MMS message reception:

- immediate MMS message reception;
- deferred MMS message reception.

Downloaded and consulted messages are automatically stored in the handset's persistent memory. The images and sounds it contains can then be removed, saved separately from the composed message as individual files and be reused elsewhere.

IMPORTANT: *MMS message decomposition is done via the MMS Viewer's contextual popup menu, described in section 5.1, Available MMS Viewer Behaviours.*

3.3.1.2 MMS Viewer

The MMS Viewer is an embedded application that plays back messages composed on the handset and externally composed MMS messages. The MMS viewer can be set either to observe the scheduling established by the message's composer, during playback, or so end user for can move manually through the message's slides. Message forwarding can also be requested from Preview Mode.

System states preview only: the MMS end user can request viewing/previewing of a message by selecting it in the UMB. If such a request is made, the system launches the Viewer for viewing/previewing. The end user can return to the UMB by explicitly quitting View Mode (Done soft key), to the Composer by quitting Preview mode (same). In this situation the system switches to "message qualification" mode wherein it queries the end user to obtain the list of recipients and the subject of the message. Upon successful message qualification the message is sent and the system returns to its initial mode (UMB).

3.3.1.2.1 Content Types Supported by MMS Application

The table below gives the full list of audio, image, text and application formats that the MMS suite supports and can interpret. These formats and information about them are made available to gateway and origin servers as metadata resource description framework (RDF XML document) instructions, that can be consulted and dynamically interpreted to ensure optimal data packaging/repackaging for successful playback.

Those RDF metadata instructions are available in a URL located on Alcatel's public UA Profile Respository server. The handset in effect informs the WAP gateway of that URL address and the gateway relays the information, in both MMS sessions and WAP browser sessions.

Content File Types Supported by MMS Applications Suite			
Audio File Formats	Image File Formats	Text File Formats	Application File Formats
audio/sp-midi (sp = scalable polyphony)	image/vnd.wap.wbmp	text/xhtmll	application/smil
audio/x-midi	image/jpeg	text/html	application/vnd.wap.multipart.mixed (can include SMIL)
audio/midi	image/gif (still and animated)	text/wml	application/vnd.wap.multipart.related (cannot include SMIL)
audio/amr	image/png	text/plain	
audio/x-amr	image/bmp		

Certain constraints apply to these content types. Alcatel currently supports a two-level tree structure for the playback of incoming (as well as for building outgoing) MMS messages. When the data object identified as an MMS message is WSP-decapsulated, it consists of an MMS message header attached to a set of multimedia data objects, which compose the MMS message body.

That set of body objects can be seen as a primary branch inside the message tree structure. There is currently no management of further branches, which means reassigning one of the multipart content types a second time would be futile. A multipart body object embedded inside a multipart MMS message will not be successfully interpreted and played back.

MMS Message Structure
(in high-level WAP Applications Environment [WAE],
following WSP decapsulation)

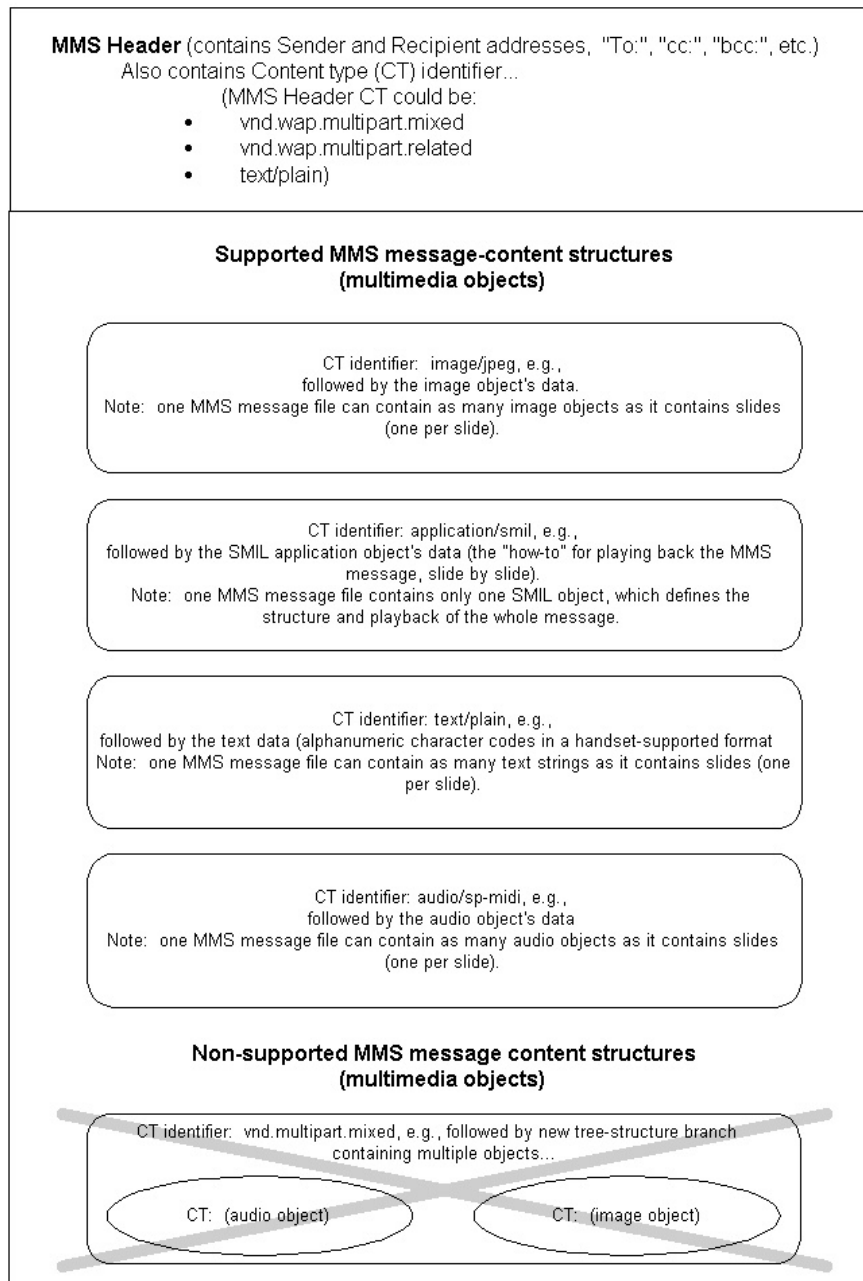


Figure 6: Supported MMS message structure

In addition to the content types supported, the MMS applications suite supports the following character sets:

- UTF-8;
- UTF-16;
- UTF-16BE;
- UTF-16LE;
- US-ASCII;
- UCS-2;
- ISO-8859-1.

Maximum incoming (MT) message size supported is 51,200 bytes. Maximum outgoing (MO) message size supported is 50 KB. Maximum image resolution supported is 640 x 480 pixels. Images exceeding screen size appear cropped as to horizontal width, but remain scrollable vertically so the whole height of the image is maintained.

The DTD that defines the MMSCharacteristics resource description framework (RDF) namespace schema can be consulted at:

<<http://www.wapform.org/profiles/MMS/ccppschem-20010111#MmsCharacteristics>>

3.3.1.3 MMS Composer

Multimedia messages are structured as "slideshows", as depicted in the figure below:

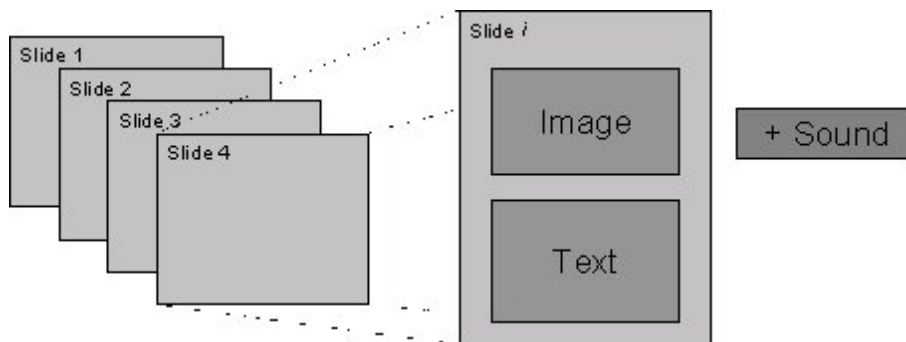


Figure 7: Sample slide layout

The ONE TOUCH™ 535 enables creation of multimedia messages comprising an unlimited number of slides, whose sizes are constrained only by the maximum 50 KB size and available flash memory capacity. Each slide may or may not contain a frame, an image, a text and/or a sound. If nothing else, each slide must contain at least one object (image or sound), or text to be valid.

IMPORTANT: *the Vox/MMS service is a simplified version of MMS, in which the "slide" contains only a recorded audio object file. Vox/MMS messages are limited to one slide only.*

All the slides from one message share an identical graphical layout. More than one layout are available, however.

The Openwave viewer enables consultation of both native and non-native MMS messages.

IMPORTANT: *already-built native MMS messages can be reedited. Non-native messages can not. However, their component objects (images and sounds, but not texts) can be peeled off, saved separately as individual files and reused elsewhere.*

3.3.1.4 MMS Settings

The MMS Settings component comprises end user-available customisation possibilities as well as a set of WAP connection profiles that can be customised by the operator, reserved for OTAP and made available for end user parametering.

3.3.2 MMS Architecture and Standards

3.3.2.1 MMS Implementation Via W@P

The Open Mobile Alliance (OMA), which includes the former WAP Forum has thus far published stable specifications for two technical realisations of the MM1 interface, for different network configurations of the WAP framework. The specification of a third technical realisation is under development in the scope of the OMA standardisation process.

The two sets of published specifications are named MMS 1.0 and MMS 1.1 and correspond with two different levels of features. MMS 1.0 features represent a subset of features supported in MMS 1.1. MMS 1.0 maps MMS features in a WAP 1.x network configuration. In addition, the WAP 2.0 network configurations are also supported in MMS 1.1.

The advantage of using WAP as an enabler for the realisation of MMS resides in the fact that WAP hides the specifics of underlying transport technologies from MMS-based applications. Transport technologies that can be used in the WAP environment include SMS, GSM data, GPRS, EDGE and W-CDMA. Furthermore, WAP has become widely adopted by major network operators and therefore ensures interoperability between different MMS solutions, at the transport level, and facilitates the rapid deployment of MMS solutions. Note that GPRS is the targeted transport technology for the deployment of the first MMS solutions on the market.

With WAP MMS 1.0, the configuration of elements interacting over the MM1 interface is based on recommendations of the WAP 1.x specification suite. In this configuration, a network element, called the WAP Gateway, bridges the mobile network and the Internet/Intranet domain. In this configuration, the network stack is composed of the following layers, from high-level to low-level:

- The Wireless Application Environment (WAE) is a general-purpose application environment where operators and service providers can build applications for a wide variety of wireless platforms.
- The Wireless Session Protocol (WSP) provides features also available in HTTP (requests and corresponding responses). Additionally, WSP supports long-lived sessions and the possibility to suspend and resume previously established sessions. WSP requests and corresponding responses are binary encoded for transport efficiency.
- The Wireless Transaction Protocol (WTP) is a lightweight transaction-oriented protocol. WTP improves the reliability over underlying datagram services by ensuring the acknowledgement and retransmission of datagrams. WTP has no explicit connection set-up or connection release.
- Wireless Transport Layer Security (WTLS) provides privacy, data integrity and authentication between applications communicating with the WAP technology. This includes the support of a secure transport service. WTLS provides operations for the establishment and the release of secure connections.

- The Wireless Data Protocol (WDP) is a general datagram service based on underlying low-level bearers. WDP offers a level of service equivalent to the one offered by the Internet User Datagram Protocol (UDP).
- At the bearer-level, the connection may be a circuit-switched connection (as found in GSM networks) or a packet-switched connection (as found in GPRS and UMTS networks). Alternatively, the transport of data may be performed with the Short Message Service.

Interactions between the MMS user agent and the MMS Centre (MMSC) are carried out over a wireless section and a wired section. The transport of data over the wired section, between the MMSC and the WAP gateway, is performed via the HTTP protocol. On the wireless section, between the MMS user agent and the WAP gateway, the transport is performed over the WSP protocol. In this configuration, the WAP gateway transcodes HTTP requests/responses into equivalent WSP requests/responses, and vice-versa. The objective of this network configuration is to optimise the transport of data over the wireless section by transcoding requests/responses into a compact binary format and by performing other transport-level optimisations.

At the low level of the protocol stack, several technologies can be used for the transport of data over the wireless section. The choice of transport technology depends on the user subscription, terminal capabilities/state and network conditions.

3.3.2.2 Multimedia Message Structure

A scene description (also known as a message presentation), contained in a multimedia message, organises the way elements should appear in the different regions of a graphical layout and defines how elements should be rendered over a common timeline. A scene description allows message objects (sounds, images, etc.) to be played back by the receiving device in a meaningful order. The scene description of a multimedia message can be adapted to the receiving device capabilities by means of content adaptation.

The 3GPP recommends the use of three formats/languages for presentation/scene description: WML, SMIL and XHTML. Note, however, that SMIL is becoming the de-facto format for scene descriptions in MMS. Its support is mandatory for release-5 devices capable of accepting scene descriptions.

The Synchronised Multimedia Integration Language (SMIL), pronounced 'smile', is an XML-based language published by the World Wide Web Consortium (W3C). A major version of this language, SMIL 2.0, is organised around a set of modules defining the semantics and syntax of multimedia presentations (for instance, modules are available for the timing and synchronisation, layout and animation, etc.).

SMIL is not a codec nor a media format but rather a technology that allows media integration. With SMIL, the rendering of a set of media objects can be synchronised over time and organised dynamically in a predefined graphical layout to form a complete multimedia presentation.

SMIL is already supported by a number of commercial tools available for personal computers including RealPlayer G2, Quicktime 4.1 and Internet Explorer (from version 5.5). Due to small device limitations, a subset of SMIL 2.0 features has been identified by the W3C for being supported by devices such as PDAs. This subset, called SMIL basic profile, allows mobile devices to implement some of the most useful SMIL features without having to support the whole set of SMIL2.0 features.

Unfortunately, the SMIL basic profile appeared to be still difficult to implement in the first MMS-capable mobile devices. To cope with this difficulty, a group of manufacturers designed an even more limited SMIL profile, known as MMS SMIL, to be supported by early MMS-capable devices. In the meantime, the 3GPP is producing specifications for an extended SMIL profile, known as the packet-switched streaming SMIL profile (PSS SMIL profile), that is to become the future standard profile for all MMS-capable devices. MMS SMIL is an interim de-facto profile until devices can efficiently support the PSS SMIL profile.

The PSS SMIL profile is still a subset of SMIL 2.0 features and a superset of SMIL basic profile and is published in. With existing implementations, message sizes can range from a few bytes to a maximum of 100 Kbytes. However, in order to guarantee mobile device interoperability between mobile devices, a maximum message size of 30 Kbytes is often recommended.

REMINDER: *maximum message size for a ONE TOUCH™ 535 MMS message is 51,200 bytes.*

3.3.3 Ancillary Tools

3.3.3.1 WAP Browser

The WAP browser notably enables navigation through content provider sites and facilitates downloading of data objects that can be stored in the handset's album. Those data objects can later be retrieved and included in MMS messages. In that sense, the WAP browser may be considered as a tool serving the MMS suite.

The WAP Browser is an application that runs in the same high level WAE as the MMS applications suite. Its CCPP are likewise defined in the RDF document publicly available on the Alcatel UA Profile Repository server. Generally speaking, the WAP browser supports the same or a very similar set of content types as the MMS suite.

A full **WAP Browser Reference Manual** exists in this collection of reference manuals for the ONE TOUCH™ 535.

3.3.3.2 Embedded Ancillary Tools

Some embedded applications enhance the capabilities of the MMS applications suite. The most notable of these is the Album, in which the various objects received in an MMS message can be separately stored. The Album likewise serves as an efficiently organised repository of multimedia objects from which to choose "ingredients" during native MMS message creation.

3.3.3.3 External Ancillary Tools

As crossover increasingly blurs the frontier between the world of wireless mobile communications and the world of the "wireline" Internet, SMS brokers on the WWW will inevitably tend to become MMS brokers as well. There are already sites where:

- MMS messages can be composed from a palette of ingredients;
- canned MMS message templates are proposed;
- downloadable MMS-composition programs for local installation (on a PC, for example) are proposed.

4 Unified Mail Box (Closeup)

The Unified Mail Box (UMB) implemented in the ONE TOUCH™ 535 handset simplifies message storage and handling for the end user by centralising processing of every type of message supported:

- Short Message Service (SMS);
- Enhanced Messaging Service (SMS + sound + icon), part and parcel of the SMS menu item;

IMPORTANT: *the EMS is not differentiated from SMS in the menu, since the enhancements it entails are nonetheless contained in an SMS framework. The menu item providing access to both is "Text/SMS"*

- Multimedia Messaging Service (MMS);
- Voice Messaging Service (Vox/MMS)

This manual deals with MMS and Vox/MMS.

The end user gains access to the UMB and its features via two distinct choice cards, the Inbox and the Outbox.



4.1 Gain Access to the UMB

Access to the UMB is available via several paths. Remember that for the end user the UMB is conceptually split into two entities, the Inbox and the Outbox.

From selections inside either the In- or Outbox, subsequent passages to either the MMS message composer or the MMS viewer become possible, in circumstances detailed below, in this chapter. For viewer and composer use, consult chapters 5, *MMS Viewer (Closeup)* and 6, *MMS Composer (Closeup)* below.

4.1.1 Go to UMB Inbox

Access to the UMB Inbox is available via the following routes:

- from the Idle screen (UPWARD press on drive  key provides a "shortcut" to the Inbox, from the alert window, upon new message reception);
- from the Idle screen via drive key  confirmation press, when either deferred or automatic MMS message reception are signalled. Deferred and immediate MMS reception are end user-customised choices;
- from the main menu, by navigating to the appropriate card in the Messages deck;
- via the keypad (if that service is programmed on a key by the user);
- via a voice command (if that service is programmed on a key by the user);
- via the service key (if the service is programmed on a key by the user);
- from the Events choice card display

- during a communications session, in response to the icon "messages"

The UMB may also be opened when other MMS suite components are being used (composer, viewer).

4.1.2 Go to UMB Outbox

Access to the UMB Outbox is available via the following routes:

- from the main menu, by navigating to the appropriate card in the Messages deck;
- via the keypad (if that service is programmed on a key by the user);
- via a voice command (if that service is programmed on a key by the user);
- via the service key (if the service is programmed on a key by the user);

4.2 UMB Inbox Behaviour and Use

When messages are incoming, the end user is notified by a ringtone and display of a message overlaying the idle screen, "Read your new message(s)?" . Two message-reception strategies are available :

- immediate reception;
- deferred reception (manual reception or rejection of a message, after consulting its identifying information).

The end user decides which strategy to employ, by setting parameters in the MMS Settings menu.

Immediate reception downloads both MMS message types transparently. standard MMS and Vox/MMS. Their type is identified in the resulting Inbox list. SMS and EMS message reception cannot be deferred. Deferred MMS reception means messages sent to the handset are stored on the WAP gateway server until the end user decides whether to download or delete them.

Most often, the operator opts for immediate reception as the by-default setting. However, let us look briefly at the deferred message reception process.

4.2.1 Deferred Message Reception Process

Assuming the handset is in idle mode, there is a ringtone, a special icon is displayed and the idle screen is overlayed with a message of the type, "Read your new message(s)?" The end user can either:

- return to the idle screen or perform any other action and consult the message(s) later; or
- consult them as soon as notification is remarked.

The icon remains displayed until consultation occurs. The cards below show how deferred message reception takes place.

WARNING:

MMS messages can be significantly larger than SMS text messages. Alcatel's MMS message can reach a current maximum of 50 KB. That is why they are uploaded asynchronously and their retrieval is deferrable. Operators need to make sure their MMSC's (or those they use) adopt MMS message storage policies that avoid any possibility of message loss by untimely deletion.



Figure 8: Deferred message reception process

IMPORTANT: the icon shown in the second card (📧, for example) indicates message notification. Upon message retrieval the normal MMS message icon is displayed instead.

Once the message is notified, a first press on the the drive key indicates status, provides a time stamp and identifies the sender. A second press displays a contextual menu offering the following choices.

4.2.1.1 Contextual Popup Menu for Deferred MMS Message Reception

Deferred-Reception Popup Menu Item	Action When Selected and Confirmed
Retrieve	Downloads and plays back the MMS content.
Delete	Deletes the MMS message.
More info	Provides details about message contents (size, class ...; see details beneath this table).
Reply	Pre-addresses a response to the sender's phone number or E-mail address. The end user must select how to respond... <ul style="list-style-type: none"> • SMS/EMS • MMS • Vox/MMS ...then compose and send a message.
Reply to all	Pre-addresses a response to every phone number and/or E-mail address in the original MMS message's recipient list. The user then performs the same steps as described for Reply above. <p>Note: this item is displayed only if there are more than one recipient in the list.</p>
Save num or E-mail	Saves the sender's phone number or E-mail address to the handset's address book.
Back	Closes the deferred MMS message reception popup.
Exit	Closes the application and returns to the idle screen

This exists only for deferred retrieval of MMS messages. Vox/MMS is a subset of MMS, so Vox/MMS messages also are deferred if the handset is so set. SMS and EMS messages do not share the same popup contextual menu as MMS messages, but access to the different messaging services occurs seamlessly when the end user decides to reply.

An animated bar graph in the "Retrieving message..." display card indicates downloading progress.

WARNING: *if a phone call arrives and is accepted during MMS message retrieval/reception, it interrupts and aborts message downloading by their reception (presumably, these are MMSC servers) should therefore maintain them until full reception is acknowledged.*

MMS message senders may request a message delivery status report. If so, and should the recipient choose simply to delete MMS notification without downloading the message, the sender will receive a "rejected" status report.

4.2.1.2 Supplementary Information in More info Item

Upon selection and confirmation of the More info item, the following details are provided in a display card:

- the MMS icon;
- Sender's identity (or, anonymous);
- MMS message submission date if available (otherwise, local date);
- Subject (as indicated by message creator/sender);
- Size in Bytes
- Class (customisable to indicate whether incoming message is personal, informational or an advertisement);
- Priority (high, medium, low).

The display of this information is identical for both deferred and immediate message reception (see graphics in section 4.2.2, *Immediate Message Reception Process* just below).

4.2.2 Immediate Message Reception Process

When immediate downloading of an MMS message begins, a reception-signifying icon is displayed on the idle screen. When downloading is complete, the Read your new message(s)? invitation is displayed. No bar graph is displayed during downloading, as in the case of deferred retrieval, just the icon.

REMINDER: *if a phone call arrives and is accepted during MMS message retrieval/reception, it interrupts and aborts message downloading by their reception (presumably, these are MMSC servers) should therefore maintain them until full reception is acknowledged.*



Figure 9: Immediate message reception process

Confirming the Read your new message(s)? invitation with the drive key causes the UMB Inbox's Unread messages card to be displayed. In that card, a special icon identifies message type (☰ = MMS message, for instance). The final icons are not determined at the time this manual is being written. The icon is followed by the time- or time-and-date stamp, the name of the sender (if known) and then the initial text from the message's first slide.

Pressing the drive key or the options soft key when an unread message is selected causes a contextual popup menu to be displayed. This menu is nearly identical to the one displayed for deferred message reception, the only difference being that instead of a Retrieve menu item there is an Open menu item. The message has already been retrieved and is stored in the UMB Inbox, awaiting consultation.

See descriptions of the other contextual popup menu items, which are identical, in section 4.2.1.1, *Contextual Popup Menu for Deferred MMS Message Reception* above.

IMPORTANT: *this contextual menu concerns only MMS and Vox/MMS messaging.*

4.2.3 Consult Read or Archived Messages in UMB Inbox

The sequence of actions the end user must perform to consult MMS messages that have been received and read at least once is illustrated below.

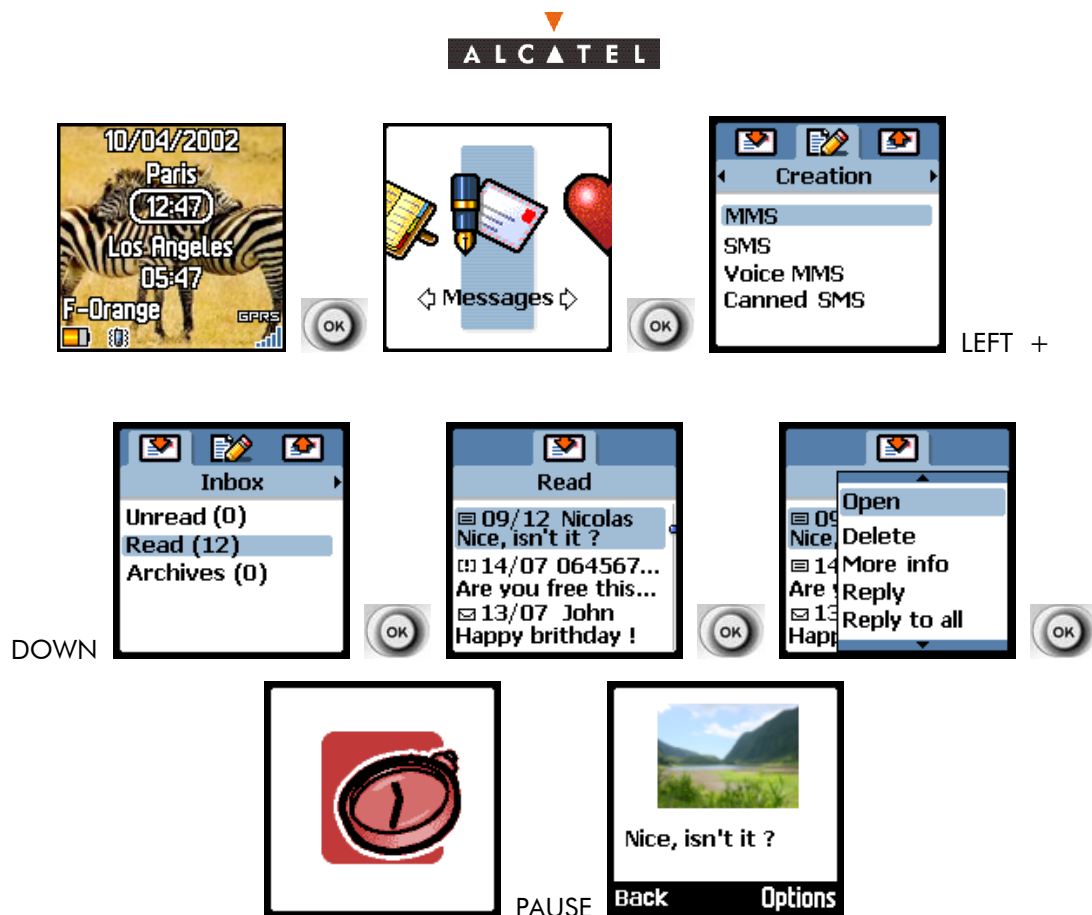


Figure 10: Consult previously read message

Consulting MMS messages stored in Archives follows the same steps, except that the Archives item is selected rather than Unread or Read.

IMPORTANT: all MMS messages are stored directly in the ME unit's flash memory and never in SIM card memory. Therefore, placing them in the Archives directory does not free up any memory space. The Archives directory is provided for the end user's organisational convenience.

The items available in the contextual popup menu for Read and Archives MMS messages in the UMB Inbox are the same as for immediately downloaded Unread MMS messages.

4.2.4 MMS Message Composition from UMB Inbox

The MMS composer can be launched during Inbox consultation of messages stored in the Unread, Read and Archives directories. This is done by first selecting an MMS or Vox/MMS message, then by selecting and confirming the Reply or Reply to all item in the contextual popup menu for that message.

The end user must specify what type of message she or he desires to compose. If MMS or Vox/MMS is specified, the MMS message composer is run. Assuming complete message composition and send confirmation thereafter, the composer closes and handset display returns to the message selection in the Inbox from whence the composer was launched.

4.3 UMB Outbox Behaviour and Use

Access to the UMB Outbox is available via one of the four principal cards that compose the Messages menu. The Outbox's organisation is nearly identical to that of the Inbox, but the Read and Unread directories are replaced by Sent and Unsent ones. The Archives category is maintained.

4.3.1 Consult a Sent Message Stored in the Outbox

The sequence of actions the end user must perform to consult previously sent MMS messages is illustrated below, starting from another possible version of the idle screen.

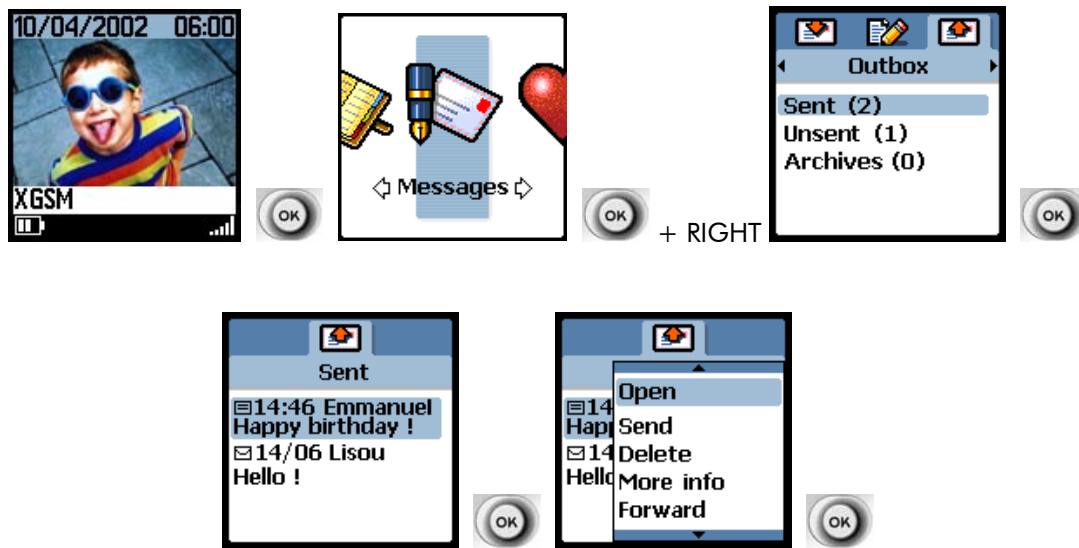


Figure 11: Accessing a sent message stored in the UMB Outbox

When a sent MMS message is selected in the UMB Outbox's Sent directory, a further confirmation press on the drive key displays a contextual popup menu containing the items listed below.

4.3.1.1 Contextual Popup Menu for Sent MMS Message

Sent Message Popup Menu Item	Action When Selected and Confirmed
Open	Opens and reads the MMS message's contents
Delete	Removes the MMS message from the outbox
More info	Shows MMS message details (size, all recipients ...; see details beneath this table)
Forward	Sends the MMS message to another recipient or recipients. The user gains access to the editing buffer, then chooses (a) recipient(s) for the message.
Archive	Stores the message in the Archives directory of the UMB Outbox
Back	Closes the popup contextual menu
Quit	Closes the Messages service

4.3.1.2 Supplementary Information in More info Item

The details covered by the More info item, selected and confirmed in the contextual popup menu of a Sent MMS message include:

- Local date (save or submit) and time;
- Subject;
- Recipients (to, cc, bcc);
- Size in bytes;


- Request for delivery: Yes/no;
- Delivery status for all recipients (if delivery report was requested).

A drive key confirmation press when Open is selected in the popup menu plays back the message itself, as shown below.



Figure 12: Display the selected stored Sent message

When the viewer is active, soft keys 1 (right) and 2 (left) are displayable again. Viewer behaviour is described in greater detail in Chapter 5, MMS Viewer (Closeup).

REMINDER: whenever a right-hand soft key is displayed, pressing its hardware counterpart (SK1) obtains the same result as a confirmation press (straight back) on the drive  key.

4.3.2 Consult an Unsent Message Stored in the Outbox

The sequence of actions the end user must perform to consult unsent MMS messages is illustrated below.

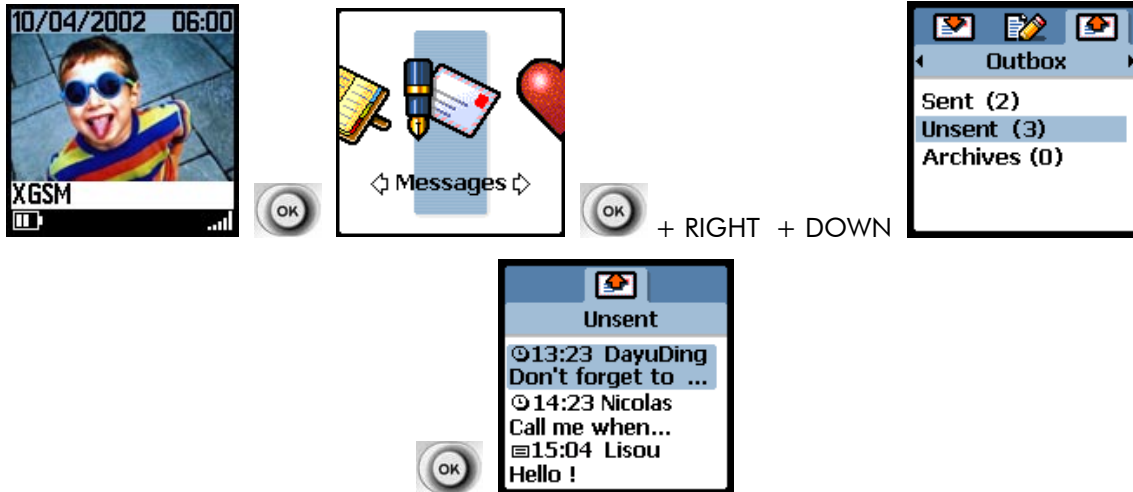


Figure 13: Accessing an unsent message stored in UMB Outbox

When an unsent MMS message is selected in the Outbox's Sent directory, a further confirmation press on the drive key displays a contextual popup menu containing the items listed below.

Unsent Message Popup Menu Item	Action When Selected and Confirmed
Open	Opens and reads the MMS content

Unsent Message Popup Menu Item	Action When Selected and Confirmed
Send	Attempts to send the message. If an error occurs, a confirmation card is displayed containing the name(s) of recipient(s). Only the first name is displayed, followed by "..." If the message was saved directly from creation/editing mode, it is first opened in the composer
Modify	Opens the MMS message in the composer
Delete	Removes the MMS from the outbox
More info	Shows MMS message details (size, all recipients ...)
Forward	Sends the MMS message to another recipient or recipients. The user gains access to the editing buffer, then chooses recipients for the message.
Archive	Stores the message in the Archives directory
Back	Closes the popup contextual menu
Quit	Returns to the CUTS

The details covered by the More info item are identical to those described above, for Sent messages.

Soft key display is again enabled when an unsent message is opened in the viewer.

4.4 **Manage UMB Contents**

The end user manages UMB contents directly with the Inbox and the Outbox. Both the viewer and the composer, described below in this document, also enable some UMB content management directly and indirectly:

- the viewer proposes, among the options in its contextual popup menu, message deletion, forwarding and saving. These actions all potentially affect the contents stored in the UMB;
- the composer proposes, among the options in its contextual popup menu, message sending, saving and attached-file removal. These actions all potentially affect the contents stored in the UMB.

Finally, the MMS Settings menu, likewise described below in this document, notably proposes an end user customisation choice between immediate and deferred MMS downloading. The difference between those two processes is described above, forward from section 4.2.1, *Deferred Message Reception Process*. That choice is available at both the national and international MMS message-reception levels. Clearly, each alternative has a different impact on UMB Inbox contents.

4.5 **Set UMB Parameters in MMS Settings**

For a detailed view of the UMB parameters that can be altered via the MMS Settings menu, go to Chapter 7, *MMS Settings Closeup*.

The messaging feature can be set for immediate or deferred delivery of incoming MMS messages (see details in *Chapter 7, MMS Settings*). If the end-user sets the handset for immediate MMS message reception, she or he will not receive notifications. Instead, incoming messages will be received directly, with no retrieval process necessary. Selecting the deferred delivery setting means that MMS messages are notified and then have to be retrieved.

4.6 **Message Sending, Replying and Forwarding Scenarios**

Messages can be sent to phone numbers and E-mail addresses. Either can be recorded indifferently in the handset's directory.

IMPORTANT: *MMS messages are more voluminous than their SMS ancestors. The maximum size an MMS message composed on the ONE TOUCH™ 535 handset can attain is 50 KB. That is why "uploading" to the MMSC is done asynchronously, as in a multitasking environment. As the first transmission attempt may not succeed, a specifiable number of attempts is made at specifiable intervals.*

Currently set by default to five attempts occurring at 10-minute intervals, asynchronous sending scheduling can be set to operator customisation specifications.

During the sending attempts period the message remains stored in the Unsent directory of the UMB Outbox, accompanied by a special icon indicating its status as slated for asynchronous sending.

Only if the maximum number of attempts is reached is sending abandoned. When that happens, the message remains where it is; but its icon changes back to the standard MMS message icon.

4.6.1 **Send MMS Message to One Recipient**

The card sequence below shows the steps the end user takes to validate an open, prepared message and send it to a lone recipient.

4.6.1.1 **Direct Input of Recipients Phone or E-mail Address**

The contextual popup menu shown in the second card image below resembles those of the MMS composer and so is not treated here in detail. The contextual popup menu shown in the fifth card image contains two items related to text entry, more information about which is available in section 6.2.3, *Image Resizing*.

- Punctuation: table of punctuation marks;
- Predictive: an input application that "learns" end user input preferences and anticipates them, by "proposing" whole words before they are completely input.

The Send function becomes active when the message is validated by being given a Subject (i.e., a Title). The final version of this sequence may differ slightly and the menu item names may change for space and readability. For instance, activating the Send function may require confirmation of a Validate item before Send to 1 and Send to several are displayed (contextual popup menu in fifth card image below).

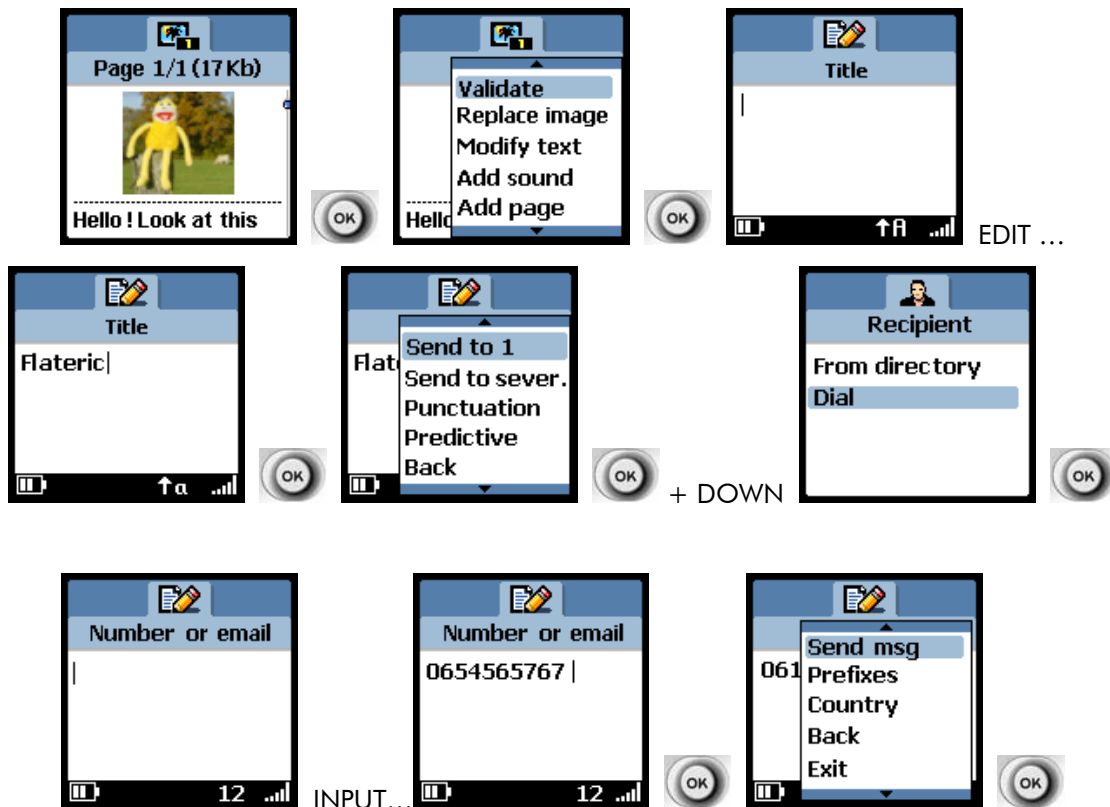


Figure 14: Send message to single recipient

IMPORTANT: *numerical characters only data-entry mode is selected by default, when the Number or E-mail card (next to last card image) is displayed. Press the Diesis "#" key to change, if alphabetical text-entry mode is required for E-mail address input. More information on text input editing modes is available in section 6.2.3, Image Resizing*

IMPORTANT: *Images included in MMS messages being composed are resized by the handset's software and displayed at a smaller size in the composer than they may be in the viewer (or in the receiving handset's viewer). In any case, images are displayed in different ways and at different sizes in the album (thumbnails and full screen), in the WAP browser, in the MMS Composer and and in the MMS Viewer.*

The MMS Composer resizes images to fit within an overall width of 64 pixels Height may vary.

Image Size	Modifications
Size <= 64 x 64 pixels	None
Size > 88 x 88 pixels	Image resized to <= 88 x 88 pixels, then cut to 64 x 6, centered
64 x 64 pixels < Size <= 88 x 88 pixels	Image cut to 64 x 64, centered

Note: size > 88*88 means width > 88 or height >88

Examples

- 1) For a CIF picture, 352 x 288 pixels:
 - a) resizing $(352 \times 288)/2 = 176 \times 144$
 - b) resizing $(176 \times 144)/2 = 88 \times 72$
 - c) clipping from top and bottom and from sides ==> 64 x 64
 - d) displayed picture = 64 x 64
- 2) For a Panoramic picture 352 x 128 pixels:
 - a) resizing $(352 \times 128)/2 = 176 \times 64$
 - b) resizing $(176 \times 64)/2 = 88 \times 32$
 - c) clipping from top and bottom and from sides ==> 64x32
 - d) ==> displayed picture = 64 x 32

IMPORTANT: Input and Edit Text.

The Send card's contextual popup menu's contents are elaborated in the table below.

Send Popup Menu Item	Action When Selected and Confirmed
Send msg	Sends the message
Alphanum (or Numerical)	Changes data-entry editing mode for phone number or E-mail address. Note: this item not shown in illustration
Prefixes	Provides access to the prefixes list
Country	Provides access to the countries list
Back	Closes the contextual popup menu
Exit	Closes application and returns to the Idle screen

4.6.1.2 Message Sending Confirmation

The message is sent by another confirmation press on the ONE TOUCH™ 535 drive key.

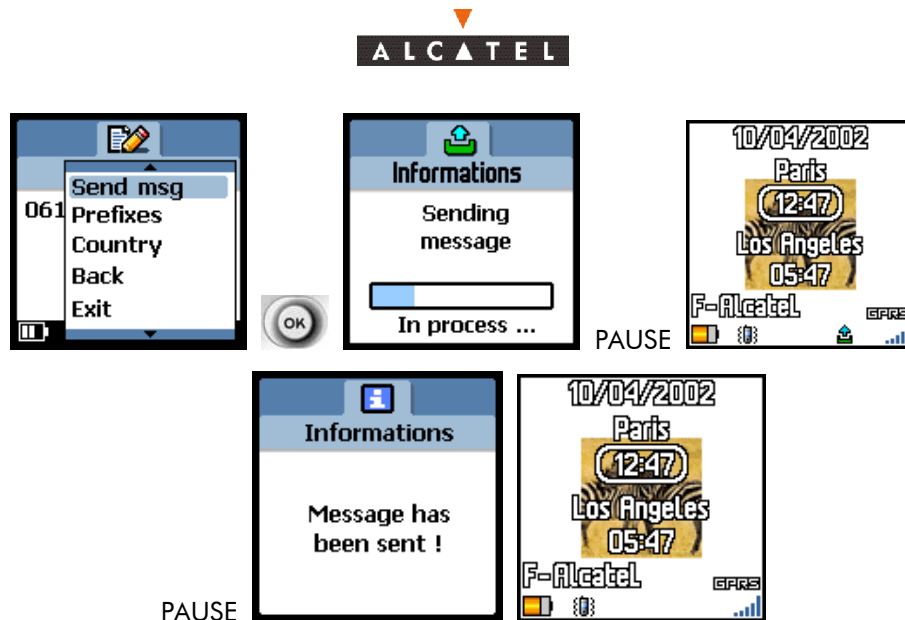


Figure 15: Outgoing message behaviour to confirmation

When the message is sent, a dynamic animation is first displayed (replaces the bar chart in the illustration) to show that the send order is confirmed. Then the handset reverts to the idle screen. However, as long as the message is still outgoing (or the asynchronous sending process is valid), an "out tray" icon is displayed at the bottom of the idle screen.

As soon as sending is complete, a confirmation card is temporarily displayed, which times back out to the idle screen. The outgoing message icon is removed from the display, unless further message sending is scheduled.

The handset can signify more than one such message status at a time. For instance, if there are any unread messages in the Inbox at the same time as a message is being sent, the idle screen says so.

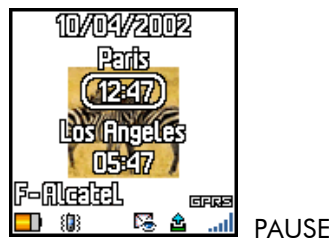


Figure 16: Unread and outgoing message icons

4.6.1.3 Message Recipient Chosen in Directory

The previous case showed direct input of a phone number. The card sequence below shows the steps the end user takes to select a recipient number or E-mail address in the handset's Directory.

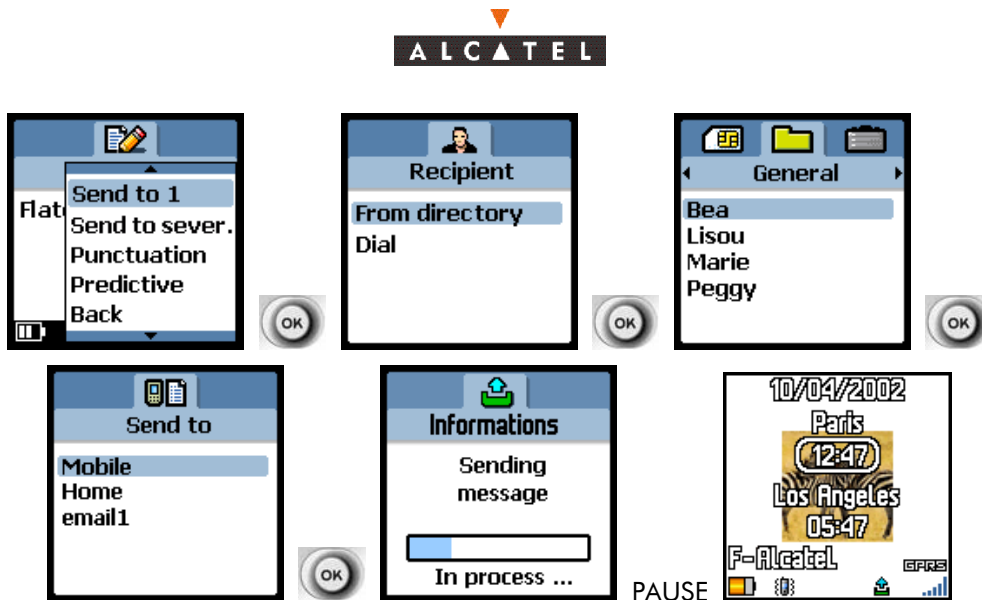



Figure 17: Choose message recipient in directory

From the moment the MMS message is named, by-default menu-item selection, forward from a confirmation drive key  press is intuitive. If:

- the recipient list is empty when the popup is consulted: Send to 1 appears selected by default;
- one or more recipient(s) is/are already specified when the popup is consulted: Send msg appears selected by default.

4.6.2 Send MMS Message to Multiple Recipients

The card sequence below shows the steps the end user takes to send an MMS message to multiple recipients. The recipient-type icons, presented as tabs, that crest the choice cards shown below represent another intuitive aspect of the MMI. They include, from left to right, Main recipient, Secondary (cc) recipient and "blind carbon copy" (bcc) recipient categories, in line with most PC-based office messaging software, such as Outlook, Lotus, Netscape and others provide. The idea is to help the end user organise her or his categories and to facilitate the growing trend toward synchronised data transfers (address bases, e.g.) between devices.



Figure 18: Send message to multiple recipients

If a positive answer is made to the "Press OK to choose your recipients!" invitation, the ME handset displays the contextual popup menu shown in the third card image above. Its items are elaborated in the table below.

Send-to-several Popup Menu Item	Action When Selected and Confirmed
Send msg	Sends the message to the MMSC. This item is only displayed when at least one recipient has already been listed.
From directory	Copies the phone number or E-mail address of a contact listed in the directory as a recipient
Dial	Enables phone number or E-mail address input
Add group	Enables a predefined group of recipients to be added to the sendees list (to, cc or bcc)
Delete	Removes the selected recipient. This item is only displayed when at least one recipient has already been listed.
Back	Closes the contextual popup menu and returns to MMS message title card
Exit	Closes the MMS applications suite and returns to main menu

IMPORTANT: *If handset software recognises a number being input directly as already extant in the Directory, the Directory name is displayed instead and the number (or E-mail address) is automatically copied into the Send buffer..*

A special icon appears alongside each name, informing the end user if the MMS message is being sent to an E-mail address or a mobile phone number. Note that in the final version of this software, the E-mail and phone number icons are displayed to the left of the names they accompany, in the "i" information card as well as in the Main recip. card.



Figure 19: Message sending process

WARNING: *pressing the C key while the recipients list card is displayed returns the end user to the Subject editing data-entry card. However, the cursor is now displayed in front of the input title (i.e., at the head of the edition buffer). In this case, if the popup contextual menu is redisplayed and Send to several is reconfirmed, any previously selected list of recipients is retrieved. But if Send to 1 is selected and confirmed, any existing recipient list is lost.*



Figure 20: Subject card redisplayed after recipients selection

4.6.3 Notification of Send Errors

The message is not sent if a maximum number of temporary sending errors occurs. Such sending errors can affect both manual and automatically sent messages. When the maximum is reached a warning message is displayed:



Figure 21: Message not sent warning card

Warning messages for permanent errors may be more specific. The handset does not attempt to resend messages whose transmission encounters a permanent error. Such unsuccessfully sent messages are automatically placed in the Outbox Unsent directory.

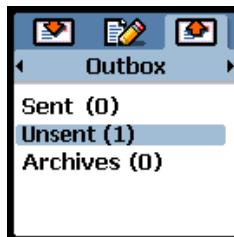



Figure 22: Unsuccessfully sent MMS messages are stored in the Unsent directory

WARNING:

the handset cannot perform any CSD session download while an MMS message is being sent. It can perform GPRS session data download during MMS sending, however.

Prior to accumulating the maximum number of temporary errors, any message unsuccessfully ordered sent is also stored in the Unsent directory. The ME handset tries periodically to send it. The current by-default frequency is five tries, one every 10 minutes. The periodic interval can be customised by the end user in MMS Settings.

Scheduled but unsent messages listed in the Unsent directory are accompanied by a special icon, such as a clock , informing the end user that an automatic sending procedure is still active.

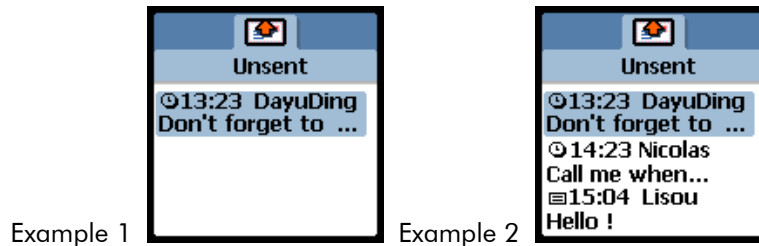


Figure 23: Unsent and "being sent" messages listed in Unsent directory

After an undetermined but set number of attempts, automatic sending is abandoned. In that case, the icon displayed alongside the message in the Unsent directory changes back to the standard MMS message icon.

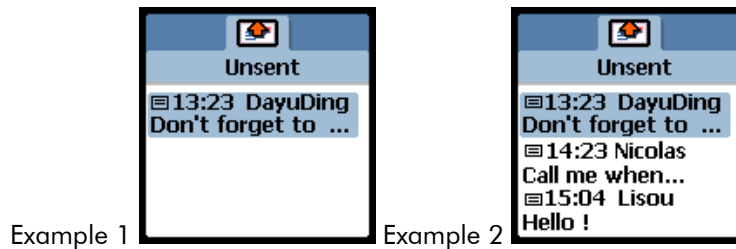


Figure 24: Unsent directory list appearance after automatic sending abandonment

Stacked automatic message are sent on a first-in, first-out (FIFO) basis. Up to 20 messages can be stacked at a time, insofar as memory space is available.

IMPORTANT: *the FIFO order of messages in the Unsent directory for which an automatic sending procedure is active is determined by the order in which the handset user sends the messages, not by their date and time stamps.*

WARNING: *should the end user attempt sending a new MMS message while the automatic outgoing FIFO stack is full, a warning message card to that effect is displayed.*



Figure 25: To-be-sent MMS message stack full

4.6.4 Replying to Received Messages

The ONE TOUCH™ 535 enables the response-message type to be chosen seamlessly, in a "one-touch" two-step, directly from the viewer. First the viewer's contextual popup menu is displayed and Reply or Reply to all is selected. Either choice causes display of a choice card proposing as possible response types:


- MMS message;

- SMS/EMS message;
- Vox/MMS (voice recording).



Figure 26: Choose reply message type, direct from viewer

4.6.4.1 Reply to MMS Message With Another MMS Message

If the sequence of actions illustrated above is performed, the handset requires but one more drive key  confirmation press to launch the MMS composer. Once the response message is composed, largely the same procedure as given in section 4.6, Message Sending, Replying and Forwarding Scenarios above is followed.

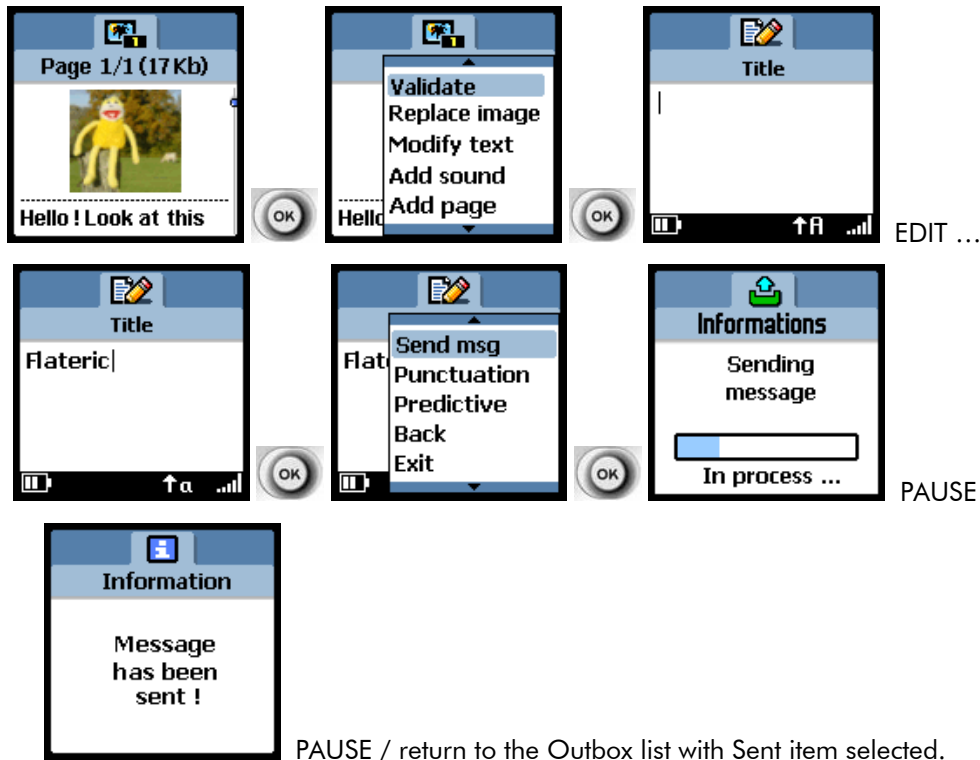


Figure 27: Response MMS message knows its recipient

IMPORTANT:

since the response MMS message "knows" who it is being sent to, its last contextual popup menu before sending proposes simply Send msg rather than the choice Send to 1 or Send to several.

REMINDER:

the same behavior greets Reply requests, whether the medium chosen is MMS, Vox/MMS or SMS/EMS. The Reply option only allows the user to reply to the sender; adding other recipients is not possible.

4.6.4.2 Reply With an SMS/EMS Message

Should the end user just want to send a text file to someone, it may be economically advantageous for her or him to reply with an SMS/EMS message, rather than an MMS message.

IMPORTANT: consult the *EMS Guidelines Reference Manual for the ONE TOUCH™ 535* to learn the details of SMS/EMS messaging.

4.6.4.3 Reply to a Received Message With a Voice MMS (Vox/MMS)

The user can reply by sending a special, reduced form of the MMS message, the Vox/MMS, which consists of a native voice (or sound) recording only. That is, the end user records voice(s) and/or sound(s) with the handset. The same recording application as the one for Voice Memos is used, but packaging of the AMR-format audio object into the Vox/MMS message occurs automatically.

IMPORTANT: the recording feature of the ONE TOUCH™ 535 handset saves audio object files in adaptive multi-rate (AMR) format. The recording is inserted into the Vox/MMS message and also saved as a Voice memo, accessible via the root-level Tools menu.

The sequence shown below starts from the choice card in which the end user selects By Voice MMS as a response medium.

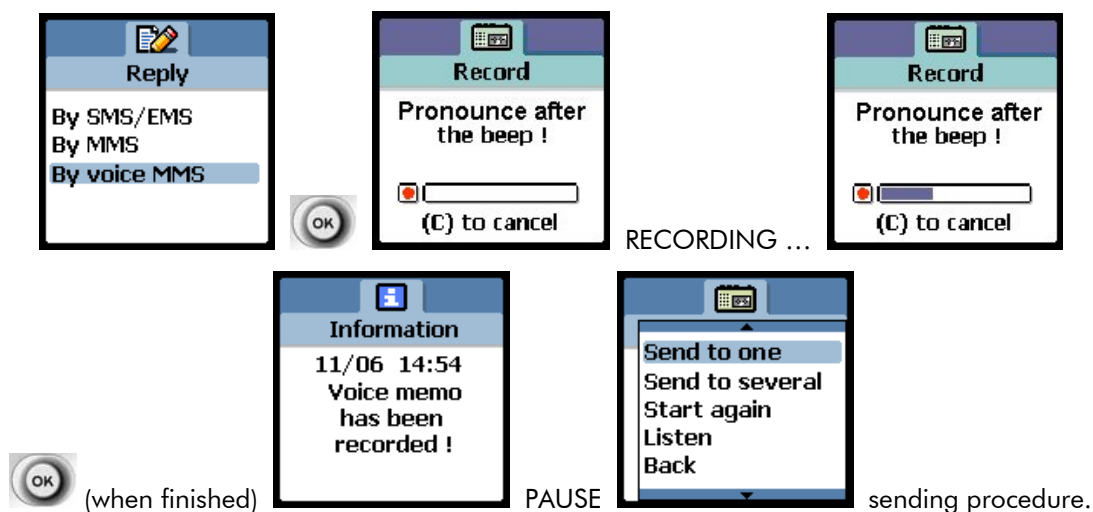


Figure 28: Vox/MMS message creation

The voice memo has been inserted as a sound file in the Vox/MMS message's first slide. From that point, the Vox/MMS message can be sent, played back or re-recorded (the first recording is obliterated). Vox/MMS messages contain only one slide and only one audio object file.

4.6.4.4 Reply to All

Except insofar as recipient list size goes, Reply to all behaviour is identical to Reply behaviour: all available message types are proposed and the end user selects the one she or he desires.

The sending rules that govern addressing of a "Reply to all" message are the following:

- if the message being responded to was addressed to more than one "To" recipient, including the responding user, all "To" recipients are reproduced in the reply. If the original message was addressed to any "cc" recipient(s), that or those recipients are included in the response message's "cc" recipients;
- if the message being responded to was addressed to one or more "To" recipients, but the user responding was in the "cc" category, all the original "To" recipients are included in the response message's "To" category. Any remaining "cc" recipients are reproduced as "cc" recipients, except for the responding recipient, now placed in the "From" category;
- the "bcc" case is transparent for all but the message sender and the "bcc" recipient (just as in E-mail messaging services). Since "bcc" recipients are not seen by the "To" and "cc" recipients, they are not responded to. However, the "bcc" recipient her- or himself can indeed respond—in which case the previous rule applies (the responding "bcc" recipient's phone number or E-mail address is placed in the "From" category).

4.6.5 Forwarding Received Messages

Different rules govern MMS message forwarding, according to the status of the message handled:

- first case: the message is a "native message": that is, a message originally built on the handset in whose Outbox it is stored. When a Sent, native, MMS message is selected for forwarding, the message is retrieved and displayed by the MMS composer, in editing mode. The end user can:
 - continue building the message, adding and/or deleting pages and/or multimedia ingredients;
 - add a new recipient or recipients before sending.
- second case: the message was received by the handset and is stored in its Inbox. In this case the end user can only forward the message as is, to one or more recipients. When received, the message is "mobile-terminated" (MT). When forwarded, it becomes "mobile originated" (MO), but remains "non-native".

IMPORTANT: *if the end user wishes to "forward" an MMS message stored in the handset's "Unsent" Outbox, the same procedure applies as for the first case dealt with above. However, since an "unsent" message cannot technically be "forwarded", the Forward item found in the Sent directory's contextual popup menu, is replaced in the Unsent directory's popup by Modify.*

REMINDER: *although a received MMS message cannot be "modified" prior to forwarding, it can be "torn down", its component parts stored in the Album for later reuse in other MMS messages. and its component parts reuse.*

5 MMS Viewer (Closeup)

The MMS viewer is a separate application from either the UMB or the MMS composer. Their operations are seamlessly interrelated to maximise intuitive end user accessibility. Alcatel has made a strong point of making the transitions, from from receiving mode to viewer, from viewer to composer and perhaps back again, and from viewer to sending mode (i.e., to the UMB + WSP communications session)—and back again!—as transparent as possible.

Detailed behaviours of those other modules, as well as of the MMS settings module, are given elsewhere in this manual.

Message viewing/previewing can be launched from a selection made in either the In- or Outbox of the UMB, or from a message created (or being created) in the composer. Let us first consider message viewing from the previously-described UMB.


5.1 Available MMS Viewer Behaviours

The sequence of actions required to run the viewer when an MMS message is selected in any directory of the In- or Outbox is identical. Let us take the example of an MMS message in the Unsent Outbox (a message started earlier and stored for later completion, for example).



Figure 29: Open the MMS viewer module

The last card shown in the series above is a reproduction, by the embarked viewer, of the first slide of an MMS message.

IMPORTANT: *the MMS viewer in the ONE TOUCH™ 535 is an embarked application that enables display of WAE-application soft keys. Soft key 1 (SK1) appears on the left and generally conforms to an "accept" type of choice. Soft key 2 (SK2) appears on the right and generally conforms to a choice among "options": i.e., a single option activated by the corresponding hardware key or a multi-choice contextual menu requiring further navigation/selection. SK2 is activated either by its corresponding hardware key or by a confirmation press of the drive  key.*

5.1.1 Unread and Read Messages Viewer Options

When a received multi-slide MMS message is played back, it runs according to the scheduling established by the message composer.

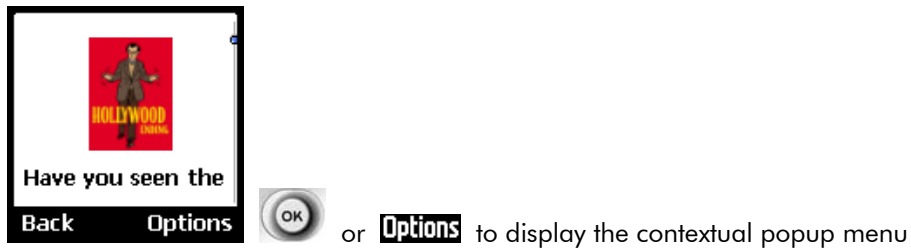


Figure 30: Display options available for read/unread message

The resulting contextual popup menu contains the items explained in the table below. The exact order of these items depends on the final version of the MMS viewer.

Unread/Read Message Popup Menu Item in Viewer	Action When Selected and Confirmed
Delete	Deletes the message and returns to previously accessed UMB directory
Next page	Provides access to next page (only displayed if next page exists)
Previous page	Provides access to previous page (only displayed if previous page exists)
Stop timer	Halts the automatic scrolling
Restart	Returns to the first card in the deck
Play silent	Plays the MMS message back without sounds
Play sounds	Plays the MMS message back with sounds
Reply	Reproduces the sender's phone number or E-mail as recipient of a new "reply" message (the end user must then select her or his desired response type in a choice card: SMS/EMS; MMS; Vox/MMS).
Reply all	Reproduces all listed MMS recipients and the sender as recipients of a reply message. This item is only displayed if the original message was addressed to more than one recipient.
Forward	Sends the MMS to recipients designated by the end user. Since a received MMS message is not considered by the handset to be MO, it cannot be modified.
Archive	Stores the MMS in the appropriate archives folder
Save objects	Lists all the objects (images, sounds) that make up one MMS message separately, so they can be selected and saved in the ONE TOUCH™ 535's Album.
Save num or E-mail	Saves the sender's phone number or E-mail address in the directory
Back	Closes the contextual popup options menu
Exit	Closes application and returns to the Idle screen

5.1.2 Sent messages Viewer Options

When a sent multi-slide MMS message is played back, it runs according to the scheduling established by the message composer.



Figure 31: Display options available for sent message

The resulting contextual popup menu contains the items explained in the table below. The exact order of these items depends on the final version of the MMS viewer.

Sent Message Popup Menu Item in Viewer	Action When Selected and Confirmed
Delete	Deletes the message and returns to previously accessed UMB directory
Next page	Provides access to next page (only displayed if next page exists)
Previous page	Provides access to previous page (only displayed if previous page exists)
Stop timer	Halts the automatic scrolling
Restart	Returns to first card in the deck
Play silent/sounds	Plays the MMS message back without/with sounds (toggle item)
Forward	Sends the MMS message to other people. The user will have the possibility of modifying it and of choosing recipients to send it to.
Archive	Stores the MMS in the appropriate Archives folder
Save objects	Lists all the objects (images, sounds) that make up one MMS message separately, so they can be selected and saved in the ONE TOUCH™ 535's Album.
Back	Closes the contextual popup options menu
Exit	Closes application and returns to the Idle screen

5.1.3 Unsent Messages Viewer Options

Unsent Message Popup Menu Item in Viewer	Action When Selected and Confirmed
Send msg	<p>Sends the message immediately or asynchronously if immediate transmission unavailable. Note:</p> <ul style="list-style-type: none"> if an error occurs during attempted transmission: confirmation card reproducing the recipient's or recipients' identifier(s) is displayed; if the message was saved while being built, confirming Send msg opens the message in the MMS message composer.
Modify	Runs the MMS message composer
Delete	Deletes the message and returns to previously accessed UMB directory
Next page	Provides access to next page (only displayed if next page exists)

Unsent Message Popup Menu Item in Viewer	Action When Selected and Confirmed
Previous page	Provides access to previous page (only displayed if previous page exists)
Stop timer	Halts the automatic scrolling
Restart	Returns to first card in the deck
Play silent/sounds	Plays the MMS message back without/with sounds (toggle item)
Archive	Stores the MMS in the appropriate archives folder
Save objects	Lists all the objects (images, sounds) that make up one MMS message separately, so they can be selected and saved in the ONE TOUCH™ 535's Album.
Back	Closes the contextual popup menu
Exit	Closes application and returns to the Idle screen

WARNING:

when automatic sending is under way, the end user cannot gain access to the message in the MMS message composer. She or he can only 1) cancel automatic sending, 2) forward the message to another recipient, 3) delete the message, 4) select More infos in the contextual popup options menu of the message being sent; select the Back or the Exit item.

If the user tries to select delete, cancel, or forward while the MMS is being transmitted over the air, a temporary warning card is displayed informing her or him that the requested action is not currently available:

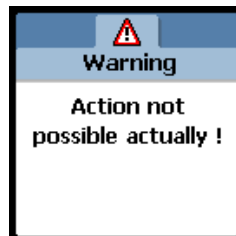


Figure 32: Requested action not possible warning

WARNING:

in the case of the MO preview, without saving before, then the item "Archive" will not be displayed.

5.2 Preview a Message From MMS Composer

Message composition is dealt with in detail in Chapter 6, *MMS Composer (Closeup)*. During message composition, a contextual popup menu can be displayed and its Preview option chosen. That action launches the same embarked MMS message viewer as described above, in this chapter. A fully built message, or a message still under construction can be played back.

Each slide in the MMS message, not just the slide active when the Preview option was selected, can be played back. Closing the viewer (Close option) without explicitly exiting

from the MMS applications suite, after previewing a message being built or one that was just built, returns the handset to the the composer.

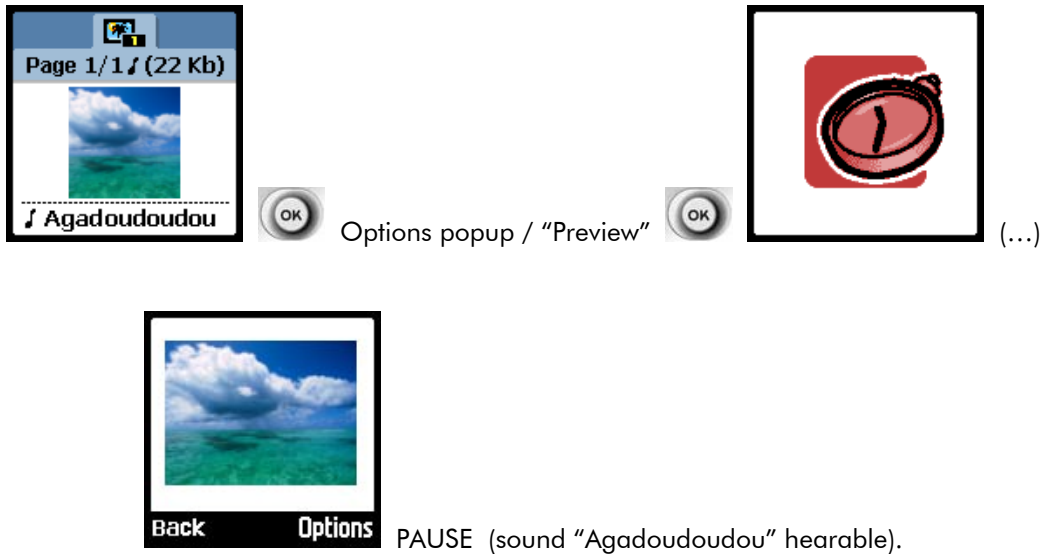


Figure 33: The viewer is running when soft keys are displayed

The full contents of the contextual popup menu items available from the composer are discussed in Chapter 6, *MMS Composer (Closeup)*

5.3 Automatic Scrolling

Scrolling here refers to MMS message slide and content playback. Initial scrolling occurs automatically: images and texts are displayed, sounds are played back and the presentation progresses through the existing slides. If a recorded sound lasts longer than the slide display duration assigned to the timer by the MMS message's creator, the slide remains displayed at least until the whole sound bite has played out.

Upon completion of automatic scrolling, the display loops back to the first slide and halts. At that point, the user may:

- scroll down/up manually with the drive key (to view images taller than the screen's maximum pixel capacity;
- select the Nextpage/Previous page option items in the contextual popup options menu;
- select the Restart option to launch another automatic scroll-through.

The end user can also reset the automatic scrolling timer in the MMS parameters.

If the slide contains a sound, and if the length of this sound is superior to the length of the timer, then the slide will be displayed during all the sound duration.

IMPORTANT: *pressing any key during the auto-scroll process stops it at that page. After that, scrolling must continue manually, at least back to the first slide.*

6 MMS Composer (Closeup)

6.1 Access Routes to MMS Composer

There are standard and tangential access routes to the MMS Composer.

6.1.1 Standard Access

Standard access routes to the MMS composer are available via several paths:

- from the Idle screen (UP key-press shortcut from the Idle screen);
- from the main menu, by selecting and confirming the Messages item when no new unread message is present in the UMB Inbox;
- via the keypad (if that service is programmed on a key by the user);
- via a voice command (if that service is programmed on a key by the user);
- via the service key (if the service is programmed on a key by the user).
- from either the UMB Inbox or the UMB Outbox, under certain circumstances (forwarding an unfinished, unsent, MO MMS message from the Outbox; replying to a read message in the Inbox, e.g.)



Figure 34: Launch MMS message composer

REMINDER:

As this document is written, the menu item names are as follows: Multimedia/MMS; Text/SMS; Vox/MMS; Canned Messages. Text/SMS includes EMS, whose extensions are intuitively suggested by the contextual popup menu.

IMPORTANT:

if there are no new, unread messages in the UMB, the intuitive by-default choice when navigating to the messaging service via standard menu choices is Creation/MMS.

6.1.2 Tangential Access

The MMS Composer can also be launched from any of the following embarked applications, under certain conditions:

- Viewer;
- PhoneBook;
- Album; WAP Browser;
- Unified Mail Box (UMB) from either the Inbox or the Outbox (forwarding an MO MMS message from the Outbox; replying to a Read message or a message being read in the Inbox, e.g.).

6.2 MMS Message Creation Scenarios

The MMI manoeuvres available to the user creating an MMS message are dealt with below. First, moving forward from the choice card shown above, the initial MMS message creation steps are shown.

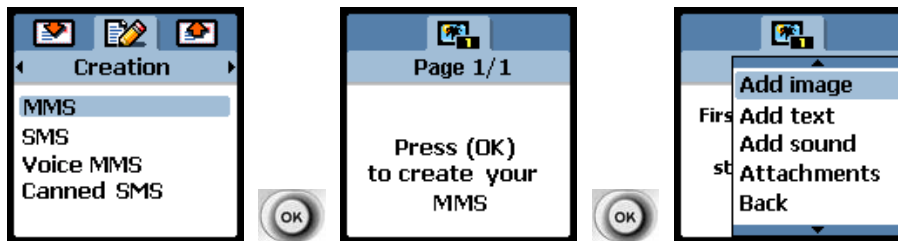


Figure 35: Start creating an MMS message

The end user is clearly guided through the initial steps slide creation.

IMPORTANT: *per slide the user can choose one image, one text and one audio object at a time (and in total) for inclusion in any given slide.*

MMS messages can be composed during voice communications sessions.

6.2.1 Contextual Menus Available in MMS Creation Mode

At the outset the popup contextual options menu for MMS message creation is relatively bare. However, as soon as the first insertion in the first slide is made, the number of creative options multiplies and the menu rapidly fills up. The simple comparative table of menu items given below illustrates this. Although the items are not explained in detail in this table, most of the item names are self-explanatory.

Outset of MMS Message Creation	Current Page Empty	When Any Page Contains at Least One Object
	Validate	Validate
Add image	Add image	Add or Replace image
Add text	Add text	Add or Modify text
Add sound	Add sound	Add or Replace sound
		Add or Insert page (it depends, see

Outset of MMS Message Creation	Current Page Empty	When Any Page Contains at Least One Object
		chapter (5.5 for details)
	Preview	Preview
		Delete page (even if empty, excepted for the first empty page)
	Save message	Save message
Back	Back	Back
Exit	Exit	Exit

The initial offering of menu items proposed (left column, above) are dealt with first. The "new" items that appear as the message grows (right column, above) are explained more fully after that.

6.2.2 Add an image

Most of the basic steps required to select and add an image to an MMS message under construction are shown below. Note that adding an image to the message involves making an incursion into the content store facility that is the Album. Those particular steps are not illustrated in detail here. Rather the sequence below illustrates the movement from the Composer toward the Album, then the appearance of the first slide displaying the chosen image and a pointed choice of the following contextual popup options menu of the Composer in which the end user may, if satisfied with the appearance of the object, validate it or, if not, proceed with its replacement.

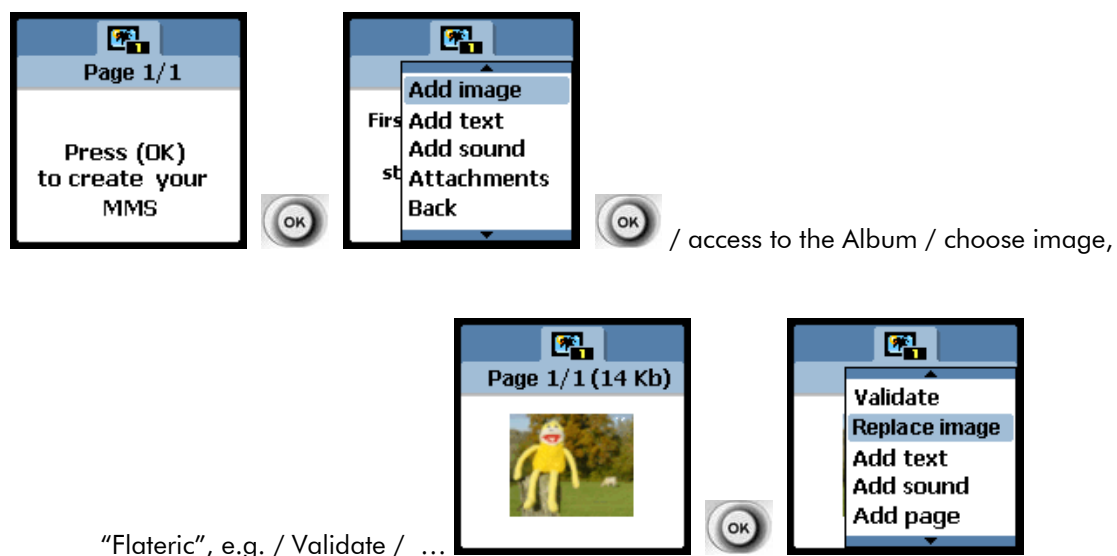


Figure 36: Insert first image in an MMS message under construction

Once one image is inserted in one slide, the menu item Add image metamorphoses into Replace image. From this point forward, one slide with one image or audio object attached to it, the MMS is potentially complete. That is, it can be sent and received by an MMS message-enable mobile or fixed device. The panoply of available options displayed in the MMI's contextual popup menu has begun to grow. It will continue to do so as texts and audio objects are appended.

The user can also insert an animation (animated GIF) instead of a single picture from the album.

WARNING: *the only EMS icons that can be included in the new-generation MMS product are the still ones.*

IMPORTANT: *after any object insertion, the message size in KB is displayed in the icon tab at the top of the screen, near the page number. If the essential information and "Page" take up too much space together on that line, "Page" is omitted.*

6.2.3 Image Resizing

Images included in MMS messages being composed are resized by the handset's software and displayed at a smaller size in the composer than they may be in the viewer (or in the receiving handset's viewer). In any case, images are displayed in different ways and at different sizes in the album (thumbnails and full screen), in the WAP browser, in the MMS Composer and and in the MMS Viewer.

The MMS Composer resizes images to fit within an overall width of 64 pixels Height may vary.

Image Size	Modifications
Size <= 64 x 64 pixels	None
Size > 88 x 88 pixels	Image resized to <= 88 x 88 pixels, then cut to 64 x 6, centered
64 x 64 pixels < Size <= 88 x 88 pixels	Image cut to 64 x 64, centered

Note: size > 88*88 means width > 88 or height >88

Examples

- 1) For a CIF picture, 352 x 288 pixels:
 - a) resizing $(352 \times 288)/2 = 176 \times 144$
 - b) resizing $(176 \times 144)/2 = 88 \times 72$
 - c) clipping from top and bottom and from sides ==> 64 x 64
 - d) displayed picture = 64 x 64
- 2) For a Panoramic picture 352 x 128 pixels:
 - a) resizing $(352 \times 128)/2 = 176 \times 64$
 - b) resizing $(176 \times 64)/2 = 88 \times 32$
 - c) clipping from top and bottom and from sides ==> 64x32
 - d) ==> displayed picture = 64 x 32

6.2.4 Input and Edit Text

Text input is made possible by confirming the Add text item in the contextual popup menu. The text input data-entry card is recognisable from its display, at bottom right, of a text editing mode symbol, which is set by default to "CAPS/lowercase" mode. Without returning to the text editing mode's own contextual popup menu, the end user can toggle through a series of at four different text-editing modes by repeatedly pressing the diesis # key:

- "Ab" = Normal alphabetical input; provides anticipatory upper- and lowercase character input, but is otherwise straightforwardly manual, using the CCIT keypad, as do the other modes;
- "AB" = CAPITAL LETTERS ONLY;
- "ab" = lower case letters only;
- "12" = switches the CCITT keyboard to number input only.

Pressing the * key displays a navigable symbols table with a moveable selection cursor so the end user can navigate directly to the desired symbol and insert it into the text.

Additionally, the text editor's own contextual popup menu provides access to:

- the Symbols table;
- Predictive input mode: uses an embarked dictionary to anticipate and suggest the word being input. The end user may then validate or not the proposed choice. This reduces text-input time for experienced users. The end user can also gain customising access to the dictionary and add new, frequently used words.

A more detailed, and illustrated discussion of the text input data-entry modes available to WAE applications is provided in the sister manual to this one, the Alcatel ONE TOUCH™ 535 W@P Browser Reference Manual, ref.: SW/BH4R1/REFMAN/WAP.

REMINDER: *The editing modes multi-toggle and the Symbols table shortcut are not soft key options. They are activated by the # and * keys, respectively.*

The sequence of display, choice and data-entry cards below shows the steps the end user takes to input a text component in an MMS message.

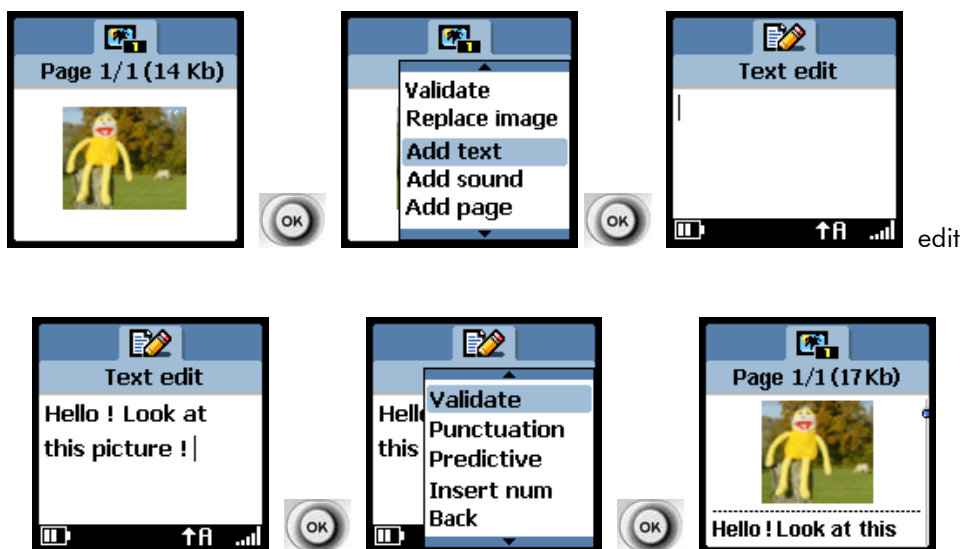




Figure 37: Add text to an MMS message slide

6.2.4.1 Contextual Menu In Text-editing Mode

Pressing the  key in text-input editing mode causes the popup contextual menu whose items are explained below to be displayed.

Edit Mode Popup Menu Item	Action When Selected and Confirmed
Validate	Validates the text that has been input
Insert number or E-mail	Provides access to the directory in copy/paste mode
Punctuation	Provides access to symbols table
Predictive/normal (toggle)	Toggles back and forth between the two main text-input modes: Normal and Predictive.
Back	Closes the contextual popup options menu
Exit	Closes application and returns to the Idle screen

If the length of a text precludes its on-screen display along with an inserted image, the first line of text is displayed and the end user can scroll down to read the rest, using the drive  key.

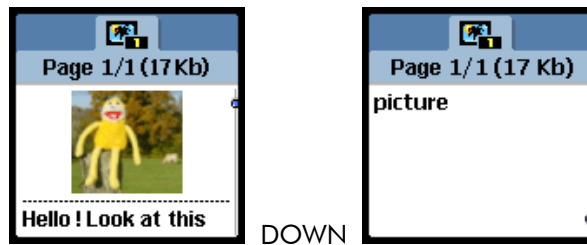
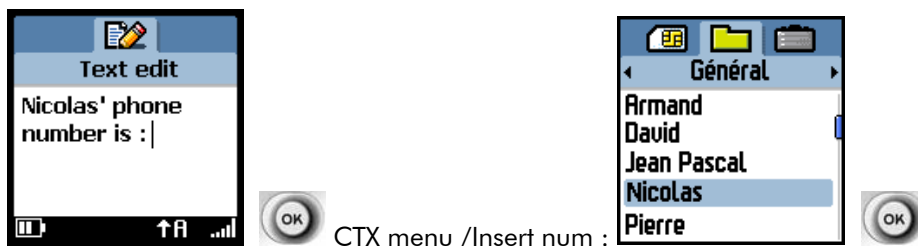


Figure 38: Long texts can be read in full by scrolling

WARNING: *whatever the user order creation, the items are always appear or are played back in the same order : picture / text / sound*

6.2.4.2 Phone number or E-mail insertion

The following sequence shows how the end user may streamline input of an E-mail address or phone number via the Text edit card's contextual popup menu. The second and third cards in the sequence do not belong to the MMS message composer. They belong to the ONE TOUCH™ 535 handset's directory. All subdivisions of the directory can be consulted and copied from.



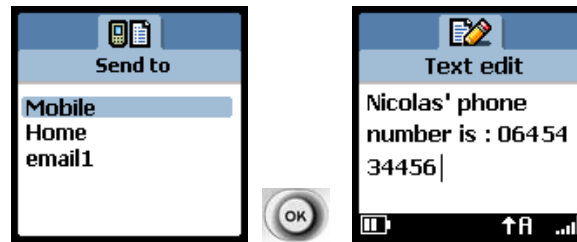


Figure 39: Insert directory data into an MMS message text

6.2.5 Insert Audio Object in Slide

The following card sequences show how the end user either inserts pre-recorded audio objects from the Album's content store or records audio objects directly for insertion.

6.2.5.1 Inserting an Audio Object from the Album

This sequence illustrates insertion of an audio object from the Album during the MMS message composition process. All subdivisions of the Album can be consulted during this process. The Album cards involved in the process are not shown in the sequence.

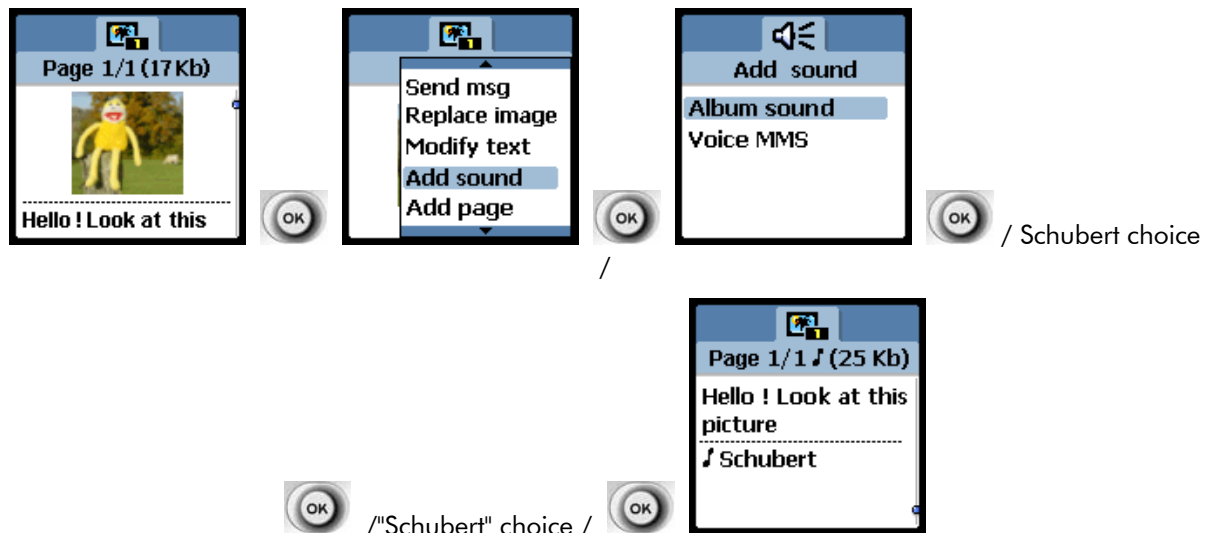


Figure 40: Insert an audio object from the Album during MMS message composition

Particulars affecting audio object insertion include:

- a special icon is displayed alongside the file name to inform the user that it is an audio object file
- the title "Add sound " is replaced by Replace sound if an audio object has already been inserted;
- a special icon representing a musical note is displayed after insertion near the message: Page --/--.

6.2.5.2 Recording and Inserting an Audio Object

This sequence illustrates the direct recordinginsertion (by the handset) of an audio object and its insertion during the MMS message composition process. The audio object can later be removed from its original MMS message and stored in the Album

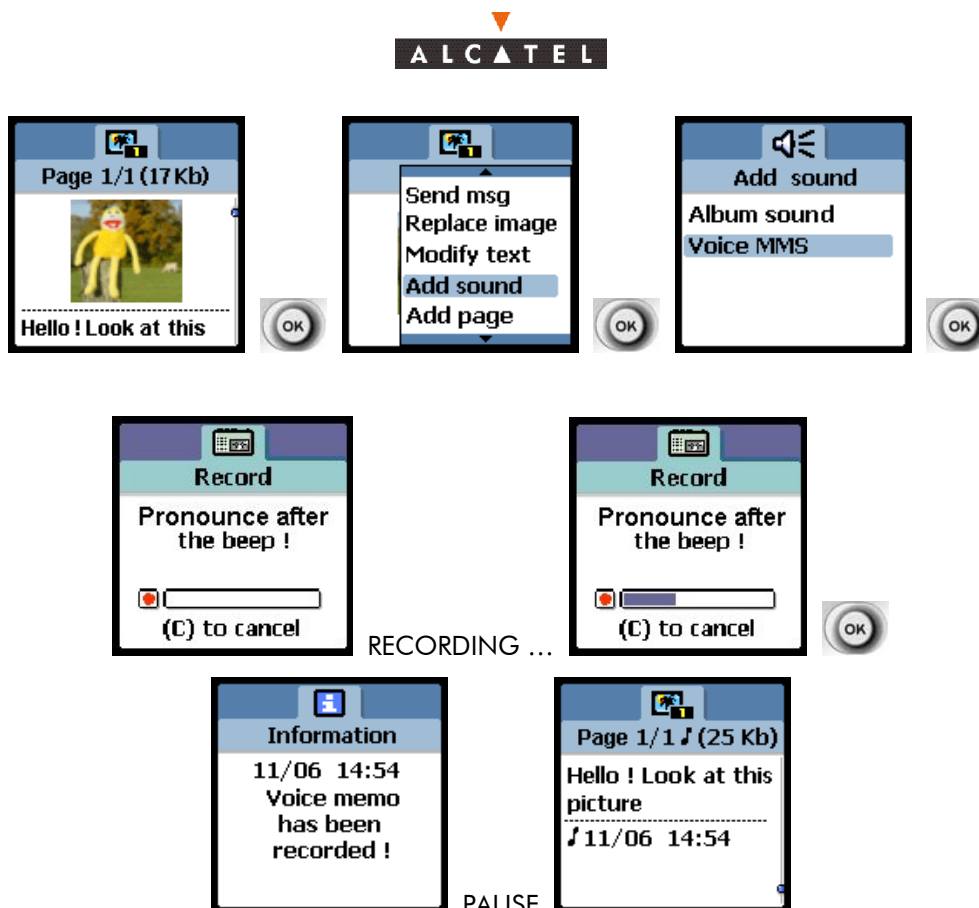


Figure 41: Record an audio object directly with the handset

Particulars affecting audio object recording and insertion include:

- the recording procedure here is identical with the one referenced in section _____;
- a special icon is displayed alongside the file name to inform the user that it is an audio object file
- the title "Add sound " is replaced by Replace sound if an audio object has already been inserted;
- a special icon representing a musical note is displayed after insertion near the message: Page --/--.

IMPORTANT: *if the user wants to insert an image object with a sound, while the current MMS message slide already contains a sound, then that element will be automatically inserted in a new slide positioned behind the current one.*

6.2.6 Remove an Object (Audio, Text or Image Object)

The following card sequence shows what steps the end user takes to remove an audio, text or image object from an MMS message under construction. Access to inserted objects is obtained by confirming the Remove option in the contextual popup menu. Object types listed in the resulting choice card include those already represented in the slide. Any object type that has not been inserted in the slide is not listed, as can be seen in the sequence (the selected slide has no audio object in it).

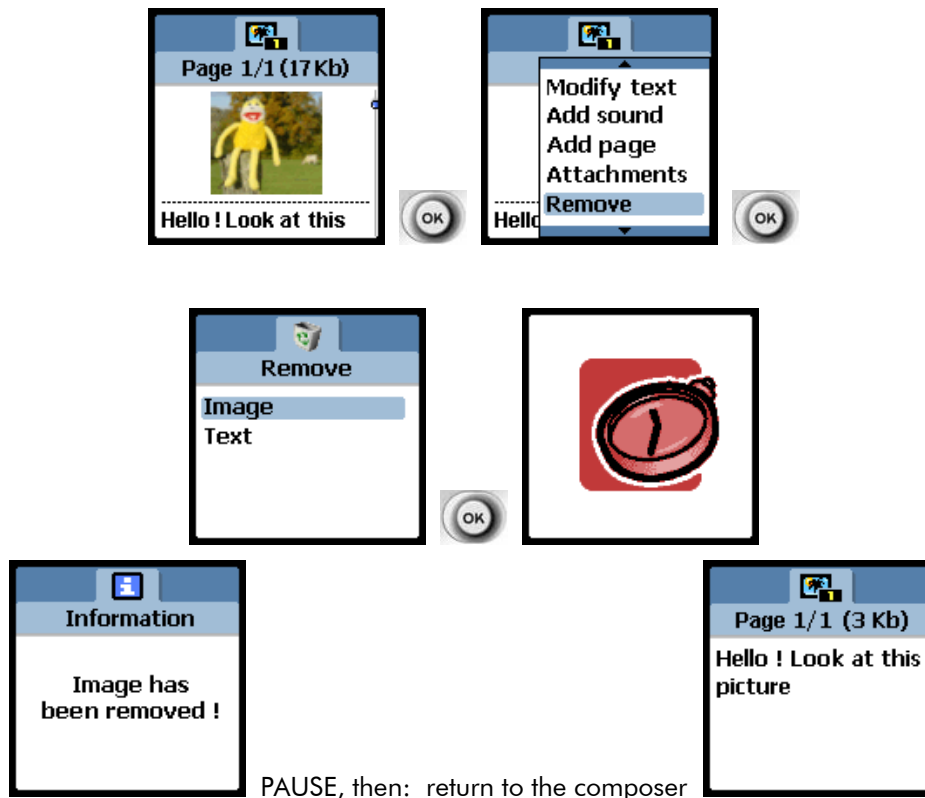


Figure 42: Remove a data object from an MMS message

When the currently selected slide is again displayed in the composer, MMS message construction can continue.

When the currently selected slide is again displayed in the composer, MMS message construction can continue.

6.2.7 Add New Slides to MMS Message

This short section tells how to insert additional slides during MMS message construction and reviews the software rules governing Composer behaviour when such slides are added.

6.2.7.1 Inserting an Additional Slide

The card sequence below shows what steps the end user takes to add a new multimedia slide to the MMS message.

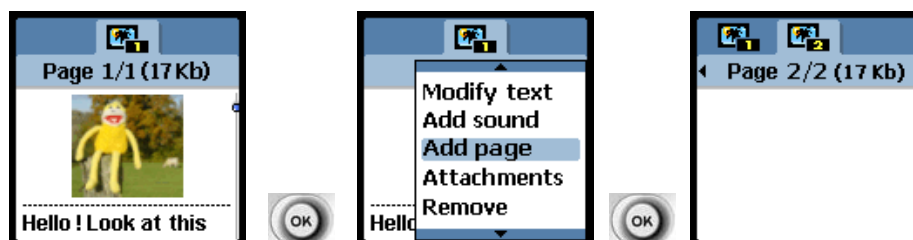



Figure 46: Add a new slide to an MMS message

Particulars affecting additional pages to the MMS message include:

- left and right drive  key presses enable easy navigation through the slide show;

- no additional slide can be added if the current one is empty;
- the MMS message size counter remains active in all slides even if one is empty, because it tells total MMS message size.

6.2.7.2 Composer Behaviour When New Slides Are Added

The rules governing composer behavior upon the insertion of additional slides is described in the table below.

Page Currently Displayed	Menu item confirmed	Resulting MMS structure
First case		
MMS Page 1	"Add page"	Slide 1 / Slide 2
Second case		
MMS Page 1	"Add page"	Slide 1 / Slide 2
Third case		
MMS Page 1	"Insert page"	Slide1 / Slide 2 / Slide 3/ Slide4
MMS Page 2	"Insert page"	Slide1 / Slide 2 / Slide 3/ Slide4
MMS Page 3	"Add page"	Slide1 / Slide 2 / Slide 3/ Slide4

The last slide always displays the Add page menu item.

For an MMS slide, Add page or Insert page adds a new slide behind the currently selected one.

6.2.8 Delete a Slide

Selecting Delete page in the contextual popup options menu of the currently selected slide deletes it. The card sequence below tells what steps the end user takes to accomplish this. A confirmation card always precedes slide deletion.

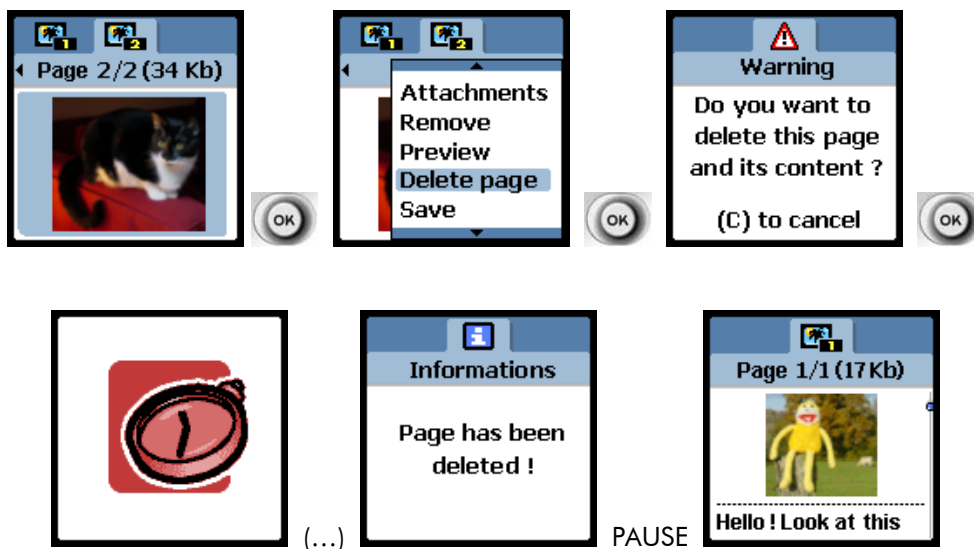


Figure 47: Delete a slide from an MMS message

If the current page is the only one, deleting it returns the Composer to a first page ready for composition.



Figure 48: Deleting a slide from one-slide message reinitialises Composer

After a slide deletion, the previous slide is appears selected. If we have three pages, then deleting n°2, then n°1 will be displayed.”

6.2.9 Saving MMS Messages

6.2.9.1 Saving During Composition

The end user can save the message during composition thanks to the Save item displayed in the contextual popup options menu.

When Save is confirmed, the MMS message is stored in the UMB Outbox's Unsent directory. The software also opens the UMB Outbox and the card is displayed with Unsent (1) selected.

6.2.9.2 Blank Page Behaviour / Saving

If the MMS message contains blank pages, its behaves thus:

- if the blank slide is the last one, it will neither be saved nor sent;
- if the blank slide isn't the last one, it will be saved and sent;
- if the MMS message contains only one empty slide, it can neither be saved nor sent.

6.2.10 Create Photographic or Drawn Image Animations

A series of action photographs or drawn images can be sent as an animation sequence. The end user can also simply send disparate images or create an image mosaic. Future end users of Alcatel's upcoming ONE TOUCH™ 735 (ONE TOUCH™ 535's sophisticated sister) will be able to use its camera feature to do this.

6.2.10.1 Animation Creation

If there is only one picture, it is inserted in the first page as an image (see section 6.2.2, *Add an image* for more information)

If there are several images, with one or several sounds, the behaviour is:

successive images in the animation occupy successive slides. In the animation sequence illustrated below, two sounds are attached, one to the first slide and one to the third slide.

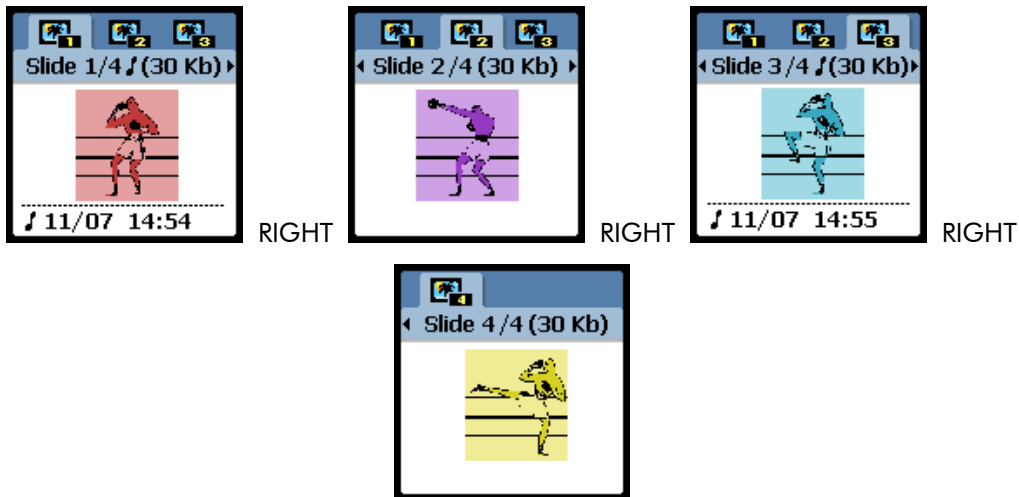


Figure 49: Example of drawn-image object animation

The animation slide show opens by default on the first slide.

The audio object name is the "file name" of that object saved in the content store.

The end user can delete one or several files from a composed series. In the illustrated slide show, for example, slide 2 could be removed.

6.2.10.2 Automatic Scrolling of the Animated Slide Show

Automatic scrolling of the slide show obeys the by-default or end user-set duration specified in the MMS Settings module, except where the duration of an audio object exceeds the setting. In that case the slide remains displayed until the audio object plays out. That is, if the MMS Settings specifies automatic scrolling slide duration of five seconds but the audio object attached to a slide lasts 10 seconds, that slide will be displayed for 10 seconds.

6.3 C-Key Press during MMS Message Composition

The behaviours obtained by pressing the C key at different stages of MMS message composition are given below:

- if entry into the composer was direct via the up drive key press shortcut from the Idle screen, a long C key press in the Composer returns the handset to Idle screen display. A short C key press returns to the Create choice card (MMS, SMS/EMS, Canned... and Vox/MMS menu items).
- if the handset is in Send to posture, then either a long or a short C key press returns it to the Idle screen;
- if the C key is pressed during composition, a warning message is displayed. In that case a drive key confirmation press deletes any MMS message under construction; but a second C key press returns to the Composer.

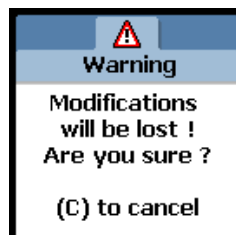


Figure 50: Warning message if C key pressed during Composition

Exceptions:

If a voice call is notified during message composition, the end user is given the choice of accepting or rejecting it. If the call is accepted, the inchoate message is saved (with the usual constraint of enough memory being available). After the call the product returns to the idle screen.

It is possible that the maximum message size is crossed by the insertion of a given object. In that case, object insertion is rejected and an error message notifies the end user.

6.4 *Save Messages*

Messages can be saved via the contextual popup menu.

An MMS message composed on the handset may contain empty slides. However, the last slide of a native message cannot be an empty slide. If the end user composes a message with an empty slide for the last slide, then the message is saved without the last slide.

6.5 *Voice-only Messaging Service (Vox/MMS)*

Vox/MMS composition is discussed in section 4.6.4.3, *Reply to a Received Message With a Voice MMS (Vox/MMS)* above.

6.6 *Activate URL Address Hyperlinks*

Any incoming message containing URL addresses as hypertext links makes WAP browser launching possible directly from the viewer. Such addresses are selectable in the same way as menu items and contextual popup menu items are. Confirming their selection with a confirmation drive key press launches the browser.

IMPORTANT: *browsing from the Viewer is not possible if the Viewer was launched from the Composer. Launching the Viewer from the Composer facilitates viewing of the message being composed only.*

However, recipients of an MMS message in which a URL address has been included as a single line will find the link active, in the same way as an URL address included in an E-mail is active.

7 MMS Settings Closeup

The MMS applications suite's setup menu is accessible via two leftward drive key pushes from the Create Message card. It is called Sending param, as is its first menu item.



7.1 ***Sending Param Menu Items***

As this document is being written, the Sending param menu items are named as follows (may not comply with display cards used in illustrations):

- Sending param. (enables end-user customisations and contains specified operator by-default customisations of the handset's sending parameters). The most important settings are the MMS Profiles, a subset of the overall WAP profiles available, 20 in all. The Sending param. menu items are treated in detail in a table below;
- Distribution list (enables creation and management of multi-recipient lists for all types of messaging). Distribution list confirmation first invites the end user to create a new list if no list exists. If that option is chosen, it switches to text input mode and invites list name entry. When that is done and confirmed a first contact entry is requested and the following submenu items become available. Data entry and list completion are intuitively simple; interfacing with the Directory set is quite seamless:
 - Continue;
 - Validate;
 - Directory (provides access to full Directory set);
 - Prefixes (for phone numbers);
 - Country/Area (special phone access codes);
 - Back;
 - Exit;
- Delete SIM msg (a Boolean choice card activated by a confirmation drive key press or a [C] key press, to respond to the text question: "Do you want to delete all the messages stored in the SIM card?") .;
- Delete prod. msg. (a Boolean choice card activated by a confirmation drive key key press or a [C] key press, to respond to the text question: "Do you want to delete all the messages stored in the product?")



7.2 ***Profile Settings: Menu in Detail***

This section deals with the Sending param. (MMS Parameters) / Profile menu in detail. The ONE TOUCH™ 535 handset manages a total of 20 WAP connection profiles for MMS, 10 of which are customisable. Up to four profiles may be left blank for possible OTAP provisioning. Blank profiles can also be placed at the disposition of end users, via this menu.

For more information on multiprofile WAP connections, profile lock levels and OTAP, please consult this handset's W@P Browser Reference Manual, ref.: SW/BH4R1/REFMAN/WAP.

REMINDER: *both the WAP browser and the MMS applications suite are applications that run in the WAP Applications Environment (WAE), which is the high-level layer of the WAP protocol stack. They share the WAP session multiprofile resources of the ONE TOUCH™ 535 handset between them. The viewer component of the MMS applications suite is provided by the browser's MMS toolkit.*

7.2.1 Create a WAP Connection Profile for MMS

When Profiles is selected in the MMS Parameters menu (obtained by confirming the Sending Param. item), the MMI either displays the Profiles list, if one exists, or else invites creation of an initial profile in the list. In the latter case the profile creation process is launched immediately. In the latter, the following popup contextual menu is displayed:

- Create;
- Modify;
- Delete;
- Back;
- Exit

In either case, if Create or Modify is selected and confirmed, the menu items detailed in the table below are proposed.

Profile Configuration Menu Item	Actions and Behaviours
Profile name	In the case of factory defaults, the profile names may either be specified by the operator according to their policies or specified by the manufacturer. In the case of end user-input profiles, the choice is up to the end user.
Service Centre	A data-entry card is displayed, set to lowercase-only text editing mode, ready to receive the address of the MMSC (service centre): http://mms1 , e.g.
IP address	A data-entry card is displayed, set to numerical characters-only text editing mode, ready to receive the MMSC's main IP address, in nnn.nnn.nnn.nnn format.
Security	A Boolean choice card is displayed, inviting the profile definer to choose between Normal and Secure modes.
Bearer Choice	<p>Selecting a preferred bearer or bearer mode (GPRS/GSM) leads to a further subset or (subsets) of choices. The initial item list appears in a choice card called Bearer input and consists of these choices:</p> <ul style="list-style-type: none"> • GPRS/GSM (this is the "GPRS/GSM fallback" choice, designed to move the ongoing GPRS communications session to CSD [GSM] mode if the GPRS network becomes unavailable and the PDP session detaches). <p>Note: GPRS session inactive time is not invoiced to the end user. Invoicing schemes involve numbers of GPRS connections established during a given period (in a month, e.g.) and/or actual data transfer. The same is not true for CSD-bearer WAP browsing, where connection time is billed unit by unit, in the same way as a voice call.</p> <p>To avoid customers' inadvertently leaving CSD GPRS connections open after they have stopped</p>

browsing, the CSD connection is monitored by a timer that cuts the communication after a certain amount of inactive time. Alcatel's choice for by-default timeout duration is 60 seconds, for the handset. The CSD network itself has a 30-second timer. The handset timer takes priority.

The CSD timer can be customised to suit the operator. The timer is transparent for the end user.

- GPRS (this choice means the MMS WAP session can only be performed via a GPRS attachment);
- GSM (this choice means the MMS WAP session can only be performed via a CSD session).

Once the choice is made, one or two further menus leading to data-entry cards that need to be filled up is/are displayed. In the case of a simple GPRS or GSM choice, only GPRS parameters or GSM parameters is displayed. In the case of GPRS/GSM fallback, both are displayed and should be filled up:

- GPRS parameters provides access to two data-entry cards and a Validation item. The cards are Authentication and APN:
 - Authentication rotates through a series of three other cards: Authentication; User name and Password.

For Authentication, the choice card proposes those authentication protocols supported by the ONE TOUCH™ 535 handset: PAP (password authentication protocol); and CHAP (Challenge-Handshake Authentication Protocol).

User name is operator-defined (mms@mms, e.g.) and input via a data-entry cards.

Password is operator-defined (mms. e.g.) and input via a data entry card;

- APN (access point name) proposes a menu of four items including: Create; APN list; Back and Exit. The latter two are self-explanatory. Create enables a new APN to be input and selected; APN list enables selection of the profile's APN from an existing list;
- Validation confirms the Authentication and APN choices made (or return to choices via [C]);
- GSM parameters provides access to it own menu, including the following items and their resulting cards:
 - User name (data-entry card in appropriate text-editing mode);
 - Password (data-entry card in appropriate text-editing mode);
 - Telephone (data-entry card in appropriate text-editing mode);
 - Access type (Boolean choice card between Digital and Analog alternatives);
 - Validate confirms the above choices made (or return to choices via [C]).

Push parameters

A choice among three Push parameters is proposed:

- SMS centre;
- Proxy SMS address;
- Proxy IP address.

Validate

Once all those parameters detailed above as necessary are set, pressing the Validation key returns the profile definer (professional or end user) to the Profiles list.

7.2.2 Profiles and Modes: Alcatel By-defaults and Operator Customisables

As stated in the table above (Bearer choice), the GPRS/GSM fallback timer that prevents inadvertently long CSD WAP sessioning is operator-customisable. There is no menu item; any customisation is in-factory.

The tables below presents Alcatel's choices for:

- by-default handling of MMS activities;

- by default values for the available WAP profiles for MMS.

7.2.2.1 MMS Activities and Modes

MMS Activities/Modes	Possible Values	Current By-Default Choices
National retrieval mode	Immediate only / deferred only / user choice	User choice
Default national retrieval mode if user choice	Immediate / deferred	Immediate
International retrieval mode	Immediate only / deferred only / user choice	User choice
Default international retrieval mode if user choice	Immediate / deferred	Deferred
Outgoing message storage mode	Stored in 'sent' folder (product memory) Not stored user choice	User choice
Default outgoing message storage mode if user choice	stored in 'sent' folder (product memory) not stored	stored in sent folder only (product memory)
Acknowledgement if notification sent by SMS	Yes / No	No
Acknowledgement in roaming mode if notification sent by SMS	Yes / No	No
Asynchronous MMS transmission (uploading) attempts	1 to 10 attempts	10
Asynchronous MMS transmission (uploading) intervals between attempts	1 to 10 minutes	Every 5 minutes until maximum attempts reached
Asynchronous MMS transmission (uploading) behaviour if maximum attempts reached without successful sending	Icon changes and message accessibility	Special icon indicates asynchronous-sending status of message. During sending attempt, message can be neither cancelled nor deleted; between sending attempts, it can be. If maximum attempts reached without success, message remains "Unsent"; icon changes to standard MMS message-identifying icon.

7.2.2.2 WAP MMS Profile By-default Values

A total of 40 WAP connection profiles are available in the ONE TOUCH™ 535, of which 20 are reserved for WAP browser connections and 20 for MMS applications suite connections (sending and receiving). Of the 20 WAP MMS connection profiles, up to four may be reserved for over-the-air provisioning (OTAP), which enables direct operator-to-handset profile downloading; and 10 are reserved for operator customisation. Of the customisable 10, operators can choose to place any or all of them at the disposal of end users.

REMINDER:

ten (10) of the 20 WAP connection profiles reserved for MMS applications suite use are customisable. Any of those may be made available to end users. Up to four of the non-cusomisable WAP MMS profiles may be reserved for OTAP.

Settings and Modes	Possible Values	Current By-default Choices
For Each Customisable WAP Profile		
Profile name	Message of up to 16 characters	Empty
MMS address	100 car with http://	Empty
Over the air provisioning facility	Yes / No	Yes
End-user modification	Yes / No	No
Wap profile visualization if no end-user modification	Yes / No	Yes
Connection parameter	cf "how to browse"	Empty
Proxy IP address 1 (Gateway)	IP address	Empty
Security mode 1 (UDP port)	Not secured (9201) / Secured (9203)	Not secured (9201)
Bearer Choice	GPRS+GSM fallback GPRS only GSM only	GPRS+GSM backup
GSM parameters (CSD)		
Authentication protocol	Data	Data
	PAP or CHAP / PAP / CHAP / None	PAP or CHAP
Login (not always displayed - see below)	32 characters max	Empty
Password (not always displayed - see below)	32 characters max	Empty
Access number 1	21 digits	Empty
Type	ISDN (digital)/RTC V32 (analog)	ISDN (digital)
Modem type if ISDN access is selected	None/Autobauding	None
Modem type if RTC V32 modem is selected	None/Autobauding	Autobauding
User rate	9600 bit/s / 14400 bit/s	9600 bit/s
Access number 2	21 digits	
Type	ISDN (digital)/RTC V32 (analog)	ISDN (digital)
Modem type if ISDN access is selected	None/Autobauding	None
Modem type if RTC V32 modem is selected	None/Autobauding	Autobauding
User rate	9600 bit/s / 14400 bit/s	9600 bit/s
GPRS parameters		
Authentication protocol	PAP	None
	CHAP	
	None	

Login (displayed only if PAP or CHAP selected)	32 characters maximum	Empty
Password (displayed only if PAP or CHAP selected)	32 characters maximum	Empty
APN	100 characters maximum	Empty
If profile WAP locked, GPRS bearer lock level	Fully locked / Partially locked	Fully locked
GSM login + password in the profiles parameters when they are the same for CSD & GPRS bearers	Displayed once for both Displayed once for each	Displayed once for both
DRM, MMS objects	Copyright / no copyright	No copyright
Presence of MMS sending confirmation card: "Send this MMS?"	Yes / No	Yes

7.3 *Other End User-accessible Parameters*

Beyond the WAP session connection profiles, other menu items in Sending param.'s MMS Parameters card can be made available to end users to customise their own settings. Those items include:

- Mode (MMS message reception);
- Ack: (MMS message receipt acknowledgement);
- Val: (message validity, or the length of time the MMSC should consider a message as valid and deliverable, and thus keep it stored on their server while attempting to deliver it);
- Mem. (whether MMS messages should be stored in handset memory or not);
- Timer (sets automatic scrolling interval for multislide MMS presentations). The units are seconds, and 0 through 20 are authorised.

The menu is shown below.

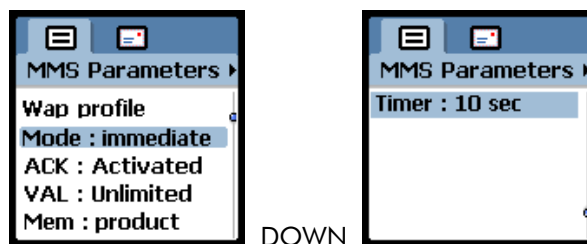


Figure 51: Sending param.'s MMS Parameters menu

7.3.1 **National and International Immediate/Deferred Mode Choice**

This parameters is under operator perso. If authorized, the user will have the possibility to access to this menu, and change the operators settings.

Mode : choice between immediate and differed. If the user choose immediate, he will download the MMS messages directly, if not, then he will receive MMS notification, and he will have the choice to download MMS or not.

Acknowledgment : activated or not

Validity : as SMS

Memory choice for MO storage : product or none (memory choice)

Timer : different times to be defined

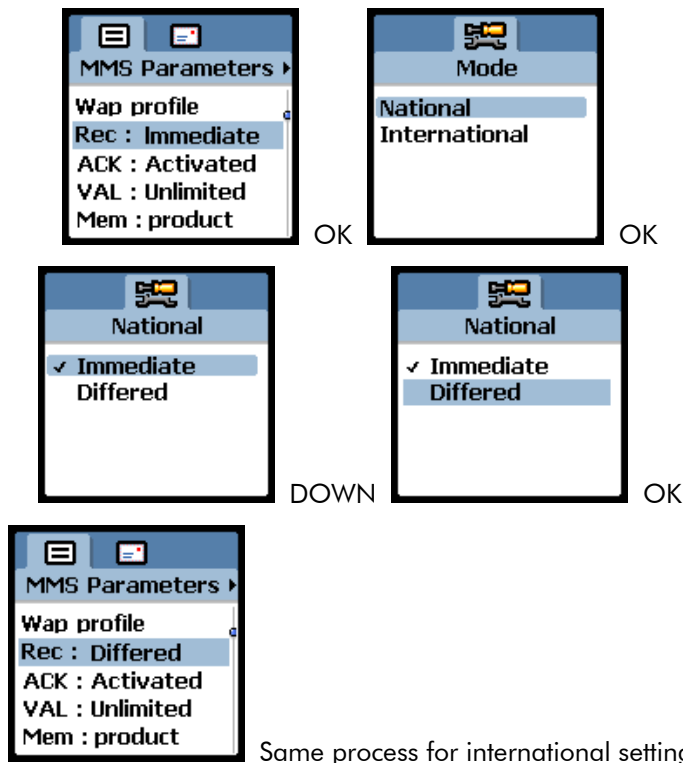


Figure 52: National and International Immediate/Deferred Mode Choice

The current, geographically relevant reception mode choice is displayed in this card. That is to say that, if the end user travels to a foreign country where his communications using the handset are still covered, the current choice represents her or his desire either not to have MMS messages downloaded automatically and immediately, or the contrary. On the other hand, when in a domestic billing situation, should her or his preferences differ, then so does the current choice.

The change from the National to the International preference, and back again, is transparent for the end user.

7.3.2 Ack:

"Acknowledgement" enables the end user to change by-default settings governing message receipt acknowledgement requests. The menu items include:

- Receipt/No receipt (Boolean alternatives);
- Back;
- Exit.

7.3.3 Val:

"Value" determines the length of time a message remains valid, deliverable and thus stored on the MMSC server as delivery attempts continue. The menu items include:

- Modify (Maximum time/1 hour/12 hours/1 day/1week/1 month);
- Back;
- Exit.

7.3.4 Mem.

"Memory" enables the end user to choose between storing received MMS messages in the handset's persistent memory or not. The menu items include:

- Modify (Storage product/No storage);
- Back;
- Exit.

WARNING: *MMS messages are never stored in the SIM card memory, only in the handset's flash memory.*

7.3.5 Timer

The Timer sets the temporal intervals separating playback of each slide in a multislides MMS message. The units are seconds, 0 through 20 are authorised. Its contextual menu items include:

- Modify (data-entry card set to numerical character-only editing mode);
- Back;
- Exit.

REMINDER: *the length of any attached audio object takes priority over the slide display interval designated here. If an attached audio object lasts 15 seconds but the Timer is set to 10, the slide containing that audio object nonetheless remains displayed for the full 15 seconds it takes to play back the sound.*

7.4 Other Sending param. Menu Items

The other items in this menu, comparatively simple and intuitively easy to use, have been sufficiently dealt with in the introduction to this chapter (Distribution list, Delete SIM msg, Delete prod msg.)

7.4.1 GPRS/GSM Automatic Bearer Fallback for MMS

The operator can specify automatic GPRS/GSM fallback as a customisation choice. This is operator-customisable: with confirmation card, or not.

If there is a confirmation card, the behaviour isn't exactly the same as the actual WAP behaviour.

If there is no confirmation card, the user sees nothing, excepte that the GPRS icon no longer appears on the idle screen.

If user confirmation is required, then this tempo screen will be displayed for three minutes:

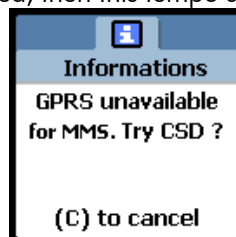


Figure 53: GPRS/GSM fallback card can be included

There are several possible end user response cases:

- the end user confirms with the drive key for Try CSD and is returned to the idle screen, where the MMS asynchronous sending icon is displayed;
- the end user presses on the C key, cancelling sending.
- the end user makes a long press on the C key, cancelling sending and returning to the idle screen
- the end user presses on any other key. This is the same as doing nothing.
- the end user does nothing. After three minutes, sending is cancelled and the display returns to the Idle screen

8 MMS Complements and Tools

Apart from those components that specifically comprise the MMS applications suite, a number of other "native", or "embarked" applications serve it. In this case, serving the MMS suite may not be their primary purpose, but the lines by which they can and do interact dynamically with MMS are clearly drawn. So in this context they can be seen as "native MMS complements and tools".

Among them are:

- the W@P Browser;
- a low-level content store device;
- a low-level event notifier device
- the Phone Book (contacts directory);
- the Album;

Native MMS complements and tools are not the only ones available. External complements and tools also exist that can and do enrich the still largely nascent MMS experience. These include:

- a set of PC-based complementary applications to be delivered with the ONE TOUCH™ 535 handset, called the ONE TOUCH™ 535 PC Suite;
- other peripherals capable of interacting with the handset, such as PC's and PDA/PIM's;
- independent VAS resources available in the Internet/WWW and WAP environments.

Both native and external complements and tools are dealt with briefly below.

8.1 *Native Complements and Tools*

Native MMS complements and tools are those embarked applications that facilitate and complement MMS use.

8.1.1 **W@P Browser**

The W@P browser is a sister application to MMS, since it also runs in the WAP Applications Environment high-level applications layer. The WAP browser is the subject of a separate reference manual in this series, the ONE TOUCH™ 535 W@P Browser Reference Manual, ref.: SW/BH4R1/REFMAN/WAP.

The purpose of the WAP browser is similar to that of Internet/WWW navigators: it enables sending and receiving of data via the WAP mobile communications protocol stack. Both specifically WAP-oriented sites and Internet sites can be browsed with this application, which facilitates two-way communications and data transfer.

The W@P browser is a complement and tool of the MMS applications suite in that it:

- enables downloading of content (image and audio objects, e.g.) for storage on the ONE TOUCH™ 535 handset or similarly capable digital devices. Such content can in turn be included in MMS messages and thus be part of the end user's MMS ingredients repertory;

- enables direct launching, via a menu item, of the MMS Composer. The movement from a browsing session to MMS message construction, previewing, adjustment, qualification (naming and addressing) and sending appears quite seamless to the end user;
- can itself be launched, just as seamlessly, from inside an MMS message being played back, when the user selects and confirms any valid URL address included in that message. The browser starts up, establishes its connection and goes to the URL.

8.1.2 Content Store Device

The content store device is a low-level storage base for all types of content the handset is capable of receiving, of transforming internally as necessary for interpretation and playback and of transmitting. That includes MMS messages, notifications, associated reports and objects (image and audio).

The content store is overlaid by the UMB and Album applications and so remains transparent for the end user. The end user does manipulate the content store, but only via the intuitive, user-friendly MMI's of those two higher-level applications.

8.1.3 Event Notifier Device

The event notifier is a low-level automat that handles such event signalling tasks as:

- notification received;
- message received;
- report received, etc.

The end user sees evidence of the event notifier's existence but doesn't perceive it as an entity. Rather she or he reads display and choice cards and interprets special icons whose display on or disappearance from the handset's screen is triggered by it.

8.1.4 Phone Book

The phone book is an embarked data base that holds phone book entries in several categories and enables their management. Phone book entry segments itemise such information as:

- contact name;
- contact phone number(s);
- contact E-mail address(s).

The phone book's dynamism enables seamless movement between it and an MMS message under construction that has reached the qualification stage (naming and addressing). Choosing and confirming contact identifiers in the phone book copies and pastes that addressing information into the message so it can be despatched to its destination.

Likewise, addressing information from any type of incoming message (or phone call) can easily be inserted into the phone book, and the entry completed manually later.

8.1.5 Media Album

The media album is an embarked data base manager that tables instances of the content store base in a way that is intelligible to the end user. The instances consultable and their on-screen presentation both particularly lend themselves to MMS message creation and/or "stripping" (that is, the breakdown of any whole MMS message into its component parts and their storage in the content store for reuse¹).

¹ insofar as reuse of that object is not prohibited by digital rights management software.

The media album offers a wide range of dynamic features for both the image object files and the audio object files it contains. Images can be selected, previewed, viewed, modified and deleted. Audio object files can be selected, listened to, sent (and, of course, received), recorded and composed.

A standard directory tree structure is provided wherein the end user can create new directories and organise them, delete all the files within one and/or the directory itself and rename them. The Media Album can easily be used in its by-default state or the end user may customise it to her or his heart's content.

REMINDER: *the WAP browser provides a ready means for adding new image and audio object files to the by-default collection that is stored in the handset as a factory by-default. Enormous numbers of ready-to-use objects can be gleaned from sites in the WAP and Internet/WWW environments.*

8.1.5.1 Media Album Organisation

The Media Album is organised by default into two root-level directories called My Images and My Sounds. Each one contains five by-default subdirectories that enable object filing according to type.

Although the end user cannot delete any of the by-default directories, she or he can add and delete other directories at the second, or branch level of the My Images and My Sounds directories.

IMPORTANT: *up to 10 subdirectories can freely be created and deleted within the My Images and My Sounds Media Album directories.*

When new objects are downloaded via a WSP session or from where they were stored in another device, the end user can place them in any subdirectory.

8.1.5.2 Media Album Page Layouts

The basic layouts for the two main types of media album choice list cards are shown below:

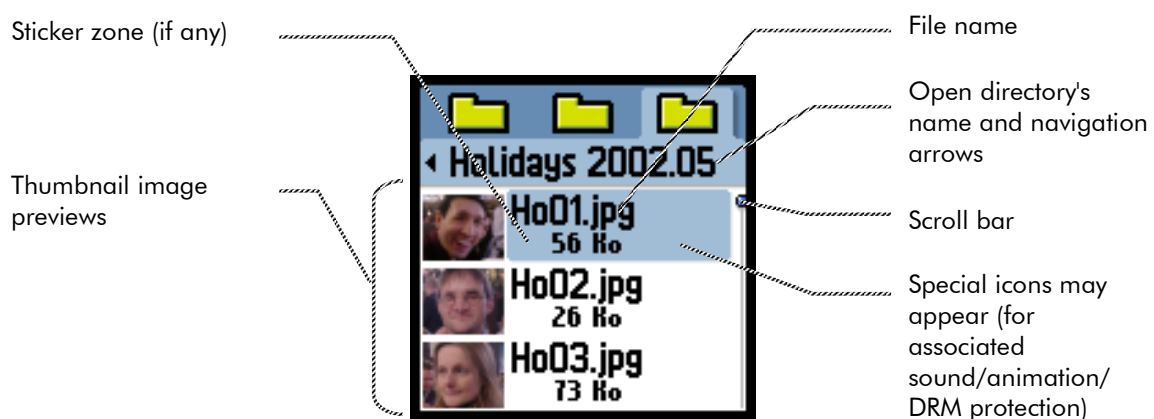


Figure 54 Layout of a "My Images" Media Album page

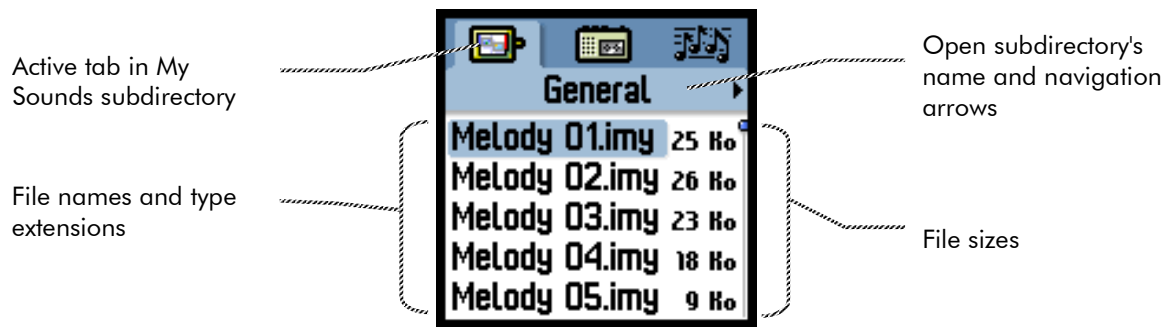


Figure 55 Layout of "My Sounds" Media Album page

8.1.5.3 Media Album as MMS Tool and Complement

During MMS message construction, confirmation of the contextual popup options menu items Add/Replace image or sound conveys the end user seamlessly into the appropriate Media Album directory, from whence she or he can navigate to the desired subdirectory and choose an object to include.

8.2 **External Complements**

The ONE TOUCH™ 535 has an accompanying set of programs that be installed on a PC. There are also VASP's (WAP and WWW sites) that provide content and facilitate MMS message building.

8.2.1 **PC-based Applications**

Alcatel provides a PC-based suite of applications, content and help files to complement its handsets. The pertinent one is called the ONE TOUCH™ 535 PC Suite. The end user may receive it on a CD-ROM point of purchase. It is also downloadable for free from the the World Wide Web (WWW).

The PC Suite software can be installed in most Windows operating environments.

8.2.2 **Specialised MMS Websites**

Many VASP's have been created offering downloadable content for mobile phone customisation and SMS messaging. As MMS grows in popularity they are expanding to to meet and anticipate demand.

9 UA Profile MMS Aspects

UA Profiles enable W@P gateway servers/proxies, VAS origin servers and manufacturers' public servers to work together automatically so that various MMS-enabled ME handsets may transmit, receive and reproduce intelligible messages and content. UAProf documents are XML files. They enclose resource description framework (RDF) "vocabulary", as specified in W3C-, OMA- and 3GPPP-supervised namespace schemas, inside the XML structure and syntax. The handsets tell gateway servers where their UAProf documents are located (on manufacturers' public servers), and the gateway servers relay that information to origin servers. The origin servers can in turn read those documents, which provide them with metadata instructions that enable content formatting/reformatting for optimal reception/playback.

This chapter presents the RDF XML concept underlying roaming UA Profiles generally and then discusses the items, attributes and values of specific interest, where MMS messaging is concerned.

9.1 *W@P Environment and the Internet*

Future telephone handsets will continue to provide access to WAP, Internet and WWW services. Such communications enter into and exit from the standard TCP/IP protocol stack via a physical gateway that facilitates data translation into and from a special mobile telecommunications protocol layer: the W@P.

Mobile telephone handsets have in effect reached out to the Internet via the Wireless Application Protocol (W@P). Their Internet participation will only grow as RDF, data-modem capability, new radiotransmission systems such as GPRS and UMTS and growing consumer awareness make such communications sessions faster, more efficient and cheaper for end users. W@P consists, at the technical level, of layered, encapsulating/decapsulating software installed in special "gateway" servers, where it forms the interface connecting W@P-enabled mobiles and the interface connecting TCP/IP with the mobile phone world.

An ME display does not equal a computer monitor's (nor a personal organiser's) display. Nor does an ME unit's computing power equal a PC's. The need for a standardised, machine-interpretable vocabulary that facilitates low-level, user-transparent preformatting of data for the devices intended to receive those data—and respond to them—became apparent several years ago. That vocabulary, called the resource description framework (RDF) language, is designed to be integrated into XML document syntax and structures. RDF is intended to adapt to all communicative electronic devices.

Extensible Markup Language (XML) documents (which are in fact, computer files) containing Resource Description Framework (RDF) instructions are now being published on handset manufacturers' external Internet servers. They can provide service to mobile communications operators who may, for instance, wish to provide automatic reformatting of MMS messages passing between handsets whose rendering capabilities differ. Such documents may also serve Internet- and WWW-site operators desirous of providing similar ancillary processing of their value-added services (VAS) for Internet-connected mobile phone users.

RDF is a simple language, or vocabulary, that is included in XML files as a namespace-based schema layer. It works via a syntax of "triplets". That is, in the XML schema layer it identifies the "component" resources belonging to the handset model in question, declares

what properties belong to those resources and then sets specific values for those properties. Values may be literal, Boolean or numerical. This is a subject-predicate-object syntax.

9.2 **User Agent (UA) Profile Publishing to On-line Server**

The process works like this. A mobile network operator or an Internet site operator is contacted by a mobile phone user during a W@P session. That contact is functionally a request for further information (display of the operator's homepage and other pages in a WML or HTML deck by the handset). "Aware" that the request for data issues from a mobile phone, the operator's or provider's software gains access to and reads the appropriate RDF XML file, stored on the manufacturer's public server. To do so, it uses metadata-specified addressing information incoming with the communication.

The roaming UA Profile that can thus be applied almost instantaneously to the message's data optimises it for reception by the requesting handset. A similar investigation and adjustment can occur if the MMS message is simply transiting from one handset to another.

Site operators wishing to promote mobile handset-to-Internet W@P sessioning have or will have prepared/obtained their own metadata-processing applications. Those can, in turn, repackage data and instructions for despatch to the W@P gateway. Hardly implemented at present, this "semantic web" RDF vocabulary is nonetheless promised a great future and ALCATEL systematically provides a full RDF XML UA Profile with each new handset it places on the market.

9.3 **UA Profile**

9.3.1 **Summary of UA Profile Schema**

The table below summarises only the "MMSCharacteristics" RDF component and attributes that are defined within the WAP User Agent Profile schema. *A complete presentation of the UAProf is provided in this manual's sister document, the ONE TOUCH™ 535 W@P Browser Reference Manual, ref.: SW/BH4R1/REFMAN/WAP*

IMPORTANT: *for further information about attributes, please refer to the OMA/WAP Forum WAGUAPROF document.*

Component: MMSCharacteristics			
Attribute	DESCRIPTION	Type	Values for OT535
MMSMaxMessageSize	Handset's maximum message size, expressed in bytes	Numerical	51200
MMSMaxImageResolution	Maximum image size, expressed in pixels	Numerical	640x480

Component: MMSCharacteristics			
Attribute	DESCRIPTION	Type	Values for OT535
MMSCPPAccept	"Bagged" list of text code content types supported by the MMS applications suite implemented in this handset	Literal	Text/presentation content types include: <ul style="list-style-type: none"> • Extensible Hyper Text Markup Language (text/xhtml) • Hyper Text Markup Language (text/html) • Wireless Markup Language (text/wml) • simple text (text/plain)
"	"Bagged" list of audio object content types supported by the MMS applications suite implemented in this handset	Literal	Audio <ul style="list-style-type: none"> • Musical Instrument Digital Interface (MIDI) (audio/midi) (audio/mid) (audio/x-midi) • Scaleable Polyphony MIDI (audio/sp-midi) • Adaptive Multi Rate (audio/amr) (audio/x-amr)
"	"Bagged" list of image object content types supported by the MMS applications suite implemented in this handset	Literal	Image <ul style="list-style-type: none"> • JPEG (image/jpeg) • GIF (image/gif) <i>still or animated</i> • Portable Network Graphic (PNG) (image/png) • Wireless Bit Map (WBMP) (image/wbmp) • Bit Map (BMP) (image/bmp)
	"Bagged" list of application object content types supported by the MMS applications suite implemented in this handset	Literal	Application <ul style="list-style-type: none"> • Synchronised Multimedia Integration Language (SMIL) (application/smil) • WAP multipart (application/vnd.wap.multipart.mixed) • WAP multipart (application/vnd.wap.multipart.related)

Component: MMSCharacteristics			
Attribute	DESCRIPTION	Type	Values for OT535
MMSCPPAcceptCharSet	"Bagged" list of character code sets supported by the MMS applications suite implemented in this handset	Literal	<ul style="list-style-type: none"> • UTF-8 • UTF-16 • UTF-16BE • UTF-16LE • US-ASCII • UCS-2 • ISO-8859-1 en, fr (for English and French, respectively)
MMSCPPAcceptLanguage	List of languages supported by the MMS applications suite implemented in this handset	Literal	Not relevant (no preference expressed)
MMSCPPAcceptEncoding	List of transfer encoding methods supported by the MMS applications suite implemented in this handset	Literal	Not relevant
MMSVersion	List of MMS versions supported by the MMS applications suite implemented in this handset	Literal	1.0.1.1
MMSCPPStreamingCapable	Tells whether or not the MMS user agent supports streaming	Boolean	Not relevant

9.3.2 RDF File for Alcatel's ONE TOUCH™ 535 Handset

The ONE TOUCH™ 535-specific MMSCharacteristics RDF component below is encoded in XML syntax. This component comprises part of a larger RDF document stored on a dedicated server, at the URL address below, where it can be consulted:

http://www-ccpp-mpd.alcatel.com/files/ALCATEL-BH4_1.0.rdf

```
<?xml version="1.0" ?>
<rdf:RDF xmlns:rdf="http://www.w3.org/1999/02/22-rdf-syntax-ns#"
xmlns:prf="http://www.wapforum.org/profiles/UAPROF/ccppschem-20000405#">

<!-- This RDF document contains the User Agent Profile of an Alcatel mobile
telecommunications equipment handset. This "comments" section contains the version and date
of the RDF document. -->
<!-- Version published Date-->
<!-- Version 0.1 - 21 March 2003 -->

<!-- "rdf:Description ID=" tells which handset this profile concerns -->

<rdf:Description ID="BH4Profile">
```

...

```
<!-- The following section contains the "MMSCharacteristics" RDF information -->

<prf:component>
<rdf:Description ID="MMSCharacteristics">
  <rdf:type resource="http://www.wapforum.org/profiles/MMS/ccppschem-
20010111#MmsCharacteristics" />

  <prf:MmsMaxMessageSize>51200</prf:MmsMaxMessageSize>
  <prf:MmsMaxImageResolution>640x480</prf:MmsMaxImageResolution>

  <prf:MmsCcppAccept>
    <rdf:Bag>

      <rdf:li>image/jpeg</rdf:li>
      <rdf:li>image/gif</rdf:li>
      <rdf:li>image/png</rdf:li>
      <rdf:li>image/vnd.wap.wbmp</rdf:li>
      <rdf:li>image/wbmp</rdf:li>
      <rdf:li>image/bmp</rdf:li>

      <rdf:li>audio/midi</rdf:li>
      <rdf:li>audio/mid</rdf:li>
      <rdf:li>audio/x-midi</rdf:li>
      <rdf:li>audio/sp-midi</rdf:li>
      <rdf:li>audio/amr</rdf:li>
      <rdf:li>audio/x-amr</rdf:li>

      <rdf:li>application/smil</rdf:li>
      <rdf:li>application/vnd.wap.multipart.mixed</rdf:li>
      <rdf:li>application/vnd.wap.multipart.related</rdf:li>

      <rdf:li>text/xhtml</rdf:li>
      <rdf:li>text/html</rdf:li>
      <rdf:li>text/wml</rdf:li>
      <rdf:li>text/plain</rdf:li>

    </rdf:Bag>
  </prf:MmsCcppAccept>

  <prf:MmsCcppAcceptCharSet>
    <rdf:Bag>
      <rdf:li>UTF-8</rdf:li>
      <rdf:li>UTF-16</rdf:li>
      <rdf:li>UTF-16BE</rdf:li>
      <rdf:li>UTF-16LE</rdf:li>
      <rdf:li>US-ASCII</rdf:li>
      <rdf:li>UCS-2</rdf:li>
      <rdf:li>ISO-8859-1</rdf:li>
    </rdf:Bag>
  </prf:MmsCcppAcceptCharSet>
</rdf:Description>
</prf:component>
```

```
</rdf:Bag>
</prf:MmsCcppAcceptCharSet>

<prf:MmsVersion>1.0</prf:MmsVersion>

</rdf:Description>
</prf:component>
```

10 Appendices

10.1 *Appendix A: Standards Compliance*

10.1.1 Compliance Table

Features	Compliance
Client Transactions and Wireless Protocols	
Client Level Function Groups (MMSTR-CLF-C-001 to 004)	Yes
Send transaction (MMSTR-SND-C-001 to 003)	Yes
Notification Transaction (MMSTR-NTF-C-001 to 003)	Yes
Fetch Transaction (MMSTR-FTC-C-001 to 003)	Yes
Fetch Transaction (M-acknowledge-ind) (MMSTR-FTC-C-004)	Yes
Delivery Report Transaction (MMSTR-DRP-C-001 to 002)	Yes
Read Reports (MMSTR-RRP-C-001 to 002)	No
PDU Encapsulation Dependencies (MMSTR-FTC-C-001 to 005)	Yes
PDU Encapsulation Dependencies (MMSTR-FTC-C-006 : M-acknowledge-ind)	Yes
PDU Encapsulation Dependencies (MMSTR-FTC-C-007 : M-delivery-ind)	Yes
WAP PUSH Dependencies (MMSTR-PSH-C-001 to C004), SMS bearer	Yes
WAP PUSH Dependencies (MMSTR-PSH-C-005 : Secure Port for Connectionless Push)	Yes
WAP PUSH Dependencies (MMSTR-PSH-C-006 : Non-secure Port for Connection Oriented Push)	Yes
WAP PUSH Dependencies (MMSTR-PSH-C-007 : Secure Port for Connection Oriented Push)	Yes
WSP/HTTP Dependencies (MMSTR-WSP-C-001 to 004)	Yes
MMS Encapsulation: OMA Requirements	
General message structure: Mandatory features	Yes
• Support for MMS presentation in multipart structure (MMSE-C-002)	Yes
• Sending and functionality for additional headers (MMSE-C-003 to 004)	No
• Support of presentation without presentation part (MMSE-C-005 if MMSE-C-002 is not supported)	Yes
• Support for other multimedia objects than text, mobile originating (MMSE-C-007)	Yes
• Support for MMS presentation in multipart structure (MMSE-C-009)	Yes
• Functionality for additional headers (MMSE-C-0011)	No

• Support for text/plain multimedia objects (MMSE-C-0013)	Yes
• Support for other multimedia objects than text, mobile terminating (MMSE-C-0014)	Yes
Sending of MMS : Mandatory features	Yes
• Date field (MMSE-C-0018)	Yes
• To field : MSISDN and e-mail addressing (MMSE-C-0020)	Yes
• Cc field : MSISDN and e-mail addressing (MMSE-C-0021)	Yes
• Bcc field : MSISDN and e-mail addressing (MMSE-C-0022)	Yes
• Subject field (MMSE-C-0024)	Yes
• Message-class field: "personal" (MMSE-C-0025)	Yes
• Expiry field (MMSE-C-0026)	Yes
• Delivery Time field (MMSE-C-0027)	No
• Priority field (MMSE-C-0028)	No
• Sender Visibility field (MMSE-C-0029)	No
• Delivery Reports field (MMSE-C-0030)	Yes
• Read Reply field (MMSE-C-0031)	No
• Response-Text field: displayed together with the status text (MMSE-C-0034)	No
MMS Notification: Mandatory features	Yes
• From field (MMSE-C-040)	Yes
• Subject field (MMSE-C-041)	Yes
• Report-Allowed field (MMSE-C-047)	No
Retrieval of MMS: Mandatory features	Yes
• Transaction-ID field (MMSE-C-049)	Yes
• Message-ID field (MMSE-C-050)	Yes
• Message-ID field present when Read-Reply value is Yes (MMSE-C-051)	Yes
• To field: display (MMSE-C-056)	Yes
• Cc field: display (MMSE-C-057)	Yes
• Subject field: display (MMSE-C-059)	Yes
• Message Class field: display (MMSE-C-060)	Yes
• Priority field: display (MMSE-C-061)	Yes
• Delivery Report (MMSE-C-062)	Yes
• Read Reply (MMSE-C-063)	No
• Content-type field: display (MMSE-C-06)	No
• Report-Allowed field (MMSE-C-065)	No
• Support of recognition of read-reply message field (MMSE-C-066)	No
If Supported: Acknowledge and Delivery Reports Mandatory Reports	Yes
• Report-Allowed field (MMSE-C-070)	No

MMI Characteristics	Compliance
MMS headers: if functionality for a received header does not exist, the mobile shall not reject the MMS and process it normally.	Yes
In the M-Send.conf PDU, the "Response-Text" field shall be displayed together with a text which describes the "Response-Status" code.	No
It is possible to send more than one picture in one MMS.	Yes
Timing for each slide can be set.	Yes
NOTE: the by-default or user-parametered setting is the same for all slides.	
Composing MMS: the mobile uses the "name" parameter of the object content-type to define the object name.	No
NOTE: content location is nused for naming media objects.	
If the object name contains one or more non US-ASCII characters, these characters are replaced by a similar US-ASCII character ("é" becomes "e").	No
Reading: the name given to the media objects can be editable.	No
Reading: a default name of the object is proposed, and is the same as the value of the content-type's "name" parameter.	No
Reading: if the "name" parameter is not present, the value of the "Content location" header is used for each object.	Yes
Encoding	Compliance
Us-ascii used if the character set is not defined inside the encoding	Yes
Utf-8 charset used if the header value cannot be encoded in us-ascii.	Yes
The headers whose definition is Text-string shall contain only us-ascii characters	Yes
Presentation	Compliance
Support of SMIL (Conformance document V 2.0.0)	Yes
• layout	Yes
• region (left, top, height, width, fit, id)	Yes
• root-layout (width, height)	Yes
• text (src, region, alt, begin, end)	Yes
• img (src, region, alt, begin, end)	Yes
• audio (src, alt, begin, end)	Yes
• ref (src, region, alt, begin, end)	Yes
• smil (xmlns)	Yes
• head	Yes
• body	Yes
• par (dur)	Yes
• meta (name, content)	Yes

If the mobile receives SMIL with unsupported attributes, these attributes must be ignored but the presentation still exists.	Yes
If the mobile receives SMIL with unsupported root tags, which prevent it from determining overall object presentation, the MMS shall be rendered without the SMIL information	Yes
The character set used for the SMIL part encoding is utf-8	Yes
The content-type of the MMS body with MMS presentation is application/vnd.wap.multipart.related, with start and type parameter. In an outgoing PDU, the content-type must be tokenized	Yes
If MMS presentation is not supported, the content type of outgoing MMS must be application/vnd.wap.multipart.mixed	No
Support of incoming MMS with the content-type application/vnd.wap.multipart.mixed	Yes

Memory and Storage	Compliance
Minimum supported message size: 50 kb.	Yes
Minimum of 20 messages stored in the phone memory	Yes
Message Id: 40 character	Yes
Transaction Id: 40 characters	Yes
X-MMS-Content-Location: 100 characters	Yes
MMSC URL length: 50 character	Yes
Subject: 40 characters	Yes
X-Mms-Response-Text: 30 characters	No
NOTE: X-Mms-Response-Text is ignored.	
The mobile does not try to fetch a MMS if there is not enough space	Yes
An explicit message indicates the user that there is not enough space for fetching an incoming MMS	Yes
When receiving a notification which indicates a message size greater than the available memory, the terminal defers the message retrieval on its own, even if the automatic retrieval setting has been selected.	Yes

Interactions Between MMS and Other Services	Compliance
Upon reception of a MMS notification during a phone or data call (WAP over CSD), the mobile fetches the MMS and prompts the user once the call is cleared (immediate retrieval)	No
Upon reception of a MMS notification during a phone or data call (WAP over CSD), the mobile responds to the notification then prompts the user once the call is cleared (delayed retrieval)	No
A discrete tone is played in the earpiece when receiving a MMS during a call, without disturbing the call.	No
When receiving a MMS notification during a GPRS WAP session, the terminal processes it while the user is browsing	No
If the MMS can be read during a WAP session, the mobile goes back to the last visited WAP page once the message is read.	No
MMS-MT: answer by a call to the originating number.	Yes
MMS-MT: easy storage of the originating number in the phonebook.	Yes
MMS-MT: direct connection to the URL contained in the MMS	Yes

10.1.2 **Precisions on Handset Behaviour When Events Overlap**

Certain events can prevent MMS messages from being sent and certain events can interrupt MMS messages that are being sent.

10.1.2.1 Actions that Temporarily Prevent MMS Messages from Being Sent

- speech communications;
- connection with networked PC via CSD bearer;
- WAP browsing;
- synchronisation "Sync ML";
- downloading of Infusio games;

10.1.2.2 End User Actions that Interrupt MMS Message Sending

- speech communications (incoming, if accepted; outgoing);
- WAP browsing;
- Voice recognition;
- Voice recording (personal memoranda, MMS Composer, Camera (for upcoming ONE TOUCH™ 735), Melody composer.

10.2 ***Appendix B: Languages and Formats Supported***

See the previous chapter, . The "languages" and "formats" supported by MMS applications suite are listed in its RDF component. See Chapter 9, *UA Profile MMS Aspects*.

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