



ALCATEL's ONE TOUCH™ 535 and ONE TOUCH™ 735



Content Management Reference Manual

SW/BH4R1/REFMAN/CONTENT - Document issue 1.0

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WARNING:

The illustrations in this document are for information purposes only and have no contractual value. They are as close as possible of the screens actually displayed in the end-user's product.

1 Introduction

This Content Management Reference Manual for the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets is aimed at operators and value-added service providers (VASP's), especially multimedia content developers.

1.1 *New Handset Highlights*

The ONE TOUCH™ 535 offers end users overall data storage space of approximately 700 KB; the ONE TOUCH™ 735, approximately 1,8 MB. Both thus propose a lot of variable storage space for the new multimedia content. In the Media album, end users can create personal subfolders to file related objects in.

One customisable aspect of the handset will stimulate content consumption: the contacts directories enable sound and picture association with individual contacts, streamlining caller identification and making the phone ever friendlier.

The large (128 x 128 pixels) 4096-colour screen and the eye-pleasing, graphics-based main menu immediately pull end users into an easy and intuitive navigation, which is designed to make using this handset "second nature".

Sounds are played back through a specific loudspeaker dedicated to melodies and hands-free listening.

1.2 *How to Read this Document*

What do its chapters contain? Where can I find the specific information I need? This short section asks the questions we think you will be asking and tells where you can find the answers

1.2.1 **In Chapter 2: Supported Formats and Object Playback**

What multimedia objects and presentation formats do ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets support? How does a handset store, play back and send downloaded (or created) objects/presentations?

Those initial questions are answered below, in Chapter 2, *Content Object Media and Formats*.

1.2.2 **In Chapter 3: Recommendations**

What specific recommendations does Alcatel make, in terms of size and format, and per type of usage? Best read after perusing Chapter 2 briefly.

REMINDER: *one immediate recommendation: keep objects small! Optimise them, to achieve the lowest possible kilobyte (KB) size. Keep them light for processing speed and customer satisfaction!*

1.2.3 **In Chapter 4: Formats in Detail and Media Constraints**

The fourth chapter passes supported content objects in review, mime type by mime type. Any constraints in terms of size, use and accessibility are identified. The embedded

playback media capable of handling each content type are named and relevant capability information is provided.

Any further information provided is in an Appendix section at the end of the document.

1.2.4 In Chapter 5: Resources and References

Describes external tools proposed or suggested by Alcatel for developers who want to supply content that is both:

- attractive to handset end users;
- easily "digestible" by the handset itself

Are there web sites to consult, downloadable software tools?

The answer is yes! See section 6.1, Web Sites Designed for Desingers.

1.2.5 In Chapter 6: Ancillary Parametering

Just a short reminder of digital rights management (DRM) solutions and content adaptation techniques for optimal replay of multimedia content currently being implemented by operators and VASP's,

1.2.6 In Chapter 7: Appendices

Diverse accompanying information.

2 Content Object Media and Formats

Most content object importing is done by applications that run Wireless Application Protocol (WAP) sessions. The GPRS capability of both machines mean that the process of WAP session downloading is no longer restrictive in terms of time and handset use, nor in terms of transmission cost. MMS messaging is a WAP application that facilitates both downloading and sending.

The Enhanced SMS text messaging application (SMS/EMS) can also be used to acquire and send image and audio objects (GSM CSD communications sessions).

2.1 *Importing and Exporting Applications*

The applications that enable content object downloading and/or sending are described below.

2.1.1 WAP Environment Applications

The ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets have two embedded WAE applications:

- a WAP browser
(see the sister volume to this manual for a detailed presentation of that application: *ONE TOUCH™ 535 and ONE TOUCH™ 735 WAP Browser Reference Manual*, ref.: SW/BH4R1/REFMAN/WAP);
- an MMS applications suite
(see the sister volume to this manual for a detailed presentation of the set of applications that form it: *ONE TOUCH™ 535 and ONE TOUCH™ 735 MMS Applications Suite Reference Manual*, ref.: SW/BH4R1/REFMANMMS).

Both can function in either GSM Circuit Switched Data (CSD) or General Packet Radio Service (GPRS) modes.

2.1.2 MMS Messaging, SMS/EMS Messaging and Others

Multimedia Messaging Service messaging enables the end user to download multimedia objects, as well as to send composed multimedia content off to others.

The Enhanced Messaging Service (EMS) application allows certain image and audio objects to be integrated in SMS text messages.

Other embedded tools enable data handling or creation of original data objects. These include a Media Album that contains all audio and image objects, a sound recorder, a game player and, in the ONE TOUCH™ 735, a camera.

2.1.3 Other Tools and Uses

The Alcatel PC Suite is available for both handsets. It facilitates content object creation and transfer between the handset and the PC. See section 6.1.2, The Alcatel Web Site, for more information.

2.2 **Downloadable Formats and Handset Characteristics**

The Alcatel ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets come with extensive data downloading capabilities that enable the end user to acquire audio and image objects for handset customisation and/or personal edification (news photos, music, sound bites, e.g.). New and extant applications (Enhanced SMS messaging [SMS/EMS], and MMS messaging) encourage interaction with similarly equipped correspondents in an improved-quality multimedia environment.

Briefly, the handset's software platform supports downloading and playback of the following multimedia content objects:

2.2.1 **Content Object Storage and Playback**

Storage of content objects is centralised in the handset software for efficient handling. The end user sees only those stored objects that are relevant to her or his use context, however. Different applications open different "windows" on pertinent available content objects

Readers desirous of background information on the regulation and naming of the Multimedia Internet Mail Extensions (MIME) types used to identify content object formats can consult the Requests For Comments (RFC's) documents No's. 2045 and 2046, accessible at the Internet Engineering Task Force (IETF) RFC Pages page:

<http://www.ietf.org/rfc.html>

Any of several public key infrastructure cryptography security solutions are proposed for end-user selection and application.

2.2.2 **Supported Audio Object Formats**

The various applications embedded in the handset support downloading and playback of an overall total of four main audio content types:

- iMelody (**IMY**);
- Musical Instrument Digital Interface (**MIDI**);
- Scaleable Polyphony (**SP-MIDI**);
- IETF-Adaptive Multi-Rate (**AMR**);

The complete list of mime types supported for each of these generic content object types is given, with playback behaviours and characteristics, for each application able to process them, in *Chapter 4, Content Type Formatting and Playback*.

2.2.3 **Supported Image Object Formats**

The embedded applications in the handset support download of and can play back an overall total of eight main image content types.

- Enhanced Messaging Service static pictures, in R4 format (**PIC**);
- Enhanced Messaging Service animations, in R4 format (**ANI**);
- Standard Bitmaps (**BMP**). These are non-compressed pixellisations;
- Wireless Bitmaps (**WBMP**). These are non-compressed black-and-white pixellisations;
- still Graphics Interchange Format bitmaps (**GIF**). These usually-compressed images have a colour palette of 256 colours.
- animated Graphics Interchange Format animated bitmaps (**GIF**). These image objects are formatted consistently with the previously listed still GIF objects, but whole-image or zone variants can be contained in them, with instructions on display timing. The result is an animation. Both 87a and 89a are supported;

- Joint Photographic Experts Group (**JPEG** or **JPG**). Input: **JPEG** JFIF or EXIF baseline DCT images. Output: **JPEG** JFIF baseline DCT only. **JPEG** is a pixellised 24-bit RGB colour image, where R, G and B each have eight-bit samples;
- Portable Network Graphics format compressed bitmaps (**PNG**). This image format is used to make frames since its sampling scheme proposes full transparency (see section 4.2.3, *Image Object Types and Behaviours* for more information and technical recommendations)

IMPORTANT: *PNG and GIF formatting allow creation of transparent zones in images where that is desirable. See section 3.1.3.1, Frame below for specific Alcatel frames requirements. See 4.2.3, Image Object Types and Behaviours, for transparency coding information per format.*

2.2.4 Supported Presentation and Layout Rules

The embedded applications in the handset support download of, and can play back content files that present text and image layouts conforming to the following rules sets:

- Hyper Text Markup Language (**HTML**);
- Extensible HTML (**XHTML**);
- Cascading Style Sheets (**CSS**);
- Wireless Markup Language (**WML**);
- limited support for **vCard** and **vCalendar** (exchange ME-PIM/PDA);
- Plain Text presentations.

2.3 Factory-customisable OEM Features

The table below provides Alcatel by-default choices for customisable features related to content downloading.

Feature	Description	Possible Values in ONE TOUCH™ 535 and ONE TOUCH™ 735	By-default Value
Stamps	Any image format Stamp size: 16x16 or 32x32 pixels	50 stamps (OT 735) embedded by default 30 stamps (OT 535) embedded by default	All stamps deleteable except one (both handsets)
Frames	Format: PNG only! Size: 128 x 128 pixels	20 frames embedded by default (OT 735) 10 frames embedded by default (OT 535)	1 Alcatel by-default list All frames deleteable except one
Digital Rights Management (DRM) solution	DRM policy on objects received via WAP download	May or may not be forwarded	May be forwarded

3 Recommendations

Keep Objects Small!

Alcatel's general recommendations on content object development are the following.

Optimise content for size! Do not overtly sacrifice quality, but strive to keep multimedia content objects as "light" as possible. The handset has a limited memory "footprint" that is shared among applications.

3.1 *Specific Recommendations for Image Objects*

Multimedia content developers can take advantage of the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets':

- 128 x 128 pixel, 4096-colour display screens;
- support of a variety of image object file formats.

Recommendation:

Alcatel recommend a preference for JPEG, or GIF files over PNG wherever possible—as the latter take longer to decode. However, frames MUST be in PNG format.

The end user who stores a great number of PNG image objects on her or his handset will encounter efficiency loss when browsing through the Media Album.

Below are more detailed and specific recommendations for image objects intended for use in MMS messages, for handset customisation and for use in decorating or customising other images.

3.1.1 **Images Included in MMS Messages**

Images and animations in any of the formats supported by the handset can be used. Maximum image size is 50 KB, but significantly smaller images are recommended, since the maximum size of a whole MMS message is also 50 KB.

Recommendation:

JPEG format is recommended for still photos (and similarly complex images).

GIF is recommended for drawings, such as line drawings and cartoons. It is also recommended for animations.

Another way to depict action using images in a format other than GIF would be to include each picture in of a sequential set in chronological order on successive slides of an MMS message. Up to five (5) slides can be included in a native-built ONE TOUCH™ 535 or ONE TOUCH™ 735 MMS message. Incoming non-native built MMS messages may contain more than five slides, but are constrained by the same maximum MMS message size limit of 50 KB. This would not constitute a true animation but effectively be used to illustrate an action or process.

3.1.2 Images for Handset Customisation

Following are recommendations for images proposed to the end user for handset customisation.

3.1.2.1 Main (Idle) Screen Customisation

Any of the supported image/animated image formats can be used.

Recommendation: prefer 128 x128, to fill the display screen completely. Larger images are resized for display, but detail and some of the periphery of the image are lost, while the larger size takes up memory space unnecessarily.

Recommended format: JPEG for still photos and images, where rich-colour rendering is important.

GIF for drawings, cartoons and animations.

3.1.2.2 On/Off Screen Customisation

The image played back whenever the handset is turned on or off can be in any supported format and size. The end user can customise the sound associated with the On/Off process as well as the image, so proposing both together might add to the appeal of the content.

Recommendation : 128x128 image to fill the display screen completely.
An animation may be smaller but should in any case be well constructed and optimised for size. Animation duration should be from two to four (2 to 4) seconds.

3.1.3 Image Modification Feature

This feature is implemented in the ONE TOUCH™ 735 and in most ONE TOUCH™ 535's (depending on the version).

It enables superimposition of frames and stamps on other images and their saving together in one file under a new name (as a .jpg object).

Content providers are encouraged to develop a line of image enhancers that end user can add to their own, natively-produced or imported photographs, or to other images if they so wish.

3.1.3.1 Frame

Frames are large images intended to occupy the complete perimeter of the handset's screen, but to contain a fully transparent central or other area through which the image in the background can be seen. Frames may be decorative, humorous or designed to express various emotions. Frames can be added to an existing image with either the ONE TOUCH™ 535 or the ONE TOUCH™ 735.

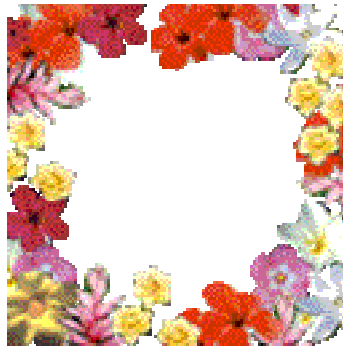
The ONE TOUCH™ 735 also provides a camera framing feature. The preselected frame graphic is displayed on-screen, so the photographer can size her or his subject to appear correctly in the transparent zone.

Requirement: 128x128 pixels only, PNG only.

The illustrations below show possible screen display sequences an end user adding a frame to an image, or an image to a frame, would see.



SELECT IMAGE

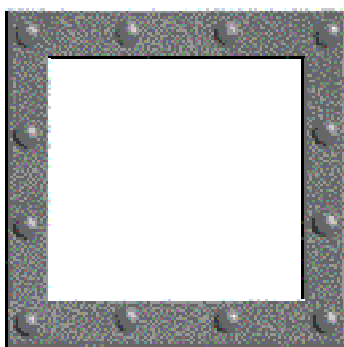


SELECT FRAME



CONFIRM

Figure 1: Add frame to image



SELECT FRAME



CAMERA FRAMING THROUGH FRAME



SHOOT!

Figure 2: use frame in camera function

3.1.3.2 Stamp

Stamps are small images that the end user can choose and position on the selected larger image

Recommendation:

any supported image format. **GIF** is recommended, as it has the advantage of offering transparency when superimposed on another image.

Sizes (only):

16x16 pixels;

32x32 pixels.

Starting where the previous sequence of illustrations stopped, those below show what an end user adding a stamp to an image would see.



Figure 3: Add stamps to image

IMPORTANT: *composite images built in this way and sent as MMS messages are “flattened” into single JPG images. Their original component parts cannot afterward be separated and stored separately by the MMS message recipients*

3.1.4 Image/Contact Associations

The ONE TOUCH™ 535 and the ONE TOUCH™ 735 handsets enable the association of images with specific contact names. Thus, when an incoming call from that contact is detected the chosen image is played back.

This feature adds to end user customisation possibilities and facilitates caller identification.

Recommendation: Any supported image format can be used. Alcatel recommend using 64x64-pixel images, in JPEG format for still photographic or rich-colour images, in GIF format for drawings, cartoons and small animations.

3.1.5 Images Contained in SMS/EMS Messages

EMS Release 4 images and animations can be integrated into SMS/EMS messages received and sent by the handset.

3.2 Specific Recommendations for Audio Objects

Below are some specific recommendations for audio objects intended for use in handset customisation and in messages.

3.2.1 Tools for Developers

For recommendations on audio object creation, see section 6.1.1, *Tools for Developers*

Specifically for Developers: One Touch Ahead. Downloadable tools, including a Cubase plugin and the Multimedia Conversion Studio application are presented there.

3.2.2 Audio Customisation

Audio objects can fulfil a variety of customisation roles in the handset, which can also create or record native audio objects. The typical roles that content providers' audio objects may be used for are described below and any Alcatel recommendations provided.

3.2.2.1 Associate Sound with Incoming Call(s)

Any supported audio object format can be used. A duration of **15 seconds** maximum is recommended.

3.2.2.2 Assign a Sound to Incoming Messages

Any supported audio object format can be used. A duration of **three seconds** maximum is recommended. The short duration recommendation is because a message received is persistent. It will not "hang up" if it is not consulted immediately.

3.2.2.3 Assign a Sound to Appointments/Alarms

Any supported audio object format can be used. This sound is played in a loop, so no duration is recommended.

3.2.2.4 Assign On and Off Sounds.

These are sounds played when the handset is switched on or off.

Any supported audio object format can be used. A duration running from **two seconds minimum to four maximum** is recommended, so the playback dovetails nicely with the time the handset needs to start up or shut down.

3.2.3 Audio Objects Included in MMS Messages

Any supported audio object format can be attached to and sent in an MMS message.

3.2.4 Audio Object Included in SMS/EMS Messages

EMS Release 4 sounds can be integrated into SMS/EMS messages received and sent by the handset.

4 Content Type Formatting and Playback

4.1 Content Acquisition

This section describes the operating features that enable:

- multimedia content objects/presentations;
- native (in-handset) creation of multimedia objects.

Then it identifies the content type formats that each of the handset's playback media can process and the constraints that affect them.

4.1.1 Multimedia Content Downloads

The four main portals enabling multimedia content importation are:

- WAP browser;
- MMS applications suite;
- SMS/EMS messaging service;
- In-Fusio games component.

Each is discussed separately below.

4.1.1.1 WAP Browser Downloads

WAP browser communications sessions use a "Wireless Session Protocol Segmentation and Re-assembly Get" procedure (WSP SAR Get) to download end user-selected objects. WAP site "downloadables" include all supported multimedia content.

End user application of such content may be for:

- handset customisation and/or personal edification;
- inclusion in MMS messages or in SMS/EMS messages.

4.1.1.2 Download Via MMS Reception

MMS objects are encapsulated inside MMS messages. They can be detached and saved separately to the Media Album.

A full description of the MMS applications suite's MMI can be found in the sister volume to this manual, the *ONE TOUCH™ 535 and ONE TOUCH™ 735 Multimedia Messaging Service Reference Manual*, reference: SW/BH4R1/REFMANMMS.

4.1.1.3 Download Via EMS Reception

EMS Release 4 contents can be downloaded and sent (depending on the setting of any object distribution indicators (ODI) that are included in the message) via SMS/EMS messages.

REMINDER:

the .pic, .ani and .imy objects that are downloadable from content providers' sites during WAP sessions are not transmitted as objects when sent via SMS/EMS. They are integrated directly into (encapsulated in) the message itself.

In the EMS Release 4, which the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets support, SMS/EMS messages themselves can be of considerable length. They may consist of a series of concatenated SMS/EMS messages integrating text, EMS content, object distribution indicators (ODI's) if there are any and internal instructions regarding message reception and re-assembly

Insofar as it is not flagged as "Protected" by an ODI or by ODI's, EMS content can be saved separately to the Media Album. This is done via messaging-service menu items.

IMPORTANT: for more information on ODI's and their role, see section 5.1, Digital Rights Management (DRM).

4.1.1.4 Download Games

In-Fusio corporation's embarked games application package is a self-contained proprietary software set that interacts with the ONE TOUCH™ 535's and ONE TOUCH™ 735's presentation software at start-up and shut-down and when "events" occur, but not otherwise.

4.1.1.4.1 Games Component Description

The ONE TOUCH™ 535 handset is sold with one "static" embedded In-Fusio game and one installed in the download slot.

The ONE TOUCH™ 735 handset is sold with two static games and one installed in the download slot.

Any time a new game is downloaded, the previous game that was factory-installed or downloaded into that "download slot" is overwritten. Previously downloaded, overwritten games can be retrieved at a discount, should the end user so desire.

4.1.1.4.2 Games Technical Specification

Format/Characteristic	Specific Capability	Supported
Games (In-Fusio)	ExEn engine	v2.1.1
	1 preloaded game + 1 game in the download slot, in OT 535; 2 preloaded games + 1 game in the download slot, in OT 735	In-Fusio interactive web site: http://www.in-fusio.com/
	Game downloadable in download slot	New download overwrites game previously downloaded to that slot

4.1.2 Create Native Content

It should be noted in passing that both these handsets enable direct end-user creation of:

- **recorded sounds** (in IETF-AMR format). Can be used in an MMS message, for example;
- **composed melody**. Enables the end user to compose her or his own melody on a music sheet;
- in the case of the ONE TOUCH™ 735: of **photographs** (in .jpg format).

The camera feature will be of most interest to content developers. It helps drive the market for 128x128 pixel PNG frames and for 16x16 pixel or 32x32 pixel stamps. End users can use them to enhance their photographs or other downloaded images.

4.2 Standard Content Object Formats

The tables are divided among audio object, image object and presentation content types and formats. Each provides a detailed look at:

- object or presentation format, including name, file extension and mime type;
- the applications that can download, record, store, process and/or re-export objects and files so formatted;
- specific technical requirements and/or characteristics of interest to developers;
- relevant size and length constraints.

IMPORTANT:

Multipart Internet Mail Extensions [MIME] were originally designed to distinguish E-mail attachments. The MIME type tells the client what kind of data is contained in the attachment so that it can decode and handle it appropriately. Web servers send a MIME type as a single line preceding a requested file, to notify the Web (or WAP) browser client what type of file it is going to receive. Web servers use OS-dependent mechanisms to determine file type. One common approach is a table associating a MIME type with a file extension or extensions.

Web (and WAP) browsers maintain a list that determines what plug-in or application will display content with a particular MIME type. When directly opening local files browsers, like servers, use OS-dependent mechanisms to determine file type. The most common approach is a table associating a MIME type with a file extension.

4.2.1 Content Processing Technical Specification

Format/Characteristic	Specific Capability	Supported
Content Object Download/Sending Via EMS	iMelody	128-byte max. size (.imy)
	EMS R4 pictures	128-byte max. size (.pic)
	EMS R4 animations	128-byte max. size (.ani)
Content Object Download/Sending Via MMS	Images	BMP (.bmp)
		WBMP (.wbmp)
		JPEG (.jpeg, .jpg)
		GIF (.gif [GIF 87a and GIF 89a are supported])
		PNG (.png)
	Animations	GIF (.gif)
	Melodies	iMelody (.imy)
		MIDI (.mid, .midi)
		SP-MIDI (.mid, .midi)
		AMR IETF (.amr)

Format/Characteristic	Specific Capability	Supported
WAP Browser Generalities	WML 1.3 + WBXML	YES
	XHTML Mobile Profile	YES
	Dual browser XHTML + WML 1.3	YES
	WMLScript	YES
	WMLScriptLibs	YES
	GUI extensions through the use of XHTML and WCSS	YES (Openwave radio buttons, popups...)
	WAP Cascading Style Sheet	YES (linked to XHTML)
	Cookies	YES
	PNG	YES (display)
	JPEG	YES (display)
	GIF	YES (display)
	Animated GIF	YES (display)
	BMP	YES (display)
	WBMP	YES (display)
	Background sound	NO
	charset	UTF-8
	support of Tel tag	YES (XHTML)
WAP Browser Content Download	Content for download must be accessible by opening an URI	YES
	WSP SAR Get	YES
	(If download is interrupted) Provide possibility to resume download where interrupted or to remove (partly) downloaded file	NO (no resume, but file is deleted)
	SP-MIDI, MIDI; AMR-IETF; iMelody	YES (.mid or .midi; .amr; .imy)
	WBMP; BMP, GIF, PNG, JPEG	YES (.wbmp; .bmp; .gif; .png; .jpg or .jpeg)
	EMS Release 4 multimedia objects	YES (.pic, .ani, .imy)
	Skins	NO
	Save Images	YES
	PDU Maximum size	120 KB (SP-MIDI: 30Kb; MIDI: 30Kb; AMR: 50 KB; iMelody:)
	vCard, vCal	YES
	DRM solution	YES (downloaded object can be flagged Protected or Unprotected. Protected prevents forwarding, duplication, copy out. Unprotected allows those activities)

4.2.2 Audio Object Types and Behaviours

This section presents details on executable audio object content types which the device supports and is willing to accept from the network. It tells what applications in the handset can play them back, what processing by those applications is possible and discusses forwardability.

Audio Object Format	Playable In	Technical Requirements / Characteristics	Size / Length Maximums
SP-MIDI (<.mid>) audio/sp-midi	MMS message viewer/previewer Media Album Assignable to on/off screens Assignable as event identifier (incoming call from specific contact, message reception, etc.)	Scaleable Polyphony Midi	30 KB
MIDI (<.mid>) Two mime types audio/midi audio/mid audio/x-midi	Same as above	Same standard formatting for the three mime types	30 KB
AMR (<.amr>) Two mime types audio/amr audio/x-amr	Same as above	IETF-AMR	50 KB
iMelody (<.imy>) audio/imy	Same as above, plus: playback during message consultation, when integrated into an SMS/EMS message	Object Distribution Indicator(s) may restrict forwardability. Converted into MIDI format if attached to an MMS message	256 Bytes

4.2.3 Image Object Types and Behaviours

This section presents details on executable image object content types.

Image Format	Playable In	Technical Requirements / Characteristics	Size / Length Maximums
WBMP (<.wbmp>) image/vnd.wap.wbmp	WAP browser Sent and received MMS messages Media Album viewer Assignable as Idle, on/off screens Assignable as event identifiers (incoming call from specific contact, e.g.)	These are small, non-compressed, black-and-white bitmaps	2 KB

Image Format	Playable In	Technical Requirements / Characteristics	Size / Length Maximums
BMP (<.bmp>) image/bmp	Same as above	Note: bulky in size! Standard, colour non-compressed bitmaps Up to VGA 640x480x8bits + 500 bytes for palette	120 KB Recommendation: BMP images are non-compressed. Although supported, they should be avoided for the memory issue.
JPEG (<.jpeg> or <.jpg> file) image/jpeg	Same as above	Baseline JPEG Supported in input: JPEG JFIF (computer equipment) or EXIF (digital camera) DCT images. In output: all output is JPEG JFIF. Progressive JPG not supported (no display) Up to VGA, 6:1 or reverse VGA (see appropriate co-ordinates: 640x480 or 480x640)	120 KB
GIF (<.gif>) still image image/gif	Same as above	Colour palette: 256 colours Up to VGA, 8/5:1 or reverse VGA (see appropriate co-ordinates 640x480 or 480x640) Decoding performances may suffer quality loss if very large-size animated GIF's are created.	120 KB
GIF (<.gif>) animation image/gif	Same as above	GIF87a and GIF89a are supported Same formatting rules as for still GIFs, but animated objects contain whole-image or image-zone variants whose displays loop through, according to timing instructions contained in the encapsulated document Progressive (interlaced, progressively rendered) GIF is supported—but played back one as still image Up to VGA, 8/5:1, no limit on the number of images. Or reverse VGA as above	120 KB Recommendation: < 20 KB; 4-5 images/second. It is better to have animated zones in an image than to have several complete frames of different images.

Image Format	Playable In	Technical Requirements / Characteristics	Size / Length Maximums
PNG (<.png>) image/png	WAP browser MMS viewer/previewer (used either as main image or frame) Media Album viewer Assignable as Idle, on/off screens Assignable as event identifiers	All five PNG image types supported: <ul style="list-style-type: none"> indexed-color image. Result: each pixel = 1 Byte; Truecolor images with or without alpha channel. Result: each pixel = 3 or 4 Bytes; grayscale images with or without alpha channel. Result: each pixel = 1 or 2 Bytes Each image type, the OT 735 and the OT 535 all support: full opacity or full transparency per pixel in image. General recommendation: when-ever a JPG or a GIF can be applied, prefer them to PNG. N.B.: frames must be 128 x 128 pixel PNG images!	120 KB PNG frame (assumed to include transparency) recommendations: <ul style="list-style-type: none"> if image displayable in no more than 256 colours, use the indexed-color type (1Byte/pixel). Indicate one "zero" alpha value for first entry of palette for frames of >256 colours, use Truecolor type (3 Bytes/pixel), with one transparency colour indicated for whole image avoid Truecolor +alpha channel or "RGBA" (4 Bytes / pixel) type: 33% larger than Truecolor; harder to create with common image editors (PSP, Photoshop, etc.).
PIC (<.pic>) EMS Release 4 Three mime types for three different sizes: application/vnd.3gpp.pic-bw-small application/vnd.3gpp.pic-bw-var application/vnd.3gpp.pic-bw-large	WAP browser SMS/EMS messaging service. Integrated multimedia content saveable separately in Media Album Local playback in Album viewer Assignable as event identifiers	small: 16x16 pixels large: 32x32 pixels variable: 1 st constraint: 128 bytes max = 1024 pixels max. 2 nd constraint: width must be a multiple of 8. Possible sizes, for example: 32x32, 16x20, 24x28, etc. Object Distribution Indicator(s)—ODI—may be present and restrict forwardability of copyrighted material	Standard sizes 128 bytes for all three maximum
ANI (<.ani>) EMS Release 4 Two mime types for two different sizes: application/vnd.3gpp.ani-bw-small application/vnd.3gpp.ani-bw-large	Same as above	8x8 pixels Small animation (8x8x4 images) 16x16 pixels Large animation (16x16x4 images) Object Distribution Indicator(s)—ODI—may restrict forwardability	Standard sizes 128 bytes for both maximum

4.2.4 Presentation Formats and Behaviours

This section presents details on executable image object content types which the device supports and is willing to accept from the network. It tells what applications in the handset can play them back and discusses any constraints that may apply.

Presentation Format	Executable In	Technical Requirements / Characteristics	Size / Length Maximums
HTML (<.html> or <.htm> text/html	WAP browser MMS message viewer/previewer	HTML 4.0	Depends on maximum PDU sizes and presence or not of WTP SAR capabilities on both handset and gateway. Handset stack and gateway formatting rules also affect size. Keep decks small overall
XHTML (<.xhtml>) text/xhtml	Same as above	XHTML 1.0 (mobile profile)	As above
WML (<.wml>) text/wml	Standard presentation format for MMI display, choice and data-entry cards	WML 1.3	As above
CSS (<.css>) text/css	WAP browser MMS message viewer/previewer	Cascading Style Sheets As in HTML but for mobile profile	As above
WBXML (<.wbxml>) "WAP binary extensible markup language" application/vnd.wap.wbxml	Same as above	Same as above	As above
SMIL (<.smil>) "Synchronised multimedia integration language" application/smil	MMS applications suite	Multipart-related format and markup language used to lay out, time and present MMS messages: "MMS-SMIL", as defined by OMA Conformance Statement	Maximum message size (WSP transfer document containing the SMIL): 50 KB
Multipart mixed (no common file extension application/vnd.wap.multipart.mixed)	Same as above	Enables multipart encapsulation of different objects	128 KB, also Gateway-dependent
Multipart related (no common file extension) application/vnd.wap.multipart.related	Same as above	Encapsulation with pointers to location of other parts (URI location)	128 KB, also Gateway-dependent
application/vnd.wap.sic	WAP browser		128 KB, also Gateway-dependent
application/vnd.wap.sia	WAP browser		128 KB, also Gateway-dependent
vCard/vCal	Can be exchanged between the ME and other compliant infrared devices		15 KB

4.2.5 Supported Character Sets

Character Sets	Playable In	Technical Requirements / Characteristics
US-ASCII	Hardware platform support for input and output Browser UA support	Traditional seven bit-coded American version
UTF-8	Hardware platform support for input and output Browser UA support Supported by MMS applications suite	Unicode
UTF-16	Supported by MMS applications suite	Unicode
ISO-8859-1	Hardware platform support for input and output Browser UA support Supported by MMS applications suite	HTML-oriented character set
ISO-8859-2	Hardware platform support for input and output Browser UA support Supported by MMS applications suite	HTML-oriented character set
ISO-10646	Hardware platform support for input and output Browser UA support Supported by MMS applications suite	Universal Multiple-Octet Coded Character Set (UCS). Character coding on 16 or 31 bits. UCS is the first officially standardised coded character set with the purpose of eventually including all characters used in all the written languages in the world (and, in addition, all mathematical and other symbols).

4.3 Image Resizing Rules

The ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets observe various image resizing rules. A few examples are provided below.

4.3.1 Build 128*128 image : example Camera, Album

Image size	Modifications
Size < = 128*128	None
Size > 176*176	Image is resized to <= 176*176, then cut to 128*128, centered
128*128 < Size <= 176*176	Image is cut to 128*128, centered

Note: size > 176*176 means width > 176 or height > 176

Examples:

- 1) For CIF picture 352x288, we have
 - a) resizing $(352 \times 288) / 2 = 176 \times 144$
 - b) clipping $\implies 128 \times 128$
 - c) \implies picture to display 128×128

- 2) For VGA picture 640x480, we have
 - a) resizing $(640 \times 480) / 2 = 320 \times 240$
 - b) resizing $(320 \times 240) / 2 = 160 \times 120$
 - c) clipping $\implies 128 \times 120$
 - d) \implies picture to display 128×120

4.3.2 Build 64*64 image : example MMS editor

Image size	Modifications
Size $\leq 64 \times 64$	None
Size $> 88 \times 88$	Image is resized to $\leq 88 \times 88$, then cut to 64×64 , centered
$64 \times 64 < \text{Size} \leq 88 \times 88$	Image is cut to 64×64 , centered

4.3.3 Build 32*26 image : example Album thumbnails for view in "list" mode

Image size	Modifications
Size $\leq 32 \times 26$	None
Size $> 44 \times 44$	Image is resized to $\leq 44 \times 44$, then cut to 32×26 , centered
$32 \times 26 < \text{Size} \leq 44 \times 44$	Image is cut to 32×26 , centered

4.4 Media Album

One of the handset's main menu items is called the (multi)Media Album. Access to the Media Album is Access to it can be gained directly (classical menu route or one-touch shortcut), or indirectly (via the browser or the menu in the MMS suite menus). Access to the MMS suite in message-creation mode can also be gained indirectly, through the Media Album menu, when the end user selects an object while browsing the Media Album and uses the menu to send it to a correspondent.

The (multi)Media Album shows that portion of all the objects stored by the handset that is contextually relevant to what the end user is doing. It does so in the user-friendly, intuitive MMI form of menus and directories. Different routes lead to it seamlessly from the Customise, Tools, Messages and Media Album menus.

Up to 10 personal directories can be created by the end user inside the two main directories of the Media Album. When the My Images subdirectories are being browsed, they display 32 x 36 pixel thumbnails along with identifying textual information to help the end user make a choice. When the My Sounds audio object subdirectories are being browsed, the currently selected sound is played back if the end user leaves the cursor on that sound.

4.4.1 Media Album MMI Look and Feel

Two examples of Media Album browsing choice cards are provided below, one showing the graphical MMI layout for image object browsing and one showing the layout for audio objects. Navigation through the subdirectories is done by lateral presses on the drive key. The currently selected subdirectory is highlighted in a tab and named in a title line. Right and left arrows in the title line tell the end user in which directions navigation is possible.

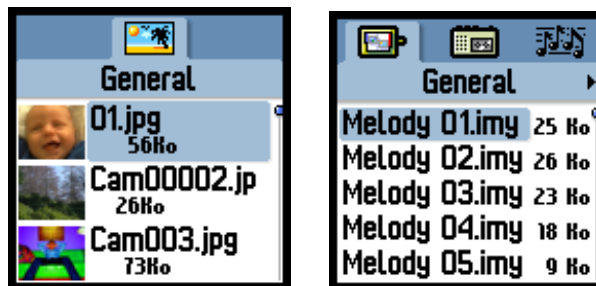


Figure 4: Image and object browsing choice cards in Media Album

In the image browsing layout space is provided for indicating object name and type, size in KB, whether a sound is attached, whether the object is protected, etc.

In the sounds browsing layout the name and type of the object, and its size are given.

When the number of stored objects is longer than can be displayed on one screen, a scroll bar appears on the right side of the card.

5 Ancillary Content Parametering

This section:

- tells what digital rights management solution has been adopted in the ONE TOUCH™ 535 and 735 handsets;
- briefly discusses RDF-based content adaptation.

5.1 Digital Rights Management (DRM)

DRM standards are under development. Different approaches have been proposed with no particular model necessarily emerging to the fore. The situation may be changing, however, with OMA DRM Release 1.

5.1.1 WAP Downloads

The Alcatel customisation solution implemented in the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets involves simple Boolean flagging of all WAP browser session-downloaded multimedia objects. They can be marked either:

- Forwardable (local playback, reproduction, copy out, forwardable);
- Not forwardable (local playback only, no reproduction in handset, no copy out, not forwardable).

The by-default factory choice for all objects downloaded via the WAP browser is Forwardable.

Assigned WAP ProtectionFlag	DRM Policy	Send?	Copy Out?	Modify (resize, use as frame or stamp)?
OT 535 flag, position 1	Forwardable	Yes	Yes	Yes
OT 535 flag, position 2	Non-forwardable; modifiable	No	No	Yes

5.1.2 MMS/EMS Messages

All MMS messages and the content objects they contain are Forwardable.

SMS/EMS message may contain ODI's that prevent multimedia content integrated into them from being saved separately as objects and forwarded.

Not forwardable multimedia objects visible in the Media Album are marked with a padlock icon. "Send" is not proposed in their contextual menus. When the Media Album is opened via a Messages service's Creation menu, non-forwardable objects are not listed.

5.1.3 EMS

Object Distribution Indicators are the single EMS Release 5 item implemented in the otherwise Release 4-only SMS/EMS messaging service embedded in the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets.

They can be used in simple one-segment messages (one segment = a set payload size of 140 bytes), or in concatenated messages. Upon reception the segments are reassembled into a single message. These handsets accept concatenated messages of up to 10 segments maximum.

Alcatel has implemented the object-external version of the ODI to flag EMS Release 4 objects. Release 5 objects are discarded. The object-embedded version is not used. The ODI (or ODI's) incorporated into SMS/EMS messages indicate a boolean choice between forwardability and non-forwardability of the particular data they point at: in substance: PIC, ANI and/or iMelody data.

Upon reception the data that corresponds with the multimedia parts inside an SMS/EMS message can be accessed, the objects retrieved and saved for local playback in the Media Album. If non-forwardable, the same rules apply as above given for MMS attachment and sending.

5.2 RDF-based Content Adaptation

See a hypertext link to the ONE TOUCH™ 535's RDF document, provided in section 6.1.3, *CCPP for Content Adaptation* above.

RDF-based content adaptation involves metadata processing. It enables automatic conversion and reformatting of content objects sent as downloads to mobile devices. The conversions and reformatting are done based on the values supplied in an RDF document called a User Agent Profile (UAProf). The values themselves are collectively called Composite Capability / Preference Profiles (CCPP) information.

The automatic reworking for optimal playback is performed by special metadata parsers that are located on WAP servers, such as WAP Gateways and/or proxies, MMSC servers, etc. This developing technology is now being implemented for GPRS- and MMS-enabled units. A much fuller description of RDF is provided in the sister volume to this reference manual, the ONE TOUCH™ 535 WAP Browser Reference Manual, Ref.: SW/BH4R1/REFMAN/WAP.

IMPORTANT: *there are components in the UAProf that specify what content types are supported by the handset, most notably the SoftwarePlatform, UAProf and MmsCharacteristics sections.*

6 References

6.1 *Web Sites Designed for Designers*

Here are some Alcatel web sites of interest to content designers.

6.1.1 **Tools for Developers**

6.1.1.1 Specifically for Developers: One Touch Ahead

<http://www.alcatel.com/wap/>

The URL address above points to pages in Alcatel Corporation's Internet web site that are devoted to serving VASP's who want to develop content for Alcatel mobiles. Register for free, receive a password by E-mail and download software tools that facilitate development.

6.1.1.2 MIDI and SP-MIDI

It is the responsibility of the content locator, i.e. the content provider on the WAP server, to offer MIDI files suited to Alcatel's handset. That means the provider has successfully tested the downloading of the file and that the playback of the music by the ONE TOUCH™ 535 and ONE TOUCH 735™ handset is acceptable from an end-user point of view: no distortion during the play back and sufficient volume, if the melody is expected to be chosen by the end-user for use as an incoming call ringtone, for instance.

REMINDER: *the loudspeaker unit embedded in the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets produces a highly audible, sparkling sound with surprisingly strong and crisp bass-note rendering.*

6.1.1.3 CuBase Plugin and User's Guide

There is a CUBASE plugin available on-site for free downloading, for instance. It enables suitably equipped developers of musical content to build and convert MIDI and SP-MIDI files perfectly adapted to the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets.

REMINDER: *MIDI and SP-MIDI are themselves supported by these handsets.*

The document One Touch 535/735 Cubase Plugin User's Guide: MIDI Melodies Creation is available for downloading at the same site. It facilitates composition of audio objects specifically aimed at the ONE TOUCH™ 535 and ONE TOUCH™ 735 handsets by:

- explaining how to install and use the Cubase plugin;
- providing guidelines and recommendations for MIDI composition;
- identifying the technical constraints of the handsets.

Other documents of interest can also be found on-site, mostly related to earlier handsets, but not devoid of wisdom relating to some of the data formats deployed in the handsets profiled by this document.

6.1.1.4 MCS Pro

Multimedia Conversion Studio (MCS) Pro is a free, downloadable, developer-oriented multimedia converter. It is available on the web site described below in section 6.1.1, *Tools for Developers*

Specifically for Developers: One Touch Ahead.

Notably, it converts audio objects to Alcatel handset-specific AMR format, among others. The software is regularly updated and can be downloaded via the Internet from the following web site: <http://www.alcatel.com/wap>.

Alcatel supplies a confidential password for developers wishing to register.

6.1.2 The Alcatel Web Site

Another website providing information and downloadables specific to each Alcatel handset can be found at:

<http://www.alcatel.com/> (once there, look for the "My One Touch" rubric. Choose a country/language and click Go).

<http://www.my-onetouch.com/worldwide/> (worldwide site in English).

The My One Touch pages site are more oriented toward end users than toward operators/service providers but quite worth consulting. They proposes downloadable PDF versions of extant end user's guides, per handset, in several languages.

PC Suite, the handset-specific version of Alcatel's PC-based accompanying software, is also available for downloading here. PC Suite enables handset-PC object-exchange and/or data communications sessions to be set up via:

- the Alcatel USB data cable;
- the handset's IrDA beaming capability.

6.1.3 CCPP for Content Adaptation

Operators are increasingly implementing the Composite Capability / Preference Profiles information supplied by ME manufacturers. The resource description framework (RDF) XML document published to enable automatic "repackaging" of multimedia content objects for optimal playback by the ONE TOUCH™ 535 can be viewed at (and copied from) the following location:

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

The RDF document for the ONE TOUCH™ 735 is shortly to be published as well.

IMPORTANT: *depending on the browser used to gain access to the document, it may be necessary to select the "View/Page source" menu item or its equivalent in order to display the whole XML document and not just the values it contains.*

6.2 Documents

Documents related to multimedia content objects and their processing come from a variety of standards organisations and commercial firms. A selection of documents can be consulted in the appendices at the end of this document.

6.3 Abbreviations, Acronyms and Initials

Term	Means
3GPP	Third Generation Partnership Project
AMR	Adaptive Multi Rate (audio file format <.amr>)
CSD	Circuit Switched Data
GIF	Graphic Interchange Format (graphics file format <.gif>)
GPRS	General Packet Radio Service
GSM	Global System for Mobile communications
IETF	Internet Engineering Task Force
IrDA	Infrared Data Association (also indicates standards)
IrMC	Infrared Mobile Communications
IP	Internet Protocol
JPEG	Joint Photographic Experts Group (graphics file format <.jpg> or <.jpeg>)
ME	Mobile Equipment
MIDI	Musical Instrument Digital Interface (audio file format <.mid> or <.midi>)
MIME	Multipurpose Internet Mail Extensions
MMI	Man-Machine Interface
MMS	Multimedia Messaging Service
MSB	Most Significant Bit
ODI	Object Distribution Indicator (for EMS attachments)
PDP	Packet Data Protocol
PNG	Portable Network Graphics (graphics file format <.png>)
RAS	Remote Access Server
SAR	Segmentation and Re-assembly (as in: WSP SAR Get)
SIM	Subscriber Identity Module
SMIL	Synchronised Multimedia Integration Language
SMS	Short Message Service
SMTP	Simple Mail Transfer Protocol
SMSC	SMS Center
SP-MIDI	Scalable Polyphonic MIDI (same file extensions)
TCP	Transmission Control Protocol
UDH	User Data Header
UDI	Unrestricted Digital Information (digital access mode)
UI	User Interface
VASP	Value-Added Service Provider
WAE	Wireless Application Environment
WAIS	Wide Area Information Servers

Term	Means
WAP	Wireless Application Protocol
WBMP	Wireless Bitmap (graphics file format <.wbp>)
WML	Wireless Markup Language
WSP	Wireless Session Protocol
WTP	Wireless Transfer Protocol
XHTML	Extensible HyperText Markup Language

7 Appendix

7.1 Implementation Conformance Statement

For up to date information on the conformance of the ALCATEL ONE TOUCH™ 535, please refer to the document **ALCATEL ICS WAP for BH4**, in its latest version. This document is provided together with the present Reference Manual.

7.2 Documents

7.2.1 CompuServe Corporation, Columbus, Ohio

Document Title	Reference Name	Version
Graphics Interchange Format (Version 89a)	N.A.	1990
GIF Graphics Interchange Format: A Standard defining a mechanism for the storage and transmission of raster-based graphics information	N.A.	1987

7.2.2 Internet Engineering Task Force (IETF) Requests for Comments (RFC's)

The following documents are generally available for consultation/downloading at the following main URL address: <http://www.ietf.org/rfc.html>.

Document Title	Reference Name	Version
Multipurpose Internet Mail Extensions (Mime) Part One: Format of Internet Message Bodies	RFC 2045	N.A.
Multipurpose Internet Mail Extensions (Mime) Part Two: Media Types	RFC 2046	N.A.
Multipurpose Internet Mail Extensions (Mime) Part Three: Message Header Extensions for Non-ASCII Text	RFC 2047	N.A.
Multipurpose Internet Mail Extensions (Mime) Part Four: Registration Procedures	RFC 2048	N.A.
Multipurpose Internet Mail Extensions (Mime) Part Five: Conformance Criteria and Examples	RFC 2049	N.A.
PNG (Portable Networks Graphics) Specification version 1.0 ", T. Boutell, et. al.	RFC 2083	N.A.
RTP Payload Format and File Storage Format for AMR and AMR-WB Audio.	RFC 3267	N.A.

7.2.3 ITU-T Recommendations

ITU-T = International Telecommunications Union – Telecommunications Standardisation Sector

Document Title	Reference Name	Version
Information Technology: Digital Compression and Coding of Continuous-tone Still Images: Requirements and Guidelines	ITU-T Recommendation T.81	ISO/IEC 1091861:1994

7.2.4 Third Generation Partnership Project (3GPP) Documents

Document Title	Reference Name	Version
Technical Realisation of the SMS	3GPP TS 23.040	v5.5.1
Alphabets and Languages	3GPP TS 23.038	v4.3.0
Mandatory Speech Codec speech processing functions; AMR Speech Codec Transcoding Functions	3GPP TS 26.090	

7.2.5 General System for Mobile Communications (GSM) Recommendations

Document Title	Reference Name	Version
Channel Coding	REC GSM 05.03	v7.3.0
Half Rate Speech Transcoding	REC GSM 06.20	v7.0.1

7.2.6 WAP June 2000 Standard Documents

For the list of WAP 2001 standard documents applicable to content data downloaded, processed and/or uploaded to/from the ONE TOUCH™ 535, see the WAP Browser Reference Manual, a sister manual to this one, Ref.: SW/BH4R1/REFMAN/WAP.

7.2.7 Other Documents

In addition to those listed below, various commercial and institutional documents were consulted during the specification and development of the handset, concerning such subjects as: vCalendar and vCard; the SEQ multimedia file format; bitmap encoding formats; the Wireless Application Protocol (WAP) 1.1; embedded product documentation;

Document Title	Reference Name	Version
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Document Title	Reference Name	Version
JPEG File Interchange Format	Joint Photographic Experts Group	Version 1.02, 1 September 1992
Specifications for Ir Mobile Communications (IrMC).	Infrared Data Association.	IMelody v1.2. 2002
Scalable Polyphony MIDI Specification	MIDI Manufacturers Association	http://www.midi.org
Scalable Polyphony MIDI Device 5-to-24 Note Profile for 3GPP	MIDI Manufacturers Association	2002 http://www.midi.org
The Complete MIDI 1.0 Detailed Specification, Incorporating all Recommended Practices	MIDI Manufacturers Association	Version 96.1, 1996; http://www.midi.org
Mandatory Speech Codec speech processing functions; AMR Speech Codec Transcoding Functions	3GPP TS 26.090	
M-Services Guidelines		Version 3.0 July 2002

7.3 **Data Terminal**

For information on using the ONE TOUCH™ 535 and 735 handsets as data terminals (modem function), see the sister volume to this manual, the *OT 535/735 Data Reference Manual*, ref.: SW/BH4/REFMAN/DATA.

END OF DOCUMENT