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Technical Specification

**Fixed network Multimedia Messaging Service (F-MMS);
Part 7: Over-The-Line configuration of F-MMS terminal settings**

Reference

DTS/AT-030034

Keywords

ISDN, MMS, PSTN, SMS

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Foreword

This Technical Specification (TS) has been produced by ETSI Technical Committee Access and Terminals (AT).

The present document is part 7 of a multi-part deliverable covering the Fixed network Multimedia Messaging Service (F-MMS), as identified below:

TS 102 314-1: "Overview";

ES 202 314-2: "Service description";

EG 202 314-3: " Network architecture and interconnection";

ES 202 314-4: "Multimedia Message communication between a fixed network Multimedia Messaging Terminal Equipment and a Multimedia Messaging Service Centre";

ES 202 314-5: "Digital Subscriber Signalling System No. one (DSS1) protocol, Signalling System No.7 (SS7) - ISDN User Part (ISUP), and Interworking between DSS1 and ISUP";

TR 102 314-6: "Control strings (service codes) for MMS functions and MMS supplementary services";

TS 102 314-7: "Over-the-Line configuration of F-MMS terminal settings";

ES 202 314-8: "Service description";

ES 202 314-9: "Combined PSTN/ISDN and broadband access and broadband access only; Multimedia Message communication between a fixed network Multimedia Messaging Terminal Equipment and a Multimedia Messaging Service Centre".

NOTE: The parts above refer to the active work items and published standards within ETSI. These work items do not include MMS over NGN.

Introduction

Following the success of Multimedia Messaging Service (MMS) mobile networks, ETSI has produced a set of specifications to describe MMS for PSTN/ISDN. An overview about these specifications can be found in TS 202 314-1 [1].

The Multimedia Messaging Service for PSTN/ISDN as defined by ETSI follows the philosophy of adopting the existing Multimedia Messaging Service of the mobile networks as widely as possible to:

- simplify the interworking with the existing mobile net MMS;

- offer the same user experience for both fixed and mobile net users;

- reduce the fixed net MMS implementation efforts.

Following this philosophy, the configuration of F-MMS terminal settings as defined by the present document has been derived from the respective mechanisms used in mobile networks.

1   Scope

The present document describes a mechanism for the configuration of F-MMS terminal settings by means of configuration messages.

2   References

The following documents contain provisions which, through reference in this text, constitute provisions of the present document.

- References are either specific (identified by date of publication and/or edition number or version number) or non-specific.

- For a specific reference, subsequent revisions do not apply.

- For a non-specific reference, the latest version applies.

Referenced documents which are not found to be publicly available in the expected location might be found at http://docbox.etsi.org/Reference.

[1]   ETSI TS 202 314-1: "Fixed network Multimedia Messaging Service (F-MMS); Part 1: Overview".

[2]   ETSI ES 202 314-4: "Access and Terminals (AT); Fixed network Multimedia Messaging Service (F-MMS); PSTN/ISDN; Part 4: Multimedia Message communication between a fixed network Multimedia Messaging Terminal Equipment and a Multimedia Messaging Service Centre".

[3]   ETSI ES 201 986: "Services and Protocols for Advanced Networks (SPAN); Short Message Service (SMS) for PSTN/ISDN; Service description".

[4]   ETSI ES 201 912: "Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre".

[5]   ETSI TS 103 912: "Access and Terminals (AT); Short Message Service (SMS) for PSTN/ISDN; Short Message Communication between a fixed network Short Message Terminal Equipment and a Short Message Service Centre (Corrections to ES 201 912 V1.1.1)".

[6]   ETSI ES 202 060-1: "Short Message Service (SMS) for fixed networks; Network Based Solution (NBS); Part 1: Overview".

[7]   OMA-WAP-ProvCont-v1-1-20021112-C: "Provisioning Content Version 1.1".

[8]   OMA-WAP-ProvUAB-v1-1-20021113-C: "Provisioning User Agent Behaviour Version 1.1".

[9]   WAP-192-WBXML-20010725-a: "Binary XML Content Format Specification".

[10]   WAP-235-PushOTA-20010425-a: "Push OTA Protocol".

[11]   WAP-230-WSP-20010705-a: "Wireless Session Protocol Specification".

[12]   IETF RFC 3629: "UTF-8, a transformation format of ISO 10646".

[13]   WINA: "WAP Interim Naming Authority", Open Mobile Alliance.

3   Definitions and abbreviations

3.1   Definitions

For the purposes of the present document, the following terms and definitions apply:

MMS Relay/Server: MMS-specific network entity/application that is under the control of an MMS service provider. An MMS Relay/Server transfers messages, provides operations of the MMS that are specific to or required by the network environment and provides (temporary and/or persistent) storage services to the MMS

MMS User Agent: application residing on a fixed net or mobile net terminal or an external device that performs MMS-specific operations on a user's behalf

>   NOTE: An MMS User Agent is not considered part of an MMSE.

MM Terminal: See MM Terminal Equipment.

MM Terminal Equipment: containing an MMS User Agent and an appropriate MMS user interface

provisioning document: particular instance of an XML document encoded according to [7]

>   NOTE: In the present document, a provisioning document is coded in WBXML.

WBXML document: XML document coded according to the "Binary XML Content Format Specification" [9]

3.2   Abbreviations

For the purposes of the present document, the following abbreviations apply:

3GPP	3rd Generation Partnership Project
APPID	Application ID
CHAP	Challenge Handshake Authentication Protocol
DTD	Document Type Definition
F-MMS	Fixed network MMS
F-MMSC	Fixed network MMSC
F-MMSE	Fixed network MMSE
F-SMS	Fixed network SMS
F-SMSC	Fixed network SMSC
ID	Identification
ISDN	Integrated Services Digital Network
MD5	Message Digest 5
MM	Multimedia Message
MMS	Multimedia Messaging Service
MMSC	Multimedia Message Service Centre
MMSE	Multimedia Messaging Service Environment
MMTE	Multimedia Messaging Terminal Equipment
NAP	Network Access Point
OMA	Open Mobile Alliance
OTA	Over The Air
OTL	Over The Line
PAP	Password Authentication Protocol
PSTN	Public Switched Telephone Network
RAS	Remote Access Service
SMS	Short Message Service
SMSC	Short Message Service Centre
UBS1	User Based Solution, protocol 1
UCS	Universal Character Set
URI	Uniform Resource Identifier
URL	Uniform Resource Locator
UTF	UCS Transformation Format

WAP	Wireless Application Protocol
WBXML	WAP Binary XML
WSP	Wireless Session Protocol
XML	eXtensible Markup Language

4   Overview

Over-The-Line (OTL) configuration is a process, by which a client is configured for different services and applications with a minimum of user interaction. It is directly derived from the Over-The-Air (OTA) configuration mechanism known from mobile networks (see e.g. [10]).

The OTL configuration mechanism described in the present document allows the configuration of F-MMS terminal settings like network access point or service URL by means of configuration messages. The OTL configuration information is transported using push mechanisms suitable for fixed net environments as defined in the present document.

The OTL configuration information is represented using provisioning documents formatted according to [7]. The mechanism described in the present document uses connectionless WAP push messages according to [10] that contain provisioning documents in binary (recommended) or textual XML format according to [9] coded in the character set UTF-8 as defined in RFC 2279 [12].

5   User interaction

5.1   OTL configuration request

The user may request OTL configuration e.g. by:

- calling a special phone number;

- sending an SMS to a special destination;

- requesting a configuration message on a providers' website;

- other means.

The definition of the means by which an OTL configuration can be requested by the user is up to the service provider.

5.2   OTL configuration acceptance and rejection

In order to avoid unwanted re-configuration of terminals, terminals implementing the OTL mechanism described in the present document shall provide the possibility for the user to accept or reject an incoming OTL configuration message.

6   Functional description

6.1   Transport mechanism

In principle, the OTL configuration mechanism is independent from the transport mechanism used. In PSTN/ISDN, similar to the transportation mechanism for push-based MMS transactions (see ES 202 314-4 [2], clause 7.2, the OTL configuration information shall be transferred using the fixed net Short Message Service defined in ES 201 986 [3], ES 201 912 [4], TS 103 912 [5] (UBS1) and ES 202 060-1 [6] (NBS using UBS1 coding). The OTL configuration information is transported within a WAP PUSH message carried by SMS. According to [7], the WAP PUSH content types "application/vnd.wap.connectivity-wbxml" respectively "text/vnd.wap.connectivity-xml" apply.

To transport this WAP PUSH message containing the OTL configuration information, the basic SMS transfer mechanism is used. To indicate the presence of the WAP PUSH message, the PDU values contained in the SMS Transfer Layer message SMS_DELIVER transmitted to the MMTE shall be used as defined below:

- TP-DCS shall be set to "8 bit, uncompressed" (e.g. 04hex).

- TP-UDHI shall be set to "UDH present" (1bin).

- TP-UD shall contain a User Data Header (UDH) as well as the WAP PUSH message.

- The User Data Header (UDH) shall contain the information element "Application port addressing scheme, 16 bit address" (05hex). The Source Port within this information element should be set to "WAP connectionless session service" (9 200 dec), while the Destination Port shall be set to "WAP PUSH" (2 948 dec). Both given port numbers are defined by IANA (see http://www.iana.org/assignments/port-numbers).

Depending on the size of the WAP PUSH message, the use of Short Message Concatenation may be necessary. Both information elements "Concatenated short messages, 8-bit reference number" (00hex) or "Concatenated short message, 16-bit reference number" (08hex) may be used in this case.

6.2   Provisioning Document

A provisioning document is a particular instance of an XML document encoded according to [7]. The provisioning document serves to carry a set of configuration parameters. The structure and content of the provisioning document used for OTL configuration of F-MMS settings is described in clause 7 of the present document. The provisioning document can contain values for all configuration parameters listed in clause 8.1.4 of ES 202 314-4 [2].

These are:

- F-SMSC number;

- RAS (F-MMS gateway) dial-in number (send);

- RAS (F-MMS gateway) dial-in number (receive);

- Username;

- Password;

- MM Relay/Server URL.

7 Provisioning document reference information

The data model used for the OTL configuration of F-MMS settings is based on the existing WAP Document Type Definition (DTD). The provisioning document structure therefore corresponds to the structure described in [7].

7.1 Data Model

The provisioning document structure used for the OTL configuration of F-MMS settings is a subset of the structure defined in [7]. Tables 1 to 3 give an overview about this subset, where:

+   indicates that the parameter can occur 1 or more times;

*   indicates that the parameter can occur 0 or more times;

?   indicates that the parameter can occur 0 or 1 times;

empty   indicates that the parameter is required within the scope of the encapsulating characteristic and that it can occur only once.

Detailed information about the characteristics NAPDEF, APPLICATION and ACCESS, their respective parameters and their use for OTL configuration of F-MMS settings can be found in clause 7.2.

Table 1: Network Access Point (NAPDEF) characteristic structure

```
characteristic: NAPDEF *
{
  parm: NAPID
  parm: NAME
  parm: NAP-ADDRESS
  parm: NAP-ADDRTYPE ?
  parm: CALLTYPE ?
  characteristic: NAPAUTHINFO *
  {
    parm: AUTHTYPE
    parm: AUTHNAME ?
    parm: AUTHSECRET ?
  }
}
```

Table 2: Application (APPLICATION) characteristic structure

```
characteristic: APPLICATION *
{
  parm: APPID
  parm: NAME ?
  parm: TO-NAPID *
  parm: ADDR *
}
```

Table 3: Access rule (ACCESS) characteristic structure

```
characteristic: ACCESS +
{
  parm: RULE +
  parm: APPID *
  parm: TO-NAPID *
}
```

7.2   Use of the data model for F-MMS

For OTL configuration of F-MMS settings, only a subset of the characteristics and parameters defined in [7] are used. These characteristics are listed in table 4. Other characteristics defined in [7] shall be ignored; however they may be used for the configuration other service settings in future.

Table 4: Characteristics used for F-MMS

Characteristic	Presence	Description
NAPDEF	Mandatory	Definition of a Network Access Point
APPLICATION	Mandatory	Definition of MMS parameters
ACCESS	Mandatory	Definition of a set of access rules

In the following clauses, the characteristics listed in table 4 and the use of the related parameters are described in detail. In analogy to the handling of characteristics not listed in table 4, parameters that are defined in [7] in relation with the respective characteristic but not mentioned in the detailed description of the characteristics in the following clauses shall be ignored; however they may be used for the configuration other service settings in future.

7.2.1   Characteristics of type NAPDEF

The NAPDEF characteristic serves for the definition of a Network Access Point. According to [7], the NAPDEF characteristic may occur zero or more times in a configuration message. For the OTL configuration of F-MMS settings, this characteristic may be present one to three times: two defining the dial-in numbers for MM submission and MM retrieval, and one defining the F-SMSC number for delivery of MM notifications etc. However, in order to avoid incomplete or inconsistent terminal settings, it is recommended that all of these three NAPDEFs are present.

The parameters that are used for OTL configuration of F-MMS settings within a NAPDEF characteristic are listed in table 5. This table gives a short description of each parameter. A detailed generic description of each parameter can be found in [7].

Table 5: Parameters for NAPDEF

Parameter	Presence	Description
NAPID	mandatory	Following [7], the NAPID parameter is a mandatory parameter and must be unique within its enclosed structure. The NAPID is used to link to the TO-NAPID parameter of the APPLICATION characteristic.
NAME	mandatory	Following [7], the NAME parameter is a mandatory parameter. It indicates a logical, user readable identity of the configuration element.
NAP-ADDRESS	mandatory	Following [7], the NAP-ADDRESS is a mandatory parameter. For OTL configuration of F-MMS settings it contains the dial-in number of the RAS of the F-MMSC or the number of the related F-SMSC for delivery of MM Notifications etc. respectively. In this context, "F-SMSC number" means the "basic SMSC number" as described in ES 201 912 [4], clause 5.2.2.
NAP-ADDRTYPE	optional	Following [7], the NAP-ADDRTYPE is an optional parameter. It indicates the format of the address in the NAP-ADDRESS field. For OTL configuration of F-MMS settings the default value E164 applies.
CALLTYPE	optional	Following [7], the CALLTYPE is an optional parameter. Some bearers may support different protocols to be used for data exchange. The CALLTYPE parameter is used to define this protocol. For OTL configuration of F-MMS settings the default value ANALOG-MODEM applies. For the definition of the related F-SMSC number, this parameter is not necessary and should therefore not be present.
NAPAUTHINFO	optional	See clause 7.2.2.

7.2.2   Characteristics of type NAPAUTHINFO

The NAPAUTHINFO characteristic is part of a NAPDEF characteristic and provides the related authentication information. Following [7], it may occur zero or more times within a NAPDEF configuration. For OTL configuration of F-MMS settings, this characteristic shall be present only zero or one time. Furthermore, in case that there are more than one NAPDEF characteristics defined within the OTL configuration provisioning document, the NAPAUTHINFO contained in all NAPDEF characteristics shall be identical if present. In case that the respective NAPDEF characteristic defines the F-SMSC number for delivery of MM Notifications etc, the NAPAUTHINFO characteristic is not applicable and should therefore not be present.

The parameters that are used for OTL configuration of F-MMS settings within a NAPAUTHINFO characteristic are listed in table 6. This table gives a short description of each parameter. A detailed generic description of each parameter can be found in [7].

Table 6: Parameters for NAPAUTHINFO

Parameter	Presence	Description
AUTHTYPE	mandatory	Following [7], the AUTHTYPE is a mandatory unique parameter that indicates the authentication protocol, possible values PAP, CHAP and MD5. This parameter does not indicate the actual authentication method to use when connecting to the NAP, but links the authentication parameters AUTHNAME and AUTHSECRET to the method.
AUTHNAME	optional	Following [7], the AUTHNAME contains the ID needed to authenticate the user. For OTL configuration of F-MMS settings this parameter contains the username for the RAS authentication.
AUTHSECRET	optional	Following [7], the AUTHSECRET contains the secret needed to authenticate the user. For OTL configuration of F-MMS settings this parameter contains the password for the RAS authentication.

7.2.3   Characteristics of type APPLICATION

The APPLICATION characteristic provides parameters needed to access a particular application service access point. It is linked to one or more network access point definitions that are appropriate for this application service point. Following [7], it may occur zero or more times. For OTL configuration of F-MMS settings, the APPLICATION characteristic is a mandatory element that defines the MM Relay/Server URL within the ADDR parameter.

The parameters that are used for OTL configuration of F-MMS settings within a APPLICATION characteristic are listed in table 7. This table gives a short description of each parameter. A detailed generic description of each parameter can be found in [7].

Table 7: Parameters for APPLICATION

Parameter	Presence	Description
APPID	mandatory	Following [7], the APPID identifies the type of the application service available at the described application service access point. The value is expected to be globally unique. For OTL configuration of F-MMS settings the value 'w4' applies as defined by WAP WINA [13] for the Multimedia Messaging Service. See also [7].
NAME	optional	Following [7], the NAME parameter indicates a logical, user readable identity of the APPLICATION.
TO-NAPID	optional; more than one occurrence possible	Following [7], the TO-NAPID parameter refers to a network access point with a matching NAPID. For OTL configuration of F-MMS settings this parameter is mandatory and may occur one or more times.
ADDR	optional; more than one occurrence possible	Following [7], the ADDR parameter may be used to provide the address of the application server. The value can be an absolute URI or an IPv4 address represented in decimal format or a fully qualified Internet domain name. For OTL configuration of F-MMS settings this parameter is used to specify the URL (including port if applicable) of the MMS Relay/Server.

7.2.4   Characteristics of type ACCESS

Following [7], the ACCESS characteristic defines a list of rules for directing applications to a suitable network access point. Within the ACCESS characteristic are two sets of parameters interpreted by the user agent that are:

- **Access-rule parameters:** used for defining access conditions in which access is granted. A group of access-rule parameters are named an access rule.

- **Access-result parameters:** used for describing the access granted when an access rule is satisfied. A group of access-result parameters is named an access result. Only one access result may exist in a single ACCESS characteristic.

The user agent's treatment of the parameters in the ACCESS characteristic is covered in [8].

The parameters that are used for OTL configuration of F-MMS settings within a ACCESS characteristic are listed in table 8. This table gives a short description of each parameter. A detailed generic description of each parameter can be found in [7].

Table 8: Parameters for ACCESS

Parameter	Presence	Description
RULE	mandatory; more than one occurrence possible	Following [7], the RULE is used to delimit individual access-rules. This parameter may take a value in order to label an access rule. The RULE parameter value must be unique within the enclosed provisioning document. A RULE parameter is positioned at the start of an access rule. The use of this parameter for OTL configuration of F-MMS settings is described in table 9.
APPID	optional; more than one occurrence possible	Following [7], in an ACCESS characteristic, this is classed as an "access-rule parameter" and uses the same format as the APPID parameter in the APPLICATION characteristic. The intention of this parameter is to identify an application service that will be used when forming a mapping to an access-result. Multiple APPID parameters may be included in an access-rule.
TO-NAPID	mandatory	Following [7], in an ACCESS characteristic, this is classed as an "access-result parameter" and refers to the network access point with matching NAPID parameter. This parameter indicates the network access point that will be used when the application fully satisfies the access rules in the same characteristic.

The RULE values used for OTL configuration of F-MMS settings are described in table 9.

Table 9: Use of RULE for OTL configuration of F-MMS settings

RULE value	Use for OTL configuration of F-MMS settings
FMMS	Identifier of the access rule which refers to the NAPDEF used for F-MMS submission and retrieval (in case the RAS dial-in number for sending and retrieving MMS is the same).
FMMS_SND	Identifier of the access rule which refers to the NAPDEF used for MM submission (in case of different RAS dial-in numbers for submission and retrieval).
FMMS_RCV	Identifier of the access rule which refers to the NAPDEF used for MM retrieval (in case of different RAS dial-in numbers for submission and retrieval).
FMMS_PSH	Identifier of the access rule which refers to the NAPDEF used for delivery of MM Notifications, etc., e.g. the number of the F-SMSC which delivers the MM Notifications, etc.

7.3 Provisioning document example

Table 10 below provides an example provisioning document for F-MMS OTL configuration of F-MMS terminal settings.

Table 10: Example provisioning document

```xml
<?xml version="1.0"?>
<!DOCTYPE wap-provisioningdoc PUBLIC "-//WAPFORUM//DTD PROV 1.0//EN"
"http://www.wapforum.org/DTD/prov.dtd">

<wap-provisioningdoc version="1.0">

  <characteristic type="NAPDEF">
    <parm name="NAPID" value="NAP_SND"/>
    <parm name="NAME" value="MMS RAS Submission"/>
    <parm name="NAP-ADDRESS" value="+490123456789"/>

    <characteristic type="NAPAUTHINFO">
      <parm name="AUTHTYPE" value="PAP"/>
      <parm name="AUTHNAME" value="mmuser"/>
      <parm name="AUTHSECRET" value="mmsecret"/>
    </characteristic>
  </characteristic>

  <characteristic type="NAPDEF">
    <parm name="NAPID" value="NAP_RCV"/>
    <parm name="NAME" value="MMS RAS Retrieval"/>
    <parm name="NAP-ADDRESS" value="+499876543210"/>

    <characteristic type="NAPAUTHINFO">
      <parm name="AUTHTYPE" value="PAP"/>
      <parm name="AUTHNAME" value="mmuser"/>
      <parm name="AUTHSECRET" value="mmsecret"/>
    </characteristic>
  </characteristic>

  <characteristic type="NAPDEF">
    <parm name="NAPID" value="NAP_SMS"/>
    <parm name="NAME" value="MY SMSC"/>
    <parm name="NAP-ADDRESS" value="+4955555555"/>
  </characteristic>

  <characteristic type="APPLICATION">
    <parm name="APPID" value="w4"/>
    <parm name="NAME" value="FMMS"/>
    <parm name="TO-NAPID" value="NAP_SND"/>
    <parm name="TO-NAPID" value="NAP_RCV"/>
    <parm name="ADDR" value="http://f-mms.mmsc.com:8080/mmsc"/>
  </characteristic>

  <characteristic type='ACCESS'>
    <parm name='RULE' value='FMMS_SND'/>
    <parm name='APPID' value='w4'/>
    <parm name='TO-NAPID value='NAP_SND'/>
  </characteristic>

  <characteristic type='ACCESS'>
    <parm name='RULE' value='FMMS_RCV'/>
    <parm name='APPID' value='w4'/>
    <parm name='TO-NAPID value=' NAP_RCV'/>
  </characteristic>

  <characteristic type='ACCESS'>
    <parm name='RULE' value='FMMS_PSH'/>
    <parm name='TO-NAPID value='NAP_SMS'/>
  </characteristic>

</wap-provisioningdoc>
```

Annex A (informative):
Bibliography

OMA-WAP-ProvBoot-v1-1-20021112-C: "Provisioning Bootstrap Version 1.1".

History

Document history		
V1.1.1	December 2004	Publication