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LTE;  
Message Waiting Indication (MWI) using IP Multimedia (IM)  
Core Network (CN) subsystem;  
Protocol specification  
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# Foreword

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# 1 Scope

The present document specifies the stage three Protocol Description of the Message Waiting Indication (MWI) service, based on stage one and two of the ISDN MWI supplementary services. It provides the protocol details in the IP Multimedia (IM) Core Network (CN) subsystem based on the Session Initiation Protocol (SIP) and the Session Description Protocol (SDP).

The present document is applicable to User Equipment (UE) and Application Servers (AS) which are intended to support the MWI supplementary service.

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# 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, edition number, version number, etc.) or non-specific.
- For a specific reference, subsequent revisions do not apply.
- For a non-specific reference, the latest version applies. In the case of a reference to a 3GPP document (including a GSM document), a non-specific reference implicitly refers to the latest version of that document *in the same Release as the present document*.

- [1] 3GPP TS 22.173: "IP Multimedia Core Network Subsystem (IMS) Multimedia Telephony Service and supplementary services; Stage 1".
- [2] 3GPP TS 24.229: "Internet Protocol (IP) multimedia call control protocol based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [3] IETF RFC 3842: "A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)".
- [4] IETF RFC 3265: "Session Initiation Protocol (SIP)-Specific Event Notification".
- [5] IETF RFC 3458: "Message Context for Internet Mail".
- [6] IETF RFC 3938: "Video-Message Message-Context".
- [7] IETF RFC 2822: "Internet Message Format".
- [8] IETF RFC 2156: "MIXER (Mime Internet X.400 Enhanced Relay): Mapping between X.400 and RFC 822/MIME".
- [9] IETF RFC 3263: "Session Initiation Protocol (SIP): Locating SIP Servers".
- [10] 3GPP TS 22.101: "Service aspects; Service principles".
- [11] IETF RFC 3261: "SIP: Session Initiation Protocol".
- [12] 3GPP TS 24.228 Release 5: "Signalling flows for the IP multimedia call control based on Session Initiation Protocol (SIP) and Session Description Protocol (SDP); Stage 3".
- [13] 3GPP TS 23.003: "Numbering, addressing and identification".
- [14] Void
- [15] 3GPP TS 22.228: "Service requirements for the Internet Protocol (IP) multimedia core network subsystem (IMS); Stage 1".
- [16] IETF RFC 3428: "Session Initiation Protocol (SIP) Extension for Instant Messaging".

## 3 Definitions and abbreviations

### 3.1 Definitions

For the purposes of the present document, the terms and definitions given in 3GPP TS 22.173 [1], 3GPP TS 22.101 [10], 3GPP TS 22.228 [15], 3GPP TS 23.003 [13] and the following apply:

**correspondent:** person or entity that deposits messages in the subscriber's message account

NOTE: Correspondent and subscriber can be the same person or entity.

**Message Account (MA):** resource that retains multimedia messages (voice, video, fax, etc.) deposited by correspondents for the subscriber

**subscriber:** person or entity that receives status information about deposited messages

**supplementary service:** modifies or supplements a basic Telecommunication service

### 3.2 Abbreviations

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

AS	Application Server
CD	Communication Deflection
CDIV	Communication DIVersion
CFB	Communication Forwarding Busy
CFNL	Communication Forwarding on Not Logged-in
CFNR	Communication Forwarding No Reply
CFU	Communication Forwarding Unconditional
CONF	CONFerence calling
CSCF	Call Session Control Function
ECT	Explicit Communication Transfer
HOLD	Communication Hold
I-CSCF	Interrogating - CSCF
IMS	IP Multimedia Subsystem
IP	Internet Protocol
ISDN	Integrated Service Data Network
MA	Message Account
MCID	Malicious Call IDentification
MIME	Multipurpose Internet Mail Extensions
MNUA	MWI Notifier User Agent
MSUA	MWI Subscriber User Agent
MWI	Message Waiting Indication
OIP	Originating Identification Presentation
OIR	Originating Identification Restriction
P-CSCF	Proxy - CSCF
PSI	Public Service Identity
PSTN	Public Switch Telephone Network
S-CSCF	Serving - CSCF
SDP	Session Description Protocol
SIP	Session Initiation Protocol
TIP	Terminating Identification Presentation
TIR	Terminating Identification Restriction
UA	User Agent
UE	User Equipment
URI	Universal Resource Identifier



## 4 Message Waiting Indication (MWI)

### 4.1 Introduction

The Message Waiting Indication (MWI) service enables the network, upon the request of a controlling user to indicate to the receiving user, that there is at least one message waiting.

### 4.2 Description

#### 4.2.1 General description

The MWI service enables the AS to indicate to the subscriber, that there is at least one message waiting.

The indication is delivered to the subscriber's UE after successful subscription to the Message Waiting Indication service as described in the present document.

Other modes of MWI service invocation are not applicable.

NOTE: Having received this indication, the subscriber user can subsequently access the message account, to have the deposited message delivered. The means by which the subscriber accesses and manages the message account are outside the scope of the present document.

### 4.3 Functional entities

#### 4.3.1 User Equipment (UE)

The UE shall implement the MWI Subscriber User Agent role as described in subclause 4.4.1.

#### 4.3.2 Application Server (AS)

An AS shall implement the role of a MWI Notifier User Agent as described in subclause 4.4.2.

An AS implementing the role of MWI Notifier User Agent shall implement the role of the AS acting as terminating UA as described in 3GPP TS 24.229 [2], subclause 5.7.2.

Additionally an AS may implement other roles for the receipt and storage of the messages for example Web Server, Mail Transfer and Delivery Agent, Short Message Service centre, etc.

The definition of additional roles for an MWI AS is out of the scope for the current specification.

## 4.4 Roles

### 4.4.1 MWI Subscriber User Agent (MSUA)

A MSUA is an entity that is subscribed or requests information about status change of message account from an MWI AS.

Actions performed by a MSUA as a part of the UE are described in subclause 4.7.2.1.

### 4.4.2 MWI Notifier User Agent (MNUA)

The MNUA is an entity that provides information about changes in message account status to the MSUA.

Actions performed by a MWI Notifier User Agent as a part of the AS are described in subclause 4.7.2.5.

## 4.4.3 Message Account (MA)

### 4.4.3.0 General

The definition of the message account from the RFC 3842 [3] applies with following additions:

Message account retains multimedia messages (e.g. voice, video and fax) intended to a particular subscriber.

### 4.4.3.1 Identification of the message account for the message deposit

Since messages may be intended to the different public user identities that belong to the same subscriber, the message account may be configured to retain messages for any of the subscriber's public user identities.

Configuration of a message account to retain messages for each public user identity, for a group of public user identities or for all of public user identities that belong to the same subscriber is subject to the operator's policy.

### 4.4.3.2 Identification of the message account for the MWI subscription

For the identification of the message account by subscriptions to the MWI service any of a subscriber's public user identities can be used (see examples in subclause A.1.1.2).

## 4.5 Operational requirements

### 4.5.1 Provision/withdrawal

The MWI service is provided after prior arrangement with the service provider. The MWI service shall be withdrawn at the subscriber's request or for administrative reasons.

Any of the subscriber's public user identities can be used to access the MWI service, see annex B.

### 4.5.2 Requirements on the originating network side

No specific requirements are needed on the originating network side.

NOTE: Annex B includes an example of an IFC that can be used to invoke the MWI supplementary service.

### 4.5.3 Requirements in the network

No specific requirements are needed in the network.

### 4.5.4 Requirements on the terminating network side

No specific requirements are needed in the network.

## 4.6 Coding requirements

The application/simple-message-summary MIME type used to provide Message Summary and Message Waiting Indication Information is defined in subclause 5 of RFC 3842 [3].

The coding of the message types in the message-context-class values is defined in the specifications listed in the "reference" column of table 1.