

I n t e r n a t i o n a l T e l e c o m m u n i c a t i o n U n i o n

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SERIES Q: SWITCHING AND SIGNALLING

Testing specifications – Testing specifications for SIP-IMS

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**Message waiting indication using IP multimedia  
core network subsystem – Part 3: Test suite  
structure and test purposes; User side**

Recommendation ITU-T Q.4010.3

ITU-T



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## Recommendation ITU-T Q.4010.3

### Message waiting indication using IP multimedia core network subsystem – Part 3: Test suite structure and test purposes; User side

#### Summary

Recommendation ITU-T Q.4010.3 provides the testing requirements for "Message waiting indication (MWI) using IP multimedia (IM) core network (CN) subsystem – Part 3: Test suite structure and test purposes (TSS&TP)" (based on Recommendation ITU-T Q.3626 v.1).

The version number, v.1, indicates that this is version one of Recommendation ITU-T Q.4010.3, and that it relates to Release 10 of the relevant 3GPP/ETSI standard.

#### History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T Q.4010.3 v.1	2016-08-29	11	<a href="http://handle.itu.int/11.1002/1000/13003">11.1002/1000/13003</a>

#### Keywords

IMS, IP multimedia subsystem, message waiting indication, MWI, testing, test suite structure and test purposes, TSS&TP.

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\* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

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## Recommendation ITU-T Q.4010.3

### Message waiting indication using IP multimedia core network subsystem – Part 3: Test suite structure and test purposes; User side

#### 1 Scope

This Recommendation is Part 3 of a multi-part deliverable covering "Message waiting indication (MWI) using IP multimedia (IM) core network (CN) subsystem – Part 3: Test suite structure and test purposes (TSS&TP); User side", as identified below:

Part 1: "Protocol implementation conformance statement (PICS)";

Part 2: "Test suite structure and test purposes (TSS&TP); Network side";

**Part 3: "Test suite structure and test purposes (TSS&TP); User side".**

#### 2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[ITU-T Q.3626 v.1] Recommendation ITU-T Q.3626 v.1 (2016), *Message waiting indication – Protocol specification*.

[ITU-T X.290] Recommendation ITU-T X.290 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – General concepts*.

[ITU-T X.296] Recommendation ITU-T X.296 (1995), *OSI conformance testing methodology and framework for protocol Recommendations for ITU-T applications – Implementation conformance statements*.

[IETF RFC 3265] IETF RFC 3265 (2002), *Session Initiation Protocol (SIP)-Specific Event Notification*.

[IETF RFC 3842] IETF RFC 3842 (2004), *A Message Summary and Message Waiting Indication Event Package for the Session Initiation Protocol (SIP)*.

#### 3 Definitions

##### 3.1 Terms defined elsewhere

For the purposes of this Recommendation, the terms and definitions given in [ITU-T Q.3626 v.1] [ITU-T X.290], [ITU-T X.296] and the following apply:

**3.1 PICS proforma:** Document, in the form of a questionnaire, which when completed for an implementation or system becomes a PICS.

**3.2 protocol ICS (PICS):** ICS for an implementation or system claimed to conform to a given protocol specification.

NOTE – This may contain additional information.

### 3.2 Terms defined in this Recommendation

None.

## 4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

ICS	Implementation Conformance Statement
IUT	Implementation Under Test
MA	Message Account
MWI	Message Waiting Indication
PICS	Protocol Implementation Conformance Statement
TP	Test Purpose
TSS	Test Suite Structure
UE	Use Equipment

## 5 Conventions

None.

## 6 Test suite structure

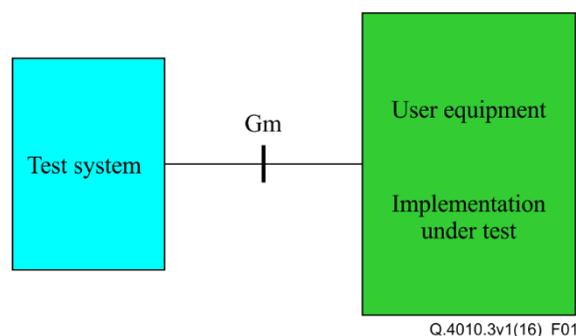
UserEquipment		MWI_U01_xxx
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### 6.1 Configuration

The scope of this Recommendation is to test the signalling and procedural aspects of the stage 3 requirements as described in [ITU-T Q.3626 v.1]. The stage 3 description respects the requirements of several network entities and end devices. Consequently, several interfaces (reference points) are addressed to satisfy the test of the different entities.

In order to test the appropriate entities the configurations below are applicable:

**Testing of user equipment.** There are several requirements regarding end devices therefore a special configuration is applicable (see Figure 1).



**Figure 1 – Applicable configuration to test the user equipment**

## 7 Test purposes

### 7.1 Introduction

For each requirement in [ITU-T Q.3626 v.1] a test purpose (TP) is defined.

### 7.1.1 TP naming convention

Test purposes (TPs) are numbered, starting at 001, within each group. Groups are organized according to the test suite structure (TSS). Additional references are added to identify the actual test suite and whether it applies to the network or the user (see Table 1).

**Table 1 – TP identifier naming convention scheme**

Identifier: <ss>_<iut><group>_<nnn>			
<ss>	= supplementary service:	e.g. "MWI"	
<iut>	= type of IUT:	U	User - equipment
		N	Network
<group>	= group	2 digit field representing group reference according to TSS	
<nnn>	= 3 digit sequential number	(001-999)	

### 7.1.2 Test strategy

As the base standard [ITU-T Q.3626 v.1] contains no explicit requirements for testing, the TPs were generated as a result of an analysis of the base standard and the protocol implementation conformance statement (PICS) specification [ITU-T Q.4010.1]. The criteria applied include the following:

- Whether or not a test case can be built from the TP is not considered.

### 7.1.3 Reference column "MWI reference"

The column "MWI reference" makes reference to [ITU-T Q.3626 v.1], except where explicitly stated otherwise.

## 7.2 Invocation and operation

### 7.2.1 Actions at the UE

<b>TSS</b> UserEquipment	<b>TP</b> MWI_U01_001	<b>MWI reference</b> Clause 4.7.2.1 of [ITU-T Q.3626 v.1]	<b>Selection expression</b> PICS 2/1
<b>Test purpose:</b> <i>Initial subscription for a public user identity using the public service identity</i>			
Ensure that the user equipment (UE) is able to subscribe to the message waiting indication (MWI) service. A SUBSCRIBE message is sent. The Request line contains the public service identity of the message account (MA). The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'.			
<b>SIP header:</b> SUBSCRIBE sip: <b>public service identity</b> @server SIP/2.0 Event: message-summary Expires: <a valid value> Accept: application/simple-message-summary			
<b>Comments:</b>			
<b>User equipment</b>		➔	<b>Test equipment</b>
		➔	SUBSCRIBE
		➔	200 OK (SUBSCRIBE)

<b>TSS</b> UserEquipment	<b>TP</b> MWI_U01_002	<b>MWI reference</b> Clause 4.7.2.1 of [ITU-T Q.3626 v.1]	<b>Selection expression</b> PICS 2/2
<b>Test purpose:</b> <i>Initial subscription for a public user identity using the public user identity</i>			
Ensure that the user equipment is able to subscribe to the MWI service. A SUBSCRIBE message is sent. The Request line contains the public user identity of the subscriber. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'.			

**SIP header:** SUBSCRIBE sip: **public user identity**@server SIP/2.0  
 Event: message-summary  
 Expires: <a valid value>  
 Accept: application/simple-message-summary

**Comments:**

<b>User equipment</b>		<b>Test equipment</b>
	→	SUBSCRIBE
	←	200 OK (SUBSCRIBE)

TSS	TP	MWI reference	Selection expression
UserEquipment	MWI_U01_003	Clause 4.7.2.1 of [ITU-T Q.3626 v.1] Clause 3.6 of [IETF RFC 3842]	

**Test purpose:**  
*Re-Subscription before subscription expires*

Ensure that the user equipment is able to re-subscribe the current subscription before the subscription expires. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'. The Call-ID is equal to the Call-ID of the initial subscription.

**SIP header:** SUBSCRIBE  
 Event: message-summary  
 Expires: 500  
 Accept: application/simple-message-summary

**Comments:**

<b>User equipment</b>		<b>Test equipment</b>
	→	SUBSCRIBE
	←	200 OK (SUBSCRIBE)
<b>Before subscription expires</b>		
	→	SUBSCRIBE
	←	200 OK (SUBSCRIBE)

TSS	TP	MWI reference	Selection expression
UserEquipment	MWI_U01_004	Clause 4.7.2.1 of [ITU-T Q.3626 v.1] Clause 3.6 of [IETF RFC 3842]	

**Test purpose:**  
*Subscription after re-subscription fails*

Ensure that the user equipment is able to subscribe to the MWI service after a re-subscription failed. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to a proper value, Accept header is set to 'application/simple-message-summary'.

**SIP header:** SUBSCRIBE 1  
 Event: message-summary  
 Expires: 500  
 Accept: application/simple-message-summary  
 SUBSCRIBE 2  
 Call-ID: <different from Call-ID of SUBSCRIBE 1>  
 Event: message-summary  
 Expires: 500  
 Accept: application/simple-message-summary

**Comments:**

<b>User equipment</b>		<b>Test equipment</b>
	→	SUBSCRIBE
	←	200 OK (SUBSCRIBE)
<b>Before subscription expires</b>		
	→	SUBSCRIBE 1
	←	500
	→	SUBSCRIBE 2
	←	200 OK (SUBSCRIBE)

<b>TSS</b> UserEquipment	<b>TP</b> MWI_U01_00 5	<b>MWI reference</b> Clause 4.7.2.1 of [ITU-T Q.3626 v.1] Clause 3.1.4.3 of [IETF RFC 3265]	<b>Selection expression</b>
<b>Test purpose:</b> <i>Unsubscribe from MWI service</i>			
Ensure that the user equipment is able to unsubscribe the current subscription. A SUBSCRIBE message is sent. The Event header is set to 'message-summary', the Expires header is set to zero, Accept header is set to 'application/simple-message-summary'. The Call-ID is equal to the Call-ID of the initial subscription.			
<b>SIP header:</b> SUBSCRIBE2 Event: message-summary Expires: 0 Accept: application/simple-message-summary			
<b>Comments:</b>			
<b>User equipment</b>		<b>Test equipment</b>	
	→	SUBSCRIBE1	
	←	200 OK (SUBSCRIBE)	
	→	SUBSCRIBE2	
	←	200 OK (SUBSCRIBE)	

<b>TSS</b> UserEquipment	<b>TP</b> MWI_U01_006	<b>MWI reference</b> Clause 4.7.2.1 of [ITU-T Q.3626 v.1] Clause 3.9 of [IETF RFC 3842]	<b>Selection expression</b>
<b>Test purpose:</b> <i>Reception of status information after subscription</i>			
Upon receipt of a valid NOTIFY request after subscription, the user equipment accepts the information and sends a 200 OK response.			
<b>SIP header:</b> NOTIFY Event: message-summary Subscription-State: active Content-Type: application/simple-message-summary  Messages-Waiting: yes Message-Account: sip: <b>served_user</b> @Server Voice-Message: 4/1 (2/0) Video-Message: 3/1 (1/0) Fax-Message: 2/1 (0/1)			
<b>Comments:</b>			
<b>User equipment</b>		<b>Test equipment</b>	
	→	SUBSCRIBE	
	←	200 OK (SUBSCRIBE)	
<b>Status information indicate to the user</b>	←	NOTIFY	
	→	200 OK (NOTIFY)	

<b>TSS</b> UserEquipment	<b>TP</b> MWI_U01_007	<b>MWI reference</b> Clause 4.7.2.1 of [[ITU-T Q.3626 v.1] Clause 3.9 of [[IETF RFC 3842]	<b>Selection expression</b>																
<b>Test purpose:</b> <i>Reception of subsequent status information after state change</i>  Upon receipt of a valid NOTIFY request to refresh the status of deposited messages, the user equipment accepts the information and sends a 200 OK response.																			
<b>SIP header:</b> <pre> NOTIFY 1     Event: message-summary     Subscription-State: active     Content-Type: application/simple-message-summary      Messages-Waiting: yes     Message-Account: sip:served_user@Server     Voice-Message: 4/1 (2/0)     Video-Message: 3/1 (1/0)     Fax-Message: 2/1 (0/1)  NOTIFY 2     Event: message-summary     Subscription-State: active     Content-Type: application/simple-message-summary      Messages-Waiting: yes     Message-Account: sip:served_user@Server     Voice-Message: 5/1 (2/0)     Video-Message: 3/1 (1/0)     Fax-Message: 2/1 (0/1) </pre>																			
<b>Comments:</b> <table style="width: 100%; border: none;"> <tr> <td style="text-align: center;"><b>User equipment</b></td> <td style="text-align: center;"><b>Test equipment</b></td> </tr> <tr> <td></td> <td style="text-align: center;">→ SUBSCRIBE</td> </tr> <tr> <td></td> <td style="text-align: center;">← 200 OK (SUBSCRIBE)</td> </tr> <tr> <td style="text-align: center;"><b>Status information indicate to the user</b></td> <td style="text-align: center;">← NOTIFY 1</td> </tr> <tr> <td></td> <td style="text-align: center;">→ 200 OK (NOTIFY)</td> </tr> <tr> <td></td> <td style="text-align: center;"><b>New voice message in the account</b></td> </tr> <tr> <td style="text-align: center;"><b>Status information indicate to the user</b></td> <td style="text-align: center;">← NOTIFY 2</td> </tr> <tr> <td></td> <td style="text-align: center;">→ 200 OK (NOTIFY)</td> </tr> </table>				<b>User equipment</b>	<b>Test equipment</b>		→ SUBSCRIBE		← 200 OK (SUBSCRIBE)	<b>Status information indicate to the user</b>	← NOTIFY 1		→ 200 OK (NOTIFY)		<b>New voice message in the account</b>	<b>Status information indicate to the user</b>	← NOTIFY 2		→ 200 OK (NOTIFY)
<b>User equipment</b>	<b>Test equipment</b>																		
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<b>Status information indicate to the user</b>	← NOTIFY 1																		
	→ 200 OK (NOTIFY)																		
	<b>New voice message in the account</b>																		
<b>Status information indicate to the user</b>	← NOTIFY 2																		
	→ 200 OK (NOTIFY)																		



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