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SERIES H: AUDIOVISUAL AND MULTIMEDIA SYSTEMS

Infrastructure of audiovisual services – Supplementary
services for multimedia

Message waiting indication supplementary service for ITU-T H.323 systems

Recommendation ITU-T H.450.7



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Recommendation ITU-T H.450.7

Message waiting indication supplementary service for ITU-T H.323 systems

Summary

Recommendation ITU-T H.450.7 specifies the procedures and signalling protocol for the supplementary service for message waiting indication (SS-MWI) in ITU-T H.323 (packet-based multimedia communication systems) networks.

The SS-MWI enables a served user to be sent a message waiting indication (MWI) and also enables this MWI to be cancelled. The served user may also be permitted to interrogate a message centre for any MWIs.

The procedures and the signalling protocol of this Recommendation are derived from the SS-MWI as specified in ISO/IEC 15505 and ISO/IEC 15506.

This Recommendation makes use of the "Generic functional protocol for the support of supplementary services in ITU-T H.323 systems" as defined in Recommendation ITU-T H.450.1.

This revision introduces editorial and technical changes, clarifications and corrections, in particular those indicated in the Implementers' Guide for Recommendations of the ITU-T H.323 system (2011).

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T H.450.7	1999-05-27	16
2.0	ITU-T H.450.7	2013-03-16	16

FOREWORD

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The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T H.450.7

Message waiting indication supplementary service for ITU-T H.323 systems

1 Scope

This Recommendation describes the supplementary service for message waiting indication (SS-MWI), which is applicable to ITU-T H.323 multimedia endpoints. The SS-MWI is based on the equivalent supplementary service for the private integrated services network (PISN) as specified in [ISO/IEC 15505] and [ISO/IEC 15506].

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 H.225.0] Recommendation ITU-T H.225.0 (2009), *Call signalling protocols and media stream packetization for packet-based multimedia communication systems*.
- [ITU-T H.235.5] Recommendation ITU-T H.235.5 (2005), *ITU-T H.323 security: Framework for secure authentication in RAS using weak shared secrets*.
- [ITU-T H.245] Recommendation ITU-T H.245 (2011), *Control protocol for multimedia communication*.
- [ITU-T H.323] Recommendation ITU-T H.323 (2009), *Packet-based multimedia communications systems*.
- [ITU-T H.450.1] Recommendation ITU-T H.450.1 (2011), *Generic functional protocol for the support of supplementary services in ITU-T H.323 systems*.
- [ISO/IEC 15505] ISO/IEC 15505:1997, *Information technology, Telecommunications and information exchange between systems – Private Integrated Services Network (PISN) – Specification, functional model and information flows – Message waiting indication supplementary service*.
- [ISO/IEC 15506] ISO/IEC 15506:1997, *Information technology, Telecommunications and information exchange between systems – Private Integrated Services Network (PISN) – Inter-exchange signalling protocol – Message waiting indication supplementary service*.

3 Terms and definitions

This Recommendation defines the following terms:

3.1 message centre: The entity that requests activation or deactivation of the message waiting indication (MWI).

When a callback request is issued using the mechanism provided by the MWI, the originating user acts as a message centre.

3.2 message centre endpoint: The endpoint that handles the ITU-T H.323 signalling on behalf of the message centre. For example, this may be the message centre itself if it is directly attached to the ITU-T H.323 network, it may be the originating user's endpoint, or it may be a Gateway.

3.3 message waiting indication: An indication to the served user when messages are waiting for the served user.

3.4 served user: The user to whom the message waiting indication (MWI) is sent when initiated by the message centre.

NOTE – The indication may be a lamp, special tone, display, etc. This is outside the scope of this Recommendation.

4 Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

APDU	Application Protocol Data Unit
ASN.1	Abstract Syntax Notation One
GK	Gatekeeper
MWI	Message Waiting Indication
NFE	Network Facility Extension
PISN	Private Integrated Services Network
RAS	Registration, Admission and Status
SDL	Specification and Description Language
SS-MWI	Supplementary Service Message Waiting Indication
UTC	Coordinated Universal Time (also known as Greenwich Mean Time (GMT))

5 Introduction

The message waiting indication supplementary service (SS-MWI) provides a general purpose mechanism by which a user can be advised that messages intended for that user are available. A variety of message types are supported, such as voice mail, fax and teletext.

In one of its simplest forms, when a message is left for a user, a message centre sends a notification to the served user, where a message waiting lamp is lit.

Additional information provided by the notification mechanism allows the served user to know the number of messages that are waiting, the types of messages, the subjects of the messages, and the priority of the highest priority message.

In an ITU-T H.323 environment, where endpoints may commonly be directly associated with general purpose computers, applications such as automated message retrieval may be envisioned.

SS-MWI also provides a mechanism whereby it is possible for an endpoint to issue a callback request to the served user.

The interrogation mechanism provided by the SS-MWI allows a served user to query message centres known to it, or a known Gatekeeper (GK)/proxy for the MWI activations currently applied to it. A typical usage of this mechanism is by a served user to recreate its MWI status when the endpoint is returned to service, as the status may have changed while it was out of service.

6 SS-MWI service description

6.1 Description

The SS-MWI enables a served user to be sent an MWI and also enables this MWI to be cancelled. An MWI activation may also be used to send a callback request to the served user.

This service also includes an option to interrogate the MWI stored against the served user.

A served user can receive separate MWIs for each of the basic services for which there is a message waiting.

NOTE – A basic service for which there is a message waiting would usually be the basic service used to retrieve that message.

6.2 Normal procedures

6.2.1 Activation, deactivation and interrogation

To activate SS-MWI, the message centre shall supply the endpoint address and the basic service for which there is a message waiting and may, as an implementation option, add any combination of the following pieces of information: the identity of the message centre; the number of messages waiting for the served user for that basic service; the address of the user that left a message; the time when a message was left; and the priority of the highest priority message waiting for that basic service. After activation, the SS-MWI may be activated again whenever the number of waiting messages for a specific basic service changes.

It is also possible to use SS-MWI activation to request that the served user initiate a call (callback) to a specified endpoint.

To deactivate the SS-MWI, the message centre shall supply the endpoint address and the basic service for which there are no longer any messages waiting.

As a result of activation, an MWI shall be sent to the served user. The MWI may include information on the messages waiting, if provided by the message centre. As a result of deactivation, the MWI at the served user, for the basic service concerned, shall be cancelled.

When the message centre activates or deactivates SS-MWI at the served user, it shall be provided with an indication of acceptance.

When the served user interrogates the SS-MWI for a particular basic service, the message centre shall provide the served user with an indication of whether the SS-MWI is activated for that basic service and may add, as an implementation option, any of the following information:

- the identity of the message centre;
- the number of messages waiting;
- the address of the user that left a message;
- the time when a message was left;
- the priority of the highest priority message waiting.

When the served user interrogates the SS-MWI for all basic services, the message centre shall provide the served user with a list of basic services for which the SS-MWI is active and, as an implementation option, for each basic service, any of the additional information listed above.

6.2.2 Invocation and operation

Not applicable.

6.3 Exceptional procedures

6.3.1 Activation, deactivation and interrogation

If the served user cannot accept SS-MWI activation or deactivation, then the message centre shall be informed and may also be given the reason. If the message centre cannot accept interrogation, then the served user shall be informed and may also be given a reason.

6.3.2 Invocation and operation

None.

7 Signalling protocol for the support of SS-MWI

7.1 SS-MWI coding requirements

7.1.1 ITU-T H.450.1 supplementary service APDU

The application protocol data units (APDUs) of MWI operations are transported within user-to-user information elements in call control and FACILITY messages as defined in [ITU-T H.450.1]. The MWI operations are described in clause 7.1.2, Operations.

When conveying the Invoke APDU of the operations defined in clause 7.1.2, Operations, the destinationEntity data element of the NFE shall contain the value "endpoint".

When conveying the Invoke APDU of operations mwiActivate, mwiDeactivate, and mwiInterrogate, the interpretation APDU shall be omitted or shall contain the value rejectAnyUnrecognizedInvokePdu.

7.1.2 Operations

The following operations defined in Abstract Syntax Notation One (ASN.1) shall apply:

Message-Waiting-Indication-Operations

```
{itu-t recommendation h 450 7 version1(0) message-waiting-operations(0)}
```

DEFINITIONS AUTOMATIC TAGS ::=

BEGIN

```
IMPORTS OPERATION, ERROR FROM Remote-Operations-Information-Objects
      {joint-iso-itu-t remote-operations(4) informationObjects(5)
version1(0)}
```

```
EXTENSION, Extension{} FROM Manufacturer-specific-service-
extension-definition
      {itu-t recommendation h 450 1 version1(0) msi-definition(18)}
```

```
userNotSubscribed, invalidServedUserNumber,
basicServiceNotProvided
```

```
FROM H4501-General-Error-List
      {itu-t recommendation h 450 1 version1(0) general-error-
list(1)}
```

```
EndpointAddress FROM Addressing-Data-Elements
      {itu-t recommendation h 450 1 version1(0) addressing-data-
elements(9)}
```

```
MixedExtension FROM Call-Hold-Operations
      {itu-t recommendation h 450 4 version1(0) call-hold-
operations(0)};
```

```
H323-MWI-Operations OPERATION ::= {mwiActivate | mwiDeactivate |
mwiInterrogate }
```