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Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Specification, functional model and information flows — Message Waiting indication supplementary service

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Technologies de l'information — Télécommunications et échange d'information entre systèmes — Réseau privé à intégration de services — Spécifications, modèle fonctionnel et flux d'informations — Service supplémentaire d'indication d'attente de message

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 15505 was prepared by ECMA (as ECMA-241) and was adopted, under a special "fast-track procedure", by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, in parallel with its approval by national bodies of ISO and IEC.

This third edition cancels and replaces the first edition (ISO/IEC 15505:2000), which has been technically revised.

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Introduction

This International Standard is one of a series of Standards defining services and signalling protocols applicable to Private Integrated Services Networks (PISNs). The series uses ISDN concepts as developed by ITU-T and conforms to the framework of International Standards for Open Systems Interconnection as defined by ISO/IEC.

This International Standard specifies the Message Waiting Indication supplementary service.

This International Standard is based upon the practical experience of ECMA member companies and the results of their active and continuous participation in the work of ISO/IEC JTC 1, ITU-T, ETSI and other international and national standardization bodies. It represents a pragmatic and widely based consensus.

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Information technology — Telecommunications and information exchange between systems — Private Integrated Services Network — Specification, functional model and information flows — Message Waiting Indication supplementary service

1   Scope

This International Standard specifies supplementary service Message Waiting Indication (SS-MWI), which is related, but not limited, to various basic services supported by Private Integrated Services Networks (PISNs). Basic services are specified in ISO/IEC 11574.

This supplementary service MWI enables a Served User to be sent a Message Waiting Indication and also enables this Message Waiting Indication to be cancelled.

Service specifications are produced in three stages, according to the method described in ETS 300 387. This International Standard contains the stage 1 and stage 2 specifications of SS-MWI. The stage 1 specification (clause 6) specifies the supplementary service as seen by users of PISNs. The stage 2 specification (clause 7) specifies the functional entities involved in the supplementary service and the information flows between them.

2   Conformance

In order to conform to this International Standard, a stage 3 standard shall specify signalling protocols and equipment behaviour that are capable of being used in a PISN which supports the supplementary service specified in this International Standard. This means that, to claim conformance, a stage 3 standard is required to be adequate for the support of those aspects of clause 6 (stage 1) and clause 7 (stage 2) which are relevant to the interface or equipment to which the stage 3 standard applies.

3   Normative references

The following referenced documents are indispensable for the application of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 11574:2000, *Information technology - Telecommunications and information exchange between systems - Private Integrated Services Network - Circuit-mode 64 kbit/s bearer services - Service description, functional capabilities and information flows*

ISO/IEC 11579-1:1994, *Information technology - Telecommunications and information exchange between systems - Private integrated services network - Part 1: Reference configuration for PISN Exchanges (PINX)*

ETS 300 387:1994, *Private Telecommunication Network (PTN); Method for the specification of basic and supplementary services*

ITU-T Rec. I.112:1993, *Vocabulary of terms for ISDNs*

ITU-T Rec. I.210:1993, *Principles of telecommunication services supported by an ISDN and the means to describe them*

ITU-T Rec. Z.100:1999, *Specification and description language (SDL)*

4   Terms and definitions

For the purposes of this document, the following terms and definitions apply.

4.1   External definitions

This International Standard uses the following terms defined in other documents:

−   Basic Service   (ITU-T Rec. I.210)

−   Private Integrated services Network eXchange (PINX)   (ISO/IEC 11579-1)

−   Private Integrated Services Network (PISN)   (ISO/IEC 11579-1)

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– Service	(ITU-T Rec. I.112)
– Signalling	(ITU-T Rec. I.112)
– Supplementary Service	(ITU-T Rec. I.210)
– User	(ISO/IEC 11574)

4.2   Other definitions

4.2.1   Served User

The user to whom the Message Waiting Indication is sent on initiative of the Message Centre.

4.2.2   Message Centre

The entity which activates or deactivates the Message Waiting Indication as a result of the storage or retrieval of messages.

4.2.3   Message Waiting Indication

An indication to the Served User when messages are waiting for the Served User.

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

5   List of acronyms

ANF	Additional Network Feature
FE	Functional Entity
ISDN	Integrated Services Digital Network
MWI	Message Waiting Indication
PINX	Private Integrated services Network eXchange
PISN	Private Integrated Services Network
SDL	Specification and Description Language
SS	Supplementary Service

6   SS-MWI stage 1 specification

6.1   Description

6.1.1   General description

The supplementary service MWI enables a Served User to be sent a Message Waiting Indication and also enables this Message Waiting Indication to be cancelled.

NOTE - The Message Waiting Indication is sent on activation by the Message Centre.

NOTE - The Message Waiting Indication is cancelled on deactivation by the Message Centre.

A Served User can receive separate MWIs for each of the services for which there is a message waiting.

NOTE - A service for which there is a message waiting would normally use the related basic service to retrieve that message.

6.1.2   Qualifications on applicability to telecommunication services

This supplementary service does not apply directly to any basic telecommunication service. However, a MWI relates to a basic service for which there are messages waiting.

6.2   Procedures

6.2.1   Provision / withdrawal

SS-MWI may be provided or withdrawn after pre-arrangement with the service provider or may be generally available to all users.

6.2.2   Normal procedures

6.2.2.1 Activation, deactivation and interrogation

The PISN shall provide activation / deactivation by the Message Centre. In addition, the PISN may provide interrogation by the Served User.

To activate SS-MWI, the Message Centre shall supply the PISN number and the 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 service; the address of the user that left a message; the time when a message was left; the priority of the highest priority message waiting for that service. After activation, SS-MWI may be activated again whenever the number of waiting messages changes.

To deactivate SS-MWI, the Message Centre shall supply the PISN number and the service for which there is no longer a message waiting.

As a result of activation, a MWI shall be sent to the Served User. The MWI may include information on messages waiting, if provided by the Message Centre. As a result of deactivation, the MWI at the Served User, for the 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 SS-MWI for a particular service, the Message Centre shall provide the Served User with an indication of whether SS-MWI is activated for that 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 SS-MWI for all services, the Message Centre shall provide the Served User with a list of services for which SS-MWI is active and, as an implementation option, for each service, any of the additional information listed above.

6.2.2.2 Invocation and operation

Not applicable.

6.2.3 Exceptional procedures

6.2.3.1 Activation, deactivation and interrogation

If the Served User cannot accept activation or deactivation, then the Message Centre shall be informed and may also be given the reason. If the PISN cannot accept interrogation, then the Served User shall be informed and may also be given a reason.

6.2.3.2 Invocation and operation

None.

6.3 Interactions with other Supplementary Services / Additional Network Features

Interactions with other supplementary services and ANFs for which PISN standards were available at the time of publication of this International Standard are specified below.

6.3.1 Advice of Charge (AOC)

No interaction.

6.3.2 Call Deflection (CD)

No interaction.

6.3.3 Call Forwarding Unconditional (CFU)

No interaction.

6.3.4 Call Forwarding Busy (CFB)

No interaction.

6.3.5 Call Forwarding No Reply (CFNR)

No interaction.

6.3.6 Call Interception (CINT)

No interaction.

6.3.7 Call Intrusion (CI)

No interaction.

6.3.8 Call Offer (CO)

No interaction.

6.3.9 Call Transfer (CT)

No interaction.

6.3.10 Calling/Connected Line Identification Restriction (CLIR)

No interaction.

6.3.11 Calling/Connected Name Identification Restriction (CNIR)

No interaction.

6.3.12 Calling Line Identification Presentation (CLIP)

No interaction.

6.3.13 Calling Name Identification Presentation (CNIP)

No interaction.

6.3.14 Connected Line Identification Presentation (COLP)

No interaction.

6.3.15 Connected Name Identification Presentation (CONP)

No interaction.

6.3.16 Completion of Calls to Busy Subscribers (CCBS)

No interaction.

6.3.17 Completion of Calls on No Reply (CCNR)

No interaction.

6.3.18 Do Not Disturb (DND)

No interaction.

6.3.19 Do Not Disturb Override (DNDO)

No interaction.

6.3.20 Path Replacement (PR)

No interaction.

6.3.21 Recall (RE)

No interaction.

6.3.22 Route Restriction Class (RRC)

No interaction.

6.3.23 Wireless Terminal Location Registration (WTLR)

No interaction.

NOTE - A MWI may be directed to the new location.

6.3.24 Wireless Terminal Mobility Incoming Call (WTMI)

No interaction.

6.3.25 Wireless Terminal Mobility Outgoing Call (WTMO)

No interaction.

6.3.26   Authentication of a WTM user (WTAT)

No interaction.

6.3.27   Authentication of the PISN (WTAN)

No interaction.

6.4   Interworking considerations

A PISN may be able to accept MWIs from a Message Centre in another network. In this case, the PISN may also be able to interrogate that Message Centre.

A PISN may be able to send MWIs to a Served User in another network. In this case, the PISN may also be able to accept interrogation requests from that Served User.

6.5   Overall SDL

Figure 1 contains the dynamic description of SS-MWI using the Specification and Description Language (SDL) defined in ITU-T Rec. Z.100 (1999). The SDL process represents the behaviour of the network in providing SS-MWI.

Input signals from the left and output signals to the left represent primitives from and to the Message Centre.

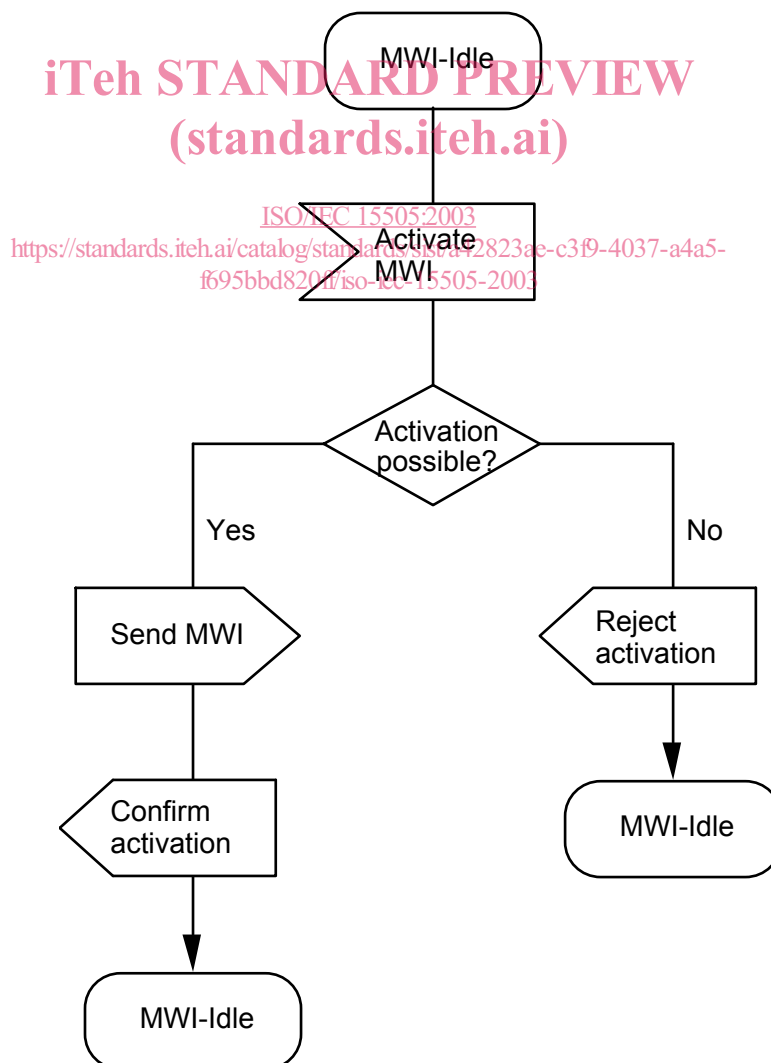Input signals from the right and output signals to the right represent primitives from and to the Served User.

Figure 1 (part 1) - SS-MWI Overall SDL