INTERNATIONAL STANDARD

ISO/IEC 13714

First edition
1995-02-01

Information technology — Document processing and related communication — User interface to telephone-based services — Voice messaging applications

Technologies de l'information — Traitement de documents et communication connexe — Interface de l'utilisateur et des services à base de téléphone — Applications de messagerie vocale

Reference number
ISO/IEC 13714:1995(E)

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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. 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.

International Standard ISO/IEC 13714 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 18, *Document processing and related communication*.

Annexes A and B of this International Standard are for information only.

Introduction

Voice messaging systems allow telephone users to leave recorded messages for people who are unable to answer their telephone, either because they are absent or busy, or because they are currently engaged on another telephone call. This is commonly referred to as call answering. Voice messaging systems can also allow users to send voice messages directly, without accessing call answering.

Voice messaging systems are increasingly available and accessed from homes and offices, as well as from public and mobile telephones. With callers leaving messages on many different systems and subscribers increasingly likely to have mailboxes on more than one system, there is a need for users to have a common interface for the basic features of voice messaging systems.

Experience has shown that consistent and predictable human interfaces benefit users. Benefits can include faster learning, greater productivity, and greater satisfaction. Consistent human interfaces can also benefit an industry by promoting greater acceptance for products and services.

The DTMF interface provides a highly restricted user interface, as there are only 12 different keys available for input, and output is via an audio channel, whose performance is constrained by speed and users' limited short-term memory capabilities. For these reasons, users are particularly likely to benefit from common user interface features both within and across different voice messaging systems they encounter, as they can learn a common set of input and output protocols, which will maximise the efficiency and usability of these interfaces.

This International Standard includes only some of the features in DTMF-controlled systems used for voice messaging (see clauses 5, 6, 7, 8, and 9, following) but, as described later in this International Standard (see clause 1 and Figure 1) there exist large areas of commonality with important functions in other telephone-based (i.e., interactive voice response) systems and services. Many of the user interface features specified in this International Standard will be usable for and implemented in other interactive voice response applications. Annex B of this standard summarises the subset of the telephone user interface features described in the body of this standard that are generally applicable in DTMF-controlled telephone-based interfaces beyond voice messaging.

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1 Scope

This International Standard will provide users of voice messaging systems with a consistent mode of interaction in a way that is independent of the underlying system implementations. The interface is based on a set of design guidelines annexed to this International Standard.

The interface supports the ability of all users described in the user-system model (see Figure 2) to access the features of voice messaging systems. In a call answering application, the interface allows callers to leave messages from all types of telephones. It also allows callers to access additional features through the use of DTMF devices. In the voice mail application, through the use of DTMF devices, the interface allows subscribers to send and receive voice messages, and to manage stored data, and allows non-subscribers to leave voice messages for subscribers.

This International Standard addresses the following six functional areas:

- a caller leaving a voice message, when the call is answered by a voice messaging system call answering facility;
- a caller leaving a voice message, when a message is sent to a subscriber by a subscriber or non-subscriber through direct messaging;
- a subscriber listening to and processing voice messages received;
- a subscriber creating and sending voice messages through the voice mail application;
- the sending and receiving of messages via voice message delivery applications; and
- the use of voice bulletin boards.

Within these functional areas, only certain features are defined in this International Standard. However, standard-conforming systems are not limited to these functions and features, and this International Standard does not preclude alternative methods of invoking features specified in this International Standard, providing that these alternatives do not conflict with the standard interface specified for other features covered in this International Standard.

In this International Standard, the direct messaging functional area is covered in the clause specifying the call answering application.

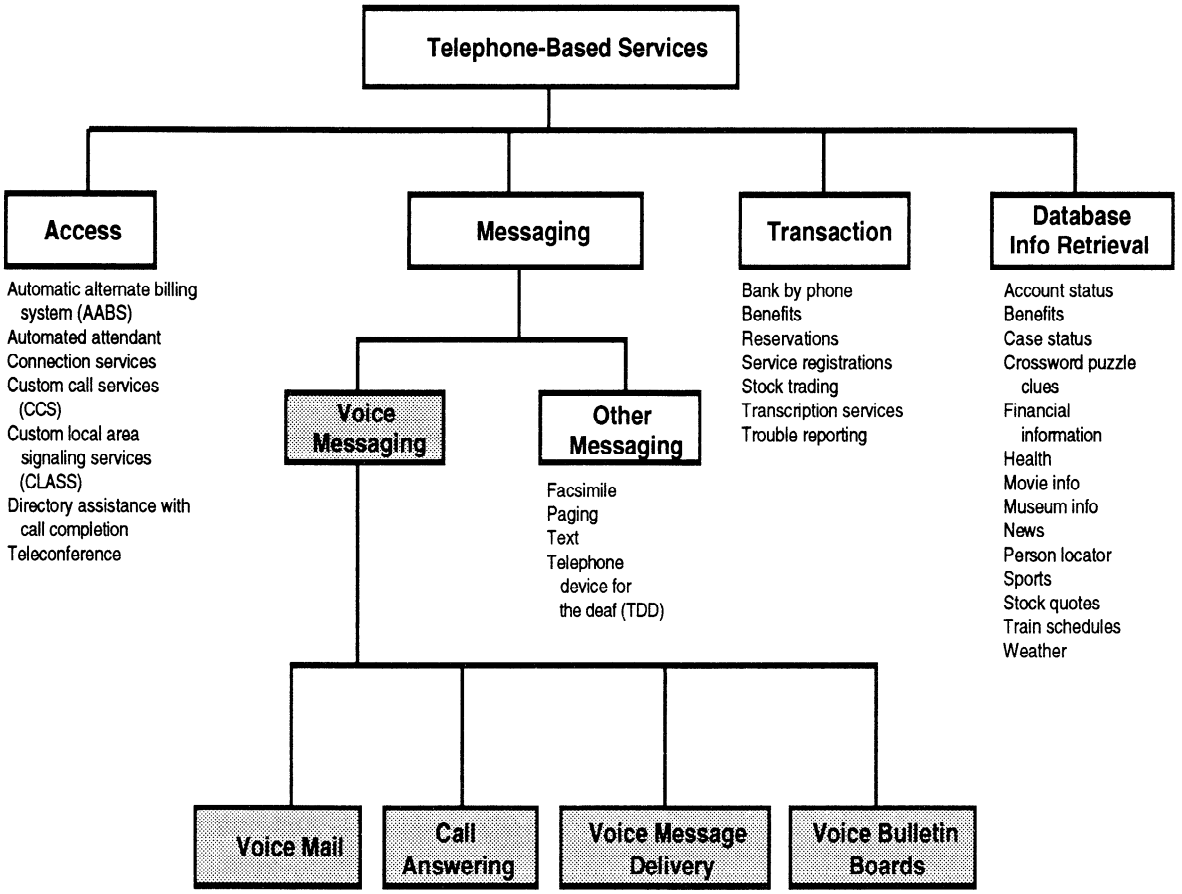
In addition, this International Standard specifies two requirements to be satisfied in all voice messaging contexts, not just the application contexts specified earlier in this clause: the use of # as a delimiter (see 5.6.1), and the access to and presence of the control menu (see 5.6.2) and its associated functionality.

This International Standard does not address the user/system interface for administrators, who have responsibility for the management and maintenance of the voice messaging system.

This International Standard also does not address the proactive method, if any, employed by a voice messaging system to notify a user that a voice mailbox contains a message. Notification is, at present, typically achieved by a message waiting light, a distinctive dial-tone, or a pager device.

This International Standard does not specify a non-DTMF user interface for Integrated Services Digital Network (ISDN) terminal access to voice messaging applications; however, if a user's ISDN terminal or switching equipment has the capability for full simulation of DTMF tones after call connection, the user interface specified in this International Standard will operate a conforming voice messaging system.

Figure 1 shows a taxonomy of telephone-based services, with shaded boxes indicating the services within the scope of this International Standard:



Notes:
The scope of this standard is shown by the shaded areas.
Database Info Retrieval: Read-only access to stored/presented information.
Transaction: Read/write access to a database or a service.

Figure 1- Taxonomy of telephone-based services

Figure 2 shows a user/system model of the scope of this International Standard:

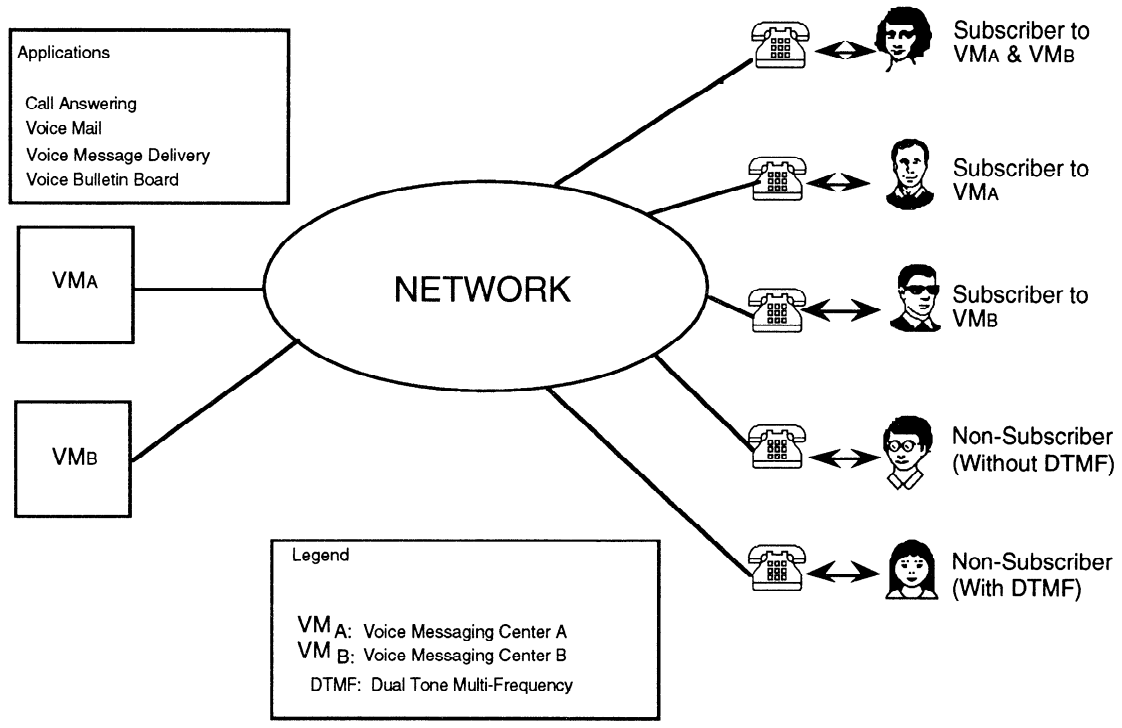


Figure 2 - The user/system model of this International Standard

2 Conformance

The user interface to a conforming voice messaging system shall conform to clause 5. Additionally, the user interface to a conforming call answering application shall conform to clause 6; the user interface to a conforming voice mail application shall conform to clause 7; the user interface to a conforming voice bulletin board application shall conform to clause 8; and the user interface to a conforming voice message delivery application shall conform to clause 9. The only requirement for conformance with respect to callers using non-DTMF telephones is as specified in 6.1.

A conforming system may also provide one or more additional, alternative user interfaces which are inconsistent with any or all of clauses 5, 7, 8, and 9, but only to logged-in subscribers who have chosen that alternative interface. The interface specified in this International Standard shall be the default configuration of the system when supplied.

A voice messaging system in which the call answering application conforms to clauses 5 & 6, but in which the other voice messaging applications covered by the scope of this International Standard do not conform may be described as having a conforming call answering application.

Throughout clauses 5, 6, 7, 8, and 9, the following conventions are used to indicate levels of conformance required of compliant systems:

Mandatory/reserved:	Conforming systems shall have this function/feature and the function/feature shall be accessible in (at least) the way specified.
Optional/reserved:	Conforming systems may or may not have this function/feature. If the function/feature is offered, it shall be accessible in (at least) the way specified. If the function/feature is not offered the access mechanism specified shall not be used to access any other function/feature.
Optional/not reserved:	Conforming systems may or may not have this function/feature. If the function/feature is offered in the system state and menu level concerned, it shall be accessible in (at least) the way specified at the menu concerned. If the function/feature is not offered, the access mechanism may be used to access another function/feature.

Note: In describing the effect of key-presses in a conforming interface, this International Standard uses a simple declarative mode (e.g. "the play command causes playback....."). The normative content of the standard is carried by the specification of "mandatory/reserved", "optional/reserved" and "optional/not reserved" in the associated table. Where the effect of user input is not specified, a conforming system may assign any effect to that user input, including an effect which is also available through a standard-specified means. For example, the help function as specified in this document on the control menu could additionally be presented as an option in other menus within that application.

3 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this International Standard. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this International Standard are encouraged to investigate the possibility of applying the most recent editions of the standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards.

CCITT Volume VI: *General recommendations on telephone switching and signaling, Recommendation Q.23: Technical features of push-button telephone sets* (1988).

ITU-T: *The telephone network and ISDN operation, numbering, routing and mobile service, Recommendation E.161: Arrangement of digits, letters and symbols on telephones and other devices that can be used for gaining access to a telephone network* (1993).