INTERNATIONAL STANDARD

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Information technology — User interfaces — Voice commands —

Part 1:
Framework and general guidance

Technologies de l'information — Interfaces utilisateur — Commande vocale —

Partie 1: Cadre et conseils généraux

Contents

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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see www.iso.org/directives).

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. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see www.iso.org/patents).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see the following URL: www.iso.org/iso/foreword.html.

The committee responsible for this document is ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

ISO/IEC 30122 consists of the following parts, under the general title *Information technology — User interfaces — Voice commands*:

— *Part 1: Framework and general guidance*

— *Part 2: Constructing and testing*

— *Part 3: Translation and localization*

— *Part 4: Management of voice command registration*

Introduction

Voice command is used for controlling ICT devices with the voice and in the language of the user. This technology is based on speech recognition, with some consideration for language tolerance (different accents or speech impairment while using a given language). It is also beneficial to people who are operating the ICT device when/where they cannot use hands or fingers to operate it.

This document defines the principal standardized voice commands that will be commonly used in various ICT devices.

Information technology — User interfaces — Voice commands —

Part 1:
Framework and general guidance

1   Scope

This part of ISO/IEC 30122 defines a framework and general guidance for essential voice commands.

This part of ISO/IEC 30122 provides a limited number of commands which could be memorized to facilitate the use of the information/communication technology (ICT) devices including computers, personal digital assistants (PDAs), tablets, mobile devices, car navigation systems and business machines.

This part of ISO/IEC 30122 does not include the natural sentence recognition by using natural language processing technology.

2   Conformance

A voice command is conformant to ISO/IEC 30122-1 if it meets all requirements of Clause 5.

3   Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements 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 639-2, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO 639-3, *Codes for the representation of names of languages — Part 3: Alpha-3 code for comprehensive coverage of languages*

ISO/IEC 30122-2, *Information technology — User interfaces — Voice commands — Part 2: Constructing and testing*

ISO/IEC 30122-3, *Information technology — User interfaces — Voice commands — Part 3: Translation and localization*

ISO/IEC 30122-4, *Information technology — User interfaces — Voice commands — Part 4: Management of voice command registration*

4   Terms and definitions

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

ISO and IEC maintain terminological databases for use in standardization at the following addresses:

— IEC Electropedia: available at http://www.electropedia.org/

— ISO Online browsing platform: available at http://www.iso.org/obp

4.1
voice command
spoken instruction to control ICT system

5 Requirements and recommendations

5.1 Overview

5.1.1 General

ISO/IEC 30122 consists of four parts.

ISO/IEC 30122-1 provides a framework and general guidance for essential voice commands. Basic and common requirements and recommendations for voice commands are provided.

ISO/IEC 30122-2 provides the technical criteria and test methods for voice commands and a speech recognition system. A voice command is the instruction spoken by the user to control an ICT device. The ICT device recognizes and identifies the spoken instruction using speech recognition technology. Thus, in order to determine the appropriateness of a voice command, the specification of the speech recognition technology that is used in ICT devices should be taken into account as well as the acoustical properties of the voice command.

ISO/IEC 30122-3 provides the linguistic requirements to translate and localize voice commands and the procedure to decide the words or phrases for voice commands from a linguistic point of view. A voice command is used in any language. Inter-language issues of voice commands should be taken into account for the translation and localization of voice commands.

ISO/IEC 30122-4 defines supplementary procedural information, requirements and criteria that apply to a collection of voice commands published as a web-accessible voice command database. They are based on Annex SL of the IEC Supplement to ISO/IEC Directives. ISO/IEC 30122-4 also defines the method for adding, changing or withdrawing voice commands in an electronic database of standard voice commands.

A developer of system/application that will use voice commands shall follow the defined procedure.

— Identify needed commands.

— Check the database of voice commands to find voice commands that meet these needs.

— Where standard voice commands exist, use them.

— Where standard voice commands do not exist, create missing voice commands in accordance with guidance in this document and ISO/IEC 30122-2.

— For all voice commands, comply with ISO/IEC 30122-3 for inter-language issues and localization.

— If desired, submit the new commands to the standardization procedure (defined in ISO/IEC 30122-3).

5.1.2 Attributes

Each voice command in this part of ISO/IEC 30122 has the following attributes.

NOTE   In EXAMPLEs of a) to j), the example data of attributes are expressed in English.

a) Title

Title is the name of this voice command. The title should be a noun or a noun phrase. Titles shall be unique (see 5.1.4). If there is a need for more than one title, the titles shall be separated with the punctuation mark semicolon.

NOTE   The title is not always the word or phrase to be spoken by the user as the voice command.

EXAMPLE 1   "Confirmation of operation".

EXAMPLE 2   "Answer; Confirmation".

b) Function

Function gives the purpose of the voice command, or actual action when the voice command is given. Function starts with *infinitive,* i.e. "To *verb* …".

EXAMPLE 1   "To confirm the operation that the system requires the user to be allowed to do."

EXAMPLE 2   "To agree the reaction of the ICT device."

c) Phrase of command

Phrase of command is to be spoken by the user to control ICT devices. Phrase of command shall be unique (see 5.1.4).

EXAMPLE 1   "Yes".

EXAMPLE 2   "I agree".

d) Pronunciation

Pronunciation gives the special requirement of pronunciation. It should be described in an appropriate mark-up. If there is no special information concerning pronunciation, this can be blank.

NOTE   Appropriate methods of mark-up include IPA (International Phonetic Alphabet), SAMPA, etc.

EXAMPLE 1   If the Phase of command is "Direction" and only a pronunciation [dərékʃən] is allowed (i.e. [daɪrékʃən] is invalid for that command), the Pronunciation is "[dərékʃən]".

EXAMPLE 2   If the Phase of command is "Direction" and both pronunciations [dərékʃən] and [daɪrékʃən] are allowed, the Pronunciation is "[dərékʃən][dərékʃən]".

e) Note

Note is an additional explanation. If there is nothing to describe in Note, it can be blank.

EXAMPLE   "See also the voice command 'OK'.".

f) Keywords

Keywords are used by the user to search the voice command on the database described in 5.2. If there is no keyword, this can be blank.

EXAMPLE   "OK, agree, confirmation".

g) Date of release

Date of release is the date when the present data a) to i) is updated. The date shall be presented in coordinated universal time (UTC).

EXAMPLE   "2012-01-01".

h)   Version

Version is a number of revision. This shall start with 1.00. The number increases by 1 in the case of major revision, and by 0.01 in the case of minor revision.

EXAMPLE   "1.02" ("." is a decimal point).

i)   History

History is a record of revisions. History can include past versions, and dates of release of past revisions. If there is no past revision, History can be blank.

EXAMPLE   "Ver. 1.0: 2011-01-01, Ver. 1.1: 2011-07-01".

j)   Relevant TCs/SCs and publications

Relevant TCs/SCs are the technical committees (TCs) and subcommittees (SCs) of ISO, IEC or other standardization organizations who standardize the voice command, or are interested by it. The publication is the published document that provides the voice command.

EXAMPLE   "JTC1/SC35, ISO/IEC 00000:2012".

5.1.3   Start and end signals of voice command

The start signal enables the acceptance of voice commands.

The end signal disables the acceptance of voice commands.

The target device should be identified in start and end signals. If the user omit the identification of target devices, all the devices that can receive the voice command are the targets.

NOTE 1   The starting signal enables the system to distinguish whether the word or phrase spoken by the user is the voice command or just a general utterance.

NOTE 2   The signal is not always given by a voice. The signal includes making sounds, pushing buttons or gestures.

NOTE 3   If there is only one device that receives the voice command around the user (e.g. in the case that only the navigation system receives the voice command in the car), the user omits the identification of the target device.

EXAMPLE 1   Saying "Computer!" is the signal of the start of voice command.

EXAMPLE 2   Clapping hands three times is the signal of the start of voice command.

EXAMPLE 3   Saying "Over." is the signal of the end of voice command.

EXAMPLE 4   The ICT device receives the voice command only 8 s after the signal of the start of voice command.

5.1.4   Uniqueness

Any two voice commands that have different functions shall not have the same Title.

Any two voice commands that have different functions shall not have the same Phrase of command.

5.1.5   Feedback of acceptance

The ICT device shall return feedback of acceptance or rejection to the user in an accessible manner. The feedback shall not leak privacy information.

5.2 Database of voice commands

5.2.1 Registration of voice commands

The standardized voice commands shall be registered according to the procedure given in ISO/IEC 30122-4.

5.2.2 Language of voice commands to be registered in database

Voice commands shall be registered in the database in at least one, ideally two, of the official languages of ISO and IEC. Provision shall be included in registration for adding as many equivalents in other languages as needed.

NOTE 1   In order to register a standardized voice command to the database, registration of a phrase in an official language of ISO/IEC is mandatory. The database is able to register as many other language equivalents (Chinese, English, French, German, Italian, Japanese, Korean, Russian, etc.) as needed.

NOTE 2   Inter-language and localizing issues are described in ISO/IEC 30122-3.

5.2.3 Contents of database

The database shall contain the following contents.

lc is Alpha-3 codes for the representation of names of languages (in accordance with ISO 639-2 and ISO 639-3).

NOTE   Where Alpha-2 code exists, they can optionally be stored as secondary information.

Title, Function, Phrase of command, Pronunciation, Note and Keyword are functions as language code *lc*. These functions shall give a value when *lc* = "eng", i.e. English.

EXAMPLE   The English of Phrase of command = "Yes", the French of Phrase of command = "Oui", the German of Phrase of command = "Ja", the Japanese of Phrase of command = "Hai", the Korean of Phrase of command = "Ye" and the Chinese of Phrase of command = "Dui".

a)   Index number

Index number is a serial unique number of the voice command.

b)   ID number

ID number is a classified unique number of the voice command.

c)   Title (*lc*)

d)   Function (*lc*)

e)   Phrase of command (*lc*)

f)   Pronunciation (*lc*)

g)   Note (*lc*)

h)   Keywords (*lc*)

i)   Date of release

j)   Version

k)   History

l)   Relevant TCs/SCs and publications