

---

---

**Information technology — Keyboard  
interaction model — Machine-readable  
keyboard description**

*Technologies de l'information — Modèle d'interactions sur claviers —  
Description de clavier lisible à la machine*

**PDF disclaimer**

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.

This document is a preview generated by EVS



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2008

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office  
Case postale 56 • CH-1211 Geneva 20  
Tel. + 41 22 749 01 11  
Fax + 41 22 749 09 47  
E-mail [copyright@iso.org](mailto:copyright@iso.org)  
Web [www.iso.org](http://www.iso.org)

Published in Switzerland

# Contents

Page

Foreword.....	iv
Introduction .....	v
1 Scope .....	1
2 Conformance .....	1
3 Normative references .....	1
4 Terms and definitions.....	1
5 Requirements .....	2
5.1 Description of keys and keyboard layouts .....	2
5.2 States resulting from the interaction of function keys used for input .....	2
5.3 Special keys .....	4
5.4 Dead keys .....	4
5.5 Stickiness and stable (explicit) locking or temporary (implicit) latching .....	5
5.6 Supplementary keys (accessible or not by the computer software) ; Email, Fn function keys, «Windows» keys, Sleep, On/Off) .....	6
5.7 Complex state change (mainly for accessibility purposes) .....	6
5.8 Keyboard feedback.....	6
5.9 Machine-readable keyboard description language .....	6
Annex A (normative) Protocol for the exchange of information between the hardware keyboard and the software .....	8
Annex B (normative) Formal description language.....	9
B.1 Introduction .....	9
B.2 Overview .....	9
B.3 Sections .....	9
B.3.1 Dictionaries .....	9
B.3.2 Meta-information.....	10
B.3.3 Non-functional information.....	10
B.3.4 Functional information .....	10
B.4 A specification in RELAX NG language of the keyboard description format.....	11
B.5 A description in EBNF language of the keyboard format.....	14
B.5.1 Rules for BNF syntax.....	14
B.5.2 Grammar for ISO/IEC 24757 Relax NG descriptions .....	15
B.6 An example keyboard description .....	16
B.7 Format in XML syntax.....	17
Annex C (informative) Brief History of computer keyboards and their associated software.....	24
C.1 The IBM keyboard .....	24
C.2 The AT and PS/2 keyboard .....	24
C.3 The USB keyboard .....	25
Annex D (informative) Format Mapping .....	26
D.1 General.....	26
D.2 Unix/Linux X Window xkb keyboard format.....	26
D.2.1 xkb description .....	26
D.2.2 xkb example .....	26
D.2.3 Example of keyboard description in ISO/IEC 24757 syntax .....	54
D.2.4 Program to convert xkb descriptions to ISO/IEC 24757 format.....	122
Bibliography .....	136

## 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 24757 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces*.

## Introduction

This International Standard is intended for those who design operating systems or software applications which take account of the keyboard being used (including the complete presentation of the keyboard on screen for documentation purposes). Its goal is to harmonize industry practices with regard to machine-readable keyboard descriptions (PCs, PDAs, Linux, Windows, Apple, etc.). Its ultimate aim is to facilitate the production of interoperable drivers for the user and to better assist the user by offering a more precise mapping between the physical keyboard layout and geometrical configuration, and the logical interface available to the operating system and its applications.

This document is a preview generated by EVS

# Information technology — Keyboard interaction model — Machine-readable keyboard description

## 1 Scope

This International Standard provides a formal description format that can not only fully describe the international keyboards standards, but also the capabilities of keyboards in the marketplace of today and the foreseeable future and their functioning with corresponding operating systems. It describes possible interactions between the keys of a keyboard and standardizes the keyboard description so that it is machine-readable while staying relatively easy to interpret by human beings.

## 2 Conformance

The machine-readable description of a keyboard is in conformity with this International Standard if it meets the requirements of 5.1 to 5.9.

## 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 639-1, *Codes for the representation of names of languages — Part 1: Alpha-2 code*

ISO 639-2, *Codes for the representation of names of languages — Part 2: Alpha-3 code*

ISO/IEC 9995-1, *Information technology — Keyboard layouts for text and office systems — Part 1: General principles governing keyboard layouts*

ISO/IEC 9995-2, *Information technology — Keyboard layouts for text and office systems — Part 2: Alphanumeric section*

ISO/IEC 9995-3, *Information technology — Keyboard layouts for text and office systems — Part 3: Complementary layouts of the alphanumeric zone of the alphanumeric section*

ISO/IEC 10646, *Information technology — Universal Multiple-Octet Coded Character Set (UCS)*

## 4 Terms and definitions

For the purposes of this document, the terms and definitions given in ISO/IEC 9995-1 and the following apply.

### 4.1

#### reference coordinates

identifier formed by one letter and two decimal digits, referring to the numbering grid according to which a key can be positioned at the intersection of a row and a column of the keyboard, where rows are identified by letters and columns by digits