INTERNATIONAL STANDARD

ISO/IEC 18021

First edition
2002-02-15

Information technology — User interfaces for mobile tools for management of database communications in a client-server model

Technologies de l'information — Interfaces utilisateur pour outils mobiles de gestion de communications des bases de données dans un modèle client-serveur

Reference number
ISO/IEC 18021:2002(E)

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Printed in Switzerland

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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 3.

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 International Standard 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 18021 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 35, *User interfaces.*

Annexes A to D of this International Standard are for information only.

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Introduction

In recent years, MoBile Tools (MBT), typically personal digital assistants (PDA), smart phones (mobile phones with web-browsing, e-mail, or some other network function) and other small size devices have become increasingly popular. MBT are constrained by requirements of low power consumption, small physical size, light weight, limited memory, low CPU processing power and restricted display screen size. To enable a variety of services and applications to be used comfortably and efficiently on hardware-restricted MBT, they are typically operated in conjunction with other devices via communication links. When the MBT works in conjunction with server machines or other computers, it becomes more powerful and more useful. Due to these restrictions, it is more difficult to achieve compatibility and interoperability than it would be in a large device. In order to achieve compatibility and interoperability, a different approach than that used for larger equipment is necessary.

When the MBT exchanges data (e.g. address data, schedule data, or sales data, etc.) with other devices via a potentially unreliable or narrow communication line, as in wireless communications, user interfaces for management of database communications of mobile tools are required to meet user's needs such as fast response, high usability, reliability and easy-to-use features. Standardizing these new user-interfaces will be very beneficial and convenient for MBT users.

A MoBile Tool client (MBT client) is defined as the software of an MBT that performs client operations with other devices via communication links. A MoBile Tool server (MBT server) is defined as the software of a device that acts as a server with the MBT client via a communication link. An MBT server can be run on a multi-accessible server or on another MBT. When an MBT client communicates with another MBT that has these MBT server capabilities, the former acts as the MBT client and the latter as the MBT server, thereby allowing them to operate together.

The MBT client typically has a small display screen, which provides the user interface that displays information and receive user instructions/input. The MBT client and the MBT server each have their own database. The user instructs/controls the database operation via the small display screen on the MBT client.

The following problems can occur with the utilization/operation of databases via communication links:

— There is the possibility that another device can operate the MBT client’s database or the MBT server’s database via communication links. The user needs to know in advance which operations will be executed or whether data in the MBT client’s database will be transmitted. However, there is no standard means to enable the user to prevent the update of the MBT client's database or the transmission of data from the MBT client's database without his approval. This creates a security problem.

— The connection, especially wireless, is sometimes broken. In this case, the user needs to know whether the MBT client’s database and/or the MBT server's database have been updated or not. There is no standard means for the user to receive feedback as to whether the MBT client's database has been successfully updated. For this is the reason feedback is required.

The purpose of this International Standard is to satisfy these user requirements. If user interfaces providing these functions are standardized, then the user can operate differing types of MBTs in a consistent manner.

This International Standard applies to smart phones, electronic organizers, PDAs, and palm sized personal computers. The adoption of this International Standard will improve compatibility, interoperability and user efficiency for database management.

Note: The principles described in ISO 9241-10 “Ergonomic requirements for office work with visual display terminals (VDTs) – Part 10: Dialogue principles” are of key importance for this International Standard.

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1 Scope

This International Standard defines user interface functions for management of database communication of an MBT client capable of interchanging data with an MBT server.

This International Standard is applicable to MBT clients.

This International Standard specifically defines the following two user interfaces.

— The user interface function for obtaining user approval in advance when MBT client's database is updated via a communication link, or when data in the MBT client’s database is transmitted to another database.

— The user interface function for providing feedback to the user, after the MBT client's or the MBT server's database has been updated via a communication link, or data in MBT client's database has been transmitted to another database.

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