
Information technology — User interfaces — Worldwide availability of personalized computer environments

*Technologies de l'information — Interfaces utilisateurs — Disponibilité
mondiale des environnements informatiques personnalisés*

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Foreword

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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).

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

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Introduction

In today's world, people are getting more and more mobile and access to the Internet is becoming ever more important. When moving around, people are encountering different kinds of hardware, all capable of communicating with the Internet, but having different user interfaces, such as computers with different national keyboards, mobile telephones and TV sets. The purpose of this Technical Report is to provide a way to make access as uniform as possible in a culturally and linguistically acceptable way so that users can have the almost the same personal user interface to their environments on the Internet wherever they go. Some areas of concern are the different keyboards or other inputting devices, different protocols for accessing the personal user environment via the Internet, and having uniform access to different Internet hosting environments.

The data in this Technical Report is meant for a general audience and is not specifically meant for research/engineering.

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Information technology — User interfaces — Worldwide availability of personalized computer environments

1 Scope

This Technical Report describes methods to enable access to a personal computing environment via the Internet, with a culturally and linguistically convenient and uniform personal user interface, on different types of hardware.

2 Terms and definitions

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

2.1

user

individual interacting with the system

[SOURCE: ISO 1503:2008, 3.11]

2.2

user requirements

description of the set of user needs for the software

[SOURCE: ISO/IEC 14143-1:2007, 3.12, modified]

2.3

(open system) environment

comprehensive set of interfaces, services, and supporting formats, plus user aspects, for interoperability and/or portability of applications, data, or information, as specified by information technology International Standards and profiles

[SOURCE: ISO/IEC/TR 10000-1:1998, 3.2.2, modified]

2.4

server

in a computer network, a functional unit that provides services to workstations, to personal computers or to other functional units

[SOURCE: ISO/IEC 2382:2015, 2120558]

2.5

program

prepared sequence of instructions to the system to accomplish a defined task

[SOURCE: ISO/IEC/IEEE 9945:2009, 3.300, modified]

2.6

application program interface

API

definition of syntax and semantics for providing computer system services

[SOURCE: ISO/IEC/IEEE 9945:2009, 3.19, modified]

2.7 service

software program that provides responses to requests from other software programs, which are frequently on other remotely connected computers

3 Technology

3.1 Purpose

The problem at hand is to match the preferences of a user to the system at hand, including hardware and software. The user preferences are specified as a preference bundle. The preference bundle is specifying all preferences of the user, including cultural preferences, accessibility preferences, and personal preferences. A specification of a preference bundle format is given in [Clause 4](#). There can be multiple preferences for the same job, so a way to weight the multiple preferences is needed. The system is specified with its hardware and software capabilities. Finding a solution would then be a matter of capability matching to the user preferences. The user can be presented to a way to modify the selected choice of settings.

The scenario is that a user can use systems everywhere in the world, in a way that best fits the user's preferences. An example is people on a journey, who use equipment like a keyboard suited for a foreign culture, for example, at a net café or at a hotel. The user would then be able to run programs in a language of choice of the user and with input possibilities fitted to make the user able to operate conveniently in the language of choice. This could possibly be run as a service over the Internet.

3.2 User preferences

The user preferences are specified as a number of personal preferences, and a number of more general preferences, such as cultural preferences on language and cultural conventions. The user preferences would be extensible and with alternate possibilities with preference weights attached. The user preferences would be able to reference other user preferences, including more generically specified preferences such as cultural and linguistic preferences. The user is able to obtain the preferences over the network everywhere in the world. The data could also be obtained from a local source, such as a usb stick.

3.3 System capabilities

The system capabilities is specifiable in an extensible format, and able to include other system capabilities, such as hardware and software capabilities of an accessing system, in combination with services obtained via the net.

3.4 Technology and standards

To accomplish this, it is necessary to have a specific standardized format for user preferences and for system capabilities, plus a method to access such information over the net in a personalized way. A way to do this is with XML formatted files and access protected file retrieval over an https connection.

Several information service providers, including the user's own services, could provide the preferences information, possibly via a user-id (email) or profile id and optionally a passcode or other identification mechanisms.

The specialized software could be easy to install but could also for convenience be part of the operating system environment.

The algorithm for capability matching to preferences could be standardized. The capability matching could use existing matching algorithms and be implementation defined.

4 APIs, services and file formats

4.1 User preference settings program

This subclause specifies formats and contents of user preferences and system capabilities. It also specifies services to obtain such information.

For the local system to obtain and set the user's preferences, a program needs to be available on the local system responsible for the inputting and outputting for the user that can retrieve a file with the user preferences and set preferences accordingly. The user's preferences settings program will need to contact a preferences server for the user's preferences information. A preference server is a web (https) server that is capable of delivering a file with a personalized profile, given the profile identification and optionally a passcode. Info on servers can be found on the SC 35 web site at <http://www.open-std.org/jtc1/sc35/wg5/>. The user's preferences settings program could have one preferred user information settings server, and a possibility to choose amongst other information servers, plus a possibility for the user to type in a self-chosen user information server.

The user's preferences retrieval program lets the identification and retrieval services identify the user and deliver a file with the user's preferences. The communication could preferably be done on a secure protocol such as the https. From the information retrieved, the user's preferences settings program determines the best match from available resources and taking into account available permissions, updates system and application settings accordingly, including installed applications, installed accessibility functionality, menus, application preferences, and cultural and language settings including input method choice.

If the user's preferences are elaborate, the settings update processing could be time consuming and error prone, for example, when installing new applications or installing new language versions or when direct matches are not possible. For selected generic settings such as language and culture profiles and for simpler settings like keyboard settings, matching of the user profile to the system capabilities could in many cases be not too demanding on local system resources. Also, for systems where most processing is done in the powerful cloud and the local system only handles the graphical environments and the inputting environment including a keyboard, this would be not too demanding on local system resources.

4.2 User preference delivery service

The user preference delivery service has the duty to identify the user's preferences and deliver a user's preferences file to the user preference settings program.

The identifying of the user preferences could be allowed to be done in multiple ways, including a specific userid/passcode identification scheme local to the system, use of one or more certificate based identifications schemes such as Verisign, CAcert, OpenID, pgp or gpg, use of one or more other external identification schemes such as those provided by vendors (for instance, Google, Facebook or Microsoft) and a generic identification of culture and language profiles, the latter most likely without a passcode.

A common way of identifying a user is using the email address of the user. An email address includes a '@' which can be difficult to find on a foreign keyboard. The first occurrence of the sequence '.', two period characters, can be used instead of the '@' character to facilitate easier typing of this form of identification.

Once the user identification has been established, the user preference delivery service sends a file with the user preferences corresponding to the identified requirement.

It is the responsibility of the user preference delivery service provider to provide a means of registering user preferences and/or generic profiles and storing such information. The service could allow a possibility to incorporate and edit other duly obtained preference profiles. Users could be allowed to indicate if their profile could be read without restrictions by other users. This could be presented to the user in a culturally and linguistically adequate way.