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Foreword

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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 specification is to provide guidelines 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

Worldwide-available personal computing environment

1 Scope

This Technical Report describes methods to enable access to a personal computing environment via the Internet in a culturally and linguistically convenient and uniform personal user interface from hardware of different nature.

2 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/IEC 9995 – Information technology – Keyboard layouts for text and office systems
ISO/IEC 10646 – Information technology – Universal Character Set

3 Technology

The problem at hand is to match the preferences of a user to the system at hand, including hardware and software. The user preference is specified as a preference bundle, including cultural preferences, accessibility preferences, and personal preferences, which may be multiple for the same job, and weighting of these. The system is specified with its hardware and software capabilities. Finding a solution would then be matter of capability matching to the user preferences. The user may be presented with a way to modify the selected choice of settings.

The user scenario is that a user can use systems everywhere in the world, in a way that best fits the users preferences. Examples are people on a journey, then using equipment like a keyboard suited for a foreign culture for example at a net café or at a hotel, and then be able to run programs in a language of choice and with adequate input possibilities, possibly run as a service over the network.

3.1 User preferences

The user preferences may be 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 should be extensible and with alternate possibilities with preference weights attached. The user preferences should be able to reference other user preferences, including more generically specified preferences such as cultural and linguistic preferences. The use should be able to obtain the preferences over the network everywhere in the world.

3.2 System capabilities

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

3.3 Technology and standards

To accomplish this it is probably necessary to have a specific standardized format for user preferences, and for system capabilities. And a method to access such information over the net in a personalized way. Candidates include an XML format and possibly 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) and password, or other identification mechanisms.

The algorithm for capability matching to preferences could be standardized.

Some further possible technical specifications is specified in annex A of this Technical Report.

4 Guides to various actors for solving the issues

4.1 Manufacturers of systems and software developers

There should be a service to provide the system capabilities of the hardware and the software. This could be done for the hardware mainly with the DMI info (dmidecode on some systems), and for the software mainly via the software registry or the installed packages registry.

4.2 Manufacturers of keyboards

For manufacturers of keyboards, a specification of the keyboard with key assignments and layout should be done, preferably according to ISO/IEC 24757.

4.3 Manufacturers of TV sets

Many modern TV sets today include an embedded operating system, capable of doing all of the required items to fulfil the functionality suggested in this report. TV sets can also act as a full system to access services over the internet, for example implementing an X server in a POSIX conforming environment.

4.4 Service providers

4.4.1 Service providers of accommodation like hotels

Internet access is commonly offered by many accommodation providers, so that costumers can come along with their own equipment, say a portable computer, or a mobile telephone and hook up. It is recommended that also port 22 (ssh) be open. Also accommodation providers commonly offer a TV set, and this could be accessible from the equipment of the costumer, providing a bigger screen than what is brought along by the customer. Business service installations with PCs, printer and other facilities should be equipped with the software outlined in this Technical Report for preferences and capabilities fetching and matching. Keyboards with a layout conforming to ISO/IEC 9995 such as ASCII keyboards could be a help to foreign customers.

4.4.2 Service providers of network access

This could be Internet cafés, airport lounges or tourist information centres. Such providers should be equipped with the software outlined in this Technical Report for preferences and capabilities fetching and matching. Providers should also provide a rich environment of many popular programs and with many language versions. Disk space is cheap enough that this is very feasible, and for example much open source software comes with support of many languages without no additional cost.

4.5 User possibilities

Users can do a number of things to improve their computing environment when in a foreign place.

A user can bring along equipment, for example in the form of a **portable computer**, or a mobile telephone, and then connect to the Internet via cable, wifi, wimax, telephone protocols or other network connection technology. This may be paid or free access.

Often the Internet service is limited to certain protocols. Ports that almost always are open are the **http** and **https** ports (TCP ports 80 and 443 respectively). If a user have arrangements to connect to a layered service at the homely end, for example by a Virtual Private Network (VPN) connection or a Secure Session Layer (SSL) connection to the http or https port specifically set up for this VPN/SSL service, then most port restrictions can be circumvented.

A user can also bring along the whole system on portable media such as a **USB** stick or a SSD which then may be booted and run on a PC. This is doable with Open Source systems such as Linux or FreeBSD. Alternatively just the data, and possibly some free-ware or Open Source could be brought along on portable media.

The user could also bring along a preferred **keyboard**, and connect it to a PC, or to a TV set. Some keyboards come in forms (for example rubber keyboards, or foldable keyboards) that can be wrapped up for easy storage and transportation.

A user may utilize the system set up in this Technical Report by knowing a preferred standard profile of **preferences**, or creating a personalized user preferences specification. The preferences could also be brought along on a mobile media, possibly together with other data and programs.

5 Security issues

Using foreign systems together with own data always imply security risks. The foreign system could be hacked, for example by a previous user. For many personal uses the risk is low, if what is vulnerable is of little value. A real issue is the risk of identity theft. When a user has finished using the local equipment, all user settings need to be reset, so that the next user would not be affected by the user preferences of the previous user.

Appendix A

(informative)

A. Possible technologies

This annex gives technologies for further investigation, such as formats and contents of user preferences and system capabilities, and services to obtain such information. The information described herein could be subject for future standardization.

A.1 User preference settings program

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. Info on servers may be found on the SC35/WG5 web site at <http://www.open-std.org/jtc1/sc35/wg5/>. The user's preferences settings program should have one preferred user information settings server, and a possibility to chose 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 should 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, and updates system and application settings accordingly, including installed applications, installed accessibility functionality, menus, application preferences, and cultural and language settings.

If the user's preferences is 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, this should in many cases not be too demanding on system resources. Also for systems where most processing is done in the cloud, and the local system only handles the graphical environments and the inputting environment including a keyboard – and the rest of the user preference setting is done in the cloud, where lots of resources are available, this should not be too demanding on resources.

A.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 and should be done in multiple ways, including a specific user/password identification scheme local to the system, Use of one or more certificate based identifications schemes such as Verisign, CAcert, 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 password.

Once to 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 means of registering user preferences and/or generic profiles, and storing such information. The tool should allow incorporating and editing of other duly obtained preference profiles. This should be presented to the user in a culturally and linguistically adequate way.

A.3 User preferences information file

The user preference information file could be an XML formatted file. The XML should allow incorporating of other preferences. Specific mark-up could include:

Tag "locale" with parameters "name" and "weight".

Tag "keyboard" with parameters "name", "data" and "weight".

Tag "system" with parameters "name", "data" and "weight".

Tag "application" with parameters "category", "name", "data" and "weight".

The "data" parameter should be able to contain arbitrary data in any format, so that for example all kinds of preferences files for all kinds of applications can be applied.

Examples:

```
<locale name="da" weight="99" /><locale name="en" weight="85" /> <locale name="nb" weight="90"/>
```

A.4 System capabilities file

The systems capabilities file is mostly needed when the user interfaces system and the system doing the user preferences settings are different, such as an X11 system on a TV set servicing a cloud service.

The system capabilities file could be an XML formatted file. Specific mark-up could include:

Tag "locale" with parameters "name" and "weight"

"name" values could come out of the ISO/IEC 15897 registry.

Tag "keyboard" with parameters "name" and "weight".

Tag "system" with parameters "name" and "weight"

The "name" values here could be like "Windows7", "X11", "Mac OS X", "KDE-4", preferably taken from the accessibility API specification.

Tag "application" with parameters "category", "name", and "weight".

The values for category could for example be "browser", "email client", "video viewer"

All of the tags and parameters and values of ISO/IEC 24751-2, with spaces in names converted to underscores.

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