Title   : Liaison Statement from ISO/IEC JTC1/SC22/WG15 on Issues
               Relating to National Profiles

Source   : ISO/IEC JTC1/SC22/WG15

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Note   :

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INTRODUCTION

At its meeting in October 1992, ISO/IEC JTC1/SC22/WG15 discussed several issues relating to the development of, and taxonomy for, national profiles. WG15 concluded that it would welcome a report which described the SGFS perspective on National Profiles, with especial consideration of the use of the terms *POSIX National Profile, National Locale*, and *National Profile.*

This liaison statement is a request for comment from the SGFS which would provide guidance to SC22/WG15.

Section 1 describes the background to these issues, while section 2 lists some questions on which SC22/WG15 would welcome guidance.

In the Appendix are listed various uses of the terms *profile* and *conformance* taken from ISO/IEC 9945-1, ISO/IEC DIS 9945-2.2, and other SC22/WG15 documents.

1 BACKGROUND OF NATIONAL PROFILE ISSUES

1.1 National Profiles in POSIX standards

A POSIX standard family such as ISO/IEC 9945-1, ISO/IEC DIS 9945-2, IEEE P1003.0 Draft , IEEE P1003.18 and so forth, defines and uses various types of "profile", one of which is "National Profile" that is mainly used in POSIX.1 and POSIX.2 in the internationalization arena.

1.2 Discussions relating to profiles

POSIX.0 and POSIX.18 are discussing profiles based upon its reference model of POSIX Open System Environment (OSE), which is now closely related to the SGFS activity - developing a new set of Technical Reports (TR-10000 family).

The SC22/WG15 Rapporteur Group on the Coordination of Profiling Activities (RGCPA) was formed to identify profile issues and to coordinate with related (profile developing / standardizing) groups like SGFS, EWOS, OIW, AOW, IEEE, NIST, and so on, in order to solve the issues and to harmonize their solutions.

1.3 National Profiles

During the process of making IEEE POSIX (Draft) Standards into ISO POSIX (Draft) Standards, internationalization (I18N) and localization (L10N) requirements for the (draft) standards have led to adoption of a concept of "National Profile" to meet national/regional standardization requirements of some I18N/L10N features by specifying certain options and parameters of the international standards, while keeping the international standards themselves as simple and globally applicable as possible.

Unfortunately, however, there is no good guideline for development of such National Profiles at this moment and therefore the Rapporteur Group on Internationalization (RIN) is now discussing and proposing to develop a new technical report of type 3 such as "Guidelines for POSIX National Profiles and Locales".

Since a (POSIX) National Profile is considered as one type of (POSIX) Profiles, there are great concerns about how the (POSIX) National Profile concept relates to, and harmonizes with, other (POSIX) Profiles and how it could fit in with generic profiles such as International Standardized Profiles (ISPs) in an SGFS' sense.

2   QUESTIONS

Issue 1:   Concerning the relationship between ISP and National Body defined set of parameters and options:

1) Can a National Body defined set of parameters and options be registered as an ISP in the SGFS sense?
2) Can such a registered set be called a "National Profile"?
3) If a proposed National Profile for ISP registration is rejected by ISO ballot, can the National Body still standardize it as their "national standard"?
4) What should occur if a National Body wants to include super-setting features (i.e. to point non standardized interfaces/parameters)?

Issue 2:   Definition of National Profile.

The JTC1/SC22/WG15 Rapporteur Group on Internationalization (RIN) is currently using the following definitions of POSIX Profile.

POSIX Profile:
Profile for International Standard (ISP) is a set of specifications of the parameters, the selections of optional items and the recommendations of the implementation related matters. POSIX Profile corresponds to the same concept of ISP for the POSIX International Standard.

POSIX National Profile:
POSIX National Profile is a subset of the POSIX Profile which is strongly related to the culture dependent aspects of the POSIX. It also contains the definitions and recommendations for the nation and/or area specific aspects (e.g. the use of the coded character sets and so on).

POSIX National Body Conformance:
It is a concept of the degree of preciseness of the coincidence between the specifications of a realized POSIX system and the POSIX National Profile. Since a POSIX National Profile is not necessarily included in the POSIX Profile, systems which pass the POSIX National Body Conformance may not pass the POSIX Conformance.

1) Is the SGFS going to define a kind of "national profile" in its TR10000-1 (Generic) or in its TR10000-3 (OSE)?
2) Could SGFS give WG15 advice on any conflicts of such definitions.

Issue 3:   Concerning internationalization features in ISP and Taxonomy (Cultural elements in ISP and its Taxonomies)

Since internationalization features are not in a single domain and they are in cross functional arena,

1) How do such cross components fit in with the current SGFS's ISP model?
2) Can cultural elements be categorized along other (orthogonal) axes?
3) Can each cultural element can be standardized/registered as an ISP in SGFS sense?

APPENDIX: USE OF THE TERMS *PROFILE* AND *CONFORMANCE*

As mentioned above, there are various types of profile around POSIX standards. To clarify such concepts, this appendix collects definitions of various profiles as well as related various concepts of conformance.

2.1 POSIX.1 (ISO/IEC 9945-1)

(A) Application Conformance

- **Strictly Conforming POSIX.1 Application [1.3.2.1]:**
  A Strictly Conforming POSIX.1 Application is an application that requires only the facilities described in this part of ISO/IEC 9945 and the applicable language standards.Such an application shall accept any behavior described in this part of ISO/IEC 9945 as *unspecified* or *implementation-defined*, and for symbolic constants, shall accept any value in the range permitted by this part of ISO/IEC 9945.

- **Conforming POSIX.1 Application [1.3.2.2]**

  ISO/IEC Conforming POSIX.1 Application [1.3.2.2.1]:
  An ISO/IEC Conforming POSIX.1 Application is an application that use only the facilities described in this part of ISO/IEC 9945 and approved Conforming Language bindings for any ISO or IEC standard. Such an application shall include a statement of conformance that documents all options and limit dependencies, and all other ISO or IEC standards used.

  <National Body> Conforming POSIX.1 Application [1.3.2.2.2]:
  A <National Body> Conforming POSIX.1 Application differs from an ISO/IEC Conforming POSIX.1 Application in that it also may use specific standards of a single ISO/IEC member body referred to here as "<National Body>."Such an application shall include a statement of conformance that documents all options and limit dependencies, and all other <National Body> standards used.

- **Conforming POSIX.1 Application Using Extensions [1.3.2.3]:**
  A Conforming POSIX.1 Application Using Extensions is an application that differs from a Conforming POSIX.1 Application only in that it uses nonstandard facilities that are consistent with this part of ISO/IEC 9945.Such an application shall fully document its requirements for these extended facilities, in addition to the documentation required of a Conforming POSIX.1 Application.
  A Conforming POSIX.1 Application Using Extensions shall be either an ISO/IEC Conforming POSIX.1 Application Using Extensions or a <National Body> Conforming POSIX.1 Application Using Extensions.

(B) Profile [Annex D (informative) - Profile]

- **Applications Environment Profile (AEP) [D.1.1]:**
  An Application Environment Profile (AEP) is the specification of a complete and coherent subset of an Open System Environments, together with the options and parameters necessary to support a class of applications for interoperability or

application portability, including consistency of data access and human interfaces. Where there are several AEPs for the same OSE, they are harmonized.

AEPs are the basis for procurement and conformance testing and are the target environment for software development.

- **Application Specific Environment (ASE) [D.1.2]:**
  An Application Specific Environment (ASE) is the specification of a complete and coherent subset of an Application Environment Profile, together with interfaces, services, or supporting formats outside of the profile, that are required by a particular application for its installation and execution.

- **Application Specific Environment Description (ASED) [D.1.3]:**
  An Application Specific Environment Description (ASED) is the specification of an Application Specific Environment, together with the specific options and parameters required; interfaces, services, or supporting formats outside of the profile; and resource requirements necessary for the satisfactory operation of the application.

- **Open System Environment (OSE) [D.1.9]:**
  An Open System Environment is a comprehensive and consistent set of international information technology standards and functional standards (profiles) that specify interfaces, services, and supporting formats to accomplish interoperability and portability of applications, data, and people. These are based on International Standards (ISO, IEC, CCITT, ...).

- **POSIX Open System Environment [D.1.10]:**
  A POSIX Open System Environment is a comprehensive and consistent set of ISO/IEC, regional, and national information technology standards and functional standards (profiles) that specify interfaces, services, and supporting formats for interoperability and portability of applications, data, and people that are in accord with ISO/IEC 9945 (POSIX).

  No single component of the OSE, including ISO/IEC 9945, is expected to be required in all such profiles.

(C)   National Profile [Annex E (informative) - Sample National Profile]:

[ISO/IEC 9945-1 does not give a clear definition of National Profile. But, the first paragraph of Annex E below provides a rough description of the National Profile concept.]

One class of "community of interest" for which profiles (as discussed in Annex D) are useful is specific countries, where the general characteristics warrant specific focus to serve the needs of users in those countries. Such needs lead to a number of implications concerning the options available within this part of ISO/IEC 9945 and may warrant Specification of complementary standards as well.

... (some lines omitted) ...

A subclass of conforming implementations can be identified that meet the requirements of a specific profile. By documenting these either in national standards, in a document similar to an ISO/IEC ISP (an International Standardized Profile), or in an informative annex (such as this), there can be referenced in a consistent manner.

2.2   POSIX.2 (ISO/IEC DIS 9945-2.2 or IEEE P1003.2 Draft 12)

POSIX.2 provides neither a clear definition of National Profile nor an additional consideration of Application Conformance and Profile issues. Rather, it just inherits

POSIX.1 descriptions of Application Conformance and (National) Profile, by only replacing "POSIX.1" with "POSIX.2" in such sentences.

(A)   Application Conformance [1.3.2]
Almost the same as the POSIX.1 except the name "POSIX.2 Application" instead of "POSIX.1 Application".

(B)   Profile [Annex F (informative) - Portability Consideration]
Unlike POSIX.1, POSIX.2 does not touch on profile types, but it gives

(C)   National Profile [Annex G (informative) - Sample National Profile]:
Similar to POSIX.1, POSIX.2 just provides an Annex of Sample National Profile without giving a clear definition of National Profile.

2.3   Guidelines for POSIX National Profiles, Draft (SC22/WG15 N212)

The draft "Guidelines for POSIX National Profile (GNP)" being developed by the Japanese National Body has the following descriptions/definitions.

(A)   Conformance

- **POSIX National Body Conformance [3.1.3]**
  It is a concept of the degree of preciseness of the coincidence between the specifications of a realized POSIX system and the POSIX National Profile. Since POSIX National Profile is not necessarily included in the POSIX Profile, systems which pass the POSIX National Body Conformance may not pass the POSIX Conformance.
- **National Profile and its Application Conformance [6]**
  Application Environment Profile and National Profile may be based on National Standards, and therefore it is necessary to coordinate in defining parameters and option selections from the view point of international harmonization to support international application portability and interoperability.
  Granting this fact, there are several levels of conformance both for a given POSIX application environment profile and a given POSIX National Profile as follows:

For Application Environment Profiles (AEP);

(1) Strictly Conforming POSIX Application for POSIX AEP:
  An application that can be executed for any parameters and options for POSIX
(2) ISO/IEC Conforming POSIX Application for POSIX AEP:
  An application that requires only specific POSIX related parameters and options.
(3) ISO/IEC Conforming POSIX Application using Extensions for POSIX AEP:
  An application that requires not only specific POSIX related parameters and options but also other ISO/IEC standards and their international profiles.

For POSIX National Profiles (NP);

(1) National Body Conforming POSIX Application for POSIX NP:

An application that requires only the POSIX related parameters and options defined in POSIX National Profile.

(2) **National Body Conforming POSIX Application using Extensions for POSIX NP:**

An application that requires POSIX related parameters and options defined in POSIX National Profile, national profiles for other ISO/IEC standards, and national body standards.

(B)   Profile

- **POSIX Profile [3.1.1]: Profile for International Standard**
  A set of specifications of parameters, selections of the optional items and recommendations of implementation related matters.POSIX Profile corresponds to the same concept of Profile for the POSIX International Standard.

(C)   National Profile

- **POSIX National Profile [3.1.2]:**
  POSIX National Profile is a subset of the POSIX Profile which is strongly related to the culture dependent aspects of the POSIX.It also contains the definitions and recommendations for the nation and/or area specific aspects (e.g. use of the coded character sets and so on).

2.4   POSIX.0 (IEEE P1003.0 Draft 15, SC22/WG15 N297)

(A)   Conformance
N/A

(B)   Profile
- **Profile [2.2.2.39]:**
  A set of one or more base standards, and, where applicable, the identification of chosen classes, subsets, options, and parameters
- **Application Environment Profile (AEP) [2.2.2.6]:**
  A profile, specifying a completed and coherent specification of the OSE, in which the standards, options, and parameters chosen are necessary to support a class of applications.
- **Component Profile (CP) [2.2.2.9, 6.4]:**
  A Component profile is (mostly) a conforming subset of a single standard.The profile developers specify mandatory options for a specific domain, options that are not desirable for that domain, gaps in that parent standard, and may identify specifications to fill that gap.
- **Application Area Profile (AAP) [2.2.2.5, 6.4]:**
  An Application Area Profile is created from multiple standards that specify multiple, diverse types of functionality needed for a particular application area (e.g., database, networking, graphics, operating system).The application area profile developers specify all the diverse standards necessary for the application area in question. Within each standard, they identify mandatory options, functions and options that are not needed, gaps in the standards, and may identify specifications to fill the gaps.
- **Platform Profile (PP) [2.2.2.33, 6.4]:**

A Platform Profile focuses on the functionality and interfaces needed for a particular type of platform. The platforms could be traditional platforms (such as time sharing systems) or relatively new emerging platforms (e.g., workstations, personal computers, or symmetric multiprocessing systems). A platform profile could be created from one or multiple diverse standards. As with other types of profiles, the profile developers have to specify the standards, options, standards gaps, and may identify specification to fill the gaps.

- **Organization-Specific Profile [6.4]:**
- **Industry-Specific Profile [6.4]:**
- **Standardized Profile [2.2.2.49, 6.4]:**
  A balloted, formal, harmonized document that specifies a profile.
- **POSIX Standardized Profile (POSIX SP) [2.2..2.37, 6.4]:**
  A Standardized Profile that specifies the application of certain POSIX base standards in support of a class of applications and does not require any departure from the structure defined by the POSIX.0 Reference Model for POSIX systems.

(C)   National Profile
N/A

2.5   POSIX.18 (IEEE P1003.18 Draft 6)
(A)   Application Conformance

- **Strictly Conforming Application [3.1.2, B.1]:**
  An application that does not exceed the minimal bounds of this profile.
  An application is strictly conforming to this profile is one that is either strictly conforming to all the applicable base standards specified by this profile, or one that differs from a strictly conforming application to those base standards only by the use of features required by this profile. Such an application shall accept any behavior described in the applicable base standards as further constrained by this profile, and for symbolic constants shall accept any value in the range permitted by the base standards as modified by this profile. Such applications are permitted to adapt to the availability of facilities that are optional either in this profile or the applicable base standards.
- **Conforming Application [3.1.2, B.2]:**
  An application that does not exceed the bounds of this profile.
  An application conforming to this profile is an application that uses only the facilities described in this profile, the applicable base standards referenced herein, and other base standards. Such an application shall include a statement of conformance that documents all options and limit dependencies, and all base standards used that are not specified by this profile.

(B)   Profile

- **Application Environment Profile (AEP) [3.2.2]:**
  The specification of a complete and coherent subset of an OSE, together with the options and parameters necessary to support a class of applications for interoperability or applications portability, including consistency of data access and human interfaces.

AEPs are intended for use in procurement, conformance testing, and designating a software engineering target.
- **Platform Environment Profile (PEP) [3.2.9]:**
  A generalization of the concept of application environment profile that will serve a broad range of types of applications and that is intended be used as the basis of a profile to meet the needs of a narrower range of applications.

(C) National Profile
N/A

2.6 TR-10000 (ISO/IEC TR 10000-1:1990)

(A) Conformance

Annex C (informative) of TR-10000 contains guidelines for conformance requirements of profiles, which is not related to discussion of relationship between types of profile and application/platform conformance to the related profiles and base standards and hence it is omitted here for this report.

(B) Profile

- **Profile [3.1.2]:**
  A set of one or more base standards, and, where applicable, the identification of chosen classes, subsets, options and parameters of those base standards, necessary for accomplishing a particular function.
- **International Standardized Profile (ISP) [3.1.1]:**
  An internationally agreed-to, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.
  NOTE - An International Standardized Profile includes the specification of one or more Profiles.

(C) National Profile
N/A