Title: Working Draft 4 of ISO/IEC/TR 10000-1.3:

Information Technology - Framework and Taxonomy of International Standardized Profiles - Part 1: General Principles and Framework.

Source: Editor, TR 10000-1

Date: July 1993

Status: Fourth working draft revision covering the extension of scope of SGFS to include profiles for the Open System Environment. Editor's draft following receipt of comments on third working draft and discussion at SGFS Plenary meeting in July 1993. Resolution 1 (SGFS N1019) refers.

Action: For review and development at the SGFS Authorized Sub-group meeting November 1993.

Editor's Note: ~~Deleted text,~~ and **Insertions** are appropriately indicated; line numbering is provided, and *[Ed. Note: Editor's notes]* have been added, including references to the source of changes.

[Ed. Note: The definitions and relationships between OSE, AEP and OSI are subject for further discussion and possible revision.]

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) together form a system for worldwide standardization as a whole. National bodies that are members of ISO or IEC participate in the development of International Standards and Technical Reports 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.

The main task of a technical committee is to prepare International Standards but in exceptional circumstances, the publication of a Technical Report of one of the following types may be proposed:

> - type 1, when the required support cannot be obtained for the publication of an International Standard, despite repeated efforts;

> - type 2, when the subject is still under technical development or where for any other reason there is the future but not immediate possibility of an agreement on an International Standard;

> - type 3, when a technical committee has collected data of a different kind from that which is normally published as an International Standard ("state of the art", for example).

Technical Reports of types 1 and 2 are subject to review within three years of publication, to decide whether they can be transformed into International Standards. Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.

ISO/IEC/TR 10000, which is a Technical Report of type 3, was prepared by the Special Group on Functional Standardization of ISO/IEC JTC 1, *Information technology*.

The structure of ISO/IEC/TR 10000 is as follows:

- Part 1: General Principles and Framework
- Part 2: Principles and Taxonomy for OSI Profiles
- Part 3: Principles and Taxonomy for OSE Profiles

Other parts to be defined as necessary.

Part 1 has one Annex:

- Annex A is an integral part of the Technical Report, and is binding on submitters of ISPs.

Introduction

The context of Functional Standardization is one part of the overall field of IT standardization activities covering

- Base Standards, which define fundamentals and generalized procedures. They provide an infrastructure that can be used by a variety of applications, each of which can make its own selection from the options offered by them.

- Profiles, which define conforming subsets or combinations of base standards used to provide specific functions. Profiles identify the use of particular options available in the base standards, and provide a basis for the development of uniform, internationally recognized, conformance tests.

- Registration Mechanisms, which provide the means to specify detailed parameterization within the framework of the base standards or Profiles.

Within ISO/IEC JTC 1, the process of Functional Standardization is concerned with the methodology of defining Profiles, and their publication in documents called "International Standardized Profiles" (ISPs) in accordance with procedures contained in the Directives of JTC1. The scope of Information Technology standardization to which this process is being applied is that which corresponds to the generally understood, but loosely defined, concept of "Open Systems". The objective is to facilitate the specification of systems characterized by a high degree of interoperability and portability of their components.

In addition to ISO/IEC/TR 10000, the secretariat of the Special Group on Functional Standardization maintains a standing document (SD-4) entitled "Directory of ISPs and Profiles contained therein". This is a factual record of which ISPs exist, or are in preparation, together with an executive summary of each Profile. It is subject to regular updating by the Secretariat of ISO/IEC JTC 1/SGFS.

Information Technology - Framework and taxonomy of International Standardized Profiles -

Part 1:

General principles and framework

1   Scope

This part of ISO/IEC/TR 10000 is an overall framework for functional standardization. It defines the concept of Profiles, and the way in which they are documented in International Standardized Profiles. It gives guidance to organizations making proposals for Draft International Standardized Profiles on the nature and content of the documents they are producing.

The distinction between "generic" and "industry-specific" Profiles is made in order to indicate that this Technical Report is primarily concerned with defining the concepts, and providing the framework within which "generic" Profile definitions can be standardized. These, in turn, provide the basis for an infinite set of "industry-specific", or even "enterprise-specific" or "person-specific" Profiles; however, "enterprise-specific" and "person-specific" profiles do not fall within the scope of this Technical Report (the general applicability of TR 10000 is discussed later in this clause).

This Technical Report is concerned with an environment within which Profiles are defined and used, known by the term "Open System Environment" (OSE). Its salient characteristics are those which permit systems to interwork consistently with each other, and which facilitate the movement of applications, data and users from one system to another.

Two main domains of Profiles are identified here to cover the specification of the OSE:

*   **Application Environment Profiles** (AEP) which are combinations of Interface Specifications for the purpose of defining the functionality within an OSE System. (See ISO/IEC TR 10000-3 Clauses 5 and 6 for explanation of the concepts of AEPs)

*   **Interface Profiles** which are part of the overall class of Interface Specifications.

In this context, Interface Specifications are the definitions of any interfaces to OSE Systems - the Base Standards, and Interface Profiles derived from them.

This part of ISO/IEC/TR 10000 is concerned with describing a framework within which subsequent parts are able to define the more specific principles and taxonomy of Profiles in each domain.

ISO/IEC/TR 10000-2 defines the principles and classification for OSI Profiles (part of the class of **Interface Profiles included in the set of Interface Specifications**) which may be or have been submitted for ratification as International Standardized Profiles.

NOTE - These OSI Profiles specify OSI base standards, and those base standards concerned with interchange formats and data representation which are expected to be used in conjunction with them.

Further parts of ISO/IEC/TR 10000 may be developed to define other classes of Interface Profiles. For the following classes of interfaces, such parts are under consideration: Application Program Interface, Human Computer Interface and Information Interface.

ISO/IEC/TR 10000-3 provides a context for functional standardization in support of Open System Environments (OSE). It defines the basic OSE objectives and concepts, and defines an approach and format for OSE Profiles specified by International Standardized Profiles. It gives guidance to organizations proposing Draft OSE ISPs, on the nature and content of the documents which may be or have been submitted for ratification as International Standardized Profiles.

ISO/IEC/TR 10000 is applicable to all International Standardized Profiles of ISO and IEC. Its primary focus is the area of competence of ISO/IEC JTC1, but by mutual agreement with JTC1, other Technical Committees may undertake similar functional standardization activities leading to the inclusion of additional material in this Technical Report.

NOTE - Such material may either be located within the parts of ISO/IEC/TR 10000 which are the responsibility of JTC1/SGFS, or may take the form of separate parts, drafted and approved by the relevant Technical Committees of ISO or IEC.

[Ed. Note: Text will be needed here to explain the relationship between TR 10000, IEEE 1003.0 Guide to the POSIX Open System Environment, and ODP; see also Issue 33 from the SGFS Issues List.]

~~The scope of OSE profiling embraces a wide range of areas of Information Technology standardization, including, in addition to the specific area of Open Systems Interconnection addressed in ISO/IEC/TR 10000-2, such topics as:~~

~~• Operating System Interfaces (POSIX)~~

~~• Interfaces to Application Programs and to human users~~

~~• Programming languages and related bindings~~

~~• Character sets and their coding~~

~~• Open Distributed Processing;~~

~~• the representation of information or objects on storage media~~

~~• logical and physical storage structures.~~

~~• interchange formats defined for particular application areas (e.g. trade data interchange formats in ISO/TC 154);~~

~~• protocols used in particular application areas (e.g. documentation (bibliographic) protocols in ISO/TC 46, banking protocols in ISO/TC 68, industrial automation protocols in ISO/TC 184), which may also specify particular uses of the more generic OSI and OSE Profiles.~~

2   Normative References

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC/TR 10000. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO/IEC/TR 10000 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7498:1984, *Information processing systems - Open Systems Interconnection - Basic Reference Model.* *(Corresponds to ~~CCITT~~ ITU-T Recommendation X.200)*

1   ISO/IEC 9646-1: 1991, *Information technology - OSI conformance testing methodology and framework -*
2   *Part 1: General Concepts.*
3 | *(Corresponds to ~~CCITT~~ ITU-T Recommendation X.290)*

4   ISO/IEC 9646-2: 1991, *Information technology - OSI conformance testing methodology and framework -*
5   *Part 2: Abstract test suite specification.*
6 | *(Corresponds to ~~CCITT~~ ITU-T Recommendation X.291)*

7   ISO/IEC 9646-6: ....[1], *Information technology - OSI conformance testing methodology and framework - Part*
8   *6: Protocol Profile Test specification.*

9   ISO/IEC 9834-1: ....[1] *Information technology - Open Systems Interconnection - Procedures for the operation*
10   *of OSI registration authorities - Part 1: General procedures*
11 | *(Corresponds to ~~CCITT~~ ITU-T Recommendation X.660)*

12   ISO/IEC/TR 10000-2: 1992, *Information technology - Framework and taxonomy of International*
13   *Standardized Profiles - Part 2: Principles and taxonomy for OSI Profiles.*

14   ISO/IEC/TR 10000-3: ....[1] *Information technology - Framework and taxonomy of International Standardized*
15   *Profiles - Part 3: Principles and taxonomy for OSE Profiles.*

16   IEC/ISO Directives Part 3: 1989, *Drafting and presentation of International Standards*

17   ISO/IEC JTC1 Directives: 1992

3   Definitions

For the purposes of this part of ISO/IEC/TR 10000, the following definitions apply:-

3.1   Terms defined in this part of ISO/IEC/TR 10000

[Ed. Note: In response to N930 (EWOS, comment 3) and N943 (Netherlands), the definition section is revised.]

| **3.1.1   Application: The use of capabilities (services/facilities) provided by an information system specific to the satisfaction of a set of user requirements.**

| NOTE - These capabilities include hardware, software and data.

3.1.2   Application Environment Profile: An OSE Profile which specifies a complete and coherent subset of the Open System Environment, ~~necessary to support a class of applications~~ **that provide full or partial support for a class of applications.**
[Ed. Note: The definition of Application Environment Profile will be revised in relation to the concept of UOF (Unit of Functionality), developed during the July 1993 SGFS meeting.]

| **3.1.3   Application Platform: A set of resources on which an application will run.**

| **3.1.4   Application Portability: see Portability (of Application).**

| **3.1.5   Application Software: Software specific to the solution of an application problem.**

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35   [1] To be published

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3.1.6 **Base Standard:** An approved International Standard, **ITU-T Recommendation,** or ~~CCITT~~ **ITU-TS** Recommendation which is used in the definition of a Profile.
[Ed. Note: N943 (comments from the Netherlands) suggests to strike "which is used in the definition of a Profile" from this definition; this suggestion was not discussed at the July 1993 meeting of SGFS.]

~~Functional Profile: An OSE Profile defining a function which is an identifiable element of the Open System Environment.~~

3.1.7 **Generic Application Environment Profile:** An Application Environment Profile which is not specific to a particular community of use.

~~Generic Functional Profile: A Functional Profile which is not specific to a particular community of use.~~

3.1.8 **Generic Interface Profile: An Interface Profile which is not specific to a particular community of use.**

3.1.9 **Industry-specific Application Environment Profile:** An Application Environment Profile which deals with specific industry requirements.

~~Industry-specific Functional Profile: A Functional Profile which deals with specific industry requirements.~~

3.1.10 **Industry-specific Interface Profile: An Interface Profile which deals with specific industry requirements.**

3.1.11 **Interface: The shared boundary between functional units, defined by functional characteristics and other characteristics, as appropriate.** *[Ed. Note: Source: P1003.0, D15]*.

3.1.12 **Interface Profile: An OSE Profile defining one Interface of the Open System Environment.**

3.1.13 **International Standardized Profile:** 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.

3.1.14 **Interoperability:** The ability of two or more systems to exchange information and to make mutual use of the information that has been exchanged.

3.1.15 **Open System Environment:** The comprehensive set of interfaces, services, and supporting formats, plus user aspects, for interoperability and/or portability of applications, data, or people, as specified by information technology standards and profiles.

3.1.16 **OSI Profile:** A ~~Functional~~ **Interface** Profile ~~which specifies a complete and coherent subset of the Open System Environment,~~ **which defines a communication interface of the OSE that** complies with and is consistent with the Basic Reference Model for Open Systems Interconnection in ISO/IEC 7498.

3.1.17 **Portability (of Application):** The ease with which an application can be transferred from one application platform to another.

3.1.18 **Portability (of Application Software):** The ease with which Application Software can be transferred from one information processing system to another.

3.1.19 **Profile:** A set of one or more base standards, and, where applicable, the identification of chosen classes, conforming subsets, options and parameters of those base standards, necessary for accomplishing a particular function.

NOTE - An International Standardized Profile includes the specification of one or more Profiles.

3.1.20 Service: A capability which a system makes available to another system at its interface.

3.1.21 Standard (ISO): Document, established by consensus and approved by a recognized body, that provides, for common and repeated use, rules, guidelines or characteristics for activities or their results, aimed at the achievement of the optimum degree of order in a given context.

NOTE - Standards should be based on the consolidated results of science, technology and experience, and aimed at the promotion of optimum community benefits.

NOTE - (International) Standards are often referred to as Normative Standards, or "de jure" Standards, or Official Standards. Contrary to the terms above, the terms Informative Standards, or "de facto" Standards, or Inofficial Standards exist.
[Ed. Note: The definition is taken from ISO/IEC/GUIDE2.]

3.1.22 Taxonomy: A Taxonomy is a structured classification system for identifying Profiles.

3.2   Terms defined in Part 3 of ISO/IEC TR 10000

[Ed. Note: To be done.]

3.3   Conformance Terminology

This part of ISO/IEC/TR 10000 uses the following terms for describing the methodology of specifying and testing for an implementation's conformance to a Profile; they are derived from those terms defined specifically for OSI in ISO/IEC 9646-1:

3.3.1   Conformance Testing: ~~Testing the extent to which an IUT is a conforming implementation~~ Test if an IUT complies with the requirements of a specification (in OSI: a protocol or a profile or a transfer syntax).

3.3.2   Conforming Implementation: An IUT which satisfies both static and dynamic requirements, consistent with the capabilities stated in the Profile ICS.

3.3.3   Dynamic Conformance Requirement: One of the requirements which specifies what observable behaviour is permitted by the relevant specification(s) in particular instances.

3.3.4   Implementation Conformance Statement [ICS]: A statement made by the supplier of an implementation or system claimed to conform to a given specification, stating which capabilities have been implemented.

3.3.5   Implementation Conformance Statement Proforma: A document, in the form of a questionnaire, which when completed for an implementation or system becomes an ICS.

3.3.6   Implementation Under Test [IUT]: An implementation of one or more Profiles in an adjacent user/provider relationship, being that part of a system which is to be studied in testing.

3.3.7   Point of Control and Observation[PCO]: A point within a testing environment where the occurrence of test events is to be controlled and observed.

3.3.8   Profile Implementation Conformance Statement: An ICS for a system claimed to conform to a given Profile, comprising the Profile RL, plus the base standard ICSs plus the Profile Specific ICS.

3.3.9   Profile Requirements List [PRL]: A specification, within a Profile specification, of the requirements to be met by a Profile ICS for a system which is stated to conform to that Profile.

1   **3.3.10 Profile Specific ICS**: An ICS for a system claimed to conform to a given Profile, answering
2   questions which are Profile-specific and additional to those of the base standards ICS proformas mentioned
3   in the Profile RL.

4   **3.3.11 Requirements List [RL]**: A document specifying additional constraints placed by a Profile on the
5   allowed answers in a base standard ICS.

6   **3.3.12 Static Conformance Requirement**: One of the requirements that specify the limitations on the
7   combinations of implemented capabilities permitted in a system which is claimed to conform to the relevant
8   specification(s).

9   **3.3.13 System Conformance Statement [SCS]**: A document summarizing which International Standards,
10 | ~~CCITT~~ **ITU-T Recommendations/ITU-TS** Recommendations or ISPs are implemented and to which ones
11   conformance is claimed.

12   **3.3.14 System Under Test**: The system in which the IUT resides.

13   **4   Abbreviations**

14   AEP   Application Environment Profile

15 | **CMI**   **Communications Interface Profile**

16   HCI   Human/Computer Interface

17   ICS   Implementation Conformance Statement

18 | **ISI**   **Information Storage Interface Profile**

19   ISP   International Standardized Profile

20   IUT   Implementation Under Test

21   OSE   Open System Environment

22   OSI   Open Systems Interconnection

23 | **PA**   **Identifier of the Profile class for Application Environment Profiles**

24   PCO   Point of Control and Observation

25 | **PI**   **Identifier of the Profile class for Interface Profiles**

26   PRL   Profile Requirements List

27   PTS   Profile Test Specification

28   RL   Requirements List

29   A-Profile   Application Profile (requiring Connection-mode Transport Service)

30   B-Profile   Application Profile (requiring Connectionless-mode Transport Service)

31   F-Profile   Interchange Format and Representation Profile

1	R-Profile	Relay Profile
2	T-Profile	Transport Profile (providing Connection-mode Transport Service)
3	U-Profile	Transport Profile (providing Connectionless-mode Transport Service)

5 Purpose of Profiles

Profiles define combinations of base standards or other Profiles for the purpose of

- ° identifying the standards and ISPs, together with appropriate classes, conforming subsets, options and parameters, which are necessary to accomplish identified functions (e.g. interoperability) or to support a class of applications (e.g. Transaction Processing applications);

- • providing a system of referencing the various uses of standards and ISPs which is meaningful to both users and suppliers in response to a systematic identification and analysis of user requirements;

- ° providing a means to enhance the availability for procurement of consistent implementations of functionally defined groups of standards and ISPs, which are expected to be the major components of real application systems, and which realise the intentions of the corresponding reference models or frameworks with which the standards are associated;

- ° promoting uniformity in the development of conformance tests for systems that implement the functions associated with the Profiles.

Underlying all these purposes is the assumption that there exists a requirement for the definition, standardization, implementation, and testing of such a Profile. The processes employed shall therefore include the identification, recording, and monitoring of such requirements, as expressed by the eventual users of the Profile.

Various bodies throughout the world are undertaking work, in either regional or topic-oriented groups, in the area of Functional Standardization. Various names are given to the results of this work (such as Profiles, Functional Standards, Implementation Agreements, Specifications) and various approaches are being taken to the scope of the Profiles and to the style in which they are documented. This Framework of International Standardized Profiles has been developed by ISO/IEC JTC 1 in order to create a common classification scheme, (The Taxonomy), and a common documentation scope and style, into which the work of Functional Standardization bodies can be submitted, along with corresponding work from the members, technical committees and subcommittees of ISO and IEC.

It is not sufficient, however, just to create a framework of this sort. Product development and procurement need to be seen on a global, and not just on a national, regional or sectoral scale. Therefore an objective of ISO/IEC JTC 1 is to create the climate for the production of harmonized Profiles, where a wide measure of agreement is reached before proposals are submitted to ISO/IEC JTC 1.

Profiles should provide a clear identification of the specific user requirements which are satisfied by the Profiles. Occasionally, satisfaction of some of these requirements may identify functionality that is not covered by accepted base standards. This is defined as a "gap" in available standards. These gaps cannot be "filled" within ISPs via citation of specifications other than standards.

One purpose of identifying gaps in Profiles is to define areas where standardization activities are needed. Gaps should be identified by describing the missing functionality, not by identifying a non-standard solution which may include more or less functionality than is necessary and/or may describe an arbitrary or overly restrictive solution. Examples of any documents that address the missing functionality may be identified to assist in the development of these new standards.
[Ed. Note: The above new text is based on N862, clause 5.4, in response to EWOS comment 5 from N929.]

One of the most important roles for an International Standardized Profile is to serve as the basis for the establishment of internationally recognized conformance test suites and test methods. ISPs are produced not simply to "legitimize" a particular choice of base standards and options, but to promote the

implementation of the referenced standards and ISPs in real systems in such a way as to achieve their intended goals - for example, interoperability and application portability. The development and widespread acceptance of conformance testing based on ISPs is crucial to the successful realization of this goal.

6 Concept of a Profile

The concept of a Profile, which fulfils the purposes defined in clause 5, is considered first in an abstract sense, with particular emphasis on the significance of the claim of conformance to a Profile. This concept of an individual Profile is then extended to include defining its relationship to other Profiles, i.e. the concept of a Taxonomy of Profiles, and its place within it. Finally, since a Profile has to have a concrete existence in order for it to be used effectively, these conceptual aspects are related to a formal documentation system.

Clauses 6 and 7 concentrate on defining the concept and taxonomy of the Profiles, independently of the way they are documented in ISPs. Clause 8 defines the actual documentation scheme and shows how there is not necessarily one separate document (ISP) for each Profile definition.

Profiles are related to Base Standards, to Registration Mechanisms, and to Conformance Tests of the systems which implement them. The practical implications of these relationships are developed in the following sub-clauses, some of which specify requirements that shall be satisfied by Profiles defined in ISPs.

6.1 The relationship to base standards

6.1.1 Reduction of options

Base standards which specify procedures, interfaces and formats, provide options, anticipating the needs of a variety of applications and taking into account different capabilities of real systems and networks.

Profiles promote portability and interoperability by defining how to use a combination of base standards for a given function and environment. In addition to the selection of base standards, a choice is made of permitted options for each base standard and of suitable values for parameters left unspecified in the base standard.

Profiles shall not contradict base standards but shall make specific choices where options and ranges of values are available. The choice of the base standard options should be restricted so as to maximise the probability of achieving the objective of the Profile. Clause 6.3.1 states the requirements for deriving the functionality of a Profile from the functionality of a base standard.

6.1.2 Use of normative References

An approved ISP shall make normative reference only to base standards or other ISPs.

In exceptional circumstances, described below, normative reference may be made to ISO/IEC Technical Reports. Such reference, which requires that the following conditions are met, shall be justified on a case-by-case basis:

- no base standard addressing the requirements is available, but a Technical Report is;

- the use is identified and discussed in the Explanatory Report which accompanies the proposed draft for an ISP, justifying that use;

- the JTC1 body responsible for that Technical Report agrees that a normative reference is an appropriate use of that Technical Report;

- the National Bodies approve this usage in the draft ISP ballot.

NOTE - In this Technical Report, any text which describes the relationship of an ISP to a base standard, shall be taken to be referring also to its relationship to any Technical Reports which have been accepted according to the criteria given above.

6.1.3   Use of informative References

It may be useful to make informative reference to other documents in the process of defining a Profile.

For example:

a)   Reference may be made to applicable regional or national standards. Examples of the functionality which may require the use of this expedient are:

- physical connectors

- electrical characteristics

- safety requirements

- character repertoires

Such reference to regional or national standards shall be placed within informative text within an ISP, or in a separate, informative, part of a multi-part ISP. Such usage shall be justified on a case-by-case basis, either as a consequence of the lack of appropriate functionality in International Standards, or because of the existence of national or regional regulatory requirements. It shall be accompanied by details of the body responsible for the distribution and maintenance of the standard.

b)   There may be a need to define some aspect of the required functionality of a Profile where suitable base standards or ISPs do not yet exist. Informative reference to the missing material may be made (see 6.1.4 c).

This should only be done where the missing functionality is a relatively small proportion of the total scope of the Profile. Where larger sections of the functionality are missing (see 6.1.4 b).

c)   There may be a need to provide a reference to background material helpful in understanding the Profile, suitable for citation in the Bibliography (as provided for in Annex A.4.3 and A.6.1).

6.1.4   Other Factors

Approval of an ISP by ISO/IEC members does not change the status of any documents referenced by it.

Entry of a Profile identifier into the Taxonomy may occur before the referenced base standards are all stable and approved. In these circumstances, regional or sectoral bodies may make use of interim or preliminary draft versions of Profiles in their own controlled environment

In those cases where the specification of a required element of functionality for a Profile does not exist in an approved base standard or ~~in another ISP~~ **in a set of approved base standards cited by an ISP**, there are a number of possible approaches, one or more of which can be adopted in the writing of ISPs:

a)   Postpone the creation of the ISP until it has been possible to modify or to add to the requirements specified in a base standard, or to create new base standards. In this case, it is necessary for the ISP developer to liaise with the standards group responsible for that base standard so that the required changes may be made through established methods such as defect reporting, amendment procedures, or the introduction of new work.

b)   Propose a change to the Taxonomy to add a further Profile identifier with a scope which matches the available base standards, and progress an ISP to specify a Profile with this revised scope.

c)   Draft the ISP in such a way that it clearly identifies what required functionality of the Profile is missing, and, if possible, makes informative reference to examples of possible specifications which the user of the ISP may choose to implement ~~in order to make good the omission~~.

6.1.5   User Requirements and "Gaps"

A profile provides a clear identification of the specific user requirements which are satisfied by the profile. Occasionally, satisfaction of some of these requirements requires a base standard which is not available. This is defined as a "gap" in available standards. These gaps cannot be "filled" within ISPs via citation of specifications other than standards.

One purpose of identifying gaps in profiles is to define areas of needed standards activities. Gaps should be identified by describing the missing functionality, not by identifying the non-standard solution which may include more or less functionality than is necessary and/or may describe an arbitrary or overly restrictive solution. Examples of any documents that address the missing functionality may be identified to assist in the development of these new standards.

6.2   Registration in ISPs ~~The relationship to Registration Authorities~~

The base standards referenced in Profiles may include definitions of object types such as abstract syntaxes, document types, Virtual Terminal Environments and Control Objects, which require registration. Profile specifications shall define the use of such objects (i.e. indicate whether they are included in the specification or not).

Where such an object is already registered, the Profile specification shall refer to it using its registered name. Where the definition of the object allows, the Profile specification may define particular parameter values.

Where such an object is not already registered and an international registration authority exists, then the necessary registration action shall be taken in accordance with the provisions of the authority.

Where such an object is not already registered and an international registration authority does not exist, and the object type falls within the scope of one of the classes of Profile defined in a ~~t~~Taxonomy in this Technical ~~r~~Report and is covered by the provisions of ISO/IEC 9834, then an ISP may act as the registration authority. The ISP concerned may be the ISP in which the object is used, or a multi-part ISP may be used as the registration authority. In this case, the general registration requirements of Annex H of the ISO/IEC JTC1 Directives, and the provisions of this part of ISO/IEC TR 10000, of ISO/IEC 9834-1, and of any other part or parts of ISO/IEC 9834 that concern this type of information object, shall all be applicable.

An ISP may, when it is deemed necessary, define a new object:

a)   by the selection of specific optional elements in the definition of an object of the same type in a base standard or another ISP, or

b)   as a composition of objects of the same type from multiple base standards or ISPs, or

c)   by a combination of a) and b).

NOTE - The referenced definitions must be of objects of the same type as the object being defined. Only the particular selection makes the object new.

NOTE - Proliferation of object definitions is strongly discouraged because it creates 'islands of isolation', i.e. object definitions that differ in only the slightest manner are perceived as being totally different. Every attempt should be made to develop composite object definitions with the broadest possible fields of use to promote interoperability.

NOTE - An ISP acts as the registration authority for objects that it defines either directly or in terms of references to other definitions.

[Ed. Note: The above new text is a response to N918 (US comment 7) and is not yet approved. The rationale for the new text is as follows:

1) Registration as currently defined in ISO/IEC 9834-1 appears to apply to objects of specific types where the types are defined in base standards (see 9834-1 clause 7.1). This implies that you can define new objects of a particular type in terms of (definitions of) existing objects of that type, but that you cannot define new objects by combining definitions of objects of different types (because this defines a new object type and that can only be done through a base standard).

2) It is assumed that the US proposal is not intended to do more than describe the process of defining a new object in terms of definitions of objects of the same type. If it is intended that it should be possible for ISPs to define new object types this should be addressed in 9834-1 (and possibly the JTC 1 Directives) not in TR 10000.]

Where registration mechanisms are not yet set up, objects of this kind shall in the meantime be maintained in an informative annex to the ISP which defines the Profile. Entry of an object into such an annex does not imply registration.

NOTE - It is for further study whether a Profile could create the requirement to register a type of object that is not already accommodated by the Registration Authority mechanism for the base standards referenced.

[Ed. Note: In N695, the US proposed that, in line with the resolution of Issue 16 - new Functionality - this Note should read:

NOTE - The definition of all object types must be in a base standard.

However, the Editor is not aware of any discussion on this specific point at the London meeting. He is also of the opinion that the subject matter of this Note is the immediately preceding paragraph, which is not impacted by the discussion on New Functionality - it is not about defining a new type of object, but rather it is a question of procedure, as to whether or not Registration of instances of a type of object can take place in the absence of an approved mechanism. The initial premise of this whole clause is that it is dealing with the registration of objects which are defined in Base Standards; the statement proposed by the US is thus not required.]

6.3   Principles of Profile Content

6.3.1   General Principles

A Profile makes explicit the relationships within a set of base standards used together (relationships which can be implicit in the definitions of the base standards themselves), and may also specify particular details of each base standard being used.

A Profile may refer to other International Standardized Profiles in order to make use of the functions and interfaces already defined by them, and thus limit its own direct reference to base standards.

It follows that a Profile

a)   shall restrict the choice of base standard options to the extent necessary to maximise the probability of achieving the objective of the Profile; for example to facilitate interworking between systems, or porting an application between systems, where the systems have implemented different selections of options of the Profile. Thus a Profile may retain base standard options as options of the Profile provided that they do not affect interworking or portability.

b)   shall not specify any requirements that would contradict or cause non-conformance to the base standards to which it refers;

c)   may contain conformance requirements which are more specific and limited in scope than those of the base standards to which it refers. Whilst the capabilities and behaviour specified in a Profile will always be valid in terms of the base standards, a Profile may exclude some valid optional capabilities and optional behaviour permitted in those base standards.

Thus conformance to a Profile implies by definition conformance to the set of base standards which it references. However, conformance to that set of base standards does not necessarily imply conformance to the Profile.

6.3.2   Main elements of a Profile Definition

The definition of a Profile shall comprise the following elements:

a)   a concise definition of the scope of the function for which the Profile is defined and the user requirements which it will satisfy, which is capable of being used as an Executive Summary of the Profile;

b)   an illustration of the scenario within which the ~~function~~ **profile** is applicable, giving, where possible, a diagrammatic representation of the systems, applications and interfaces which are relevant;

c)   normative reference to a single set of base standards or ISPs, including precise identification of the actual texts of the base standards or ISPs being used; also identification of any approved amendments and technical corrigenda (errata), conformance to which is identified as potentially having an impact on achieving interoperability or portability using the Profile;

d)   specifications of the application of each referenced base standard or ISP, stating the choice of classes or conforming subsets, and the selection of options, ranges of parameter values, etc, and reference to registered objects;

e)   a statement defining the requirements to be observed by systems claiming conformance to the Profile, including any remaining permitted options of the referenced base standards or ISPs, which thus become options of the Profile;

f)   a reference to the test specification for the Profile;

g)   informative reference to any amendments or technical corrigenda to the base standards referenced in the Profile, which have been determined to be not applicable to the Profile, and to any other relevant source documents (see 6.1.3 c);

Where ~~systems can perform~~ **a Profile defines** different but complementary roles (e.g. an initiator-responder, a client-server, or a master-slave relationship), the Profile shall identify the separate roles which may be adopted by a ~~system~~ **conforming implementation**, and these shall be stated as either mandatory requirements or options of the Profile, as appropriate.

NOTE - Clause 8 and annex A provide information on the way in which a Profile shall be defined in an ISP.

6.3.3   Specific types of Profile definition

Different classes of Profile, corresponding to the major divisions of the Taxonomy, may have unique aspects to their definition, which are specified in detail in appropriate parts of this Technical Report. For example:

1 | a) an OSI Profile **is an Interface Profile that** specifies the application of one or more OSI base
2   standards or other OSI Profiles in support of a specific requirement for interworking between
3   systems complying with the structure defined by the Basic Reference Model for OSI.

4 | b) an Interchange Format and Representation Profile **is an Interface Profile that** specifies the
5   application of one or more base standards in order to define the layout and internal structure of a
6   document, an image, or a controlling data-object, which is interchanged between systems; such
7   Profiles comply with the generic data specifications of their referenced base standards.

8 | c) an Application Environment Profile specifies a complete and coherent subset of the OSE, ~~necessary~~
9 | ~~to support a class of applications. By reference to a number of functional Profiles (and possibly~~
10 | ~~other base standards), it specifies the behaviour to be observed at the interfaces of the application~~
11 | ~~platform on which that class of applications are to be run, in terms of the required portability and~~
12 | ~~interworking characteristics~~ **comprising a function or a set of functions. The functions or set of**
13 | **functions are specified in terms of behaviour at their interfaces by reference to base**
14 | **standards and/or ISPs.**

15 | d) a generic Profile (either ~~functional~~ **Interface** or application environment) can be used as the basis
16   for an industry-specific Profile, by indicating the manner in which its optional features become
17   included or excluded when used in a specific environment or domain of application. Industry-specific
18   Profiles may also be defined without dependence on a pre-existing generic Profile.

19 | ~~NOTE — No industry-specific Profiles are currently defined within the scope of this Technical Report, either in terms of their~~
20 | ~~particular structure and contents, or in the Taxonomy in clause 7.~~

21   6.4   The meaning of conformance to a Profile

22   In the context of OSE, a system is said to exhibit conformance if it complies with the requirements of
23   applicable specifications in its relationships with its external environment. Applicable specifications include
24   those that specify interfaces to application programs (e.g. APIs), to human users (e.g. HCIs), and to other
25   systems (e.g. protocols), and also those that specify definitions of data structures for communication of
26   control and user information.

27   The purpose of a Profile, as indicated in earlier clauses, is to specify the use of sets of specifications to
28   provide clearly defined system functionality. Hence conformance to a Profile specification always implies
29   conformance to the referenced specifications.

30   Conformance requirements can be

31   a)   mandatory requirements: these are to be observed in all cases;

32   b)   conditional requirements: these are to be observed if the conditions set out in the specification
33   apply:

34   c)   options: these can be selected to suit the implementation, provided that any requirements applicable
35   to the option are observed.

36   Furthermore, conformance requirements can be stated

37   d)   positively: they state what is required to be done;

38   e)   negatively: they state what is required not to be done;

39   Finally, conformance requirements fall into two groups

f)   static conformance requirements;

g)   dynamic conformance requirements.

These are discussed in 6.6 and 6.7 respectively.

To evaluate the conformance of a particular implementation, it is necessary to have a statement of the capabilities and options which have been implemented, so that the implementation can be tested for conformance against relevant requirements, and against those requirements only. Such a statement is called an Implementation Conformance Statement (ICS). Within the implementation of a Profile, points of control and observation are defined at which the occurrence of test events can be controlled and observed; such PCOs are defined in the relevant test methodology for each class of Profile in the Taxonomy defined in this Technical Report.

Testing an implementation for conformance to a Profile requires the definition of a Profile Test Specification (PTS). Since a Profile is, by definition, a set of references to base standards, then the PTS is likewise based on the Test Specifications of those referenced base standards, with appropriate selections of test cases and ranges of parameters. The methodology and nature of conformance tests for each domain of Profiles is identified in other parts of this Technical Report.

6.5   Conformance requirements of Profiles

The conformance requirements of a Profile shall relate to the conformance requirements in the base standards in the following ways, subject to any more specific indications given for particular domains of Profiles in other parts of this Technical Report:

a)   **Mandatory requirements in the base standards**: these shall remain mandatory in the Profile.

b)   **Conditional requirements in the base standards**: these shall remain conditional in the Profile with the exception that if the condition always evaluates to True or False given the requirements of the Profile, then the status can be changed to the result obtained.

c)   **Optional requirements in the base standards**: these may remain optional, or may be changed within the profile to:

- Mandatory: support may be made mandatory.

- Out of Scope: optional requirements which are not relevant to the Profile. For example, functional elements which are unused in the context of the Profile.

- Conditional: optional requirements may be made conditional within the Profile.

- Excluded: the use of an optional feature may be prohibited in the context of the Profile. This should only be used to restrict the dynamic behaviour. of the implementation.

    Exclusion of an optional feature in a base standard should be done only with great care, especially when "out of scope" would be more appropriate.

d)   **Not Applicable features in the base standards**: (i.e. those that are logically impossible, according to the base standard) these shall remain Not Applicable in the Profile.

See 8.4 for the way in which these types of conformance requirements are handled in the Profile Implementation Conformance Statement.

A Profile shall be defined in such a way that testing of an implementation of it can be carried out in the most complete way practicable, given the available testing methodologies.

In order to conform to a Profile, a system shall perform correctly all the capabilities defined in the Profile ICS as mandatory and also any options of the Profile which it claims to include. Conformance to a base standard in this context is conformance to a particular identified publication of a referenced base standard as defined in 6.3.2 (c), irrespective of however many additional technical corrigenda to it may have been published.

But a system may have the ability to operate according to several Profiles which make use of different capabilities of the same base standards, and either to negotiate between such different uses, or to be configured appropriately.

6.6   Static Conformance

6.6.1   General

The choices of options made in a Profile's static conformance requirements are specific to that Profile and provide added value to the base standards.

The choices are not, therefore, arbitrary but need to be consistent with the purpose of the Profile and consistent across all base standards referenced by it.

In order to ensure consistency between Profiles and the base standards, the static conformance requirements of a Profile shall be specified, where possible, by reference to the conformance requirements of the referenced base standards (see 8.4.3).

6.6.2   Structure

The statement of static conformance requirements shall be structured as follows:

a)   an overview of major subsets or implementation categories which provides an overall rationale for the more detailed selection of classes and options made in the Profile.

b)   the major conformance requirements which relate to these subsets or implementation categories.

c)   for each base standard selected in the Profile, reference to the base standard static conformance requirements and specification of the choices made for the Profile (details as given in 6.5).

d)   any additional static conformance requirements of the Profile which involve interdependencies of related functional elements.

See clause 8, and especially figure 3, for the way in which these requirements are reflected in the Profile Requirements List.

6.7   Dynamic conformance

Given the implementation choices made in the Implementation Conformance Statement, the dynamic conformance requirements for a Profile are for the most part specified by the referenced base standards.

Hence, a Profile shall specify dynamic conformance requirements by reference to those base standards, together with any further constraining requirements necessary to fulfil the stated purposes of the Profile.

Restrictions by a Profile on dynamic conformance requirements of a base standard are exceptions, and should only apply to the initiation of activity. Restrictions should not apply to responding to external initiatives. Consequently, it is possible that receipt of an excluded option may cause the receiving system to operate outside the Profile, but still in accordance with the base standards.

7 Framework of The Taxonomy of Profiles

7.1 Nature and Purpose of the Taxonomy

The Taxonomy is a structured classification system for identifying ~~required~~ Profiles. From the ‡Taxonomy, ~~unique~~ identifiers for Profiles are derived which indicate (in a codified form) the functional relationship of one profile to another. *[Ed. Note: See also the SGFS Issues List, Issue 34.]*

The ~~first-level elements of the structure are~~ **classification scheme (taxonomy classes) is** based on the main subdivisions of Information Technology standards into major topics, which correspond, where possible, to the contents of defined or assumed reference models. The structure is thereby matched to the types of use to which the resulting profiles are put by both suppliers and users, and also to the areas of expertise of the technical committees and subcommittees which have responsibility for the standards and profiles on that topic.

Further ~~levels of structure~~ **level elements (sub-classes)** are then added which relate to the inherent, real-world divisions of functionality which are supported by the base standards concerned. These sub-classes correspond to functional elements which are meaningful to both users and suppliers; they correspond to points where choices are made, such as whether or not to use/offer a particular conforming subset of an application service, or which communications sub-network environment is to be accessed, or what types of portability need to be provided by a system.

Such a taxonomy structure is dynamic by nature, evolving with both the availability of base standards, and the identification of user requirements.

~~Elements of the taxonomy~~

~~The taxonomy consists of a hierarchical structure, and the identities of the profiles which it supports.~~

~~Structural Elements~~

~~The identification system used in this Technical Report enables related sets of profiles to be given titles and identifiers which indicate their commonality, and therefore intermediate nodes of the taxonomy can be named and referenced, even though they are not themselves profiles.~~

7.2 Profile Elements

The following considerations shall be taken into account in defining the Profile elements of the ‡Taxonomy:

a) Analysis of user requirements.

   Elements of functionality grouped together into a Profile should correspond to identifiable, real-world, units of application or system design.

b) Significant differences between adjacent Profiles.

   Too many nearly-similar Profiles within a sub-class of the Taxonomy will increase the likelihood that users will be unable to agree on a single Profile choice to interwork successfully, or port applications or users easily; too few Profiles in the Taxonomy may lead to the provision of so many options to a Profile that it accomplishes little in the way of selection and simplification.

c) Development over time.

   The availability of successive editions of referenced base standards can be a reason for ~~creating new profiles~~ **identify new profile identifiers** in the ‡Taxonomy if they provide a significant

functional ~~increase~~ change in capability. Otherwise, they give rise only to new editions of the ISP which defines the Profile.

7.3   The Taxonomy of Profiles

Profiles are divided into a number of classes, each class identified by a different initial letter. This letter is the basis of a structured set of Profile identifiers, which forms the representation of the Taxonomy. The main characteristics of the Taxonomy are stated here, including all defined uses of the initial letter. Subsequent parts of ISO/IEC/TR 10000 provide the detail of this system.

[Ed. Note: This subclause has been rewritten, based on contributions from the US (N918) and EWOS (N928); Issues 15, 30, 31 still apply.]

7.3.1   Open System Environment Profiles

~~A single class of OSE Profiles is identified as follows:~~

~~P   OSE Profiles~~

~~In the context of the scope of OSE as outlined in clause 1, this classification covers the domain of "Generic Application Environment Profiles".~~

~~No classification is assigned to the domains of "Industry-specific Profiles", which are identified in this Technical Report only in concept, and which are not therefore subject to classification or control under the common processes of ISO/IEC.~~

~~The domain of "Functional Profiles" comprises a number of classes. The set of classes which corresponds to the concept of OSI Profiles is identified in clause 7.3.2, and the relevant sections of the taxonomy are defined in Part 2 of this Technical Report.~~

~~The definition of additional classes of Functional Profile is for further study.~~

The Taxonomy of OSE Profiles, as described in this sub-clause, can be regarded as a substructure (the 'JTC1 branch') of a larger Taxonomy which defines Profile classes for all SCs within ISO and IEC. Currently, only the Profile classes in the area of competence of of ISO/IEC JTC1 are included in this part of TR 10000. See also Clause 1 on Scope of this TR.

The Taxonomy for OSE Profiles is defined as follows:

```
P       - OSE Profiles
   PI   - Interface Profiles
   PA   - Application Environment Profiles
```

7.3.2   Interface Profiles

The Taxonomy of Interface Profiles is defined as follows:

```
PI        - Interface Profiles
   API - Application Program Interface (API) Profiles
   HCI - Human/Computer Interface Profiles
   CMI - Communications Interface Profiles
   ISI  - Information Storage Interface Profiles
```

The OSI Profiles form part of the CMI Profiles; the Taxonomy of OSI and OSI-related Communications Profiles is defined in Clause 7.3.4, and in ISO/IEC/TR 10000-2.

Further parts of TR 10000 may be developed to cover the API, HCI, and ISI Taxonomies.

7.3.3　Application Environment Profiles

| The Taxonomy of ~~OSE~~ Application Environment Profiles is defined in ISO/IEC/TR 10000-3.

7.3.4　OSI Profiles

| ~~The Taxonomy of OSI and OSI-related Profiles is defined in ISO/IEC/TR 10000-2.~~

In order to decouple representation of information or objects from communications protocol support, and application-related protocol from subnetwork types, OSI and OSI-related Profiles are currently divided into the following classes:

F -　　Interchange Format and Representation Profiles.

A -　　Application Profiles using Connection-mode Transport Service (i.e. using T-Profiles).

B -　　Application Profiles using Connectionless-mode Transport Service (i.e. using U-Profiles).

T -　　Connection-mode Transport Profiles, related to subnetwork type.

U -　　Connectionless-mode Transport Profiles, related to subnetwork type.

R -　　Relay functions between T-Profiles or between U-Profiles.

Other classes or sub-classes of OSI profiles may be required.

8　Structure of Documentation for Profiles

8.1　Principles

The requirements for content and format of ISPs are based on the following principles:

a)　　Profiles shall be directly related to base standards, and conformance to Profiles shall imply conformance to base standards.

b)　　ISPs shall follow the IEC/ISO Rules for the drafting and presentation of International Standards. See Annex A for relevant extracts from these rules, adapted for use in ISPs.

c)　　ISPs are intended to be concise documents, which do not repeat the text of the documents to which they refer. The reliance on references to base standards, their ICS proformas (in the case of OSI Profiles), and the use of registered names of objects, are thus essential for the production of concise ISPs.

d)　　Profiles making identical use of particular base standards shall be consistent, down to the level of identical wording in the ISPs for identical requirements.

e)　　The definition of one Profile may include a reference to the definition of another Profile in its totality.

8.2　Multi-part ISPs

Many Profiles will be documented and published as individual ISPs. However, where close relationships exist between two or more Profiles, a more appropriate technique can be used.

The need for common text between related Profiles is essential to ensure consistency and interworking, to avoid unnecessary duplication of text, and to aid writers and reviewers of ISPs. Items of common text

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comprise the definition of a distinct section of a Profile, together with that part of the Profile Requirements List relating to the use of one or more base standards by that section of the Profile.

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An ISP can be produced in a number of separate parts, on the analogy of multi-part International Standards, where each part is capable of being separately written, submitted to an ISO/IEC Technical Committee, and approved.

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A single-part ISP, or one part of a multi-part ISP, shall normally contain the definition of not more than one Profile, in order to permit each Profile to be the subject of a separate ISP ballot; the combination of the definitions of two or more very closely related Profiles within one ISP or ISP-part shall be permitted, subject to review and acceptance of the justification of individual cases by ISO/IEC JTC1/SGFS.
[Ed. Note: The text in this paragraph does not reflect a consensus position; see also N918 (US comments, item 11) and N924 (EWOS Position paper).]

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The following rules apply to multi-part ISPs:

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a)   A multi-part ISP shall contain the definition of a complete Profile or of a related set of Profiles.

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b)   A part of a multi-part ISP may contain a section of the definition of one or more Profiles.

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c)   Wherever possible, the references made from one part to another should be to complete parts. However, controlled use of one-way references to clauses of other parts is permitted in order to obtain a reasonable multi-part structure.

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For example, this system of multi-part ISPs is particularly useful in the context of OSI Profiles for defining:

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•   the set of Tx-Profiles which form a Group, and thus make common use of standards for network-independent functions;

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•   the set of Rx-profiles which use common relay techniques;

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•   the Tx, Ux, and Rx-profiles which make common use of sub-network technologies.

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In all these cases, a single part of an ISP can be referenced several times from other parts of the same ISP, or from other ISPs, to ensure the identical specification of this common functionality.

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Because there may also be potential disadvantages from over-use of the multi-part ISP capability, such as difficulties in gaining approval for a complex linked set of parts, or reduction of the content of a part to a small amount of text, considerable care should be taken with its use.

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NOTE - 1 When a section of text appears in several Profiles, then possibilities exist for sharing the corresponding code (etc.) for the implementation of several Profiles, and the tests applicable to the use of the referenced base standards will be applicable to the testing of several Profiles.

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NOTE - 2 It follows that it is in the interests of the implementers of Open Systems to promote the identification of common sections of text as parts of ISPs, but even more to promote, in future standardization and Profile work, the use of already defined parts of ISPs, so that Profiles fall into a few "common moulds". In particular, this allows implementation of a part of an ISP with confidence that it may be used in the implementation of Profiles as yet undefined, so that products are open to future development.

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8.3   Structure of ISPs

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The document structure of an ISP for a Profile is as outlined in table 1. This structure represents the sum of the conceptual requirements for the definition of an individual Profile given in clause 6. Where an ISP is divided into several parts, each part shall follow the same format, but with appropriate variations in the contents of its clauses.

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This is a general format, and each subsequent part of this Technical Report contains more specific detail of the structure of ISPs for Profiles within its Taxonomy.

```
            FOREWORD
            INTRODUCTION
   1.       SCOPE
   2.       NORMATIVE REFERENCES
   3.       DEFINITIONS
   4.       ABBREVIATIONS
   5.       CONFORMANCE
   6...     Clauses defining requirements related to each base standard (Note 2)
   NORMATIVE ANNEX A. Profile Requirements List
   INFORMATIVE ANNEXES containing explanatory and/or tutorial material as required.

   NOTES

   1       Further information concerning the content of the sections listed above is given in Annex A, which is based on the IEC/ISO
   Directives, Part 3 - Drafting and presentation of International Standards.

   2       Where possible, these details shall be presented in a tabular form, consistent with the layout of the referenced standard,
   and not duplicating the representation required by the Profile Requirements List.
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Table 1

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For each Profile, a Profile Test Specification shall be provided, either as a part of the ISP which defines a Profile, or as a free-standing ISP, with an explicit reference to it from the Profile definition.

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In addition to specificatory material, an ISP for a Profile should record the rationale for the technical choices made during the development of the ISP. Capturing this rationale in an informative Annex facilitates the use, reuse and maintenance of the ISP and the Profile it specifies.

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[Ed. Note: Revision of the text in this clause on "generic" conformance requirements of an ISP will be required to take account of the results of the proposed new work item in SC21 (see also N941).]

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8.4   The Profile Implementation Conformance Statement (ICS)

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NOTE - This subclause is only normative with respect to Profiles referencing OSI Protocol standards with PICS Proformas defined in accordance with ISO/IEC 9646. However, its principles are relevant to any Profile, and should be so interpreted. Where other base standards do not contain such proformas, the ISPs referencing them are expected to indicate what information is required to claim conformance to the Profiles.

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8.4.1   The Base Standard ICS

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To evaluate the conformance of a particular implementation to a standard, it is necessary to have a statement of the capabilities and options which have been implemented, so that implementation can be tested for conformance against relevant requirements, and against those requirements only. Such a statement is called an Implementation Conformance Statement.

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The standard should contain an indication of the content of such an ICS, preferably as a Proforma for completion by the supplier.

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In the case of OSI Protocol standards, a Protocol Implementation Conformance Statement (PICS) Proforma is defined for use in the base standards by ISO/IEC 9646, Parts 1 and 2.

8.4.2 The Profile ICS

In the same way, the supplier of an implementation claiming conformance to a Profile provides a Profile ICS. However, in the case of the specification of a Profile in an ISP, an ICS Proforma is not provided, since use has to be made of the ICS proformas of the referenced base standards.

The Profile conformance requirements are expressed by:

a)   the ICS proforma of each relevant base standard referenced by the Profile;

b)   the Profile Requirements List, expressing constraints on the status and/or allowed answers in the referenced base standard ICS proformas;

c)   if required, a Profile specific ICS proforma, specifying questions which place additional constraints on the implementation of the Profile, not directly associated with any particular base standard.

The supplier of an implementation fills in the ICS proformas (for the base standards and the Profile specific proforma) to state which conformance requirements of a Profile have been implemented.

8.4.3   Profile Requirements List (Profile RL)

A Profile Requirements List shall be provided for each Profile in an ISP. It shall follow the structure of the static conformance requirements, presenting

a)   the general options of the Profile as a whole;

b)   a list of the standards selected and combined in the Profile;

c)   for each of these referenced base standards, a section expressing the constraints upon allowable answers in the corresponding ICS proforma. This section of the Requirements List shall be derived from the ICS proforma of the base standard in question, when available, with its entries enabled, disabled, or pre-selected according to the Profile's choices.

It is the purpose of a Profile RL to specify the Profile's constraints on what may appear in the "Support" and "Supported" (values etc) columns in the relevant ICS proformas.

The Profile RL will, in some cases, be a simple list of constraints placed upon the appropriate answers in the relevant ICS. In other cases, it could be produced by copying selected tables from the relevant base standards' ICS proformas, removing the column(s) to be completed by the supplier, and adding a new set of columns giving the ISP requirements, both in terms of status and value ranges.

In the latter case, the constraints on what may appear in the "Support" column can be specified by a Profile "Status" column, stating whether the capability is mandatory, conditional (with predicates of conditional status expressions), optional, excluded, out of scope, or not applicable for the Profile.

Similarly, the constraints on what may appear in the "Type/Length/Values Supported" column can be specified by a Profile "Allowed" column, stating the values or range of values allowed for the item by the Profile.

In addition, references to relevant clauses in the ISP can be specified by the use of an "ISP References" column.

Non-applicable tables from the ICS proforma of the base standards may be omitted, and some tables may be replaced by textual statements of the constraints.

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The specification in an ISP of a Profile RL which is only constructed from explicit references to ICS proformas of base standards, is possible only if all the ICS proformas of the relevant base standards have been published as standards, and are in an adequate form to meet the needs of the ISP.

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If any ICS proformas of the relevant base standards are not standardized in an adequate form, then the ISP shall include whatever is necessary to overcome this deficiency, pending production of an adequate ICS proforma for the base standard. This may involve simply specifying additional questions needed for the ISP but not yet covered by the ICS proforma, (e.g. a question on whether certain options are configurable or not). If no standard ICS proforma is yet available, the ISP shall contain an interim version of the relevant PICS proforma. This should be kept separate from the Profile requirements as specified by the Profile RL.

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Whenever this situation occurs, steps shall be taken to produce an adequate standard for the relevant ICS proforma. Once such a standard is published, then the ISP shall be amended to replace the ICS proforma material by a Profile RL and the necessary reference to the standardized ICS proforma.

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NOTE - This ensures that the primacy of the base standard is retained whenever possible, without delaying the publication of urgently needed ISPs.

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In some exceptional cases, the Profile may specify additional Profile-specific conformance requirements which are wholly outside the scope of any of the base standards referenced. This will require additional questions/answers in the Profile RL, since the base standard ICS proformas are not appropriate. This is called the Profile Specific ICS Proforma. Also, additions or changes reflecting the Profile RL may be needed to the set of test cases which have been defined in the base standards. Therefore care should be taken that the number of such statements is kept as small as possible.

Annex A

(normative)

Rules for the drafting and presentation of International Standardized Profiles

A.1 Introduction

The contents of this Annex are binding on the submitters of ISPs.

Clause 8 of this part of ISO/IEC/TR 10000 gives a general specification of the structure required for a Profile definition. It follows the IEC/ISO Directives for drafting and presentation of International Standards as far as is relevant, and this annex contains extracts from the appropriate clauses of that document with modification and comment relating to their use in ISPs. References to clauses of the IEC/ISO Directives are of the form "Rules x.y.z".

In those cases where an ISP is being produced as a collaborative activity with ~~CCITT~~ ITU-TS under the terms of Annex K to the ISO/IEC JTC1 Directives, the Rules for Presentation of ~~CCITT~~ ITU-TS | ISO/IEC Common Text (currently in Appendix II of Annex K) shall also apply as appropriate.

Throughout this annex, which is concerned strictly with documentation content and layout, reference is made to ISPs. As is made clear in clause 8, an ISP, or a part thereof, may contain a whole Profile definition, or part of one or more Profile definitions. The wording of this annex assumes as a default case that it is describing an undivided ISP which defines one Profile in its entirety. Its application to the other cases is easily deduced. Each part of a multi-part ISP, whether it defines a whole Profile or only some common sections of one, shall comply with this annex as far as is appropriate.

NOTE - Further advice and guidance to editors of ISPs is given in the JTC1/SGFS Standing Document SD-2 - *Guidelines for the Preparation of ISPs.*

[Ed. Note: Clarifying and strengthening the statement of the purpose of this annex.]

A.2 General Arrangement (Rules 2.1)

The elements which together form an ISP are classified into three groups:

- ○ preliminary elements are those elements that identify the ISP, introduce its content, and explain its background, its development and its relationship with other standards and ISPs;

- ○ normative elements are those elements setting out the provisions with which it is necessary to comply in order to be able to claim conformity with the ISP;

- • supplementary elements are those elements that provide additional information intended to assist the understanding or use of the ISP.

These groups of elements are described in the following clauses.

Notes integrated in the text (see A.6.3) may be part of any element except the title page, the title and footnotes.

A.3 Preliminary Elements

A.3.1 Title Page (Rules 2.2.1)

The title page is prepared in a standard format by the office of the Information Technology Task Force.

The reference number is allocated by the office of the Information Technology Task Force.

A.3.2 Contents (Rules 2.2.2)

The contents is an optional preliminary element, but is necessary if it enables an overall view of the ISP to be obtained, and facilitates its consultation. The contents should normally list only the clauses and the annexes. All the elements listed shall be cited with their full titles.

A.3.3 Foreword (Rules 2.2.3)

The foreword shall appear in every ISP; it consists of a general part giving information relating to the organization responsible, and to International Standards in general, and a specific part giving as many of the following as are appropriate:

- an indication of the organization or committee which prepared the ISP; information regarding the approval of the ISP;

- a statement that the ISP cancels or replaces other documents in whole or in part;

- a statement of significant technical changes from the previous edition;

- a statement of which annexes are normative and which are informative.

A.3.4 Introduction (Rules 2.2.4)

The introduction shall appear in every ISP; it gives specific information about the process used to draft the ISP, and about the degree of international harmonization that it has received. It contains material similar to that in the "Explanatory Report" provided by the originating organization when it submits the proposed draft ISP (PDISP) for review ~~and approval. It shall include a statement that the ISP complies with appropriate parts of ISO/IEC/TR 10000, and a justification of any divergences.~~ **Any deviation from the requirements in TR 10000 shall be identified and justified in the Introduction.** *[Ed. Note: The changes in this paragraph are proposed in US comments 12 and 13 (N918) but were not discussed in Seoul.]*

[Ed. Note: It is a requirement of this TR that an ISP should so comply, and it is explicitly required in the Explanatory Report that such a statement should be made, so it should be in the ISP itself. Hence also the need for a reference to TR 10000 as required by clause A.4.3.]

A.4 General Normative Elements

A.4.1 Title (Rules 2.3.1)

The wording of the title shall be established with the greatest care; while being as concise as possible, it shall indicate, without ambiguity, the subject matter of the ISP in such a way as to distinguish it from that of any other ISP or International Standard, without going into unnecessary detail. Any necessary additional particulars shall be given in the Scope.

The title shall be composed of the following three elements:

1   a)   **an introductory element:**

2   The title of the originating Technical Committee, for example:

3   *Information technology*

4   indicating ISO/IEC JTC 1.

5   b)   **an identification element:**

6   *International Standardized Profile(s) XXXnnn*

7   indicating by the identifier *XXXnnn* the place in the Taxonomy which this Profile occupies.

8
9
10   NOTE - If a multi-part ISP defines more than one Profile, or if an ISP only defines common section(s) of a number of Profiles, this element may either enumerate all Profile Identifiers, or use the convention of "X" for a variable letter, and "n" for a variable number; e.g."TXnnn" or "AFT1n".

11
12
13
14   c)   **a main element** indicating the subject matter of the ISP, as recorded in the Taxonomy. For a multi-part ISP, this element shall be subdivided into a general title element common to all parts, and a specific title element for each part; where necessary, this specific element may include the identifier of an individual Profile.

15   Example:

16
17   *Information technology - International Standardized Profiles AFTnn - File Transfer, Access and Management - Part 3: AFT11 - Simple File Transfer (Unstructured).*

18   **A.4.2   Scope (Rules 2.3.2)**

19   This element contains three subclauses as follows:

20   a)   **General**

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22
23
24
25   This element shall appear at the beginning of the ISP or ISP part, to define without ambiguity the purpose and subject matter of the document, thereby indicating the limits of its applicability. It shall identify the "user requirements" which the Profile satisfies. It shall take the form of an Executive Summary, suitable for use independently of the ISP. It shall not contain normative requirements (specified in A.5).

26   b)   **Position within the Taxonomy**

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28
29   If the ISP or ISP part defines a Profile, it shall relate the Profile it defines to the Taxonomy, published as a part of ISO/IEC/TR 10000. The element shall include the identifier and title of the Profile defined within the ISP or ISP part.

30   c)   **Scenario**

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32   If the ISP, or ISP part, defines a Profile, it shall include (where appropriate) the "scenario" of the Profile - an illustration of the environment within which it is applicable.

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34
35   In the case of Profiles using OSI base standards, this shows in a simplified graphic form the OSI system which is covered by this Profile, and other typical systems/subnetworks with which this OSI system shall be capable of interworking.

A.4.3   Normative References (Rules 2.3.3)

This element shall give a list of normative documents (approved International Standards, ISPs, ~~CCITT~~ ITU-T Recommendations/ITU-TS Recommendations, or, where so approved, Technical Reports - see clause 6.1.2) with their titles and publication dates, to which reference is made in the text in such a way as to make them indispensable for the application of the ISP. Where published amendments or technical corrigenda (errata) to base standards are relevant to the definition of the Profile in such a way as to have a potential impact on interworking and are therefore included in the specification of the Profile, then they shall be explicitly referenced here.

Where a referenced document is published jointly by both ISO/IEC and ~~CCITT~~ ITU-TS, then the identity of the corresponding ~~CCITT~~ ITU-T Recommendation/ITU-TS Recommendation shall also be given.

~~Because an ISP contains a statement of compliance (see clause A.3.4), reference shall also be made to appropriate parts of ISO/IEC/TR 10000 on the Framework and taxonomy of International Standardized Profiles.~~ *[Ed. Note: The deletion of this paragraph is proposed in US comment 14 (N918) but was not discussed in Seoul.]*

For a multi-part ISP, documents shall be listed only in the parts in which they are referenced.

The list shall be introduced by the following wording:

The following documents contain provisions which, through reference in this text, constitute provisions of this International Standardized Profile. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this International Standardized Profile are warned against automatically applying any more recent editions of the documents listed below, since the nature of references made by ISPs to such documents is that they may be specific to a particular edition. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs, and ~~CCITT~~ ITU-TS maintains published editions of its current Recommendations.

The list shall not include the following:

  °   documents that are not publicly available;

  °   documents to which only informative reference is made;

  •   documents which have merely served as references in the preparation of the ISP.

Such documents can be listed in an informative annex (see A.6.1) entitled "Bibliography". In the case of documents which are not publicly available, full details shall be given there of their source organization, and of how defect reporting and error notification shall be performed.

A.5   Technical Normative Elements

A.5.1   Definitions (Rules 2.4.1)

This is an optional element giving definitions necessary for the understanding of certain terms used in the ISP. The definitions shall be introduced by the following wording:

For the purposes of this International Standardized Profile, the following definitions apply.

Rules for the drafting and presentation of terms and definitions are given in IEC/ISO Directives Part 3, Annex B.

In most cases, an ISP can indicate that all terms used are defined in the referenced base standards, and in such a case, they shall not be repeated within the ISP.

A.5.2 Symbols and Abbreviations (Rules 2.4.2)

This is an optional element giving a list of the symbols and abbreviations necessary for the understanding of the ISP.

In most cases, an ISP can indicate that all abbreviations used are defined in the referenced base standards, and in such a case, they shall not be repeated within the ISP.

A.5.3 Requirements

This element shall commence with a clause entitled "Conformance", which shall state the requirements specified in the ISP, indicating in general terms the claims that a conforming implementation shall make, and on which it shall be tested for conformance. This shall relate to the use made of each of the base standards referenced in the Profile definition, as well as base standard amendments and technical corrigenda which are included in the definition of the Profile. The content and layout of this and subsequent clauses is not defined, but can be tailored to the type of material which has to be specified in each case. An explicit reference shall be given to the corresponding Profile Test Specification (PTS).

The information given shall not repeat the text of the base standards, but shall define the choices made in the Profile of classes, subsets, options and ranges of parameter values. It shall be in the form of static and dynamic conformance requirements, and may where appropriate be given in tabular form. Preference shall be given to recording as much as possible of this information once and once only in the Profile Requirements List in an annex to the ISP.

See clauses 6 and 8 for more detail concerning the nature of the content required in this element of an ISP.

A.5.4 Test Methods (Rules 2.4.5)

The possibility of including detail of testing methods and test cases for ISPs is for further study.

A.5.5 Normative Annexes (Rules 2.4.8)

Normative annexes are integral sections of the ISP which, for reasons of convenience, are placed after all other normative elements. The fact that an annex is normative (as opposed to informative - see A.6.1) shall be made clear by the way in which it is referred to in the text, by a statement to this effect in the foreword (see A.3.3), and by an indication at the head of the annex itself.

The first normative annex shall be the Profile Requirements List - see clause 8.4.

A.6   Supplementary Elements

A.6.1   Informative Annexes (Rules 2.5.1)

Informative annexes give additional information, and are placed after the normative elements of an ISP. They shall not contain requirements to which an implementation shall conform. The fact that an annex is informative (as opposed to normative - see A.5.5) shall be made clear by the way in which it is referred to in the text, by a statement to this effect in the foreword (see A.3.3) and by an indication at the head of the annex itself.

The details of any references to National or Regional standards shall be placed in such an informative annex (see also clause 6.1 and A.4.3)

Published amendments or technical corrigenda to the base standards referenced in a Profile specification which have been determined to be not applicable to it, shall be explicitly referenced here in an Annex entitled "Informative References to Amendments and Technical Corrigenda". This clause shall list all such

documents, indicating their status, with one list for each status. These lists shall be introduced by the following wording:

The following documents contain amendments or technical corrigenda to a base standard, or part of a base standard, referenced in this International Standardized Profile. These amendments and technical corrigenda are not applicable to the definition of this International Standardized Profile.

Information on user requirements to which an ISP is a response may be placed here.

A.6.2   Footnotes (Rules 2.5.2)

Footnotes give additional information, but their use shall be kept to a minimum. They shall not contain requirements.

A.6.3   Notes integrated in the text (Rules 2.5.3)

Notes integrated in the text of an ISP may be used only for giving information which is essential to the understanding of the document. They shall not contain requirements.

A.6.4   Notes to tables and figures (Rules 2.5.4)

Notes to tables and to figures shall be treated independently from footnotes (see A.6.2) and notes integrated in the text (see A.6.3). They shall be located within the frame of the relevant table or immediately above the title of the relevant figure. A separate numbering sequence shall be used for each table and each figure. Such notes may contain requirements.

A.7   Editorial and Layout Information

Further information on layout of text, tables, figures, and footnotes is given in other sections of the Rules, which shall be applied by editors of ISPs. Information is also given in Rules Annex C on verbal forms to be used in drafting statements of requirements, recommendations, permissions, and possibilities, which shall also apply to ISPs.

[Ed. Note: Annex B deleted - currently empty of informative references.]