TECHNICAL REPORT

ISO/IEC TR 10000-1

Fourth edition
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Information technology — Framework and taxonomy of International Standardized Profiles —

Part 1:
General principles and documentation framework

Technologies de l'information — Cadre et taxinomie des profils normalisés internationaux —

Partie 1: Principes généraux et cadre de documentation

Reference number
ISO/IEC TR 10000-1:1998(E)

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Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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

— 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 Technical Reports of type 3 do not necessarily have to be reviewed until the data they provide are considered to be no longer valid or useful.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 10000-1, which is a Technical Report of type 3, was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

This fourth edition cancels and replaces the third edition (ISO/IEC TR 10000-1:1995), which has been technically revised.

ISO/IEC TR 10000 consists of the following parts, under the general title *Information technology — Framework and taxonomy of International Standardized Profiles*:

— *Part 1: General principles and documentation framework*

— *Part 2: Principles and Taxonomy for OSI Profiles*

— *Part 3: Principles and Taxonomy for Open System Environment Profiles*

Other parts to be defined as necessary.

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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 JTC 1. 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 IT 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.

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Information technology — Framework and taxonomy of International Standardized Profiles —

Part 1:
General principles and documentation framework

1 Scope

This part of ISO/IEC TR 10000 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.

This part of ISO/IEC TR 10000 outlines concepts of profiles and taxonomies (or Classification Schemes), and the format and content of ISPs. Annex A gives details of the format and the content of ISPs as required by ISO/IEC JTC 1.

ISO/IEC TR 10000-2 provides principles and a classification scheme for OSI profiles 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.

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

Part 2 and Part 3 may be extended for OSI and OSE profiles respectively and further parts of ISO/IEC TR 10000 may be developed to define other classes of 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 JTC 1, but by mutual agreement with JTC 1, other Technical Committees may undertake similar functional standardization activities leading to the inclusion of additional material in this Technical Report.

2 References

ISO/IEC 9834-1:1993, *Information technology - Open Systems Interconnection - Procedures for the operation of OSI Registration Authorities: General procedures. (Corresponds to ITU-T Recommendation X.660)*

ISO/IEC TR 10000-2:1998, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 2: Principles and Taxonomy for OSI Profiles.*

ISO/IEC TR 10000-3:1998, *Information technology - Framework and taxonomy of International Standardized Profiles - Part 3: Principles and Taxonomy for Open System Environment Profiles.*

ISO/IEC Directives Part 3:1997, *Drafting and presentation of International Standards.*

ISO/IEC JTC 1 Directives:1995, Procedures for the technical work of ISO/IEC JTC 1 on Information Technology.

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

3.1.1 Base Standard: An approved International Standard or ITU-T Recommendation.

3.1.2 International Standardized Profile: An internationally agreed-to, harmonized document which describes one or more profiles.

3.1.3 IT System: A set of IT resources providing services at one or more interfaces.

3.1.4 Profile: A set of one or more base standards and/or ISPs, and, where applicable, the identification of chosen classes, conforming subsets, options and parameters of those base standards, or ISPs necessary to accomplish a particular function.

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NOTE - ISPs may contain normative references to specifications other than International Standards; see document JTC 1 N 4047: *The Normative Referencing of Specifications other than International Standards in JTC 1 International Standardized Profiles - Guidelines for ISP Submitters*.

3.1.5 Taxonomy: A classification scheme for referencing profiles or sets of profiles unambiguously.

3.2 Terms defined in ISO/IEC TR 14252

The following terms are defined in ISO/IEC TR 14252:1996, *Information technology — Guide to the POSIX Open System Environment (OSE)*, and are included here for convenience.

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

3.2.2 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.

3.3 Conformance Terminology

This part of ISO/IEC TR 10000 uses the following term related to conformance:

3.3.1 Implementation Conformance Statement [ICS]: A statement made by the supplier of an implementation or IT system claimed to conform to one or more specifications, stating which capabilities have been implemented, specifically including the relevant optional capabilities and limits.

NOTE - The ICS can take several forms (e.g. in OSI it can be a profile ICS, protocol ICS, information object ICS or profile specific ICS, as defined in ITU-T Rec. X.290 | ISO/IEC 9646-1, and in POSIX it is a POSIX Conformance Document as defined in ISO/IEC 13210:1994).

4 Abbreviations

ICS Implementation Conformance Statement

ISP International Standardized Profile

OSE Open System Environment

OSI Open Systems Interconnection

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 scheme 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 IT 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 IT 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 Documentation Framework of International Standardized Profiles has been developed by ISO/IEC JTC 1 in order to create a consistent classification scheme (a taxonomy), and a consistent 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 documentation 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.

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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.

NOTE - ISPs may contain normative references to specifications other than International Standards; see document JTC 1 N 4047: *The Normative Referencing of Specifications other than International Standards in JTC 1 International Standardized Profiles - Guidelines for ISP Submitters*.

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 IT systems in such a way as to achieve their intended goals - for example, interoperability and application portability. The development and widespread acceptance of conformance tests for profiles specified in ISPs is important 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 scheme.

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 IT 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

Some base standards provide options, anticipating the needs of a variety of applications of the functionality described.

Profiles promote integration of base standards 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. Subclause 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 JTC 1 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:

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- 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 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 a 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 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 a 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.

6.2 Registration in ISPs

6.2.1 General provisions

The application of base standards may involve reference to specifications that are subject to registration procedures (for example, for abstract syntaxes). Profiles that reference such base standards must define the use of such specifications (i.e. indicate whether they are included in the specification or not).

Where such a specification is already registered, the profile specification shall refer to it using its registered name. Where the registered specification allows, the profile specification may define particular parameter values.

Where such a specification is not already registered, then action must be taken to register it according to the procedures defined by the base standard itself or by an associated registration procedure standard, in accordance with the general registration requirements of the ISO/IEC JTC 1 Directives.

6.2.2 Provisions of ITU-T Rec. X.660-series | ISO/IEC 9834

Where a requirement for registration is covered by the provisions of ITU-T Rec. X.660-series | ISO/IEC 9834, then an ISP may act as the registration authority, provided that an international registration authority does not exist, and the type of specification to be registered

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falls within the scope of one of the classes of profile defined in a taxonomy in this Technical Report. The ISP concerned may be the ISP in which the specification is used, or a multi-part ISP may be used as the registration authority. In such a case, the general registration requirements of the ISO/IEC JTC 1 Directives, the provisions of this part of ISO/IEC TR 10000, and the provisions of ITU-T Rec. X.660 | ISO/IEC 9834-1, and of any other part or parts of ITU-T Rec. X.660-series | ISO/IEC 9834 that concern this type of specification, are all applicable.

Where the provisions of ITU-T Rec. X.660-series | ISO/IEC 9834 apply, an ISP may also act as a registration authority for derivative and/or composite specifications contained in the ISP. Such objects may be created:

a) by the selection of specific optional elements in a registered specification of the same type in a base standard or another ISP, or

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

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

NOTE - 1 The referenced specifications must be of the same type as the new specification. Only the selection of optional elements makes the specification new.

NOTE - 2 Proliferation of registered specifications is strongly discouraged because it creates 'islands of isolation' i.e. registered specifications that differ in only the slightest manner are perceived as being totally different. Every attempt should be made to develop composite specifications with the broadest possible fields of use to promote interoperability.

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 IT systems, or porting an application between them, where they 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 profile is applicable, giving, where possible, a diagrammatic representation of the IT 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;

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e) a statement defining the requirements to be observed by IT 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) if relevant, a reference to the specification of conformance tests 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).

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

6.4 The meaning of conformance to a profile

The purpose of a profile, as indicated in earlier clauses, is to specify the use of sets of specifications to provide clearly defined functionally. Hence, conformance to a profile specification always implies conformance to the referenced specifications.

There can also be conformance requirements for the combined use of specifications which are distinct from any requirements associated with the specifications in isolation.

Conformance requirements may be

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

b) options: these may be selected to suit the implementation, provided that any requirements applicable to support of the option are observed.

In addition, conformance requirements may be specified

c) unconditionally: these requirements or options apply without qualification;

d) conditionally: conditional requirements are ones which may be mandatory under some specified conditions, may be optional under other specified conditions, and may be out of scope or not applicable under other specified conditions; these are to be observed if the specified conditions apply.

Furthermore, conformance requirements may be stated

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

f) negatively: they state what is required not to be done.

To evaluate the conformance of a particular implementation, it is necessary to have a statement of the capabilities which have been implemented in support of one or more specifications, specifically including the relevant optional capabilities and limits, so that the implementation can be tested for conformance to the relevant requirements, and only to those requirements. Such a statement is called an Implementation Conformance Statement (ICS).

An IT system may support more than one profile, making use of different capabilities of the same base standards. In this case, it may be able to negotiate which profile to use in different circumstances, or may need to be configured separately in order to support each profile. Similarly, a single ICS may state support of multiple profiles, or there may be a separate ICS provided for each profile.

Within the implementation of a profile, points can be defined at which the occurrence of test events can be controlled and observed. These points could be, for example, at interfaces defined in OSE profiles.

Testing an implementation for conformance to a profile requires the specification of conformance tests for the profile. Since a profile is, by definition, a set of references to base standards, then the specification of the conformance tests for a profile should be based on conformance tests specified for those referenced base standards, with appropriate selection and parameterization of tests. The methodology and nature of conformance tests for each domain of profiles is identified, as appropriate, in other parts of ISO/IEC TR 10000.

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 constraints that may be given for particular domains of profiles in other parts of ISO/IEC TR 10000:

a) Unconditional mandatory requirements in the base standard shall remain mandatory in the profile.

b) Unconditional options in base standards may remain optional or may be changed within the profile to become:

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- mandatory;
- conditional, giving rise to different statuses dependent upon some appropriate condition;
- out of scope, if the option is not relevant to the scope of the profile - for example functional elements which are unused in the context of the profile;
- prohibited, if the use of the option is to be regarded as non-conformant behaviour within the context of the profile - this choice should only be used when really necessary, "out of scope" may often be more appropriate.

c) If the conditions in the conditional requirements in the base standards can be fully evaluated in the context of the profile, then these requirements become unconditional mandatory requirements or unconditional options, or they become out of scope or prohibited. Otherwise the conditions remain conditional, with the appropriate, possibly partially, evaluated conditions.

7 Framework of the taxonomy of profiles

7.1 Nature and purpose of the taxonomy

A taxonomy is a classification scheme for referencing profiles or sets of profiles unambiguously. From the taxonomy, identifiers for profiles are derived which indicate (in a codified form) the functional relationship of one profile to another.

The 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 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 an IT system.

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

Taxonomies are defined in subsequent parts of TR 10000.

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 IT system design.

b) Significant differences between adjacent profiles.

Too many nearly-similar profiles within a subclass 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 identifying new profiles in the taxonomy if they provide a significant functional change in capability. Otherwise, they give rise only to new editions of the ISP which defines the profile.

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.

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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 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.

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.

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 JTC 1/SGFS. Profiles are uniquely identified through the allocation of object identifiers. See 8.4.

The following rules apply to multi-part ISPs:

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

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

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.

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

- the set of Tx-profiles which form a Group, and thus make common use of standards for network-independent functions;
- the set of Rx-profiles which use common relay techniques;
- the Tx, Ux, and Rx-profiles which make common use of sub-network technologies.

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.

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, considerable care should be taken with its use.

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.

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.

8.3 Structure of ISPs

The document structure of an ISP 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.

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.

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Table 1

	FOREWORD
	INTRODUCTION
1.	SCOPE
2.	NORMATIVE REFERENCES
3.	DEFINITIONS
4.	ABBREVIATIONS
5.	CONFORMANCE
6...	Clauses defining requirements related to each base standard

NORMATIVE ANNEXES - e.g. giving the profile conformance requirements in tabular form.
INFORMATIVE ANNEXES containing explanatory and/or tutorial material as required.

NOTE

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.

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.

In addition to specificatory material, an ISP 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.

8.4 Profile Object Identifiers

A single-part ISP, or one part of a multi-part ISP, may contain the definition of one or more profiles. A single-part or one part of a multi-part ISP shall be subject of a single ISP ballot (i.e. it is not possible to separate the ballots for more than one profile when the definitions of those profiles occur in a single-part or in part of a multi-part ISP).

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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 ITU-T under the terms of Annex K to the ISO/IEC JTC 1 Directives, the Rules for Presentation of ITU-T | 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 JTC 1/SGFS Standing Document SD-2 - *Guidelines for the Preparation of ISPs.*

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;

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- 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. Any deviation from the requirements in TR 10000 shall be identified and justified in the Introduction.

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:

a) **an introductory element:**

The title of the originating Technical Committee, for example:

Information technology

indicating ISO/IEC JTC 1.

b) **an identification element:**

International Standardized Profile(s) <identifier>

indicating by the identifier the place in the relevant taxonomy which this profile occupies, where *<identifier>* is a character string the format of which is determined by the taxonomy concerned.

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".

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.

Example:

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

A.4.2 Scope (Rules 2.3.2)

This element contains three subclauses as follows:

a) **General**

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).

b) **Position within the taxonomy**

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.

c) **User Requirements and Scenario**

If the ISP, or ISP part, defines a profile, it shall include a statement of the user requirements that the profile is intended to meet and, where appropriate, the ``scenario'' for the profile (an illustration of the environment within which the profile is applicable).

The scenario may also show in a simplified graphical form the IT system which is covered by this profile, and other typical IT systems with which it shall be capable to interwork.

A.4.3 Normative references (Rules 2.3.3)

This element shall give a list of normative documents (approved International Standards, ISPs, ITU-T Recommendations, or, where so approved, Technical Reports

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- see 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 ITU-T, then the identity of the corresponding ITU-T Recommendation shall also be given.

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 ITU-T 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 conformance claims that an implementation shall make, and on which it shall be tested. 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.

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 expressed in the form of conformance requirements and may, where appropriate, be given in tabular form. Indeed preference should be given to recording as much as possible of this information once and once only in a tabular list of requirements 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 Methods of testing (Rules 2.4.5)

The possibility of including detail of methods of testing and conformance tests for ISPs is, in general, for further study. However, for some specific domains of profiles,

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reference may be made in the appropriate subsequent part of ISO/IEC TR 10000 to a testing methodology standard which specifies how to do this for profiles in that domain.

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 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.

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