INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 11190

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Information technology — International Standardized Profile FDI3 — Directory data definitions — FTAM Use of the Directory

Technologies de l'information — Profil normalisé international FDI3 — Définitions de données du répertoire — Emploi FTAM du répertoire

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Contents

Foreword iii

Introduction iv

1 Scope 1
- 1.1 General 1
- 1.2 Position within the taxonomy 1
- 1.3 Scenario 1

2 Normative references 1

3 Definitions 2
- 3.1 General 2
- 3.2 Support level 2

4 Abbreviations 2

5 Conformance 2
- 5.1 DSA conformance 2
- 5.2 DUA conformance 2

6 DIT structure 3

7 Object classes 3
- 7.1 FTAM capability 3
- 7.2 Use of the FTAM Capability object class 3

8 Attribute types 3
- 8.1 FTAM roles 3
- 8.2 FTAM service classes and functional units 4
- 8.3 FTAM attribute groups 4
- 8.4 FTAM document types 4
- 8.5 FTAM file model 5
- 8.6 FTAM quality of service 5

9 Attribute syntaxes 5

Annexes

A Profile Requirements List for FDI3 FTAM Use of the Directory 6

B FDI3 Directory Definitions in ASN.1 9

C Profile Object Identifier 12

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 or 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 JTC1. In addition to developing International Standards, ISO/IEC JTC1 has created a Special Group on Functional Standardization for the elaboration of International Standardized Profiles.

An International Standardized Profile is an internationally agreed, harmonized document which identifies a standard or group of standards, together with options and parameters, necessary to accomplish a function or set of functions.

Draft International Standardized Profiles are circulated to national bodies for voting. Publication as an International Standardized Profile requires approval by at least 75 % of the national bodies casting a vote.

This International Standardized Profile was prepared with the collaboration of

- Asia-Oceania Workshop (AOW);
- European Workshop for Open Systems (EWOS);
- OSE Implementors' Workshop (OIW).

Annexes A , B and C form an integral part of this International Standardized Profile.

Introduction

The concept and structure of International Standardized Profiles for Information Systems are laid down in the Technical Report ISO/IEC TR 10000. The purpose of an International Standardized Profile is to recommend when and how certain information technology standards shall be used. This International Standardized Profile specifies application profile FDI3 as defined in the Technical Report ISO/IEC TR 10000-2.

This International Standardized Profile is one of a set of International Standardized Profiles relating to the Directory (see TR 10000-2). It specifies the schema of information for the FTAM application capability to be stored in the Directory according to ISO/IEC 9594.

ISO/IEC ISP 10616 profiles information to be stored within the Directory which is common to a variety of applications. This International Standardized Profile augments that information with FTAM specific information.

Statements and conformance requirements stated in ISO/IEC ISP 10616 for the information profiled by ISO/IEC ISP 10616 are also valid for the FTAM specific information profiled by this International Standardized Profile.

This International Standardized Profile specifies the use of the Directory by FTAM, using existing object class and attribute type definitions from the Directory specifications themselves, and additional definitions. These existing and additional definitions are also intended to support the use of the Directory by users of FTAM applications.

Examples of FTAM specific attributes to stored in the Directory are FTAM profiles and roles which an implementation can support, combinations of service classes and functional units, attribute groups, document types and quality of service characteristics.

Information technology - International Standardized Profile FDI3 - Directory data definitions - FTAM Use of the Directory

1 Scope

1.1 General

ISO/IEC ISP 10616 profiles information to be stored within the Directory which is common to a variety of applications. This International Standardized Profile augments this information with FTAM specific information.

Statements and conformance requirements stated in ISO/IEC ISP 10616 for the information profiled by ISO/IEC ISP 10616 are also valid for the FTAM specific information profiled by this International Standardized Profile.

This International Standardized Profile specifies the use of the Directory, by FTAM, using existing object class and attribute type definitions from the Directory specifications themselves, and additional definitions.

These existing and additional definitions are also intended to support the use of the Directory by users of FTAM applications.

1.2 Position within the taxonomy

This International Standardized Profile is identified in ISO/IEC TR 10000-2 as "Information technology - International Standardized Profile FDI 3 - Directory data definitions - FTAM Use of the Directory".

1.3 Scenario

An FTAM application, by means of its associated Directory User Agent (DUA), obtains Directory information by accessing directly or indirectly one or more Directory System Agents (DSAs) of the Directory (see figure 1).

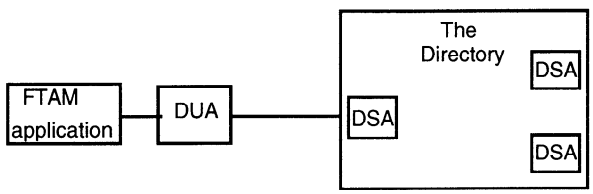

Figure 1 - Access of an FTAM application to the Directory

2 Normative references

The following ITU-T Recommendations and International Standards 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 Recommendations and International Standards are subject to revision, and parties to agreements based on this International Standardized Profile are encouraged to investigate the possibility of applying the most recent edition of the Recommendations and International Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards and ISPs. The ITU-T Secretariat maintains a list of currently valid Recommendations.

- ISO 8571-1:1988, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 1 : Introduction.*
- ISO 8571-1:1988/Amd.1:1992, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 1 : Introduction - Amendment 1 : Filestore Management.*
- ISO 8571-1:1988/Amd.2:1993, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 1 : Introduction - Amendment 2 : Overlapped access.*
- ISO 8571-2:1988, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 2 : Virtual Filestore Definition.*
- ISO 8571-2:1988/Amd.1:1992, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 2 : Virtual Filestore Definition - Amendment 1 : Filestore Management.*
- ISO 8571-2:1988/Amd.2:1993, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 2 : Virtual Filestore Definition - Amendment 2 : Overlapped access.*
- ISO 8571-3:1988, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 3 : File Service Definition.*
- ISO 8571-3:1988/Amd.1:1992, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 3 : File Service Definition - Amendment 1 : Filestore Management.*
- ISO 8571-3:1988/Amd.2:1993, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 3 : File Service Definition - Amendment 2 : Overlapped access.*
- ISO 8571-4:1988, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 4 : File Protocol Specification.*

- ISO 8571-4:1988/Amd.1:1992, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 4 : File Protocol Specification - Amendment 1 : Filestore Management.*

- ISO 8571-4:1988/Amd.2:1993, *Information processing systems - Open Systems Interconnection - File Transfer, Access and Management - Part 4 : File Protocol Specification - Amendment 2 : Overlapped access.*

- ISO/IEC TR 10000-1:1992, *Information technology - Framework and Taxonomy of International Standardized Profiles - Part 1: Framework.*

- ISO/IEC TR 10000-2:1994, *Information technology - Framework and Taxonomy of International Standardized Profiles - Part 2 : Principles and Taxonomy for OSI Profiles.*

- ISO/IEC ISP 10616:1995, *Information technology - International Standardized Profile FDI11 - Directory data definitions - Common Directory Use (Normal).*

- CCITT Recommendation X.581:1992, *Directory Access Protocol - Protocol Implementation Conformance Statement (PICS) Proforma.*

3 Definitions

For the purposes of this International Standardized Profile, definitions apply as defined in the referenced standards. In addition, the following terms are defined.

3.1 General

This International Standardized Profile makes use of the following terms defined in ISO/IEC ISP 10616 :

a) auxiliary object class

b) structural object class

c) structure element

3.2 Support level

To specify the support level of protocol features for this International Standardized Profile, the following terminology is defined.

3.2.1 mandatory; m : Mandatory requirement for support. A feature (object class, attribute type, attribute syntax) is supported by a DSA implementation if the DSA is able to process the feature in accordance with the base standard or as specified this International Standardized Profile (see also clauses 7, 8 and 9).

3.2.2 optionally supported; o : The support of the feature (object class, attribute type, attribute syntax) is left to the implementor of the DSA.

4 Abbreviations

DIT	Directory Information Tree
DSA	Directory System Agent
DUA	Directory User Agent
FTAM	File Transfer, Access and Management
ISP	International Standardized Profile
OID	Object Identifier
PRL	Profile Requirements List

5 Conformance

5.1 DSA conformance

Conformance to this International Standardized Profile implies conformance to ISO/IEC ISP 10616, i.e., as a precondition to conform to this International Standardized Profile, a DSA shall fulfill the conformance requirements as stated in ISO/IEC ISP 10616.

In addition, a DSA shall after suitable set up be capable of storing modifying and retrieving entries which fulfill all of the following conditions:

- The entry lies within the scope of the minimum set of structure and naming elements specified in clause 6;

- The entry's object classes are part of the set of mandatory object classes (specified in A.6.4.1) and the subset of optional object classes (see ISO/IEC ISP 10616, A.6.4.1) for which support is claimed for the DSA (see also clause 7 for the requirements on the support of the FTAM Capability object class);

- The entry´s attributes are part of the set of mandatory attribute types (as specified in A.6.4.2) and the subset of optional attribute types (see ISO/IEC ISP 10616, A.6.4.2) for which support is claimed for the DSA.

Storage and modification of entry information imply checking and matching of attribute values for which equality matching is defined for that attribute type; thus a conformant DSA shall be able to perform the checking and matching algorithms for any such attribute syntaxes as specified in clause 9.

The requirements formulated in ISO/IEC ISP 10616 with respect to supported object classes, supported attribute types and supported attribute syntaxes according to ISO/IEC ISP 10616 are also valid for the additional supported object classes, supported attribute types and supported attribute syntaxes according to this International Standardized Profile.

5.2 DUA conformance

DUAs typically need schema information as outlined in this International Standardized Profile to support FTAM use of the Directory. However, it makes no statements about DUA conformance.

6 DIT structure

The purpose of this clause is to relate information specified in this International Standardized Profile to the minimum set of structure and naming elements defined in ISO/IEC ISP 10616 and thus to provide locations for entries of selected object classes.

The DIT structure which shall as a minimum be supported by implementations claiming conformance to this International Standardized Profile is that defined in ISO/IEC ISP 10616 and in clauses 7 and 8.

This International Standardized Profile does not define new structural object classes, but uses an auxiliary object class for the definition of FTAM related capabilities. A.6.5.2 lists how additional object classes defined in clause 7 are related to the structure elements.

This DIT structure is supported in the sense that a conformant DSA shall be capable of storing, modifying and retrieving entries which are part of a tree with this structure (for a more formal definition see ISO/IEC ISP 10616).

7 Object classes

The following object classes shall be supported in addition to those specified and mandated in ISO/IEC ISP 10616:

- ispApplicationEntity (see ISO/IEC ISP 10616)
- ftamCapability

To define the application entity objects that are the objects stored in the Directory describing FTAM entities, it is necessary to have Object Identifiers to identify the various objects and attributes.

In the following definitions the Object Identifier used as the parent vertex for the definition of object identifiers for FTAM object classes is:

```
ftamObjectClass::=      OBJECT IDENTIFIER
    { iso(1) standard(0) fdi3(11190) objectClass(6) }
    "FTAM object class"
```

7.1 FTAM capability

The FTAM Capability auxiliary object class is used to define a set of attribute types which describe the FTAM specific information about an FTAM entity in an end system.

```
ftamCapability    OBJECT-CLASS      -- AUXILIARY
    MUST CONTAIN      {
            ftamRoles,
            ftamAttributeGroups,
            ftamFileModel         }
    MAY CONTAIN       {
            ftamServiceClassFunctionalUnits,
            ftamDocumentTypes,
            ftamQoS      }
    ::= { ftamObjectClass  1 }
```

7.2 FTAM ISP application entity

As the ISP Application Entity object class defined in ISO/IEC ISP 10616 and the FTAM Capability object class are auxiliary object classes, entries shall not be created only based on these object classes, but have to be combined with a structural object class.

The ISP Application Entity object class and the FTAM Capability object class are intended to provide additional attributes to the Application Entity object class or any of its subclasses.

An implementation that claims conformance to the FTAM Capability object class shall be able to store, modify and retrieve entries associated with the FTAM Capability object class combined with both the Application Entity object class and the ISP Application Entity object class.

8 Attribute types

The following attribute types shall be supported in addition to those specified and mandated in ISO/IEC ISP 10616:

- protocolInformation (see ISO/IEC ISP 10616)
- ulProfileInformation (see ISO/IEC ISP 10616)
- applicationEntityOID (see ISO/IEC ISP 10616)
- transferSyntaxesSupported (see ISO/IEC ISP 10616)
- ftamRoles
- ftamServiceClassFunctionalUnits
- ftamAttributeGroups
- ftamDocumentTypes
- ftamFileModel
- ftamQoS

Each of the additionally defined attributes requires an Object Identifier to identify it, and the parent vertex definition for these OIDs is:

```
ftamAttributeType   ::=   OBJECT IDENTIFIER
    { iso(1) standard(0) fdi3(11190) attributeType(4) }
    "FTAM attribute type"
```

8.1 FTAM roles

The FTAM Roles attribute type specifies the FTAM roles which are supported by an FTAM entity in an end system.

```
ftamRoles ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
        INTEGER    { initiator-sender     (0),
                     initiator-receiver   (1),
                     responder-sender     (2),
```

```
                    responder-receiver   (3) }
    MATCHES FOR EQUALITY
    MULTIVALUED
::= { ftamAttributeType  1 }
```

Two attribute values match for equality if the integers are the same.

8.2 FTAM service classes and functional units

The FTAM Service Class Functional Units attribute type specifies the FTAM service classes each of them together with their functional units which are supported by an FTAM entity in an end system.

```
ftamServiceClassFunctionalUnits  ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
            CHOICE {
            unconstraintService
                    [0] IMPLICIT FunctionalUnitSet,
            managementService
                    [1] IMPLICIT FunctionalUnitSet,
            transferService
                    [2] IMPLICIT FunctionalUnitSet,
            transferManagementService
                    [3] IMPLICIT FunctionalUnitSet,
            accessService
                    [4] IMPLICIT FunctionalUnitSet
                    }
    MATCHES FOR EQUALITY
    MULTIVALUED
::= { ftamAttributeType  2 }

FunctionalUnitSet  ::=   BIT STRING  {
            read                        (2),
            write                       (3),
            file-access                 (4),
            limited-file-mgmt           (5),
            enhanced-file-mgmt          (6),
            grouping                    (7),
            fadu-locking                (8),
            recovery                    (9),
            restart-data-transfer       (10),
            limited-filestore-mgmt      (11),
            enhanced-filestore-mgmt     (12),
            object-manipulation         (13),
            group-manipulation          (14),
            consecutive-access          (15),
            concurrent-access           (16)    }
```

Two attribute values match for equality if - after normalization (see ISO/IEC ISP 10616, 9.4.4) - the strings are of the same length and corresponding bits are identical.

8.3 FTAM attribute groups

The FTAM Attribute Groups attribute type specifies the attribute groups which are supported by an FTAM entity in an end system.

```
ftamAttributeGroups ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
            Attribute-Groups
    MATCHES FOR EQUALITY
::= { ftamAttributeType  3 }
```

The attribute syntax Attribute-Groups is defined in ISO 8571-4/Amd.1, 20.3. Two attribute values match for equality if - after normalization (see ISO/IEC ISP 10616, 9.4.4) - the strings are of the same length and corresponding bits are identical.

8.4 FTAM document types

The FTAM Document Types attribute type specifies the FTAM document types which are supported by an FTAM entity in an end system, including its capability of simplification to another document type or relaxation regarding character set or string length, as defined in the corresponding definition of that document type.

```
ftamDocumentTypes       ATTRIBUTE
  WITH ATTRIBUTE-SYNTAX
  SEQUENCE      {
  document-type-name    OBJECT IDENTIFIER,
  simplification  [1] IMPLICIT Simplification OPTIONAL,
  relaxation      [2] IMPLICIT  Relaxation  OPTIONAL
                              }
    MATCHES FOR EQUALITY
    MULTIVALUED
::= { ftamAttributeType  4 }

Simplification::= SEQUENCE OF OBJECT
                              IDENTIFIER
                    -- Simplified document types
Relaxation  ::=     BIT STRING  {
                    char-set-relax      (1),
                    string-length-relax (2),
                    other-relaxation    (3)     }
```

Two values of the FTAM Document Types attribute match if and only if they have identical Document Type Name values.

8.5 FTAM file model

The FTAM File Model attribute type specifies the FTAM file store models which are supported by an FTAM entity in an end system.

```
ftamFileModel     ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
            OBJECT IDENTIFIER
    MATCHES FOR EQUALITY
    MULTIVALUED
::= { ftamAttributeType  5 }
```

Two attribute values match for equality if they have identical values.

8.6 FTAM quality of service

The FTAM Quality of Service attribute type specifies the FTAM quality of service which is supported by an FTAM entity in an end system.

```
ftamQoS  ATTRIBUTE
    WITH ATTRIBUTE-SYNTAX
            INTEGER {
                    no-recovery         (0),
                    class-1-recovery    (1),
                    class-2-recovery    (2),
                    class-3-recovery    (3)     }
    MATCHES FOR EQUALITY
    SINGLE VALUE
::= { ftamAttributeType  6 }
```

Two attribute values match for equality if the integers are the same.

9 Attribute syntaxes

Implementations conformant with this International Standardized Profile shall support the attribute syntaxes as mandated by ISO/IEC ISP 10616 (see ISO/IEC ISP 10616, A.6.5.2) and as listed in A.6.5.3.

Annex A

(normative)

Profile Requirements List of FDI3 FTAM Use of the Directory

In the event of a discrepancy becoming apparent in the body of this International Standardized Profile and the tables in this annex, this annex is to take precedence.

This annex specifies the constraints and characteristicas of this International Standardized Profile on what shall or may appear in an implementor´s PICS for an implementation conformant to it.

This annex is based on the Directory Access Protocol PICS Proforma of Recommendation CCITT X.581 and on ISO/IEC ISP 10616, annex A. It uses only a selection of the tables of CCITT X.581 which are necessary for the specification of the ISP status. The numbering of the base PICS Proforma is retained in order to facilitate for an implementor to fill in the respective PICS Proforma.

The terminology of conformance requirements is used as defined in 3.2.

A.1 to A.5

No requirements stated in this International Standardized Profile.

A.6 Capabilities and options

A.6.1 to A.6.3

No requirements stated in this International Standardized Profile.

A.6.4 Directory schema

A.6.4.1 Object classes

A.6.4.1.1 Standard object classes

No additional requirements are stated in this International Standardized Profile beyond those stated in ISO/IEC ISP 10616, A.6.4.1.1.

A.6.4.1.2 Other object classes (see clause 7)

The table below indicates the conformance requirements of this International Standardized Profile on other object classes in addition to those stated in ISO/IEC ISP 10616, A.6.4.1.2.

Ref. no.	Object Class	Base Standard	Profile	Note
1	ispApplicationEntity	-	m	see ISO/IEC ISP 10616
2	ftamCapability	-	m	see clause 7

A.6.4.2 Attribute types

A.6.4.2.1 Standard attribute types

No additional requirements are stated in this International Standardized Profile beyond those stated in ISO/IEC ISP 10616, A.6.4.2.1.

A.6.4.2.2 Other attribute types (see clause 8)

The table below indicates the conformance requirements of this International Standardized Profile on other attribute types in addition to those stated in ISO/IEC ISP 10616, A.6.4.2.2.

Ref. no.	Attribute type	Base Standard	Profile	Note
1	protocolInformation	-	m	see ISO/IEC ISP 10616
2	ulProfileInformation	-	m	see ISO/IEC ISP 10616
3	applicationEntityOID	-	m	see ISO/IEC ISP 10616
4	transferSyntaxesSupported	-	m	see ISO/IEC ISP 10616
5	ftamRoles	-	m	see 8.1
6	ftamServiceClassFunctional Units	-	m	see 8.2
7	ftamAttributeGroups	-	m	see 8.3
8	ftamDocumentTypes	-	m	see 8.4
9	ftamFileModel	-	m	see 8.5
10	ftamQoS	-	m	see 8.6

A.6.5 Other information

A.6.5.1 Minimum set of structure and naming elements (see clause 6)

No additional requirements are stated in this International Standardized Profile beyond those stated in ISO/IEC ISP 10616, A.6.5.1.

A.6.5.2 Additional object classes for structure elements of the DIT

No additional requirements are stated in this International Standardized Profile

A.6.5.3 Attribute syntaxes (see clause 9)

Support requirements - in addition to the requirements of ISO/IEC ISP 10616 - are defined for those attribute syntaxes which are implied by in-line definition within attribute type definitions as listed below.

Ref. no.	Attribute type implying attribute syntaxes	Base Standard	Profile	Note
1	protocolInformation	-	m	see ISO/IEC ISP 10616, 8.2.1
2	ftam Roles	-	m	see 8.1
3	ftamServiceClassFunctionalUnits	-	m	see 8.2
4	ftamAttributeGroups	-	m	see 8.3
5	ftamDocumentTypes	-	m	see 8.4
6	ftamFileModel	-	m	see 8.5
7	ftamQoS	-	m	see 8.6