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Information technology — International Standardized Profiles FVT3nn — Virtual Terminal Basic Class — Register of attribute assignment type definitions —

Part 3:

FVT312 — Repertoire Assignment Type for ISO/IEC 2022 Level 2

*Technologies de l'information — Profils normalisés internationaux
FVT3nn — Classe de base du terminal virtuel — Registre de définitions de
type d'allocation d'attribut —*

*Partie 3: FVT312 — Type d'affectation de répertoire pour le niveau 2 de
l'ISO/CEI 2022*

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ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 734 10 79
E-mail copyright@iso.ch
Web www.iso.ch

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Contents

Page

Foreword.....	iv
Introduction	v
1 Scope	1
1.1 General.....	1
1.2 Position within the taxonomy.....	2
1.3 Scenario.....	3
2 Normative references	4
3 Terms and definitions	5
3.1 General OSI terminology.....	5
3.2 Terminology of VT base standards.....	6
3.3 Terminology of coded character set standards	6
4 Abbreviations	7
5 Principles of conformance to VT Profiles	7
6 Entry number.....	8
7 Name of sponsoring authority.....	8
8 Date	8
9 Identifier	8
10 Descriptor value.....	9
11 Character-repertoire designation.....	9
11.1 Principles of designation	9
11.2 Character-box graphic elements.....	10
11.3 Primary attribute values.....	11
12 VT abstract syntax	11
Annex A (informative) The different interpretations of repertoire in character set standards.....	13
Annex B (informative) ASN.1 Character String Types.....	15
Annex C (informative) Illustrative examples.....	18
Bibliography	22

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. In addition to developing International Standards, ISO/IEC JTC 1 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 a 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.

International Standardized Profile ISO/IEC ISP 11186-3 was prepared with the collaboration of

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

Attention is drawn to the possibility that some of the elements of this part of ISO/IEC ISP 11186 may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights.

ISO/IEC ISP 11186 consists of the following parts, under the general title *Information technology — International Standardized Profiles FVT3nn — Virtual Terminal Basic Class — Register of attribute assignment type definitions*:

- *Part 1: FVT321 — Font Assignment Type No. 1*
- *Part 2: FVT311 — Repertoire Assignment Type for ISO/IEC 10646*
- *Part 3: FVT312 — Repertoire Assignment Type for ISO/IEC 2022 Level 2*
- *Part 4: FVT322 — Font Assignment Type No.2*

Annexes A, B and C of this part of ISO/IEC 11186 are for information only.

Introduction

ISO/IEC ISP 11186 is defined within the context of Functional Standardization, in accordance with the principles specified in ISO/IEC TR 10000, "Framework and Taxonomy of International Standardized Profiles". The context of Functional Standardization is one part of the overall field of Information Technology (IT) standardization activities, covering base standards, profiles and registration mechanisms.

The Open Systems Interconnection (OSI) Standard ISO/IEC 9040 for the Virtual Terminal Basic Class Service provides for the identification of attribute assignment types by means of ASN.1 object identifiers. This International Standardized Profile provides a means for the registration of such attribute assignment type definitions in accordance with ISO/IEC 9834-1. The individual entries in this register constitute Interchange Format and Representation Profiles (F-Profiles) within the framework of ISO/IEC TR 10000.

This part of ISO/IEC ISP 11186 was developed by the European Workshop for Open Systems (EWOS) in close cooperation with the other two Regional OSI Workshops, namely the OSE Implementors' Workshop (OIW) of the United States and the OSI Asia-Oceania Workshop (AOW). The text is harmonized between these three Workshops and it has been ratified by the plenary assemblies of each Workshop.

Information technology — International Standardized Profiles FVT3nn — Virtual Terminal Basic Class — Register of attribute assignment type definitions —

Part 3:

FVT312 — Repertoire Assignment Type for ISO/IEC 2022 Level 2

1 Scope

1.1 General

The concept of Profiles for OSI, and the structure of the International Standardized Profiles that document them, are defined in ISO/IEC TR 10000-1. Such Profiles are divided into a number of different classes and sub-classes. Two of these classes contain sub-classes comprising functions of the Virtual Terminal Basic Class Service and Protocol specified in the base standards ISO/IEC 9040 and ISO/IEC 9041. These are the Application Profiles (A-Profiles) and the Interchange Format and Representation Profiles (F-Profiles).

The relationship between A-Profiles and F-Profiles is described in 7.3.2 of ISO/IEC TR 10000-1 and is as follows. Application Layer base standards require, implicitly or explicitly, the structure of information carried or referenced by them to be specified for each instance of communication. It is the purpose of F-Profiles to specify such information structures. Particular functional requirements may then be met by the combination of an A-Profile with one or more F-Profiles.

Establishment of a VT-association involves the selection by negotiation of a particular Virtual Terminal Environment profile (VTE-profile), and of particular values for any arguments of that VTE-profile. The VTE-profile specification, and possibly also the values of certain VTE-profile arguments, may in turn reference the definitions of VT control object types and attribute assignment types. These VTE-profiles, control object types and attribute assignment types are therefore Information Objects that require explicit reference within the VT protocol. Particular instances of these Information Objects are fully defined within the base standards, but the base standards also provide for further instances to be defined by registration. Each registered instance constitutes an F-Profile within the framework of ISO/IEC TR 10000.

The Virtual Terminal Basic Class Service and Protocol may be used to realise a wide range of distinct functions. Particular functions may be realised through the selection of appropriate VT functional units, F-Profiles and other VTE-profile argument values. The specification of the selection required to realise a particular function and to promote interoperability constitutes a Virtual Terminal A-Profile within the framework of ISO/IEC TR 10000.

The three International Registers of VT information objects and the specifications of VT Application Profiles are each published as a separate multi-part ISP as follows:

- ISO/IEC ISP 11184 is the Register of VTE-profiles;
- ISO/IEC ISP 11185 is the Register of control object type definitions;
- ISO/IEC ISP 11186 is the Register of attribute assignment type definitions;
- ISO/IEC ISP 11187 contains the specifications of VT Application Profiles.

This part of ISO/IEC ISP 11186 contains the definition of a repertoire assignment type for which a repertoire assignment value identifies the use of a level 2 version of the 8-bit code structure of ISO/IEC 2022 (multiple pre-designated character sets, without locking shifts). Such a version of ISO/IEC 2022 provides access to G2 and G3 code elements, in addition to the G0 and G1 code elements that may be accessed by means of the default repertoire assignment type specified in ISO/IEC 9040.

This repertoire assignment type also includes provision for restriction of the repertoire of characters to a subset of those that can be represented by the selected version of ISO/IEC 2022. The restriction of the repertoire may be by means outside the scope of ISO/IEC 2022. In particular the repertoire may be specified according to ISO/IEC 10646-1 even though the coding for information interchange is according to a level 2 version of ISO/IEC 2022. This facility should assist interworking during migration of applications from ISO/IEC 2022 coding to ISO/IEC 10646-1 coding.

NOTE 1 The use of locking shifts within the code structure of ISO/IEC 2022 is not consistent with the concept of a character-repertoire as defined in ISO/IEC 9040. A character-repertoire of the Virtual Terminal Service consists of a set of objects, each of which can be represented (uniquely) by a primary attribute value. If locking shifts were used, the character-box graphic element represented by a particular primary attribute value could change within a single instance of communication.

NOTE 2 The only levels of implementation defined in 10.3 of ISO/IEC 2022 that do not make use of locking shifts are levels 1 and 2 of the 8-bit code structure and level 1 of the 7-bit code structure.

NOTE 3 The use of a Level 1 version of either the 7-bit or the 8-bit code structure of ISO/IEC 2022 (elementary 7-bit and 8-bit codes) is already permitted by the default repertoire assignment type that is defined in ISO/IEC 9040 and which has the ASN.1 object identifier

{ iso standard 9040 repertoire(2) iso2022(0) }.

The repertoire assignment type defined in this part of ISO/IEC ISP 11186 therefore provides for the use within the Virtual Terminal Service of the only other level of implementation of ISO/IEC 2022 that is consistent with the definition of that service.

1.2 Position within the taxonomy

The taxonomy of International Standardized Profiles for OSI is laid down in ISO/IEC TR 10000-2. Within the classification scheme of this taxonomy, the OSI Profiles specified in this International Standardized Profile are in the Virtual Terminal Registered Object sub-class of the class of Interchange Format and Representation Profiles.

A Profile within this subclass has a Profile identifier of the form FVT abc , where abc is a structured numerical identifier that identifies the position of the Profile within each of the three levels of subdivision of the subclass. The values of a and b are single digits but c is an integer that is not necessarily a single digit.

In principle the ISO Virtual Terminal model allows for multiple classes of operation, although at the time of publication of this International Standardized Profile only the Basic Class has been defined. The value of the identifier component a distinguishes between distinct types of information object as follows:

- $a = 1$ for Basic Class VTE-profiles;
- $a = 2$ for Basic Class Control Objects;
- $a = 3$ for Basic Class Assignment Types.

Values of a greater than 3 are reserved for future developments.

This part of ISO/IEC ISP 11186 contains the specifications of the Profiles with identifiers of the form FVT3 bc . For this form of identifier, the component b distinguishes between the three attributes of display object array elements for which assignment types are defined in accordance with ISO/IEC 9040. The values of b are allocated as follows:

- $b = 1$ for repertoire assignment types;
- $b = 2$ for font assignment types;
- $b = 3$ for colour assignment types.

The identifier component c is the serial number of the attribute assignment type in the sub-register for the particular attribute concerned. Values of b greater than 3 are reserved for further attributes that may be defined as subject to registration in future amendments to ISO/IEC 9040.

This part of ISO/IEC ISP 11186 contains the definition of the repertoire assignment type with the Profile identifier

FVT312 — Repertoire Assignment Type for ISO/IEC 2022 Level 2

1.3 Scenario

The specification of the Virtual Terminal Service is given in ISO/IEC 9040. It is based on a model in which two VT-users communicate by means of a shared Conceptual Communication Area (CCA) that is a conceptual part of the VT service-provider. Information exchange is modelled by one VT-user updating the content of the CCA and the changed state of the CCA then being made accessible to the peer VT-user.

The CCA is structured by the Virtual Terminal Service into a number of components. Of these components, the Conceptual Data Store (CDS) contains one or two display objects (DOs), each of which includes a one, two or three dimensional array of array elements. Each array element is either empty or has a content that consists of a primary attribute and a number of secondary attributes. The primary attribute value selects one character-box graphic element from a repertoire of such elements that is determined by the character-repertoire secondary attribute. The other secondary attributes are the font, emphasis, foreground-colour and background-colour attributes which are collectively referred to as rendition attributes.

The values permitted for the secondary attributes are specified by attribute assignments that are included among the parameters of a Virtual Terminal Environment (VTE). The font attribute is subservient to the character-repertoire attribute in that a separate set of permitted values for the font attribute is specified for each permitted value of the character-repertoire attribute. The values permitted for the other secondary attributes are mutually independent.

With the exception of the emphasis attribute, an attribute assignment is composed of two parts, a type and a value. For the emphasis attribute, the syntax of permitted values is prescribed by the VT service base standard ISO/IEC 9040 and the semantics of each value is determined by the specification of the VTE-profile currently in use. For all other secondary attributes, the assignment type determines both the syntax of the permitted values and the semantic interpretation of each such value.

Assignment type definitions are required for only three distinct attributes, namely repertoire, font and colour, since both foreground-colour and background-colour secondary attributes reference the same assignment types. The attribute assignments specified by the parameter values of a VTE, and the assignment type definitions to which they refer, are held in the Data Structure Definition (DSD) component of the CCA. This is illustrated in figure 1, in which RepAT-1, RepAT-2, ... RepAT- n represent a number of different repertoire assignment types, FontAT-1, FontAT-2, ... FontAT- n represent a number of different font assignment types and ColAT-1, ColAT-2, ... ColAT- n represent a number of different colour assignment types. The negotiation during establishment of a VT-association will determine whether or not these will include the attribute assignment type whose definition is given in this part of ISO/IEC ISP 11186.