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Information technology — International Standardized Profiles FVT1nn — Virtual Terminal Basic Class — Register of VTE- profiles —

Part 2: FVT115 — A-mode Generalized Telnet VTE- profile

*Technologies de l'information — Profils normalisés internationaux
FVT1nn — Classe de base du terminal virtuel — Registre de profils VTE —
Partie 2: FVT115 — Profil VTE de télé réseau généralisé mode A*



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Contents

Foreword		iv
Introduction		v
1	Scope	1
1.1	General	1
1.2	Position within the taxonomy	2
1.3	Scenario	2
2	Normative references	3
3	Definitions	4
3.1	General OSI terminology	4
3.2	Terminology of VT base standards	4
4	Abbreviations	5
5	Principles of conformance to VT Profiles	5
6	Entry number	6
7	Name of sponsoring authority	6
8	Date	6
9	Identifier	6
10	Descriptor value	6
11	Mode	6
12	VT functional units	6
13	Profile arguments	7
13.1	Interpretation	7
13.2	VTE-profile argument definitions	7
14	VTE-profile body	7
14.1	Specification	7
14.2	CO type definitions	9

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15	Additional Information	9
15.1	Control of display object devices	9
15.2	Control of signalling devices	11
16	Usage	11
16.1	TELNET References	11
16.2	TELNET Options	11
16.3	VT-BREAK	11
Annexes		
A	Profile Requirements List	12
B	TELNET References	19

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 set of functions.

Draft International Standards 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 11184-2 was prepared with the collaboration of

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

ISO/IEC ISP 11184 consists of the following parts, under the general title *Information technology – International Standardized Profiles FVTInn – Virtual Terminal Basic Class – Register of VTE-profiles*:

- *Part 1: FVT121, FVT122 – S-mode Forms and Paged VTE-profiles*
- *Part 2: FVT115 – A-mode Generalized Telnet VTE-profile*
- *Part 3: FVT114 – A-mode Transparent VTE-profile*

Annex A forms an integral part of this part of ISO/IEC ISP 11184. Annex B is for information only.

Introduction

ISO/IEC ISP 11184 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 9040 for the Virtual Terminal Basic Class Service identifies a requirement for an International Register of VT Control Object type definitions. Procedures for the operation of this International Register are laid down in ISO/IEC 9834-5. ISO/IEC ISP 11184 provides this register. 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 11184 was developed in close cooperation between the three Regional OSI Workshops, namely the OSE Implementors' Workshop (OIW) of the United States, the European Workshop for Open Systems (EWOS) and the OSI Asia-Oceania Workshop (AOW). It was developed under the editorship of OIW from a control object specification contained in the OIW Stable Implementation Agreements, Version 5 (December 1991). The text is harmonized between these three Workshops and it has been ratified by the plenary assemblies of each Workshop.

This part of ISO/IEC ISP 11184 is derived from the Telnet-1988 profile contained in the OIW Stable Implementation Agreements for Open Systems Interconnection Protocols. The control objects, NA and NI, have been changed to model the DO/DONT WILL/WONT negotiation of TELNET options. The size of the elements of the NA and NI negotiation control objects equals the range of TELNET option numbers, including the numbers presently assigned and those reserved for future options. The CO-category of the KB and DI control objects have been changed from "boolean" to "symbolic". A "Go-Ahead" shall be signaled by a control object with symbolic value of GA; therefore, the GA control object has been dropped.

Information technology - International Standardized Profiles FVT1nn - Virtual Terminal Basic Class - Register of VTE-profiles -

Part 2:

FVT115 - A-mode Generalized Telnet VTE-profile

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 9040 and ISO 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 10000-1:1995 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.

The Virtual Terminal Basic Class Service and Protocol applies to applications requiring interactive communication with terminal systems through the transmission and manipulation of graphical images composed of character-box graphic elements. Through the selection by

negotiation of various options, it may be used to realise a wide range of distinct functions. This process of negotiation involves the selection of a set of VT functional units together with a particular Virtual Terminal Environment profile (VTE-profile) and particular values for any arguments of that VTE-profile.

The specification of a VTE-profile and the permitted values for its arguments may themselves reference other types of object defined in accordance with ISO 9040. These are VT control object types and assignment types. The VTE-profiles, control object types and assignment types are thus information structures that require explicit reference within the VT protocol. Particular instances of these structures 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 specification of the selection of options 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 structures 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 assignment-type definitions;
- ISO/IEC ISP 11187 contains the specifications of VT Application Profiles.

This part of ISO/IEC 11184 contains the definitions of the A-mode Generalized Telnet Profile that may be used to fully emulate the IPS TELNET service.

1.2 Position within the taxonomy

The taxonomy of International Standardized Profile 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 requiring connection-mode Transport Services.

A Profile within this subclass has a Profile identifier of the form FVTabc, where abc is a structured numerical identifier that identifies the position of the Profile within each of 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 the International Standardized Profile only the Basic Class has been defined. The value of the identifier component a distinguishes between distinct type 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 International Standardized Profile ISO/IEC ISP 11184 contains the specifications of the Profiles with identifiers of the form FVT1bc. For this form of identifier, the component b

distinguishes between the two modes of operation of the Virtual Terminal Service as follows:

- b = 1 for A-mode (asynchronous mode) operation;
- b = 2 for S-mode (synchronous mode) operation.

Values of b greater than 2 are reserved for new modes of operation that may be defined in future amendments to ISO 9040. The identifier component c distinguishes between different VTE-profiles with the same mode of operation. The procedures of ISO/IEC 9834-4 require a single register of VTE-profiles to be maintained without regard to their mode of operation. The value of the component c is therefore not directly related to the serial number of the VTE-profile in the register.

This part of ISO/IEC 11184 contains the definition of the A-mode Generalized Telnet VTE-profile with the Profile identifier

FVT115 for A-mode Generalized Telnet VTE-profile.

1.3 Scenario

The specification of the Virtual Terminal Service is given in ISO 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 Virtual Terminal Service has a basic capability that may be enhanced by the addition of one or more optional functional units .

The CCA is structured by the Virtual Terminal Service into a number of components. There is a Conceptual Data Store (CDS) that contains one or two display objects (DOs), a Control, Signal and Status store (CSS) that contains zero, one or more control objects (COs) and in addition there may be one or more device objects. Display objects and control objects have an information content that is modified during the data handling phase of the VT Service. Device objects model certain logical characteristics of real devices. They may also provide linkages between different objects of the CCA and between such objects and real devices.

There are two modes of operation of the VT Service. In synchronous mode (S-mode) there is a single display object that is updated alternately by the two VT-users while in asynchronous mode (A-mode) there are two display objects, each VT-user having permanent update access to one of them. The mode of operation, the functional units selected and the set of objects present in the CCA at any time constitutes a Virtual Terminal Environment (VTE).

The specification of the VTE, including the type definitions of the objects present, is held in the Data Structure Definition (DSD) component of the CCA. Ownership of the Write Access Variable (WAVAR) that is used during S-mode operation is held in the Access Control Store (ACS). These complete the set of components of the CCA.

A VTE is specified parametrically by a complete and consistent set of values for VTE-parameters defined in ISO 9040. The number of these VTE-parameters is large, so their values are themselves specified in a particular instance by a choice of VTE-profile together with values for any arguments of that VTE-profile. The type definitions of certain control objects may also specify that particular aspects of the CO, such as the initial value of its information content, are to be provided by any VTE-profile that references the CO concerned.

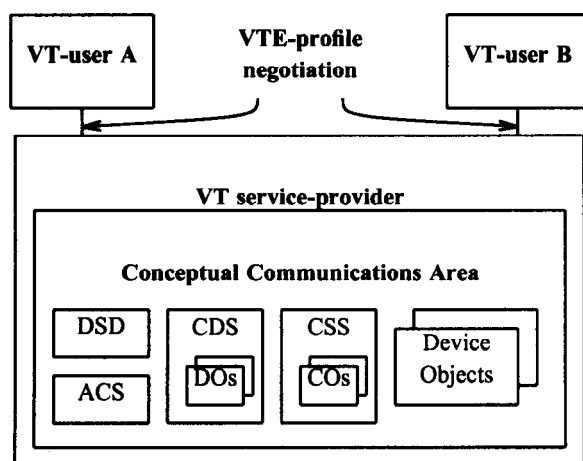


Figure 1 - Negotiation of a VTE through use of a VTE-profile

The VTE in use at any time is determined by negotiation between the two VT-users before entry into the data handling phase. This

negotiation takes place by the exchange of VT service primitives that are available exclusively for this purpose, as is illustrated in figure 1. The negotiation shall determine whether or not the VTE is established in accordance with the VTE-profile defined in this part of ISO/IEC ISP 11184. It is possible for the VTE to be changed during the lifetime of a VT- association but only by exit from and subsequent return to the data handling phase.

This part of ISO/IEC 11184 defines the A-mode Generalized Telnet VTE-profile. It provides for the same functionality of the IPS TELNET service.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 11184. At the time of publication, the editions indicated were valid. All documents are subject to revision, and parties to agreements based on this part of ISO/IEC ISP 11184 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.

ISO/IEC 2022:1994, *Information technology - Character code structure and extension techniques*.

ISO 2375:1985¹⁾, *Data processing - Procedure for registration of escape sequences*.

ISO/IEC 7498-1:1994, *Information technology - Open Systems Interconnection - Basic Reference Model: The Basic Model*.

1) The registration authority for ISO 2375 is the European Computer Manufacturers Association (ECMA), 114 rue du Rhone, CH-1204 Geneva, Switzerland, from whom the corresponding register, the *ISO International Register of Coded Character Sets to be used with Escape Sequences*, may be obtained.