INTERNATIONAL STANDARDIZED PROFILE

ISO/IEC ISP 11185-17

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Information technology — International Standardized Profiles FVT2nn — Virtual Terminal Basic Class — Register of control object type definitions —

Part 17:
FVT2115 — Help Text Control Object

Technologies de l'information — Profils normalisés internationaux FVT2nn — Classe de base de terminal virtuel — Registre de définitions de type d'objet de commande —

Partie 17: FVT2115 — Objet de commande de texte d'assistance

Reference number
ISO/IEC ISP 11185-17:1995(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 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.

International Standardized Profile ISO/IEC ISP 11185-17 was prepared with the collaboration of

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

ISO/IEC ISP 11185 consists of the following parts, under the general title *Information technology — International Standardized Profiles FVT2nn — Virtual Terminal Basic Class — Register of control object type definitions*:

—*Part 1: FVT211, FVT212 — Sequenced and Unsequenced Application Control Objects*
—*Part 2: FVT213, FVT214 — Sequenced and Unsequenced Terminal Control Objects*
—*Part 3: FVT215, FVT216 — Application RIO Record Loading Control Object, Terminal RIO Record Notification Control Object*
—*Part 4: FVT217 — Horizontal Tabulation Control Object*
—*Part 5: FVT218 — Logical Image Control Object*
—*Part 6: FVT219 — Status Message Control Object*
—*Part 7: FVT2110 — Entry-Control Control Object*
—*Part 8: FVT221 — Forms FEICO (Field Entry Instruction Control Object) No.1*
—*Part 9: FVT222 — Paged FEICO (Field Entry Instruction Control Object) No.1*
—*Part 10: FVT231 — Forms FEPCO (Field Entry Pilot Control Object) No.1*
—*Part 11: FVT232 — Paged FEPCO (Field Entry Pilot Control Object) No.1*
—*Part 12: FVT2116, FVT2117, FVT2118, FVT2119 — Generalized Telnet Synch, Signal, Negotiation and Subnegotiation Control Objects*
—*Part 13: FVT2111 — Waiting Time Control Object*
—*Part 14: FVT2112 — Printer Control Object*
—*Part 15: FVT2113 — Field Definition Management Control Object*
—*Part 16: FVT2114 — Terminal Signal Titles Control Object*
—*Part 17: FVT2115 — Help Text Control Object*

Annex A forms an integral part of this part of ISO/IEC ISP 11185. Annex B is for information only.

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Introduction

This International Standardized Profile ISO/IEC ISP 11185 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. This International Standardized Profile 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 11185 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 EWOS.

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Information technology — International Standardized Profiles FVT2nn — Virtual Terminal Basic Class — Register of control object type definitions —

Part 17:

FVT2115 — Help Text Control Object

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 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 assignment types. These 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 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 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 ISP 11185 contains the definition of a control object type that may be used to facilitate the integration of the VT-User function with a Help provider facility resident in the terminal end-system. The Application VT-User will have the capability to set up and control the Help text to be associated with objects such as forms, fields and terminal signals. The Help text will be available for display, via the Help provider facility, upon request for in-context Help by the human user of the terminal system.

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

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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 International Standardized Profile ISO/IEC ISP 11185 contains the specifications of the Profiles with identifiers of the form FVT2*bc*. For this form of identifier, the component *b* distinguishes between the five major classifications of Basic Class Control Objects as follows:

— *b* = 1 for Miscellaneous Control Objects;

— *b* = 2 for Field Entry Instruction Control Objects;

— *b* = 3 for Field Entry Pilot Control Objects;

— *b* = 4 for Reference Information Objects;

— *b* = 5 for Termination Conditions Control Objects.

Each of these classifications corresponds to a sub-register under the procedures of ISO/IEC 9834-5. The identifier component *c* is the serial number of the control object type in the appropriate sub-register. Values of *b* greater than 5 are reserved for new classifications of Basic Class Control Objects that may be defined in future amendments to ISO 9040.

This part of ISO/IEC ISP 11185 contains the definition of the Miscellaneous Control Object type with the Profile identifier

FVT2115 — Help Text Control Object.

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.

Control objects (COs) form one of the types of information object that may be present in the CCA. This is illustrated in figure 1, in which CO-1, CO-2, ... CO-*n* represent a number of different control objects present in the CCA. The negotiation during establishment of a VT-association will determine whether or not these will include control objects of either or both of the types whose definitions are given in this part of ISO/IEC ISP 11185.

The CCA is structured by the Virtual Terminal Service into a number of components. For a control object the Data Structure Definition (DSD) component of the CCA contains the syntax of its information content, including the range of possible values and the permitted update operations. The current value of its information content is contained in the Control, Signal and Status store (CSS) component. Updates to the current value take place through the issue of VT service primitives by one VT-user to the service-provider. Changes of state of the CCA are made accessible through the issue of VT service primitives by the service-provider to the peer VT-user.

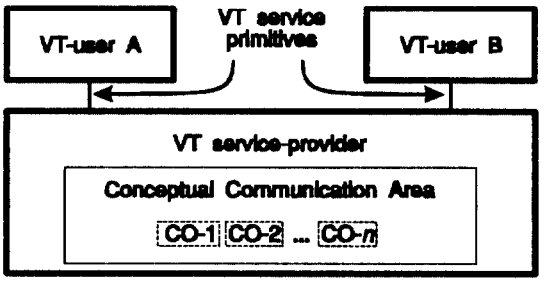

Figure 1— Control objects in the VT Service model

By clause 14 of ISO 9040, COs enable VT-users to handle control information related to virtual terminal functions and to real devices. This control is exercised by the VT-users through semantics associated with the information content and with the update operations of the CO. Definition of the semantics, or specification of the source of the semantics if the semantic details are not fully prescribed, forms part of the registered definition of the CO. These semantics are not however of concern to the VT service-provider itself. The DSD will contain an ASN.1 object identifier that identifies the registered definition, but the VT service-provider merely acts as a repository of this value. It is only the VT-user that requires knowledge of the registered definition.

NOTE 1 — The VTE-parameter values that determine the syntax of the information content may not be negotiated explicitly during association establishment. Moreover, in the case of non-parametric COs these values do not determine the details of the syntax. Such values and details form part of the registered definition of the CO. Since the VT service-provider is not required to have knowledge of this registered definition, in principle the VT-users provide the VT service-

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provider with such information through local management procedures. Whether or not this is necessary in practice depends on the configuration of the implementations concerned.

The control object type defined in this part of ISO/IEC ISP 11185 assumes an asymmetry between the two communicating end systems. One end system is assumed to have a terminal role and to contain devices for the input and display of data and for signalling. These devices form part of the VT-user component of that end system. The other end system is assumed to have an application role and to contain an application package that the terminal end system desires to access. This asymmetry may, but need not, be recognised by the VT Service; provision for such recognition exists only in an S-mode VT-association.

The Virtual Terminal Protocol specification given in ISO 9041-1 models the VT service-provider in terms of protocol exchange between two Virtual Terminal Protocol Machines (VTPMs), each with its own CCA. The CCA of each VTPM is updated both by service primitives received from its own VT-user and by protocol elements received from the peer VTPM. Corresponding service primitives and protocol elements are issued by the VTPM to provide notification of changes to the content of its CCA. This is illustrated in figure 2 in the context of the asymmetric end systems described above. The control object type definition given in this part of ISO/IEC ISP 11185 is expressed in terms of this model.

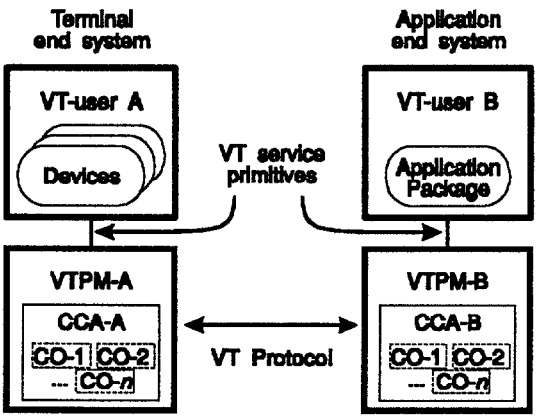

Figure 2— Control objects in the VT Protocol model

For certain types of control object the abstract syntax of ISO 9041-1 does not provide a complete specification for the representation of CO update operations. This arises where the abstract syntax of ISO 9041-1 makes use of an ASN.1 any type, or where symbolic values have to be encoded in terms of an ASN.1 integer type. Control object type definitions are required by ISO/IEC 9834-5 to provide the necessary refinement of the abstract syntax.

NOTE 2 — Since an abstract syntax is made available for use through its inclusion in a presentation context, and since the Presentation service-provider has no knowledge of control object type definitions, in principle the VT-users provide the Presentation service-provider with these refinements to the abstract syntax through local management procedures. Whether or not this is necessary in practice depends on the configuration of the implementations concerned.

2 Normative references

The following documents contain provisions which, through reference in this text, constitute provisions of this part of ISO/IEC ISP 11185. 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.

ISO/IEC 8822:1994, *Information technology — Open Systems Interconnection — Presentation service definition.* (See also ITU-T Recommendation X.216.)

ISO/IEC 8824:1990, *Information technology — Open Systems Interconnection — Specification of Abstract Syntax Notation One (ASN.1).* (See also ITU-T Recommendation X.208.)

ISO/IEC 9040:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Service.*

ISO/IEC 9041-1:1990, *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol —Part 1: Specification.*

ISO/IEC 9041-2:1993 , *Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol —Part 2: Protocol Implementation Conformance Statement (PICS) Proforma.*

ISO/IEC 9646-7:[1], *Information technology — Open Systems Interconnection — Conformance testing methodology and framework — Part 7: Implementation conformance statements.* (See also ITU-T Recommendation X.296.)

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

ISO/IEC 9834-5:1991, *Information technology — Open Systems Interconnection — Procedures for the operation of OSI Registration Authorities — Part 5: Register of VT Control Object Definitions.*

ISO/IEC TR 10000-1:1992, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 1: Framework* (second edition).

[1] To be published.

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ISO/IEC TR 10000-2:1994, *Information technology — Framework and taxonomy of International Standardized Profiles — Part 2: Principles and taxonomy for OSI Profiles* (third edition).

ISO/IEC 10731:1994, *Information technology — Open Systems Interconnection — Basic Reference Model — Conventions for the definition of OSI references.* (See also ITU-T Recommendation X.210.)

3 Definitions

For the purposes of this part of ISO/IEC ISP 11185 the following definitions apply.

3.1 General OSI terminology

3.1.1 This part of ISO/IEC ISP 11185 makes use of the following terms defined in ISO/IEC 10731:

a) service primitive;

b) service-provider.

3.1.2 This part of ISO/IEC ISP 11185 makes use of the following terms defined in ISO/IEC 8822:

a) abstract syntax;

b) presentation context.

3.1.3 This part of ISO/IEC ISP 11185 makes use of the following terms defined in ISO/IEC 8824:

a) any type;

b) object descriptor type;

c) object identifier.

3.1.4 This part of ISO/IEC ISP 11185 makes use of the following terms defined in ISO/IEC 9834-1:

a) registration;

b) registration-structured-name.

3.2 Terminology of VT base standards

3.2.1 This part of ISO/IEC ISP 11185 makes use of the following terms defined in ISO/IEC 9040:

a) A-mode;

b) control object;

c) device object;

d) net-effecting;

e) object updating device;

f) S-mode;

g) VT-association;

h) VT-environment (VTE);

i) VT-user;

j) VTE-parameter;

k) VTE-profile;

l) VTE-profile argument.

3.2.2 This part of ISO/IEC ISP 11185 makes use of the following term defined in ISO/IEC 9041-1:

a) protocol element.

3.3 Local Terminology

3.3.1 Help provider: Functionality within the terminal end-system which the VT-User may invoke on behalf of the human user in response to a request for help. The Help provider interacts with the user in order to provide the help required.

3.3.2 Help context: The human user enters Help context when the VT-User invokes the Help provider and leaves Help context when control returns from the Help provider.

3.3.3 Help **text**: The data structure, parts of which are accessed by the VT-User in order to invoke the Help provider on behalf of the human user and parts of which are accessed by the Help provider in order to display help to the user.

3.3.4 Help navigation: Elements of the Help text data structure,which are accessed by the Help provider in order to control the interaction of the human user with the Help provider.

3.3.5 Help entry points: Elements of the Help text data structure,which are accessed by the VT-User in order to control the invocation of the Help provider by the human user.

3.3.6 Help layout control: Elements of the Help text data structure which are accessed by the Help provider in order to control the layout of the help text displayed to the human user by the Help provider.

3.3.7 Help set: Top-level sub-division of the content of the Help text. Only one Help set is active (i.e. available for access at the terminal for the purpose of providing Help to the human user) at a given time.

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Contained within each Help set are a designation of those topics currently to be accessed for top-level Help, Help index, Help glossary and help for terminal signals;

3.3.8 Topic: Structured text which exists as a separate entity within a Help set and carries a number of attributes which enable it to be positioned within a topic heirarchy and linked to other topics;

3.3.9 Group: A group of topics. Group membership allows the Terminal VT-User to determine which topics are currently providing help for terminal signals. Group membership and sequencing provide control information for any "browse" functionality that may be supported by the Help provider;

4 Abbreviations

For the purposes of this part of ISO/IEC ISP 11185 the following abbreviations apply.

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

All other abbreviations used are defined in ISO/IEC TR 10000-1 or ISO 9040.

5 Principles of conformance to VT Profiles

An implementation of the Virtual Terminal Protocol conforms to an FVT2*nn* Profile that defines a control object type if the protocol implementation is capable of sending and receiving PDUs corresponding to all update operations permitted for that CO type.

Conformance of a protocol implementation to an FVT2*nn* Profile does not place requirements on the ability of the implementation to negotiate the presence in the CCA of an instance of this CO type. Such requirements fall within the scope of conformance to an FVT1*nn* Profile that specifies a VTE-profile.

A system that includes an implementation of the VT Protocol may be claimed to conform also to an AVT*nn* Profile. Conformance to an AVT*nn* Profile may require that CO update operations received by the VT-user component of the system are interpreted in accordance with the semantics defined within the appropriate CO type definition. Conformance to CO semantics is not within the scope of conformance to any FVT*nnn* Profile.

The conformance requirements of the Virtual Terminal Protocol are specified in clause 13 of ISO 9041-1. The supplier of a protocol implementation which is claimed to conform to ISO 9041-1 is required to complete a copy of the Protocol ICS (PICS) proforma provided in ISO/IEC 9041-2, to form a PICS for the implementation.

Annex A of this part of ISO/IEC ISP 11185 provides a Profile Requirements List (Profile RL) for the Profile FVT2115 specified herein, in accordance with ISO/IEC 9646-7.

By 6.4 of ISO/IEC 9646-7 both the PICS and this RL form part of the Profile ICS for any implementation of the VT Protocol that claims conformance to the Profile FVT2115 specified herein. If the PICS is an IUT PICS then the RL specifies constraints on the answers that may be given in it for a test of conformance to this part of ISO/IEC ISP 11185. The RL may also be used in conjunction with a Product PICS that covers more than one Profile. In this case it may serve as the annotation required, in accordance with 6.2 of ISO/IEC 9646-7, to form an IUT PICS from the Product ICS for testing of conformance to this part of ISO/IEC ISP 11185.

6 Entry number

The remaining clauses of this part of ISO/IEC ISP 11185 provide the entry for a Help Text Control Object in the International Register of VT Control Object Type Definitions. The entry is structured in accordance with the requirements of ISO/IEC 9834-5. These requirements specify that this International Register shall consist of a number of sub-registers, each corresponding to a major classification of VT Control Object.

This entry is the fifteenth in the sub-register for Miscellaneous Control Objects. This register assigns it the entry number:

MISCO-15.

7 Name of sponsoring authority

This entry is sponsored by the European Workshop for Open Systems (EWOS).

8 Date

The date of submission of this proposal was 1993-09-08.

9 Identifier

The name assigned to an information object by an International Register is required by ISO/IEC 9834-1 to be a registration-hierarchical-name. A registration-hierarchical-name may have more than one form. The permitted forms include an ASN.1 object identifier

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as defined in ISO/IEC 8824 and a distinguished name as defined in ISO/IEC 9594-2.

In accordance with A.4 of ISO/IEC 9834-5, this register assigns the following object identifier form for the name of this register entry:

{ iso(1) standard(0) 9834 vt-co-def(5) misco(0) 15 }

In accordance with 20.1.1 of ISO 9040, this object identifier shall be used as the value of the CO-type-identifier VTE-parameter for a control object in order to identify this register entry as the source of the information structure and semantic content of the control object.

This register does not assign any other form to the name of this entry.

NOTE — By ISO/IEC 9834-1 a distinguished name for the purposes of the OSI Directory may only be assigned together with an object identifier when the object identifier form is generated under the arc { joint-iso-ccitt(2) country(16) country-name }.

10 Descriptor value

The value of the ASN.1 object descriptor type assigned to this register entry is:

"CO for controlling Help Text".

11 CO parameters

This CO type presumes an asymmetry of use between the two end systems in which one has a terminal role and the other an application role. Such an asymmetry is assigned in accordance with note 1 to clause 12 of ISO 9040. It is not necessary for this asymmetry to be recognised by the VT service-provider in accordance with 19.3.2 of ISO 9040, which provides for the assignment, in S-mode only, of Terminal VT-user and Application VT-user roles.

This register entry specifies the following values for VTE-parameters of this control object type:

CO-name:	any value unique within the VTE
CO-structure:	"non-parametric"
CO-access:	"WAVAR + WACI" if the Application VT-user is the association initiator, "WAVAR + WACA" if the terminal VT-user is the association initiator;
CO-priority:	"normal"
CO-trigger:	"not selected".

NOTE — A single VTE-profile argument may be used to set the value of the CO-access VTE-parameter for all control objects in the CCA that presume an asymmetric assignment of terminal and application roles to the two communicating end systems.

12 CO values, syntax and semantics

12.1 The Help Model

The Help Control Object defined in this ISP is intended to facilitate the integration of the behaviour of a Help provider in the terminal end-system with that of the VT-User. The Help provider itself is outside the scope of this ISP. The functionality of the Help provider, the structure of the database of Help information available to it and the mechanisms for generation, distribution and maintenance of that database are in no way constrained by use of the Help Control Object.

This part of ISO/IEC ISP 11185 describes the level of Help functionality over which control can be exercised by the Application VT-User, given the Help text structure and Help Control Object defined here. The Help model is described in terms of entry points to the Help context, the options available for navigation within the Help Context and the mechanisms for control of the layout of the Help text as presented to the human user. In scenarios where the distribution and maintenance of the help information database are handled outside the scope of VT, only the entry point control structures are of interest.

The Help Control Object enables the Application VT-User to:

(a) set up and control the run-time linkage between human user requests for in-context help in terms of features of objects in the VTE (such as particular fields or terminal signals) and requests to the Help provider;

(b) down-line load or distribute off-line the Help text associated with a form template.

The syntax and semantics of the Help Control Object are defined in terms of help topics (and groups and sets of help topics) with attributes such as associated text, relationships to each other and relationships to the runtime linkage between the Terminal VT-User and the Help provider. It is envisaged that the terminal end-system will massage the information conveyed via updates to the Help Control Object (whether made off-line or on-line) into the differing partial views appropriate to the Terminal VT-User and to the Help provider before processing human user requests for Help.

12.2 Help Entry Points

The run-time linkage between the Terminal VT-User and the Help provider may be set up using the Help Control Object defined in this part of ISO/IEC ISP 11185 to allow the human user to invoke Help in a number of functionally distinct ways. The details of

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how Help is invoked are a local matter not described here.

Form Help — provides human user access to the top level of Help information in the context of the current form template;

Help index — this entry point enables the human user to invoke an index of Help topics appropriate to the application;

Help glossary — a lower-level entry point which gives the human user access to a glossary of application specific terms;

Page Help — provides human user access to Help information in the context of the currently displayed page of the current form template;

Field Help — provides human user access to Help information in the context of the field in which the data entry cursor is currently positioned;

Line Help — provides human user access to Help information in the context of the line in which the data entry cursor is currently positioned;

Signals Help — a lower-level entry point which gives the human user access to information on the semantics of the current assignment of terminal signals by the application or to Help for a specified terminal signal.

12.3 Help Navigation

The Help text structure supports four mechanisms for navigation by the human user when within the Help context.

Two of these mechanisms are realised in the Help text structure as associations, each between a text item (known as a topic reference) in the current topic and another topic. It is envisaged that the Help provider in the terminal end-system will display each topic reference highlit in an appropriate conventional manner (such as different font, underlining or different colour) and provide a mechanism for the human user to select one topic reference at a time. The details of the highlighting applied and the details of selection mechanisms are seen as local matters.

switch — when the corresponding topic reference is selected, the Help context will change from the currently displayed topic to the topic associated with the selected item. This mechanism supports the implementation of menus within the Help text structure;

expand — while the corresponding topic reference is selected, the Help context will temporarily change from the currently displayed topic to the topic associated with the selected item. The locally-defined selection mechanism must allow the User to "hold" a selection (or to indicate deselection) for the "expand" mechanism to be useful.

The third navigation mechanism allows the exploitation of any "key word" search functionality that may be supported by the Help provider. Any number of key words may be associated with each topic.

The fourth navigation mechanism allows control of the order in which topics are presented to the human user on invocation of any "browse" functionality that may be supported by the Help provider. Topics may be sequenced for browsing, based on membership of a topic-group.

12.4 Help Layout Control

Displayable text within each Help topic is essentially free-running, with the expectation that the Help provider will word-wrap and scroll as required. There are two features of the Help text structure which influence text layout:

indentation — indicates that the Help provider should indent following text by the specified number of characters;

newline — indicates that the Help provider should display the next text item starting on a new line at the current indentation.

A modal repertoire value is provided, to enable selection of text item repertoire from the repertoires negotiated for the Display Object.

12.5 Help Control Object

The Help Control Object (HCO) is a non-parametrically-defined Control Object with content type implied by the Help text structure and the update syntax. One instance of the HCO may be negotiated into the VTE.

If the Field Definition Management Control Object is negotiated into the VTE, the mapping that it provides from Display Object z-coordinate values to FDCO z-coordinate values will also apply to the HCO.

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The Structured Control Objects VT functional unit must be selected by any VTE profile that references this definition.

12.6 Update Syntax

```
HELP DEFINITIONS IMPLICIT TAGS ::=

BEGIN

Help ::= SEQUENCE {
    activeSet     PrintableString OPTIONAL,
    -- selects the currently active Help set
    helpSets      SET OF HelpSet OPTIONAL
    -- conveys updates to Help sets
}


HelpSet ::= SEQUENCE {
    identifier  PrintableString,
    -- name for update and reference
    SEQUENCE {
    -- absence indicates deletion of Help set
        top             (0) TopicIdentifier OPTIONAL,
        -- topic identifier of current form-level Help
        index           (1) TopicIdentifier OPTIONAL,
        -- topic identifier of current Help index
        glossary        (2) TopicIdentifier OPTIONAL,
        -- topic identifier of current Help glossary
        signalTopic   (3) TopicIdentifier OPTIONAL,
        -- identifier of terminal signals Help topic
        signalGroup (4) GroupIdentifier OPTIONAL,
        -- identifier of terminal signals Help group
        body            SET OF Topic OPTIONAL
        -- conveys new or replaced topics in the
        -- Help set
    } OPTIONAL
}

Topic ::= SEQUENCE {
    identifier  TopicIdentifier,
    -- number for update and reference
    SEQUENCE {
    -- absence of SEQUENCE indicates deletion of
    -- topic
        -- usage of elements of SEQUENCE:
            -- absence indicates no change
            -- presence indicates replacement

        entry           (0) EntryPoint OPTIONAL,
        -- topic entry points
        group           (1) GroupIdentifier OPTIONAL,
        -- indicates membership of specified topic-
        -- group
        -- default is membership of default topic-
        --group

        -- the following SEQUENCE elements
        -- are of interest only if using the HCO to
        -- update the help information database
        -- held by the Help provider
        sequence    (2) SequenceNumber
                                OPTIONAL,
        -- browsing sequence number
        keyWord     (3) SET OF Text OPTIONAL,
        -- topic key words
        title           (4) Text OPTIONAL,
        -- topic title
        body            SEQUENCE OF TopicItem
                                OPTIONAL
        -- topic body
        } OPTIONAL
    }

EntryPoint ::= CHOICE {
    pages           (0) SET OF INTEGER,
    -- pages specified by z-coordinate value
    fields          (1) SET OF SEQUENCE {
    -- this item can only be used if the FDCO is
    -- present
    -- specifies fields on specified pages
        zValue          INTEGER OPTIONAL,
        -- default is current Logical Pointer z-value
        fValues         SET OF INTEGER },
    lines           (2) SET OF INTEGER,
    -- specified lines on specified pages
    signals         (3) SET OF INTEGER
    -- Help for specifed terminal signals
    -- for values see STCO definition
}
TopicIdentifier ::= INTEGER

GroupIdentifier ::= INTEGER

SequenceNumber ::= INTEGER
```


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```
-- the following type definitions for
-- TopicItem, TopicReference and Text are
-- of interest only if using the HCO to
-- update the Help information database
-- held by the Help provider

TopicItem ::= CHOICE {
    text            (0) Text,
    -- free-running text
    newline         (1) NULL,
    -- forced newline
    indentation     (2) INTEGER,
    -- initial default 0 at entry to topic
    repertoire      (3) INTEGER,
    -- modal value, initial default 1
    -- from repertoires negotiated for DO
    switch          (4) TopicReference,
    -- switch Help to another topic when invoked
    expand          (5) TopicReference
    -- display another topic while invoked
}
TopicReference ::= SEQUENCE {
    text        (0) Text,
    -- text for highlightling
    identifier  (1) TopicIdentifier
    -- link to underlying topic
}
Text ::= SEQUENCE {
    repertoire      INTEGER OPTIONAL,
    -- explicit value, default is modal repertoire
    -- value from repertoires negotiated for DO
    string          OCTET STRING
    -- text for display to human user
}

END -- of HELP DEFINITIONS
```

13 Additional information

This CO requires the use of the Structured Control Objects VT functional unit and the Enhanced Access Rules functional unit in S-mode operation.

14 Usage

The Terminal VT-User should inform the Help provider of the Help set appropriate to the current form template (there could be more than one Help set associated with a form template, e.g. in order to provide Help in different languages or to provide Help tailored to the needs of either novice or expert users) and should map requests from the human user in terms of the Help entry points into requests to the Help provider quoting appropriate topic identifiers within the current Help set.

The Help provider should be aware of the current Help set, locate and display the text associated with topics (starting at an entry-point topic indicated by the Terminal VT-User) and navigate within the Help set in response to requests from the human user.

It is envisaged that the Help provider in the terminal end-system may also support an entry point that gives Help on how to use Help, but that is seen as a purely local matter.

The HCO update syntax described above is intended to support update operations as follows:

Updates to the run-time linkage between the VT-User and the Help provider:

- change active Help set
- change form Help topic
- change Help index topic
- change Help glossary topic
- change signal Help topic
- change signal Help group

Updates to the database of help information maintained by the Help provider:

- discard Help set
- add new Help set
- modify Help set
- discard topic
- add or replace topic

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Annex A
(normative)

Profile Requirements List

A.1 Protocol requirements

This annex provides a Profile Requirements List (Profile RL) for the Profile FVT2115 specified in this part of ISO/IEC ISP 11185. This RL is to be used in conjunction with the Protocol ICS (PICS) proforma for the Virtual Terminal Protocol that is given in ISO/IEC 9041-2. The relationship between the Profile RL and the Protocol ICS is described in clause 5 of this part of ISO/IEC ISP 11185.

The requirements of this RL are given in tables A.1 and A.2. The notation used in the tables is as follows. Individual items in a PICS proforma are referenced by the means specified in 9.3.8.3 of ISO/IEC 9646-7. Such a reference has the form *x-y/z*, where *x* is the number of the ISO Standard that specifies the protocol, *y* is a reference within the PICS proforma of this Standard to the smallest subclause that contains the item concerned, and *z* is the reference number of the item within that subclause. Where this RL needs to present the constraints on a particular item as two or more separate cases, a suffix of the form '.*n*' is added to the item reference where *n* is a serial number that labels the different cases.

The item name is taken from the PICS proforma. The "status" columns of the RL tables take priority over the corresponding "status" columns of the PICS proforma and they use the notation of that proforma. They refine the PICS proforma status values by evaluating conditional expressions or converting optional values to a more specific form. The following conditional values are used in these tables:

c1 If 9041-A.2.2/1 then m else -
c2 if application implementation the m else -
c3 if terminal implementation the m else -

the referenced predicate from ISO/IEC 9041-2 is that S-mode is supported.

Where an RL table has a "Profile values" column, the status value applies separately to each listed Profile value. For example, in the case of the single item listed in table A.2, to satisfy this RL the answers in the SENDING column of the PICS proforma must have "y" in the "Support" column and must include at least values 0...65535 in the "Supported values" column.

For any column in an RL table that corresponds to an answer column in the PICS proforma, the values listed are the acceptable answers for the item concerned. The following special notation is used in these columns:

Any The RL places no constraint on the answer;
n/a The column is not relevant to this item.

A.2 Profile-specific requirements

An RL may also specify constraints on the answers to additional questions that concern Profile-specific conformance requirements which are outside the scope of any referenced base standard. These questions will be given in the RL itself.

This RL does not specify any Profile-specific constraints.

Table A.1 — VTE requirements for FVT2115 (Help Text CO)

Item reference no. 9041-	Name of item	Status	Numbers supported	Negotiable
A.2.1/6	Enhanced Access-rules	c1	n/a	n/a
A.2.1/7	Structured Control Objects	m	n/a	n/a
A.3.8/12	Non-parametric COs	m	>=1	Any

Table A.2— PDU requirements for FVT2115 (Help Text CO)

Item reference no. 9041-	Name of item	Profile values	SENDING Status	RECEIVING Status
A.5.15.4/16	other	see note	c2	c3
NOTE - Support is mandatory for the ASN.1 types defined for the module in subclause 12.6 of this part of ISO/IEC ISP 11185.				

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Annex B
(informative)

Notes and Examples

This Annex provides a number of examples intended to illustrate the use of values of the ASN.1 types specified in the HCO update syntax.

In these examples, some OCTET STRING values are not shown in their full form and some repetitions are omitted; this is indicated by ellipsis (...). Where an integer value such as a topic-identifier or a field-identifier is required, this is indicated by a comment within brackets (e.g. < topic-identifier for item 4 >).

B.1 Entry Point Control

B.1.1 Field-Related Help

If a topic is to provide Help for a number of fields associated with a z-coordinate value implied by the value of the Logical Pointer at the time the Help Control Object is updated, this could be expressed in a value of the ASN.1 type Topic as follows:

```
{
 identifier <topic-identifier>,
 {
  entry fields {
   { fValues { <field-id1>, <field-id2>, ... } } } } }
```

If a topic is to provide Help for a number of fields associated with specified z-coordinate values, this could be expressed in a value of the ASN.1 type Topic as follows:

```
{
 identifier <topic-identifier>,
 {
  entry fields {
   { zValue <page-id1>,
     fValues { <field-id1>, <field-id2>, ... } },
   { zValue <page-id2>,
     fValues { <field-id3>, <field-id4>, ... } } } } }
```

B.1.2 Controlling Signal Help

If a topic is to provide Help for a number of terminal signals, this could be expressed in a value of the ASN.1 type Topic as follows:

```
{
 identifier <topic-identifier>,
 {
  entry signals { <signal-value1>, <signal-value2>, ...
} } }
```

The above topic definition falls within the default topic-group. It is envisaged that there may be a requirement to dynamically switch the Help provided for terminal signals as the application semantics associated with the signals are changed. The explicit use of the topic-group mechanism provides support for this:

```
{
 identifier <topic-identifier>,
 {
  entry signals { <signal-value1>, <signal-value2>,...},
   group <group-id1> } }
```

Alternate versions of the Help for a given terminal signal can be provided by a number of topics, but the members of only one topic-group (i.e. the topic-group nominated in the signalTopic field of the ASN.1 type HelpSet) are accessed to satisfy a request for Help with a given terminal signal.

B.2 Help Provider Database Update

In the illustrations below showing the required appearance of Help topics to the human user, text which is to be highlit by the Help provider as a topic reference is shown as *text* item.

In these examples, the ASN.1 values shown have been constructed on the assumption that the default repertoire (i.e. that negotiated as character

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repertoire number 1 for Display Object updates) is applicable.

B.2.1 Topic with no Sub-structure

A Help topic which provides a glossary might be required to look something like this:

Terms used by application XYZ
Term1 This text explains the meaning of Term1
Term2 This text explains the meaning of Term2
Term3 This text explains the meaning of Term3

A value of the ASN.1 type Topic, as follows, would express the above:

```
{
 identifier <topic-identifier>,
 {
  body {
   indentation 20,
   text { string "Terms used by application XYZ" },
   newline,
   newline,
   indentation 5,
   text { string "Term1" },
   indentation 15,
   text { string "This text ... Term1" },
   newline,
   newline,
   indentation 5,
   text { string "Term2" },
   indentation 15,
   text { string "This text ... Term2" },
   newline,
   newline,
   indentation 5,
   text { string "Term3" },
   indentation 15,
   text { string "This text ... Term3" } } } }
```

B.2.2 Topic Providing a Menu

A Help topic which simply provides a menu of lower-level help topics might be required looking something like the following:

Here is the title of the menu *Menu Item 1* *Menu Item 2* *Menu Item 3* *Menu Item 4* *Menu Item 5* *Menu Item 6* *Menu Item 7*

A value of the ASN.1 type Topic, as follows, would express the above:

```
{
 identifier <topic-identifier>,
 {
  body {
   indentation 20,
   text { string "Here is the title of the menu" },
   newline,
   indentation 30,
   newline,
   switch { text { string "Menu Item 1" },
    identifier <topic-identifier for Item 1 sub-topic>},
   newline,
   switch { text { string "Menu Item 2" },
    identifier <topic-identifier for Item 2 sub-topic>},
          ...
   newline,
   switch { text { string "Menu Item 7" },
    identifier <topic-identifier for Item 7 sub-topic> }
   } } }
```


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B.2.3 Topic Including References

The Help topic shown here includes two references for which expansion is to be available:

> This note outlines a *Form Help Text* scheme for proposal in an EWOS Functional Standard. The suggested Help Text structure is designed to be compatible with generally available *Help provider* facilities.

A value of the ASN.1 type Topic, as follows, would express the above:

```
{
 identifier <topic-identifier>,
 {
  body {
   indentation 5,
   text { string "This note outlines a " },
   expand { text { string "Form Help Text " },
    identifier <topic-identifier for Form Help Text> },
   text
    { string "scheme for proposal in an EWOS " },
   text
    { string "Functional Standard. The suggested " },
   text
    { string "Help Text structure is designed to be "},
   text
    { string "compatible with generally available" },
   expand { text { string "Help provider " },
    identifier <topic-identifier for Help provider> },
   text { string "facilities. " }
   } } }
```

B.2.4 Controlling Browsing

The browsing sequence may be controlled by making use of the sequence field in the ASN.1 type Topic when associating a Help topic with a topic-group.

The ASN.1 value below assigns a sequence number within the default topic-group:

```
{
 identifier <topic-identifier>,
 {
  sequence <sequence-no>,
  body { ... } } }
```

The ASN.1 value below assigns a sequence number within a specified topic-group:

```
{
 identifier <topic-identifier>,
 {
  group <group-id>,
  sequence <sequence-no> },
body { ... } }
```


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