

Implementation of ISO 9041-1 : 1990

**Information technology —
Open Systems
Interconnection — Virtual
Terminal Basic Class Protocol—**

Part 1: Specification

National foreword

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Implementation of Amendment 2
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Information technology – Open Systems Interconnection –
Virtual Terminal Basic Class Protocol –
Part 1: Specification

National foreword

In line 1, after 'ISO 9040-1 : 1990' insert 'including Amendment 2'.

AMD 7621/February 1993

ISO text

Insert the attached as appropriate.

AMD 7621/February 1993

INTERNATIONAL STANDARD

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Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol

Part 1: Specification

AMENDMENT 2: Additional functional units

*Technologies de l'information — Interconnexion des systèmes ouverts — Protocole
de classe de base de terminal virtuel*

Partie 1: Spécification

AMENDEMENT 2: Unités fonctionnelles supplémentaires



Reference number
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Foreword

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In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75% of the national bodies casting a vote.

Amendment 2 to International Standard ISO 9041-1:1990 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

Annex A forms an integral part of this amendment.

Introduction

This amendment provides the services of the Additional Functional Units of the Basic Class Virtual Terminal Service defined in ISO 9040:1990/Amd.2:1991.

The following clauses and annex in ISO 9041-1:1990 apply unchanged:

- Clause 7 Procedures
- Clause 12 Conformance
- Annex B Defined OBJECT IDENTIFIER names

Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol

Part 1: Specification

AMENDMENT 2: Additional functional units

1 Scope

ISO 9041-1, clause 1 applies with item a) of subclause 1.1 amended to read:

- a) a set of procedures for the connection-oriented transfer of data and control information between protocol machines which implement the functions of a provider of the Basic Class Virtual Terminal service including the Additional Functional Units;

2 Normative references

ISO 9041-1, clause 2 applies with the additional reference:

ISO 9040:1990/Amd.2:1992, *Information technology - Open Systems Interconnection - Virtual Terminal Basic Class Service - Amendment 2: Additional functional units*.

3 Definitions

The Definitions given in ISO 9041-1, clause 3 apply with the addition to subclause 3.4 (Virtual Terminal Service Definitions) of the following term defined in ISO 9040/Amd. 2:

- 34) Ripple

4 Abbreviations

The Abbreviations given in ISO 9041-1, clause 4 apply with the addition to subclause 4.3 (VT Protocol Elements) of the following abbreviations:

EXQ VT-P-EXCEPTION-REQ
EXR VT-P-EXCEPTION-RESP

5 Overview

5.1 References

ISO 9041-1, subclause 5.1 ("Virtual Terminal Service Summary") is replaced by 5.2 of this amendment; the latter also amends of ISO 9041-1, table 1.

ISO 9041-1, subclauses 5.2, 5.3 and 5.4 apply unchanged.

ISO 9041-1, subclause 5.5 ("Functions of the VT Protocol") is amended as defined in 5.3 of this amendment.

ISO 9041-1, subclauses 5.6, 5.7 and 5.8 apply unchanged.

5.2 Virtual Terminal Service – Additional Functional Units – summary

The protocol specified by this amendment applied to ISO 9041-1 provides the Additional Functional Units of the Basic Class Virtual Terminal Service defined by ISO 9040/Amd.2. The primitives of this service are as listed in ISO 9041-1, table 1 with the addition of parameters to VT-SWITCH-PROFILE and VT-END-NEG and the addition of VT-P-EXCEPTION as shown in table 1 of this amendment.

Table 1 – Virtual Terminal Service primitives

Primitive		Parameters
VT-SWITCH-PROFILE	request indication	VT-profile-name VT-profile-arg-offer-list VT-object-retention-list
	response confirm	VT-profile-arg-value-list VT-result VT-user-failure-reason VT-provider-failure-reason (confirm only) VT-object-retention-list
VT-END-NEG	request indication	VT-vte-choice VT-failure-allowed VT-object-retention-list
	response confirm	VT-vte-choice VT-result VT-user-failure-reason VT-provider-failure-reason (confirm only) VT-object-retention-list
VT-P-EXCEPTION	Indication	VT-exception-source VT-exception-type VT-information

5.3 Functions of the VT Protocol

The functions of the VT protocol defined by ISO 9041-1 with this amendment are as defined in ISO 9041-1, subclause 5.5. The Additional Functional Units defined by this amendment:

- enhance the capability of the VT-environment which may be agreed by use of the Association Establishment or Negotiation functions;
- extends the set of objects and operations provided by the Data Transfer function; and
- enhances the error handling capabilities of the service provider.

6 Protocol elements

6.1 References

ISO 9041-1, clause 6 (Protocol elements) applies unchanged except for

- Table 4 which is amended as defined by 6.2 of this amendment;
- subclause 6.2.2 defining the parameters of ASQ which is amended as defined by 6.3 of this amendment;
- subclause 6.9.2 defining the parameters of ENQ which is amended as defined by 6.4 of this amendment;
- the subclause 6.10.2 defining the parameters of ENR which is amended as defined by 6.5 of this amendment;
- subclause 6.23.2 defining the parameters of SPQ which is amended as defined by 6.6 of this amendment;
- subclause 6.24.2 defining the parameters of SPR which is amended as defined by 6.7 of this amendment;

g) the addition of a new subclause 6.26 for EXQ (VT-P-EXCEPTION-REQ) as defined by 6.8 of this amendment;

h) the addition of a new subclause 6.27 for EXR (VT-P-EXCEPTION-RESP) as defined by 6.9 of this amendment.

6.2 VT Protocol elements

ISO 9041, table 4 is amended by the addition of a new entry as defined in table 2 of this amendment.

Table 2 – VT Protocol elements

Protocol element	Full Name	Cross reference
EXQ	VT-P-EXCEPTION-REQ	6.26
EXR	VT-P-EXCEPTION-RESP	6.27

6.3 ASQ (VT-ASSOCIATE-REQ) parameters

The following functional units are added to ISO 9041-1, subclause 6.2.2:

- Ripple
- Exceptions
- Context retention

The other parameter descriptions are unchanged.

6.4 ENQ (VT-END-NEG-REQ)

The following parameter is added to ISO 9041-1, subclause 6.9.2:

- vt-object-retention-list: if present contains a list of DO and CO names whose contents are requested to be retained.

6.5 ENR (VT-END-NEG-RESP)

The following parameter is added to ISO 9041-1, subclause 6.10.2:

- vt-object-retention-list: if present contains a list of DO and CO names whose contents are agreed to be retained.

6.6 SPQ (VT-SWITCH-PROFILE-REQ)

The following parameter is added to ISO 9041-1, subclause 6.23.2:

- vt-object-retention-list: if present contains a list of DO and CO names whose contents are requested to be retained.

6.7 SPR (VT-SWITCH-PROFILE-RESP)

The following parameter is added to ISO 9041-1, subclause 6.24.2:

- vt-object-retention-list: if present contains a list of DO and CO names whose contents are agreed to be retained.

6.8 EXQ (VT-P-EXCEPTION-REQ)

A new subclause 6.26 is added to ISO 9041-1 as follows:

6.8.1 Purpose:

To signal exception conditions between VTPMs

6.8.2 Parameters

vt-exception-type: Takes one of the following symbolic values:

- "RIO full"
- "too many fields"
- "too many field elements"
- "too many FERs"
- "too many FEIs"

or a profile defined value of the form tag,value (INTEGER).

vt-information: Takes a value as defined in ISO 9040/Amd.2.

6.9 EXR (VT-EXCEPTION-RESP)

A new subclause 6.27 is added to ISO 9041-1 as follows:

6.9.1 Purpose

To acknowledge an EXQ.

6.9.2 Parameters

None.

7 Primary procedures

ISO 9041-1, clause 8 (Primary procedures) applies with the amendment of the subclause 8.8 (Break) as defined in 7.1 of this amendment.

7.1 Break and Exception

Subclause 8.8 (Break) is replaced by

8.8 Break and Exception

The VT-BREAK procedures provide the protocol facilities to support the VT-BREAK service, which is a destructive interrupt service available to either VT-user independently of the mode of operation or the ownership of access-rights.

The VT-EXCEPTION procedures provide the protocol facilities to support the VT-EXCEPTION service, which is a destructive interrupt service available to either VTPM independently of the mode of operation or the ownership of access-rights.

These procedures take precedence over other procedures and may be found in table 15.

8 Switch profile procedures

ISO 9041-1, clause 9 (Switch profile procedures) applies with the amendment of the subclause 9.8 (Break) as defined in 8.1 of this amendment and with the amendment of table 15 (Break procedures) as defined in 8.2 of this amendment.

8.1 Break and Exception

Subclause 9.8 (Break) is replaced by:

9.8 Break and Exception

The procedures for switch profile negotiation are the same as the procedures in subclause 8.8, see table 15.

8.2 Break and Exception procedures

Table 15 is replaced by table 3 of this amendment.

Table 3 – Break and Exception procedures

Step	VTPM	Event	Action
1a	I	VT-BREAK request	If EXR is expected, store VT-BREAK parameters. Otherwise set contents of DO's and CO's to that of the "reset context". Clear out any outstanding wait for acknowledgement. Send BKQ.
2a	T	BKQ	Set contents of DO's and CO's to that of the reset context. Clear any outstanding wait for acknowledgement. Clear out any stored VT-Break parameters. Issue VT-BREAK indication.
3a	T	VT-BREAK response	Send BKR. Proceed using data transfer procedures.
4a	I	BKR	Proceed using data transfer procedures.
1b	I	Exception found	Clear out any outstanding wait for acknowledgement. Send EXQ and issue VT-EXCEPTION indication.
2b	T	EXQ	Clear out any outstanding wait for acknowledgement. Send EXR and issue VT-EXCEPTION indication.
3b	I	EXR	Process stored VT-BREAK if present as in 1a and go to 2a.

9 Multiple interaction negotiation procedures

The multiple interaction negotiation procedures defined in the ISO 9041-1, clause 10 (Multiple interaction negotiation procedures) applies with the amendment of the subclause 10.8 (Break) as defined in 9.1 of this amendment.

9.1 Break and Exception

Subclause 10.8 (Break) is replaced by

10.8 Break and Exception

See 8.8.

10 Mapping of protocol elements

10.1 References

ISO 9041-1, clause 11 (Mapping of protocol elements) applies unchanged except for

- a) Table 23 (Protocol element mapping) which is amended as defined in 10.2 of this amendment;
- b) subclause 11.2.3 defining the use of P-RESYNCHRONISE request and indication which is amended as defined in 10.3 of this amendment;
- c) subclause 11.2.4 defining the use of P-RESYNCHRONISE response and confirm which is amended as defined in 10.4 of this amendment.

10.2 Mapping of protocol elements

Table 23 is amended by the addition of two entries as defined in table 4 of this amendment.

Table 4 – Protocol element mapping

Protocol Element	Mapping
EXQ	P-RESYNCHRONISE request and indication
EXR	P-RESYNCHRONISE response and confirm

10.3 P-RESYNCHRONISE request and indication

The whole of ISO 9041-1, subclause 11.2.3 is replaced by

The P-RESYNCHRONISE request and indication primitives convey the BKQ and EXQ protocol elements. This International Standard defines the following content for the P-RESYNCHRONISE parameters:

- a) User data contains the BKQ-pdu or the EXQ-pdu structured as required by clause 12;
- b) Resynchronize type contains the value "restart";

c) Synchronization point serial number contains values as defined by ISO 8326;

d) For A-mode, Tokens has the value "acceptor chooses" for the all defined tokens;

e) For S-mode, Tokens takes values from the initiating VT-BREAK request primitive or for EXQ the value "acceptor chooses".

10.4 P-RESYNCHRONISE response and confirm

The whole of ISO 9041-1, subclause 11.2.4 is replaced by:

The P-RESYNCHRONISE response and confirm primitives convey the BKR and EXR protocol elements. This International Standard defines the following content for the P-RESYNCHRONISE parameters:

- a) User Data contains the BKR-pdu structured as defined by clause 12, EXR does not require the User Data field;
- b) For A-mode, Tokens takes values from the existing token position;
- c) For S-mode, Tokens takes its value from the responding VT-BREAK response primitive or for EXR from the existing token position.

11 Protocol data unit structure

11.1 References

This amendment makes additions to of ISO 9041-1, clause 12 (Protocol data unit structure) as defined in 11.2 to 11.9 of this amendment.

11.2 asq-pdu and asr-pdu

In the G module the definition of FunctionalUnits is changed to include the Additional Functional Units defined by this amendment as follows:

```
FunctionalUnits ::= BIT STRING {
    profileSwitch          (0) ,
    multipleIntNeg         (1) ,
    negotiatedRelease      (2) ,
    urgentData             (3) ,
    destructiveBreak      (4) ,
    enhancedAccess         (5) ,
    structuredCOs          (6) ,
    blocks                 (7) ,
    fields                 (8) ,
    referenceInfoOs        (9) ,
    ripple                 (10) ,
    exceptions             (11) ,
    contextRetention       (12) }
```

11.3 spq-pdu

The addition of the Context Retention functional unit requires an alternative definition to be added as follows:

- a) in BasicVTPitem, add spq2-pdu to the CHOICE list:
 spq2-pdu [23] IMPLICIT SPQ2content,
 -- This form of spq shall be used when context retention
 -- is required. Either form of spq is allowed when context
 -- retention is not required even when the Context Reten-
 -- tion functional unit is selected.
- b) add to the ISO9041-VTP module the following definition:
 SPQ2content ::= SEQUENCE
 { profile [0] IMPLICIT G.Profile,
 retList [1] IMPLICIT SEQUENCE OF
 PrintableString OPTIONAL}
 -- This form of spq shall be used when context retention
 -- is required. Either form of spq is allowed when con-
 -- text retention is not required even when the context re-
 -- tention functional unit is selected.

11.4 spr-pdu

The addition of the Context Retention functional unit requires an alternative definition to be added as follows:

- a) in BasicVTPitem, add spr2-pdu to the CHOICE list:
 spr2-pdu [24] IMPLICIT SPR2content,
 -- This form of spr shall be used when context retention
 -- is required. Either form of spr is allowed when context
 -- retention is not required even when the Context
 -- Retention functional unit is selected.
- b) add to the ISO9041-VTP module the following definition:
 SPR2content ::= SEQUENCE
 { result G.Result2,
 argList [2] IMPLICIT G.ProfileArgumValueList
 OPTIONAL,
 retList [3] IMPLICIT SEQUENCE OF
 PrintableString OPTIONAL}
 -- This form of spr shall be used when context retention is
 -- required. Either form of spr is allowed when Context
 -- Retention is not required even when the Context
 -- Retention functional unit is selected.

11.5 enq-pdu

The addition of the Context Retention functional unit requires this definition to be changed. In the ISO9041-VTP module change the definition of ENQcontent as follows:

```
ENQcontent ::= SEQUENCE
{
  vteChoice [0] IMPLICIT INTEGER
    {
      draft (0),
      current (1),
      either (2) },
  failAllowed [1] IMPLICIT BOOLEAN OPTIONAL,
  -- true = "yes", false = "no"
```

```
retList [2] IMPLICIT SEQUENCE OF
  PrintableString OPTIONAL}
```

11.6 enr-pdu

The addition of the Context Retention functional unit requires this definition to be changed. In the ISO9041-VTP module change the definition of ENRcontent as follows:

```
ENRcontent ::= SEQUENCE {
  result G.Result3,
  vteChoice [3] IMPLICIT BOOLEAN OPTIONAL,
  --true = "draft", false = "current"
  retList [4] IMPLICIT SEQUENCE OF
  PrintableString OPTIONAL}
```

11.7 ndq-pdu

The addition of the Ripple functional unit requires this definition to be changed. In the ISO9041-VTP module change the definition of DOupdate by adding the following definitions to the CHOICE list:

```
insertXarray [22] IMPLICIT INTEGER,
deleteXarray [23] IMPLICIT INTEGER,
insertYarray [24] IMPLICIT INTEGER,
deleteYarray [25] IMPLICIT INTEGER,
copyToBuffer [26] SEQUENCE
{
  address Pointer,
  rioName [10] IMPLICIT PrintableString
    OPTIONAL,
  recordId [11] IMPLICIT PrintableStrin
    OPTIONAL,
  -- when buffer-name is "temporary", RIOname and
  -- recordID are absent when there is only one RIO
  -- present in the VTE, RIOname may not be present,
  -- but recordId must be present
  rendition [12] IMPLICIT NULL OPTIONAL,
  -- presence implies "copy attributes" absence implies
  -- "no attribute copy"
  structure [13] IMPLICIT INTEGER
    {
      none (0),
      x (1),
      xAndy (2) } OPTIONAL},
  -- absence implies "none"
copyFromBuffer [27] SEQUENCE
{
  address Pointer,
  rioName [10] IMPLICIT PrintableString
    OPTIONAL,
  recordId [11] IMPLICIT PrintableString
    OPTIONAL,
  -- when buffer-name is "temporary", RIOname and
  -- recordID are absent when there is only one RIO
  -- present in the VTE, RIOname may not be
  -- present, but recordId must be present
  rendition [12] IMPLICIT NULL OPTIONAL,
```

- presence implies "copy attributes" absence implies
- "no attribute copy"

```

structure [13] IMPLICIT INTEGER
{
  none (0),
  x (1),
  xAndy (2)} OPTIONAL,
  -- absence implies "none"
ripple [14] IMPLICIT NULL OPTIONAL},
  -- presence implies "on"
  -- absence implies "off"

```

copyLogToBuffer [28] SEQUENCE

```

{
  address LogPointer,
  rioName [8] IMPLICIT PrintableString
    OPTIONAL,
  recordId [9] IMPLICIT PrintableString
    OPTIONAL,

```

- when buffer-name is "temporary", RIOname and
- recordID are absent when there is only one RIO
- present in the VTE, RIOname may not be
- present, but recordId must be present
- rendition [10] IMPLICIT NULL OPTIONAL,
- presence implies "copy attributes"
- absence implies "no attribute copy"
- structure [11] IMPLICIT NULL OPTIONAL},
- presence implies "x"
- absence implies "none"

copyLogFromBuffer [29] SEQUENCE

```

{
  address LogPointer,
  rioName [8] IMPLICIT PrintableString
    OPTIONAL,
  recordId [9] IMPLICIT PrintableString
    OPTIONAL,

```

- when buffer-name is "temporary", RIOname and
- recordID are absent when there is only one RIO
- present in the VTE, RIOname may not be
- present, but recordId must be present
- rendition [10] IMPLICIT NULL OPTIONAL,
- presence implies "copy attributes"
- absence implies "no attribute copy"
- structure [11] IMPLICIT NULL OPTIONAL,
- presence implies "x", absence implies "none"
- rippleOff [12] IMPLICIT NULL OPTIONAL}
- presence implies "on" absence implies "off"

11.8 Various pdus for negotiation

The addition of the Ripple functional unit requires the definitions of pdus involved in negotiation (ASQ, ASR, SPQ, SPR, SNQ, SNR, NIQ, NOQ, NAQ, NJQ) to be changed as follows:

a) In the CDS module add the following item to the ParameterIdentifiers SEQUENCE:

```
rippleCapability [12] IMPLICIT NULL OPTIONAL
```

b) In the CDS module add the following item to the ParameterOffers SEQUENCE:

```
rippleCapability [12] IMPLICIT BIT STRING
{yes (0), no (1)} OPTIONAL
```

c) In the CDS module add the following item to the ParameterValues SEQUENCE:

```
rippleCapability [12] IMPLICIT BOOLEAN OPTIONAL
-- true= "yes" false= "no"
```

11.9 exq-pdu

In the ISO9041-VTP module, an exq-pdu is added to the CHOICE list of BasicVTPitem and the definition EXQcontent is added to the body of the module as follows:

```
exq-pdu [22] IMPLICIT EXQcontent
```

```
EXQcontent ::= SEQUENCE {
```

```
  exceptionType [0] CHOICE
```

```
    {
      stdException [0] IMPLICIT INTEGER
        {
          RIOfull (0),
          tooManyFields (1),
          tooManyFieldElements (2),
          tooManyFERs (3),
          tooManyFEIs (4)},

```

```
      proException [1] IMPLICIT INTEGER },
```

```
  standard [1] IMPLICIT SEQUENCE
```

```
    {
      pointer [0] IMPLICIT G.ExplicitPointer
        OPTIONAL,
      logPointer [1] IMPLICIT G.LogExpPointer
        OPTIONAL } OPTIONAL,
```

```
  profile [2] IMPLICIT SEQUENCE OF SEQUENCE
    { ptag INTEGER, OCTET STRING } OPTIONAL }
```

- the service parameter VT-exception-source shall take
- the value "local" for the sender of the EXQ and "remote"
- for the receiver of the EXQ.

Annex A

(normative)

State Tables

A.1 Changes to state tables

Due to the addition of the Exceptions functional unit, the following changes are made to the state tables in ISO 9041-1, Annex A:

- a) additions are made to ISO 9041-1, subclause A.2.2 as defined in A.2 of this amendment;
- b) additions are made to ISO 9041-1, table A.1 – Incoming events as defined in A.3 of this amendment;
- c) additions are made to ISO 9041-1, table A.2 – States as defined in A.4 of this amendment;
- d) additions are made to ISO 9041-1, table A.3 – Outgoing events as defined in A.5 of this amendment;
- e) additions are made to ISO 9041-1, table A.8 – Sector 1 states and table A.9 – Sector 1 actions as defined in A.6 of this amendment;
- f) additions are made to ISO 9041-1, table A.10 – Sector 2 states and table A.11 – Sector 2 actions as defined in A.7 of this amendment;
- g) additions are made to ISO 9041-1, table A.14 – Sector 4 states and table A.15 – Sector 4 actions as defined in A.8 of this amendment;
- h) additional tables are needed to handle exceptions which are defined in A.9 of this amendment.

A.2 Variables

Add the following subclauses to ISO 9041-1, subclause A.2.2:

A.2.2.13 Vbrkp enumerated, parameter

This is associated with the VT service parameter VT-information issued with a VT-BREAK request.

A.2.2.14 Vbrks enumerated, permanent

This is used to store the VT service parameter VT-information of a colliding VT-BREAK request during the exception report procedure.

A.3 Incoming events

Additions are made to ISO 9041-1, table A.1 as defined in table A.1 of this amendment.

Table A.1 – Incoming Events

Acronym	Category	Description
EXQ	VTP element	VT-P-EXCEPTION request
EXR	VTP element	VT-P-EXCEPTION response
exception	VTPM	Internal exception event

A.4 States

Additions are made to ISO 9041-1, table A.2 as defined in table A.2 of this amendment.

Table A.2 – States

Identifier	Description
71	Exception – await user
72	Exception – await peer
73	Exception – await peer – storing break

A.5 Outgoing events

Additions are made to ISO 9041-1, table A.3 as defined in table A.3 of this amendment.

Table A.3 – Outgoing events

Acronym	Category	Description
EXQ	VTP element	VT-P-EXCEPTION request
EXR	VTP element	VT-P-EXCEPTION response
VPEXind	VT-user	VT-P-EXCEPTION indication

A.6 Sector 1 States – association control & quiescent

Additions are made to ISO 9041-1, table A.8 as defined in table A.4 of this amendment.

Table A.4 – Sector 1 states – association control & quiescent

Ev- ent	State													
	01	02B	02S	03B	03S	10B	10N	10T	50B	51Q	51R	51N	51T	
EXQ									36	36			36	

Additions are made to ISO 9041-1, table A.9 as defined in table A.5 of this amendment.

Table A.5 – Sector 1 Actions

Ref	Action
36	Set Vtkp= ini pVtok:SetVtkp= acc SetVnt= 0;SetVns= 0;EXR;VPEXind= > 71

A.7 Sector 2 states – negotiation initiation

Additions are made to ISO 9041-1, table A.10 as defined in table A.6 of this amendment.

Table A.6 – Sector 2 states – negotiation initiation

Event	State									
	20B	21Q	21R	21N	21T	30B	31Q	31R	31N	31T
EXQ	22	22			22	22	22			22

Additions are made to ISO 9041-1, table A.11 as defined in table A.7 of this amendment.

Table A.7 – Sector 2 actions

Ref	Action
22	Set Vtkp= ini pVtok:SetVtkp= acc SetVnt= 0;SetVns= 0;EXR;VPEXnd= > 71

A.8 Sector 4 states – data transfer

Additions are made to ISO 9041, table A.14 as defined in table A.8 of this amendment.

Table A.8 – Sector 4 states – data transfer

Event	State									
	400B	402B	420B	422B	40N	40T	42T	42N	61	62
EXQ	44	44	44	44	44	44	44	44	44	
exception	45	45	45	45	45	45	45	45		

Additions are made to ISO 9041-1, table A.15 as defined in table A.9 of this amendment.

Table A.9 – Sector 4 actions

Ref	Action
44	Set Vtkp= ini pVtok:SetVtkp= acc SetVnt= 0;SetVns= 0;EXR;VPEXnd= > 71
45	SetVtkp= cho SetVnt= 0;SetVns= 0;EXQ;VPEXnd= > 72

A.9 Sector 5 states – exceptions

A new state table A.16 for exceptions is defined in table A.10 of this amendment.

Table A.10 – Sector 5 states – exceptions

Event	State		
	71	72	73
VBRKreq	01	02	
EXR		03	04
BKQ	05	05	05
EXQ		06	

A new action table A.17 for exceptions is defined in table A.11 of this amendment.

Table A.11 – Sector 5 actions

Ref	Action
01	p~ Vsmd:SetVtkp= cho SetVnt= 0;SetVns= 0;BKQ= > 61
02	SetVbrks= Vbrkp;= > 73
03	= > 71
04	p~ Vsmd:SetVtkp= cho SetVnt= 0;SetVns= 0;SetVbrkp= Vbrks;BKQ= > 61VBR
05	Kind= > 62
06	SetVtkp= ini pVtok:SetVtkp= acc EXR= > 71

Implementation of Technical Corrigendum 1
published and effective from 15 April 1993
to BS ISO 9041-1 : 1990

Information technology – Open Systems Interconnection –
Virtual Terminal Basic Class Protocol – Part 1: Specification

National foreword

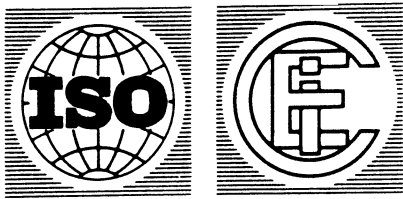
In line 1, after 'ISO 9041-1 : 1990' insert, 'including Technical Corrigendum 1'.

AMD 7680/April 1993

ISO text

Insert the attached as appropriate.

AMD 7680/April 1993



INTERNATIONAL STANDARD ISO 9041-1:1990
TECHNICAL CORRIGENDUM 1

Published 1992-12-15

INTERNATIONAL ORGANIZATION FOR STANDARDIZATION • МЕЖДУНАРОДНАЯ ОРГАНИЗАЦИЯ ПО СТАНДАРТИЗАЦИИ • ORGANISATION INTERNATIONALE DE NORMALISATION
INTERNATIONAL ELECTROTECHNICAL COMMISSION • МЕЖДУНАРОДНАЯ ЭЛЕКТРОТЕХНИЧЕСКАЯ КОМИССИЯ • COMMISSION ELECTROTECHNIQUE INTERNATIONALE

Information technology – Open Systems Interconnection – Virtual Terminal Basic Class Protocol –

Part 1: Specification

TECHNICAL CORRIGENDUM 1

*Technologies de l'information – Interconnexion des systèmes ouverts – Protocole de classe de base de terminal
tuel –*

rtie 1: Spécification

ECTIFICATIF TECHNIQUE 1

chnical corrigendum 1 to International Standard ISO 9041-1:1990 was prepared by Joint Technical Committee
O/IEC JTC 1, *Information technology*.

Page 9

Subclause 6.2.2

In j), in the first sentence, remove "as a printable string" and remove the second sentence.

Page 10

Subclause 6.10.2

Replace c) by the following text:

"c) VT-user-failure-reason: Optional user provided text string.

d) VT-provider-failure-reason: May optionally take the value "VTE-incomplete".

UDC 681.3.01:621.39

Ref. No. ISO 9041-1:1990/Cor.1:1992 (E)

Descriptors : data processing, information interchange, network interconnection, open systems interconnection, communication procedure.

© ISO/IEC 1992

Subclause 6.12.2

Replace the text by the following text:

"object updates: A sequence of zero or more data items. Each data item is a (CO-name, object update) pair. Each CO-name identifies a Control Object; the corresponding object update identifies permitted updates to that object. The permitted updates to Control Objects are defined in ISO 9040."

Page 11

Subclause 6.14.2

Replace the text of a) by the following text:

"object updates: A sequence of zero or more data items. Each data item is a (object name, object update) pair. Each object name identifies a Display Object, Control Object or RIO; the corresponding object update identifies permitted updates to that object. The permitted updates to objects are defined in ISO 9040."

Remove the last paragraph of 6.14.2.

Page 24

Subclause 11.1.1

Replace the note in paragraph a) with the following text:

"Note - Application Entity Title is used here for the collection of four naming parameters defined in ISO 8649, namely, application-process-title, application-process-invocation-identifier, application-entity-qualifier and application-entity-invocation-identifier. The relation between these naming concepts is defined in ISO 7498-3."

Replace paragraph b) with the following text:

"b) Application Context Name contains the identifier specified in Annex B.

Page 26

Subclause 11.2.1

Append the text "f) DLQ" to the end of the list.

Pages 31 and 32

Subclause 12.2

In the production for COupdate, the ASN.1 for tag 0 (characterUpdate) is replaced by:

"characterUpdate [0] IMPLICIT OCTET STRING"

The ASN.1 within the expansion of tag 5 (multiElement) for characterUpdate is replaced by:

characterUpdate [0] IMPLICIT OCTET STRING

In the ASN.1 comment text at the bottom of page 31 and top of page 32, all the references to clauses of the form 12.2.1.n are replaced by 12.2.n (6 occurrences).

Page 47

Subclause 13.3

Replace the text by the following:

"The supplier of a protocol implementation which is claimed to conform to this International Standard shall complete a copy of the PICS proforma provided in Part 2 Annex A of this International Standard, and shall provide the information necessary to identify both the supplier and the implementation."

Page 55

Annex A Table A.5

Add the following predicate:

"FuMIN The Multiple Interaction Negotiation Functional Unit is selected".

Page 56

Annex A Table A.9

Add the following line at the start of Action 2:

"p~ Pracc:SetVrsl= fai;SetVrea= pns;VASScnf= > SAMESTATE".

In Action 3 after line 3 and in Action 4 line 4, add the following line:

"pVrsl= sww&~ FuMIN:Pusr".

Page 58

Annex A Table A.9

The last line of action 24 should be moved up one line (removing the blank line) and the "25" at the end of that line is deleted.

new action 25 is inserted in the table as follows:

"25 VRELind= > 51R"

Page 59

Annex A Table A.11

In Action 11 for the two lines starting "pVrsl= scc" insert "104" before "VSNEGcnf".

Page 60

Annex A Table A.11

In action 16 and 17 last but one line, change 40T to 400B.

In action 16 and 17 last line, change 400B to 40T

Page 61

Annex A Table A.13

Action 15, indent line 2 so that the actions defined in that line are associated with the predicate in line 1.

Action 16, append a semi-colon (;) to the end of line 1.

Action 16, indent line 2 so that the actions defined in that line are associated with the predicate in line 1.

Action 18, indent line 2 so that the actions defined in that line are associated with the predicate in line 1.

Page 65

Annex B

Remove the last OBJECT IDENTIFIER production which specifies a VT Presentation Context.

INTERNATIONAL STANDARD

ISO
9041-1

First edition
1990-11-15

Information technology — Open Systems Interconnection — Virtual Terminal Basic Class Protocol —

Part 1: Specification

*Technologies de l'information — Interconnexion des systèmes ouverts — Protocole
de classe de base de terminal virtuel*

Partie 1: Spécification



Reference number
ISO 9041-1 : 1990 (E)

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6.8 DLQ (VT-DELIVER)	10
6.9 ENQ (VT-END-NEG-REQ)	10
6.10 ENR (VT-END-NEG-RESP)	10
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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

International Standard ISO 9041-1 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

Introduction

ISO 9041 is one of a set of International Standards produced to facilitate the interconnection of computer systems. It is related to other International Standards in the set as defined in the Reference Model for Open Systems Interconnection (ISO 7498). The Reference Model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

This part of ISO 9041 defines the manner in which two protocol machines (called Virtual Terminal Protocol Machines or VTPMs) in the Application Layer of the Reference Model for Open Systems Interconnection communicate in order to provide the Virtual Terminal Basic Class Service defined in ISO 9040 making use of the Presentation Layer and of the association control service of ACSE within the Application Layer.

Information technology – Open Systems Interconnection – Virtual Terminal Basic Class Protocol – Part 1: Specification

1 Scope

This part of ISO 9041 specifies

- a) a set of procedures for the connection-oriented transfer of data, control and reference information between protocol machines which implement the functions of a provider of the Basic Class Virtual Terminal Service;
 - b) the two modes in which those procedures operate;
 - c) the structure of protocol elements used for the transfer of data and control information and the mapping of these protocol elements onto ACSE and lower layer services;
 - d) the means of negotiating the functional units to be used by the protocol machines and the parameters of the service;
 - e) the structure and mapping of protocol elements used for the transfer of data and control information.
- a) procedures are defined in terms of
- i) the interactions between Virtual Terminal Protocol Machines through the exchange of Virtual Terminal protocol elements;
 - j) the interactions between a Virtual Terminal Protocol Machine and the Virtual Terminal service user in the same system through the exchange of Virtual Terminal service primitives;
 - h) the interactions between a Virtual Terminal Protocol Machine and the ACSE and Presentation Service providers through the exchange of service primitives.

This part of ISO 9041 also specifies conformance requirements (see clause 13) for systems implementing these procedures. It does not contain tests which can be used to demonstrate this conformance.

These procedures are applicable to instances of communication between systems that support the Basic Class Virtual Terminal Service in the Application Layer of the Reference Model for Open Systems Interconnection and which wish to interconnect in an open systems environment.

2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 9041. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 9040 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 2022:1986, *Information processing systems – ISO 7-bit and 8-bit Coded Character Sets – Code Extension Techniques*.

ISO 6429:1988, *Information processing systems – Control functions for 7-bit and 8-bit Coded Character Sets*.

ISO 7498:1984, *Information processing systems – Open Systems Interconnection – Basic Reference Model*.

ISO 8326:1987, *Information processing systems – Open Systems Interconnection – Basic connection oriented session service definition*.

ISO/TR 8509:1987, *Information processing systems – Open Systems Interconnection – Service conventions*.

ISO 8649:1988, *Information processing systems – Open Systems Interconnection – Association Control Service Element*.

ISO 8822:1988, *Information processing systems – Open Systems Interconnection – Connection oriented presentation service definition*.

ISO 8824:1987, *Information processing systems – Open Systems Interconnection – Specification of Abstract Syntax Notation One (ASN.1)*.

ISO 8825:1987, *Information processing systems – Open Systems Interconnection – Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.

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

The International Register of Coded Character Sets to be used with Escape Sequences. ¹⁾

1) Available from the European Computer Manufacturers Association (ECMA), 114 Rue du Rhône, CH 1204 Genève, Switzerland.