



INTERNATIONAL STANDARD ISO/IEC 9596-1:1998
TECHNICAL CORRIGENDUM 2

Published 2002-12-01

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

Information technology — Open Systems Interconnection — Common management information protocol —

Part 1: Specification

TECHNICAL CORRIGENDUM 2

*Technologies de l'information — Interconnexion de systèmes ouverts (OSI) — Protocole commun
d'information de gestion —*

Partie 1: Spécification

RECTIFICATIF TECHNIQUE 2

Technical Corrigendum 2 to ISO/IEC 9596-1:1998 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
COMMON MANAGEMENT INFORMATION PROTOCOL: SPECIFICATION

TECHNICAL CORRIGENDUM 2

Revision to include ASN.1: 1997

1) Subclause 2.1

Insert the following references into this subclause:

- ITU-T Recommendation X.680 (1997) | ISO/IEC 8824-1:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.681 (1997) | ISO/IEC 8824-2:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*
- ITU-T Recommendation X.682 (1997) | ISO/IEC 8824-3:1998, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*
- ITU-T Recommendation X.690 (1997) | ISO/IEC 8825-1:1998, *Information technology – ASN.1 encoding rules: Specification of Basic Encoding Rules (BER), Canonical Encoding Rules (CER) and Distinguished Encoding Rules (DER).*
- ITU-T Recommendation X.691 (1997) | ISO/IEC 8825-2:1998, *Information technology – ASN.1 encoding rules: Specification of Packed Encoding Rules (PER).*
- ITU-T Recommendation X.880 (1994) | ISO/IEC 13712-1:1995, *Information technology – Remote Operations: Concepts, model and notation.*
- ITU-T Recommendation X.881 (1994) | ISO/IEC 13712-2:1995, *Information technology – Remote Operations: OSI realizations – Remote Operations Service Element (ROSE) service definition.*
- ITU-T Recommendation X.882 (1994) | ISO/IEC 13712-3:1995, *Information technology – Remote Operations: OSI realizations – Remote Operations Service Element (ROSE) protocol specification.*

2) Subclause 2.2

Replace subclause 2.2 with the following:

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.700 (1992), *Management framework for Open Systems Interconnection (OSI) for CCITT applications.*
ISO/IEC 7498-4:1989, *Information processing systems – Open Systems Interconnection – Basic Reference Model – Part 4: Management framework.*

3) Subclause 3.3

Replace subclause 3.3 with the following:

3.3 Remote Operations definitions

This Recommendation | International Standard makes use of the following term defined in ITU-T Rec. X.880 | ISO/IEC 13172-1:

- a) linked-operation.

This Recommendation | International Standard makes use of the following terms defined in ITU-T Rec. X.881 | ISO/IEC 13172-2:

- a) association-initiator;
- b) association-responder;
- c) Remote Operation Service Element;
- d) invoker;
- e) performer.

4) Subclause 5.2

Replace the first paragraph with the following:

This Recommendation | International Standard uses the RO-INVOKE, RO-RESULT, RO-ERROR and RO-REJECT-U services of the Remote Operations Service Element (ROSE) defined in ITU-T Rec. X.880 | ISO/IEC 13712-1. ROSE assumes the use of the presentation service defined in ITU-T Rec. X.216 | ISO/IEC 8822. The confirmed operations of CMIP are asynchronous or synchronous as required by the application. The choice of asynchronous or synchronous is a local matter implemented by the application. The unconfirmed operations of CMIP are asynchronous, outcome not reported. Both the association-initiating and the association-responding application entities can invoke operations.

5) Subclause 5.2.2

Replace CCITT Rec. X.229 and ISO/IEC 9072-2 with ITU-T Rec. X.882 | ISO/IEC 13712-3.

6) Subclause 6.2.1

Replace CCITT Rec. X.229 and ISO/IEC 9072-2 with ITU-T Rec. X.882 | ISO/IEC 13712-3.

Replace InvokeID with invokeId in Table 2.

Replace Linked-ID with linkedId in Table 2.

7) Subclause 6.4.3

Replace linked-ID with linkedId (occurs 4 times).

8) Subclause 6.4.4

Replace linked-ID with linkedId (occurs twice).

9) Subclause 6.5.3

Replace linked-ID with linkedId (occurs 4 times).

10) Subclause 6.5.4

Replace linked-ID with linkedId (occurs twice).

11) Subclause 6.6.3

Replace linked-ID with linkedId (occurs 4 times).

12) Subclause 6.6.4

Replace linked-ID with linkedId (occurs twice).

13) Subclause 6.8.3

Replace linked-ID with linkedId (occurs 4 times).

14) Subclause 6.8.4

Replace linked-ID with linkedId (occurs twice).

15) Subclause 7.1

Replace the first paragraph with the following:

The abstract syntax is defined using the notation specified in ITU-T Rec. X.680 | ISO/IEC 8824-1.

16) Subclause 7.2

Replace Linked-ID with linkedId in Table 4.

Remove the last line of Table 4.

17) Subclause 7.4

Replace with the following:

7.4 CMIP data units

The protocol is described in terms of Common Management Information Protocol Data Units exchanged between the peer CMISEs. The PDUs are specified using ASN.1 and the ROSE information objects defined in ITU-T Rec. X.880 | ISO/IEC 13712-1.

-- Common Management Information Protocol (CMIP)

CMIP-1 {joint-iso-itu-t ms(9) cmip(1) modules(0) protocol(3)}

DEFINITIONS ::= BEGIN

-- This ASN.1 specification has been checked for conformance with the ASN.1 standard by the OSS ASN.1 Tools

IMPORTS

ERROR, OPERATION

FROM Remote-Operations-Information-Objects

{joint-iso-itu-t remote-operations(4) informationObjects(5) version1(0)}

ROS {}, InvokeId, noInvokeId

FROM Remote-Operations-Generic-ROS-PDUs

{joint-iso-itu-t remote-operations(4) generic-ROS-PDUs(6) version1(0)};

```
CMIP-Operations OPERATION ::= {
  m-Action
  m-Action-Confirmed
  m-CancelGet
  m-Create
  m-Delete
  m-EventReport
  m-EventReport-Confirmed
  m-Get
  m-Linked-Reply
  m-Set
  m-Set-Confirmed
}
```

```

CMIP-Confirmed-Operations OPERATION ::= {
    m-Action-Confirmed      |
    m-CancelGet             |
    m-Create                 |
    m-Delete                 |
    m-EventReport-Confirmed |
    m-Get                    |
    m-Set-Confirmed          }

```

-- CMISE error definitions

```

accessDenied ERROR ::= {
    PRIORITY      {0}
    CODE          local : 2 }

classInstanceConflict ERROR ::= {
    PARAMETER     BaseManagedObjectId
    PRIORITY      {1}
    CODE          local : 19 }

complexityLimitation ERROR ::= {
    PARAMETER     ComplexityLimitation OPTIONAL TRUE
    PRIORITY      {1}
    CODE          local : 20 }

duplicateManagedObjectInstance ERROR ::= {
    PARAMETER     ObjectInstance
    PRIORITY      {1}
    CODE          local : 11 }

getListError ERROR ::= {
    PARAMETER     GetListError
    PRIORITY      {1}
    CODE          local : 7 }

invalidArgumentValue ERROR ::= {
    PARAMETER     InvalidArgumentValue
    PRIORITY      {1}
    CODE          local : 15 }

invalidAttributeValue ERROR ::= {
    PARAMETER     Attribute
    PRIORITY      {1}
    CODE          local : 6 }

invalidFilter ERROR ::= {
    PARAMETER     CMISFilter
    PRIORITY      {1}
    CODE          local : 4 }

invalidObjectInstance ERROR ::= {
    PARAMETER     ObjectInstance
    PRIORITY      {1}
    CODE          local : 17 }

invalidScope ERROR ::= {
    PARAMETER     Scope
    PRIORITY      {1}
    CODE          local : 16 }

missingAttributeValue ERROR ::= {
    PARAMETER     SET OF AttributeId
    PRIORITY      {1}
    CODE          local : 18 }

mistypedOperation ERROR ::= {
    PRIORITY      {1}
    CODE          local : 21 }

```

```

noSuchAction ERROR ::= {
    PARAMETER    NoSuchAction
    PRIORITY      {1}
    CODE          local : 9 }

noSuchArgument ERROR ::= {
    PARAMETER    NoSuchArgument
    PRIORITY      {1}
    CODE          local : 14 }

noSuchAttribute ERROR ::= {
    PARAMETER    AttributeId
    PRIORITY      {1}
    CODE          local : 5 }

noSuchEventType ERROR ::= {
    PARAMETER    NoSuchEventType
    PRIORITY      {1}
    CODE          local : 13 }

noSuchInvokeId ERROR ::= {
    PARAMETER    InvokeIDType
    PRIORITY      {1}
    CODE          local : 22 }

noSuchObjectClass ERROR ::= {
    PARAMETER    ObjectClass
    PRIORITY      {1}
    CODE          local : 0 }

noSuchObjectInstance ERROR ::= {
    PARAMETER    ObjectInstance
    PRIORITY      {1}
    CODE          local : 1 }

noSuchReferenceObject ERROR ::= {
    PARAMETER    ObjectInstance
    PRIORITY      {1}
    CODE          local : 12 }

operationCancelled ERROR ::= {
    PRIORITY      {1}
    CODE          local : 23 }

processingFailure ERROR ::= {
    PARAMETER    ProcessingFailure OPTIONAL TRUE
    PRIORITY      {1}
    CODE          local : 10 }

setListError ERROR ::= {
    PARAMETER    SetListError
    PRIORITY      {1}
    CODE          local : 8 }

syncNotSupported ERROR ::= {
    PARAMETER    CMISSync
    PRIORITY      {1}
    CODE          local : 3 }

```

-- CMISE operations

-- Action operation (M-ACTION)

```

m-Action OPERATION ::= {
    ARGUMENT      ActionArgument
    RETURN RESULT  FALSE
    ALWAYS RESPONDS  FALSE
    CODE          local : 6 }

m-Action-Confirmed OPERATION ::= {
    ARGUMENT      ActionArgument

```

RESULT	ActionResult OPTIONAL TRUE	<i>-- this result is conditional; -- for conditions see 8.3.3.2.9 of ITU-T Rec. X.710</i>
ERRORS	{accessDenied classInstanceConflict complexityLimitation invalidScope invalidArgumentValue invalidFilter noSuchAction noSuchArgument noSuchObjectClass noSuchObjectInstance processingFailure syncNotSupported}	
LINKED CODE	{m-Linked-Reply} local : 7 }	

-- Cancel get operation (M-CANCEL-GET)

```
m-CancelGet OPERATION ::= {
  ARGUMENT      InvokeIDType
  RETURN RESULT  TRUE
  ERRORS         {mistypedOperation | noSuchInvokeId | processingFailure}
  CODE           local : 10 }
```

-- Create operation (M-CREATE)

```
m-Create OPERATION ::= {
  ARGUMENT      CreateArgument
  RESULT         CreateResult OPTIONAL TRUE      -- this result is conditional;
                                                    -- for conditions see 8.3.4.1.3 of ITU-T Rec. X.710
  ERRORS         {accessDenied | classInstanceConflict | duplicateManagedObjectInstance |
                  invalidAttributeValue | invalidObjectInstance | missingAttributeValue | noSuchAttribute |
                  noSuchObjectClass | noSuchObjectInstance | noSuchReferenceObject | processingFailure}
  CODE           local : 8 }
```

-- Delete operation (M-DELETE)

```
m-Delete OPERATION ::= {
  ARGUMENT      DeleteArgument
  RESULT         DeleteResult OPTIONAL TRUE      -- this result is conditional;
                                                    -- for conditions see 8.3.5.2.8 of ITU-T Rec. X.710
  ERRORS         {accessDenied | classInstanceConflict | complexityLimitation | invalidFilter | invalidScope |
                  noSuchObjectClass | noSuchObjectInstance | processingFailure | syncNotSupported}
  LINKED         {m-Linked-Reply}
  CODE           local : 9 }
```

-- Event Reporting operations (M-EVENT-REPORT)

```
m-EventReport OPERATION ::= {
  ARGUMENT      EventReportArgument
  RETURN RESULT  FALSE
  ALWAYS RESPONDS  FALSE
  CODE           local : 0 }
```

```
m-EventReport-Confirmed OPERATION ::= {
  ARGUMENT      EventReportArgument
  RESULT         EventReportResult OPTIONAL TRUE
  ERRORS         {invalidArgumentValue | noSuchArgument | noSuchEventType |
                  noSuchObjectClass | noSuchObjectInstance | processingFailure}
  CODE           local : 1 }
```

-- Get operation (M-GET)

```
m-Get OPERATION ::= {
  ARGUMENT      GetArgument
  RESULT         GetResult OPTIONAL TRUE      -- this result is conditional;
                                                    -- for conditions see 8.3.1.2.8 of ITU-T Rec. X.710
  ERRORS         {accessDenied | classInstanceConflict | complexityLimitation | getListError |
                  invalidFilter |
                  invalidScope | noSuchObjectClass | noSuchObjectInstance | operationCancelled |
                  processingFailure | syncNotSupported}
  LINKED         {m-Linked-Reply}
  CODE           local : 3 }
```

-- Linked operation to M-GET, M-SET (Confirmed), M-ACTION (Confirmed), and M-DELETE