INTERNATIONAL STANDARD

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AMENDMENT 1
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Information technology — Remote Operations: OSI realizations — Remote Operations Service Element (ROSE) service definition

AMENDMENT 1: Mapping to A-UNIT-DATA and built-in operations

Technologies de l'information — Opérations à distance: Réalisations OSI — Définition du service pour l'élément de service des opérations à distance (ROSE)

AMENDEMENT 1: Cartographie pour une donnée unitaire et opérations intégrées

Reference number
ISO/IEC 13712-2:1995/Amd.1:1996(E)

Contents

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work.

In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1. 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 1 to International Standard ISO/IEC 13712-2:1995 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 21, *Open systems interconnection, data management and open distributed processing*, in collaboration with ITU-T. The identical text is published as ITU-T Rec. X.881/Amd.1.

Introduction

This amendment to Rec. X.881 | ISO/IEC 13712-2 provides the mapping of ROSE APDUs onto the A-UNIT-DATA service, and the inclusion of three built-in operations – Probe, Acknowledge and Cancel – which are of general utility to designers of ROSE-based applications.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – REMOTE OPERATIONS: OSI REALIZATIONS – REMOTE OPERATIONS SERVICE ELEMENT (ROSE) SERVICE DEFINITION

AMENDMENT 1
Mapping to A-UNIT-DATA and built-in operations

1) Clause 1

Rewrite the third sentence of the second paragraph as follows (with the changes underlined):

The ROSE services are provided by the use of the ROSE protocol (specified in a companion Recommendation | International Standard, ITU-T Rec. X.882 | ISO/IEC 13712-3), in conjuction with the Association Control Service Element (ACSE) services (ITU-T Rec. X.217 | ISO/IEC 8649) and the ACSE protocol (ITU-T Rec. X.227 | ISO/IEC 8650-1 and ITU-T Rec. X.237 | ISO/IEC 10035-1), and, optionally, the Reliable Transfer Service Element (RTSE) services (ITU-T Rec. X.218 | ISO/IEC 9066-1) and the RTSE protocol (ITU-T Rec. X.228 | ISO/IEC 9066-2), and the Presentation service (ITU-T Rec. X.216 | ISO/IEC 8822).

2) Subclause 2.1

Add the following references:

- ITU-T Recommendation X.237 (1995) | ISO/IEC 10035-1:1995, *Information technology – Open Systems Interconnection – Connectionless protocol for the Association Control Service Element: Protocol specification.*
- ITU-T Recommendation X.880 (1994)/Amd.1 (1995) | ISO/IEC 13712-1:1995/Amd.1:1996, *Information technology – Remote Operations: Concepts, model and notation – Amendment 1 : Built-in operations.*
- ITU-T Recommendation X.882 (1994)/Amd.1 (1995) | ISO/IEC 13712-3:1995/Amd.1:1996, *Information technology – Remote Operations: OSI realizations – Remote Operations Service Element (ROSE) protocol specification – Amendment 1: Mapping to A-UNIT-DATA and built-in operations.*

3) Clause 6

Add the following figure and text at the end:

The internal structure of ROSE is depicted in Figure 3.

Basic ROSE provides for the ability to send and receive invocations and returns of operations. The basic ROSE services are defined in clause 8. In addition, ROSE may contain a number of built-in operations which provide extended ROSE services, as defined in clause 10. Built-in operations are included if they are required by the association contract being supported.

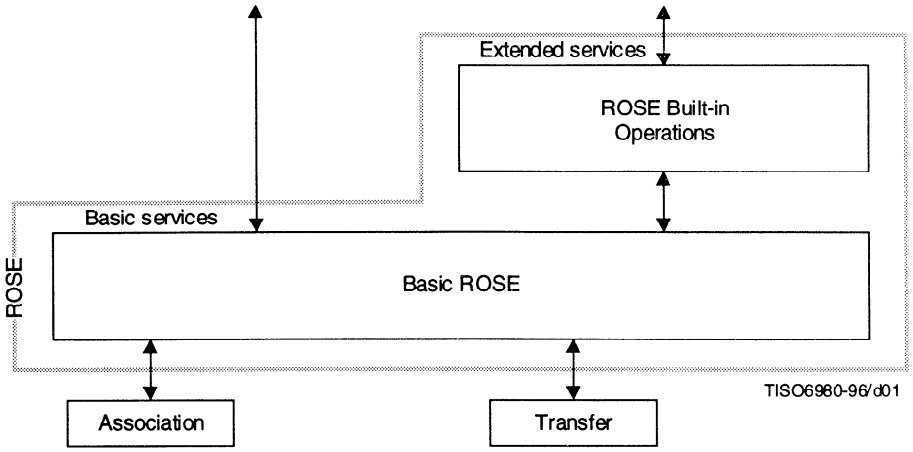


Figure 3 – Structure of ROSE

4) Clauses 8 to 11

Renumber the existing Figures 3 through 29 as 4 through 30 respectively.

5) Subclause 7.2.1

Add the following fields (underlined) to the APPLICATION-CONTEXT information object class*:*

```
APPLICATION-CONTEXT ::= CLASS
{
        &probe                          BOOLEAN DEFAULT FALSE,
        &acknowledge                    BOOLEAN DEFAULT FALSE,
        &associationContract            CONTRACT,
        &associationRealization         REALIZATION OPTIONAL,
        &transferRealization            REALIZATION,
        &AbstractSyntaxes               ABSTRACT-SYNTAX,
        &applicationContextName         OBJECT IDENTIFIER UNIQUE
}
WITH SYNTAX
{
        [PROBE                          &probe]
        [ACKNOWLEDGE                    &acknowledge]
        CONTRACT                        &associationContract
        [ESTABLISHED BY                 &associationRealization]
        INFORMATION TRANSFER BY         &transferRealization
        ABSTRACT SYNTAXES               &AbstractSyntaxes
        APPLICATION CONTEXT NAME        &applicationContextName
}

REALIZATION ::= TYPE-IDENTIFIER
```

6) Subclause 7.2

Add the following two new subclauses:

7.2.5 The **&probe** field indicates whether or not the **probe** operation is available to enquire about the outcome of previously invoked operations. The **probe** operation need not be present in the association contract; however it must be accommodated by the **&AbstractSyntaxes**.

NOTE – The **probe** operation is defined in ITU-T Rec. X.880/Amd.1 | ISO/IEC 13712-1/Amd.1.

7.2.6 The **&acknowledge** field indicates whether or not the **acknowledge** operation is to be used to acknowledge receipt of (non-idempotent) operations. The **acknowledge** operation need not be present in the association contract; however it must be accommodated by the **&AbstractSyntaxes**.

NOTE – The **acknowledge** operation is defined in ITU-T Rec. X.880/Amd.1 | ISO/IEC 13712-1/Amd.1.

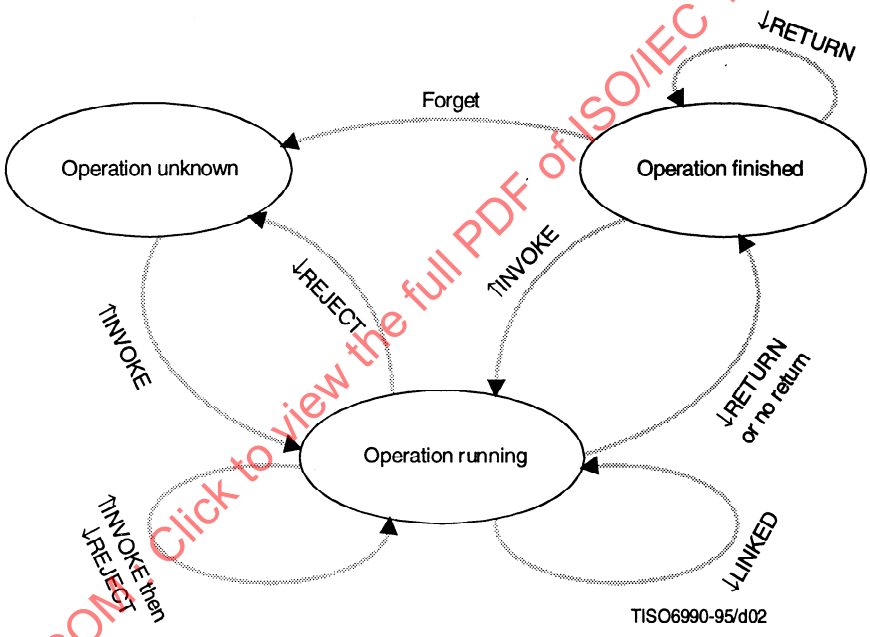
7) Subclause 7.3.2

Change the second paragraph as follows (with the additions underlined and deletions struckthrough):

If an application context including ROSE but excluding RTSE is defined, the ROSE services require access to either the A-UNIT-DATA service or the P-DATA service. ~~and~~ In the case of access to the P-DATA service, it requires the use of the duplex functional unit of the Presentation service. The ROSE services neither use, nor constrain the use of, any other Presentation service.

8) Subclause 9.3

Replace the former Figure 16 with the following figure. Note new figure number.



NOTE – The duration of the "operation finished" state is implementation dependent.

Figure 17 – Permitted sequences for operation performer

9) Clause 10

Renumber clause 10 as clause 11 and similarly for all its subclauses.

10) Clause 11

Renumber clause 11 as clause 12 and similarly for all its subclauses.

11) Clause 10

Add the following new clause 10:

10 Extended ROSE services

A number of extended ROSE services is available through particular operations and errors being "built-in" to ROSE. These services are not described explicitly using the service primitive style, but implicitly through the use of the mapping rules of clause 11. In applying those rules, the naming of the service primitives is as if the contract was called "RO" and the operation's name was in upper-case.

NOTE – For example, the service primitives corresponding to the **probe** operation are called RO-PROBE.

10.1 Probe and Acknowledge

When the **&probe or &acknowledge** field of the application context is **TRUE**, the corresponding operation, as specified in ITU-T Rec. X.880/Amd.1 | ISO/IEC 13712-1/Amd.1, is built-in to ROSE.

NOTE – Normally, both operations or neither will be included.

If either operation is included, the performer of a non-idempotent operation retains the return until it has been acknowledged, so that it can be resent. The return is considered to be acknowledged if either:

a) the operation was synchronous, and another synchronous operation is subsequently invoked by the same invoker; or

b) an **acknowledge** operation is invoked by the same invoker, identifying the operation.

When the return is retained, a **probe** operation eliciting the result **finished** will, as a side effect, cause its re-sending.

12) Annex A

Change the first module reference as follows (with the change underlined):

Remote-Operations-Information-Objects-extensions {joint-iso-itu-t remote-operations(4) informationObjects-extensions(8) version2(1)}

Add the following (underlined) to the import statement in the module body:

IMPORTS CONTRACT FROM Remote-Operations-Information-Objects{joint-iso-itu-t remote-operations(4) information-Objects(5) version2(1)}
probe, acknowledge FROM Remote-Operations-Useful-Definitions {joint-iso-itu-t remote-operations(4) useful-definitions(7) version2(1)};

Add the following fields (underlined) to the APPLICATION-CONTEXT information object class:

```
APPLICATION-CONTEXT ::= CLASS
{
        &probe                          BOOLEAN DEFAULT FALSE,
        &acknowledge                    BOOLEAN DEFAULT FALSE,
        &associationContract            CONTRACT,
        &associationRealization         REALIZATION OPTIONAL,
        &transferRealization            REALIZATION,
        &AbstractSyntaxes               ABSTRACT-SYNTAX,
        &applicationContextName         OBJECT IDENTIFIER UNIQUE
}
WITH SYNTAX
{
        [PROBE                          &probe]
        [ACKNOWLEDGE                    &acknowledge]
        CONTRACT                        &associationContract
        [ESTABLISHED BY                 &associationRealization]
        INFORMATION TRANSFER BY         &transferRealization
        ABSTRACT SYNTAXES               &AbstractSyntaxes
        APPLICATION CONTEXT NAME        &applicationContextName
}

REALIZATION ::= TYPE-IDENTIFIER
```

15) Annex C

Make the following changes to the table (with the changes underlined):

Clause	Object Identifier Value
Annex A	{joint-iso-itu-t remote-operations(4) informationObjects-extensions(8) version2(1)}