



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1
X.881

(11/95)

**DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS**

OSI APPLICATIONS – REMOTE OPERATIONS

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

**AMENDMENT 1: MAPPING TO A-UNIT-DATA
AND BUILT-IN OPERATIONS**

Amendment 1 to
ITU-T Recommendation X.881

(Previously “CCITT Recommendation”)

FOREWORD

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In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC. The text of ITU-T Recommendation X.881, Amendment 1, was approved on 21st of November 1995. The identical text is also published as ISO/IEC International Standard 13712-2.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized private operating agency.

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ITU-T X-SERIES RECOMMENDATIONS

DATA NETWORKS AND OPEN SYSTEM COMMUNICATIONS

(February 1994)

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Summary

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 DEFINITIONAMENDMENT 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 conjunction 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.

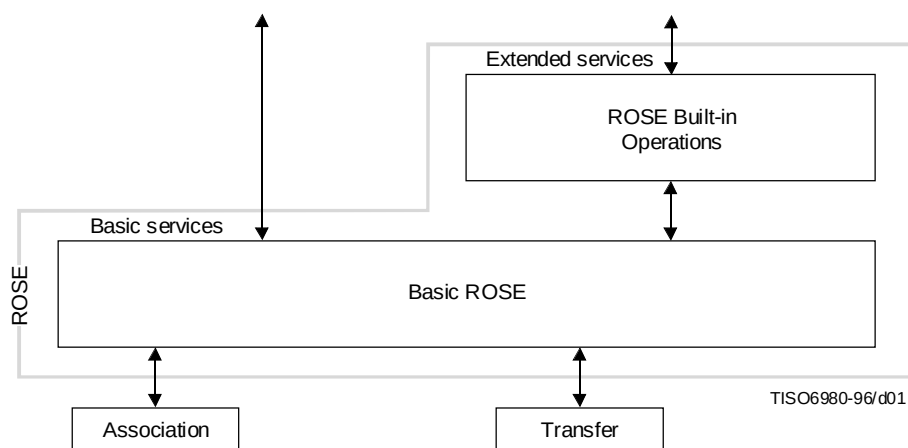


Figure 3 – Structure of ROSE

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.

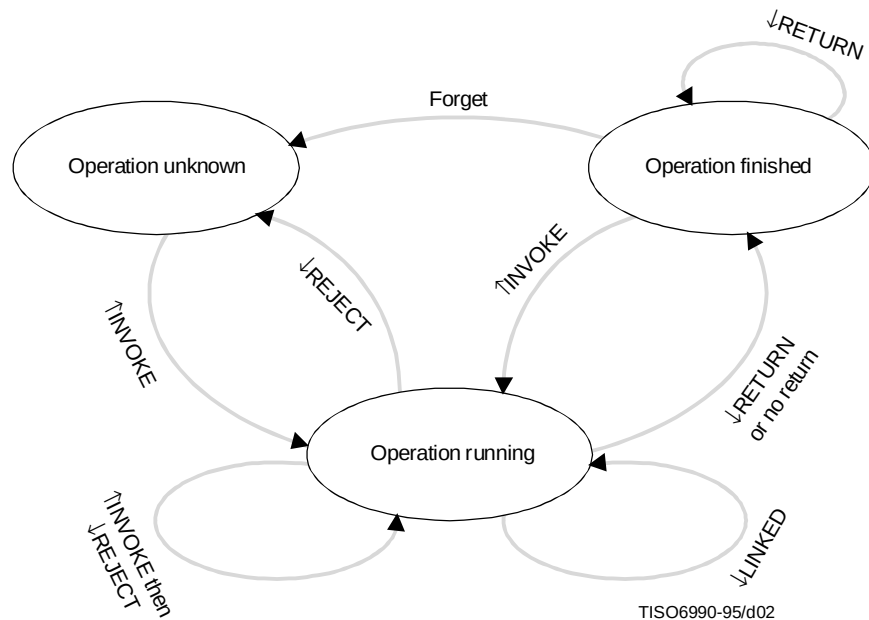
7) Subclause 7.3.2

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	
{	
<u>&probe</u>	<u>BOOLEAN DEFAULT FALSE,</u>
<u>&acknowledge</u>	<u>BOOLEAN DEFAULT FALSE,</u>
&associationContract	CONTRACT,
&associationRealization	REALIZATION OPTIONAL,
&transferRealization	REALIZATION,
&AbstractSyntaxes	ABSTRACT-SYNTAX,
&applicationContextName	OBJECT IDENTIFIER UNIQUE
}	
WITH SYNTAX	
{	
<u>[PROBE</u>	<u>&probe]</u>
<u>[ACKNOWLEDGE</u>	<u>&acknowledge]</u>
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) version <u>2(1)</u> }