



INTERNATIONAL TELECOMMUNICATION UNION

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

Amendment 1
X.882

(11/95)

**DATA NETWORKS AND OPEN SYSTEM
COMMUNICATIONS**

OSI APPLICATIONS – REMOTE OPERATIONS

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

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

Amendment 1 to
ITU-T Recommendation X.882

(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.882, Amendment 1, was approved on 21st of November 1995. The identical text is also published as ISO/IEC International Standard 13712-3.

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.882 | ISO/IEC 13712-3 provides the protocol procedures for 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.

ITU-T RECOMMENDATION

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

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

1) Clause 1

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

The ROSE services, defined in ITU-T Rec. X.881 | ISO/IEC 13712-2, are provided 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), 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.881 (1994)/Amd.1 (1995) | ISO/IEC 13712-2:1995/Amd.1:1996, *Information technology – Remote Operations: OSI realizations – Remote Operations Service Element (ROSE) service definition – Amendment 1: Mapping to A-UNIT-DATA and built-in operations*.

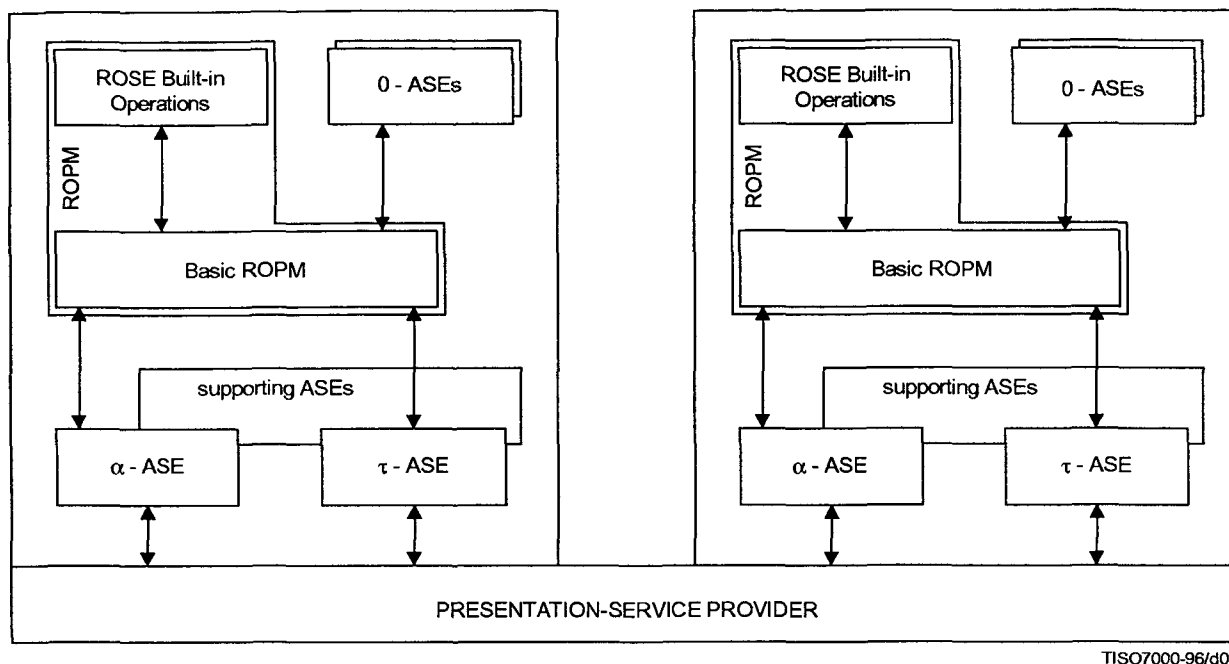
3) Subclause 6.2

Rewrite the last paragraph as follows (with additions underlined and deletions struckthrough):

Two specific association realizations are included, one based upon ACSE and one on RTSE. ~~Two~~Three specific transfer realizations are included, based respectively on the use of P-DATA, A-UNIT-DATA and RT-DATA to transfer the APDUs.



Replace the existing Figure 1 with the following figure:



α - ASE ASE providing association establishment and release
 τ - ASE ASE providing information transfer
 ROPM Remote Operations protocol machine
 0 - ASEs Operation-specific ASEs

Figure 1 – Protocol model

5) **Clause 8**

Change clause 8 to 9, and similarly for all subclauses contained therein.

Add the following new clause 8:

8 **Built-in operations**

8.1 **Probe and acknowledge**

If the probe or acknowledge operation is included in the application context, then a ROPM, having sent a ReturnResult or ReturnError APDU for a non-idempotent operation retains that APDU until it has been acknowledged. While retained, that APDU is re-sent if a probe takes place during that period. As a local matter, the APDU may also be re-sent periodically.

A retained ReturnResult or ReturnError APDU is considered acknowledged, and can be deleted, if:

- the operation to which the retained APDU was a reply is synchronous, and a synchronous operation is subsequently invoked by the same invoker; or
- the acknowledge operation is invoked by the same invoker, citing the operation invocation to which the operation invocation to which the retained APDU was the return; or
- having re-sent the APDU, a Reject APDU is received, citing the operation invocation to which the retained APDU was the return, and indicating, if the retained APDU was a ReturnResult, `returnResult : resultResponseUnexpected` or, if the retained APDU was a ReturnError, `returnError : errorResponseUnexpected`.