INTERNATIONAL STANDARD

ISO/IEC 13712-1

First edition
1995-09-15

Information technology — Remote Operations: Concepts, model and notation

Technologies de l'information — Opérations à distance: Concepts, modèle et notation

Reference number
ISO/IEC 13712-1:1995(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.

International Standard ISO/IEC 13712-1 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 Recommendation X.880.

This part of ISO/IEC 13712 is a partial revision of ISO/IEC 9072-1:1989 and ISO/IEC 9072-2:1989.

ISO/IEC 13712 consists of the following parts, under the general title *Information technology — Remote Operations*:

— *Part 1: Concepts, model and notation*

— *Part 2: OSI realizations — Remote Operations Service Element (ROSE) service definition*

— *Part 3: OSI realizations — Remote Operations Service Element (ROSE) protocol specification*

Annex A forms an integral part of this part of ISO/IEC 13712. Annexes B to D are for information only.

Introduction

Remote operations (ROS) is a paradigm for interactive communication between objects. As such it can be used in the design and specification of distributed applications. The basic interaction involved is the invocation of an operation by one object (the invoker), its performance by another (the performer), possibly followed by a report of the outcome of the operation being returned to the invoker.

The concepts of ROS are abstract, and may be realized in many ways. For example, objects whose interactions employ ROS concepts may be separated by a software interface or by an OSI network.

This Recommendation | International Standard describes the concepts and model of ROS. It uses ASN.1 to specify information object classes corresponding to the fundamental concepts of ROS, such as operation and error. This in turn provides a notation so that designers can specify particular instances of those classes, e.g. particular operations and errors.

This Recommendation | International Standard provides a generic set of PDUs which can be used in realizing the ROS concepts between objects remote from one another. These PDUs are used in the OSI realization of ROS, which are specified in the companion Recommendations | International Standards to this one.

This Recommendation | International Standard also provides a number of definitions of general utility to designers of ROS-based applications.

Annex A forms an integral part of this Recommendation | International Standard.

Annexes B, C and D do not form an integral part of this Recommendation | International Standard.

INTERNATIONAL STANDARD

ITU-T RECOMMENDATION

INFORMATION TECHNOLOGY – REMOTE OPERATIONS: CONCEPTS, MODEL AND NOTATION

1 Scope

This Recommendation | International Standard specifies the Remote Operations Service (ROS) using the Abstract Syntax Notation (ASN.1) to define information object classes corresponding to the fundamental concepts of ROS. This, in turn, provides the notation that will allow application designers to specify particular instances of these classes.

This Recommendation | International Standard also provides a collection of definitions for specifying the generic protocol between objects that communicate using ROS concepts. These definitions are used in the companion Recommendations | International Standards to this one to provide the protocol data units, the service primitives and the application context definitions used in the OSI realization of ROS.

A number of definitions of general utility to designers of ROS-based applications is also provided.

No requirement is made for conformance to this Recommendation | International Standard.

2 Normative references

The following ITU-T Recommendations and International Standards contain provisions which, through reference in this text, constitute provisions of this Specification. At the time of publication, the editions indicated were valid. All Recommendations and Standards are subject to revision, and parties to agreements based on this Specification are encouraged to investigate the possibility of applying the most recent editions of the Recommendations and Standards indicated below. Members of IEC and ISO maintain registers of currently valid International Standards. The Telecommunications Standardization Bureau of the ITU maintains a list of currently valid ITU-T Recommendations.

2.1 Identical Recommendations | International Standards

- ITU-T Recommendation X.680 (1994) | ISO/IEC 8824-1:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Specification of basic notation.*
- ITU-T Recommendation X.681 (1994) | ISO/IEC 8824-2:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Information object specification.*
- ITU-T Recommendation X.682 (1994) | ISO/IEC 8824-3:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Constraint specification.*
- ITU-T Recommendation X.683 (1994) | ISO/IEC 8824-4:1995, *Information technology – Abstract Syntax Notation One (ASN.1): Parameterization of ASN.1 specifications.*
- ITU-T Recommendation X.200 (1994) | ISO/IEC 7498-1:1994, *Information technology – Open Systems Interconnection – Basic Reference Model: The basic model.*
- 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.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- CCITT Recommendation X.219 (1988), *Remote Operations: Model, notation and service definition.*

  ISO/IEC 9072-1:1989, *Information processing systems – Text communication – Remote Operations – Part 1: Model, notation and service definition.*
- CCITT Recommendation X.229 (1988), *Remote Operations: Protocol specification.*

  ISO/IEC 9072-2:1989, *Information processing systems – Text communication – Remote Operations – Part 2: Protocol specification.*

2.3 Additional references

– CCITT Recommendation X.407 (1988), *Message handling systems: Abstract service definition conventions.*