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INTERNATIONAL STANDARD

ISO/IEC 9804

Third edition
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Information technology — Open Systems Interconnection — Service definition for the Commitment, Concurrency and Recovery service element

*Technologies de l'information — Interconnexion de systèmes ouverts
(OSI) — Définition du service pour l'élément d'engagement, de
concomitance et de rétablissement*



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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 9804 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 33, *Distributed application services*, in collaboration with ITU-T. The identical text is published as ITU-T Recommendation X.851.

This third edition cancels and replaces the second edition (ISO/IEC 9804:1994), which has been technically revised.

Annexes A and B form an integral part of this International Standard. Annex C is for information only.

Introduction

This Recommendation | International Standard is one of a set of Recommendations | International Standards produced to facilitate the interconnection of information processing systems. It relates to other ITU-T Recommendations | International Standards in the set defined by the Reference Model for Open Systems Interconnection (see ITU-T Rec. X.200 | ISO/IEC 7498). The reference model subdivides the area of standardization for interconnection into a series of layers of specification, each of manageable size.

The goal of Open Systems Interconnection is to allow, with a minimum of technical agreement outside the interconnection Recommendations and International Standards, the interconnection of information processing systems:

- from different manufacturers;
- under different managements;
- of different levels of complexity; and
- of different technologies.

This Recommendation | International Standard recognizes that application-processes may wish to communicate with each other for a wide variety of reasons. However, any communication requires certain services independent of the reasons for communication. The application-service-element defined in this Recommendation | International Standard provides such services.

This Recommendation | International Standard defines the facilities of the application-service-element for Commitment, Concurrency and Recovery (CCR). CCR provides services for a single association. A referencing specification uses these services for starting and ending a specific sequence of distributed application operations despite application or communication failure.

This Recommendation | International Standard is referenced by a specification to apply CCR to its operation. CCR services may be used with presentation services (see ITU-T Rec. X.216 | ISO/IEC 8822), or with other Application Layer services. However, the use of CCR services is subject to the restrictions specified in clause 9. The use of CCR services allows a referencing specification to define its activity as an atomic action. An atomic action may use many associations, possibly with different protocols on each association.

Annex A describes the rules that shall be followed by a specification that references this Recommendation | International Standard.

Annex B presents the relationship of the CCR model and concepts to the Application Layer Structure (see ITU-T Rec. X.207 | ISO/IEC 9545).

Annex C is a tutorial to aid the understanding of the concepts and facilities of CCR.

INTERNATIONAL STANDARD**ITU-T RECOMMENDATION****INFORMATION TECHNOLOGY – OPEN SYSTEMS INTERCONNECTION –
SERVICE DEFINITION FOR THE COMMITMENT, CONCURRENCY
AND RECOVERY SERVICE ELEMENT****1 Scope**

This Recommendation | International Standard is intended for reference by other specifications when the functionality of commitment, concurrency and recovery is required. It can be referenced whenever the processing of two or more application-entity invocations in a distributed application needs to be organized into an atomic action.

This Recommendation | International Standard defines services that are used on a single association to coordinate two application-entity invocations involved in an atomic action. The determination of which application-entity invocations are involved in an atomic action is not within the scope of this Recommendation | International Standard.

This Recommendation | International Standard establishes the general principles for the coordinated use of the CCR services when more than two application-entity invocations are involved in a single atomic action, or when recovery is required after failure. The coordination of multiple associations and the related application-entity invocations that constitute an atomic action is achieved by a referencing specification in conjunction with this Recommendation | International Standard.

This Recommendation | International Standard is only applicable to a distributed application whose specification references this Recommendation | International Standard.

This Recommendation | International Standard does not specify individual implementations or products. It does not constrain the implementation of entities and interfaces within a computer system.

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

This Recommendation | International Standard includes requirements for compliance that apply to a referencing specification.

The CCR service defined in this Recommendation | International Standard requires that CCR Protocol Version 2 (or a later version) is being used.

2 Normative references

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

2.1 Identical Recommendations | International Standards

- 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.207 (1993) | ISO/IEC 9545:1994, *Information technology – Open Systems Interconnection – Application layer structure*.
- ITU-T Recommendation X.210 (1993) | ISO/IEC 10731:1994, *Information technology – Open Systems Interconnection – Basic Reference Model : Conventions for the definition of OSI services*.
- ITU-T Recommendation X.215 (1995) | ISO/IEC 8326:1996, *Information technology – Open Systems Interconnection – Session service definition*.

- ITU-T Recommendation X.216 (1994) | ISO/IEC 8822:1994, *Information technology – Open Systems Interconnection – Presentation service definition.*
- ITU-T Recommendation X.217 (1995) | ISO/IEC 8649:1996, *Information technology – Open Systems Interconnection – Service definition for the association control service element.*
- ITU-T Recommendation X.227 (1995) | ISO/IEC 8650-1:1996, *Information technology – Open Systems Interconnection – Connection-oriented protocol for the association control service element: Protocol specification.*
- ITU-T Recommendation X.650 (1996) | ISO/IEC 7498-3:1997, *Information technology – Open Systems Interconnection – Basic Reference Model: Naming and addressing.*
- ITU-T Recommendation X.852 (1997) | ISO/IEC 9805-1:1998, *Information technology – Open Systems Interconnection – Protocol for the commitment, concurrency and recovery service element: Protocol specification.*

2.2 Paired Recommendations | International Standards equivalent in technical content

- ITU-T Recommendation X.860 (1997), *Open Systems Interconnection – Distributed transaction processing: Model.*
ISO/IEC 10026-1¹⁾, *Information technology – Open Systems Interconnection – Distributed Transaction Processing – Part 1: OSI TP Model.*
- ITU-T Recommendation X.862 (1997), *Open Systems Interconnection – Distributed transaction processing: Protocol Specification.*
ISO/IEC 10026-3¹⁾, *Information technology – Open Systems Interconnection – Distributed Transaction Processing – Part 3: Protocol specification.*

¹⁾ To be published.