

Australian Standard[®] 2777—1985

INFORMATION PROCESSING SYSTEMS— OPEN SYSTEMS INTERCONNECTION— BASIC REFERENCE MODEL



STANDARDS ASSOCIATION OF AUSTRALIA
Incorporated by Royal Charter

This Australian standard was prepared by Committee IS/1, Information Processing Systems. It was approved on behalf of the Council of the Standards Association of Australia on 15 November 1984 and published on 4 April 1985.

The following interests are represented on Committee IS/1:

Australian Bankers' Association
Australian Bureau of Statistics
Australian Computer Equipment Suppliers Association
Australian Computer Users Association
Australian Computer Society
Australian Electrical and Electronic Manufacturers Association
CSIRO, Division of Computing Research
Department of Defence
Department of Science and Technology
Life Insurance Federation of Australia
Office Equipment Industry Association of Australia
Public Service Board, N.S.W.
Qantas Airways Limited
Telecom Australia
Universities and Colleges

Review of Australian Standards. To keep abreast of progress in industry, Australian standards are subject to periodic review and are kept up-to-date by the issue of amendments or new editions as necessary. It is important therefore that standards users ensure that they are in possession of the latest edition, and any amendments thereto.

Full details of all SAA publications will be found in the Catalogue of Australian Standards; this information is supplemented each month by SAA's journal 'The Australian Standard', which subscribing members receive, and which gives details of new publications, new editions and amendments, and of withdrawn standards.

Suggestions for improvements to Australian standards, addressed to the head office of the Association, are welcomed. Notification of any inaccuracy or ambiguity found in an Australian standard should be made without delay in order that the matter may be investigated and appropriate action taken.

This standard was issued in draft form for comment as DR 82178.

AUSTRALIAN STANDARD

**INFORMATION PROCESSING SYSTEMS—
OPEN SYSTEMS
INTERCONNECTION—
BASIC REFERENCE MODEL**

AS 2777—1985

First published.....1985

**PUBLISHED BY THE STANDARDS ASSOCIATION OF AUSTRALIA
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY, N.S.W.**

ISBN 0 7262 3667 5

PREFACE

This standard was prepared by the Association's Committee on Information Processing Systems. It is identical with and has been reproduced from International Standard ISO 7498—1984, drawn up by ISO/TC 97, Information Processing Systems.

The purpose of this standard is to provide a common basis for the coordination of standards development for the purpose of systems interconnection, while allowing existing standards to be placed into perspective within the overall reference model.

The term Open Systems Interconnection (OSI) qualifies standards for the exchange of information among systems that are 'open' to one another for this purpose by virtue of their mutual use of the applicable standards.

It is also the purpose of this standard to identify areas for developing or improving standards, and to provide a common reference for maintaining consistency of all related standards.

It is envisaged that a number of other standards will be published, to provide specifications for connectionless transmission, security, and other topics relevant to OSI.

For the purpose of this Australian standard, the text of the ISO standard given herein should be modified as follows:

Terminology. The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

©Copyright — STANDARDS ASSOCIATION OF AUSTRALIA 1985

Users of standards are reminded that copyright subsists in all SAA publications. No part of this publication may be reproduced, stored in a retrieval system in any form or transmitted by any means without prior permission in writing of the Standards Association of Australia.

Contents

	<i>Page</i>
0 Introduction	5
1 Scope and field of application	6
2 Definitions	6
3 Notation	6
4 Introduction to Open Systems Interconnection (OSI)	6
4.1 Definitions	6
4.2 Open Systems Interconnection environment	6
4.3 Modelling the OSI environment	8
5 Concepts of a layered architecture	8
5.1 Introduction	8
5.2 Principles of layering	9
5.3 Communication between peer-entities	11
5.4 Identifiers	12
5.5 Properties of service-access-points	14
5.6 Data-units	14
5.7 Elements of layer operation	16
5.8 Routing	20
5.9 Management Aspects of OSI	20
6 Introduction to the specific OSI layers	22
6.1 Specific layers	22
6.2 The principles used to determine the seven layers of the Reference Model	24
6.3 Layer descriptions	24
7 Detailed description of the resulting OSI architecture	24
7.1 Application Layer	24
7.2 Presentation Layer	26
7.3 Session Layer	27
7.4 Transport Layer	30
7.5 Network Layer	33
7.6 Data Link Layer	37
7.7 Physical Layer	38

Annexes

A Brief explanation of how the layers were chosen	42
B Alphabetical index to definitions	43

Information processing systems — Open Systems Interconnection — Basic Reference Model

0 Introduction

0.1 About this standard

The purpose of this International Standard Reference Model of Open Systems Interconnection is to provide a common basis for the coordination of standards development for the purpose of systems interconnection, while allowing existing standards to be placed into perspective within the overall Reference Model.

The term Open Systems Interconnection (OSI) qualifies standards for the exchange of information among systems that are "open" to one another for this purpose by virtue of their mutual use of the applicable standards.

The fact that a system is open does not imply any particular systems implementation, technology or means of interconnection, but refers to the mutual recognition and support of the applicable standards.

It is also the purpose of this International Standard to identify areas for developing or improving standards, and to provide a common reference for maintaining consistency of all related standards. It is not the intent of this International Standard either to serve as an implementation specification, or to be a basis for appraising the conformance of actual implementations, or to provide a sufficient level of detail to define precisely the services and protocols of the interconnection architecture. Rather, this International Standard provides a conceptual and functional framework which allows international teams of experts to work productively and independently on the development of standards for each layer of the Reference Model of OSI.

The Reference Model has sufficient flexibility to accommodate advances in technology and expansion in user demands. This flexibility is also intended to allow the phased transition from existing implementations to OSI standards.

NOTE — The Reference Model is expected to be subject to future expansion. Some anticipated directions of expansion are indicated by notes or footnotes in this International Standard.

While the scope of the general architectural principles required for OSI is very broad, this International Standard is primarily concerned with systems comprising terminals, computers and associated devices and the means for transferring information between such systems. Other aspects of OSI requiring attention are described briefly (see 4.2).

The justification for development of standards shall follow normal administrative procedures even though such standards are identified in the Reference Model.

As standards emerge to meet the OSI requirements, a small number of practical subsets should be defined by the standards developers from optional functions, to facilitate implementation and compatibility.

The description of the Reference Model of OSI given in this International Standard is developed in stages :

Clause 4 establishes the reasons for Open Systems Interconnection, defines what is being connected, the scope of the interconnection and, describes the modelling principles used in OSI;

Clause 5 describes the general nature of the architecture of the Reference Model: namely that it is layered, what layering means, and the principles used to describe layers;

Clause 6 names, and introduces the specific layers of the architecture; and

Clause 7 provides the description of the specific layers.

An indication of how the layers were chosen is given in annex A to this International Standard.

The Reference Model serves as a framework for the definition of services and protocols which fit within the boundaries established by the Reference Model.

In those few cases where a feature is explicitly marked (optional) in the Reference Model it should remain optional in the corresponding service or protocol (even if at a given instant the two cases of the option are not yet documented).