

**Implementation of ISO 7498-3 : 1989**

**Information processing  
systems — Open Systems  
Interconnection — Basic  
Reference Model —**

**Part 3: Naming and addressing**

## National foreword

This British Standard reproduces verbatim ISO 7498-3 : 1989 and implements it as the UK national standard.

This British Standard is published under the direction of the Information Technology Systems Standards Policy Committee whose Technical Committee IST/21 has the responsibility to:

- aid enquirers to understand the text;
- present to the responsible international committee any enquiries on interpretation, or proposals for change, and keep UK interests informed;
- monitor related international and European developments and promulgate them in the UK.

NOTE. International and European Standards, as well as overseas standards, are available from BSI Sales Department, BSI, Linford Wood, Milton Keynes, MK14 6LE.

**Compliance with a British Standard does not of itself confer immunity from legal obligations.**

# INTERNATIONAL STANDARD

**ISO  
7498-3**

First edition  
1989-03-01

---

---

## **Information processing systems — Open Systems Interconnection — Basic Reference Model —**

### **Part 3 : Naming and addressing**

*Systèmes de traitement de l'information — Interconnexion de systèmes ouverts —  
Modèle de référence de base —  
Partie 3 : Dénomination et adressage*



Reference number  
ISO 7498-3 : 1989 (E)

**AVA** Documents  
Document Sharing Hub

## Contents

|                                                                          |    |
|--------------------------------------------------------------------------|----|
| Foreword                                                                 | iv |
| Introduction                                                             | v  |
| 1 Scope                                                                  | 1  |
| 2 Normative references                                                   | 1  |
| 3 Definitions                                                            | 1  |
| 4 Abbreviations                                                          | 3  |
| 5 Basic concepts of naming                                               | 3  |
| 6 OSI naming and addressing concepts and<br>the correct use of addresses | 4  |
| 6.1 The naming of real open systems                                      | 4  |
| 6.2 The naming and addressing of elements of an (N)-layer                | 4  |
| 6.3 The correct use of (N)-addresses                                     | 4  |
| 7 OSI addressing model                                                   | 5  |
| 7.1 Associations between peer (N)-entities                               | 5  |
| 7.2 Attachment of (N)-entities to (N)-SAPs                               | 5  |
| 7.3 (N)-addresses and (N)-SAPs                                           | 5  |
| 7.4 (N)-directory-functions and directory facilities                     | 7  |
| 8 Addressing information and (N)-services                                | 7  |
| 8.1 Introduction                                                         | 7  |
| 8.2 Address parameters                                                   | 8  |
| 8.3 Called-(N)-address                                                   | 8  |
| 8.4 Calling-(N)-address                                                  | 8  |
| 8.5 Responding-(N)-address                                               | 9  |
| 9 Addressing information and (N)-protocols                               | 9  |
| 9.1 Introduction                                                         | 9  |
| 9.2 Addressing information in (N)-PAI                                    | 9  |
| 9.3 Assignment of values to elements of (N)-PAI                          | 10 |
| 9.4 Network-addresses and network-PAI                                    | 10 |
| 9.5 (N)-addresses and (N)-PAI above the Network Layer                    | 10 |
| 9.6 Obtaining (N)-PAI                                                    | 11 |

© ISO 1989

All rights reserved. No part of this publication may be reproduced or utilized in any form or by any means, electronic or mechanical, including photocopying and microfilm, without permission in writing from the publisher.

International Organization for Standardization

Case postale 56 • CH-1211 Genève 20 • Switzerland

Printed in Switzerland

|           |                                                      |           |
|-----------|------------------------------------------------------|-----------|
| <b>10</b> | <b>(N)-Directory functions</b>                       | <b>11</b> |
| 10.1      | Introduction                                         | 11        |
| 10.2      | The initiator (N)-directory-functions                | 11        |
| 10.3      | The recipient (N)-directory-functions                | 12        |
| <b>11</b> | <b>Addressing in specific OSI layers</b>             | <b>13</b> |
| 11.1      | Application processes and the Application Layer      | 13        |
| 11.2      | Presentation Layer                                   | 14        |
| 11.3      | Session Layer                                        | 15        |
| 11.4      | Transport Layer                                      | 16        |
| 11.5      | Network layer                                        | 16        |
| 11.6      | Data Link Layer                                      | 18        |
| 11.7      | Physical Layer                                       | 18        |
| <b>12</b> | <b>Naming domains and authorities</b>                | <b>19</b> |
| <b>13</b> | <b>Registration procedures for naming within OSI</b> | <b>19</b> |
| <b>14</b> | <b>Directory facility requirements</b>               | <b>20</b> |
| 14.1      | Introduction                                         | 20        |
| 14.2      | The Application Title Directory Facility             | 20        |
| 14.3      | The Network Address Directory Facility               | 20        |

## **Foreword**

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

Draft International Standards adopted by the technical committees are circulated to the member bodies for approval before their acceptance as International Standards by the ISO Council. They are approved in accordance with ISO procedures requiring at least 75 % approval by the member bodies voting.

International Standard ISO 7498-3 was prepared by Technical Committee ISO/TC 97, *Information processing systems*.

## Introduction

This part of the Basic Reference Model for Open Systems Interconnection (ISO 7498) extends the basic architectural concepts of identifiers described in 5.4 of ISO 7498.

This part of ISO 7498 states the architectural principles which are followed in the production of any standard which involves the identification (naming) and location (addressing) of objects for the purpose of interconnection within the Open System Interconnection Environment (OSIE).

This part of ISO 7498 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 - This part of ISO 7498 is expected to be subject to future expansion, in particular with regard to Multi-Peer Data Transmission (MPDT).

The architectural principles stated within this part of ISO 7498 ensure that any ISO standard that involves the identification and location of objects within the OSIE for the purpose of interconnection will:

- a) avoid any restrictions on:
  - 1) the functionality that may be made available through current or future International Standards,
  - 2) the functionality of any real open system,
  - 3) the internal design of any real open system;
- b) preserve the principle of layer independence in the OSIE. That is, the internal functioning of one layer is not constrained by any other layer;
- c) preserve the principle of implementation independence in the OSIE, as expressed in 4.2 of ISO 7498. That is, no real open system (or administrator thereof) is required to know anything about the implementation design of any other real open system (or administration thereof), nor does any real open system impose such knowledge as a condition for communication using OSI standards;
- d) allow economical support for interconnection within the OSIE; in particular individual standards produced within the

framework specified by this part of ISO 7498 should make it possible to provide facilities which give adequate levels of performance, reliability, and integrity and which ease the administration by humans with respect to identifying and locating objects within the OSIE for the purpose of interconnection.

The description of naming and addressing for the OSIE given in this part of ISO 7498 is developed in stages.

Clauses 1 - 4 provide basic introductory and reference information.

Clause 5 introduces concepts of naming.

Clause 6 prescribes, for the OSIE, the objects named, the operation of addressing, and the uses of addressing.

Clause 7 prescribes, for the OSIE, the objective of naming and addressing and the mechanisms to be employed to meet that objective.

Clause 8 prescribes the principles governing the nature and use of addressing information in (N)-services.

Clause 9 prescribes the principles governing the nature and use of addressing information in (N)-protocols.

Clause 10 provides a layer independent description of the layer directory-functions necessary to support the addressing structure established by clauses 7, 8, and 9, based on the general mechanisms and principles established in clauses 5 and 6.

Clause 11 prescribes the use of the directory-functions in each layer.

Clause 12 defines the nature of addressing domains and registration authorities.

Clause 13 prescribes the registration procedures required for naming in the OSIE.

Clause 14 prescribes the requirements for directory facilities in the OSIE.

NOTE - This part of ISO 7498 provides clarifications of the basic architecture defined in ISO 7498 where this is necessary for a full understanding of the naming and addressing requirements within the OSIE.

*blank*

# Information processing systems — Open Systems Interconnection — Basic Reference Model —

## Part 3 : Naming and addressing

### 1 Scope

This part of ISO 7498 :

- a) defines general mechanisms for the use of names and addresses to identify and locate objects in the OSIE; and
- b) defines the use of these mechanisms within the layered structure of the Basic Reference Model.

This part of ISO 7498 extends the concepts and principles defined in ISO 7498. This part is not intended to be either an implementation specification or a basis for appraising the conformance of actual implementations.

The specific form of names and addresses is not within the scope of this part.

### 2 Normative references

The following standards contain provisions which, through reference in this text, constitute provisions of this part of ISO 7498. At the time of publication, the editions indicated were valid. All standards are subject to revision, and parties to agreements based on this part of ISO 7498 are encouraged to investigate the possibility of applying the most recent editions of the standards listed below. Members of IEC and ISO maintain registers of currently valid International Standards.

ISO 7498:1984, *Information processing systems - Open systems interconnection - Basic reference model*.

ISO 7498/Add. 1:1984, *Information processing systems - Open systems interconnection - Basic Reference Model - Addendum 1: Connectionless-mode transmission*.

ISO 7498-4:-<sup>1)</sup>, *Information processing systems - Open systems interconnection - Basic Reference Model - Part 4: OSI management framework*.

ISO 8348/Add. 2:1988, *Information processing systems - Data communication - Network service definition - Addendum 2: Network layer addressing*.

ISO/TR 8509:1987, *Information processing systems - Open systems interconnection - Service conventions*.

ISO 9545:-<sup>1)</sup>, *Information processing systems - Open systems interconnection - Application layer structure*.

### 3 Definitions

3.1 This part of ISO 7498 makes use of the following terms defined in ISO 9545:

- a) application-process-type;
- b) application-process-invocation.

3.2 This part of ISO 7498 makes use of the following terms defined in ISO/TR 8509:

- a) (N)-service-request-primitive,
- b) (N)-service-indication-primitive,
- c) (N)-service-response-primitive,
- d) (N)-service-confirm-primitive.

3.3 This part of ISO 7498 makes use of the following term defined in ISO 8348/Add. 2:

- a) subnetwork point of attachment.

3.4 For the purpose of this part of ISO 7498, the following definitions apply.

**3.4.1 (N)-address:** A name unambiguous within the OSIE which is used to identify a set of (N)-service-access-points which are all located at a boundary between an (N)-subsystem and an (N+1)-subsystem in the same open system.

#### NOTES

1 This definition of (N)-address is different from that in ISO 7498. This definition is the definitive one and will be moved to ISO 7498 to replace the existing definition when ISO 7498 is revised.

2 A name is unambiguous within a given scope when it identifies one and only one object within that scope. Unambiguity of a name does not preclude the existence of synonyms.

**3.4.2 (N)-address-selector; (N)-selector:** An element of addressing information that identifies a set of (N)-SAPs which are all in the same (N)-subsystem; an (N)-selector value is assigned by the local administration.

<sup>1)</sup> To be published.