(identical to ISO/IEC 8825:1990)

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Australian Standard®

Information technology—Open Systems Interconnection—Specification of basic encoding rules for Abstract Syntax Notation One (ASN.1)

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PREFACE

This Standard was prepared by the Standards Australia Committee on Information Systems—Interconnection. It is identical with and has been reproduced from ISO/IEC 8825:1990, *Information technology—Open Systems Interconnection—Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)*.

The Standard is one of a series of Open Systems Interconnection (OSI) Standards which are currently under development. Since OSI Standards are developmental, there may be some minor difficulties encountered in their implementation. For this reason, Standards Australia will be providing, through the OSI Help Desk, a service to coordinate and disseminate information concerning difficulties which are identified in using this Standard.

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For the purpose of this Australian Standard, the ISO/IEC text should be modified as follows:

(i) *Terminology* The words 'Australian Standard' should replace the words 'International Standard' wherever they appear.

(ii) *References* The references to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard or other Publication		*Australian Standard*	
ISO		AS	
2022	Information processing—ISO 7-bit and 8-bit coded character sets—Code extension techniques	1953	Information processing—ISO 7-bit and 8-bit coded character sets—Code extension techniques
2375	Data processing—Procedure for registration of escape sequences	—	
6093	Information processing—Representation of numerical values in character strings for information interchange	3707	Information processing—Representation of numerical values in character strings for information interchange
7498	Information processing systems—Open Systems Interconnection—Basic Reference Model	2777	Information processing systems—Open Systems Interconnection—Basic reference model
8823	Information processing systems—Open Systems Interconnection—Connection-oriented presentation protocol specification	3616	Information technology—Open Systems Interconnection—Connection oriented presentation protocol specification
ISO/IEC			
8824	Information technology—Open Systems Interconnection—Specification of Abstract Syntax Notation One (ASN.1)	3625	Information technology—Open Systems Interconnection—Specification of Abstract Syntax Notation One (ASN.1)
CCITT			
X.209	Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1)	—	

CONTENTS

Introduction

ISO/IEC 8824 (Specification of Abstract Syntax Notation One) specifies a notation for the definition of abstract syntaxes, enabling application layer standards to define the types of information they need to transfer using the presentation service. It also specifies a notation for the specification of values of a defined type.

This International Standard defines a set of encoding rules that may be applied to values of types defined using the notation specified in ISO/IEC 8824. Application of these encoding rules produces a transfer syntax for such values. It is implicit in the specification of these encoding rules that they are also to be used for decoding.

There may be more than one set of encoding rules that can be applied to values of types that are defined using the notation of ISO/IEC 8824. This International Standard defines one set of encoding rules, called **basic encoding rules**.

This International Standard is technically aligned with CCITT Recommendation X.209(1988).

Annex A gives examples of the application of the encoding rules. It is not part of this International Standard.

Annex B summarizes the assignment of object identifier values made in this International Standard and is not part of this International Standard.

Annex C gives examples of applying the rules for encoding values. It is not part of this International Standard.

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1 Scope

This International Standard specifies a set of basic encoding rules that may be used to derive the specification of a transfer syntax for values of types defined using the notation specified in ISO/IEC 8824. These basic encoding rules are also to be applied for decoding such a transfer syntax in order to identify the data values being transferred.

These basic encoding rules are used at the time of communication (by the presentation service provider when required by a presentation context).

2 Normative references

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

ISO 2022: 1986, *Information processing - ISO 7-bit and 8-bit coded character sets - Code extension techniques.*

ISO 2375: 1985, *Data processing - Procedure for registration of escape sequences.*

ISO 6093: 1985, *Information processing - Representation of numerical values in character strings for information interchange.*

ISO 7498:1984, *Information processing systems - Open Systems Interconnection - Basic Reference Model.*

ISO 8823: 1988, *Information processing systems - Open Systems Interconection - Connection-oriented presentation protocol specification.*

ISO/IEC 8824:1990, *Information technology — Open Systems Interconnection — Specification of Abstract Syntax Notation One (ASN.1).*

CCITT X.209 (1988), *Specification of Basic Encoding Rules for Abstract Syntax Notation One (ASN.1).*

3 Definitions

For the purposes of this International Standard the definitions of ISO 7498, of ISO/IEC 8824 and the following definitions apply.

3.1 dynamic conformance: A statement of the requirement for an implementation to adhere to the behaviour prescribed by this International Standard in an instance of communication.

3.2 static conformance: A statement of the requirement for support in an implementation of a valid set of features from among those defined by this International Standard.

3.3 data value: Information specified as the value of a type; the type and the value are defined using ASN.1.

3.4 encoding (of a data value): The complete sequence of octets used to represent the data value.

NOTE – Some CCITT Recommendations use the term "data element" for this sequence of octets, but the term is not used in this International Standard, as other International Standards use it to mean "data value".

3.5 identifier octets: Part of a data value encoding

which is used to identify the type of the value.

3.6 length octets: Part of a data value encoding following the identifier octets which is used to determine the end of the encoding.

3.7 end-of-contents octets: Part of a data value encoding, occurring at its end, which is used to determine the end of the encoding.

NOTE – Not all encodings require end-of-contents octets.

3.8 contents octets: That part of a data value encoding which represents a particular value, to distinguish it from other values of the same type.

3.9 primitive encoding: A data value encoding in which the contents octets directly represent the value.

3.10 constructed encoding: A data value encoding in which the contents octets are the complete encoding of one or more other data values.