AS 3654—1989
ISO 8211—1985

Australian Standard®

Information processing – Specification for a data descriptive file for information interchange

AS/NZS 3654:1996
Information technology—Specification for data descriptive file for information interchange (ISO/IEC 8211:1994)
(In Professional Packages 26A, 26D)
69pp J

Specifies medium-independent and system-independent file and data record formats for the interchange of information. This standard is identical with and has been reproduced from ISO/IEC 8211:1994.

(IT/1): ***Supersedes AS 3654—1989: Publication date 1996-05-05.***

STANDARDS AUSTRALIA

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This Australian Standard was prepared by Committee IT/4, Geographical Information Systems. It was approved on behalf of the Council of Standards Australia on 10 December 1988 and published on 26 June 1989.

The following interests are represented on Committee IT/4:

Association of Aerial Surveyors, Australia
Australian Bureau of Statistics
Australian Institute of Cartographers
Australian Key Centre in Land Information Studies
Australian Map Circle
Australian Photogrammetric and Remote Sensing Society
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AS 3654—1989

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First published as AS 3654—1989.

PUBLISHED BY STANDARDS AUSTRALIA
(STANDARDS ASSOCIATION OF AUSTRALIA)
STANDARDS HOUSE, 80 ARTHUR ST, NORTH SYDNEY NSW
ISBN 0 7262 5460 6

PREFACE

This Standard was prepared by Standards Australia's Committee on Geographical Information Systems. It is issued as part of a general programme of review and addition of Standards relevant to current developments in land and geographical information systems. This Standard is identical with, and has been reproduced from, International Standard ISO 8211, *Specification for a data descriptive file for information interchange.*

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

(a) *Terminology*—the words 'Australian Standard' should replace the words 'International Standard' wherever they apply.

(b) *Cross-references*—the references to International Standards should be replaced by references to Australian Standards as follows:

Reference to International Standard	*Australian Standard*
ISO	AS
646 Information processing—ISO 7-bit coded character set for information interchange	1776 Information processing—7-bit coded character set for information interchange
1001 Information processing—Magnetic tape labelling and file structure for information interchange	1068 Information processing—File structure and labelling of magnetic tapes for information interchange
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
4341 Information processing—Magnetic tape cassette and cartridge labelling and file structure for information interchange	2414 Information processing—Magnetic tape cassette and cartridge labelling and file structure information interchange

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0 Introduction

This International Standard has been produced in response to an identified need for a mechanism to allow data structures to be easily moved from one computer system to another, independent of make. Data structures required to be interchanged can vary significantly in complexity and size, and a common method to accomplish these interchanges is desirable. It is also desirable that any medium such as a communication line, a magnetic tape, a disk pack, a flexible disk, etc., should be able to be used for the physical interchange and that, if possible, all information necessary to successfully recreate the structure in the target system should be contained within the information transported on the medium.

To meet these needs this International Standard specifies medium-independent and system-independent file and data record formats for the interchange of information between computer systems. This International Standard is intended for use with physical recorded media as well as with communications media. The contents in the user data structure can be of any internationally recognized character set and coding and are interchanged in a transparent fashion. The intermediate structure through which the information passes is designed for interchange purposes only and is not intended to be used for general processing.

The aim when developing this International Standard was to define an interchange format into which the sender's information is mapped and is conveyed to the receiver's system. Upon receipt of the information in the interchange format it is then mapped into the receiver's format without loss of structure and content. This International Standard specifies a method for describing a robust interchange structure which can accept most user data structures. The method enables the sender to preserve structure information and to convey it to the receiver with the data so that the receiver can remap the structure and data into the local system.

Most data structures in common use can be described and interchanged using this International Standard. The structures within the interchange file can be of the following forms: elementary data, vectors, arrays and hierarchies. User file structures such as sequential, hierarchical, relational and indexed can be converted into the interchange structure. Network structures can be interchanged but additional pre-processing and post-processing is necessary to preserve logical linkages.

This International Standard is medium-independent and requires an environment in which International Standard labels and file structures can be written on or read from the standard media chosen. It is assumed that variable-length records can be processed by the supporting label and file processing system. It requires a computer process capability to map the user file or data base management system to the interchange file. This mapping function has to provide the necessary data and structure conversions. The parameters required to define the selection and conversion of these data items and structures into the formats specified by this International Standard are outside the scope of this International Standard. The interchange standard requires the use of the ISO 646 coded character set in control fields and permits the use of extended character sets in user data fields.

This International Standard provides for three interchange levels from which the users may choose based on the complexity of their data structures. The first interchange level supports multiple fields containing simple, unstructured character strings. The second level supports level one and processes multiple fields containing structured user data comprising a variety of data types. The third level supports level two and hierarchical data structures.

NOTE — Additional information concerning the application of this International Standard is given in annex A.

1 Scope and field of application

This International Standard specifies an interchange format to facilitate the transfer of files containing data records between computer systems. It is not designed as a record format for indigenous files of any specific system. It defines a generalized structure which can be used to transmit, between systems, records containing a wide variety of data types and structures. It provides the means for the description of the contents of data records but does not define their contents.

This International Standard specifies

a) media-independent file and data record descriptions for information interchange. It assumes the use of other International Standards for labelling and file structure such as ISO 1001, ISO 4341, ISO 7665;

b) the description of data elements, vectors, arrays and hierarchies containing character strings, bit strings and numeric forms. The numeric forms are specified by ISO 6093;

c) a data descriptive file comprising a data descriptive record and companion data records that enable information interchange to occur with minimal specific external description;