

Australian Standard[®]

**Information technology—Common
Biometric Exchange Formats
Framework**

Part 1: Data element specification



This Australian Standard® was prepared by Committee IT-032, Biometric and Identification. It was approved on behalf of the Council of Standards Australia on 9 March 2007. This Standard was published on 2 July 2007.

The following are represented on Committee IT-032:

- AUSTRROADS
 - Attorney General's Department
 - Australian Business Limited
 - Australian Electrical and Electronic Manufacturers Association
 - Centrelink
 - The Biometric Institute
-

This Standard was issued in draft form for comment as DR 06628.

Standards Australia wishes to acknowledge the participation of the expert individuals that contributed to the development of this Standard through their representation on the Committee and through public comment period.

Keeping Standards up-to-date

Australian Standards® are living documents that reflect progress in science, technology and systems. To maintain their currency, all Standards are periodically reviewed, and new editions are published. Between editions, amendments may be issued.

Standards may also be withdrawn. It is important that readers assure themselves they are using a current Standard, which should include any amendments that may have been published since the Standard was published.

Detailed information about Australian Standards, drafts, amendments and new projects can be found by visiting **www.standards.org.au**

Standards Australia welcomes suggestions for improvements, and encourages readers to notify us immediately of any apparent inaccuracies or ambiguities. Contact us via email at **mail@standards.org.au**, or write to Standards Australia, GPO Box 476, Sydney, NSW 2001.

STANDARDS AUSTRALIA

RECONFIRMATION

OF

AS ISO/IEC 19785.1—2007

**Information technology—Common Biometric Exchange Formats Framework
Part 1: Data element specification**

RECONFIRMATION NOTICE

Technical Committee IT-032 has reviewed the content of this publication and in accordance with Standards Australia procedures for reconfirmation, it has been determined that the publication is still valid and does not require change.

Certain documents referenced in the publication may have been amended since the original date of publication. Users are advised to ensure that they are using the latest versions of such documents as appropriate, unless advised otherwise in this Reconfirmation Notice.

Approved for reconfirmation in accordance with Standards Australia procedures for reconfirmation on 04 June 2017.

The following are represented on Technical Committee IT-032:

Australian Federal Police
Australian Information Industry Association
Australian Retailers Association
Centrelink
Defence Science & Technology Organisation
Department of Foreign Affairs and Trade (Australian Government)
Department of Immigration and Border Protection (Australian Government)
NSW Business Chamber
Photo Marketing Association

NOTES

Australian Standard[®]

**Information technology—Common
Biometric Exchange Formats
Framework**

Part 1: Data element specification

First published as AS ISO/IEC 19785.1—2007.

COPYRIGHT

© Standards Australia

All rights are reserved. No part of this work may be reproduced or copied in any form or by any means, electronic or mechanical, including photocopying, without the written permission of the publisher.

Published by Standards Australia GPO Box 476, Sydney, NSW 2001, Australia

ISBN 0 7337 8259 0

PREFACE

This Standard was prepared by the Standards Australia Committee IT-032, Biometric and Identification.

The objective of this Standard is to make available to the Australian biometrics community the core ISO SC37 standards published over the last 24 months, specifically the CBEFF data element specification.

This Standard is identical with, and has been reproduced from ISO/IEC 19785-1:2006, *Information technology—Common Biometric Exchange Formats Framework—Part 1: Data element specification*.

As this Standard is reproduced from an international standard, the following applies:

- (a) Its number appears on the cover and title page while the international standard number appears only on the cover.
- (b) In the source text ‘this part of ISO/IEC 19785’ should read ‘this Australian Standard’.
- (c) A full point substitutes for a comma when referring to a decimal marker.

<i>Reference to International Standard</i>		<i>Australian Standard</i>	
ISO/IEC		AS ISO/IEC	
19784	Information technology—Biometric application programming interface	19784	Information technology—Biometric application programming interface
19784-1	Part 1: BioAPI specification	19784.1	Part 1: BioAPI specification
19785	Information technology—Common Biometric Exchange Formats Framework	19785	Information technology—Common Biometric Exchange Formats Framework
19785-2	Part 2: Procedures for the operation of the Biometric Registration Authority	19785.2	Part 2: Procedures for the operation of the Biometric Registration Authority

Only international references that have been adopted as Australian or Australian/New Zealand Standards have been listed.

The term ‘normative’ has been used in this Standard to define the application of the annex to which it applies. A ‘normative’ annex is an integral part of a Standard.

CONTENTS

	<i>Page</i>
1	Scope 1
2	Conformance..... 2
3	Normative references 2
4	Terms and definitions..... 3
5	Symbols and abbreviated terms 6
6	Requirements 6
6.1	General..... 6
6.2	Defining a CBEFF patron format using the simple CBEFF BIR structure 7
6.2.1	Standard biometric header (SBH) 8
6.2.2	The Biometric data block (BDB)..... 8
6.2.3	Security block (SB)..... 8
6.3	Defining a CBEFF patron format using the complex CBEFF BIR structure 8
6.4	Performing BIR transformations 10
6.4.1	Transformations of enumerated abstract values 11
6.4.2	Transformations of non-enumerated data element values 11
6.5	CBEFF Data Elements 11
6.5.1	CBEFF_BDB_format_owner 11
6.5.2	CBEFF_BDB_format_type 12
6.5.3	CBEFF_BDB_encryption_options..... 12
6.5.4	CBEFF_BIR_integrity_options 13
6.5.5	CBEFF_subheader_count..... 13
6.5.6	CBEFF_BDB_biometric_type 13
6.5.7	CBEFF_BDB_biometric_subtype 15
6.5.8	CBEFF_BDB_challenge_response 15
6.5.9	CBEFF_BDB_creation_date..... 16
6.5.10	CBEFF_BDB_index..... 17
6.5.11	CBEFF_BDB_processed_level 17
6.5.12	CBEFF_BDB_product_owner 17
6.5.13	CBEFF_BDB_product_type 18
6.5.14	CBEFF_BDB_purpose..... 18
6.5.15	CBEFF_BDB_quality..... 19
6.5.16	CBEFF_BDB_validity_period..... 19
6.5.17	CBEFF_BIR_creation_date 20
6.5.18	CBEFF_BIR_creator..... 20
6.5.19	CBEFF_BIR_index 21
6.5.20	CBEFF_BIR_patron_format_owner..... 21
6.5.21	CBEFF_BIR_patron_format_type..... 22
6.5.22	CBEFF_BIR_payload 22
6.5.23	CBEFF_BIR_validity_period 23
6.5.24	CBEFF_patron_header_version 23
6.5.25	CBEFF_SB_format_owner 24
6.5.26	CBEFF_SB_format_type 24
6.5.27	CBEFF_version 25
Annex A (normative)	Format and content of a patron format conformance statement 26

INTRODUCTION

The *Common Biometric Exchange Formats Framework* (CBEFF) promotes interoperability of biometric-based applications and systems by specifying standard structures for *biometric information records* (BIRs) and a set of abstract data elements and values that can be used to create the header part of a CBEFF-compliant BIR.

A biometric information record (BIR) is an encoding in accordance with a CBEFF patron format (see below). It is a unit of biometric data for storage in a database or for interchange between systems or parts of systems. A BIR always has at least two parts: a standard biometric header (SBH) and at least one biometric data block (BDB). It may also have a third part called the security block (SB). CBEFF places no requirements on the content and encoding of a BDB except that its length shall be an integral number of octets; the several parts of ISO/IEC 19794 specify standardized BDB formats for a number of biometric types.

The primary purpose of CBEFF is to define *abstract data elements* (data elements with a set of defined abstract values, with their semantics) that are expected to be of general utility as parts of the SBH in biometric information records. This part of ISO/IEC 19785 defines these data elements.

A *CBEFF patron format* is defined for a particular domain of use. A CBEFF patron format is a full bit-level specification of encodings that can carry some or all of the abstract values of some or all of the CBEFF data elements defined in this part of ISO/IEC 19785 (possibly with additional abstract values determined by the CBEFF patron), together with one or more biometric data blocks (BDBs) containing biometric data. It is intended that there be a limited number of CBEFF patron formats in any given domain of use. However, new technologies may evolve that need new encoding rules (or support of more or different CBEFF data elements) and hence may require new CBEFF patron formats for a given domain of use.

CBEFF also has a requirement that a *Biometric Registration Authority* exist to assign unique identifiers to biometric organizations, to biometric data block (BDB) formats, to security block (SB) formats, and to CBEFF patron format specifications (see above); to publish them where appropriate; and to ensure that no conflicts occur between identifiers. ISO/IEC 19785-2 specifies the procedures under which the Biometric Registration Authority operates.

CBEFF introduces the concept of assigning a unique identifier to a *biometric organization*. A CBEFF biometric organization is any organization, public or private, that requests and receives a biometric organization identifier from the Biometric Registration Authority.

CBEFF also introduces the concept of a *CBEFF patron*. A CBEFF patron is an organization (registered as a biometric organization) that specifies, or intends to specify, one or more CBEFF patron formats in an open and public manner. Only public standards organizations such as a standards body, working group, or industry consortium, can register as CBEFF patrons (other CBEFF biometric organizations are not CBEFF patrons). A CBEFF patron obtains a biometric organization identifier from the Biometric Registration Authority, but has privileges beyond those of ordinary CBEFF biometric organizations: it can define, register and publish one or more CBEFF patron formats. The biometric organization identifier of a CBEFF patron can (but need not) be encoded in BIRs conforming to the patron formats defined by that CBEFF patron.

CBEFF also defines the concept of a *CBEFF biometric data block (BDB) format owner*. A CBEFF BDB format owner is an organization (registered as a CBEFF biometric organization) that specifies one or more BDB format specifications. A BDB format owner obtains a CBEFF biometric organization identifier from the Biometric Registration Authority. A BDB format owner can be a public standards organization (that would, coincidentally, also qualify as a CBEFF patron) or any organization that has a need to define its own vendor-specific BDB formats, whether they are to be published or not.

A CBEFF BDB format owner defines one or more BDB formats and assigns a *BDB format identifier* that unambiguously identifies that BDB format within those defined by the BDB format owner. A BDB format identifier (and the corresponding format) may, but need not, be registered with the Biometric Registration Authority.

CBEFF also defines the concept of a *CBEFF biometric product owner*. A CBEFF biometric product owner is an organization (registered as a CBEFF biometric organization) that assigns a biometric product identifier to a biometric product. A biometric product owner can be a public standards organization such as a standards body, working group, or industry consortium (such an organization would, coincidentally, also qualify as a CBEFF patron), or any organization, such as a vendor or integrator, that has a need to assign biometric product identifiers to biometric products. A biometric product owner can also, but need not, be a BDB format owner and vice versa.

A CBEFF biometric product owner assigns *biometric product identifiers* to one or more biometric products. The identified products can be hardware or software products or a combination of hardware and software. Examples of biometric products are *biometric service providers* (BSPs as defined by ISO/IEC 19784-1) and *biometric transforming applications*. A biometric product identifier unambiguously identifies a biometric product within those that have been assigned an identifier by the biometric product owner. A biometric product identifier may, but need not, be registered with the Biometric Registration Authority.

CBEFF also defines the concept of a *CBEFF security block (SB) format owner*. A CBEFF security block format owner is an organization (registered as a CBEFF biometric organization) that assigns a security block format identifier to a security block format. A CBEFF security block format owner can be a public standards organization such as a standards body, working group, or industry consortium (such an organization would, coincidentally, also qualify as a CBEFF patron), or any organization, such as a vendor or integrator, that has a need to assign security block format identifiers to security block formats. A security block format owner can also, but need not, be a BDB format owner and vice versa.

A CBEFF security block format owner assigns *security block format identifiers* to one or more security block formats. A security block format identifier unambiguously identifies a security block format within those that have been assigned an identifier by the biometric security block format owner. A security block format identifier may, but need not, be registered with the Biometric Registration Authority.

This part of ISO/IEC 19785 specifies a *simple CBEFF BIR structure* and a *complex CBEFF BIR structure*, and gives the requirements for the specification of a CBEFF patron format based on one or the other of these abstract data structures.

This part of ISO/IEC 19785 also specifies *transformations* of BIRs from one CBEFF patron format into a different CBEFF patron format.

Clause 2 specifies the conformance requirements for CBEFF patrons that define CBEFF patron formats. It also specifies the conformance requirements for biometric transforming applications and for implementations claiming conformance to a specific patron format.

Clause 6.5 specifies the CBEFF abstract data elements and the biometric transformation requirements for each data element.

Annex A is normative. It defines a patron format conformance statement that patrons are to complete and publish as part of their patron format specifications as assurance that the format fully complies with CBEFF requirements.

AUSTRALIAN STANDARD

Information technology — Common Biometric Exchange Formats Framework —

Part 1: Data element specification

1 Scope

1.1 This part of ISO/IEC 19785 defines structures and data elements for biometric information records (BIRs).

1.2 This part of ISO/IEC 19785 defines the concept of a domain of use to establish the applicability of a standard or specification that complies with CBEFF requirements.

1.3 This part of ISO/IEC 19785 defines the concept of a CBEFF patron format, which is a published BIR format specification that complies with CBEFF requirements, specified by a CBEFF patron.

1.4 This part of ISO/IEC 19785 defines the abstract values (and associated semantics) of a set of CBEFF data elements to be used in the definition of CBEFF patron formats.

1.5 This part of ISO/IEC 19785 specifies the use of CBEFF data elements by a CBEFF patron to define the content and encoding of a standard biometric header (SBH) to be included in a biometric information record (i.e. the definition of a CBEFF patron format).

1.6 This part of ISO/IEC 19785 provides the means for identification of the formats of the biometric data blocks (BDBs) in a BIR, but the standardization and interoperability of BDB formats is not in the scope of this part of ISO/IEC 19785. It also provides a means (the security block) for BIRs to carry information about the encryption of a BDB in the BIR and about integrity mechanisms applied to the BIR as a whole, but the structure and content of security blocks is the responsibility of CBEFF patrons and is not in the scope of this part of ISO/IEC 19785. Further, the specification of encryption mechanisms for BDBs and of integrity mechanisms for BIRs is not in the scope of this part of ISO/IEC 19785.

1.7 This part of ISO/IEC 19785 specifies transformations from one CBEFF patron format to a different CBEFF patron format.

1.8 The encoding of the abstract values of CBEFF data elements to be used in the specification of CBEFF patron formats is not in the scope of this part of ISO/IEC 19785.

1.9 ISO/IEC 19785-2 specifies the operation of the Biometric Registration Authority for the issuing of biometric organization identifiers and the registration of BDB formats, CBEFF patron formats, security block formats, and biometric products.

1.10 A future part of ISO/IEC 19785 (ISO/IEC 19785-3) will specify several patron format specifications for which ISO/IEC JTC 1 SC 37 is the CBEFF patron.

1.11 Protection of the privacy of individuals from inappropriate dissemination and use of biometric data is not in the scope of this part of ISO/IEC 19785, but may be subject to national regulation.