

This is a preview of "ISO/IEC 10118-2:2010". [Click here to purchase the full version from the ANSI store.](#)

Third edition
2010-10-15

Information technology — Security techniques — Hash-functions —

Part 2: Hash-functions using an n -bit block cipher

Technologies de l'information — Techniques de sécurité — Fonctions de brouillage —

Partie 2: Fonctions de brouillage utilisant un chiffrement par blocs de n bits

Reference number
ISO/IEC 10118-2:2010(E)



© ISO/IEC 2010

This is a preview of "ISO/IEC 10118-2:2010". [Click here to purchase the full version from the ANSI store.](#)

PDF disclaimer

This PDF file may contain embedded typefaces. In accordance with Adobe's licensing policy, this file may be printed or viewed but shall not be edited unless the typefaces which are embedded are licensed to and installed on the computer performing the editing. In downloading this file, parties accept therein the responsibility of not infringing Adobe's licensing policy. The ISO Central Secretariat accepts no liability in this area.

Adobe is a trademark of Adobe Systems Incorporated.

Details of the software products used to create this PDF file can be found in the General Info relative to the file; the PDF-creation parameters were optimized for printing. Every care has been taken to ensure that the file is suitable for use by ISO member bodies. In the unlikely event that a problem relating to it is found, please inform the Central Secretariat at the address given below.



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2010

All rights reserved. Unless otherwise specified, 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 either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Case postale 56 • CH-1211 Geneva 20
Tel. + 41 22 749 01 11
Fax + 41 22 749 09 47
E-mail copyright@iso.org
Web www.iso.org

Published in Switzerland

This is a preview of "ISO/IEC 10118-2:2010". Click [here](#) to purchase the full version from the ANSI store.

Contents

Page

Foreword	v
Introduction.....	vi
1 Scope	1
2 Normative references	1
3 Terms and definitions	1
4 Symbols and abbreviated terms	2
5 Use of the general model.....	2
6 Hash-function 1	2
6.1 General	2
6.2 Parameter selection	2
6.3 Padding method	3
6.4 Initializing value.....	3
6.5 Round function	3
6.6 Output transformation	4
7 Hash-function 2	4
7.1 General	4
7.2 Parameter selection	4
7.3 Padding method	4
7.4 Initializing value.....	4
7.5 Round function	4
7.6 Output transformation	5
8 Hash-function 3	6
8.1 General	6
8.2 Parameter selection	6
8.3 Padding method	6
8.4 Initializing value.....	6
8.5 Round function	6
8.6 Output transformation	9
9 Hash-function 4	9
9.1 General	9
9.2 Parameter selection	9
9.3 Padding method	9
9.4 Initializing value.....	9
9.5 Round function	9
9.6 Output transformation	11
Annex A (informative) Use of AES.....	13
A.1 General	13
A.2 Hash-function 1	13
A.3 Hash-function 2	13
A.4 Hash-function 3	13
A.5 Hash-function 4	14
Annex B (informative) Examples	15
B.1 General	15
B.2 Hash-function 1	15
B.3 Hash-function 2	16
B.4 Hash-function 3	17

This is a preview of "ISO/IEC 10118-2:2010". [Click here to purchase the full version from the ANSI store.](#)

B.5	Hash-function 4	22
Annex C (normative)	ASN.1 Module	27
Bibliography		29

This is a preview of "ISO/IEC 10118-2:2010". [Click here to purchase the full version from the ANSI store.](#)

Foreword

ISO (the International Organization for Standardization) and IEC (the International Electrotechnical Commission) form the specialized system for worldwide standardization. National bodies that are members of ISO or IEC participate in the development of International Standards through technical committees established by the respective organization to deal with particular fields of technical activity. ISO and IEC technical committees collaborate in fields of mutual interest. Other international organizations, governmental and non-governmental, in liaison with ISO and IEC, also take part in the work. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of the joint technical committee is to prepare International Standards. Draft International Standards adopted by the joint technical committee are circulated to national bodies for voting. Publication as an International Standard requires approval by at least 75 % of the national bodies casting a vote.

ISO/IEC 10118-2 was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *IT Security techniques*.

This third edition cancels and replaces the second edition (ISO/IEC 10118-2:2000), which has been technically revised. It also incorporates the Technical Corrigendum ISO/IEC 10118-2:2000/Cor.2:2007. The major change is that in the second edition the underlying block cipher used in the hash-functions was assumed to be Data Encryption Algorithm (DEA), whereas in the third edition it is assumed to be more secure block ciphers like Advanced Encryption Standard (AES) and other ciphers included in ISO/IEC 18033-3.

ISO/IEC 10118 consists of the following parts, under the general title *Information technology — Security techniques — Hash-functions*:

- *Part 1: General*
- *Part 2: Hash-functions using an n-bit block cipher*
- *Part 3: Dedicated hash-functions*
- *Part 4: Hash-functions using modular arithmetic*

Introduction

The International Organization for Standardization (ISO) and International Electrotechnical Commission (IEC) draw attention to the fact that it is claimed that compliance with this document may involve the use of patents.

The ISO and IEC take no position concerning the evidence, validity and scope of these patent rights.

The holders of these patent rights have assured the ISO and IEC that they are willing to negotiate licences under reasonable and non-discriminatory terms and conditions with applicants throughout the world. In this respect, the statements of the holders of these patent rights are registered with the ISO and IEC. Information may be obtained from the ISO/IEC JTC 1 Patent database:

<http://www.iso.org/patents>

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights other than those identified above. ISO and IEC shall not be held responsible for identifying any or all such patent rights.