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**Information technology — Lightweight  
cryptography —**

**Part 6:  
Message authentication codes (MACs)**

*Technologies de l'information — Cryptographie pour environnements  
contraints —*

*Partie 6: Codes d'authentification de message (MACs)*





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## 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.

The procedures used to develop this document and those intended for its further maintenance are described in the ISO/IEC Directives, Part 1. In particular, the different approval criteria needed for the different types of document should be noted. This document was drafted in accordance with the editorial rules of the ISO/IEC Directives, Part 2 (see [www.iso.org/directives](http://www.iso.org/directives)).

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO and IEC shall not be held responsible for identifying any or all such patent rights. Details of any patent rights identified during the development of the document will be in the Introduction and/or on the ISO list of patent declarations received (see [www.iso.org/patents](http://www.iso.org/patents)) or the IEC list of patent declarations received (see <http://patents.iec.ch>).

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For an explanation of the voluntary nature of standards, the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the World Trade Organization (WTO) principles in the Technical Barriers to Trade (TBT) see [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Joint Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *Information security, cybersecurity and privacy protection*.

A list of all parts in the ISO/IEC 29192 series can be found on the ISO website.

Any feedback or questions on this document should be directed to the user's national standards body. A complete listing of these bodies can be found at [www.iso.org/members.html](http://www.iso.org/members.html).

## Introduction

In an IT environment, it is often required that one can verify that electronic data has not been altered in an unauthorized manner and that one can provide assurance that a message has been originated by an entity in possession of the secret key. A MAC (Message Authentication Code) algorithm is a commonly used data integrity mechanism that can satisfy these requirements.

It is possible to take the first approach to realize a lightweight MAC by using the specified MAC algorithm in conjunction with a block cipher that can be chosen from ISO/IEC 29192-2 or ISO/IEC 18033-3, and in conjunction with a hash-function that can be chosen from ISO/IEC 29192-5. It is also possible to take the second approach to realize a lightweight MAC using a dedicated function. Examples of both approaches are specified in this document.



# Information technology — Lightweight cryptography —

## Part 6:

# Message authentication codes (MACs)

## 1 Scope

This document specifies MAC algorithms suitable for applications requiring lightweight cryptographic mechanisms. These mechanisms can be used as data integrity mechanisms to verify that data has not been altered in an unauthorized manner. They can also be used as message authentication mechanisms to provide assurance that a message has been originated by an entity in possession of the secret key.

The following MAC algorithms are specified in this document:

- a) LightMAC;
- b) Tsudik's keymode;
- c) Chaskey-12.

## 2 Normative references

The following documents are referred to in the text in such a way that some or all of their content constitutes requirements of this document. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 18033-3, *Information technology — Security techniques — Encryption algorithms — Part 3: Block ciphers*

ISO/IEC 29192-2, *Information technology — Security techniques — Lightweight cryptography — Part 2: Block ciphers*

ISO/IEC 29192-5, *Information technology — Security techniques — Lightweight cryptography — Part 5: Hash-functions*