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First edition  
2018-05

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## Information technology — Security techniques — Testing cryptographic modules in their operational environment

*Technologies de l'information — Techniques de sécurité — Test de modules cryptographiques dans leur environnement d'exploitation*



Reference number  
ISO/IEC TS 20540:2018(E)

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Published in Switzerland

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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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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)).

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For an explanation on 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 the following URL: [www.iso.org/iso/foreword.html](http://www.iso.org/iso/foreword.html).

This document was prepared by Technical Committee ISO/IEC JTC 1, *Information technology*, Subcommittee SC 27, *IT Security techniques*.

## Introduction

In information technology, there is an ever-increasing need to use cryptographic mechanisms such as the protection of data against unauthorized disclosure or manipulation, for entity authentication and for non-repudiation. The security and reliability of such mechanisms are directly dependent on the cryptographic modules in which they are implemented. Cryptographic modules are utilized within a security system to protect sensitive information in their application environment.

The purpose of this document is to describe the recommendations and checklists which help in the selection of cryptographic modules for deployment in a diversity of application environments. This document is helpful for a user and operational tester to verify correct deployment in the application environment.

Operational tests are performed to determine the suitability and proper usage of a cryptographic module in its application environment.

Cryptographic modules and their application environments are generally complex. When cryptographic modules are deployed in an operational environment, a minor error or mistake can affect the security of the whole operational and application environment. It is important to perform operational tests to ensure the proper usage of a cryptographic module in their operational environment. This document identifies the operational tests by providing:

- recommendations to perform a secure assessment of the cryptographic module installation, configuration and operation;
- recommendations for inspecting the key management system, protection of authentication credentials, and public and critical security parameters in the operational environment;
- recommendations for identifying cryptographic module vulnerabilities;
- checklists for the cryptographic algorithm policy, security guidance and regulation, security manage requirements, security level for each of the 11 requirement areas, the strength of the security function, etc.; and
- inspection recommendations to determine that the cryptographic module's deployment satisfies the security requirements.

When the operational testing is performed by using this document, access to the text of ISO/IEC 19790 and ISO/IEC 24759 can be required.