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| STN | IT bezpečnostné metódy Požiadavky na testovacie nástroje a metódy kalibrácie testovacích nástrojov na použitie pri testovaní neinvazívnych techník zmiernovania útokov v kryptografických moduloch Časť 1: Testovacie nástroje a metódy | STN ISO/IEC 20085-1 97 4106 |
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IT Security techniques

Test tool requirements and test tool calibration methods for use in testing non-invasive attack mitigation techniques in cryptographic modules
Part 1: Test tools and techniques

Techniques de sécurité IT

Exigences de l'outil de test et méthodes d'étalonnage de l'outil de test utilisées pour tester les techniques d'atténuation des attaques non invasives dans les modules cryptographiques
Partie 1: Outils et techniques de test

Táto norma obsahuje anglickú verziu ISO/IEC 20085-1: 2019.

This standard includes the English version of ISO/IEC 20085-1: 2019.

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Úrad pre normalizáciu, metrológiu a skúšobníctvo Slovenskej republiky, 2021

Slovenská technická norma a technická normalizačná informácia je chránená zákonom č. 60/2018 Z. z. o technickej normalizácii.

Anotácia

Kryptografické moduly poskytujú kryptografické služby a chránia kritické parametre zabezpečenia (CSP). Ochrana CSP môže byť logická, fyzická alebo oboje. Informácie, ako napríklad znalosť CSP však môžu pri manipulácii uniknúť z kryptografického modulu, ak modul nie je navrhnutý na zmiernenie takéhoto úniku. Techniky, ktoré umožňujú extrakciu CSP, sa označujú ako „útok“ na modul. Tento dokument sa zameriava na meranie a analýzu informácií bočného kanála. Na zhromažďovanie takýchto únikov je možné automatizovať neinvazívne testovacie nástroje bočného kanála.

Na charakterizáciu kvality testovacích nástrojov sú potrebné metriky, ako napríklad pomer signál/šum (S/N) (opísané v ISO/IEC 20085-2). ISO/IEC 20085 (všetky časti) sa zaoberá technikami merania a analýzy. Tie sú automatizované v testovacom nástroji. Funkčnosť a činnosť testovacieho nástroja sú opísané v ISO/IEC 20085 (všetky časti).

Národný predhovor

Normatívne referenčné dokumenty

Nasledujúce dokumenty, celé alebo ich časti, sú v tomto dokumente normatívnymi odkazmi a sú nevyhnutné pri jeho používaní. Pri datovaných odkazoch sa použije len citované vydanie. Pri nedatovaných odkazoch sa použije najnovšie vydanie citovaného dokumentu (vrátane všetkých zmien).

POZNÁMKA 1. – Ak bola medzinárodná publikácia zmenená spoločnými modifikáciami, čo je indikované označením (mod), použije sa príslušná EN/HD.

POZNÁMKA 2. – Aktuálne informácie o platných a zrušených STN možno získať na webovej stránke www.unms.sk.

ISO/IEC 19790: 2012 zavedená v STN EN ISO/IEC 19790: 2020 Informačné technológie. Bezpečnostné metódy. Bezpečnostné požiadavky na kryptografické moduly (ISO/IEC 19790: 2012) (36 9781)

Vypracovanie normy

Spracovateľ: Úrad pre normalizáciu, metrológiu a skúšobníctvo SR, Bratislava

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ISO/IEC 20085-1:2019(E)

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).

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) 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.

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 20085 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.

Introduction

Cryptographic modules provide cryptographic services and protect critical security parameters (CSPs). Protection of CSPs can either be logical, physical, or both. However, information such as knowledge of CSPs can leak out of the cryptographic module when manipulated, if the module is not designed to mitigate such leakage. Without mitigation, a malicious attacker can record available side-channel leakage. This leakage is a physical quantity related to the CSPs and can be analysed in a manner to extract knowledge of those parameters. Such analysis is passive, in that it simply collects the side-channel leakage utilizing measurement apparatus which is freely available. Notice that the measurement tool can be adaptively controlled. This kind of extraction and analysis is referred to as non-invasive. Techniques which allow the extraction of CSPs out of this non-invasive leakage is termed an “attack” on the module.

This document focuses on the measurement and analysis of side-channel information. Side-channel non-invasive test tools can be automated to collect such leakage. To characterize the quality of the test tools, metrics are needed, such as signal-to-noise ratio (S/N) (described in ISO/IEC 20085-2). ISO/IEC 20085 (all parts) addresses the measurement and analysis techniques. Those are automated in a test tool. The functionality and the operation of a test tool are described in ISO/IEC 20085 (all parts).

IT Security techniques — Test tool requirements and test tool calibration methods for use in testing non-invasive attack mitigation techniques in cryptographic modules —

Part 1: Test tools and techniques

1 Scope

This document provides specifications for non-invasive attack test tools and provides information about how to operate such tools. The purpose of the test tools is the collection of signals (i.e. side-channel leakage) and their analysis as a non-invasive attack on a cryptographic module implementation under test (IUT).

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 19790:2012, *Information technology — Security techniques — Security requirements for cryptographic modules*

koniec náhl'adu – text ďalej pokračuje v platenej verzii STN