
**Information Technology — Open
Trusted Technology Provider™
Standard (O-TTPS) — Mitigating
maliciously tainted and counterfeit
products**

*Technologies de l'information — Norme de fournisseur de technologie
de confiance ouverte (O-TTPS) — Atténuation des produits contrefaits
et malicieusement contaminés*

This document is a preview generated by EBS



COPYRIGHT PROTECTED DOCUMENT

© ISO/IEC 2015, Published in Switzerland

All rights reserved. Unless otherwise specified, no part of this publication may be reproduced or utilized otherwise in any form or by any means, electronic or mechanical, including photocopying, or posting on the internet or an intranet, without prior written permission. Permission can be requested from either ISO at the address below or ISO's member body in the country of the requester.

ISO copyright office
Ch. de Blandonnet 8 • CP 401
CH-1214 Vernier, Geneva, Switzerland
Tel. +41 22 749 01 11
Fax +41 22 749 09 47
copyright@iso.org
www.iso.org

Contents

| | | |
|---------|--|----|
| 1 | Introduction | 1 |
| 1.1 | Objectives | 1 |
| 1.2 | Overview | 1 |
| 1.3 | Conformance | 3 |
| 1.4 | Terminology | 3 |
| 1.5 | Future Directions | 4 |
| 2 | Business Context and Overview | 5 |
| 2.1 | Business Environment Summary | 5 |
| 2.1.1 | Operational Scenario | 5 |
| 2.2 | Business Rationale | 7 |
| 2.2.1 | Business Drivers | 7 |
| 2.2.2 | Objectives and Benefits | 8 |
| 2.3 | Recognizing the COTS ICT Context | 9 |
| 2.4 | Overview | 11 |
| 2.4.1 | O-TTPF Framework Overview | 11 |
| 2.4.2 | Standard Overview | 11 |
| 2.4.3 | Relationship with Other Standards | 12 |
| 3 | O-TTPS – Tainted and Counterfeit Risks | 13 |
| 4 | O-TTPS – Requirements for Addressing the Risks of Tainted and Counterfeit Products | 15 |
| 4.1 | Technology Development | 16 |
| 4.1.1 | PD: Product Development/Engineering Method | 16 |
| 4.1.1.1 | PD_DES: Software/Firmware/Hardware Design Process | 16 |
| 4.1.1.2 | PD_CFM: Configuration Management | 17 |
| 4.1.1.3 | PD_MPP: Well-defined Development/Engineering Method Process and Practices | 17 |
| 4.1.1.4 | PD_QAT: Quality and Test Management | 17 |
| 4.1.1.5 | PD_PSM: Product Sustainment Management | 18 |
| 4.1.2 | SE: Secure Development/Engineering Method | 18 |
| 4.1.2.1 | SE_TAM: Threat Analysis and Mitigation | 18 |
| 4.1.2.2 | SE_RTP: Run-time Protection Techniques | 19 |
| 4.1.2.3 | SE_VAR: Vulnerability Analysis and Response | 19 |
| 4.1.2.4 | SE_PPR: Product Patching and Remediation | 20 |
| 4.1.2.5 | SE_SEP: Secure Engineering Practices | 20 |

4.1.2.6 SE_MTL: Monitor and Assess the Impact of
Changes in the Threat Landscape 20

4.2 Supply Chain Security 21

4.2.1 SC: Supply Chain Security 21

4.2.1.1 SC_RSM: Risk Management 21

4.2.1.2 SC_PHS: Physical Security 22

4.2.1.3 SC_ACC: Access Controls 22

4.2.1.4 SC_ESS: Employee and Supplier Security
and Integrity 23

4.2.1.5 SC_BPS: Business Partner Security 23

4.2.1.6 SC_STR: Supply Chain Security Training 24

4.2.1.7 SC_ISS: Information Systems Security 24

4.2.1.8 SC_TTC: Trusted Technology Components 24

4.2.1.9 SC_STH: Secure Transmission and Handling 25

4.2.1.10 SC_OSH: Open Source Handling 25

4.2.1.11 SC_CTM: Counterfeit Mitigation 26

4.2.1.12 SC_MAL: Malware Detection 26

List of Tables

Table 1: O-TTPS Constituents and their Roles 6

Table 2: Threat Mapping 14

List of Figures

Figure 1: Constituents 6

Figure 2: Product Life Cycle – Categories and Activities 15

Preface

The Open Group

The Open Group is a global consortium that enables the achievement of business objectives through IT standards. With more than 400 member organizations, The Open Group has a diverse membership that spans all sectors of the IT community – customers, systems and solutions suppliers, tool vendors, integrators, and consultants, as well as academics and researchers – to:

- Capture, understand, and address current and emerging requirements, and establish policies and share best practices
- Facilitate interoperability, develop consensus, and evolve and integrate specifications and open source technologies
- Offer a comprehensive set of services to enhance the operational efficiency of consortia
- Operate the industry's premier certification service

Further information on The Open Group is available at www.opengroup.org.

The Open Group publishes a wide range of technical documentation, most of which is focused on development of Open Group Standards and Guides, but which also includes white papers, technical studies, certification and testing documentation, and business titles. Full details and a catalog are available at www.opengroup.org/bookstore.

Readers should note that updates – in the form of Corrigenda – may apply to any publication. This information is published at www.opengroup.org/corrigenda.

This Document

The Open Group Trusted Technology Forum (OTTF or Forum) is a global initiative that invites industry, government, and other interested participants to work together to evolve this Standard and other OTTF deliverables.

This Standard is the Open Trusted Technology Provider Standard (O-TTPS). The Standard has been developed by the OTTF and approved by The Open Group, through The Open Group Company Review process. There are two distinct elements that should be understood with respect to this Standard: the O-TTPF (Framework) and the O-TTPS (Standard).

The O-TTPF (Framework): The Framework is an evolving compendium of organizational guidelines and best practices relating to the integrity of Commercial Off-the-Shelf (COTS) Information and Communication Technology (ICT) products and the security of the supply chain throughout the entire product life cycle. An early version of the Framework was published as a White Paper in February 2011 (see [Referenced Documents](#)). The Framework serves as the basis for this Standard, future updates, and additional standards. The content of the Framework is the result of industry collaboration and research as to those commonly used commercially

reasonable practices that increase product integrity and supply chain security. The members of the OTTF will continue to collaborate with industry and governments and update the Framework as the threat landscape changes and industry practices evolve.

The O-TTPS (Standard): The O-TTPS is an open standard containing a set of guidelines that when properly adhered to have been shown to enhance the security of the global supply chain and the integrity of COTS ICT products. It provides a set of guidelines, requirements, and recommendations that help assure against maliciously tainted and counterfeit products throughout the COTS ICT product life cycle encompassing the following phases: design, sourcing, build, fulfillment, distribution, sustainment, and disposal.

Using the guidelines documented in the Framework as a basis, the OTTF is taking a phased approach and staging O-TTPS releases over time. This staging will consist of standards that focus on mitigating specific COTS ICT risks from emerging threats. As threats change or market needs evolve, the OTTF intends to update the O-TTPS (Standard) by releasing addenda to address specific threats or market needs.

The Standard is aimed at enhancing the integrity of COTS ICT products and helping customers to manage sourcing risk. The authors of this Standard recognize the value that it can bring to governments and commercial customers worldwide, particularly those who adopt procurement and sourcing strategies that reward those vendors who follow the O-TTPS best practice requirements and recommendations.

Note: Any reference to “providers” is intended to refer to COTS ICT providers. The use of the word “component” is intended to refer to either hardware or software components.

Intended Audience

This Standard is intended for organizations interested in helping the industry evolve to meet the threats in the delivery of trustworthy COTS ICT products. It is intended to provide enough context and information on business drivers to enable its audience to understand the value in adopting the guidelines, requirements, and recommendations specified within. It also allows providers, suppliers, and integrators to begin planning how to implement the Standard in their organizations. Additionally, acquirers and customers can begin recommending the adoption of the Standard to their providers and integrators.

Trademarks

ArchiMate®, DirecNet®, Jericho Forum®, Making Standards Work®, OpenPegasus®, The Open Group®, TOGAF®, and UNIX® are registered trademarks and Boundaryless Information Flow™, Build with Integrity Buy with Confidence™, Dependability Through Assuredness™, FACE™, Open Platform 3.0™, Open Trusted Technology Provider™, and The Open Group Certification Mark™ are trademarks of The Open Group.

All other brands, company, and product names are used for identification purposes only and may be trademarks that are the sole property of their respective owners.

Acknowledgements

The Open Group acknowledges the contribution of the following people and organizations in the development of this Standard (presented in alphabetical order).

In particular we would like to provide a special thank you and acknowledgement to the Chair and Vice Chair of the OTTF: Andras Szakal, IBM (Chair) and Edna Conway, Cisco Systems (Vice Chair).

The contributing members of The Open Group Trusted Technology Forum (OTTF):

| Contributors | Organization |
|----------------------|---|
| Jon Amis | Dell, Inc. |
| Paul Aschwald | Hewlett-Packard Company |
| Nadya Bartol | (formerly of) Booz Allen Hamilton |
| James Bean | Juniper Networks |
| Kristen Baldwin | US DoD AT&L |
| Terry Blevins | MITRE |
| Joshua Brickman | CA Technologies |
| Stan Brown | CA Technologies |
| Ben Calloni | Lockheed Martin |
| Suresh Cheruserri | (formerly of) Tata Consultancy Services |
| YouHong (Robert) Chu | Kingdee Software |
| Erv Comer | Motorola Solutions |
| Erin Connor | Electronic Warfare Associates (EWA) – Canada Ltd. |
| Tammy Compton | (formerly of) SAIC |
| Edna Conway | Cisco Systems Inc. OTTF Vice-Chair |
| Don Davidson | DOD-CIO |
| Mary Ann Davidson | Oracle Corporation |
| Charles Dekle | (formerly of) US DoD AT&L |
| Terrie Diaz | Cisco Systems Inc. |
| Robert Dix | Juniper Networks |
| Holly Dunlap | Raytheon Company |
| Bob Ellison | SEI |
| Marcus Fedeli | (formerly of) NASA |

| Contributors | Organization |
|---------------------|---|
| Luke Forsyth | CA Technologies |
| Susan Fultz | Hewlett-Packard Company |
| Steve Goldberg | (formerly of) Motorola Solutions |
| Tim Hahn | IBM Corporation |
| Wes Higaki | Apex Assurance Group |
| Ken Hong Fong | (formerly of) US DoD AT&L |
| Helmut Kurth | atsec information security |
| Mike Lai | Microsoft Corporation |
| David Ling | Hewlett-Packard Company |
| Steve Lipner | Microsoft Corporation O-TTPF Work Stream Co-Chair |
| Dr. David McQueeney | IBM Corporation |
| Jim Mann | Hewlett-Packard Company |
| Al Marshall | NASA |
| Michele Moss | Booz-Allen Hamilton |
| Shawn Mullen | IBM Corporation |
| Fiona Pattinson | atsec information security |
| Brendan Peter | CA Technologies |
| Glenn Pittaway | Microsoft Corporation |
| Andy Purdy | Huawei Technologies |
| Dan Reddy | EMC Corporation |
| Karen Richter | IDA |
| Jim Robinson | Hewlett-Packard Company |
| Hart Rossman | (formerly of) SAIC |
| Mark Schiller | (formerly of) Hewlett-Packard Company |
| Thomas Stickels | MITRE |
| Andras R. Szakal | IBM Corporation OTTf Chair and O-TTPF Work Stream Co-Chair |
| Steve Whitlock | The Boeing Company |
| Jim Whitmore | IBM Corporation |
| Robert Williamson | SAIC |
| Eric Winterton | Booz Allen Hamilton |
| Joanne Woytek | NASA |
| Chee Wai Foong | Cisco Systems Inc. |

The individuals providing early contributions to this work:

| Contributor | Name |
|-----------------|-------------------------------------|
| Randy Barr | Qualys |
| Rance DeLong | LinuxWorks |
| Chris Fagan | (formerly of) Microsoft Corporation |
| Rob Hoffman | High Assurance Systems, Inc. |
| Dave McDermitt | (formerly of) SAIC |
| Terry Morgan | (formerly of) Cisco Systems Inc. |
| Paul Nicholas | Microsoft Corporation |
| Kerri Patterson | (formerly of) Cisco Systems Inc. |
| Steve Venema | The Boeing Company |
| Larry Wagoner | NSA |

The Open Group staff:

| Name | Role |
|----------------|--|
| James Andrews | The Open Group Conformance Quality Manager |
| Joe Bergmann | Open Group Government Relations, Director, RT&ES |
| James de Raeve | VP Certification |
| Cathy Fox | Technical Editor |
| Jim Hietala | VP Security |
| Andrew Josey | Director, Standards |
| Sally Long | Director, The Open Group Trusted Technology Forum (OTTF) |
| Dave Lounsbury | Chief Technical Officer |

Referenced Documents

The following documents are referenced in this Standard:

- 2007 Defense Science Board Task Force on Mission Impact of Foreign Influence on DoD Software, September 2007; findings and recommendations located at: www.acq.osd.mil/dsb/reports/ADA486949.pdf.
- Electronic Industry Citizenship Coalition (EICC) Code of Conduct; refer to: www.eicc.info.
- ISO/IEC 15408: Information Technology – Security Techniques – Evaluation Criteria for IT Security (Common Criteria).
- ISO/IEC 27000:2009: Information Technology – Security Techniques – Information Security Management Systems – Overview and Vocabulary.
- ISO/IEC Directives, Part 2: Rules for the Structure and Drafting of International Standards.
- NIST 800-12: An Introduction to Computer Security: The NIST Handbook.
- White Paper: Open Trusted Technology Provider Framework (O-TTPF), W113, published by The Open Group, February 2011; refer to: www.opengroup.org/bookstore/catalog/w113.htm.