

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.1500

Amendment 7
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SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

Cybersecurity information exchange – Overview of
cybersecurity

Overview of cybersecurity information exchange

**Amendment 7: Revised structured cybersecurity
information exchange techniques**

Recommendation ITU-T X.1500 (2011) – Amendment 7

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ITU-T X-SERIES RECOMMENDATIONS
DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

PUBLIC DATA NETWORKS	X.1–X.199
OPEN SYSTEMS INTERCONNECTION	X.200–X.299
INTERWORKING BETWEEN NETWORKS	X.300–X.399
MESSAGE HANDLING SYSTEMS	X.400–X.499
DIRECTORY	X.500–X.599
OSI NETWORKING AND SYSTEM ASPECTS	X.600–X.699
OSI MANAGEMENT	X.700–X.799
SECURITY	X.800–X.849
OSI APPLICATIONS	X.850–X.899
OPEN DISTRIBUTED PROCESSING	X.900–X.999
INFORMATION AND NETWORK SECURITY	
General security aspects	X.1000–X.1029
Network security	X.1030–X.1049
Security management	X.1050–X.1069
Telebiometrics	X.1080–X.1099
SECURE APPLICATIONS AND SERVICES	
Multicast security	X.1100–X.1109
Home network security	X.1110–X.1119
Mobile security	X.1120–X.1139
Web security	X.1140–X.1149
Security protocols	X.1150–X.1159
Peer-to-peer security	X.1160–X.1169
Networked ID security	X.1170–X.1179
IPTV security	X.1180–X.1199
CYBERSPACE SECURITY	
Cybersecurity	X.1200–X.1229
Countering spam	X.1230–X.1249
Identity management	X.1250–X.1279
SECURE APPLICATIONS AND SERVICES	
Emergency communications	X.1300–X.1309
Ubiquitous sensor network security	X.1310–X.1339
CYBERSECURITY INFORMATION EXCHANGE	
Overview of cybersecurity	X.1500–X.1519
Vulnerability/state exchange	X.1520–X.1539
Event/incident/heuristics exchange	X.1540–X.1549
Exchange of policies	X.1550–X.1559
Heuristics and information request	X.1560–X.1569
Identification and discovery	X.1570–X.1579
Assured exchange	X.1580–X.1589
CLOUD COMPUTING SECURITY	
Overview of cloud computing security	X.1600–X.1601
Cloud computing security design	X.1602–X.1639
Cloud computing security best practices and guidelines	X.1640–X.1659
Cloud computing security implementation	X.1660–X.1679
Other cloud computing security	X.1680–X.1699

For further details, please refer to the list of ITU-T Recommendations.

Recommendation ITU-T X.1500

Overview of cybersecurity information exchange

Amendment 7

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Summary

Amendment 7 to Recommendation ITU-T X.1500 (2011) provides a list of structured cybersecurity information techniques that have been created to be continually updated as these techniques evolve, expand, are newly identified or are replaced. The list follows the outline provided in the body of the Recommendation. This amendment reflects the situation of recommended techniques as of April 2015, including bibliographical references.

History

Edition	Recommendation	Approval	Study Group	Unique ID*
1.0	ITU-T X.1500	2011-04-20	17	11.1002/1000/11060
1.1	ITU-T X.1500 (2011) Amd. 1	2012-03-02	17	11.1002/1000/11574
1.2	ITU-T X.1500 (2011) Amd. 2	2012-09-07	17	11.1002/1000/11751
1.3	ITU-T X.1500 (2011) Amd. 3	2013-04-26	17	11.1002/1000/11942
1.4	ITU-T X.1500 (2011) Amd. 4	2013-09-04	17	11.1002/1000/12041
1.5	ITU-T X.1500 (2011) Amd. 5	2014-01-24	17	11.1002/1000/12159
1.6	ITU-T X.1500 (2011) Amd. 6	2014-09-26	17	11.1002/1000/12334

* To access the Recommendation, type the URL <http://handle.itu.int/> in the address field of your web browser, followed by the Recommendation's unique ID. For example, <http://handle.itu.int/11.1002/1000/11830-en>.

FOREWORD

The International Telecommunication Union (ITU) is the United Nations specialized agency in the field of telecommunications, information and communication technologies (ICTs). The ITU Telecommunication Standardization Sector (ITU-T) is a permanent organ of ITU. ITU-T is responsible for studying technical, operating and tariff questions and issuing Recommendations on them with a view to standardizing telecommunications on a worldwide basis.

The World Telecommunication Standardization Assembly (WTSA), which meets every four years, establishes the topics for study by the ITU-T study groups which, in turn, produce Recommendations on these topics.

The approval of ITU-T Recommendations is covered by the procedure laid down in WTSA Resolution 1.

In some areas of information technology which fall within ITU-T's purview, the necessary standards are prepared on a collaborative basis with ISO and IEC.

NOTE

In this Recommendation, the expression "Administration" is used for conciseness to indicate both a telecommunication administration and a recognized operating agency.

Compliance with this Recommendation is voluntary. However, the Recommendation may contain certain mandatory provisions (to ensure, e.g., interoperability or applicability) and compliance with the Recommendation is achieved when all of these mandatory provisions are met. The words "shall" or some other obligatory language such as "must" and the negative equivalents are used to express requirements. The use of such words does not suggest that compliance with the Recommendation is required of any party.

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As of the date of approval of this Recommendation, ITU had not received notice of intellectual property, protected by patents, which may be required to implement this Recommendation. However, implementers are cautioned that this may not represent the latest information and are therefore strongly urged to consult the TSB patent database at <http://www.itu.int/ITU-T/ipr/>.

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Recommendation ITU-T X.1500

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Revised structured cybersecurity information exchange techniques

- 1) *Replace Appendix I with the appendix below.*

Appendix I

Structured cybersecurity information exchange techniques

(This appendix does not form an integral part of this Recommendation.)

Table I.1 – Techniques in the weakness, vulnerability and state exchange cluster

Technique	Description	References
Common vulnerabilities and exposures (CVE)	Common vulnerabilities and exposures is a method for identifying and exchanging information security vulnerabilities and exposures, and provides common identifiers for publicly known problems. The goal of CVE is to make it easier to share data across separate vulnerability capabilities (tools, repositories and services) with this "common enumeration". CVE is designed to allow vulnerability databases and other resources to be linked together, and to facilitate the comparison of security tools and services. As such, CVE does not contain information such as risk, impact, fix information, or detailed technical information. CVE only contains the standard identifier number with status indicator, a brief description and references to related vulnerability reports and advisories. The intention of CVE is to be comprehensive with respect to all publicly known vulnerabilities and exposures. While CVE is designed to contain mature information, the primary focus is on identifying vulnerabilities and exposures that are detected by security tools, as well as identifying any new problems that become public, and then addressing any older security problems that require validation.	[b-ITU-T X.1520]

Table I.1 – Techniques in the weakness, vulnerability and state exchange cluster

Technique	Description	References
Common vulnerability scoring system (CVSS)	The common vulnerability scoring system process provides for an open framework for communicating the characteristics and impacts of ICT vulnerabilities. CVSS consists of three groups: base, temporal and environmental. Each group produces a numeric score ranging from 0 to 10, and a vector, a compressed textual representation that reflects the values used to derive the score. The base group represents the intrinsic qualities of a vulnerability. The temporal group reflects the characteristics of a vulnerability that change over time. The environmental group represents the characteristics of a vulnerability that are unique to the environment of the user. CVSS enables ICT managers, vulnerability bulletin providers, security vendors, application vendors and researchers to all benefit by adopting a common language of scoring ICT vulnerabilities.	[b-ITU-T X.1521]
Common weakness enumeration (CWE)	Common weakness enumeration is a process for identifying and exchanging unified, measurable sets of software weaknesses. CWE enables more effective discussion, description, selection and use of software security tools and services that can find these weaknesses in source code and operational systems. It also provides for better understanding and management of software weaknesses related to architecture and design. CWE implementations are compiled and updated by a diverse, international group of experts from business, academia and government agencies, ensuring breadth and depth of content. CWE provides standardized terminology, allows service providers to inform users of specific potential weaknesses and proposed resolutions, and allows software buyers to compare similar products offered by multiple vendors.	[b-ITU-T X.1524]
Common weakness scoring system (CWSS)	The common weakness scoring system (CWSS) provides an open framework for communicating the characteristics and impacts of information and communication technology (ICT) weaknesses during development of software capabilities. The goal of CWSS is to enable ICT software developers, managers, testers, security vendors and service suppliers, buyers, application vendors and researchers to speak from a common language of scoring ICT weaknesses that could manifest as vulnerabilities when the software is used.	[b-ITU-T X.1525]

Table I.1 – Techniques in the weakness, vulnerability and state exchange cluster

Technique	Description	References
Open vulnerability and assessment language (OVAL)	The language for the open definition of vulnerabilities and for the assessment of a system state (also known as Open vulnerability and assessment language) is an international specification effort to promote open and publicly available security content, and to standardize the transfer of this information across the entire spectrum of security tools and services. OVAL includes a language used to encode endpoint details, and an assortment of content repositories held throughout the community. The language standardizes the three main steps of the assessment process: representing configuration information of endpoints for testing, analysing the endpoint for the presence of the specified machine state (vulnerability, configuration, patch state, etc.), and reporting the results of this assessment. The repositories are collections of publicly available and open content that utilize the language. OVAL schemas written in XML have been developed to serve as the framework and vocabulary of the OVAL language. These schemas correspond to the three steps of the assessment process: an OVAL system characteristics schema for representing endpoint information, an OVAL definition schema for expressing a specific machine state and an OVAL results schema for reporting the results of an assessment.	[b-ITU-T X.1526]
eXtensible configuration checklist description format (XCCDF)	The eXtensible configuration checklist description format is a specification language for writing security checklists, benchmarks and related kinds of documents. An XCCDF document represents a structured collection of security configuration rules for some set of target systems. The specification is designed to support information interchange, document generation, organizational and situational tailoring, automated compliance testing and compliance scoring. The specification also defines a data model and format for storing results of benchmark compliance testing. The intent of XCCDF is to provide a uniform foundation for expression of security checklists, benchmarks and other configuration guidance, and thereby foster more widespread application of good security practices. XCCDF documents are expressed in XML.	[b-XCCDF]
Common platform enumeration (CPE)	Common platform enumeration (CPE) is a standardized method to identify and describe the software systems and hardware devices present in an enterprise's computing asset inventory. CPE provides: a naming specification, including the logical structure of well-formed CPE names and the procedures for binding and unbinding these names with machine-readable encodings; a matching specification, which defines procedures for comparing CPE names to determine whether they refer to some or all of the same products or platforms; and a dictionary specification, which defines the concept of a dictionary of identifiers and prescribes high-level rules for dictionary curators.	[b-ITU-T X.1528] [b-ITU-T X.1528.1] [b-ITU-T X.1528.2] [b-ITU-T X.1528.3] [b-ITU-T X.1528.4]

Table I.1 – Techniques in the weakness, vulnerability and state exchange cluster

Technique	Description	References
Software identification tag	Software identification tags (SWID tags) record unique information about an installed software application, including its name, edition, version, whether it's part of a bundle and more. SWID tags support software inventory and asset management initiatives.	[b-ISO/IEC 19770-2]
Common configuration enumeration (CCE)	Common configuration enumeration provides unique identifiers to system configuration issues in order to facilitate fast and accurate correlation of configuration data across multiple information sources and tools. For example, CCE identifiers can be used to associate checks in configuration assessment tools with statements in configuration best-practice documents.	[b-CCE]

Table I.2 – Techniques relevant to the event, incident and heuristics exchange cluster

Technique	Description	References
Incident object description exchange format (IODEF)	The incident object description exchange format defines a data representation that provides a standard format for the exchange of commonly exchanged information about computer security incidents. IODEF describes an information model and provides an associated data model specified with XML schema.	[b-ITU-T X.1541]
Extensions to IODEF for reporting Phishing	This extends the incident object description exchange format to support the reporting of phishing events. Recommendation ITU-T X.1500 is intended to only describe techniques for commonly understood, assured means for cybersecurity entities to exchange cybersecurity information, and does not include the uses of that information.	[b-IETF RFC 5901]
An Incident Object Description Exchange Format (IODEF) Extension for Structured Cybersecurity Information	This document extends the Incident Object Description Exchange Format (IODEF) defined in RFC 5070 to exchange enriched cybersecurity information among security experts at organizations and facilitate their operations. It provides a well-defined pattern to consistently embed structured information, such as identifier- and XML-based information.	[b-IETF RFC 7203]