International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.1528
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SERIES X: DATA NETWORKS, OPEN SYSTEM
COMMUNICATIONS AND SECURITY

Cybersecurity information exchange – Vulnerability/state exchange

Common platform enumeration

Recommendation ITU-T X.1528

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Common platform enumeration

Summary

Recommendation ITU-T X.1528 provides a structured method of describing and identifying classes of applications, operating systems, and hardware devices present among an enterprise's computing assets. Common platform enumeration (CPE) is defined through a set of specifications in a stack-based model, where capabilities are based on simpler, more narrowly defined elements that are specified lower in the stack. The stack consists of a dictionary specification and an applicability language specification that rely on a name matching specification which relies on a naming specification.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T X.1528	2012-09-07	17

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.

INTELLECTUAL PROPERTY RIGHTS

ITU draws attention to the possibility that the practice or implementation of this Recommendation may involve the use of a claimed Intellectual Property Right. ITU takes no position concerning the evidence, validity or applicability of claimed Intellectual Property Rights, whether asserted by ITU members or others outside of the Recommendation development process.

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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Introduction

This Recommendation on common platform enumeration (CPE) provides a structured method of describing and identifying classes of applications, operating systems, and hardware devices present among an enterprise's computing assets. CPE does not identify unique instantiations of products on systems, such as the installation of XYZ Visualizer Enterprise Suite 4.2.3 with serial number Q472B987P113. Rather, CPE identifies abstract classes of products, such as XYZ Visualizer Enterprise Suite 4.2.3, XYZ Visualizer Enterprise Suite (all versions), or XYZ Visualizer (all variations).

IT management tools can collect information about installed products, identifying these products using their CPE names, and then use this structured information to help make fully or partially automated decisions regarding the assets. For example, identifying the presence of XYZ Visualizer Enterprise Suite could trigger a vulnerability management tool to check the system for known vulnerabilities in the software, and also trigger a configuration management tool to verify that the software is configured securely in accordance with the organization's policies. This example illustrates how CPE names can be used as a structured source of information for enforcing and verifying IT management policies across tools.

This Recommendation is intended to be technically compatible with CPE Specification 2.3, 3 June 2011.

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Common platform enumeration

1   Scope

Common platform enumeration (CPE) describes and identifies classes of applications, operating systems, and hardware devices present among an enterprise's computing assets. CPE does not identify unique instantiations of products on systems, but only abstract classes of products.

2   References

None.

3   Definitions

3.1   Terms defined elsewhere

None.

3.2   Terms defined in this Recommendation

None.

4   Abbreviations and acronyms

This Recommendation uses the following abbreviations and acronyms:

CPE   Common Platform Enumeration

NIST   National Institute of Standards and Technology

NISTIR   NIST Interagency Report

URI   Uniform Resource Identifier

WFN   Well-Formed Name

5   Conventions

The following terms are considered equivalent:
- In ITU use of the word "shall" and "must" and their negatives are considered equivalent.
- In ITU use of the word "shall" is equivalent to the NISTIR use of the word "MUST".
- In ITU use of the phrase "shall not" is equivalent to the NISTIR use of the term "MUST NOT".

NOTE – In the NISTIR use of the words "shall" and "must" (in lower case) are used for informative text.

The ITU-T term "CPE stack" and the NISTIR term "CPE 2.3 stack" are considered equivalent.

6   High-level requirements

Figure 1 below shows the current CPE stack, with the most fundamental layer (Naming) at the bottom. Each higher layer builds on top of the layers below it.
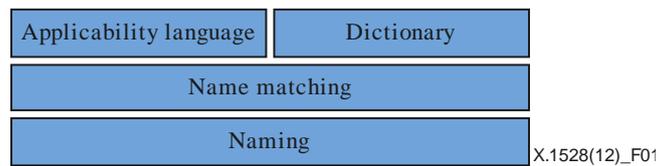
Figure 1 – Common platform component relationships

As the use of CPE continues to grow, it is anticipated that additional specifications will be added to the CPE stack.

6.1 CPE stack

Naming

The naming specification defines the logical structure of well-formed names (WFNs), URI bindings, and formatted string bindings, and the procedures for converting WFNs to and from the bindings.

Name matching

The name matching specification defines the procedures for comparing WFNs to each other so as to determine whether they refer to some or all of the same products.

Dictionary

The dictionary specification defines the concept of a CPE dictionary, which is a repository of CPE names and metadata, with each name identifying a single class of IT product. The dictionary specification defines processes for using the dictionary, such as how to search for a particular CPE name or look for dictionary entries that belong to a broader product class. Also, the dictionary specification outlines all the rules that dictionary maintainers must follow when creating new dictionary entries and updating existing entries.

Applicability language

The applicability language specification defines a structured method for forming complex logical expressions out of WFNs. These expressions, also known as applicability statements, are used to tag checklists, policies, guidance, and other documents with information about the product(s) to which the documents apply. For example, a security checklist for a specific numbered version of a web browser running on a specific version of an operating system could be tagged with a single applicability statement that ensures only systems with both that particular numbered version of that web browser and that specific version of that operating system will have the security checklist applied.

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