International Telecommunication Union

ITU-T

TELECOMMUNICATION
STANDARDIZATION SECTOR
OF ITU

X.1528.1

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SERIES X: DATA NETWORKS, OPEN SYSTEM COMMUNICATIONS AND SECURITY

Cybersecurity information exchange – Vulnerability/state exchange

Common platform enumeration naming

Recommendation ITU-T X.1528.1

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Recommendation ITU-T X.1528.1

Common platform enumeration naming

Summary

Recommendation ITU-T X.1528.1, Common platform enumeration naming, defines the logical structure of names for IT product classes and the procedures for binding and unbinding these names to and from machine-readable encodings. This Recommendation also defines and explains the requirements that IT products must meet to claim conformance with this Recommendation. This is achieved by listing the relevant clauses of the NIST Interagency Report 7696 Common Platform Enumeration: Name Matching Specification version 2.3 and showing whether they are normative or informative.

History

Edition	Recommendation	Approval	Study Group
1.0	ITU-T X.1528.1	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

Common platform enumeration (CPE) is a structured method of describing and identifying classes of applications, operating systems, and hardware devices present among an enterprise's computing assets. CPE can be used as a source of information for enforcing and verifying IT management policies relating to these assets, such as vulnerability, configuration, and remediation policies. IT management tools can collect information about installed products, identify products using their CPE names, and use this structured information to facilitate fully or partially automated decisions regarding the assets.

CPE consists of several modular specifications. Combinations of the specifications work together in layers to perform various functions. This specification, CPE Naming, defines standardized methods for assigning names to IT product classes. An example is the following name representing the fictitious product, XYZ Visualizer Enterprise Suite 4.2.3 Beta:

```
wfn:[part="a",vendor="xyz",product="visualizer_enterprise_suite",
version="4\.2\.3",update="beta"]
```

This method of naming is known as a well-formed CPE name (WFN). It is an abstract logical construction. The CPE Naming specification defines procedures for binding WFNs to machine-readable encodings, as well as unbinding those encodings back to WFNs. One of the bindings, called a uniform resource identifier (URI) binding, is included in CPE version 2.3 for backward compatibility with CPE version 2.2. The URI binding representation of the WFN for the fictitious product above is:

```
cpe:/a:xyz:visualizer_enterprise_suite:4.2.3:beta
```

The second binding defined in CPE 2.3 is called a formatted string binding. It has a somewhat different syntax than the URI binding, and it also supports additional product attributes. With the formatted string binding, the WFN for the fictitious product above can be represented by the following.

```
cpe:2.3:a:xyz:visualizer_enterprise_suite:4.2.3:beta:*:*:*:*:*:*
```

The WFN concept and the bindings defined by the CPE Naming specification are the fundamental building blocks at the core of all CPE functionality.

Recommendation ITU-T X.1528.1

Common platform enumeration naming

1 Scope

This Recommendation on common platform enumeration (CPE) naming defines the logical structure of names for IT product classes and the procedures for binding and unbinding these names to and from machine-readable encodings. It also provides the requirements for well-formed CPE names (WFNs). This Recommendation also defines and explains the requirements that CPE naming implementations, such as software and services, must meet to claim compliance with this Recommendation.

As this Recommendation defines these specifications by listing the relevant clauses of the NIST Interagency Report 7696: Common Platform Enumeration Name Matching Specification version 2.3 and showing whether they are normative or informative, all other versions are out of the scope of this Recommendation as are all CPE specifications other than CPE Naming.

2 References

The following ITU-T Recommendations and other references contain provisions which, through reference in this text, constitute provisions of this Recommendation. At the time of publication, the editions indicated were valid. All Recommendations and other references are subject to revision; users of this Recommendation are therefore encouraged to investigate the possibility of applying the most recent edition of the Recommendations and other references listed below. A list of the currently valid ITU-T Recommendations is regularly published. The reference to a document within this Recommendation does not give it, as a stand-alone document, the status of a Recommendation.

[NISTIR 7695] NIST Interagency Report 7695, *Common Platform Enumeration: Naming Specification Version 2.3*, August 2011.

3 Definitions

3.1 Terms defined elsewhere

None.

3.2 Terms defined in this Recommendation

None.

4 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 CPE 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.

6 CPE naming specification

This clause defines the logical structure of names for IT product classes and the procedures for binding and unbinding these names to and from machine-readable encodings. This clause provides direct references to NIST Interagency Report Common Platform Enumeration Name Matching Specification version 2.3 through alignment of the clauses with the section numbers such that clause 6.x aligns with [NISTIR 7695] section x with matching titles.

6.1 Introduction

[b-NISTIR 7695] section 1 is informative.

6.2 Definitions and abbreviations

[b-NISTIR 7695] section 2 is informative.

6.3 Relationship to existing specifications and standards

[b-NISTIR 7695] section 3 is informative.

6.4 Conformance

[b-NISTIR 7695] section 4 is informative.

6.5 Well-formed CPE name data model

[NISTIR 7695] section 5 is normative.

6.5.1 Definitions and notation

[NISTIR 7695] section 5.1 is normative.

6.5.2 WFN attributes

[NISTIR 7695] section 5.2 is normative.

6.5.3 WFN attribute values

[NISTIR 7695] section 5.3 is normative.

6.5.3.1 Logical values

[NISTIR 7695] section 5.3.1 is normative.

6.5.3.2 Restrictions on attribute-value strings

[NISTIR 7695] section 5.3.2 is normative.

6.5.3.3 Per-attribute value restrictions

[NISTIR 7695] section 5.3.3 is normative.

6.5.4 Operations on WFNs

[NISTIR 7695] section 5.4 is normative.

6.5.4.1 Function new()

[NISTIR 7695] section 5.4.1 is normative.

6.5.4.2 Function get(w,a)

[NISTIR 7695] section 5.4.2 is normative.

6.5.4.3 Function set(w,a,v)

[NISTIR 7695] section 5.4.3 is normative.

6.5.5 WFN examples

[NISTIR 7695] section 5.5 is normative.

6.6 Name binding and unbinding

[NISTIR 7695] section 6 is normative.

6.6.1 URI binding

[NISTIR 7695] section 6.1 is normative.

6.6.1.1 URI binding syntax

[NISTIR 7695] section 6.1.1 is normative.

6.6.1.2 Binding a WFN to a URI

[NISTIR 7695] section 6.1.2 is normative.

6.6.1.3 Unbinding a URI to a WFN

[NISTIR 7695] section 6.1.3 is normative.

6.6.2 Formatted string binding

[NISTIR 7695] section 6.2 is normative.

6.6.2.1 Syntax for formatted string binding

[NISTIR 7695] section 6.2.1 is normative.

6.6.2.2 Binding a WFN to a formatted string

[NISTIR 7695] section 6.2.2 is normative.

6.6.2.3 Unbinding a formatted string to a WFN

[NISTIR 7695] section 6.2.3 is normative.

6.7 Bound name conversions

[NISTIR 7695] section 7 is normative.

6.7.1 Converting a URI to a formatted string

[NISTIR 7695] section 7.1 is normative.

6.7.2 Converting a formatted string to a URI

[NISTIR 7695] section 7.2 is normative.

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