

---

---

**Information technology — IT asset  
management —**

**Part 3:  
Entitlement schema**

*Technologies de l'information — Gestion de bins de logiciel —  
Partie 3: Schéma de droit de logiciel*



**COPYRIGHT PROTECTED DOCUMENT**

© ISO/IEC 2016, 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

	Page
<b>Foreword</b> .....	<b>v</b>
<b>Introduction</b> .....	<b>vi</b>
<b>1 Scope</b> .....	<b>1</b>
<b>2 Normative references</b> .....	<b>1</b>
<b>3 Terms, definitions and abbreviated terms</b> .....	<b>2</b>
3.1 Key concept terms and definitions.....	2
3.2 Abbreviated terms and acronyms.....	7
<b>4 Conformance</b> .....	<b>7</b>
4.1 Overview.....	7
4.2 Product conformance.....	8
4.2.1 Product scope.....	8
4.2.2 Product conformance.....	8
4.2.3 Software vendor Ent conformance.....	8
4.2.4 Ent tool conformance.....	8
4.3 Organizational conformance.....	8
4.3.1 Organizational scope.....	8
4.3.2 Software licensor conformance.....	8
4.3.3 Ent tool provider conformance.....	8
4.3.4 Software consumer conformance.....	8
<b>5 Interoperability</b> .....	<b>9</b>
5.1 Overview and key design decisions.....	9
5.2 Ent identifiers - <entId>.....	9
5.3 Use case overview.....	10
5.3.1 General.....	10
5.3.2 Issuance of an initial entitlement.....	10
5.3.3 Adding information.....	10
5.3.4 Allocations.....	10
5.3.5 Transfers.....	11
5.3.6 Consolidations.....	12
5.3.7 Revocations.....	13
5.3.8 Archiving.....	13
5.4 Ent types.....	13
5.5 Supplemental Ent types.....	14
5.6 Uniqueness of identifiers.....	16
5.6.1 General.....	16
5.6.2 Entity registration identification — regid.....	16
5.6.3 Other globally unique identifiers.....	17
5.6.4 Identifiers unique within the context of an organization.....	17
5.6.5 Identifiers offering potential for global standardization.....	18
<b>6 Implementation of Ent processes</b> .....	<b>18</b>
6.1 General.....	18
6.2 Ent creators.....	18
6.3 Trustworthiness of Ents.....	18
6.4 Authenticity of Ents.....	19
6.5 Ent file names.....	19
6.6 Ent storage.....	19
6.7 Ent recovery.....	20
<b>7 Tool considerations</b> .....	<b>20</b>
7.1 Flexibility to use with simple tools.....	20
7.2 Use with specialist tools.....	20
<b>8 Entitlement file data specification</b> .....	<b>20</b>

8.1	General.....	20
8.2	Minimum Ent data required.....	21
8.3	XML naming conventions.....	21
8.4	Language functionality.....	22
8.5	Element structure.....	22
8.6	Data definitions.....	22
8.6.1	Requirement Levels.....	22
8.6.2	Contract.....	23
8.6.3	Ent.....	24
8.6.4	EntMeta.....	26
8.6.5	Entity.....	29
8.6.6	InvoiceData.....	30
8.6.7	Limit.....	31
8.6.8	LimitTime.....	31
8.6.9	Link.....	32
8.6.10	LinkContent.....	33
8.6.11	Meta.....	33
8.6.12	Metric.....	34
8.6.13	OrderInfo.....	34
8.6.14	Quantification.....	36
8.6.15	Right.....	37
8.6.16	TestMethod.....	38
8.6.17	ValidVersion.....	38
8.7	Attribute value definitions.....	39
8.7.1	General.....	39
8.7.2	ChannelType.....	39
8.7.3	DurationUnit.....	39
8.7.4	EntType.....	40
8.7.5	EntitlementType.....	40
8.7.6	FossCopyleft.....	41
8.7.7	RightName.....	41
8.7.8	LimitType.....	41
8.7.9	MetricType.....	42
8.7.10	Rel.....	42
8.7.11	Role.....	43
8.7.12	SupplementalEntType.....	43
8.7.13	TrustLevel.....	45
8.7.14	VersionScheme.....	45
8.8	NMTOKEN and NMTOKENS.....	46
<b>Annex A (normative) XML schema definition (XSD).....</b>		<b>47</b>
<b>Annex B (informative) UML and XML Documentation.....</b>		<b>50</b>
<b>Annex C (informative) Sample Ents.....</b>		<b>55</b>
<b>Bibliography.....</b>		<b>62</b>

## 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. In the field of information technology, ISO and IEC have established a joint technical committee, ISO/IEC JTC 1.

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](http://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](http://www.iso.org/patents)).

Any trade name used in this document is information given for the convenience of users and does not constitute an endorsement.

For an explanation on the meaning of ISO specific terms and expressions related to conformity assessment, as well as information about ISO's adherence to the WTO principles in the Technical Barriers to Trade (TBT) see the following URL: [Foreword - Supplementary information](#)

The committee responsible for this document is ISO/IEC JTC 1, *Information technology, SC 7, Software and systems engineering*.

ISO/IEC 19770 consists of the following parts, under the general title *Information technology — Software asset management*:

- *Part 1: Processes and tiered assessment of conformance*
- *Part 2: Software identification tag*
- *Part 3: Entitlement schema*
- *Part 5: Overview and vocabulary*

The following part is under preparation:

- *Part 4: Resource Utilization Measurement (RUM)*

The following part is planned:

- *Part 22: Guidance for the use of ISO/IEC 19770-2 Software IdentificationTag information in Cyber Security*

## Introduction

This part of ISO/IEC 19770 provides a technical definition of a schema that can encapsulate the details of software entitlements, including usage rights, limitations and metrics.

The primary intentions of this part of ISO/IEC 19770 are

- a) to provide a basis for common terminology to be used when describing entitlement rights, limitations and metrics, and
- b) to provide a schema which allows effective description of rights, limitations and metrics attaching to a software license.

The specific information provided by an entitlement schema (Ent) may be used to help ensure compliance with license rights and limits, to optimize license usage and to control costs. Though Ent creators are encouraged to provide the data that allow for the automatic processing, it is not mandated that data be automatically measurable. The data structure is intended to be capable of containing any kind of terms and conditions included in a software license agreement.

This part of ISO/IEC 19770 supports software asset management (SAM) processes as defined in ISO/IEC 19770-1. It is also designed to work together with software identification tags as defined in ISO/IEC 19770-2. Standardization in the field of software entitlements provides uniform, measurable data for both the license compliance, and license optimization, processes of SAM practice.

This part of ISO/IEC 19770 does not provide requirements or recommendations for processes related to software asset management or Ent. The software asset management processes are within the scope of ISO/IEC 19770-1.

This part of ISO/IEC 19770 has been developed with the following practical principles in mind.

- **Maximum possible usability with legacy entitlement information.** The Ent or software entitlement schema, is intended to provide the maximum possible usability with existing entitlement information, including all historical licensing transactions. While the specifications provide many opportunities for improvement in entitlement processes and practices, they should also be able to handle existing licensing transactions without imposing requirements which would prevent such transactions being codified into Ent records.
- **Maximum possible alignment with ISO/IEC 19770-2.** This part of ISO/IEC 19770 (entitlement schema) is intended to align closely with part ISO/IEC 19770-2 (software identification tags). This should facilitate both understanding and their joint use.

It is intended that this standardized schema will be of benefit to all stakeholders involved in the creation, licensing, distribution, release, installation and ongoing management of software and software entitlements.

- Benefits to software licensors who provide Ents include, but are not limited to:
  - immediate software consumer recognition of details of the usage rights derived from their software entitlement;
  - ability to specify details to customers that allow software assets to be measured and reported for license compliance purposes;
  - increased awareness of software license compliance issues on the part of end-customers;

- improved software consumer relationships through quicker and more effective license compliance audits.
- Benefits to SAM tool providers, deployment tool providers, resellers, resellers, software packagers and release managers include, but are not limited to:
  - receipt of consistent and uniform data from software licensors and Ent creators;
  - more consistent and structured entitlement information, supporting the use of automated techniques to determine the need for remediation of software licensing;
  - improved reporting from additional categorization made possible by the use of EntS;
  - improved SAM tool entitlement reconciliation capabilities resulting from standardization in location and format of software entitlement data;
  - ability to deliver value added functionality for compliance management through the consumption of entitlement data.
- The benefits for software consumers, SAM practitioners, IT support professionals and end-users include, but are not limited to:
  - receipt of consistent and uniform data from software licensors, resellers and SAM tools providers;
  - more consistent and structured entitlement information supporting the use of automated techniques to determine the need for remediation of software licensing;
  - improved reporting from additional categorization made possible by the use of EntS;
  - improved SAM and software license compliance capabilities stemming from standardized, software licensor-supplied, ISO/IEC 19770-2 software identification tags to reconcile with these EntS;
  - improved ability to avoid software license under-procurement or over-procurement with subsequent cost optimization;
  - standardized usage across multiple platforms, rendering heterogeneous computing environments more manageable.

# Information technology — IT asset management —

## Part 3: Entitlement schema

### 1 Scope

This part of ISO/IEC 19770 establishes a set of terms and definitions which may be used when discussing software entitlements (an important part of software licenses). It also provides specifications for a transport format which enables the digital encapsulation of software entitlements, including associated metrics and their management.

This common set of terms and associated transport format is intended to facilitate the management of software entitlements. The intended benefits of the better management of entitlements include easier demonstration of proof of ownership, cost optimization of the use of entitlements and easier license compliance management.

Furthermore, one of the benefits of having a standard for entitlement structure is that it may encourage the normalization by industry of names for and the details of, different types of entitlements. A common lexicon is critical to standardization and shared understanding. The terms in this part of ISO/IEC 19770 should form a part of that lexicon over time.

It should be noted that within this text, attributes of an XML entity will be denoted with angle brackets, <attribute>. XML elements are noted with quotes, "Element".

This part of ISO/IEC 19770 deals only with software entitlements, which are defined as the subset of software licenses that are concerned with usage rights. It is expected that the original documentation of licensing terms and conditions will be definitive for legal purposes, and will always take precedence over the Ent encapsulation.

This part of ISO/IEC 19770 does not detail ITAM processes required for discovery and management of software (which is provided for in ISO/IEC 19770-1) or software identification tags (as defined by ISO/IEC 19770-2).

This part of ISO/IEC 19770 does not consider identifying mechanisms for product activation.

This part of ISO/IEC 19770 is not intended to conflict with any organization's policies, procedures and standards, or with any national laws and regulations. Any such conflict should be resolved before using this part of ISO/IEC 19770. In case the conflict cannot be resolved, the specification shall not be implemented.

### 2 Normative references

The following documents, in whole or in part, are normatively referenced in this document and are indispensable for its application. For dated references, only the edition cited applies. For undated references, the latest edition of the referenced document (including any amendments) applies.

ISO/IEC 19770-2, *Information technology — Software asset management — Part 2: Software identification tag*

ISO/IEC 19770-5, *Information technology — IT asset management — Part 5: Overview and vocabulary*

RFC 3986, *Uniform Resource Identifier (URI): Generic Syntax*<sup>1)</sup>

1) <https://www.ietf.org/rfc/rfc3986.txt>