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## 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*

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## 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)).

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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 system 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: Software entitlement schema*
- *Part 5: Overview and vocabulary*

The following parts are 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 Ent's;
  - 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 Ent's;
  - improved SAM and software license compliance capabilities stemming from standardized, software licensor-supplied, ISO/IEC 19770-2 software identification tags to reconcile with these Ent's;
  - 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.

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# 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>

### 3 Terms, definitions and abbreviated terms

For the purposes of this document, the following terms and definitions apply.

#### 3.1 Key concept terms and definitions

##### 3.1.1

##### **allocation of an entitlement**

process of assigning some or all of a given entitlement to a subsidiary or other associated organizational unit which manages its own Ent library

Note 1 to entry: The Ent enables the recording of entitlement allocations. See Allocations ([5.3.4](#)).

##### 3.1.2

##### **bundle**

grouping of products which is the result of a marketing/licensing strategy to sell entitlements to multiple products as one purchased item

Note 1 to entry: A bundle can be referred to as a “suite”, if the products are closely related and typically integrated (such as an office suite containing a spreadsheet, word processor, presentation and other related items).

Note 2 to entry: Bundles can also refer to software titles that are less closely related such as a game, a virus scanner and a utility “bundled” together with a new computer, or to groups of entitlements, such as multiple entitlements for a backup software product.

[SOURCE: ISO/IEC 19770-5, 3.5]

##### 3.1.3

##### **channel**

##### **distribution channel**

approach to distributing products and services from the original supplier to the end-user organization

Note 1 to entry: Typical channels for software include direct, VAR, OEM, reseller, and educational reseller. Organizations which are included in the channel, but which are not the original supplier or end-user organization, are typically called *channel partner* ([3.1.4](#)).

##### 3.1.4

##### **channel partner**

person or entity working with a software licensor or another person/entity within the *channel* ([3.1.3](#)) who facilitates the sale of software to the end-user

Note 1 to entry: Channel partners may be referred to by names such as reseller, vendor and original equipment manufacturer (OEM).

##### 3.1.5

##### **consolidation of an entitlement**

process of combining 2 or more entitlements into a single, unified entitlement

Note 1 to entry: Entitlements may be consolidated to simplify understanding of the current position or as the result of a licensor negotiation. The Ent enables the recording of entitlement consolidations. See [5.3.6](#) (Consolidations).

##### 3.1.6

##### **customer**

organization or person that receives a product or service

[SOURCE: ISO/IEC 19770-5, 3.10]

##### 3.1.7

##### **downgrade right**

right granted to receive, install, and/or use an installation of a previous version of software than the currently granted entitlement

### 3.1.8 element

component of an XML document or part of the Ent schema that provides information related to the entitlement represented by the Ent

[SOURCE: ISO/IEC 19770-5, 3.12, modified]

### 3.1.9 end-user

person or persons who will ultimately be using the system for its intended purpose

[SOURCE: ISO/IEC 19770-5, 3.13]

### 3.1.10 Ent creator

entity that initially creates an Ent

Note 1 to entry: This entity can be part of the organization that created or published the software to which the Ent relates, in which case the Ent creator and software creator will be the same. The Ent creator can also be a separate organization which holds the licensing rights or even a third party organization unrelated to the software creator (such as in the case where Ents are created for legacy software by a consultant or tool developer).

### 3.1.11 entitlement schema software entitlement schema Ent

information structure containing a digital encapsulation of a licensing transaction and its associated entitlement information

Note 1 to entry: A single transaction does not necessarily encapsulate a full (or effective) entitlement. An effective entitlement may need to be determined by an analysis of multiple licensing transactions, of a full license and then of upgrades and/or maintenance transactions assessed together with it.

### 3.1.12 Ent library

construct which holds data about multiple Ents

Note 1 to entry: The Ent library is typically a database, but could also be a file or other data storage mechanism.

### 3.1.13 extensible markup language XML

license-free and platform-independent markup language that carries rules for generating text formats that contain structured data

[SOURCE: W3C Recommendation *Extensible Markup Language (XML) 1,1 (Second Edition)*, 1,2]

### 3.1.14 initial Ent

Ent that is referenced by later Ents

Note 1 to entry: The initial Ent is typically a record of the first transaction between software licensor and end customer. An initial Ent is a type of *primary Ent* ([3.1.19](#))

### 3.1.15 license model

class of licenses with common characteristics

Note 1 to entry: Examples of license models can be site license, OEM license and per-computer.

[SOURCE: ISO/IEC 19770-5]

**3.1.16**

**limit**

restriction on rights or privileges granted by a software entitlement

**3.1.17**

**original equipment manufacturer license**

**OEM license**

license for products or components that are created or manufactured by one company and licensed by another company

**3.1.18**

**perpetual license**

license for a software entitlement granted in perpetuity

Note 1 to entry: The alternative to a perpetual license is a term or *subscription-based license* ([3.1.39](#)).

**3.1.19**

**primary Ent**

Ent which encapsulates basic information about an entitlement

Note 1 to entry: Primary Ents have an <entType> of “Initial”, “Consolidation”, “AllocationReceived”, or “TransferReceived”. These are base Ents which allow for initial population of an Ent into an Ent library (with the exception of “Consolidation” which may be used to replace several previous Ents if desired). Other Ents (called supplemental Ents) can extend the data in these base type Ents.

**3.1.20**

**release**

collection of one or more new or changed configuration items deployed into the live environment as a result of one or more changes

[SOURCE: ISO/IEC 19770-5, 3.28]

**3.1.21**

**revocation**

process of revoking an entitlement or Ent

Note 1 to entry: An entitlement may sometimes be revoked by the organization which originally issued it and the Ent enables the recording of entitlement revocations. Specific Ent transactions may also be revoked, to correct errors or record the rescinding of entitlement allocations. See [5.3.7](#) (Renovations).

**3.1.22**

**right**

privilege or benefit granted by a software entitlement

**3.1.23**

**registration identifier**

**regid**

identifier created from a domain name (see Reference [\[7\]](#)) and the date when the domain was owned by a specific individual or organization, allowing an individual or organization to have their own unique namespace and be their own registration authority for all software configuration items they publish without requiring a separate industry based registration authority

[SOURCE: ISO/IEC 19770-5, 3.27]

**3.1.24**

**SAM practitioner**

individual involved in the practice or role of managing software assets

Note 1 to entry: A SAM practitioner is often involved in the collection or reconciliation of software inventory and/or software entitlements.

[SOURCE: ISO/IEC 19770-5, 3.31]

**3.1.25****SAM tool**

software used to assist in and automate parts of the process of management of software assets

**3.1.26****software**

all or part of the programs, procedures, rules, and associated documentation of an information processing system

Note 1 to entry: There are multiple definitions of software in use. For the purpose of this part of ISO/IEC 19770, it is typically important to include both executable and non-executable software, such as fonts, graphics, audio and video recordings, templates, dictionaries, documents and information structures, such as database records.

[SOURCE: ISO/IEC 24765:2010, 3.34]

**3.1.27****software asset management****SAM**

control and protection of software and related assets within an organization, and control and protection of information about related assets which are needed in order to control and protect software assets

Note 1 to entry: For reference, a corresponding industry definition is “all of the infrastructure and processes necessary for the effective management, control and protection of the software assets within an organization, throughout all stages of their lifecycle”.

[SOURCE: ISO/IEC 19770-5, 3.35]

**3.1.28****software creator**

person or organization that creates a software product or package

Note 1 to entry: This entity might or might not own the rights to sell or distribute the software.

[SOURCE: ISO/IEC 19770-5, 3.38]

**3.1.29****software entitlement  
entitlement**

software license use rights as defined through agreements between a software licensor and a software consumer

Note 1 to entry: Effective use rights take into account any contracts and all applicable licenses, including full licenses, upgrade licenses and maintenance agreements.

[SOURCE: ISO/IEC 19770-5, 3.39]

**3.1.30****software entitlement reconciliation**

process of comparing software entitlements owned with those required (granted and deployed), usually to determine compliance with software license agreements

**3.1.31****software identification tag****-2 tag****SWID tag****SWID**

set of structured data elements containing authoritative identification information about a software configuration item

[SOURCE: ISO/IEC 19770-2, 3.40]