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Information Technology**

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New Work Item Proposal

PROPOSAL FOR A NEW WORK ITEM

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Date of presentation of proposal: 2010-01-26	Proposer: ISO/IEC JTC1 / SC7 / WG21 Convenor: David Bicket
Secretariat: Standards Council of Canada (SCC) National Body: Canada	ISO/IEC JTC 1 N XXXX ISO/IEC JTC 1/SC 07 N4544

A proposal for a new work item shall be submitted to the secretariat of the ISO/IEC joint technical committee concerned with a copy to the ISO Central Secretariat.

Presentation of the proposal.

Title: ISO/IEC 19770-0 Information technology -- Software asset management -- Part 0: Overview and vocabulary

Scope (and field of application)

This standard will provide to organisations and individuals:

- a) an introduction to the concepts & principles of software asset management;
- b) an overview of the entire ISO/IEC 19770 family of SAM standards; and
- c) a vocabulary for use by the ISO/IEC 19770 standards family.

This standard will be applicable to all types of organisation (e.g. commercial enterprises, government agencies, and non-profit organizations).

Purpose and justification

The purpose of this standard is to provide an introduction to the concepts & principles of software asset management, in order to form a basis for comprehension of other standards in the ISO/IEC 19770 family of standards.

A number of industry organizations are already supporting the ISO/IEC 19770 family of standards, including Adobe, Eracent, CA, Centennial Software, Sassafras, Managesoft, and Symantec. However much wider support within the industry is desired, along with usage of the definitions throughout the software lifecycle, and across this world. This standard will be an excellent mechanism for promoting the 19770 family of standards, and increasing participation.

It is believed that this standard will meet the criteria established by JTC 1 and the ISO council for standards that may be distributed free of charge via the world wide web. Revisions of this standard will also likely be more frequent than normal to track developments in other standards in the ISO/IEC 19770 family.

Programme of work

If the proposed new work item is approved, which of the following document(s) is (are) expected to be developed?

- ☒ a single International Standard (part 0 of ISO/IEC 19770)
☐ more than one International Standard (expected number:)
☐ a multi-part International Standard consisting of parts
☐ an amendment or amendments to the following International Standard(s)
☐ a technical report , type

And which standard development track is recommended for the approved new work item?

- ☐ a. Default Timeframe
☒ b. Accelerated Timeframe
☐ c. Extended Timeframe

Relevant documents to be considered <ul style="list-style-type: none"> • ISO/IEC 19770-1:2006 • ISO/IEC 19770-2:2009 • ISO/IEC 19770-3 (in development) • ISO/IEC 19770-4 (NWIP being created)
Co-operation and liaison <ul style="list-style-type: none"> • With WG21 mirror groups at national levels, in particular in Sweden (SIS TK303/AG1), the UK (BSI IST/15/-/9), and the US • With the itSMF (SC7 Category A liaison), ISACA/ITGI (WG21 Category C liaison), Business Software Alliance (WG21 Category C liaison), and with the International Association of IT Asset Managers (WG21 Category C liaison)
Preparatory work offered with target date(s): <ul style="list-style-type: none"> • There is already a Working Draft – see attached.
Signature: David Bicket, Convenor, WG21
Will the service of a maintenance agency or registration authority be required? .No..... - If yes, have you identified a potential candidate? - If yes, indicate name Are there any known requirements for coding? No -If yes, please specify on a separate page Does the proposed standard concern known patented items? .No..... - If yes, please provide full information in an annex

Comments and recommendations of the JTC 1 or SC7 Secretariat - attach a separate page as an annex, if necessary

Comments with respect to the proposal in general, and recommendations thereon: It is proposed to assign this new item to JTC 1/SC 7

Voting on the proposal - Each P-member of the ISO/IEC joint technical committee has an obligation to vote within the time limits laid down (normally three months after the date of circulation).

Date of circulation: 2010-01-26	Closing date for voting: 2010-04-26	Signature of Secretary: W. Suryn
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NEW WORK ITEM PROPOSAL - PROJECT ACCEPTANCE CRITERIA		
Criterion	Validity	Explanation
A. Business Requirement		
A.1 Market Requirement	Essential <u> X </u> Desirable <u> </u> Supportive <u> </u>	While some industry organizations (e.g. Adobe, Eracent, CA, Centennial Software, Sassafras Managesoft, and Symantec).are already supporting standards in the ISO/IEC 19770 family, there is a need to promote and widen usage of the standards.

A.2 Regulatory Context	Essential ____ Desirable ____ Supportive ____ Not Relevant x__	
B. Related Work		
B.1 Completion/Maintenance of current standards	Yes _X_ No ____	ISO/IEC 19770-3 is in development. An NWIP for 19770-4 is being submitted.
B.2 Commitment to other organisation	Yes ____ No _X__	
B.3 Other Source of standards	Yes ____ No _X__	
C. Technical Status		
C.1 Mature Technology	Yes ____ No _X__	The technology solutions for software asset management are new and in need of wider deployment. This standard will promote the entire 19770 family.
C.2 Prospective Technology	Yes ____ No _X__	
C.3 Models/Tools	Yes ____ No _X__	
D. Conformity Assessment and Interoperability		
D.1 Conformity Assessment	Yes ____ No _X__	.
D.2 Interoperability	Yes ____ No _X__	.
E. Cultural and Linguistic Adaptability	Yes ____ No __X__	
F. Other Justification		

Notes to Proforma

A. Business Relevance. That which identifies market place relevance in terms of what problem is being solved and or need being addressed.

A.1 Market Requirement. When submitting a NP, the proposer shall identify the nature of the Market Requirement, assessing the extent to which it is essential, desirable or merely supportive of some other project.

A.2 Technical Regulation. If a Regulatory requirement is deemed to exist - e.g. for an area of public concern e.g. Information Security, Data protection, potentially leading to regulatory/public interest action based on the use of this voluntary international standard - the proposer shall identify this here.

B. Related Work. Aspects of the relationship of this NP to other areas of standardisation work shall be identified in this section.

B.1 Competition/Maintenance. If this NP is concerned with completing or maintaining existing standards, those concerned shall be identified here.

B.2 External Commitment. Groups, bodies, or fora external to JTC 1 to which a commitment has been made by JTC for Co-operation and or collaboration on this NP shall be identified here.

B.3 External Std/Specification. If other activities creating standards or specifications in this topic area are known to exist or be planned, and which might be available to JTC 1 as PAS, they shall be identified here.

C. Technical Status. The proposer shall indicate here an assessment of the extent to which the proposed standard is supported by current technology.

C.1 Mature Technology. Indicate here the extent to which the technology is reasonably stable and ripe for standardisation.

C.2 Prospective Technology. If the NP is anticipatory in nature based on expected or forecasted need, this shall be indicated here.

C.3 Models/Tools. If the NP relates to the creation of supportive reference models or tools, this shall be indicated here.

D. Conformity Assessment and Interoperability

D.1 Indicate here if Conformity Assessment is relevant to your project. If so, indicate how it is addressed in your project plan.

D.2 Indicate here if Interoperability is relevant to your project. If so, indicate how it is addressed in your project plan

E. Cultural and Linguistic Adaptability Indicate here if cultural and linguistic adaptability is applicable to your project. If so, indicate how it is addressed in your project plan.

F. Other Justification Any other aspects of background information justifying this NP shall be indicated here

ANNEX – Working Draft of ISO/IEC 19770 Software asset management – Part 0 – Overview and vocabulary

FOR USE ONLY IN OFFICIAL ISO/IEC WORK

ISO/IEC SC 7 WG21N0959_V6

Date: 2010-01-19

ISO/IEC WD 19770-0

ISO/IEC TC /SC 7/WG 21

Secretariat: SCC

Information technology — Software asset management — Part 0: Overview and vocabulary

Technologies de l'information — Gestion de biens de logiciel — Partie 0:

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Foreword

ISO (the International Organization for Standardization) is a worldwide federation of national standards bodies (ISO member bodies). The work of preparing International Standards is normally carried out through ISO technical committees. Each member body interested in a subject for which a technical committee has been established has the right to be represented on that committee. International organizations, governmental and non-governmental, in liaison with ISO, also take part in the work. ISO collaborates closely with the International Electrotechnical Commission (IEC) on all matters of electrotechnical standardization.

International Standards are drafted in accordance with the rules given in the ISO/IEC Directives, Part 2.

The main task of technical committees is to prepare International Standards. Draft International Standards adopted by the technical committees are circulated to the member bodies for voting. Publication as an International Standard requires approval by at least 75 % of the member bodies casting a vote.

Attention is drawn to the possibility that some of the elements of this document may be the subject of patent rights. ISO shall not be held responsible for identifying any or all such patent rights.

ISO/IEC 19770-0 was prepared by Joint Technical Committee ISO/IEC JTC 1, Information technology, Subcommittee SC 7, Software and systems engineering.

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

- Part 0: Overview and vocabulary
- Part 1: Processes
- Part 2: Software identification tag
- Part 3: Software entitlement tag

0 Introduction

0.1 Overview

International Standards for Software Asset Management (SAM) provide a model to follow in setting up and operating an asset management system specifically oriented to the management of software assets. The model incorporates the features on which experts in the field have reached a consensus as being the international state of the art. Through the use of the SAM family of standards, organizations can develop and implement a framework for managing their software assets and prepare for an internal or external assessment of their SAM processes.

0.2 SAM family of standards

The SAM family of standards is intended to assist organizations of all types and sizes to implement and operate a software asset management system. The SAM family of standards consists of the following International Standards, existing and planned, under the general title Information technology — Software asset management.

- ISO/IEC 19770-0, *Information technology — Software asset management — Part 0: Overview and vocabulary*
- ISO/IEC 19770-1:2006, *Information technology — Software asset management — Part 1: Processes*
- ISO/IEC 19770-2:2009, *Information technology — Software asset management — Part 2: Software identification tag*
- ISO/IEC 19770-3, *Information technology — Software asset management — Part 3: Software entitlement tag*
- ISO/IEC 19770-4, *Information technology — Software asset management — Part 4: Staged adoption of SAM processes*

0.3 Purpose of this part of ISO/IEC 19770

This part of ISO/IEC 19770 provides an overview of Software Asset Management, which is the subject of the SAM family of standards, and defines related terms.

This standard is divided into the following clauses and annexes:

- Clause 1 is the scope
- Clause 2 describes the terms, definitions, symbols, and abbreviations used in this standard
- Clause 3 introduces software asset management, its processes and data structures
- Clause 4 gives an overview of the SAM standards family
- Clause 5 describes the alignment of SAM standards with other ISO/IEC standards
- Annex A contains a bibliography

The terms and definitions provided in this part of ISO/IEC 19770:

- a) cover commonly used terms and definitions in the SAM family of standards;
- b) will not cover all terms and definitions applied within the SAM family of standards; and
- c) do not limit the SAM family of standards in defining terms for own use.

To reflect the changing status of the SAM family of standards, this part of ISO/IEC 19770 is expected to be continually updated on a more frequent basis than would normally be the case for other ISO/IEC standards.

Information technology — Software asset management — Part 0: Overview and vocabulary

1 Scope

This part of ISO/IEC 19770 provides:

- a) an overview of the SAM family of standards;
- b) an introduction to software asset management;
- c) a brief description of the foundation processes on which SAM is based; and
- d) terms and definitions for use in the SAM family of standards.

This part of ISO/IEC 19770 is applicable to all types of organization (e.g. commercial enterprises, government agencies, non-profit organizations).

2 Terms and Definitions

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

2.1

baseline

formally approved version of a configuration item (3.2), regardless of media, formally designated and fixed at a specific time during the configuration item's life cycle (as also defined in ISO/IEC 12207)

2.2

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

NOTE 2 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.

2.3

component

entity with discrete structure, such as an assembly or software module, within a system considered at a particular level of analysis

NOTE In this part of ISO/IEC 19770, component refers to a part of a whole, such as a component of a software product, a component of a software identification tag, etc.

2.4

computing device

functional unit that can perform substantial computations, including numerous arithmetic operations and logic operations without human intervention

NOTE A computing device can consist of a stand-alone unit, or several interconnected units. It can also be a device that provides a specific set of functions, such as a phone or a personal organizer, or more general functions such as a laptop or desktop computer.

2.5

configuration item

CI

item or aggregation of hardware or software or both that is designed to be managed as a single entity

NOTE Configuration items may vary widely in complexity, size and type, ranging from an entire system including all hardware, software and documentation, to a single module or a minor hardware component.

2.6

corporate board or equivalent body

person or group of people who assumes legal responsibility for conducting or controlling an organization at the highest level

2.7

customer

organization or person that receives a product or service (ref SEVOCAB: Software and Systems Engineering Vocabulary)

2.8

deployment

TBD

2.9

disuse

state of not being used or of being no longer in use

2.10

element

component of a tag that provides information related to the entity represented by the tag.

2.11

end-user

the person or persons who will ultimately be using the system for its intended purpose. (ref SEVOCAB: Software and Systems Engineering Vocabulary)

2.12

extensible markup language

XML

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

2.13

globally unique identifier

GUID

16-byte string of characters that is generated in a manner that gives a high probability that the string is unique in any context

NOTE 1 Other globally unique identifier algorithms can be used in some situations. In general, alternative algorithms use Uniform Resource Identifier (URI) based structures, so the id owner's registration identifier (regid) is included in the identifier.

NOTE 2 In this part of ISO/IEC 19770, GUID as an all capitalized term refers specifically to the 16 byte version. If the term is in lowercase (guid), it refers to a general algorithm that can use either a URI, or a 16-byte-based identifier.

2.14

legacy software

software originally created without tags

2.15

license metric

the measurement required to determine compliance

NOTE Examples of a license metric could include a site license which can be installed/used anywhere at a location (or within an organization) defined as the "site". Or a per-computer license which is typically an installation based license that requires the number of installs to be counted.

2.16

license model

a type of software license

NOTE Examples of license models can be site license, freeware, OEM License, and per-computer.

2.17

license position or actual license position

the level of compliance demonstrated through collection, aggregation, and reconciliation of license consumption as shown in discovered 19770-2 tags and license entitlement as shown in discovered 19770-3 tags

2.18

local SAM owner

individual at any level of the organization below that of the SAM owner (3.11) who is identified as being responsible for SAM for a defined part of the organization

2.19

package

set of related components that are combined into a single distributable item

NOTE For example, a software package would be a set of files that can be used to install software on a computing device and can be distributed via CD or electronic means.

2.20

perpetual

license that never expires

2.21

platform

computer or hardware device and/or associated operating system, or a virtual environment, on which software can be installed or run (see bundle)

2.22

procedure

specified way to carry out an activity or process

NOTE When a procedure is specified as an outcome, the resulting deliverable will typically specify what must be done, by whom, and in what sequence. This is a more detailed level of specification than for a process (3.10).

2.23

process

a set of interrelated activities, which transforms inputs into outputs

NOTE When a process definition is specified as an outcome, the resulting deliverable will typically specify inputs and outputs, and give a general description of expected activities. However, it does not require the same level of detail as for a procedure (3.9).

2.24

processor value unit

pvu

licensing is based on a unit of measure used to differentiate licensing of middleware on distributed processors

2.25

product

complete set of computer programs, procedures and associated documentation and data designed for delivery to a software consumer

NOTE In the SAM family of standards, the terms "product" and "software package" are used interchangeably depending on the context of the item described.

2.26

registration identifier

regid

identifier created from a domain name and the date when the domain was owned by a specific individual or company, allowing an individual or company 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

2.27

release

collection of new and/or changed configuration items which are tested and introduced into a production environment together

2.28

release manager

individual responsible for the collection of new and/or changed configuration items which are tested and introduced into an organization's live production environment

2.29

SAM owner

individual at a senior organization-wide level who is identified as being responsible for SAM

2.30

SAM practitioner

individual involved in the practice or role of managing software assets

NOTE A SAM practitioner is often involved in the collection or reconciliation of software inventory and/or software entitlements.

2.31

stock keeping unit

sku

identification, usually alphanumeric, of a particular product that allows it to be tracked for inventory purposes

2.32

software

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

2.33**software asset management****SAM**

effective management, control and protection of software assets within an organization, and the effective management, control and protection of information about related assets which are needed to be able to manage software assets.

NOTE A corresponding definition from the IT Infrastructure Library is “all of the infrastructure and processes necessary for the effective management, control and protection of the software assets within an organisation, throughout all stages of their lifecycle”

2.24**software consumer**

organization or person who buys entitlements to use a software package

2.25**software creator**

person or organization that creates a software product or package

NOTE This entity might or might not own the rights to sell or distribute the software

2.26**software developer**

person who creates software that can perform a specified set of actions

NOTE Often a software developer works with other developers for a software manufacturer to create commercial applications. A software developer can also often work as an in-house developer of software for use by the software developer's own organization.

2.27**software entitlement**

legal ownership of software license use rights as defined through agreements between a software purchaser and the software copyright holder

NOTE Effective use rights take into account any contracts and all applicable licenses, including full licenses, upgrade licenses and maintenance agreements.

2.28**software identification tag**

file comprised of mandatory elements, optional elements, and extended information containing authoritative identification information about a software configuration item

2.29**software license**

legal rights to use software in accordance with terms and conditions specified by the software copyright owner

NOTE "Using a software product" can include: accessing, copying, distributing, installing and executing the software product, depending on that product's terms and conditions.

2.30**software licensor**

person or organization who owns the rights to issue a software license for a specific software packages

2.31**software manufacturer**

group of people, or organization that develops software, typically for distribution and use by other people or organizations

2.32

software package

complete and documented set of programs supplied for a specific application or function

NOTE In this part of ISO/IEC 19770, the term software package refers to the set of files associated with a specific set of business functionality that can be installed on a computing device and has a set of specific licensing requirements. In this part of ISO/IEC 19770, the terms "product" and "software package" are used synonymously depending on the context of the item described.

2.33

software packager

entity that re-packages or bundles software created by others

NOTE This can be done by a value added reseller who bundles a software package to work with an embedded system, or by a software reseller who is licensed to combine a number of different software products into a single bundle.

2.34

software provider

entity that creates (software creator), modifies (software modifier) or licenses (software licensor) software for distribution or installation

NOTE This includes software manufacturers, independent software developers, consultants and repackagers of previously manufactured software. IT can also represent in-house software developers.

2.35

software publisher

person, group or company that packages and distributes software and might or might not be the software manufacturer

2.36

tag

information about a software file or package to facilitate its management

2.37

tag creator

entity that initially creates the software identification tag

NOTE This entity can be part of the organization that created the software, in which case the tag creator and software creator will be the same. The tag creator can also be a third party organization unrelated to the software creator (such as in the case where tags are created for legacy software).

2.38

tag modifier

software packager or software consumer that modifies a tag after it has been created

NOTE Modification of any tag is limited to the elements that the software licensor has authorized and is done based on license or contractual agreements with the tag creator and/or software creator. The tag modifier can be allowed to add values to a software identification tag (such as the case of a reseller adding details about where the product was purchased), or can be allowed to modify existing portions of the tag (such as the case of an VAR making a set of software look like it comes from a single entity).

2.39

tag provider

entity that creates (tag creator) or modifies (tag modifier) software identification tags for software packages

NOTE A tag provider can be part of the software provider organization, or can be a third party organization or the software consumer.

2.40

termed

a period of time assigned for software usage

NOTE Can be used as ending date or renewal date

2.41**tier**

a stage in a SAM implementation at which an incremental group of functionalities can be separately identified and assessed for conformance

2.42**Uniform Resource Identifier****URI**

compact sequence of characters that identifies an abstract or physical resource available on the Internet

NOTE The syntax used for URIs is defined in IETF RFC 3986.

2.43**valid**

tag that follows the specified XSD definition and is valid from an XML perspective

2.45**value-added reseller (VAR)**

company licensed to repackage and support existing products as combined software packages

2.46**version**

unique string of number and letter values indicating a unique revision of an item

NOTE Versions are often referred to in software to identify revisions of software that provide unique functionality or fixes. A version typically has multiple parts with at least a major version indicating large changes in functionality or user interface changes and a minor version indicating smaller changes in functionality or user interface changes.

3 Software Asset Management (SAM)

3.1 Introduction

Asset Management is a well-established discipline that includes the acquisition, operation, care and disposal of organizational assets, and particularly critical infrastructure. In many industries asset management plays a key role in determining the operational performance and efficiency of an organization.

Information Technology (IT) Asset Management (ITAM) is a sub-discipline of asset management that is specifically aimed at managing the life cycles and total costs of IT equipments and the infrastructures that they comprise.

Software Asset Management (SAM) is a further sub-discipline that is specifically aimed at managing the acquisition, release, deployment, maintenance and eventual retirement of software assets, but which also must necessarily manage all aspects of related IT assets necessary for the management of software assets. In practice, the areas covered by SAM and ITAM are effectively the same, and it is primarily a question of market usage as to which term is used. SAM is overwhelmingly the more common term in use on the internet (as can be verified using a search engine). However, ITAM is intrinsically the more inclusive term.

3.2 Why manage software assets?

The well-known and inexorable reduction in the cost of computing hardware means that a larger and larger portion of the cost of creating and maintaining an IT infrastructure is related to software assets rather than physical assets. Thus it is important that an organization gain the best value possible for the lifecycle costs of those assets.

Good practice in SAM should result in the following types of benefits, and certifiable good practice should allow management and other organizations to place reliance on the adequacy of these processes, and the expected benefits should be achieved with a high degree of

a) **Risk management:** SAM should facilitate the management of business risks including:

- 1) risk of interruption to IT services;
- 2) risk of deterioration in the quality of IT services;
- 3) legal and regulatory exposure;
- 4) risk of damage to public image arising from any of the above.

b) **Cost control:** SAM should facilitate cost control including in the following areas:

- 1) reduced direct costs of software and related assets, such as by negotiating better pricing through improved use of volume contracting arrangements, and by avoiding purchasing new licenses when old ones can be redeployed;
- 2) reduced time and cost for negotiating with suppliers because of better information availability;
- 3) reduced costs through improved financial control, such as through better invoice reconciliation and more accurate forecasting and budgeting;
- 4) reduced infrastructure costs for managing software and related assets, by ensuring that required processes are efficient and effective;
- 5) reduced support costs which are significantly affected by the quality of SAM processes, both directly within IT and indirectly within end-user areas.

- c) **Information security:** SAM should help strengthen security through the following:
 - 1) higher assurance about the authorization of installed and/or used software
 - 2) better identification of non-authorized software
 - 3) tighter control of the patch process for installed software
- d) **Competitive advantage:** SAM should help the organization gain competitive advantage through the following:
 - 1) better quality decision making because of more complete and more transparent information availability (for example, IT procurement and system development decisions may be made more quickly and more reliably with better quality data);
 - 2) being able to deploy new systems and functionality more quickly and reliably in response to market opportunities or demands;
 - 3) providing IT which is more closely aligned to business needs, thus ensuring that all users have access to appropriate software and applications;
 - 4) being able to handle the IT aspects of business acquisitions, mergers or demergers more quickly;
 - 5) better personnel motivation and client satisfaction through having less IT problems.

3.3 Foundation principles

Software Asset Management (SAM) as defined in the 19770 standards is based upon the following principles:

- a) That the definitions should be applicable to ALL types of software and related assets, regardless of the nature of the software. For example, it can be applied to executable software (such as application programs, operating systems and utility programs) non-executable software (such as fonts, graphics, audio and video recordings, templates, dictionaries, documents and data), and software used other than by installation (such as software as a service and connection-based usage).
- b) That the definitions should be applicable to a wide variety of organizations, from small to international, and to situations where SAM is performed in-house as well as outsourced.

The following forms of assets are within the scope of the 19770 standards:

- 1) **software for use:** all types of software as in a) above;
- 2) **entitlements:** software use rights, reflected by full ownership (as for in-house developed software) and licenses (as for most externally sourced software, whether commercial or open-source);
- 3) **media:** holding copies of software for use; and
- 4) **related:** all other assets with characteristics which are necessary for custodianship, usage, management and storage of assets in 1) to 3) above.

3.4 Why standardize processes?

The SAM family of standards contain process definitions in order to be able to codify best practices that form the current state of the art in SAM, and also to facilitate the benchmarking of SAM in different organizations.

However the process definitions used in the SAM family of standards follow a specific structure in order to be applicable to a wide variety of sizes and types of organization, as follows:

- a) The processes are defined in terms of the elements of title, objective, and outcomes. The definitions do not include activities, which are actions which may be used to achieve the outcomes. Those outcomes specified are designed to be readily assessable, but will not necessarily indicate the breadth of activities which may be needed to produce them.
- b) The processes are not detailed in terms of methods or procedures required to meet the requirements for outcomes of a process.
- c) The sequence of steps an organization should follow to implement SAM is not specified, nor is any sequence implied by the sequence in which processes are described. The only sequencing which is relevant is that which is required by content and context. For example, planning should precede implementation. Nonetheless, the tiers identified in ISO/IEC 19770-4 do indicate broad stages which correspond to natural levels of development and management priority.
- d) Documentation is not detailed in terms of name, format, explicit content and recording media.

The above limitations are necessary to ensure adherence to the principles defined above.

3.5 Foundation processes

3.5.1 Overview

The conceptual framework for SAM processes is composed of three main categories, with further subdivisions as shown in the figure below:

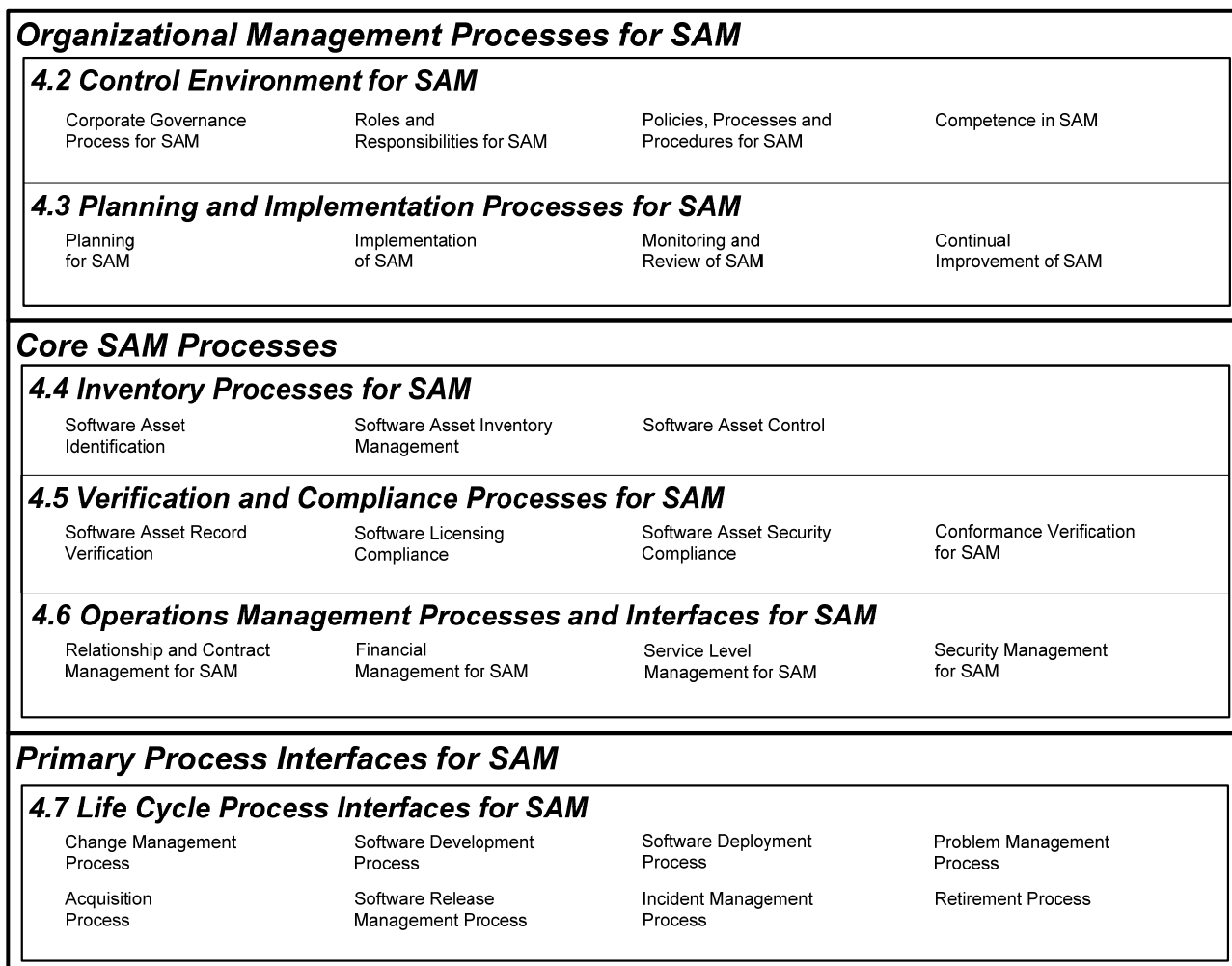


Figure 1 — Framework for SAM processes

NOTE Numbers in the above figure reference subclauses in ISO/IEC 19770-1.

3.5.2 Relationship to ISO9001 principles

SAM planning and implementation processes in principle map to the 'Plan-Do-Check-Act' processes of ISO 9001.

3.5.3 Relationship to ISO/IEC 20000 principles

SAM processes as defined the SAM family of standards are closely aligned to and intended to closely support the principles of IT service management as defined in ISO/IEC 20000.

3.5.4 Relationship to ISO/IEC 27000 principles

SAM processes as defined in the SAM family of standards meet security or ISMS requirements that are defined or described in ISO/IEC 27000 family.

3.6 Principles of data structures

The data structures defined in the SAM family of standards adhere to the following principles:

- a) The structures are designed to be usable throughout the software product lifecycle i.e. from the creation stage, through the packaging and distribution stages, to the installation, usage, and eventual de-installation stage;
- b) The structures are designed to incorporate a unique software_id that corresponds to a unique product at the binary level for distribution/update purposes. Uniqueness is guaranteed by a combination of a unique tag creator name and a tag-creator-maintained unique_id. A number of different data structures are interlinked by the unique software_id;
- c) The structures are designed to minimize the need for a registration authority;
- d) The structures are designed to be neutral with respect to the platform with which the software assets are associated; and
- e) There are standard locations on each type of platform for storing the structures.

3.7 Approaches to Conformance

3.7.1 Process conformance

Full conformance with process requirements is achieved in either of two ways:

- By demonstrating that all of the requirements have been satisfied using the outcomes as evidence (for ISO/IEC 19770-1 and ISO/IEC 19770-4); or
- By demonstrating that all of the objectives have been met (for ISO/IEC 19770-4).

If full conformance is achieved by demonstrating that all of the objectives of the respective tier of ISO/IEC 19770-4 have been met, two further requirements exist:

- Where a process area includes outcomes which are in different tiers, the objective for that process area shall be interpreted correspondingly for assessments of the different tiers.

- The assessor shall take into account the specified outcomes for the respective tier, and shall explain in writing the reason for accepting any failure to meet the specified outcomes.

3.7.2 Product conformance (for tags)

Conformance can apply to a product or an organization. For organizational conformance, the scope defined shall cover both the organizational scope as well as the products that are included in scope. If a claim of conformance is made for a product or organization, the claim shall specify the scope for which conformance was tested.

There are a number of reasons for an organization to seek individual product conformance against the SAM family of standards. This may be sought when a specific product is being provided for a market that requires conformance (for example, if government organizations require products to conform to the SAM family of standards in order to be included on a project). It may also be desired by platform providers who want to provide a more secure and auditable SAM data structures that can be used to support definitive processes e.g. to clearly identify which end-users installed which software packages.

Organizations may want to conform to the SAM family of standards for a number of reasons. For example, software providers may want to promote their software products as being easier to manage. Also, software consumers may want to show that they are actively managing their software assets and may desire to demonstrate that they can provide accurate information to any reconciliation or audit request.

3.8 Implementation guidance for data structures

3.8.1 Consumer guidance

While the benefits of SAM programs for SAM practitioners are many, the ability to accurately inventory software is a required key element to facilitate the following needs within the IT environment:

- a) Software license management – encompassing the ability to manage software licenses to include software license compliance, financial related decisions, and asset lifecycle management:
 - 1) Software license compliance activities determine if an Organization is compliant with their software license agreements. Determination is based on analysis and reporting of software usage rights and entitled quantities versus actual usage attributes and installed quantities.
 - 2) Financial related decisions activities related to software licenses may include decision points around: purchasing additional or new software licenses, upgrading existing software licenses, renewing maintenance and/or support, merger/acquisition/divestiture activities, risks of audits, unexpected licensing costs and others.
 - 3) Lifecycle management activities related to software licenses include the process of receiving, deploying, recovering licenses as end-user needs change and the ability to recover licenses as physical assets are disposed.
- b) Platform stability – encompassing the ability to identify compatibility issues between software packages and operating systems as well as data file compatibility that supports end-user productivity.
- c) IT security – encompassing all aspects of security (virus protection, malware protection, restriction of non-authorized software, encryption requirements, etc) effectively identifying organizational areas of risk.

While the benefits of SAM programs for SAM practitioners are many, the ability to accurately inventory software is a required key element to facilitate the following needs within the IT environment:

See Annexes of the standards defining data structures (see 4.2) for details of Uses Cases for consumers.

3.8.2 Software provider guidance

The software provider will implement the SAM family of standards for several reasons:

- a) Ease of identification — Software consumers will find it easier to identify software and collect inventory; while allowing increased implementation of SAM practices. Software audits and software auditors (internal or otherwise), will have a better understanding of what is installed across the organization.
- b) Accuracy of identification — Current methods of software identification typically rely on software recognition signatures based on application components discovered on machines. These signatures are often not at the same resolution level as software entitlements. Additionally, many product titles have no obvious correlation to the application components that are actually installed. These issues make identification results hard to reconcile with software entitlements.
- c) Control over software identification — To ensure consistency, software creators are able to specify exactly what can and cannot be changed in the various tags.
- d) Automated reconciliations — the software creator and provider who use tags will be able to implement software entitlements that provide automated or nearly automated reconciliations.

From a software product definition and development perspective, it is beneficial to define the tag as early in the project as possible to ensure that the software portion is focused on the right tools and technology to meet the requirements specified for the target languages and platforms.

The use of standardized tags benefits both software consumers and software creators alike. Software consumers gain increased efficiencies through a simplified discovery process and a more effective overall process. Software creators benefit from software consumers having sound asset management practices ensuring software will be installed and used in accordance with the software license agreements.

See Annexes of the standards defining data structures (see 4.2) for details of Uses Cases for software providers.

3.8.3 Tool provider guidance

Discovery tools should be able to read data from tags when available. The roles in a software consumer organization that would use a discovery tool might include an audit manager tasked with reconciling software entitlements to software identification tags or a SAM owner tasked with collecting and analyzing information.

See Annexes of the standards defining data structures (see 4.2) for details of Uses Cases for tool providers.

3.9 Critical success factors

The critical success factors for any SAM program are:

- a) A clear understanding of the software use rights that apply to all of the software assets being managed;
- b) A clear sense of direction and ownership for the program from executive management; and
- c) A clear definition of scope (either organizational or product) and roles and responsibilities relevant to the program.

4 Software Asset Management family of standards

4.1 General information

The SAM family of standards includes standards that:

- Define processes that enable an organization to demonstrate that it is performing Software Asset Management (SAM) to a level sufficient to satisfy corporate governance requirements and ensure effective support for overall organization asset management policies;
- Define an approach to the implementation of the processes in a) that consists of a number of defined tiers that can be achieved, with appropriate recognition of conformance;
- Define foundation data structures that support the processes in a) above and contain authoritative identification and management information about a software product; and
- Define additional data structures associated with specific asset management functions e.g. entitlement, that can amplify the information contained in the foundation data structures in c) above.

Relationships between the SAM family of standards are illustrated in Figure 2 below:

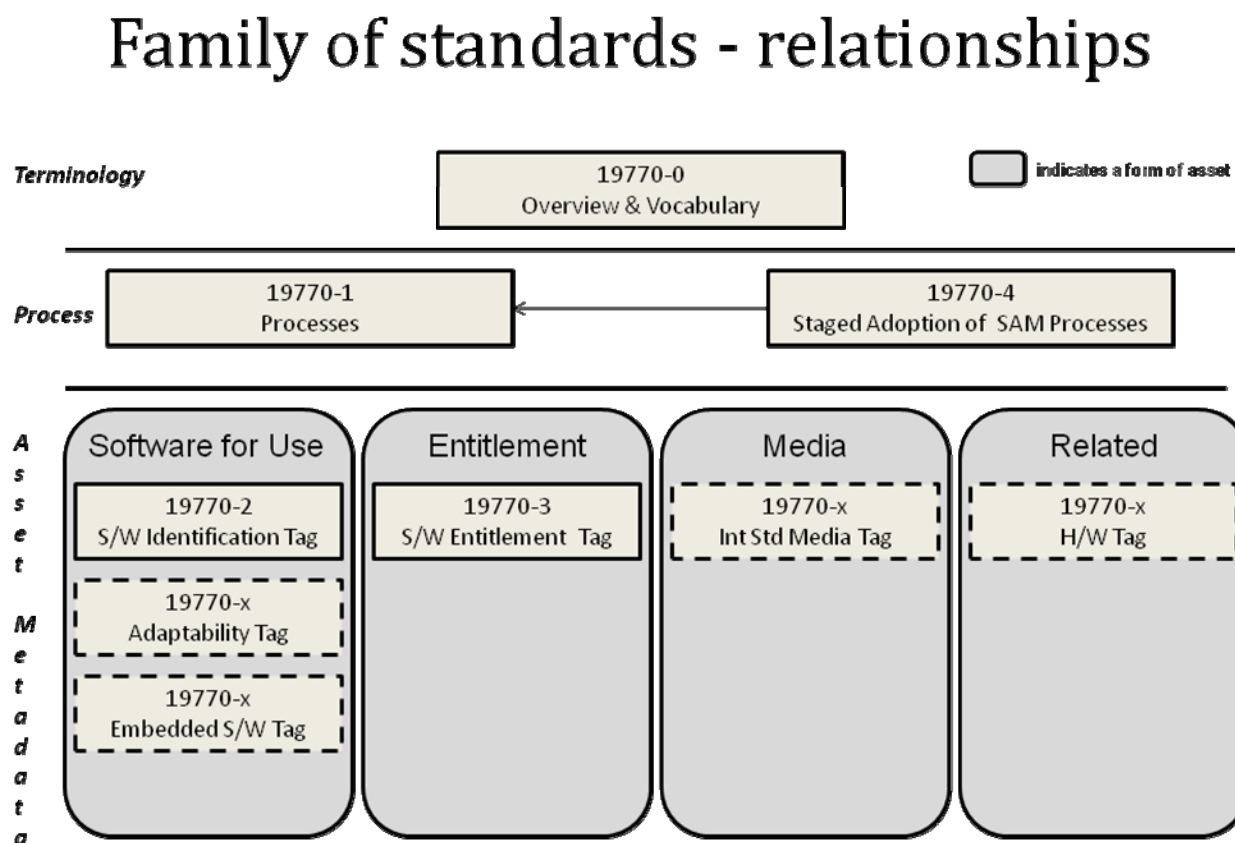


Figure 2 —SAM family of standards relationships

4.2 Standards describing overview and terminology

4.2.1 ISO/IEC 19770-0 (this part of ISO/IEC 19770)

Information technology — Software asset management — Part 0: Overview and Vocabulary

Scope: This part of ISO/IEC 19770 provides:

- a) an overview of the SAM family of standards;
- b) an introduction to software asset management;
- c) a brief description of the foundation processes on which SAM is based; and
- d) terms and definitions for use in the SAM family of standards.

this part of ISO/IEC 19770 is applicable to all types of organization (e.g. commercial enterprises, government agencies, non-profit organizations).

Purpose: ISO/IEC 19770-0 describes the fundamentals of software asset management (SAM), which forms the subject of the SAM family of standards, and defines related terms.

4.3 Standards specifying processes

4.3.1 ISO/IEC 19770-1:2006

Information technology — Software asset management — Part 1: Processes

Scope: This part of ISO/IEC 19770 establishes a baseline for an integrated set of processes for Software Asset Management (SAM).

Purpose: ISO/IEC 19770-1 describes SAM processes that can be implemented by organizations to achieve immediate benefits. It is intended that ISO/IEC 19770-1 be an implementation standard for organizations. 19770-1 applies to all organizations of any size or sector but can only be applied to a legal entity, or to parts of a single legal entity.

4.3.2 ISO/IEC 19770-4

Information technology — Software asset management — Part 4: Staged adoption of SAM processes

Scope: This part of ISO/IEC 19770 is for organizations that want to achieve best practice in Software Asset Management (SAM) in stages which correspond to natural levels of development and management priority. Achievement of these stages can be independently certified, and recognition given to those organizations through the ability to publicly display that certification.

Purpose: ISO/IEC 19770-4 grew out of ISO/IEC 19770-1:2006, which is a comprehensive standard designed to align to all of service management as specified in ISO/IEC 20000. However, market feedback was received that organizations wanted something which could be accomplished in stages. This part of ISO/IEC 19770 has been designed to make this possible, calling these stages 'tiers'. The first three tiers consist of selected subsets of the total set of process areas and outcomes maintaining the same structure and approach as for ISO/IEC 19770-1:2006. Accomplishing the fourth and final tier of this part of ISO/IEC 19770 is essentially conformance with ISO/IEC 19770-1:2006..

4.4 Standards specifying data structures

4.4.1 ISO/IEC 19770-2:2009

Information technology — Software asset management — Part 2: Software identification tag

Scope: This part of ISO/IEC 19770 establishes specifications for tagging software to optimize its identification and management.

Purpose: ISO/IEC 19770-2 provides a standard for software identification tags. The software identification tag is an XML file containing authoritative identification and management information about a software product. The software identification tag is installed and managed on a computing device together with the software product. The tag may be created as part of the installation process, or added later for software already installed without tags. However, it is expected more commonly that the tag will be created when the software product is originally developed, and then be distributed and installed together with the software product. Having the tag available from the beginning allows for the more effective management of distribution and repackaging external to the software consumer, and then of release management within the software consumers organization.

4.4.2 ISO/IEC 19770-3

Information technology — Software asset management — Part 3: Software entitlement tag

Scope: This part of ISO/IEC 19770 provides a framework and criterion of measurement for creating unambiguous definitions of entitlements.

Purpose: ISO/IEC 19770-3 facilitates an unambiguous definition of software entitlements. Entitlement tags provide authoritative licensing information for software configuration items specified in ISO/IEC 19770-2:2009. ISO/IEC 19770-3 is intended to be sufficiently supported and implemented by software manufacturers, modifiers and users alike to ensure the viability of conformance.

Standardization of software entitlements provides uniform, measurable data for the license compliance processes of "SAM practice, making optimization of the reconciliation of software with licensing entitlements possible. Standardization will benefit all parties involved in software asset management:

- a) Software entitlement tag creators. These include software manufacturers, publishers and line of business application developers.
- b) Software entitlement tag tool providers. These include SAM tool providers, deployment tool providers, resellers, value-added resellers, and republishers
- c) Software entitlement tag consumers. These include SAM owners, SAM practitioners, IT support professionals, deployment packagers, release managers, and end users of a given software configuration item.

4.4.3 ISO/IEC 19770-x

Information technology — Software asset management — Part x: Adaptability tag

Scope: This part of ISO/IEC 19770 will provide an International Standard for software adaptability tags. The goal of the introduction of these tags is that end-users will be empowered to initiate a process that may lead to an adaptation of the software to their specific needs.

Purpose: ISO/IEC 19770-x will provide software suppliers with a mechanism to advertise commercial software adaptation and system integration services offered by themselves or by partner companies. The tag may include technical information about what adaptation possibilities are immediately available, such as by means of configuration options, whether a plug-in modules mechanism exists and what kinds of plug-in modules are available. Information about whether changes to the software are possible by means of direct modification of the source code or via change requests to the software supplier will also be provided. An

annex will specify how application programs with a graphical user interface shall make the information from the software adaptability tag available to end-users by means of a clickable link in the "About box". Standards describing implementation approaches and requirements

4.5 Alignment of SAM with other ISO/IEC standards

The SAM family of standards has been created to align with the following ISO/IEC standards:

- a) ISO9001
- b) ISO/IEC 20000 family
- c) ISO/IEC 27000 family
- d) ISO/IEC 15504

Annex A (informative)

Bibliography

- [1] *ISO/IEC 19770-1:2006, Information technology — Software asset management — Part 1: Processes*
- [2] *ISO/IEC 19770-2:2009, Information technology – Software asset management – Part 2: Software Tag*
- [3] *ISO/IEC 20000-1:2005, Information technology service management, Part 1: Specification for information technology service management*
- [4] *ISO/IEC 20000-2:2005, Information technology service management, Part 2: Code of practice for information technology service management*
- [5] *ISO/IEC 25051:2006, Software engineering -- Software product Quality Requirements and Evaluation (SQuaRE) -- Requirements for quality of Commercial Off-The-Shelf (COTS) software product and instructions for testing*
- [6] *IETF RFC 3986, Uniform Resource Identifier (URI): Generic Syntax*
- [7] *IETF RFC 4646, Tags for Identifying Languages*
- [8] *IETF RFC 4647, Matching of Language Types*
- [9] *W3C Recommendation, XML-Signature Syntax and Processing*
- [10] *W3C NOTE, Date and Time Formats*
- [11] *UNSPSC, The United Nations Standard Products and Services Code*