SAM Standards Explained

- ISO/IEC 19770-1: The First International SAM Standard
- Imposing Order on Software Tags
- New System for Managing Software-use Entitlements

The International Business Software Managers Association

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Introduction

Tracking and managing software use today is a difficult task for company IT pros. The impediments are many. From complex and lengthy software license agreements to compliance technology that's unique to each vendor, software management has become a game of rough estimates and best guesses when it comes to reconciling license rights with installations and use.

IT managers can find themselves in unintended conflict with software publishers determined to enforce software-license terms aimed at stamping out unlicensed use. Add to this quandary the wide-ranging ways in which vendors distinguish and license their products, as well as the challenges that automated software asset management (SAM) tools face when accounting for such differences. The end result has been a dramatically increased risk for inaccurate company financial reports, or worse, major legal and financial liabilities.

In response, IT departments have instituted software asset management processes, but they too vary widely. The solution: industry standards for SAM practices, software identification and tagging, and software-use entitlement.

Experts contend that international SAM standards could vastly boost the effectiveness of tools and processes, benefiting everyone. IT departments would run better SAM processes, saving money and avoiding, or at least reducing, publisher audits and legal problems, while publishers would boost their customers' software license compliance and their own revenue. Tool providers could focus development efforts on reporting and analysis rather than identification.

In response to these calls for standards, in 2001, two Geneva-based organizations, the International Organization for Standardization (ISO) and the International Electrotechnical Commission (IEC), formed Working Group 21 (WG 21), to develop international SAM standards*. The International Business Software Managers Association (IBSMA) is also participating in this effort, which has since expanded to include standards for software identification and tagging, and for software-use entitlement.

So far, so good

In May 2006, the ISO published part one of international standard ISO/IEC 19770, which establishes requirements for effective SAM processes. A second standard, developed by IBSMA and currently available in draft form, will improve software inventory management by calling for publishers to provide consistent product identification data in digital tags. A third standard under development by IBSMA, and planned for public release in the fall of 2007, would work in tandem with the first two, requiring publishers to furnish trackable licensing elements in tags. These licensing elements would ease software-license compliance, proponents say.

In this report, we'll examine ISO/IEC 19770-1, as well as the two SAM standards in the pipeline, and briefly consider their prospects for market acceptance.

ISO/IEC 19770-1: The First International SAM Standard

Some background

John Tomeny is marketing director of Sassafras Software and chair of the IBSMA's Software Licensing Practices Committee. Tomeny says major software buyers have become aware of their clout and now want a smoother relationship with publishers. "The IT asset management community has matured professionally over the past 15 years," he says, "enough so to stand up in the midst of other forces and demand improvement."

Steven Mullins, product marketing manager at Manage Soft, and an IBSMA committee member, says corporate ethics scandals, like the Enron debacle, also contributed to demand. "[These issues] don't directly affect IT, [but] on the periphery they do affect finance," he says. "Finance, in turn, needs corporate controls—the result being that IT needs corporate governance initiatives."

Roger Wittlock, global information systems security manager for AstraZeneca, is WG 21 convener. He says demand for standards grew out of the panic caused by Y2K, among other things. "The millennium bug was described

*See Appendix A for more on the ISO and WG 21.

as a programming problem, but the real problem turned out to be the organizations themselves." He adds that, in seeking to head off the bug and the havoc it threatened, organizations faced three key questions: "What software had they purchased, how much and where was it installed?"

According to Wittlock, ISO/IEC 19770-1's authors started out by cataloging the world's best SAM practices. They then grouped 27 key SAM process areas into six categories: control environment, planning and implementation, inventory, verification and compliance, operations management and life cycle. Roughly 200 desired process outcomes derive from these process areas, he says. These outcomes include requirements for inventory and contract management; data verification and control; planning and financial management.

Wittlock says that, although each outcome suggests a better way to implement and standardize SAM, "the emphasis is on flexible and comprehensive management, making it possible for companies to integrate SAM into their other compliance and best practice models." For example, part one of ISO/IEC 19770 closely aligns with and supplements ISO/IEC 20000, the standard for IT service management (ITSM) processes published in 2005. ISO/IEC 19770-1 also aligns with the *ITIL Software Asset Management Best Practice Guide**. This alignment is critical, says Wittlock, because many organizations bring SAM into their ITSM programs.

Steven Klos of California-based ISO consultancy Agnitio Advisors, observes that most organizations today have very chaotic asset management practices (see *SAM Process Maturity Levels*). "Essentially, they know some stuff, but much is still a guess." He adds that many asset managers "don't know ... how to use conformance as a benefit and not a cost."

Experts say companies that implement 19770-1 processes can reduce software costs by improving procurement practices. Companies can also reuse software licenses and limit over-purchasing. Furthermore, by having better data, they can save time and money negotiating with suppliers. Companies will also be able to cut costs through better invoice and budget management and more accurate forecasting.

Six SAM Process Categories Described in ISO/IEC 19770-1

Organizational management processes

Control environment
- Corporate governance processes
- Roles and responsibilities
- Policies, processes and procedures
- Competence

Planning and implementation
- Planning
- Implementation
- Monitoring and review
- Continual improvement

Core SAM processes

Inventory
- Software asset identification
- Software inventory management
- Software asset control

Verification and compliance
- Software asset record verification
- Software license compliance
- Software asset security compliance
- Conformance verification

Operations management and interfaces
- Relationship and contract management
- Financial management
- Service-level management
- Security management

Primary process interfaces for SAM

Life cycle process interfaces
- Change management
- Acquisition
- Software development
- Software release management
- Software deployment
- Incident management
- Problem management
- Retirement

*Published in 2003 by The Stationery Office, tso.co.uk.

Software publishers and compliance officials looking for prospects to audit are more likely to pass over organizations certified for ISO/IEC 19770-1 conformance because these organizations are unlikely to have disorderly records and major areas of noncompliance, experts say. Although certification is not legally binding, conformance indicates that senior management has dedicated time and money to putting processes and personnel in place to inventory IT assets and reconcile these with contractual agreements.

First steps to conformance

Obtaining full certification in ISO/IEC 19770-1 will pose a challenge for organizations starting SAM from scratch because organizations must pass an audit of all 27 SAM process areas. Preparation for this audit could cost more than $50,000 and take more than six months, requiring, at minimum, training personnel, assigning program-management staff and conducting a pre-audit assessment*. Organizations with some SAM in place could complete the process in less time and at lower cost, though the scope of software, computing platforms, locations or processes to be certified will factor heavily into costs estimates.

However, once the standard processes are set up, "all subsequent software-asset-management reviews and audits will proceed much faster," says Klos. He adds that an excellent first step is to assess how large the gap is

ISO/IEC 19770-1
SAM Process Maturity Levels

1. Chaotic	• Few tools • Little tracking
2. Progressive	• Track using spreadsheets, databases • Staff assigned, but no formal responsibilities • Reports lack detail
3. Business Integration	• Proactively manage assets • Inventory data linked to financial data
4. Optimizing	• Significant quality improvements and savings • Metrics in place
5. Transformation	• Optimum performance achieved • SAM tools: repository, auto-discovery and software usage

*See ECPweb's, *SAM Pros See High Demand for ISO 19770 Standards*, published October, 2006, and *Frequently Asked Questions*, pg. 12.

The difference between ISO and ITIL

One potential obstacle to adopting SAM standards is a common misunderstanding of other IT frameworks and standards and how they relate to 19770-1. For example, should customers follow Information Technology Infrastructure Library (ITIL) guidance, ISO/IEC 20000, or both?

ITIL originated in the United Kingdom in 1989 when the Central Computer and Telecommunications Agency (later absorbed into the Office of Government Commerce) developed it to help governmental IT departments manage burgeoning data systems. The ITIL framework turned out to be quite effective, and its use spread worldwide, though for the most part Americans are just now discovering its usefulness.

Comprising ten books of guidelines on how to manage an organization's IT service-management processes, strategy and terminology, ITIL version 2 primarily provides best practices. At one point it represented the global authority for ITSM, but, since it is not possible for an organization to be certified in ITIL, some organizations began to call for a standard that would allow them to be certified as using the best available service-management practices. ISO/IEC 20000-1 and 20000-2 were developed for this and other reasons. The OGC and the ISO/IEC group working on the ISO/IEC 20000 standard say they are cooperating to align both ITIL v. 2 and the new v. 3 (launched in June 2007) frameworks with the standard. By extension, ISO/IEC 19770-1 is designed to align with ISO/IEC 20000 and thus also attempts to minimize conflict with ITIL. For the latest ITIL and ISO/IEC 20000 information, read ECPweb's *IT Service Manager.*

between the standard's specifications and the organization's current IT policies and procedures. "How advanced, or mature, are the process levels? Does the organization have little in the way of automated tracking and inventory population, or does it already fully reconcile inventory and license compliance data in a complete, clean manner?" Wittlock suggests an organization should, "start out by making [executives] aware of the importance of proper SAM practices, and making them understand that they are accountable."

Imposing Order on Software Tags

In principle, digital software identification tags should ease software asset discovery and management. Operating systems and auto-discovery tools can read these files to identify and inventory products and determine usage rights. In practice, however, "tagging is something [software manufacturers] all do very differently," says Microsoft's program manager Derick Snyder, who has worked on IBSMA's committees drafting the software inventory and licensing standards. "We all do our licensing differently, sell differently, and even in the cases when there are proprietary tools in place to help, that's all different."

Steven Klos, a key participant in development of the two proposed SAM standards, adds that, "From the software manufacturers' point of view, there really hasn't ever been [much] time or energy put into making [installed] software ... easy to manage, track and report on."

Experts say consistent tagging would improve auto-discovery tools' software-detection processes, improving inventory management and identification and easing compliance auditing. Software publishers, their customers, IT service providers and tool vendors, therefore, all have a stake in development and adoption of a tagging standard.

Recognizing that inconsistent tagging often hinders rather than helps SAM, in October 2006, ISO Working Group 21 asked the International Business Software Managers Association to begin drafting a tagging standard, ISO/IEC 19770-2. IBSMA members from across the SAM industry; from end users and SAM tool providers, to vendors and major publishers were involved with the effort. The draft was completed in May 2007 and released for public review.

The draft standard requires consistent identification data to be included for software titles and operating systems. It would require tags to include, among other things, the software's manufacturer name, product title and version, manufacturer product number or stock-keeping unit and globally unique identifier for referencing a tag in other, related tags. Tags would also have to identify third parties that have handled the software, as well as the organization that uses it. Optional fields allow software manufacturers to provide additional information for SAM managers and tools. Unlike 19770-1, which is process- and outcomes-based, the software tagging standard is a data-

The life cycle of a standards-conforming software tag

Tag creation

- Create asset tag to identify software and origin, with manufacturers furnishing the mandatory identity elements.
- Create optional identity elements to ease identification and SAM.
- Create asset tag when none is provided by manufacturer; modifiers or consumers supply this data.

Tag modification

- Modify asset tag information and mandatory identity elements.
- Provide optional information, such as identity elements pertaining to release management.
- Ensure consistent and uniform values in data.

Tag consumption

- Implement asset tag information for SAM.
- Consult asset tag information, as required by industry standards.
- Third-party certification of tags' conformance to standards.

model standard. In other words, it employs mandatory data specifications to support tagging processes without requiring specific approaches to implementation.

The draft of 19770-2 stops short of defining the specifications for creating software tags, and the IBSMA SAM Standards Committee is continuing work to develop an implementation guide for software publishers.

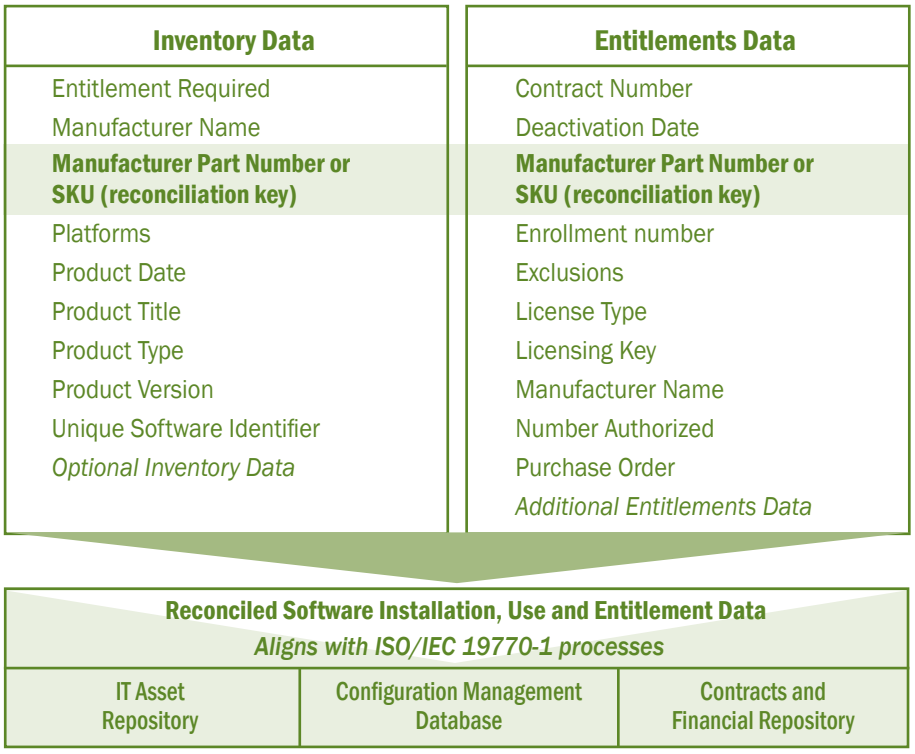
The beneficiaries of these tags are the auto-discovery and license-management tool providers and software customers who gather software inventory through processes aligned with ISO/IEC 19770-1.

Software consumers have the most to gain from industry-wide adoption of a tagging standard, say experts. IT pros would be able to easily retrieve essential details on software origin, platform requirements, dependencies and relationships and other critical information. They could also more easily and securely reconcile inventory and licensing data, with or without tools, and bring greater consistency and order to unique, heterogeneous asset and financial environments. Tagging standards could also lessen or eliminate audits from software publishers or third parties. For their part, tool providers and resellers could expect consistent and uniform values in tag data from publishers conforming to the standard.

A New System for Managing Software-use Entitlements

Software-use entitlements are rights to use software. In contracts and other legal documents, they describe such things as license duration, fees, installation and location. Unfortunately, most software contracts are written in legalese. Moreover, there is often a gap between publisher-defined terms and compliance policies, and information measurable by auto-discovery and license-management tools. Consequently, users have to resort to estimates and guesses to reconcile license rights with installations or use. Among other problems, this can hinder their efforts to comply with license contracts.

In January 2007, the IBSMA's Software Licensing Practices Committee began to define a standard for software-use entitlements, appointing Sassafras' John Tomeny as chair. This standard will align software-use elements with the inventory data model in the ISO software tagging standard, and complement ISO/IEC 19770-1. The three standards are intended to work together, says Steven Russman, executive director of IBSMA. "Automated reconciliation of inventory tags, entitlements and contracts would simplify the compliance-management process and support 19770-1 inventory and governance requirements," he says.



How would it work?

Under an entitlements standard, right-to-use elements would be provided by manufacturers in tags, describing usage rights, license quantities purchased, restrictions and other licensing information. Cross-referenced with identity data in tags conforming to the proposed standard, these elements could reconcile software inventory tags with entitlement data to ensure contract compliance. Ideally, the data would be imported into end users' asset- or contract-management repositories, providing proof-of-purchase details to support audit and compliance reviews.

Experts say an entitlements data standard will improve consumer awareness of compliance issues by taking the guesswork out of interpreting licenses. It will help IT managers reduce financial and legal risks associated with noncompliance. The standard would also contribute to informed decisions on software license procurement and upgrades and reduce noncompliance risks associated with business mergers, acquisitions and divestitures. Both publishers and their customers would benefit. A publisher could have the confidence to ask customers certified in the standards to show reports on software installation and use, rather than resorting to an intrusive audit. This self-audit approach would be quicker and cheaper and avoid the antagonism associated with enforcement actions and third-party audits, experts say.

Adoption prospects and potential obstacles

Development of standards often takes several years and SAM standards are no exception. Once developed and published, they will have to be adopted by software publishers and users before they can be effective. Most experts interviewed for this article say they expect SAM standards to face initial obstacles but to eventually catch on.

For now, implementation difficulties present the biggest hurdle to adoption of SAM standards. Although SAM-savvy organizations are implementing software-usage optimization, "some organizations are not even managing configurations," observes Adobe System's Juan-Carlos Colosso, who is a member of IBSMA's committee and involved in work on the data standards. He adds that under these circumstances, "license management becomes a far more remote goal."

Industry shifts or a move to proprietary SAM processes or tools could impede market adoption of the inventory and licensing standards. Another risk is that technological advances—for example virtualized computing and streamed software services—could hinder implementation or simply make the standards obsolete.

Since tag data from the proposed inventory and licensing standards would have to be implemented over time, during the transition period coexisting standard and

SAM tools and ISO/IEC 19770-1 conformance

Steven Klos of Agnitio Advisers maintains that, until now, "there haven't been any well-defined processes and procedures for SAM. Lots of tools are dropped onto the end user, as if to say 'good luck, see you later,' instead of 'Here's what you need, and here's how this tool can be used to provide those capabilities.'" Roger Wittlock, WG 21 convener, adds that an excess of tools is, "one reason that SAM is considered to be a difficult area. Thanks to the standard, that excuse can no longer be used."

Tools' data output, as opposed to the tools themselves, defines how successful an organization is at conforming with ISO/IEC 19770-1 and at license compliance. Although they do not replace professionally designed processes and policies, or the practitioners who run them, tools contribute to efficiency, data accuracy and process maturity, and it is unlikely an organization would attempt conformance without them.

In its January 2007 *Tools Manager* issue, ECP created a model for assessing SAM tools' conformance with 19770-1. According to the model, a tool can directly or indirectly support outcomes for any process area. Five of the 24 tools reviewed conformed fully to all six process areas, indicating vendor-intended support for standardized outcomes. Another six tools conformed fully in one or more process areas, and the rest at least partially conformed. Last year, 82 percent of SAM professionals responding to an ECP survey said they would be more likely to buy a tool if it aided in conforming with SAM standards. (See *SAM Pros See High Demand for ISO 19770 Standard*s, October 2006 at ecpmedia.com/publications.html.) Demand is likely to increase as awareness of ISO/IEC 19770-1 increases, and we expect tool providers to step up their efforts to adapt their products to the changing market.

nonstandard tags would have to be read by current technologies. Contract-, license- and procurement-management systems support will also have to be updated. Finally, nonstandard legacy inventory must be reconciled against standardized and structured entitlements. "Inventory and license-data standards would be on longer-term implementation cycles," Klos explains, predicting an 18- to 24-month software roll-out cycle for product upgrades. In addition, he says, software manufacturers will need to adopt standardized tagging practices.

According to Microsoft's Derick Snyder, if organizations perceive that only a few manufacturers are providing asset tag data, "it might appear a little bit useless," adding that "it's kind of a chicken and egg problem: you've got the people, but if no one is adopting, no one provides the data, but if no one provides the data, no one wants to adopt."

Many individuals and organizations also fear that a rigid approach to implementation could hurt business initiatives and creativity. ISO/IEC 19770-1's authors say they attempted to avoid this scenario by employing outcomes-based conformance. Organizations can implement SAM however they choose, as long as they adhere to required results, policies and process outcomes. On the other hand, a downside to such flexibility is the need for extra guidance. Companies will have to decide what level of assistance works best for them.

Conclusions: Success on the Horizon?

Most of the experts interviewed for this report agreed that standardization in SAM process outcomes, inventory and entitlement tagging would succeed eventually. "I think the SAM standards have the potential to standardize much of the communication within the SAM environment today," says Klos. "That will result in tool vendors, practitioners and consultants all talking the same language, using the same terms." He adds that SAM, "will become a checklist item required for all organizations."

Some say publishers will drive demand. Adobe, IBM, Microsoft, Oracle and Symantec have all been involved in content development for the inventory and licensing standards. "I think the largest software publishers absolutely will adopt it," says Mullins of ManageSoft. "I do not see [the standards] being adopted by 100 percent of companies, but I think it will be broad enough to be significant."

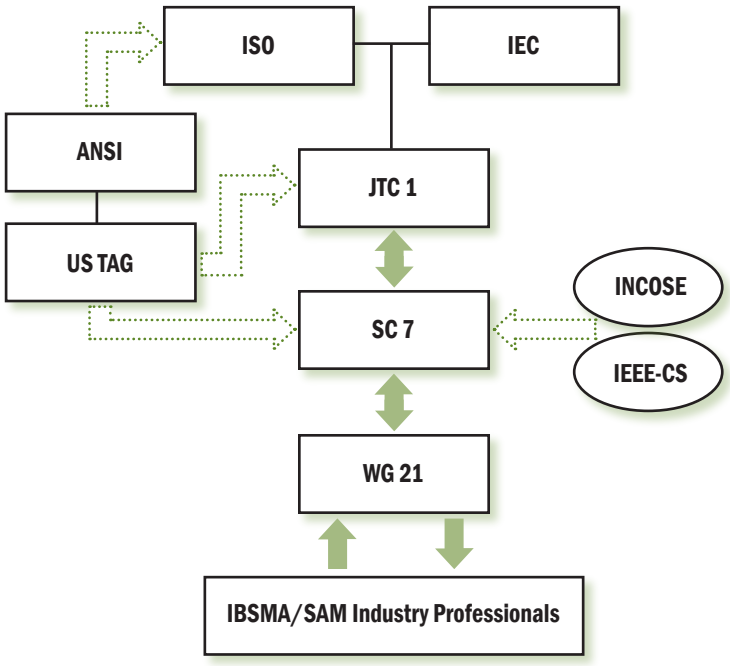
Adobe's Colosso believes adoption will hinge on SAM tool vendors, which must incorporate the standards' specifications to cut "the cost and time it takes to manage licenses against purchases." Meanwhile, Klos sees ISO/IEC 19770-1 being quickly adopted by IT services organizations, as outsourcers seek to differentiate themselves by demonstrating their capability. And Derick Snyder, at Microsoft, says it will ultimately come down to money: "When people start saying 'This is saving me money and I'm more profitable because of it,' that'll be the tipping point for the standards."

Appendix A: The Structure of the ISO

One hundred fifty-seven countries are represented in the ISO, with one member and vote per country. Members typically represent national bodies of standardization. For example, the sole U.S. representative and voting member is the American National Standards Institute (ANSI), which promulgates ISO standards and runs accreditation programs in which independent auditors evaluate U.S. applicants to verify that they meet standard certification criteria.

Much of the ISO's work is done in committees. For example, the ISO/IEC Joint Technical Committee 1 (JTC 1) derives from the collaboration of the ISO and the International Electrotechnical Commission (IEC) in the field of information technology, and draft standards must pass a review and vote process at this level before moving on. The United States Technical Advisory Group to this committee, JTC 1 TAG, was established by ANSI in 1988 to coordinate and integrate American interests in JTC 1 work. The TAG also advises on the subcommittee level, and, higher up, helps determine ANSI's vote in the ISO. IBSMA is a member of the U.S. JTC 1 TAG.

JTC 1 Subcommittee 7 on Software and Systems Engineering works with the International Council of Systems Engineers (INCOSE) and the Institute of Electrical and Electronics Engineers Computer Society (IEEE-CS) in areas such as enterprise architecture, IT operations, service management and software asset management. Although SC 7 is responsible for decisions, reviews and international comments, various working groups manage actual content and technical work. ISO/IEC JTC 1 SC 7 Working Group 21 (WG 21) addresses standards related to software asset management.



Dotted arrows indicate advising bodies

Why is the International Organization for Standardization abbreviated as "ISO," shouldn't it be "IOS"?

The organization's acronym would not be the same in every language (e.g., in French the ISO's full name is the Organisation Internationale de Normalisation, which would be "OIN"). The polyglot body decided to take its abbreviation from the Greek word isos, which means "equal." In every country the ISO is the ISO. You could say the ISO's name itself represents another international standard.

Frequently Asked Questions

Have any or all of the SAM standards been published?

ISO/IEC 19770-1 and the inventory tagging and licensing standards are all in different phases. ISO/IEC 19770-1 is now available for purchase and implementation. The IBSMA offers a practitioner and consultant certification course, *Assessing SAM Processes According to ISO 19770-1*, as well as an assessment guide. For details on the IBSMA's programs, visit IBSMA.com.

The draft standard for software identification and tagging, developed by IBSMA, has been turned over to ISO for review. A proposed standard for software-use entitlement is being developed by the IBSMA's Software Licensing Practices Committee. The committee expects to release a draft for public review in late 2007.

How is the IBSMA involved with standards development?

The IBSMA's SAM Standards Committee was formed in July of 2006 to support and develop industry practices and standards for software asset management. IBSMA members contribute their time and expertise to advancing the state of SAM practices and, as a member of the U.S. SC 7 TAG, IBSMA participates in the international standards development process.

In October 2006, IBSMA was asked by ISO Working Group 21 (WG21) to contribute to an international standard for software tagging and identification. In June 2007 IBSMA completed its work for WG21 and continues to develop SAM standards as an independent industry body. Individuals interested in participating in standards development should contact IBSMA.

Where can I receive a copy of the ISO/IEC 19770 -1 standard?

Published standards are available for purchase from ISO.org, ANSI.org and others. The draft software tagging standard is available for free download from IBSMA.com, and the proposed licensing standard will be available for public review in late 2007.

Where can I find guidance or examples on how to create tags?

Three full, extended examples representing complete tags are provided in the appendix of the draft inventory tagging standard. Each is prepared in XML syntax and corresponds to one of three different major platform environments, furnishing models for tag creation. The IBSMA SAM Standards Committee is continuing work to develop an implementation guide for software publishers.

Why weren't the proposed standards for software tagging and entitlements combined into one?

Both data realms were large and complex enough to stand on their own. The IBSMA committee decided early on to keep the inventory and entitlements standards separate to optimize clarity in the documents and maintain manageability in the drafting process.

Do SAM standards apply to educational or government entities and others not subject to the requirements of the Sarbanes-Oxley Act?

Public-sector and not-for-profit organizations have the same requirements for conformance as most corporations, and are subject to the compliance terms of software publishers' license agreements. Decentralized management of IT makes the job of the software-license compliance manager a tough one. First, the manager must determine how the software is licensed: to the enterprise, department or program; or individually to faculty, staff, student or contractor. Second, the manager needs to identify the responsible party, a challenge in decentralized entities. Unaccustomed to rigorous compliance efforts, many public-sector IT managers will find conforming to ISO/IEC 19770-1 a difficult task.

What is organizational certification?

International standard ISO/IEC 17000 defines conformity assessment as a "demonstration that specified requirements relating to a product, process, system, person or body are fulfilled." An organization's SAM processes may be assessed, and certified by a qualified third-party, as conforming to the outcomes described in ISO/IEC 19770-1.

Can my company be certified for ISO/IEC 19770-1 conformance and software license compliance?

Yes. IBSMA's software license compliance certification program for organizations is a partial certification of 19770-1 process outcomes. An independent auditor conducts a rigorous review of SAM processes for a defined software scope, such as the software of a specific publisher, computing platform, location or business unit. IBSMA will confirm the results and issue a certificate of conformance.

IBSMA and ECPweb are not endorsed by or affiliated with any vendor or other association.

Visit IBSMA.com for more information and for the latest SAM standards developments.