



System Center Configuration Manager Asset Intelligence

Microsoft Corporation

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Executive Summary

Information technology expenditures comprise an increasing portion of IT budgets—IT assets can often account for more than half of an enterprise's total asset base. With the changing nature of today's technology and the complexity of network environments, enterprises find it difficult to track the IT assets they own. Without an accurate record of their IT assets, it is challenging for enterprises to determine if IT is providing value and to meet financial, regulatory and license compliance requirements.

Microsoft® System Center Configuration Manager 2007 includes hardware and software inventory and software metering capabilities that help IT organizations understand exactly what hardware and software assets they have, who is using them, and where they are. Asset Intelligence translates the inventory data into information, attaching metadata to inventory, and provides rich reports that IT administrators can use to optimize hardware and software usage. With Configuration Manager 2007 and Asset Intelligence, companies can make informed decisions about their IT assets, improve IT operations and mitigate compliance risks.

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Introduction

Maintaining a reliable inventory of information about hardware and software in the Enterprise has become harder and more complex as networks have grown in size and complexity. Compounding this difficulty is the fact that computers and their users are in flux, as computers and software are re-imaged, upgraded, or retired from use and users get reassigned to new computers. In addition, the software deployed to managed computers changes at an even more rapid pace. Discovered inventory artifacts can often be unrecognizable. To maintain even an approximation of hardware assets in use, and the software installed on them in today's networking environments requires a constant effort by IT organizations, who may not always view inventory activities as a high priority.

The Asset Intelligence features in Configuration Manager 2007 enhance the inventory capabilities of Configuration Manager 2007 and Configuration Manager 2007 SP1 sites to better inventory and manage hardware, software, and software licenses in use throughout the enterprise. The enhancements made enable administrators to more easily, and more accurately, inventory and manage hardware assets and the software in use by Configuration Manager 2007 clients as well as view and manage purchased software license information. By providing this essential information, Asset Intelligence makes it easier for administrators and asset managers to more effectively plan for upgrades, migrations, and software license compliance reporting.

Why Asset Intelligence?

Most IT departments today strive to utilize their IT assets more efficiently while reducing IT costs. At a fundamental level, this means tracking newly provisioned IT assets coming into the network, existing assets in the production environment and those assets that are approaching support end-of-life. Hardware lifecycles are a prime example. Many enterprises refresh hardware every three to five years which results in up to one third of the inventoried computers being replaced by newer models each year.

Without an automated way to actively monitor changes in the IT environment, accurately tracking IT assets requires significant administrative effort. To track the IT assets in their organization effectively, IT administrators must routinely answer the following questions:

- What IT hardware assets do we own?
- How are the IT assets being used and by whom?
- What hardware and software changes have occurred? Have assets been replaced or re-imaged?
- Which assets will need to be refreshed during the next hardware update cycle?
- How are software licenses being used? Are the licenses being properly utilized?
- Approximately how many Microsoft Client Access Licenses do we have and how are they being used?
- What hardware is compatible with Windows Vista, Windows Server 2008 or with other line of business applications in use? What hardware is not?

Configuration Manager 2007 Asset Intelligence helps IT organizations answer these questions by providing comprehensive identification and categorization of the software in use, the approximate age of some of the hardware in use, the hardware requirements for software, the actual software installed, both physically and virtually, and even provides the capability to manage purchased software licenses throughout the enterprise more effectively.

A foundation of business continuity

Ensuring business continuity in the event of system failure is another incentive for accurate tracking of IT assets. Hardware failure and system downtime, whether due to physical failure or improper configuration, are unavoidable truths for IT organizations. Asset Intelligence helps minimize downtime by providing information about the approximate age of hardware in use in the enterprise and whether or not it is capable of planned software upgrades. This information can be used to better plan for hardware upgrades or replacements before the hardware fails.

Drive compliance integration

Better IT asset knowledge is an enabler for compliance whether driven by regulatory considerations or IT policy. Asset Intelligence reports can help administrators approximate how purchased software licenses are being used in the enterprise. These reports can be used to help administrators and asset managers make decisions on whether or not they need to purchase additional software licenses to remain compliant with their software license agreements or identify purchased licenses that are not being used in the most efficient manner possible.

For example, the Asset Intelligence report identifying hardware changes within a specified period of time might aid IT administrators in detecting unauthorized devices such as USB devices or unauthorized floppy drives. The detailed asset information provided by Asset Intelligence also helps with remediation of non-compliance situations, by providing rich data to help interpret hardware and software inventory.

Determine upgrade readiness

By providing information about deployed hardware and software assets, Asset Intelligence helps ensure smooth upgrade paths for IT systems. For example:

- By providing an accurate view of hardware assets, Asset Intelligence helps IT administrators determine if hardware assets meet the minimum requirements for a Windows Vista or Windows Server 2008 upgrade.
- IT administrators can determine software upgrade readiness by using Asset Intelligence information to assess inventoried software applications and compare the number of purchased software licenses to those found to be in use for specific software applications.

Configuration Manager Asset Intelligence

Asset Intelligence in Configuration Manager 2007 SP1 extends the inventory capabilities of System Center Configuration Manager 2007, by providing accurate inventory data that IT administrators can use to optimize their IT asset usage, improve IT operations, and mitigate compliance risks.

In addition to inventory capability enhancements, Asset Intelligence in Configuration Manager 2007 SP1 adds the following additional functionality over that provided by the Asset Intelligence feature in Configuration Manager 2007:

- The Asset Intelligence feature node has been added to the Configuration Manager console to allow easier Asset Intelligence related administration tasks, and rich reporting capabilities.
- The Asset Intelligence Configuration Manager console home page has been added to provide at-a-glance feature state status and information.
- The Asset Intelligence catalog has been expanded to contain categorization and identification information of a large catalog of software titles - both Microsoft and 3rd party – as well as the hardware requirement information for many software titles found in today's IT environments.
- The ability to customize the Asset Intelligence catalog with additional software categorization information and hardware requirements information has also been added.
- New reports have been added that enable administrators to generate over 50 reports based on inventoried information that present data about hardware, software, and license usage. General reports are linked to more specific reports and allow IT administrators to query general information or drill down to more detailed levels if required.
- Hardware inventory enhancements that gather information such as processor age, speed, and USB devices in use or when hardware has changed since the last inventory or during a specified period of time.
- Installed software inventory enhancements have been added that gather information about installed software in use in the enterprise. These enhancements allow IT organizations to identify and better categorize their software assets. Robust reports provide information about types of software in use to help identify redundant software and optimize software support and purchasing.

- Software license management capabilities have been added that allow purchased software license data (both Microsoft and non-Microsoft) to be imported into the Asset Intelligence catalog to enable better license management and reporting.
- Improvements have also been made to provide data about utilized Client Access Licenses (Windows Server, and Exchange Server) and computers acting as Key Management Servers for Windows Vista activation. The report output format is congruent with Microsoft's License Statements facilitating system-wide license tracking and compliance.
- The integration of Asset Intelligence and System Center Configuration Manager allows actionable information to be immediately leveraged in management activities, such as remediation.

Asset Intelligence in System Center Configuration Manager 2007 and Configuration Manager 2007 SP1 significantly enhance the functionality of the version of Asset Intelligence available in SMS 2003 SP3 installations. The following table summarizes these enhancements.

New Functionality	Benefit
Asset Intelligence Configuration Manager console home page	The Asset Intelligence feature home page has been added to the Configuration Manager 2007 SP1 console to provide a detailed summary of Asset Intelligence catalog data and provide other information and resources for administrators.
Asset Intelligence reporting class settings dialog	In Configuration Manager 2007 SP1 sites, the Asset Intelligence reporting class settings dialog can be used to dynamically enable or disable hardware inventory reporting classes required to support the Asset Intelligence feature.
Asset Intelligence catalog updates	The Asset Intelligence catalog now contains categorization and identification for over 300,000 software titles and versions divided into nearly 100 families and almost 2000 specific categories and can be updated with new information from Microsoft either manually or dynamically by synchronizing with System Center Online.
Compatibility with virtualized applications	In Configuration Manager 2007 SP1 sites, Asset Intelligence is fully compatible with sequenced Virtual Applications.
Role-based security	In addition to the Asset Intelligence administrator security role, the asset manager security role has been added to Asset Intelligence in Configuration Manager 2007 SP1 to provide greater granularity in assigning Asset Intelligence catalog administration security permissions.
Software license management improvements	IT administrators can import purchased software licenses (both Microsoft and non-Microsoft) into the Asset Intelligence catalog to enable better software license management capabilities.
License Management Reports <ul style="list-style-type: none"> • Client Access License tracking (CALs) • Per-Processor tracking 	These reports offer a deeper, more detailed view into the actual license usage within the enterprise, showing the number of users and devices that access single role Windows or Exchange servers. This detailed information helps IT organizations avoid over purchasing licenses or unintentional software piracy.

Hardware Reporting

- Identification of computers that have changed since last inventory cycle
- USB device discovery
- Processor age
- Computer upgrade readiness

IT administrators can use the Asset Intelligence reporting to determine readiness for Vista upgrades as well as readiness for applications or services that require a minimum processor age or USB device set.

Software Reporting

- Software metering capabilities
- Recently-used executables reporting
- Computers where recently-used executables ran
- Categorization of software

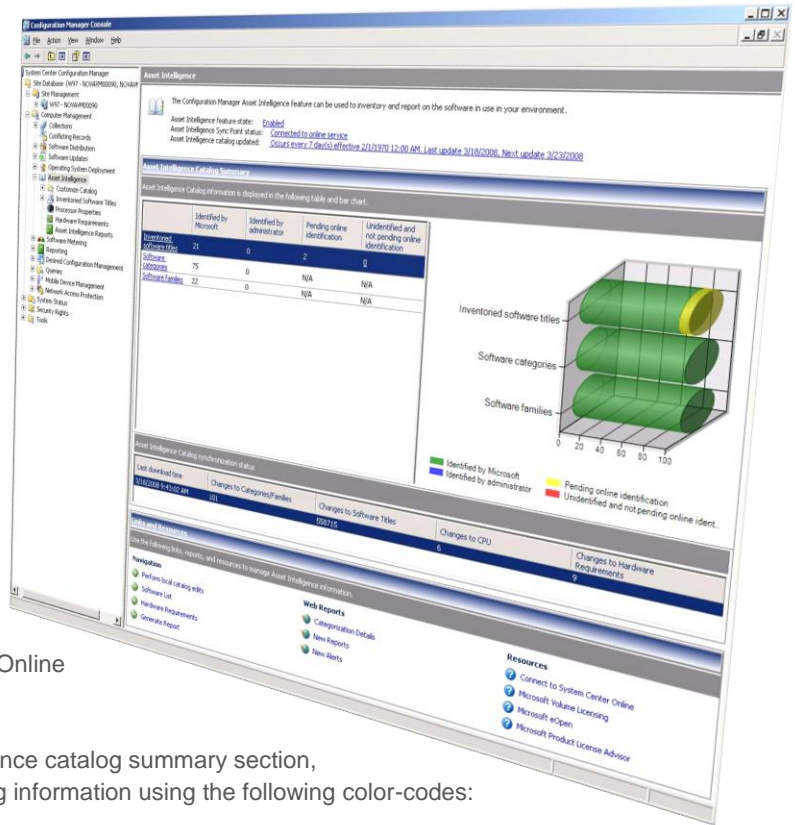
Better awareness of installed software, used and unused software, unknown software, and potentially malicious software helps IT organizations reduce software costs and avoid potential security breaches.

Asset Intelligence Configuration Manager console home page

By viewing the information displayed in the Asset Intelligence home page in Configuration Manager 2007 SP1 console Administrators can quickly review Asset Intelligence catalog data at a glance.

The Asset Intelligence home page contains information about whether or not the Asset Intelligence feature has been enabled and information about the last Asset Intelligence catalog updates and displays Asset Intelligence catalog information visually in a table and color-coded bar chart.

Information about Asset Intelligence catalog information can be quickly viewed using the table to discover the total number of currently inventoried software titles. The total number of defined software categories and software families is also displayed. Software title identification information is displayed for the total number of identified software titles to define the total number of software titles that have been identified by Microsoft researchers, by Asset Intelligence administrators, and the number of software titles that have been uploaded to System Center Online for identification.



Using the bar chart provided in the Asset Intelligence catalog summary section, administrators can quickly and easily view catalog information using the following color-codes:

- Identified by Microsoft (green)
- Identified by administrator (blue)
- Pending online identification (yellow)
- Unidentified and not pending online identification (red)

Asset Intelligence reporting class settings dialog

As in earlier releases, the Asset Intelligence feature set is not enabled by default. To more easily enable the hardware inventory reporting classes required for Asset Intelligence reports based on inventory information, the Asset Intelligence reporting class settings dialog has been added to Configuration Manager 2007 SP1.

Launched from within the Configuration Manager console, administrators can use a simple graphical user interface to dynamically enable or disable all or individual reporting classes that Asset Intelligence reports rely on.

Asset Intelligence Catalog

The ability to report detailed application information relies on an extensive database of inventoried information. The Asset Intelligence catalog contains categorization and identification for over 300,000 software titles and versions divided into nearly 100 families and almost 2000 specific categories. In addition to software families and categories, the ability to identify and manage software applications based on custom, administrator-specified software labels provides even greater software categorization granularity to Asset Intelligence catalog information in Configuration Manager 2007 SP1. By defining custom attributes for software titles in this fashion, administrators can create user-defined groups of software titles that share a common attribute.

Using the Asset Intelligence console node of the Configuration Manager 2007 SP1 console, administrators can view all inventoried software titles and ensure that each software title is categorized appropriately. Inventoried software titles that are not categorized, or have been categorized differently than administrators or asset managers would like, can also be viewed and re-categorized by administrators. The ability to revert to the Microsoft categorization for software titles has also been added to ensure that default Asset Intelligence catalog data is not lost.

In addition to containing information about software, the Asset Intelligence catalog in Configuration Manager 2007 SP1 sites, also contains information about common CPU properties and hardware requirements for many known software applications. The information provided allows administrators and asset managers to plan for hardware replacements based on processor age or prepare for new software deployments by knowing ahead of time which computers have the appropriate hardware for specified software titles.

Additional changes to Asset Intelligence in Configuration Manager 2007 SP1 allow for centralized management of Asset Intelligence catalog data. Changes made to the Asset Intelligence catalog at the central site of a Configuration Manager 2007 SP1 hierarchy are replicated to child sites.

While the catalog is as comprehensive as possible, as newer applications emerge and are installed on managed computers by users, it is crucial to ensure accurate reporting is available. In Configuration Manager 2007 SP1, Asset Intelligence administrators can customize the Asset Intelligence catalog to better suit their individual needs. Using the Configuration Manager console, custom software title management information and hardware requirements can be added as well as other catalog customizations.

To address the need for maintaining the most current information about software and hardware information as possible within the Asset Intelligence catalog, Microsoft will provide periodic updates to the catalog that can be downloaded and used to update the local Asset Intelligence catalog with new information that reflects changes to applications (newer or patched versions for example) or new applications recently added to the catalog.

As an additional benefit of Software Assurance, Microsoft Volume License Services (MVLS) Software Assurance (SA) licensed customers will be able to register with System Center Online and use the Configuration Manager console to schedule periodic or on-demand catalog synchronization with System Center Online using the Asset Intelligence synchronization point Configuration Manager 2007 SP1 site system role installed at the central site. By connecting to this online service, administrators will be able to obtain immediate access to the most current information and even upload custom catalog information to be researched and catalogued by Microsoft for inclusion in the next scheduled Asset Intelligence catalog update. These immediate catalog updates provide a compelling reason for enterprise-level organizations to upgrade from SMS 2003 to Configuration Manager 2007 SP1.

Virtualized application compatibility

In Configuration Manager 2007 SP1 sites, Asset Intelligence is fully compatible with virtually deployed SoftGrid applications and inventories virtual installations as easily as physically installed applications with no additional administration overhead required. By enabling virtualized software installation inventory capabilities, Asset Intelligence allows administrators to gain a more complete understanding of all software deployed to Configuration Manager clients whether it is physically or virtually installed.

Role-based catalog access security

In addition to the Asset Intelligence administrator security role, the asset manager security role has been added to Asset Intelligence in Configuration Manager 2007 SP1. Members of the Asset Intelligence Administrator security role have full control permissions over catalog data and the Asset Intelligence feature set as a whole. Using the Configuration Manager console, administrators can add asset managers to the new security role to provide them the ability to view Asset Intelligence catalog data.

Members of the Asset Intelligence Asset Manager security role have permissions to run reports, change or create software categories and families as well as access to the Asset Intelligence Configuration Manager console home page information. Members of the asset manager role can view catalog data and categorize it to a certain extent, but otherwise have no control over the configuration or management of the Asset Intelligence feature.

License management with Asset Intelligence

A common challenge that IT organizations face with enterprise software deployments is tracking software license usage. Asset Intelligence reporting provides numerous options for tracking software license usage and provides licensing reports in a ledger-type format comparable to Microsoft license statements. Administrators can manually import Microsoft and non-Microsoft purchased software licenses and compare the inventoried software in use to the number of purchased software licenses using numerous Asset Intelligence license reports to gain a better understanding of actual software license usage in their environments.

Asset Intelligence reports are capable of providing large amounts of information about installed software titles and purchased software licenses in use. However, they should not be used as the sole source for determining enterprise-wide purchased software license compliance because they rely on administrator specified license information and Configuration Manager client inventory reports. Due to these restrictions, Asset Intelligence software license reports may not necessarily provide the complete software licensing picture enterprise-wide.

Per-processor licensing reports

There are several Microsoft (and non-Microsoft) products that are licensed on a per-processor basis. The Asset Intelligence feature can be used to inventory and report on the usage of products licensed in this manner, such as Microsoft SQL Server and Microsoft BizTalk Server. While not all per-processor products can be inventoried today with this release of Configuration Manager Asset Intelligence, future releases and updates to the current feature set will continue to enhance the ability to gather licensing information on more Microsoft and third-party products.

Client Access License (CAL) tracking

Configuration Manager 2007 Asset Intelligence will track and report CALs for Windows and Exchange Server. Although this capability is limited to key Microsoft products today, Microsoft will continue to expand its ability to report on other CAL types as well.

Key Management tracking for Windows Vista

A significant feature offered with Configuration Manager 2007 Asset Intelligence is the ability to report and add value to several key areas of Windows Vista licensing. They include:

- Reports on Windows Vista activation statistics.

- Provides the ability to centrally manage Windows Vista Key Management Service.
- Emerging products that utilize the Windows Vista Key Management Service will automatically be included in the Configuration Manager 2007 Asset Intelligence reporting.

Asset Intelligence Reporting

The Asset Intelligence feature in Configuration Manager 2007 now provides over 50 easy to use reports that administrators can use to view Asset Intelligence catalog information. In addition, improved hardware reporting now provides more detailed information about machine ownership and hosted devices. For better discoverability in Configuration Manager 2007 SP1 installations, all Asset Intelligence-related reports are conveniently grouped under Asset Intelligence reports node of the Configuration Manager console.

Over time, computer configurations change. Historically, manual efforts initiated by the administrator were required to determine hardware changes occurring over time that resulted in drifts between what is known about computer configurations and how those computers are actually configured. In Configuration Manager 2007 SP1, three new Asset Intelligence reports have been added to allow for better asset configuration drift reporting:

1. Managed computers in which the hardware has changed over time within a specific Configuration Manager 2007 collection.
2. Computers with hardware changes within a specified time range.
3. Changes within a specific class type (computer configuration type) on specific computers. This is particularly useful for classroom situations where there is a chance for computer changes to occur as a result using hardware from one computer to fix another or possibly to track hardware (such as memory) theft.

Summary

For IT Pros and Asset Managers, Asset Intelligence reduces complexity and cost by delivering actionable information to assist in managing deployed software, license compliance, system and application migrations, hardware configuration and policy conformance.

Asset Intelligence inventory and reporting is a strong component of the overall systems inventory capabilities provided by Configuration Manager 2007 and offers IT organizations many benefits. Adding significant reporting and discovery to systems management, Asset Intelligence helps administrators manage aspects of the network they never could before; license management, application discovery and a deeper level of hardware inventory (such as processor age). Together with the rest of the System Center Configuration Manager 2007 features, Asset Intelligence reduces cost, adds more value and simplifies complex systems management better than ever before.