



## Overview





## Overview

**Note**

Before using this information and the product it supports, read the information under “Notices” on page 41.

**Second Edition (January 2007)**

This edition applies to version 2.3 of IBM Tivoli License Manager (program number 5724-D33) and to all subsequent releases and modifications until otherwise indicated in new editions.

This edition replaces SC32-1503-00.

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## About this guide

This guide contains overview-level information about IBM® Tivoli® License Compliance Manager.

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## Who should read this guide

This guide is for users who are considering the use of IBM Tivoli License Compliance Manager, and those who are required to use IBM Tivoli License Compliance Manager in connection with IBM software licensed under on demand terms and conditions.

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## What this guide contains

This guide contains the following sections:

- Chapter 1, "Introduction"  
Provides a summary of the monitoring, licensing, and reporting features available with Tivoli License Compliance Manager.
- Chapter 2, "Tivoli License Compliance Manager infrastructure"  
Provides information about the physical and logical structure of Tivoli License Compliance Manager and about the platforms on which components can be installed.
- Chapter 3, "Setting up the infrastructure"  
Provides a summary of the steps required to install Tivoli License Compliance Manager and prepare it for use.
- Chapter 4, "Software product identification and licensing"  
Provides information about the structure of the software product catalog used by Tivoli License Compliance Manager to identify products and to assign licenses.
- Chapter 5, "Support for IBM processor-based licensing"  
Provides an overview of the functionality provided by Tivoli License Compliance Manager for tracking IBM products licensed under processor-based agreements.
- Chapter 6, "User Interfaces"  
Provides an overview of the Tivoli License Compliance Manager user interfaces and how you can use them.

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## Publications

This section lists publications in the Tivoli License Compliance Manager library and related publications. It also describes how to access Tivoli publications online and how to order Tivoli publications.

## Tivoli License Compliance Manager library

The Tivoli License Compliance Manager library consists of the following books:

- *IBM Tivoli License Compliance Manager: Quick Start Guide*, CF0SBML  
Provides quick start information about Tivoli License Compliance Manager.
- *IBM Tivoli License Compliance Manager: Overview*, SC32-1503  
Provides general information about Tivoli License Compliance Manager.
- *IBM Tivoli License Compliance Manager: Administration*, SC32-1430  
Provides information about how to use Tivoli License Compliance Manager to set up a monitoring infrastructure, define licensing conditions, and produce reports.
- *IBM Tivoli License Compliance Manager: Planning, Installation, and Configuration*, SC32-1431  
Provides information about planning, installing, and configuring the Tivoli License Compliance Manager product.
- *IBM Tivoli License Compliance Manager: Commands*, SC32-1501  
Provides descriptions of all Tivoli License Compliance Manager commands.
- *IBM Tivoli License Compliance Manager: Data Dictionary*, SC32-1432  
Provides descriptions of the database tables and indexes maintained in the Tivoli License Compliance Manager administration server database.
- *IBM Tivoli License Compliance Manager: Problem Determination*, SC32-9102  
Provides Tivoli License Compliance Manager diagnostic information, including messages, traces, event logs, and information about tools and techniques for diagnosing problems.
- *IBM Tivoli License Compliance Manager: Catalog Management*, SC32-1434  
Describes how to use the software catalog management tool to maintain an up-to-date catalog of software products and the signatures that are used to detect their presence and use on monitored computers.
- *IBM Tivoli License Compliance Manager: Security Management*, SC32-1502  
Provides information about the security features of Tivoli License Compliance Manager.
- *IBM Tivoli License Compliance Manager: Release Notes*, SC32-1429  
Provides a summary of changes made in the release, lists the supported operating systems, documents known errors and workarounds, and includes the latest information about the product that could not be included in the main documentation. This document is not delivered on the documentation CD, but is available from the Tivoli Software Information Center. Updated versions of the document might be placed on the Tivoli Software Information Center at any time.  
  
How to access the Tivoli Software Information Center is described in “Accessing publications online” on page xi.

## Related publications

The following publications also provide useful information:

- *IBM DB2 Universal Database: Quick Beginnings for DB2 Servers*, GC09-4836  
These *Quick Beginnings* guides provide an introduction to installing and configuring DB2® products.
- [www.ibm.com/software/webservers/appserv/infocenter.html](http://www.ibm.com/software/webservers/appserv/infocenter.html) provides access to WebSphere® Application Server product information.

## Accessing terminology online

The *Tivoli Software Glossary* includes definitions for many of the technical terms related to Tivoli software. The *Tivoli Software Glossary* is available at the following Tivoli software library Web site:

<http://publib.boulder.ibm.com/tividd/glossary/tivoliglossarymst.htm>

The IBM Terminology Web site consolidates the terminology from IBM product libraries in one convenient location. You can access the Terminology Web site at the following Web address:

<http://www-306.ibm.com/software/globalization/terminology/>

## Accessing publications online

The Tivoli License Compliance Manager documentation CD contains an information center that includes the publications of the product library, other than the *IBM Tivoli License Compliance Manager: Release Notes*. The format of the publications is PDF and HTML, and they are available in all supported languages. See the `readme.txt` file to access the information center using a Web browser. The file is in the root directory on the documentation CD.

IBM posts publications for this and all other Tivoli products, as they become available and whenever they are updated, to the Tivoli software information center Web site. Access the Tivoli software information center by first going to the Tivoli software library at the following Web address:

<http://www.ibm.com/software/tivoli/library/>

Click **Tivoli product manuals**. In the Tivoli Technical Product Documents Alphabetical Listing window, click IBM Tivoli License Compliance Manager to access the product library at the Tivoli software information center.

**Note:** If you print PDF documents on other than letter-sized paper, set the option in the **File** → **Print** window that allows Adobe Reader to print letter-sized pages on your local paper.

## Ordering publications

You can order many Tivoli publications online at the IBM Publications Center Web site:

[www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi](http://www.elink.ibm.com/public/applications/publications/cgibin/pbi.cgi)

You can also order by telephone by calling one of these numbers:

- In the United States: 800-879-2755

- In Canada: 800-426-4968

In other countries, contact your software account representative to order Tivoli publications.

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## Accessibility

Accessibility features help users with a physical disability, such as restricted mobility or limited vision, to use software products successfully. With this product, you can use assistive technologies to hear and navigate the interface. You can also use the keyboard instead of the mouse to operate all features of the graphical user interface.

This product is operated using a Web browser, which has certain built-in accessibility features, and has been provided with specific shortcut keys for navigating the Web User Interface, starting tasks, and performing toolbar actions.

For additional information, see the Accessibility appendix in the *IBM Tivoli License Compliance Manager: Administration*.

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## Tivoli technical training

For Tivoli technical training information, refer to the IBM Tivoli software training and certification Web site:

<http://www.ibm.com/software/tivoli/education>

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## Support information

If you have a problem with your IBM software, you want to resolve it quickly. IBM provides the following ways for you to obtain the support you need:

- “Using IBM Support Assistant” on page 37: You can search across a large collection of known problems, workarounds, Technotes, and other information.
- “Obtaining fixes” on page 37: You can locate the latest fixes that are already available for your product.
- “Contacting IBM Software Support” on page 38: If you still cannot solve your problem, and you need to work with someone from IBM, you can use a variety of ways to contact IBM Software Support.

For more information about these three ways of resolving problems, see “Support information,” on page 37

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## Chapter 1. Introduction

Tivoli License Compliance Manager provides software inventory, use metering, and license allocation services on Windows®, UNIX®, Linux®, and i5/OS® platforms. It can be scaled to meet the needs of large and small organizations, and supports the management of multiple organizations, for example by service providers.

Information about installed software and software use is collected from monitored computers by an agent that can be deployed on a range of platforms and is reconciled with license information that you define on a central server. Information is stored in a central DB2 database and can be accessed in a series of preconfigured reports available from a Web user interface.

This chapter provides a summary of the capabilities of Tivoli License Compliance Manager and of the benefits that it can provide, as follows:

- “Benefits.”
- “Identifying installed software and metering its use” on page 2.
- “Matching software to licenses” on page 2.
- “Reporting” on page 3
- “Integrity and confidentiality of data” on page 3
- “Problem determination” on page 4
- “Tivoli License Compliance Manager for IBM Software” on page 5
- “License management and Tivoli Configuration Manager” on page 5

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### Benefits

Tivoli License Compliance Manager provides the following benefits:

- Supports both internal and external software and license audits by providing consolidated information about products installed, software use, and license compliance.
- Definition of licenses using predefined license types that control the way a license is to be used and how the level of use is counted.
- Maintenance of historical software use information and the provision of reports to assist in forward planning for license needs
- Reports supporting the comparison of figures for created, installed, and used products.
- Production of reports in online or batch mode and the export of report information to a standard XML interface
- Automatic generation of alerts when license use reaches a defined level.
- A flexible architecture that allows you to scale the installation to fit your license management needs.
- Security of confidential information ensured by the maintenance of security profiles for access to the Web interface, and by the encryption of data during transmission between elements of the Tivoli License Compliance Manager infrastructure.
- Creation of licenses for selected IBM products using information imported from an electronic entitlement file.
- Easy production of the software use reports required for some IBM products.

### Identifying installed software and metering its use

Tivoli License Compliance Manager provides you with the following types of information about the computers that you decide to monitor:

#### **Installed software**

You can use Tivoli License Compliance Manager to perform scans at intervals that you define of the software installed on monitored computers. The installed software is detected and its product release level is identified.

The installed software scan is performed using the Common Inventory Technology software (CIT) that is also used by other Tivoli products for software recognition functions. The use of CIT enables scan results to be shared between Tivoli products, optimizing the use of system resources when multiple Tivoli applications are running on the same system.

#### **Software use**

The Tivoli License Compliance Manager agent, deployed on a computer, collects information about use of software products. The agent can assemble information about the level and duration of use of a product.

Both of these functions base their recognition of software products installed or in use on the information defined in the IBM software catalog. This catalog includes product information for a wide range of IBM and non-IBM native and Java™ applications. You can obtain regular updates of the catalog from IBM to ensure that monitoring remains accurate and up-to-date. Tivoli License Compliance Manager also provides a catalog manager tool that you can use to extend the catalog adding products not included in the IBM catalog. See Chapter 4, “Software product identification and licensing,” on page 19 for a detailed explanation of the catalog structure and how it supports different licensing strategies.

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### Matching software to licenses

Using Tivoli License Compliance Manager, you can create licenses and assign them to instances of software products that are installed and running on monitored computers. This enables the reconciliation of software use and installed software information provided by agents deployed on monitored computers with the license agreements that you have entered into. In no case will products for which no applicable license is found be prevented from starting.

A Tivoli License Compliance Manager license comprises the following parts:

#### **General and business information:**

This includes information about the procurement of the license, and includes the license type and the license quantity. The license type identifies a set of rules that determine how use of the license is counted, for example by number of instances of the product installed, by number of concurrent user sessions, or by number of processors in use.

#### **Products covered by the license**

A license can be assigned to one or more of the products that are included in the catalog. The catalog entry for each product is organized in a hierarchical structure, formed by the product, versions of the product, and releases of each version. You can assign the license to a product at any of these levels.

#### **License distributions**

A license distribution determines the computers or partitions to which the license is applicable. The license can be open to all computers or can be



limited to specified systems. By restricting the applicability of a license to selected computers, you can differentiate between instances of the same product that are licensed under different conditions.

Tasks are available on the Web user interface for the creation and maintenance of the license, for the assignment of products, and the definition of license distributions. If you have been supplied with an electronic entitlement for a product or group of products, Tivoli License Compliance Manager is able to import the electronic entitlement, automating some of the steps required to create a usable license.

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## Reporting

Tivoli License Compliance Manager includes a set of preconfigured reports for the analysis of collected installed software and software use information and its reconciliation with the licenses that have been defined for products.

Using tasks on the Web user interface, you can request the reports and supply parameters that restrict reporting to a specified set of products or licenses and a specified set of computers or partitions where the agent is installed. Reports can be viewed immediately online or report requests can be added to a queue for batch processing. If you choose the batch processing option, an online task allows you to monitor the status of your requests. See “Reports” on page 35.

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## Integrity and confidentiality of data

Tivoli License Compliance Manager provides a configurable security infrastructure that guarantees the integrity and confidentiality of data that is transmitted between the Tivoli License Compliance Manager components. It includes the following features:

### **The Secure Sockets Layer (SSL) protocol**

Tivoli License Compliance Manager can be configured so that communication between its components is conducted using the SSL protocol. SSL creates a secure connection from a client to a server over which any amount of data can be transmitted in a manner that guarantees the confidentiality and reliable delivery of the data.

### **Server and client authentication**

Integrity and confidentiality of data is further ensured by requiring the identity of the SSL server and client to be authenticated before data is transmitted. Server authentication prevents the interception of data by a bogus server, while client authentication prevents bogus clients from transmitting false data to the server and destroying the integrity of data held there.

### **Encryption**

Tivoli License Compliance Manager integrates cryptographic modules that are compliant with the Federal Information Processing Standard FIPS-140-2. Passwords used internally by Tivoli License Compliance Manager are encrypted using FIPS-approved cryptography algorithms. FIPS-approved modules can optionally be used for the transmission of data.

Federal Information Processing Standards (FIPS) are standards and guidelines issued by the National Institute of Standards and Technology (NIST) for federal government computer systems. FIPS are developed when there are compelling

## Integrity and confidentiality of data

federal government requirements for standards, such as for security and interoperability, but acceptable industry standards or solutions do not exist. Government agencies and financial institutions use these standards to ensure that the products conform to specified security requirements. For more information on these standards, see the National Institute of Standards and Technology Web site, at this link:

<http://csrc.nist.gov/publications/fips/>

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## Problem determination

Tivoli License Compliance Manager provides diagnostic information in the form of message logs, event notifications and logs, and trace logs.

Message logs are generated by servers, agents, the catalog manager, and the installation processes of all components. Error and warning messages include an explanation of the problem and an action to be taken. Event notifications and even log entries are generated by servers in response to licensing events and to Tivoli License Compliance Manager system events, for example, when a server stops. Notifications are sent to designated recipients and the events are logged. Both of these types of information are directed to the user and for this reason are translated into supported languages.

Trace information is logged by servers, agents, the catalog manager, and the installation processes of all components. Trace logs are designed principally for use by IBM support staff and are produced in English only.

Tools are available to help in the diagnosis and resolution of problems, as follows :

- To help in the examination and analysis of message and trace logs.
- To assemble first failure capture data for each component.

Diagnosis of and recovery from installation failures is eased by a phased approach to the installation processes for servers, databases, and the catalog manager. An installation of any of these Tivoli License Compliance Manager components is divided into a series of tasks. If the installation fails, any task that has already been completed does not need to be repeated. Diagnosis panels are available within the installation wizard that allow you to identify the task that failed, view diagnostic information, and make changes to installation parameters. After resolving the problem, you can resume the installation starting with the failed task.

## IBM Support Assistant

Tivoli License Compliance Manager also provides a product-specific plug-in module for the IBM Support Assistant (ISA) application. Using ISA with the Tivoli License Compliance Manager plug-in, you can obtain the following benefits:

- Find Technotes and supporting technical information..
- Search multiple sites, including the Tivoli License Compliance Manager 2.3 online Information Center.
- Manage problem reports.
- Submit electronic service requests (ESR).

You can download ISA and the Tivoli License Compliance Manager plug-in from:

<http://www.ibm.com/software/support/isa>

### Tivoli License Compliance Manager for IBM Software

If you license IBM software products under terms and conditions that are processor-based, you are required to produce a report detailing the use or installation of that product to IBM. Tivoli License Compliance Manager is the tool you must use to track use or presence of such software products and to generate the required report.

For this purpose, you can use either the full Tivoli License Compliance Manager product or a special version, called Tivoli License Compliance Manager for IBM Software, that manages only IBM software. Your IBM salesperson or business partner can order Tivoli License Compliance Manager for IBM Software for you when you order an IBM software product that requires such reporting. Functionally, the "for IBM Software" product is identical to the full product except that the "for IBM Software" product uses a catalog that contains signatures only for IBM software products. This catalog is extensible only by importing updates of the IBM catalog and so the catalog manager tool is not included.

For more information about processor-based licenses and the requirement to report use of licensed products to IBM, see Chapter 5, "Support for IBM processor-based licensing," on page 25.

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### License management and Tivoli Configuration Manager

Users of Tivoli Configuration Manager who want to add license management capabilities can install the License Manager Extension feature available with fix pack 4.2.3-TCM-FP03.

The License Manager Extension feature integrates many of the license management facilities available with a full implementation of Tivoli License Compliance Manager into the Tivoli Configuration Manager environment. For information about installing and using this feature, see *IBM Tivoli Configuration Manager: License Manager Extension*.



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## Chapter 2. Tivoli License Compliance Manager infrastructure

This chapter provides information about the infrastructure of Tivoli License Compliance Manager to support you in decisions about how to deploy Tivoli License Compliance Manager to provide a monitoring structure that suits your needs. It includes the following sections

- “The physical architecture” describes the physical infrastructure required to perform the license management functions of Tivoli License Compliance Manager.
- “Supported platforms” on page 9 specifies the operating systems on which you can install the Tivoli License Compliance Manager servers and databases.
- “Platforms for agents” on page 10 specifies the operating systems that can be monitored by Tivoli License Compliance Manager.
- “Defining a monitoring structure” on page 10 provides information about organizational units that you use to define a strategy for performing licensing, inventory, and software audit tasks within your enterprise.
- “Implementation scenario” on page 10 provides a scenario that illustrates the issues to be considered when planning the physical rollout of Tivoli License Compliance Manager and the definition of the logical structure.

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### The physical architecture

Tivoli License Compliance Manager includes the following physical components:

#### **Tivoli License Compliance Manager agent**

A license management agent must be deployed on each operating system image that is to be monitored by Tivoli License Compliance Manager. The agent performs the following functions:

- Performs an inventory of the software installed on the computer and forwards this information to the runtime server.
- Identifies software products that are active to build up information about the use of monitored software products on the monitored computer. The agent stores this information in its cache and uploads it to the runtime server at regular, configurable intervals.
- Collects information about software that is running on the monitored computer that is not included in the catalog of software products and adds it to a list of potential signatures. Using the catalog manager, you can process the potential signatures and link them to new or existing products.

**Note:** Agent functions differ on i5/OS computers. Only IBM products that have been instrumented for license tracking and J2EE applications can be monitored. No scan is needed to identify which products need to be monitored.

#### **Tivoli License Compliance Manager runtime server**

Each Tivoli License Compliance Manager installation must have at least one runtime server. The runtime server runs on WebSphere Application Server. Each runtime server provides the following facilities:

## Physical architecture

- A DB2 repository that stores information downloaded from the administration server to support agent monitoring tasks and information about products uploaded from agents. Information about products to be monitored and schedules for installed software scans is obtained from the administration server and sent to the agents at regular, configurable intervals. Information collected by agents about software installed and in use on monitored systems is uploaded from agents and sent to the administration server at regular, configurable intervals.
- Generation of e-mails to notify administrators about relevant events that have occurred on the server or its agents.
- A command-line interface that you can use to perform system management and problem determination tasks.
- A Web page from which you can deploy the agents to computers that are to be monitored.

### **Tivoli License Compliance Manager administration server**

Each Tivoli License Compliance Manager installation has a single administration server. The administration server runs on WebSphere Application Server. The administration server provides the following facilities:

- A DB2 repository of product, license agreement, license use, installed software, and organization information.
- A Web user interface from which registered users can perform license management and administration tasks and to produce historical reports of license use and inventory information over time.
- A command-line interface that you can use to import electronic entitlements, manage complex products, import data, and perform system management and problem determination tasks.
- Generation of e-mails to notify administrators about relevant events that have occurred. Users of the Web user interface have the option to receive notifications about events that are relevant to their roles.
- The capability to reconcile license information defined on the Web user interface to the software use information received from agents.

Tivoli License Compliance Manager provides a flexible structure that can be adapted for large and small installations. Figure 1 on page 9 shows the three-tiered relationship between the physical components, which is maintained in all possible implementations, and the functions of each component. It also shows the primary user interfaces.

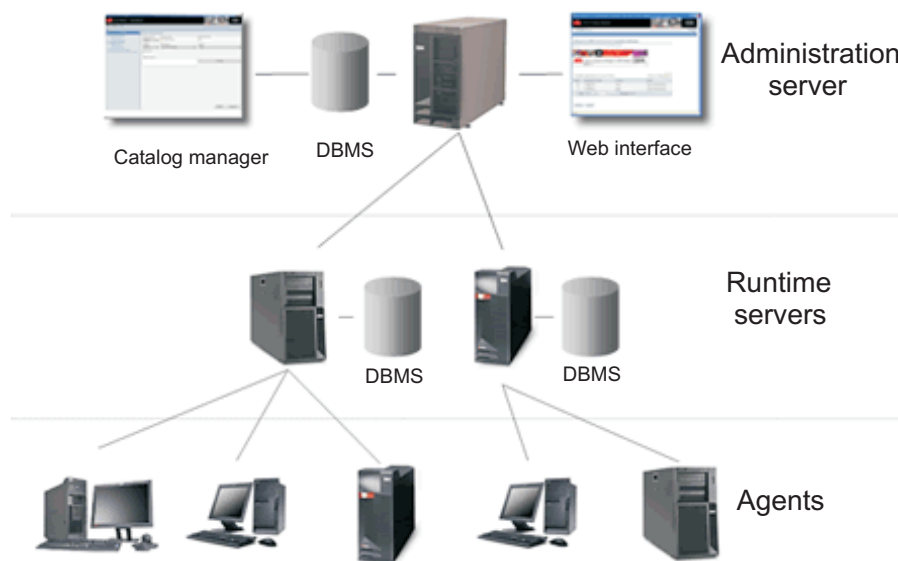


Figure 1. Three-tiered topology of Tivoli License Compliance Manager components

Information is passed between the three components at intervals, the frequency of which are defined in the Tivoli License Compliance Manager configuration files. Depending on the security settings for servers and agents, information can be encrypted and transmitted using FIPS-approved cryptography algorithms and modules, and both server and client authentication might be required.

It is at the runtime server level that an implementation can be expanded to meet the needs of larger enterprises. You can install a runtime server on each of several computers and allocate monitored computers to each server.

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## Supported platforms

This section provides a summary of the platforms on which components can be installed, as follows:

- “Platforms for servers and databases”
- “Platforms for agents” on page 10

For detailed information about required modification levels for each platform, see *IBM Tivoli License Compliance Manager: Planning, Installation, and Configuration*, SC32-1431.

### Platforms for servers and databases

You can install Tivoli License Compliance Manager servers and databases on the following platforms:

- AIX® 5.3
- AIX 5.2
- HP-UX 11i
- Red Hat Enterprise Linux 4.0
- Red Hat Enterprise Linux 3.0
- Solaris 10
- Solaris 9
- SUSE Linux 10
- SUSE Linux 9
- Windows Server 2003

### Platforms for agents

The Tivoli License Compliance Manager agent can monitor products on the following platforms:

- AIX 5.3
- AIX 5.2
- HP-UX 11i
- i5/OS V5R4
- i5/OS V5R3
- i5/OS V5R2
- Red Hat Enterprise Linux 4.0
- Red Hat Enterprise Linux 3.0
- Solaris 10
- Solaris 9
- SUSE Linux Enterprise Server 10
- SUSE Linux Enterprise Server 9
- Windows Server 2003
- Windows XP Professional
- Windows Vista

---

## Defining a monitoring structure

Following installation of the administration server, you must use the tasks on the Web user interface to define a logical structure for the computers you plan to monitor, as follows:

### Organization

The organization is the highest element of the data that is stored in the administration server database. All runtime servers, divisions, licenses, and agents and all the data collected by agents are owned by an organization and cannot be shared by another organization. You must define at least one organization on the Web user interface before you create any other objects.

The administration server database stores a catalog of the products that can be monitored. The product is common to all organizations defined on the administration server.

### Divisions

Divisions are administrative units that allow you to perform operations on a group of agents. For example, installed software scans are scheduled at division level; reports can be produced by division; and licenses can be distributed to selected divisions.

A single implementation of Tivoli License Compliance Manager always has a single administration server that can support multiple organizations. Each organization has its own infrastructure and its own data. Resources, such as runtime servers, divisions, and licenses cannot be shared between organizations and reports can only include information for a single organization.

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## Implementation scenario

Figure 2 on page 11 shows the structure of an international company with sites in the U.K., Spain, and Austria. It illustrates the organization of the workstations that need to be monitored.



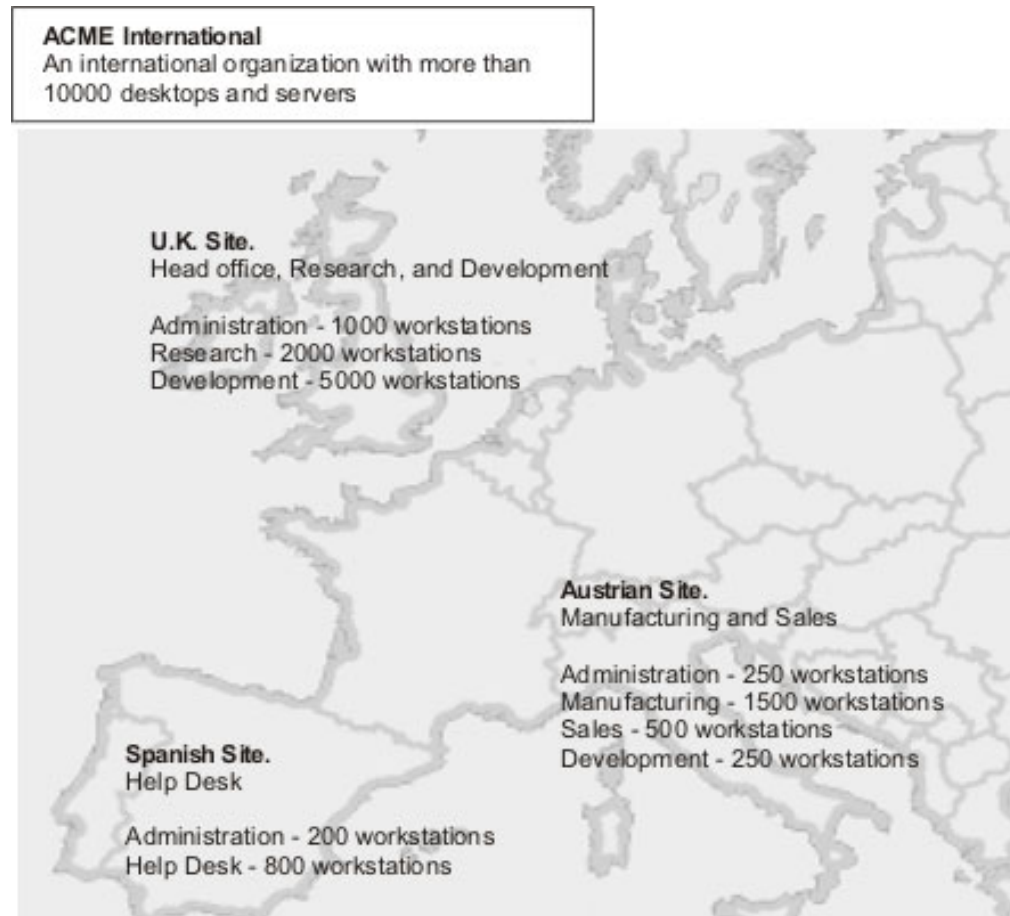


Figure 2. Monitoring needs of a large company

In this scenario, ACME International is an international organization with more than 10 000 workstations and three sites. The U.K. site has 8 000 computers between the administration, research, and development departments. The Austrian site has 2500 computers between the manufacturing, sales, development, and administration departments. The Spanish site has 1000 computers between the help desk and the administration department.

Examining the licensing needs of this company, the following is discovered:

- The Administration department purchases its software centrally, and requires all users to use the same software, regardless of their location. Both internal and external software and license audits are performed across the entire department.
- All other departments purchase their software in the country in which they use it, and have budgets for that purpose. Audits are performed in each country and cover all departments that are located there.

The decision is made to set up one organization, so that information about software use can be collected at enterprise level. The following divisions are to be created:

- Administration
- Research – U.K.
- Development – U.K.
- Development – Austria

## Defining a monitoring structure

- Manufacturing – Austria
- Sales – Austria
- Help Desk – Spain

Figure 3 shows an implementation of the Tivoli License Compliance Manager main components designed to meet the needs of this company.

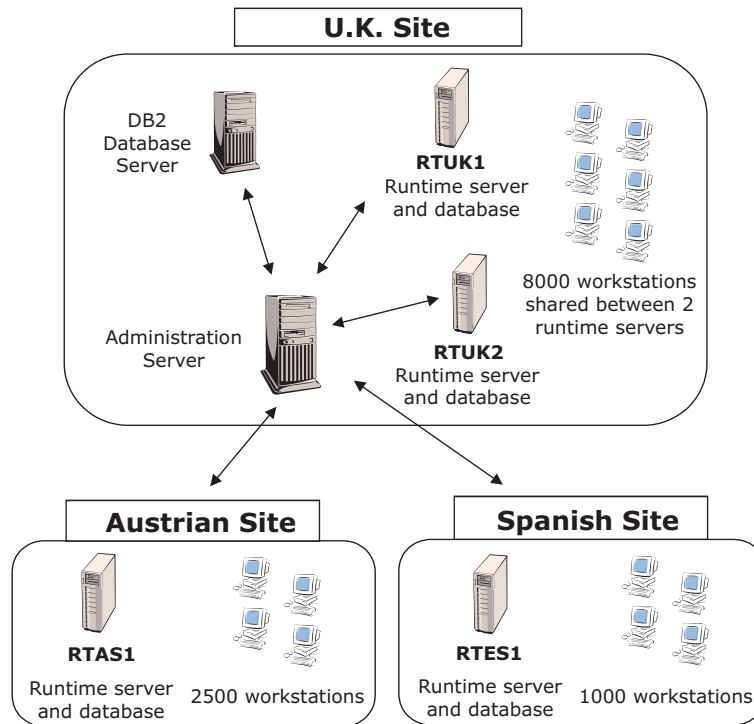


Figure 3. Tivoli License Compliance Manager structure at a large organization

The U.K. site is the largest and has the administration server and associated DB2 database and two runtime servers between which the 8000 workstations are shared. The administration server database is installed on a separate computer, which has a high-speed connection to the administration server computer. A single runtime server is installed at each of the smaller sites. In terms of capacity, a single runtime server could cover both of the small sites. However, each site has a local runtime server, because runtime servers should be local to their agents to avoid excessive network traffic and to optimize performance.

In this scenario, the three sites are being monitored as a single entity. Licenses that are applicable to all monitored workstations can be defined, and all software use and installed software information can be included in the same reports. Reports restricted by division provide the information required for all audits including the audit of the administration department which has workstations on all three sites.

If the enterprise management decide to separate the license administration and reporting of the sites, each site could be defined as a separate organization. This decision has no impact on the physical implementation: a single administration server and four runtime servers distributed as shown in Figure 3. The logical structure changes: three organizations must be defined on the administration server and each runtime server, division, and agent must be assigned to the appropriate organization. With this configuration, licenses cannot be shared across sites and reports cannot include data from different sites. Therefore, this

## Defining a monitoring structure

configuration would not support the needs of the administration department for cross-border license procurement and auditing.

## Defining a monitoring structure

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## Chapter 3. Setting up the infrastructure

This chapter provides a summary of the actions required to install or upgrade to Tivoli License Compliance Manager, version 2.2. It includes the following topics:

- “Installation and setup”
- “Upgrading from version 2.2” on page 17
- “Upgrading from Tivoli License Compliance Manager for IBM Software” on page 18

For detailed instructions on installing, configuring, and upgrading, see *IBM Tivoli License Compliance Manager: Planning, Installation, and Configuration*.

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### Installation and setup

The process of installing the elements of the Tivoli License Compliance Manager infrastructure and making it ready for use includes the following tasks:

- Installation of the administration server and its database and the runtime servers and their databases on the computers you have selected.

The server and database installation wizard can be used in interactive or silent mode. It includes the option to install the major software prerequisites, WebSphere Application Server and DB2 Universal Database™. See “Installation of prerequisites.”

- Configuring and tuning Tivoli License Compliance Manager.

These include the use of the administration server Web user interface to create the organization or organizations for which you have installed runtime servers, accounts for the users who will work on the administration server Web user interface, to register the runtime servers you have installed, and the import of the IBM catalog, which must be completed before you can use Tivoli License Compliance Manager. See “Configuration and tuning” on page 16.

- Deployment of agents on the computers and partitions you want to monitor. Tivoli License Compliance Manager provides several deployment methods which can be used on different platforms. See “Agent deployment” on page 17.
- Installation of the catalog manager.

It is not a requirement to install the catalog manager. It is used to customize the catalog of products that can be monitored and to import periodic updates of the IBM catalog to maintain accurate monitoring. Import of the IBM catalog is the only function that is strictly necessary and this task can also be done from the administration server command-line interface. The catalog manager is not available with Tivoli License Compliance Manager for IBM software.

### Installation of prerequisites

Tivoli License Compliance Manager has the following major software prerequisites:

- IBM WebSphere Application Server, which must be present on all computers where a Tivoli License Compliance Manager server is installed.
- IBM DB2 Universal Database, Enterprise Server Edition server, which must be present on all computers where a Tivoli License Compliance Manager database is installed.

The Tivoli License Compliance Manager package includes supported versions of these prerequisites for each of the supported server and database platforms, WebSphere Application Server, version 6.1 and DB2 UDB, version 8.2.

Where possible, the installation wizard provides the option to install prerequisites as part of the installation of the Tivoli License Compliance Manager server or database. This option might not be available on some platforms, because fix packs might be required and would need to be applied before the installation of the Tivoli License Compliance Manager server or database.

## Configuration and tuning

Following installation of servers and databases, you must complete the following tasks to prepare Tivoli License Compliance Manager for use.

- Download and import the IBM catalog of software products to populate the database with information about products that can be monitored. The IBM catalog is available for download from Tivoli License Compliance Manager support site:

<http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliLicenseManager.html>

- If you are using products licensed under IBM sub-capacity conditions, import an up-to-date version of the processor value units table. These values determine how processor-based license use is to be calculated. The processor value units table is available for download from the IBM License Management Support site: <http://www.ibm.com/software/lms>
- Use the administration server Web user interface to set up the Tivoli License Compliance Manager infrastructure.  
You can use Web user interface tasks to create organizations, to register the runtime servers you have installed, and to create the divisions to which monitored computers are assigned. This infrastructure must exist before you can deploy agents on the computers that you want to monitor.
- If you have decided to use secure communications, you must create, sign, and store the certificates that are to be used for authentication.

You can also perform the following optional configurations:

- Configure Tivoli License Compliance Manager to use an LDAP server for controlling access to the Web user interface tasks.  
Tivoli License Compliance Manager provides internal facilities for managing access but also supports the use of an LDAP server for authentication of user credentials and for authorization to perform groups of tasks. S
- Configure each server so that event notifications can be sent to administrators.  
Notification settings are defined in the main configuration file for each server. They include mail server, sender, and recipient properties. For the administration server, notification recipients can also be designated when user accounts are set up on the Web user interface.
- Define the frequency of communications between elements of the Tivoli License Compliance Manager infrastructure.  
You can change the default settings that control the timing of the upload and download of different types of information between the administration and runtime servers and between the runtime servers and agents.
- Configure Tivoli License Compliance Manager elements to communicate using proxy servers.

You can define proxy server settings for communications between runtime servers and the administration server and between runtime servers and agents.

See *IBM Tivoli License Compliance Manager: Administration* for instructions on using the Web user interface to set up the infrastructure. See *IBM Tivoli License Compliance Manager: Security Management* for information on the steps required if you have chosen to use secure communications. See *IBM Tivoli License Compliance Manager: Planning, Installation, and Configuration* for information about the other configuration tasks.

### Agent deployment

Tivoli License Compliance Manager provides the following methods for deploying the agent on the computers that you want to monitor:

- Pull deployment from a Web page.
- Individual local installation using a wizard.
- Remote bulk distribution using IBM Tivoli Configuration Manager.
- Remote bulk distribution using Remote Execution and Access (RXA)
- Deployment using Windows logon scripts.
- Deployment on i5/OS computers either remotely using an interactive wizard on a Windows computer or locally using the same wizard running in silent mode. Deployment can also be performed using the i5/OS cloning and Save Licensed Program functions.

All methods require you to specify the organization, runtime server, and division with which the agent or agents are to be associated. Some methods are applicable to most of the supported platforms while others are available only for a specific platform or group of platforms. See *IBM Tivoli License Compliance Manager: Planning, Installation, and Configuration* for details of the platforms supported for each method.

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## Upgrading from version 2.2

If you already have Tivoli License Compliance Manager, version 2.2 installed, you can complete the upgrade to version 2.3 in a way that allows you to continue using Tivoli License Compliance Manager during the upgrade process. If you have a version that is earlier than 2.2 installed, you must upgrade to version 2.2 before upgrading to version 2.3. Figure 4 on page 18 illustrates the way in which elements of the Tivoli License Compliance Manager infrastructure can coexist at different versions.

## Upgrading from version 2.2

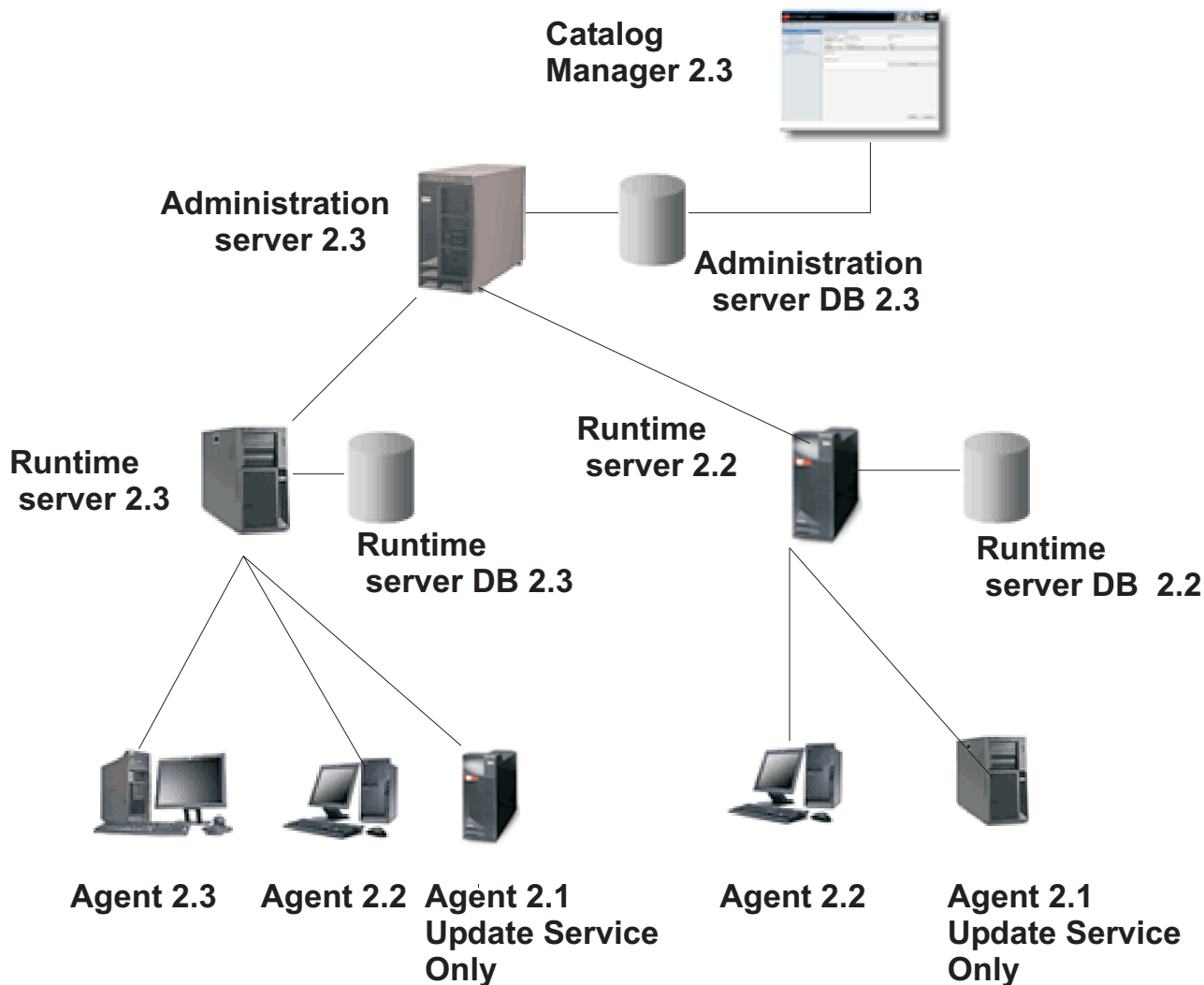


Figure 4. Coexistence of elements of the Tivoli License Compliance Manager infrastructure at different versions

Following the upgrade of the administration server and its database to version 2.3, you can maintain a mixed infrastructure for as long as you want. The 2.3 administration server can communicate with both version 2.3 and version 2.2 runtime servers, and version 2.3 runtime servers can communicate with both version 2.3 and 2.2 agents.

Data collection from version 2.1 agents is not supported. The agents can be connected to both version 2.3 and 2.2 runtime servers, but any data they collect is discarded. The only runtime server service available for version 2.1 agents is the automatic self-upgrade.

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## Upgrading from Tivoli License Compliance Manager for IBM Software

If you have installed Tivoli License Compliance Manager, version 2.3 for IBM Software and have subsequently purchased the commercial product, you must simply install and log on to the catalog manager to upgrade your software. You must then import the full version of the IBM catalog to extend your product database to include non-IBM software.



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## Chapter 4. Software product identification and licensing

This chapter describes the catalog of product information used by Tivoli License Compliance Manager to recognize products that are installed and in use in a monitored environment and to assign licenses to the products. An understanding of the structure of this information is necessary to ensure that installed software and software use information is correctly reconciled with the licenses that you define. The chapter includes the following sections:

- “The catalog of software products”
- “Licensing bundles and reference products” on page 20
- “Managing the software product catalog” on page 23

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### The catalog of software products

The catalog of software products is a knowledge base, maintained by IBM, that enables the agent to determine which software products are present and in use on a monitored computer. The catalog includes the following types of definition:

#### Product

Product definitions are held for each software product that can be detected by Tivoli License Compliance Manager. Each product is represented as a three-tier hierarchical structure of a software product, its versions, and releases. The purpose of the hierarchical structure is to provide levels at which licenses can be assigned and reports can be produced. For example you can define a license at release level to cover a single release or selected releases or you can define the license at a higher level to cover all releases in a selected version or the entire product.

#### Component

Each product release can contain one or more components. A component represents the actual physical program or part of a program that is installed in an environment. A component is always linked to at least one product at release level. It can be linked to more than one, in which case, the products that share the component are described as *complex products*. Products that do not share any components are described as *simple products*.

#### Signature

A definition of a file, registry entry, or other identifier included in the catalog that is used by the Tivoli License Compliance Manager agent to identify software products installed or in use on monitored nodes. Signatures are linked to a product component. The detection of a signature indicates the component is installed or in use on the monitored computer.

Figure 5 on page 20 represents the catalog definition for the product Draw Pro and shows how the different catalog definitions are related and how they provide a structure that supports identification of software and flexible control of the scope of licenses.

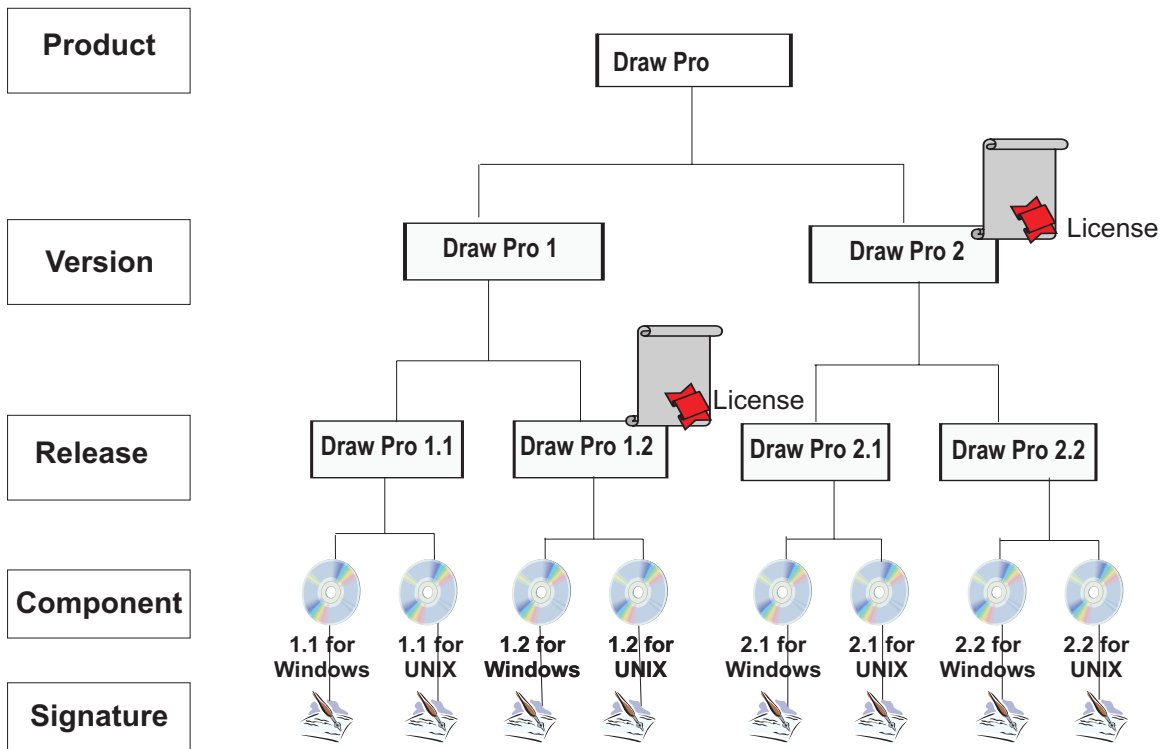


Figure 5. Catalog definition of a product

Draw Pro is available as a native program on Windows and UNIX systems. The component definitions represent physical programs and are linked to the product structure at release level. The signature definitions provide the means of identifying the programs. There are different types of signature definition, for example, files that are always present when a particular product release is installed or installation registry entries. The signature for Draw Pro 1.1 on Windows might be draw11.exe. and on UNIX draw11.bin. If the agent discovers either of these files installed or running on a computer, it can identify the product as Draw Pro 1.1.

The product-version-release structure defines the levels at which licenses can be assigned and reports produced. Figure 5 shows that a license assigned to Draw Pro 1.2 applies to both the UNIX and Windows programs for that release and a license applied to Draw Pro 2 applies to UNIX and Windows programs at versions 2.1 and 2.2. A license assigned at product level would be available to all. Using the Assign Licenses task on the Web user interface, you can select the level of the product hierarchy at which a license is to be applied. If you have an electronic entitlement, importing the entitlement automatically assigns the license to the entry in the product hierarchy.

## Licensing bundles and reference products

A *bundle* is a group of programs that are licensed as a single product. Some of the programs included in the bundle are also available as licensed products independently of the bundle.

A *reference product* is licensed under conditions where the entitlement is based on the presence or use of instances of a managed product. Products that are licensed under reference-based conditions are typically products that provide an

administrative or reporting service to the managed product. The program that is the managed product in this type of agreement could also be available as an independent licensed product.

In the catalog, components that represent programs that can be licensed as part of more than one product (for example, as independent products and as part of a bundle or a reference product) are defined as *shared components*. Any product that includes shared components is a *complex product*.

Figure 6 illustrates a structure where some of the components of a product defined in the catalog are shared with other products.

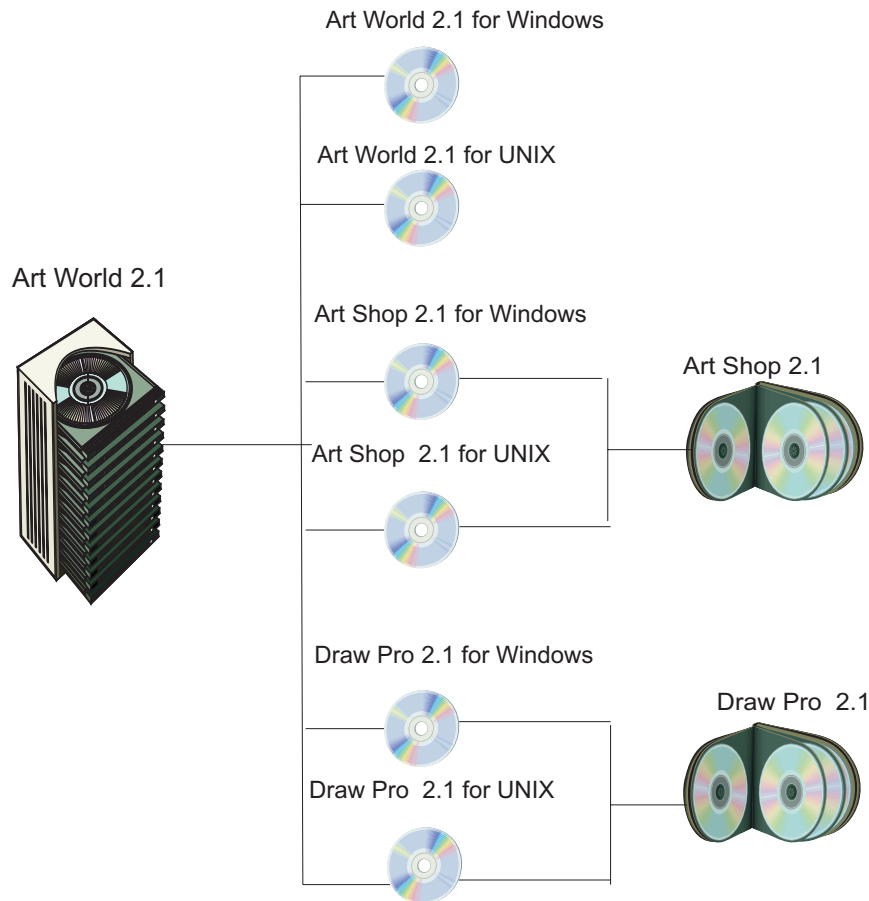


Figure 6. Structure of a bundle with shared components

Art World 2.1 is a bundle that is available on Windows and UNIX systems. It provides a desktop from which the graphics programs Art Shop, 2.1 and Draw Pro 2.1 are available as an integrated graphics package. The license conditions for Art World 2.1 cover the installation and use of Art Shop 2.1 and Draw Pro 2.1. Art Shop 2.1 and Draw Pro 2.1 are both also available as independent licensed products.

The catalog definition, as illustrated in Figure 6, identifies the installable programs for the products Art World 2.1, Art Shop 2.1, and Draw Pro 2.1 as components. The Windows and UNIX Art World components are not shared. If either is detected by an agent its use or presence can only be assigned to a license for Art World 2.1. The components of Art Shop and Draw Pro are shared. Their use or presence could be assigned to a license for Art World 2.1 or to licenses for Art Shop 2.1 and

Draw Pro 2.1 respectively. The products Art World 2.1, Art Shop 2.1, and Draw Pro 2.1 are all complex products because they all contain shared components.

When a component is shared, Tivoli License Compliance Manager might not be able to identify the product that it belongs to using only the information in the catalog. Additional information about product deployment in your environment might be required. Figure 7 illustrates this type of scenario.

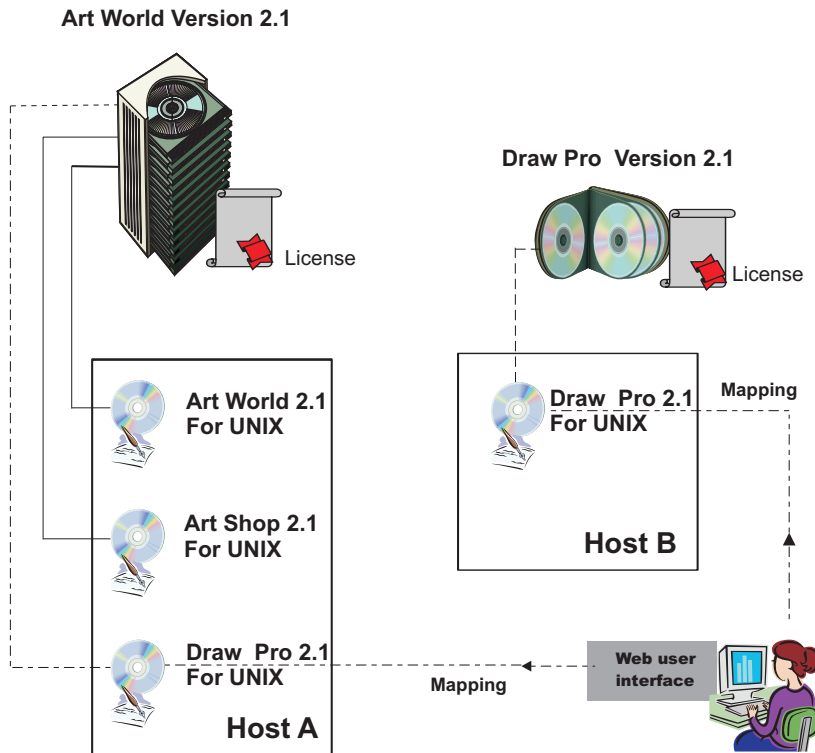


Figure 7. Shared components mapped to different licensed products

In the scenario illustrated by Figure 7, Tivoli License Compliance Manager discovers the presence of Art World 2.1 for UNIX, Art Shop 2.1 for UNIX and Draw Pro 2.1 for UNIX on host A and the presence of Draw Pro 2.1 for UNIX on Host B. The only available license for the Art World and Art Shop components is for Art World 2.1. Therefore all information collected by the agents for these two components is automatically assigned to the Art World product and license. For the two instances of the Draw Pro component there are two possible licenses: Art World 2.1 and Draw Pro 2.1.

Using tasks from the Manage Complex Product task group on the Web user interface, you must define mappings that identify the instance of Draw Pro 2.1 for UNIX installed on Host A as a component of Art World 2.1 and the instance installed on Host B as a component of Draw Pro 2.1.

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## Managing the software product catalog

Regular updates of the catalog of software products are available from the Tivoli License Compliance Manager support site. Updates include newly released products and licensing structures that have been introduced since the last catalog version. Ensure that you keep the catalog up-to-date by downloading and importing the catalog on a regular basis.

If you are using the full commercial Tivoli License Compliance Manager product or the License Extension for Tivoli Configuration Manager, you can use the catalog manager graphical user interface or command line interface to import the catalog. You can also extend the catalog by using the catalog manager graphical user interface to create custom products.

When you import the catalog in an environment where the catalog manager has been used to make changes, conflicts can occur between the IBM product definitions and the product definitions you have added. The catalog manager task for importing the catalog alerts you to conflicts and you can then decide which definition to keep. .

A catalog that includes only IBM products is provided for users of Tivoli License Compliance Manager for IBM Software. This catalog is imported using the administration server command line interface and cannot be extended except by importing updates from IBM.

Catalogs are available for download from the Tivoli License Compliance Manager support site:

<http://www-306.ibm.com/software/sysmgmt/products/support/IBMTivoliLicenseManager.html>



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## Chapter 5. Support for IBM processor-based licensing

IBM offers International Program License Agreements (IPLA) that are processor-based. This means that the license charges depend on the number and type of processors on the computer or partition where the licensed product is installed and running. IBM requires that you use Tivoli License Compliance Manager to monitor products licensed under processor-based agreements and to submit regular reports detailing license use. You can use either the full commercial product or the Tivoli License Compliance Manager for IBM Software tool that is available free to users who have acquired an IBM processor-based license.

This chapter describes how use of processor-based licenses is calculated and monitored. It includes the following topics:

- “Processor-based licensing” explains the method used by IBM to make processor-based licensing responsive to the type of processor on which the licensed product is running.
- “License types for processor-based licenses” on page 26 details the processor-based license types supported by Tivoli License Compliance Manager for reporting to IBM.
- “Partitioning and sub-capacity licenses” on page 27 provides information and examples that demonstrate how a sub-capacity entitlement is affected by the configuration of the partitioned environment.
- “Supported partitioning technologies” on page 29 provides information about the partitioning technologies that are supported by Tivoli License Compliance Manager and their hardware and software platforms.
- “Reporting to IBM” on page 30 summarizes the process for submitting license use information to IBM.

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### Processor-based licensing

IBM offers the following categories of International Program License Agreements (IPLA) that are processor-based:

- “Per-Processor licenses” on page 26
- “Processor value unit licenses” on page 26

The regular reports produced by Tivoli License Compliance Manager can only include licenses for either the per-processor or the processor value unit category, not for both. Therefore, customers who are required to submit the report must not have IBM products assigned to licenses in both categories.

A command is available from the administration server command line interface to convert per-processor licenses to processor value unit licenses so that you can obtain processor value unit licenses and report the use of all products correctly.

If you are using Tivoli License Compliance Manager for IBM Software, you will be prevented from creating processor value unit licenses until you have either cancelled or converted all your per-processor licenses. If you are using the full commercial Tivoli License Compliance Manager product, you can continue to use the per-processor license types for non-IBM products. Therefore, you will not be prevented from creating the new processor value unit license because of the existence of per-processor licenses in your environment. However, to ensure

## Processor value unit licensing

accurate reporting, you must make certain that all per-processor licenses for IBM products are converted to processor value unit licenses before you produce the next IBM report.

### Per-Processor licenses

License charges depend on the number of processors on the computer or partition where the licensed product is installed and running. If a product is licensed under a full capacity agreement, you require an entitlement for the number of processors on the computer where the product is installed and in use. If the product is licensed under a sub-capacity agreement, the number of processors for which an entitlement is required depends on the number of processors assigned to the partition where the licensed product is installed and running.

### Processor value unit licenses

Processor value unit licensing provides the means for IBM to introduce pricing structures that are responsive to both the type and number of processors on which a licensed product is installed and running. Like per-processor licensing, the entitlement can be full capacity or sub-capacity. Under the processor value unit licensing structure, you license software based on the number of value units assigned to each processor core. For example, processor type A is assigned 80 value units and processor type B is assigned 100 value units. If you license a product to run on two type A processors, you must acquire an entitlement for 160 value units. If the product is to run on two type B processors, the required entitlement is 200 value units.

The processor value units table, which assigns a number of value units to each supported processor type, is regularly updated to provide for the introduction of new processor technologies. Tivoli License Compliance Manager provides commands for importing the table and for checking the current version stored in the database. Agents retrieve information about the number and type of processor on the monitored computer or partition and the table is used to determine the level of license use in terms of processor value units.

You can download the updated table from the License Management Support site: <http://www.ibm.com/software/lms>. It is not necessary to import every update but you might need to do so when you acquire a new electronic entitlement or migrate a processor-based licensed product to a new type of processor.

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## License types for processor-based licenses

Using Tivoli License Compliance Manager, you can define licenses for which the level of license use is processor-based. The metric used to calculate the level of use of a license is determined by its license type, as follows:

### Per-processor license types

following license types base the calculation of license use on the number of processors on a computer or assigned to a partition:

#### IPLA Full Capacity License

The license use is counted as the highest number of processors on the computer during the time that the product is in use.

#### Install IPLA Full Capacity License

The license use is counted as the highest number of processors on the computer during the time that the product is installed.



### **IPLA Sub-Capacity License**

The license use is counted as the highest number of processors available for the partition on which the product is installed during the time that the product is in use.

### **Install IPLA Sub-Capacity License**

The license use is counted as the highest number of processors available for the partition on which the product is installed during the time that the product is installed.

### **Processor value unit license types**

The following license types base the calculation of license use on the number and type of processors on a computer or assigned to a partition:

### **IPLA Value Unit Full Capacity License**

The license use is counted as the highest number of processor value units on the computer during the time that the product is in use.

### **Install IPLA Value Unit Full Capacity License**

The license use is counted as the highest number of processor value units on the computer during the time that the product is installed.

### **IPLA Value Unit Sub-Capacity License**

The license use is counted as the highest number of processor value units available for the partition on which the product is installed during the time that the product is in use.

### **Install IPLA Value Unit Sub-Capacity License**

The license use is counted as the highest number of processor value units available for the partition on which the product is installed during the time that the product is installed.

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## Partitioning and sub-capacity licenses

If the product is licensed under a sub-capacity agreement, the entitlement required depends on the number and, in the case of processor value unit licenses, the type of processors assigned to the partition where the product is installed and in use. How this is calculated depends on the configuration of the partitioned environment.

A computer can be partitioned in a static or dynamic configuration, and within the dynamic configuration there are different levels of complexity, as follows:

### **Static partitioning (for example, LPAR)**

The computer is partitioned to form virtual servers, each of which is assigned at least one processor. If a product licensed under a sub-capacity agreement is installed in a static partition to which two processors are assigned, the number of processor value units required for the entitlement is calculated on the basis of two processors.

### **Dynamic partitioning (for example, DLPAR)**

A dynamic configuration of partitions provides the capability to reallocate system resources in real-time in response to a business need. A base configuration defines the default allocation of processors to partitions, but as demand changes processors could be added to or taken away from the partition. If a product licensed under a sub-capacity agreement is installed in a dynamic partition, it requires an entitlement for the highest number of

## Partitioning and sub-capacity licenses

processors that are assigned to its partition. For example, in the base configuration, the partition has two processors, and during a time of peak demand it is expanded to four processors. The number of processor value units required for the entitlement is calculated on the basis of four processors.

### Virtualized partitioning

This type of configuration is available on IBM eServer™ p5 and i5. It allows you to create *shared pools* of processors. As demand changes on the system, the processors or fractions of the processors that make up the shared pool are dynamically allocated to the partitions.

There are two classifications of partition that can obtain processing power from the shared pool: *capped* and *uncapped*. Both capped and uncapped partitions have two configurable properties that are used to determine how they are to be allocated resources from the shared pool: **Processing Value Unit (PrU)** and **Virtual Processor Value Unit (VP)**.

For a capped partition, the **PrU** represents the maximum amount of processing power that the partition can obtain from the shared pool and the **VP** represents the maximum number of physical processors from which the allocation of processing power can be made up. For licensing purposes, it is the **PrU** that is important. If a product licensed under a sub-capacity agreement is installed in a capped partition with a  $\text{PrU} = 2.0$ , the required number of processor value units for the entitlement required is based on two processors.

For an uncapped partition, the **PrU** represents initial allocation of processing power, and the **VP** represents the maximum number of processors that the partition can acquire from the shared pool, if they are available. For licensing purposes, it is the **VP** that is important. If a product licensed under a sub-capacity agreement is installed in an uncapped partition with a  $\text{VP} = 3$ , the required number of processor value units for the entitlement is based on three processors.

Where instances of the same product are installed in different partitions that access the shared pool, their **PrU** or **VP** values are summed together to give the required entitlement, but the required entitlement cannot exceed the number of processors in the shared pool. For example, if two instances of a product are installed, one in a capped partition with a  $\text{PrU} = 2.0$  and the other in an uncapped partition with a  $\text{VP} = 3$ , the required number of processor value units for the entitlement is based on five processors. However, if the size of the shared pool is four processors, the required entitlement is based on four processors.

### Micro-partitioning

Micro-partitioning is an extension of the capabilities of virtualized partitioning. It includes the shared pool, capped and uncapped partitions, and their properties, as described for the virtualized partitioning configuration on 28.

Micro-partitioning allows you to subdivide a processor into fractions as small as a hundredth when allocating processor power to partitions. However, though fractions of processors can be allocated to a partition, entitlements can only relate to entire processors, so a rounding rule must be applied.

Rounding is applied to the sum total of all processors used in partitions where the sub-capacity product is in use. For example, instances of a product licensed under a sub-capacity agreement are installed in the following partitions:

- Partition A, capped, PrU = 1.6
- Partition B, capped, PrU= 1.3
- Partition C, uncapped, VP = 3

The processor requirements (PrU for the capped partitions, VP for the uncapped partition) are summed together and then rounded up to the nearest whole number. In the example, the total processors used is 5.9, so the required entitlement is based on six processors.

However, if the shared pool only contained five processors, the maximum entitlement that could be required would be based on five processors, regardless of the parameters configured for the partitions that access the shared pool.

**Note:** The required entitlement can never be based on a higher number of processors than the total number of processors on the partitioned computer.

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## Supported partitioning technologies

Tivoli License Compliance Manager agents can be deployed in partitions, can collect the information related to the processors allocated to the partitions, and can detect the presence and use of products in the partitions. Therefore Tivoli License Compliance Manager can provide the information required to assess the level of sub-capacity entitlement that is required for a product running in a partitioned environment.

Table 1 shows the partitioning technologies that are supported by Tivoli License Compliance Manager.

*Table 1. Supported partitioning technologies*

Platform	Operating systems	Partitioning technologies
HP	HP-UX 11i on PA-Risc 2.0	nPAR vPAR
	HP-UX 11i v2 on Itanium <sup>®</sup> 2 Integrity Server	HP Integrity Virtual Machines nPAR
IBM iSeries <sup>™</sup>	i5/OS V5R4 i5/OS V5R3 i5/OS V5R2	LPAR
	Red Hat Enterprise Linux, AS, versions 4.0 Red Hat Enterprise Linux, AS, versions 3.0 SUSE Linux Enterprise Server, version 10 SUSE Linux Enterprise Server, version 9	LPAR Virtualization Engine <sup>™</sup>

## Supported partitioning technologies

Table 1. Supported partitioning technologies (continued)

Platform	Operating systems	Partitioning technologies
IBM pSeries®	AIX 5.3 AIX 5.2	LPAR DLPAR
	Red Hat Enterprise Linux, AS, versions 4.0 Red Hat Enterprise Linux, AS, versions 3.0 SUSE Linux Enterprise Server, version 10 SUSE Linux Enterprise Server, version 9	LPAR Virtualization Engine
IBM zSeries	Red Hat Enterprise Linux, AS, versions 3.0 Red Hat Enterprise Linux, AS, versions 4.0 SUSE Linux Enterprise Server, version 9	Linux on z/VM®
Intel® x86	Windows Server 2003 Standard or Enterprise Edition (32-bit) Windows XP Professional	VMware ESX Server 3.0 VMware ESX Server 2.5 VMware GSX Server 3.1 Microsoft® Virtual Server 2005 VMware Server 1.0
	Red Hat Enterprise Linux ES/AS/WS 4.0 Red Hat Enterprise Linux ES/AS/WS 3.0 with update 3 SUSE Linux Enterprise Server, version 10 SUSE Linux Enterprise Server, version 9	VMware ESX Server 3.0 VMware ESX Server 2.5 VMware GSX Server 3.1 VMware Server 1.0
Sun	Solaris, version 10	Dynamic System Domains Containers
	Solaris, version 9	Dynamic System Domains

## Reporting to IBM

Tivoli License Compliance Manager provides the means to collect the information required by IBM to support your use of products with processor-based entitlements.

Agents installed on the computers where you are running the products monitor their presence and use. The server processes reconcile this information with the processor-based licenses that you define using the tasks on the administration server Web user interface.

Quarterly reports of the collected information are required by IBM and must be produced within nine days after the start of the month following the quarter end. The Export IBM Use task on the Web user interface, extracts and collates the information relating to processor-based licenses and saves it in an XML format file. A stylesheet is provided so that you can view this file in HTML format and check its content. The Export IBM Use task also provides the option to add comments to a report that you have produced. These comments are for information only and play no role in the compliance process.

Completed reports must be submitted on the **IBM License management support** site.

Before submitting your first report, you must register with the site, providing the server ID that is generated by Tivoli License Compliance Manager to uniquely identify each administration server. The ID is displayed when you log on to the Web user interface and is included in each IBM report, enabling IBM to accurately match your reports to your registration details.

For a detailed description of the IBM reporting process see the IBM end-to-end process topic in *IBM Tivoli License Compliance Manager: Administration*.



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## Chapter 6. User Interfaces

This chapter provides information about the interfaces that are available for interacting with Tivoli License Compliance Manager and indicates the types of task that can be performed using each interface.

Tivoli License Compliance Manager provides the following user interfaces:

- “The Web user interface”
- “Catalog manager user interfaces” on page 35
- “Administration and runtime server command line” on page 36

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### The Web user interface

The Web user interface is the principle user interface for Tivoli License Compliance Manager. Interface tasks allow users to record procurement, licensing, and system management information, and to produce reports.

#### User roles and authorities

Access to the administration Web user interface requires input of a valid user ID and password pair. The tasks that are available to a user depend on the role or roles assigned to the user. Tivoli License Compliance Manager includes an internal access control system. A user logged on as the super-user **tlmroot** can create user accounts and associate each account with a profile that defines the roles assigned to the user. Alternatively, the user information defined in an LDAP server can be used for access and role assignment. The following roles are available:

##### License and software asset manager

The license and software asset manager manages software licensing from contract management through license distribution. Users with this role are responsible for interpreting the terms and conditions defined in contracts and using this information to create a Tivoli License Compliance Manager and correctly assign it to products and targets. When Tivoli License Compliance Manager is used as a tool to report use of processor-based licenses to IBM, the license and software asset manager is responsible for producing the report and adding any comments that might be needed.

##### Software inventory administrator

Software inventory administrators ensure that systems and software are up and running. They are responsible for the deployment of software products in the environment. They ensure that any complex or reference products that are installed in the environment can be accurately monitored, and that the infrastructure and agents are deployed, the solution is scalable, secure, and easy to maintain. Therefore, this role is allowed to schedule software scans, manage the agents and servers that form the Tivoli License Compliance Manager infrastructure, and define the mapping of components of complex products and reference products on monitored computers.

##### Software resources manager

The software resources manager role is available to any user who requires information to support technology decisions and funding requests. Users with this role are allowed to view reports.

## The Web user interface

### Administrator

Administrators are assigned the rights of all the other available roles, except for the Super Administrator. Therefore, they are allowed to run any task except managing organizations and accounts. It is a role designed for small-medium organizations where a single person is responsible for different activities or for service providers where all aspects of services to a specific organization is assigned to a single person.

## System management and inventory tasks

The tasks assigned to the software inventory administrator role fall into two categories:

### Tasks relating to the administration of the Tivoli License Compliance Manager infrastructure

This category includes the following tasks:

- Registration of runtime servers, providing the information that enables the administration server to recognize each runtime server when it initiates communications.
- Monitoring of deployed agents, to ensure that they remain active and able to contact their runtime servers.
- Definition of divisions as logical administrative units into which agents can be grouped.
- Scheduling of regular installed software scans for each division and checking the resulting reports.

### Tasks relating to resources and installed software in the customer environment

This category includes the following tasks:

- Supplying information about the deployment of software in the customer environment, which is needed when licensing and monitoring complex products. See “Licensing bundles and reference products” on page 20.
- Addition of comments to the IBM Use report, where appropriate.

The IBM Use report is an extract of information about software installation and use for certain products that operate within processor-based license agreements. Customers who have acquired this type of entitlement are required to submit regular reports to IBM. See Chapter 5, “Support for IBM processor-based licensing,” on page 25.

Using a task on the Web user interface, the license administrator or the software inventory administrator can produce the report and add comments to it. For example, the software inventory administrator might include comments with a report if a licensed product that normally ran on one computer had been transferred to another during regular maintenance or disaster recovery. These comments are for information only and are not taken into account when the report is submitted to IBM.

## Licensing tasks

The license administrator has responsibility for making licenses, defined by the procurement manager, available for use.

Each license must be assigned to one or more of the products defined in the Tivoli License Compliance Manager catalog. The license administrator can assign the license at any of the three levels in the product hierarchy, to cover the entire product, selected versions, or selected releases.



A license can be restricted to specified computers or groups of computers. By default, a license is available to all monitored computers within the organization. However, the license administrator can choose to restrict the license to specific computers or partitions or to groups of computers represented by the divisions into which agents are grouped.

### Reports

All users with access to the Web user interface can produce reports. Reports can be produced in real time and viewed online or you can create a request and add it to the queue for batch processing. A batch reports status task is available, allowing you to check on the progress of batch requests that have been queued. When a batch report is ready, you can download it as an XML file.

The following reports are available:

#### **Installed software snapshot**

Provides a view of the products installed on monitored computers at a specified date and time.

#### **Product use level analysis**

Provides a view of the level of use of products during a specified period. The report can be restricted to products with use above a specified level or to products with use below a specified level.

#### **Product use trend analysis**

Provides a graphical view of the trend in the use of a single selected product over time.

#### **License use trend analysis**

Provides a graphical view of the trend in the use of a single selected license over time.

#### **License compliance**

Provides a view of the license use situation at a specified time. The report shows the quantity available and percentage used for each license at the specified time. It also provides a high water mark value, indicating the highest level of use during a selected period leading up to the specified time. You can identify out of compliance situations and under-use of licenses.

#### **Unlicensed use**

Provides a view of the products that were used at a specified time for which no valid license was available.

All reports can be produced online or in batch mode.

---

## Catalog manager user interfaces

The catalog manager is a tool that you can use to expand and make changes to the list of products that can be monitored. Using the catalog manager, you can perform the following tasks:

- Import an updated IBM catalog.
- Integrate potential signatures that have been discovered by the agent.

A potential signature represents an entity that could be used to monitor software use, for example an executable file, that is discovered by the agent but is not linked to any product in the catalog. You can link a potential signature to an existing product or create a new product.

## Catalog manager user interfaces

- Create new product structures. For example, you can add your own inhouse software to the catalog.

Detailed instructions on how to use the catalog manager are given in *IBM Tivoli License Compliance Manager: Catalog Management*.

---

## Administration and runtime server command line

The Tivoli License Compliance Manager server command line interface includes the following types of command:

- Utilities for server administration activities (start, stop, backup, restore).
- Utilities for changing the passwords used during inter-component communication.
- Problem determination commands.
- Commands that access and update the administration server database.
- Commands that create and manipulate security certificate information.

---

## Appendix. Support information

If you have a problem with your IBM software, you want to resolve it quickly. This section describes the following options for obtaining support for IBM software products:

- “Using IBM Support Assistant”
- “Obtaining fixes”
- “Receiving weekly support updates” on page 38
- “Contacting IBM Software Support” on page 38

---

### Using IBM Support Assistant

The IBM Support Assistant is a free, stand-alone application that you can install on any workstation. You can then enhance the application by installing product-specific plug-in modules for the IBM products you use.

The IBM Support Assistant saves you time searching product, support, and educational resources.

The product-specific plug-in modules provide you with the following resources:

- Support links
- Education links

For more information, see the IBM Support Assistant Web site at <http://www.ibm.com/software/support/isa/>.

If your product does not use IBM Support Assistant, use the links to support topics in your information center. In the navigation frame, check the links for resources listed in the **ibm.com and related resources** section where you can search the following resources:

- Support and assistance (includes search capability of IBM technotes and IBM downloads for interim fixes and workarounds)
- Training and certification
- IBM developerWorks
- IBM Redbooks
- General product information

If you cannot find the solution to your problem in the information center, search the following Internet resources for the latest information that might help you resolve your problem:

- Forums and newsgroups
- Google.com

---

### Obtaining fixes

A product fix might be available to resolve your problem. To determine what fixes are available for your IBM software product, follow these steps:

1. Go to the IBM Support & download Web page at <http://www.ibm.com/support/us/>.

2. Click **Downloads and drivers** in the **Support & downloads** section.
3. Select one software category from the **Category** list.
4. Select one product from the **Sub-category** list.
5. Type more search terms in the **Search within results** if you want to refine your search.
6. Click **Search**.
7. From the list of downloads returned by your search, click the name of a fix to read the description of the fix and to optionally download the fix.

For more information about the types of fixes that are available, see the *IBM Software Support Handbook* at <http://techsupport.services.ibm.com/guides/handbook.html>

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## Receiving weekly support updates

To receive weekly e-mail notifications about fixes and other news about IBM products, follow these steps:

1. Go to the IBM Software Support Web site at [www.ibm.com/software/support](http://www.ibm.com/software/support).
2. Click **My support** in the upper right corner of the page.
3. If you have already registered for **My support**, sign in and skip to the next step. If you have not registered, click **register now**. Complete the registration form using your e-mail address as your IBM ID and click **Submit**.
4. Click **Edit profile**.
5. In the **Products** list, select **Software**. A second list is displayed.
6. In the second list, select a product segment, for example, **Application servers**. A third list is displayed.
7. In the third list, select a product sub-segment, for example, **Distributed Application & Web Servers**. A list of applicable products is displayed.
8. Select the products for which you want to receive updates, for example, **IBM HTTP Server** and **WebSphere Application Server**.
9. Click **Add products**.
10. After selecting all products that are of interest to you, click **Subscribe to email** on the **Edit profile** tab.
11. Select **Please send these documents by weekly email**.
12. Update your e-mail address as needed.
13. In the **Documents** list, select **Software**.
14. Select the types of documents that you want to receive information about.
15. Click **Update**.

If you experience problems with the **My support** feature, you can obtain help in one of the following ways:

### Online

Send an e-mail message to [erchelp@ca.ibm.com](mailto:erchelp@ca.ibm.com), describing your problem.

### By phone

Call 1-800-IBM-4You (1-800-426-4968).

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## Contacting IBM Software Support

IBM Software Support provides assistance with product defects.

Before contacting IBM Software Support, your company must have an active IBM software maintenance contract, and you must be authorized to submit problems to IBM. The type of software maintenance contract that you need depends on the type of product you have:

- For IBM distributed software products (including, but not limited to, Tivoli, Lotus®, Rational® products, and DB2 and WebSphere products that run on Windows or UNIX operating systems), enroll in Passport Advantage® in one of the following ways:
  - **Online:** Go to the Passport Advantage Web site at  
[www.lotus.com/services/passport.nsf/WebDocs/Passport\\_Advantage\\_Home](http://www.lotus.com/services/passport.nsf/WebDocs/Passport_Advantage_Home)  
 and click **How to Enroll**.
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- For customers with Subscription and Support (S & S) contracts, go to the Software Service Request Web site at <https://techsupport.services.ibm.com/ssr/login>
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If you are not sure what type of software maintenance contract you need, call 1-800-IBMSERV (1-800-426-7378) in the United States or, from other countries, go to the contacts page of the IBM Software Support Handbook on the Web ([techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html)) and click the name of your geographic region for phone numbers of people who provide support for your location.

To contact IBM Software Support, follow these steps:

1. “Determine the business impact of your problem”
2. “Describe your problem and gather background information” on page 40
3. “Submitting problems” on page 40

## Determine the business impact of your problem

When you report a problem to IBM, you are asked to supply a severity level. Therefore, you need to understand and assess the business impact of the problem you are reporting. Use the following criteria:

<b>Severity 1</b>	<b>Critical</b> business impact: You are unable to use the program, resulting in a critical impact on operations. This condition requires an immediate solution.
<b>Severity 2</b>	<b>Significant</b> business impact: The program is usable but is severely limited.
<b>Severity 3</b>	<b>Some</b> business impact: The program is usable with less significant features (not critical to operations) unavailable.

<b>Severity 4</b>	<b>Minimal</b> business impact: The problem causes little impact on operations, or a reasonable circumvention to the problem has been implemented.
-------------------	--

## Describe your problem and gather background information

When explaining a problem to IBM, be as specific as possible. Include all relevant background information so that IBM Software Support specialists can help you solve the problem efficiently. To save time, know the answers to these questions:

- What software versions were you running when the problem occurred?
- Do you have logs, traces, and messages that are related to the problem symptoms? IBM Software Support is likely to ask for this information.
- Can you re-create the problem? If so, what steps were performed to re-create the problem?
- Did you make any changes to the system? For example, did you make changes to the hardware, operating system, networking software, and so on?
- Are you currently using a workaround for the problem? If so, be prepared to explain the workaround when you report the problem.

The problem determination toolkit includes commands for assembling problem determination information for all product components. For more information see *IBM Tivoli License Compliance Manager: Problem Determination*.

## Submitting problems

You can submit your problem to IBM Software Support in one of two ways:

### Online

Click **Report problems** on the IBM Software Support site at <http://www.ibm.com/software/support/probsub.html>. Type your information into the appropriate problem submission form.

### By phone

For the phone number to call in your country, go to the contacts page of the *IBM Software Support Handbook* at [techsupport.services.ibm.com/guides/contacts.html](http://techsupport.services.ibm.com/guides/contacts.html) and click the name of your geographic region.

If the problem you submit is for a software defect or for missing or inaccurate documentation, IBM Software Support creates an Authorized Program Analysis Report (APAR). The APAR describes the problem in detail. Whenever possible, IBM Software Support provides a workaround for you to implement until the APAR is resolved and a fix is delivered. IBM publishes resolved APARs on the IBM product support Web pages daily, so that other users who experience the same problem can benefit from the same resolutions.

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## Glossary

### A

**account.** *See* administration account.

**administration account.** The record of a user of the Web UI that is stored in the database. An administration account defines the identification details of the user. Each account must have at least one profile, which defines the role and privacy policy of the user when working with a specific organization.

**administration server.** A component that performs the following tasks:

- Maintains a database of product, license, organization, application user, and infrastructure information
- Provides a Web UI where administrators can define and update the infrastructure and license rules for their organizations and produce historical reports

**administration server database.** A DB2 database associated with the administration server. This database stores the information about organizations, monitoring infrastructure, and license entitlement that are defined on the administration server, and also the historic inventory and software usage information that is used in the historical reports available on the administration server Web UI.

**administrator.** A role that can perform all Web UI tasks with the exception of Manage Organizations and Manage Access.

**agent.** A component that performs the following functions on the node:

- Performs regular software scans and forwards the results to the runtime server
- Identifies which monitored applications are active and communicates to the runtime server so that a license can be assigned or released by the administration server

**application user.** A user who can start applications on nodes. Details of application users are maintained to allow licenses to be restricted to specified users.

### C

**catalog.** The central repository of product information and related signatures that contains entries for software components that can be monitored.

**complex product.** A software product that includes at least one component that is shared with another software product.

**component.** (1) A part of at least one software product that is identified by its own signature in the catalog. (2) A part of the Tivoli License Compliance Manager infrastructure, such as a server, an agent, or a database.

### D

**distribution quota.** A portion of the total license quantity that is distributed to specified targets or users.

**division.** An administrative grouping of agents in Tivoli License Compliance Manager. A division is used to group agents so that they can be selected as a group, for example when scheduling software scans or specifying target distribution rules.

### E

**electronic entitlement.** An XML file, provided by IBM with a software product, that describes the terms and conditions under which the product is licensed. The electronic entitlement simplifies the process of creating a license for the product in Tivoli License Compliance Manager.

**event.** An occurrence that causes creation of an entry in the event log, and possibly a notification to be generated and sent to designated users.

### H

**high-water mark.** The maximum concurrent license usage for a product since the high-water mark was last reset.

### I

**instrumented product.** A software product that relies on APIs, embedded in its code, to communicate license requests and license releases to the agent.

### L

**license and software asset manager.** A role that can use the tasks in the Manage Procurement task group, assign licenses to products, distribute licenses to targets and users, define the monitoring settings of products, and produce reports.

**license type.** An attribute of a license that identifies the set of rules that are applied when the license use is calculated.

### M

**metering.** A process by which software use is measured and recorded. The data recorded (for example, number of sessions, number of concurrent sessions, duration of sessions, capacity used, node ID, user ID) may be used by licensees to assess license requirements, or by software vendors to verify compliance or to make billing calculations.

### N

**node.** A computer in the network that can be monitored by Tivoli License Compliance Manager when an agent is deployed on it.

**notification.** An e-mail sent to a designated user in response to a license management or internal event.

### O

**organization.** An organization whose license management is controlled by Tivoli License Compliance Manager. Each organization is the owner of a set of the Tivoli License Compliance Manager components, including runtime servers, divisions, agents, and application users.

### P

**potential signature.** In license management, a set of identifying information for an application that is in use on at least one node. The identifying information was collected by the agent and could be used to create a use monitoring signature.

**privacy policy.** A setting that is part of the profile of a user of the administration server Web UI. The privacy policy determines whether details related to installed software information should be included in reports produced by the user.

**product monitoring.** A setting that enables or disables the collection of software use information for a product or group of products.

**profile.** Settings associated with an administration account that determine the role and privacy settings to be applied to a user of the Web UI on the administration server. Because the administration server can manage multiple organizations, each account can have multiple profiles, each one defining settings related to a different organization.

### R

**role.** A job function defined in the profile that identifies the tasks that a user can perform and the resources to which a user has access.

**runtime server.** A component that performs the following functions:

- Compiles inventory information about nodes that it receives from its agents and forwards the information to the administration server
- Provides a Web UI for the deployment of agents

### S

**signature.** A definition of a file, registry entry, or other identifier included in the catalog that enables Tivoli License Compliance Manager to identify a product that is installed or in use on nodes.

**software recognition signature.** A signature, linked to a software component, that enables the agent to identify a product that is installed on a node.

**software resources manager.** A role that can produce reports.

**software inventory administrator.** A role that can create and manage the monitoring infrastructure of servers, agents, divisions, nodes, and application users, using tasks in the Manage Resources and Manage Components task groups.

### T

**target.** Any part of a license management infrastructure that can have exclusive use of a license. A target can be a division, a node, or an agent, depending on how the target distribution parameters for the license are defined.

**target distribution parameters.** Rules associated with a license that limit the availability of the license to selected targets.

**target type.** The property of a license that specifies where the license is available in the organization's environment.

**threshold.** In license management, a percentage of the licenses available; if more than this percentage of licenses for a product is in use, notifications about the level of use are generated.

### U

**user.** *See* application user.

**use monitoring signature.** A signature, linked to a software component, that enables the agent to identify a product that is in use on a node.

**user distribution parameters.** Rules associated with a license that limit the availability of the license to selected application users. The default setting is to allow all users of applications to access the license.

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