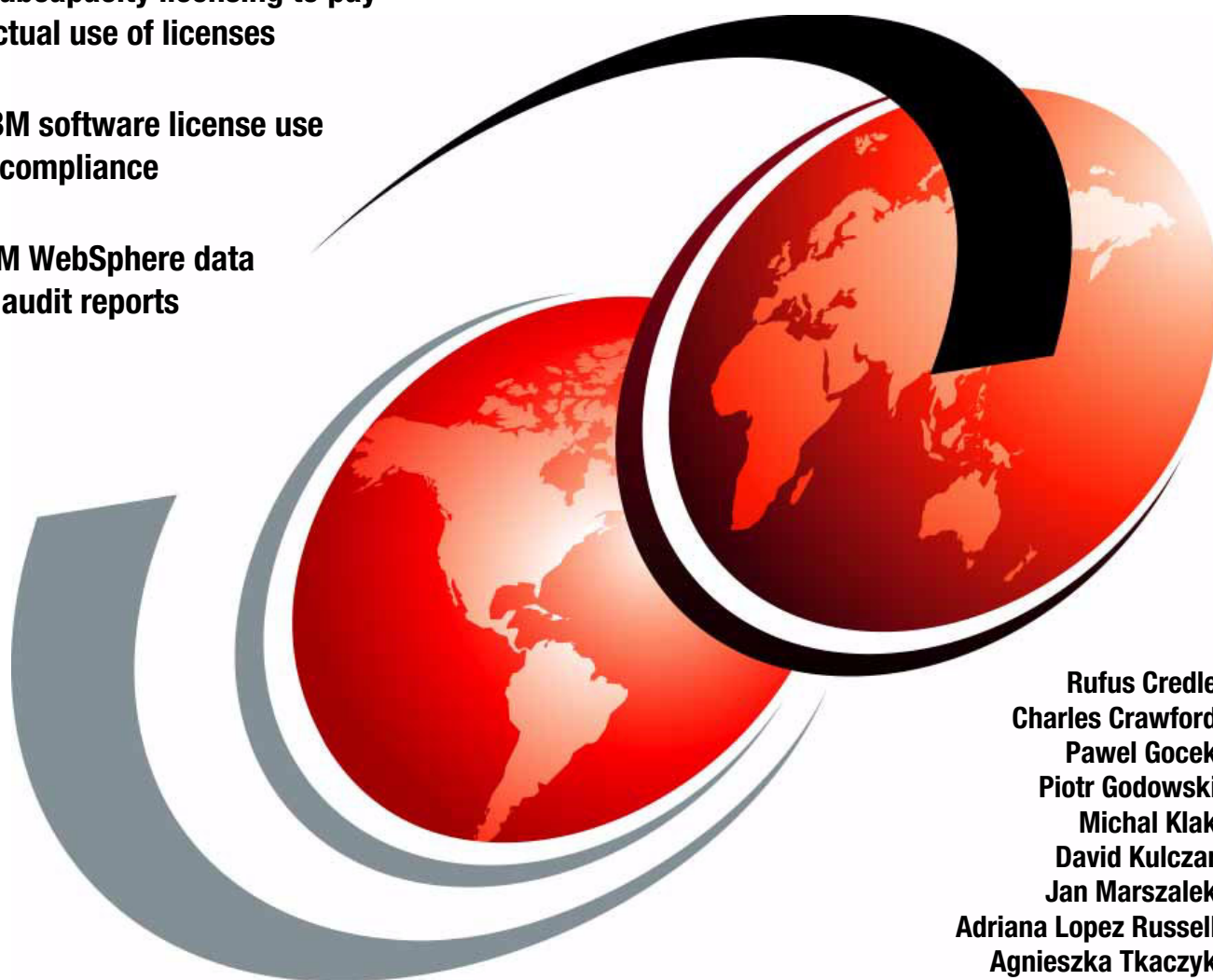


Simplify Software Audits and Cut Costs by Using the IBM License Metric Tool

Use IBM subcapacity licensing to pay only for actual use of licenses

Monitor IBM software license use to ensure compliance

Bundle IBM WebSphere data for easier audit reports



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International Technical Support Organization

**Manage WebSphere Application Server Licenses with
the IBM License Metric Tool**

September 2014

Note: Before using this information and the product it supports, read the information in “Notices” on page xi.

First Edition (September 2014)

This edition applies to IBM License Metric Tool V9.0.1.

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Contents

Preface	vii
Authors	vii
Now you can become a published author, too	x
Comments welcome	x
Stay connected to IBM Redbooks	x
Notices	xi
Trademarks	xii
Chapter 1. Introduction	1
1.1 How IBM licensing models benefit IT companies	2
1.2 Key functions of the IBM License Metric Tool	2
1.3 Overview of implementing license management	3
1.4 Deployment topology	3
1.5 IBM licensing models	6
1.5.1 Subcapacity-based licensing advantages	7
1.6 Advantages of adopting software license management	7
Chapter 2. Advantages of the subcapacity licensing model	11
2.1 The “subcapacity” concept as a licensing model	12
2.2 What the License Metric Tool does	12
2.3 Exceptions to using the License Metric Tool	14
Chapter 3. Deploying the License Metric Tool, version 9.0.1	15
3.1 Installing all components on a single computer	16
3.1.1 Download the installer	16
3.1.2 Optional: Create the Endpoint Manager license file	16
3.1.3 Install all components	17
3.2 Installing the components separately	20
3.2.1 Install IBM Endpoint Manager	20
3.2.2 Subscribe to the License Metric Tool action site	21
3.2.3 Download the License Metric Tool installer	23
3.2.4 Install the DB2 database for License Metric Tool	23
3.2.5 Install the License Metric Tool	24
3.2.6 Configure connections after the installation	25
3.3 Running the initial import	26
3.4 Installing Endpoint Manager clients	26
3.5 Uninstalling	27
3.5.1 Uninstall the License Metric Tool server	27
3.5.2 Uninstall the DB2 database	28
3.5.3 Uninstall the Endpoint Manager server	28
Chapter 4. Configuring the License Metric Tool, version 9.0.1	29
4.1 Setting up a proxy exception list	30
4.2 Managing VM managers	30
4.2.1 Centralized approach to virtual machine management	30
4.2.2 Distributed approach to virtual machine management	31
4.3 Setting up scans	35
4.3.1 Configure scans manually	35

4.3.2	Schedule scan frequency	35
4.4	Uploading the PVU table	37
4.5	Updating the IBM Software Catalog	37
4.5.1	Download the latest catalog	37
4.5.2	Upload the new catalog to the License Metric Tool	38
4.6	Uploading part numbers	38
4.6.1	Prepare the part numbers file	38
4.6.2	Upload the part numbers file	39
4.7	Scheduling data imports	39
Chapter 5.	Discovering WebSphere Application Server components	41
5.1	Creating a software inventory with the License Metric Tool	42
5.1.1	Collecting software inventory data	42
5.1.2	IBM Software Catalog	42
5.1.3	What the License Metric Tool can and cannot discover	43
5.1.4	Software discovery coverage for WebSphere Application Server components	43
5.2	License Metric Tool inventory reports	44
5.2.1	Inventory Data report	44
5.2.2	Inventory Exploration report	45
5.2.3	Software Installations report	46
5.3	Validating accuracy of software inventory data	48
5.3.1	Reviewing software inventory discovery details	48
Chapter 6.	Using the License Metric Tool to bundle WebSphere products	49
6.1	Software bundling overview	50
6.2	Bundling review and reconciliation	51
6.2.1	Top-down approach	51
6.2.2	Bottom-up approach	52
6.3	Use case scenario	53
6.3.1	Bundling reflects the infrastructure	54
6.3.2	Bundling does not reflect infrastructure	56
6.3.3	Bundling reflects infrastructure and needs further adjustments	58
Chapter 7.	Reviewing Subcapacity Reports in the WebSphere example	61
7.1	Understanding PVU Subcapacity Reports	62
7.2	Actions necessary to prepare the audit report	62
7.3	Details of the Subcapacity Report	63
7.3.1	How PVU subcapacity pricing rules work	63
7.3.2	Sections of the report	63
7.4	What to do next	64
Chapter 8.	Comparing License Metric Tool results to a WebSphere license	65
8.1	Passport Advantage portal introduction	66
8.2	Comparing Passport Advantage portal reports to License Metric Tool reports	66
Appendix A.	Maintenance	69
A.1	Import the PVU table	70
A.1.1	How to import the updated PVU table	70
A.2	Import the latest IBM Software Catalog	70
A.2.1	How to import the updated Software Catalog	70
A.3	Installing LMT 9.x patches	71
A.3.1	Automated patch installation	71
A.3.2	Manual patch installations	72

Appendix B. Troubleshooting	75
B.1 Log collection	76
B.1.1 Server installation logs	76
B.1.2 Server logs	76
B.1.3 Import logs	77
B.2 Installation	78
B.3 Initiate Software Scan fixlet is unavailable	78
B.4 Debug fixlets	78
B.4.1 Starting the Endpoint Manager Fixlet Debugger	78
B.4.2 Using Endpoint Manager Fixlet Debugger	79
B.5 Common problems	80
B.5.1 The data import fails because the IBM DB2 transaction log is full	80
B.5.2 Data import fails because there is insufficient disk space	81
B.5.3 DB2 and License Metric Tool logs report “Connection Refused”	81
Related publications	83
Online resources	83
Help from IBM	84

Preface

In this IBM® Redpaper™ publication, you learn how to implement the IBM subcapacity licensing functions and the IBM License Metric Tool to track and manage licenses for your IBM WebSphere® Application Server instances. It also summarizes the different licensing models that IBM employs, the advantages of using software asset management for IT companies, and explains how to save money by using these the subcapacity model for WebSphere Application Server licenses.

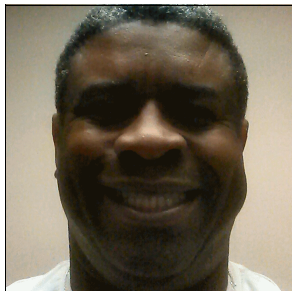
The primary purpose of the License Metric Tool is counting the processor value units (PVU) and resource value units (RVU) for subcapacity and full-capacity licensing models. It is a no-charge metric tool that many companies use as a regular software asset manager for IBM products.

This Redpaper shares installation and configuration scenarios for installing the Endpoint Manager server, the License Metric Tool server, and the IBM DB2® database on a single computer or in distributed computing infrastructures. It describes how the application server components are discovered by the License Metric Tool software, explains how to interpret the inventory reports, and provides technical details about the software detection techniques that the tool uses.

You also learn about the software bundling process and how to manage the software inventory that is detected by using the Software Classification panel. You can then use the PVU Subcapacity Reports to analyze actual use of your licenses and produce the data for IBM license audits.

Authors

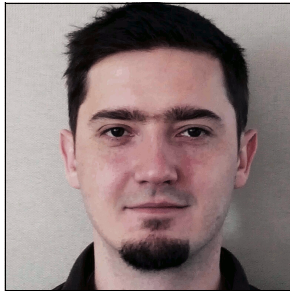
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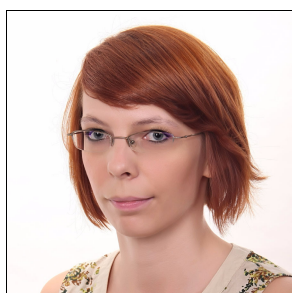
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Introduction

Virtually every aspect of managing an IT environment has significantly increased in complexity as new technologies and business shifts have altered the way that businesses organize their IT infrastructures. As companies move to more use of virtualization and subcapacity-based and cloud-based technologies to manage their infrastructure requirements, the licensing of that software has become increasingly difficult to track and manage. That's why licensing models have changed to accommodate modern IT infrastructure models.

This IBM Redpaper publication explains how IBM *subcapacity licensing* functions and how to implement the IBM License Metric Tool to track and manage licenses in your infrastructure. Using IBM WebSphere Application Server licenses as an example, we describe specific scenarios that you can replicate in your environment.

This first chapter provides an overview of license management as it relates to IBM clients who use WebSphere Application Server. It introduces the License Metric Tool, the different licensing models that IBM uses, the reason for and advantages of using this type of software management for IT companies, and explains how WebSphere Application Server takes advantage of these licensing models. We cover the following topics:

- ▶ 1.1, "How IBM licensing models benefit IT companies" on page 2
- ▶ 1.2, "Key functions of the IBM License Metric Tool" on page 2
- ▶ 1.3, "Overview of implementing license management" on page 3
- ▶ 1.4, "Deployment topology" on page 3
- ▶ 1.5, "IBM licensing models" on page 6
- ▶ 1.6, "Advantages of adopting software license management" on page 7

1.1 How IBM licensing models benefit IT companies

The IBM licensing model increases your company's flexibility and capability:

- ▶ *Flexibility* for IBM clients to run software where it best fits into their systems' design across numerous platforms and virtualization technologies. It enables them to optimize according to the factor that is most important to their businesses, whether that is cost, performance, reliability, or another priority.
- ▶ *Capability* to leverage the underlying technology to reduce costs. Virtualization is a common example, where IBM licensing enables clients to use a variety of virtualization technologies. Virtualization licensing enables your company to better manage system use and software images. You reduce costs yet provide equal or better performance.

1.2 Key functions of the IBM License Metric Tool

Using this no-charge tool gives you several advantages:

- ▶ Achieves and maintains compliance with IBM Passport Advantage® license terms
The software generates reports to help you determine whether you have the appropriate number of PVU license entitlements (full-capacity and subcapacity) for each Passport Advantage PVU-based product installed in your environment.
- ▶ Complies with license terms of Passport Advantage subcapacity offerings
These terms require that you create, verify, adjust, sign, and save License Metric Tool reports. With subcapacity licensing, you are charged for only the logical or virtual server capacity that the Passport Advantage PVU-based software uses.
- ▶ Lowers liability risks
Now you can reduce the risk of not meeting your Passport Advantage PVU-based contractual licensing conditions, along with avoiding the expense of unplanned license compliance payments.
- ▶ Tracks IBM PVU-based software inventory
This tool continuously updates the inventory of Passport Advantage PVU-based software assets that are installed on your network.
- ▶ Supports distributed server virtualization
The PVU-based software inventory reports can help you consolidate diversified workloads onto virtualized servers.
- ▶ Counts the resource value units (RVU) for subcapacity and full-capacity licensing
The tool helps you optimize the number of your software licenses to reduce over- and under-buying of licenses. It also helps you minimize the need to siphon from your IT budget for unplanned software purchases.
- ▶ Helps you track previous use and model current use of software
With that information, you can more accurately forecast future software licensing needs for your company and create better budgets for future expenditures.
Table 1-1 on page 6 explains terms and concepts, as well as licensing models.

1.3 Overview of implementing license management

As an example of real-world relevance, this guide describes how to enable comprehensive license management of WebSphere Application Server instances in an environment that is deployed on the available subcapacity of a set of systems. The examples illustrate where subcapacity licensing can be implemented and demonstrate how this is done for WebSphere Application Server software.

This Redpaper takes you through every step of the process to complete the task. This includes deployment and configuration of IBM License Metric Tool, version 9.0.1, steps to correctly discover the required WebSphere Application Server components, how to bundle the existing WebSphere products that are owned by the IBM client in the License Metric Tool, how to execute and understand the Subcapacity Reports in the WebSphere-specific use case, and how to compare the results in the reports to the client's WebSphere entitlements in the Passport Advantage portal. Helpful tips and maintenance and troubleshooting details are also provided.

After reading this, you will be able to use the tool to verify audit readiness of all WebSphere Application Server instances in your environment and have full confidence if there is an audit of those components.

1.4 Deployment topology

IBM License Metric Tool, version 9.0.1, uses the IBM Endpoint Manager asset management platform and is built on top of that framework. This enables you to take advantage of functions within the Endpoint Manager to provide software asset data to the License Metric Tool server.

Figure 1-1 on page 4 shows an overview of the common deployment topology. In this illustration, you can see how one server installation that communicates with a single agent (the Endpoint Manager client) on each target system can report on many software products for analysis. This hub-and-spoke configuration creates a single place to manage a large amount of data across your infrastructure. License-specific information (software asset information plus PVU and resource value unit, or RVU, data) is harvested for use by the License Metric Tool server.

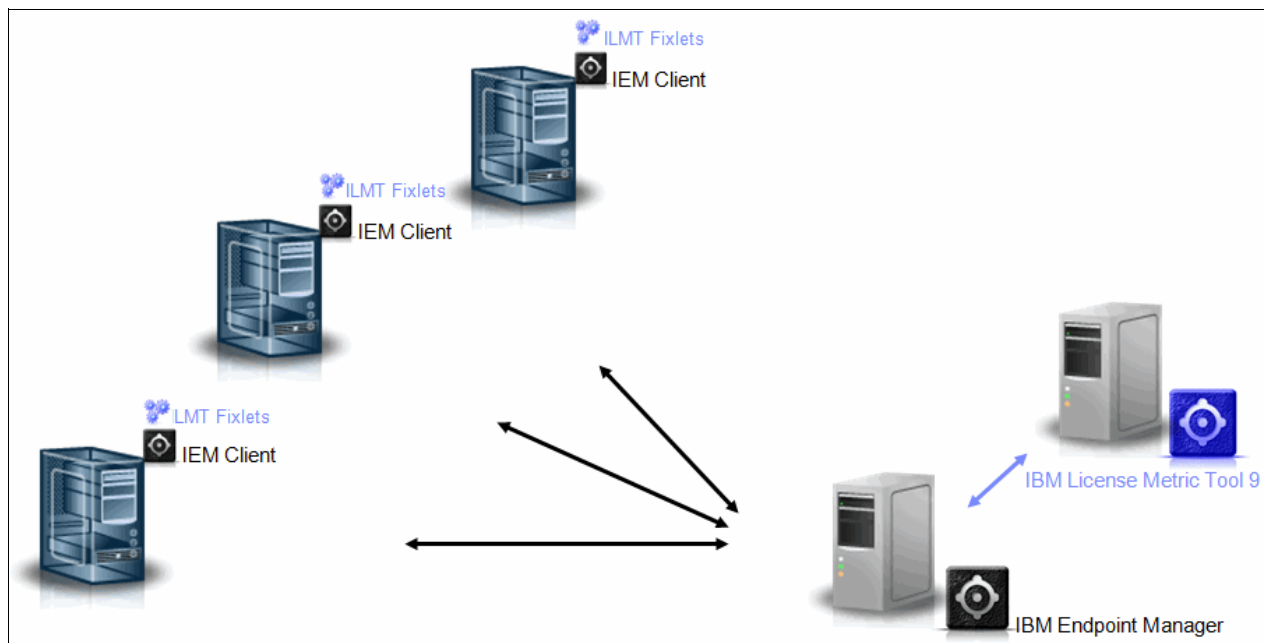


Figure 1-1 Architecture overview

Figure 1-2 on page 5 shows all of the functional elements that make up a standard configuration of the IBM License Metric Tool and how they work together. These include the following elements:

IBM Endpoint Manager	Server and database
IBM Endpoint Manager	Clients
IBM Endpoint Manager console	User interface
IBM License Metric Tool	Server and database
IBM License Metric Tool web UI	User interface

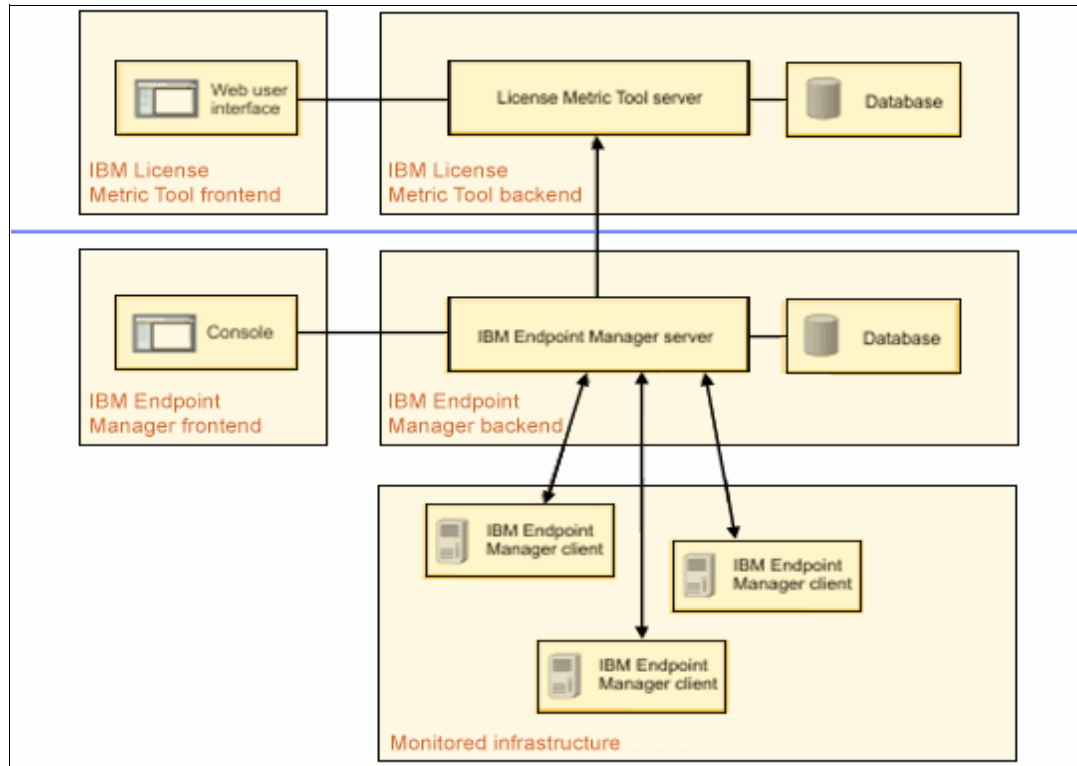


Figure 1-2 Functional elements of the IBM License Metric Tool configuration

As illustrated in the preceding images, the user controls the Endpoint Manager infrastructure through the Endpoint Manager console. Deployment of new fixes is triggered through this console, and the fixes are pushed down to the monitored infrastructure components. Results of client actions are kept in the Endpoint Manager database. The Endpoint Manager server coordinates this process.

The user controls tool-specific functions through the web user interface. The software inventory data and the PVU and RVU information are pulled from the Endpoint Manager server and stored in the License Metric Tool database and the License Metric Tool server coordinates the work effort related to that information.

Data that the License Metric Tool needs is imported from the Endpoint Manager and the License Metric Tool databases on a defined schedule (default is once daily). This process is called *extract, transform, and load*, or *ETL* for short. This ETL update can also be requested on demand through the License Metric Tool web UI. This and other configuration options are available from the management section of the user interface.

1.5 IBM licensing models

IBM employs many different licensing models to provide the flexibility that enables clients to purchase software based on their use patterns. The “Learn about Software licensing” web page describes the specific types of licenses offered by IBM.

http://www.ibm.com/software/passportadvantage/about_software_licensing.html

Table 1-1 lists several of the licensing models.

Table 1-1 Licensing model examples

License metric	Synopsis
User-based licensing	
Authorized user	Counts the number of unique users who have access to the software program.
Floating user	For each installation of the software, counts the number of simultaneous users who have access to that installation and add those totals together.
Concurrent user	Counts maximum number of users who simultaneously access the software.
User value unit (UVU)	Counts the number of users who have access to the software and converts that number to the required number of UVU entitlements. See the program-specific UVU table in the License Information document: http://ibm.co/1C0UnIt
Capacity-based licensing	
Processor value units (PVU)	Counts the PVUs for each activated processor core that is available to the software, according to processor technology. See the PVU table for the PVU values that are required for each type of processor technology: http://ibm.co/1ozZNwn
Virtual server	Counts the number of virtual computers that are made available to the software by partitioning physical servers.
Installations (instances)	Counts the number of copies of the software that are installed on physical and virtual disks.
Other licensing	
Client device	Counts the number of client devices that are either managed by the software or are devices on which the software is installed.
Resource value units (RVU)	Counts the number of resources that are either used or managed by the software and then converts that number to the required number of RVU entitlements. See that program-specific RVU table in the License Information document.

Rather than covering the many different licensing models that IBM offers, this section focuses on the key aspects of subcapacity licensing that are relevant to using the Licensing Metric Tool.

1.5.1 Subcapacity-based licensing advantages

Subcapacity licensing lets you license a PVU-based software program for less than the full processor core capacity of the server when the software program is deployed in an eligible virtualization environment. With full-capacity licensing, clients are required to obtain PVU licenses for all activated processor cores in the server, regardless of how the software was deployed. One of the goals of this type of licensing is to allow IBM clients to pay only for the software that they use. As their companies grow and they expand to more PVUs, they can acquire additional licenses.

Subcapacity licensing is based on every physical, activated processor core in the physical server. Back when servers were one processor core sitting on top of one chip, plugged into one socket, software was licensed on a full-capacity basis by default. Licensing was basically simple. The concept of full-capacity licensing has not changed, even with the proliferation of multi-core and multi-socket servers. But with partitioning and more sophisticated server virtualization technologies that create virtual CPUs, virtual servers and partitions (virtual machines, LPARs, and so on) that can be moved or resized dynamically, there is a demand for more flexible licensing terms. IBM began subcapacity licensing in 2005. Today, IBM has the broadest support of virtualization technologies in the industry, including RISC and x86 platforms and Linux on IBM System z®.

The value of using subcapacity-based licensing seems clear, but it presents many challenges in maintaining audit readiness and accurately finding and reporting software that is deployed at a subcapacity level. The IBM License Metric Tool solves this problem and is the preferred way for IBM clients to monitor and report on their subcapacity license use. At the time of writing, we are the only vendor that provides a tool to assist clients in maintaining compliance with software licensing.

1.6 Advantages of adopting software license management

As organizations come under intense pressure to deliver continuous, superior service, it is more important than ever to have a way to tightly control software assets. Unlike tangible assets, such as hardware, software is considered intellectual property. Organizations are contractually obligated to uphold defined use rights and license agreements, which makes it even more important to manage software deployment and use effectively.

The consequences of violating these agreements go well beyond the actual dollar amount. A violation compromises SLAs, plus failure to demonstrate proper financial controls can result in internal and external audit failures, with possible fines.

However, even in the best-run organizations, it is easy to inadvertently install software on an unlicensed machine or server logical partition (LPAR). There are no warning signs that a violation is about to occur. In theory, hardcoding use limits within the software solves the problem, but in a world of 24x7 operations where backups must be available and software moved at a moment's notice, forcibly limiting use is simply not practical.

Instead, the onus of software asset management rests with the IT operations team. And with hundreds of applications running across the IT environment at any given time, keeping an accurate software inventory and determining use can be difficult, at best. A robust software

asset management practice can help simplify the process by enabling organizations to efficiently track, manage, and control software assets throughout the asset lifecycle.

Figure 1-3 illustrates the value of a comprehensive software asset management solution.

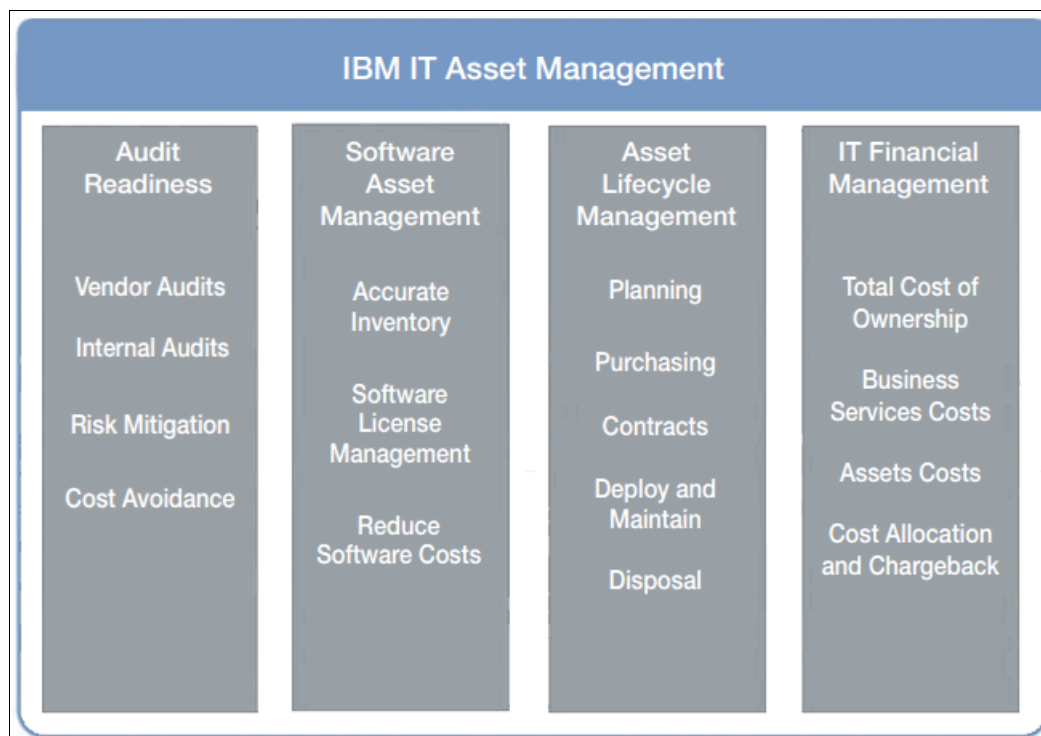


Figure 1-3 Software asset management value areas

Defined by the IT Infrastructure Library (ITIL), software asset management is the practice of integrating people, processes, and technology to allow software licenses and use to be systematically tracked, evaluated, and managed. With the right software asset management tools, organizations can help manage software costs and license compliance risk by identifying software inventory, measuring software use activity, and linking complex license entitlements to installed inventory and license use. Software asset management helps organizations continue to meet SLAs while ensuring that IT resources are available for high-value activities, such as service improvements.

Ideally, the solution is a comprehensive approach that addresses each of the following areas:

- ▶ *Inventory.* Collect licensed software products that are installed on all major platforms, distributed and mainframe.
- ▶ *Software use.* Monitor discovered software inventory and use activity information to get a complete picture of who is using what software.
- ▶ *License entitlements.* Track entitled metric information as defined in license agreements (for example, number of users, number of CPUs where software can be deployed).
- ▶ *Contract management.* Manage software license cost, renewal dates, terms and conditions, signed agreements, and vendor demographic information.
- ▶ *Software lifecycle (plan, procure, deploy, manage, retire).* Create a continuous loop of software asset management throughout all phases of the lifecycle.

In addition to proactively managing compliance risk and potential service disruptions, a comprehensive approach to software asset management can free up the IT budget by matching inventory with actual deployments to eliminate over and under licensing. For

example, an organization might discover a software program that is deployed and used but not licensed, so it is a compliance violation. Or a program might be deployed and licensed but not used, so it may be removed and the licensing cost diverted to fund other activities.

Automation plays a crucial role in software asset management. Through automation and the ability to link key information, organizations can help eliminate what otherwise takes countless hours and IT resources to manually inventory, monitor, and maintain software use. This is where tools such as the License Metric Tool can be an invaluable tool to a company's IT organization.



Advantages of the subcapacity licensing model

The primary purpose of the License Metric Tool is counting the processor value units (PVUs) and resource value units (RVUs) for *subcapacity* and *full-capacity* licensing models. However, even though this tool is available at no charge, it is more useful than that implies. This chapter explains the robustness of this metric tool, which many companies use regularly as a software asset manager for IBM products.

Note: Wherever *RVU* is mentioned in this book, it is short for *Resource Value Unit Managed Activated Processor Cores*, which are also referred to as RVU MAPC. However, there are many different RVU-like client devices, terabytes, or monthly master transactions.

This chapter includes the following sections:

- ▶ 2.1, “The “subcapacity” concept as a licensing model” on page 12
- ▶ 2.2, “What the License Metric Tool does” on page 12
- ▶ 2.3, “Exceptions to using the License Metric Tool” on page 14

2.1 The “subcapacity” concept as a licensing model

The main concept of *subcapacity* as a licensing model is straightforward: You pay only for the processor that available to your products, based on a set configuration. The idea of that configuration also seems simple. For example, if you run your software on a particular virtualization, you will be charged only for the processor cores that are assigned to that virtualization. To be more precise, you will be charged for *processor value units* (PVUs) that are assigned to that particular type of processors, multiplied by the number of processor cores that are assigned to that virtualization.

However, there are many elements that are factors in the appropriate counting of the processor value unit (PVU). This chapter explains those elements and how they affect your licenses.

One of the biggest factors is the variety of different virtualizations that are available in the market. To comprehend subcapacity rules, you must first understand those virtualizations. The License Metric Tool tool helps you keep the PVU record of your product relevant, but it is important that you understand how the subcapacity rules are applied to a particular virtualization. For more information, see the IBM web page titled “Virtualization Capacity License Counting Rules:”

<http://ibm.co/1q42AoA>

Important: Installing the License Metric Tool tool is *mandatory* for subcapacity licensing. There are a few exceptions to this obligation, but users seldom apply the exceptions. Later in this chapter, you will understand why.

2.2 What the License Metric Tool does

This section describes the work that the License Metric Tool does behind the scenes and how it simplifies many aspects of software asset management:

- Discovers software

Thanks to the IBM Software Catalog that is constantly updated, discovery of thousands of different IBM components is possible. It is possible because there are thousands of software signatures’ definitions inside to find appropriate components. All of the available assignments between components and products and connections between part numbers and products are included in the catalog. The License Metric Tool processes this data and presents it to you. Just imagine the amount of work if you have to discover and classify your software without such help.

- Monitors software changes

License Metric Tool agents perform software scans periodically and detects software changes in your environment. That is how you can see the new components that appear on your operating systems, those that have been changed, and those that were deleted.

- Monitors hardware and configuration changes

Hardware and configuration changes affect the calculation of the PVUs. Here again, License Metric Tool agents perform a special hardware scan called a *capacity scan*. You do not need to keep track of every modification in your environment’s configuration, such as activating or deactivating processor cores, adding or removing processor cores, virtualization alert settings that change potential use of processor cores by a particular virtualization, and so on. The tool does that for you.

- Indicates which machines are turned off

Another useful capability is the indication of when a particular machine was turned off, especially when the number of monitored operating systems reaches thousands. In this situation, the status of the agent changes to Disconnected. This happens when a particular computer did not connect to the server for the last 72 hours.

- Works with different operating systems

The ability to run OS-specific commands on a different operating systems is another advantage. Without the License Metric Tool, every subcapacity user must have the expertise in every OS to be able to retrieve accurate information of PVU use.

- Supports various processors

The License Metric Tool supports a large range of processor types at no cost. The tool's agents discover processors and collect data to match the processor with an adequate PVU value per core, according to PVU processor table.

- Adapts to different virtualizations

The License Metric Tool discovers many different virtualizations, fetches necessary data, interprets the information, and shows meaningful results. Without using the tool, every sub-capacity license user requires expertise in this area, including specific settings and features, such as Dynamic Motions for VMware virtualization product information.

- Implements a capping mechanism

License Metric Tool detects many virtualization settings. Subcapacity rules are clear: You must be entitled to as many PVUs that are available to or managed by the program.

Imagine the following situation: You have a four processor cores, and one core is rated 100 PVU per core. Moreover, four virtual machines are configured there. Every virtualization has two virtual cores assigned and WebSphere Application Server Network Deployment edition is installed everywhere. A simple calculation that results in eight processor cores means that you will be licensed for 800 PVUs. However, because it is not physically possible to use more than four cores at a time, the capping mechanism automatically reduces the number of cores that are licensed to four, so you get 400 PVUs. This is capping at the highest server level, but the License Metric Tool does it on different levels, too, especially in IBM AIX® virtualizations, where different virtual processor pools can be defined. Without using the License Metric Tool, such operations must be done manually.

- Calculates PVU per product

The tool calculates the PVU per product. It automatically gathers all instances of a particular product from the whole monitored infrastructure and sums up their PVU use. The result is shown as a CPU number but also as a final PVU number.

- Updates easily

The License Metric Tool provides an easy and intuitive update process of such items as the IBM Software Catalog or PVU table. You simply upload the file to the server that has the newest version of a particular item, and the server does the rest.

- Continually increases coverage

Subject matter experts from the License Metric Tool team monitor the market and certify consecutive processor types, operating systems, or virtualizations to be used by the License Metric Tool and include them in subcapacity licensing. That is why the list of eligible processors, operating systems, and virtualizations constantly grows.

As you can see, there are several tasks implemented in the License Metric Tool, which does most of its work behind the scenes. If your environment is relatively small, with a limited number of monitored endpoints, operating systems, or virtualization types, you might not realize all of these advantages when using the tool. Nonetheless, these details reveal that fulfilling subcapacity principles without the help of the License Metric Tool is difficult, time-consuming, and requires extensive knowledge of the intricacies of licensing. In contrast, this tool costs nothing and automates the task.

2.3 Exceptions to using the License Metric Tool

As mentioned earlier in this chapter, there are exceptions to the requirement to use the License Metric Tool to monitor PVU use of IBM products purchased on subcapacity rules:

- ▶ The client's enterprise has fewer than 1,000 employees and contractors, the company is not a service provider and has not contracted with a service provider to manage their Eligible Virtualization Environments.
- ▶ The total physical capacity of their enterprise servers with an Eligible Virtualization Environment is less than 1,000 PVUs, measured on a full-capacity basis but licensed using subcapacity terms.
- ▶ The client's servers with Eligible Subcapacity Products are licensed to the full capacity of the servers.

Note: License Metric Tool does not yet provide support for the Eligible Virtualization Environments.

For more information, see these sources:

- ▶ Eligible Processor Technology
<http://ibm.co/1xKTNeM>
- ▶ Eligible Virtualization Technology and Eligible Operating System Technology (PDF format)
<http://ibm.co/1rJoR5L>
- ▶ Passport Advantage Agreements
http://www.ibm.com/software/passportadvantage/pa_agreements.html



Deploying the License Metric Tool, version 9.0.1

The IBM License Metric Tool server can be installed on Red Hat Enterprise Linux 6.3 for x86 (64-bit) or a later 6.x version. It has two software prerequisites:

- ▶ IBM Endpoint Manager version 9.0 or 9.1
- ▶ IBM DB2 database, either version 10.1 with at least Fix Pack 2 or version 10.5

An Endpoint Manager client must be installed on every computer from which you want to gather information about the installed software.

Installation scenarios in this chapter describe installing the Endpoint Manager server, the License Metric Tool server, and the DB2 database on a single computer or distributing the components among two or more computers.

Before you start the installation, make sure that software and hardware requirements for all three components are fulfilled. Also, ensure that other installation considerations, such as disk space, port requirements, or firewall exceptions, are considered.

For a complete list of installation requirements and considerations, see the “Planning and preparing for the installation” topic in the License Metric Tool section of the IBM Knowledge Center (License Metric Tool 9.0.0 > Installing License Metric Tool > Planning and preparing for the installation):

<http://ibm.co/1u5I8RF>

This chapter includes the following sections:

- ▶ 3.1, “Installing all components on a single computer” on page 16
- ▶ 3.2, “Installing the components separately” on page 20
- ▶ 3.3, “Running the initial import” on page 26
- ▶ 3.4, “Installing Endpoint Manager clients” on page 26
- ▶ 3.5, “Uninstalling” on page 27

3.1 Installing all components on a single computer

In this basic scenario, Endpoint Manager, DB2, and the License Metric Tool are installed on one computer by using a single installer. This option is recommended for small environments.

If you already have the Endpoint Manager server installed, you can choose to install only the License Metric Tool server and the DB2 database. In this case, the License Metric Tool server and the DB2 database do not have to be installed on the same computer as the Endpoint Manager server. This scenario requires additional configuration after the installation.

Note: This type of installation configures the License Metric Tool, but an alternative is to install the Endpoint Manager console, which enables advanced configuration of scans. The console is supported only on Microsoft Windows. For installation instructions, see the “Installing the console” topic in the License Metric Tool section of the IBM Knowledge Center:

<http://ibm.co/1vUG111>

3.1.1 Download the installer

The installer for this type of installation can be downloaded from the Passport Advantage website. To find the installer, search for the following part number and file name that are cited in Table 3-1.

Table 3-1 License Metric Tool installer

Part number	Description	File name
CN06ZML	IBM License Metric Tool Platform Install V9.0.1 for Multiplatforms	CN06ZML.zip

3.1.2 Optional: Create the Endpoint Manager license file

To install all components on a single computer, you need a license file for IBM Endpoint Manager. If the computer on which you want to install License Metric Tool has the Internet access, you can generate the file during the installation.

If that computer does not have the Internet access, you must first generate the license file on a computer that has Internet access, and then move it to the computer where you want to install the tool. The license file can be generated on a computer that runs on 64-bit Linux or on Windows.

Create the license file on Linux

To create the license file on Linux, follow these steps:

1. From a directory where you extracted the installation files, copy the IEM_license_generator_Linux directory to a 64-bit Linux computer with Internet access.
2. Open the directory and run the **generate_license.sh** script.
3. Provide the required details such as your given name, family name, and the email address.
4. Specify the host name of the computer where you want to perform the installation. Do not change the default port number of Endpoint Manager.

5. Choose the key size and enter the password that will be used to authorize the administrative user of Endpoint Manager.

Note: During the installation, you will create the *IEMAdmin* administrative user. The password for the IEMAdmin user must be the same as the password that you specified in step 5.

6. Specify a directory where you want to save the license file. You will specify this location during the installation.
7. The license file is created in the specified directory. Copy this directory to the computer where you want to install License Metric Tool.

Create the license file on Windows

To create the license file on Windows, perform the following steps:

1. From a directory where you extracted the installation files, copy the `IEM_license_generator_Windows.zip` file to a Windows computer with the Internet access. Uncompress the file.
2. Go to the directory where you extracted the compressed file and open the `create_license_file.html` file. In the form, provide your details and then click **Submit**. The license file will be saved to your computer
3. Run the `generate_license.bat` script.
4. Specify the location of the license file that you generated in step 2.
5. Specify the host name of the computer where you want to perform the installation.
6. Specify the password that will be used to authorize the administrative user of Endpoint Manager.

Note: During the installation, you will create the IEMAdmin administrative user. The password for the IEMAdmin user must be the same as the password that you specified in step 6.

7. Specify a directory where you want to save the license file. You will specify this location during the installation.
8. Select the option to submit your request over the Internet and click **Request**.
9. To create a masthead file, click **Create**. Leave the default configuration parameters and click **OK**.
10. The license file is created in the specified directory. Copy this directory to the computer where you want to install License Metric Tool.

3.1.3 Install all components

If you want to install License Metric Tool interactively, ensure that a graphical user interface (GUI) is available and that the X server is configured on the computer where you want to perform the installation. Also, set the `DISPLAY` variable.

Otherwise, install License Metric Tool silently as explained in “Installing all components in silent mode” on page 19.

Installing all components in interactive mode

1. Extract the installation package:

```
tar xvf LMT-server-9.1-linux-x86_64.tar
```
2. Start the installation by running the following script from the directory where you extracted the installer files.

```
./setup-server-linux-x86_64.sh
```
3. When you are prompted, choose the installation type. To install Endpoint Manager, DB2, and License Metric Tool on a single computer, choose **Complete**. See Figure 3-1. If you already have Endpoint Manager installed and want to reuse it for the deployment of License Metric Tool, choose **Reuse existing IBM Endpoint Manager**.

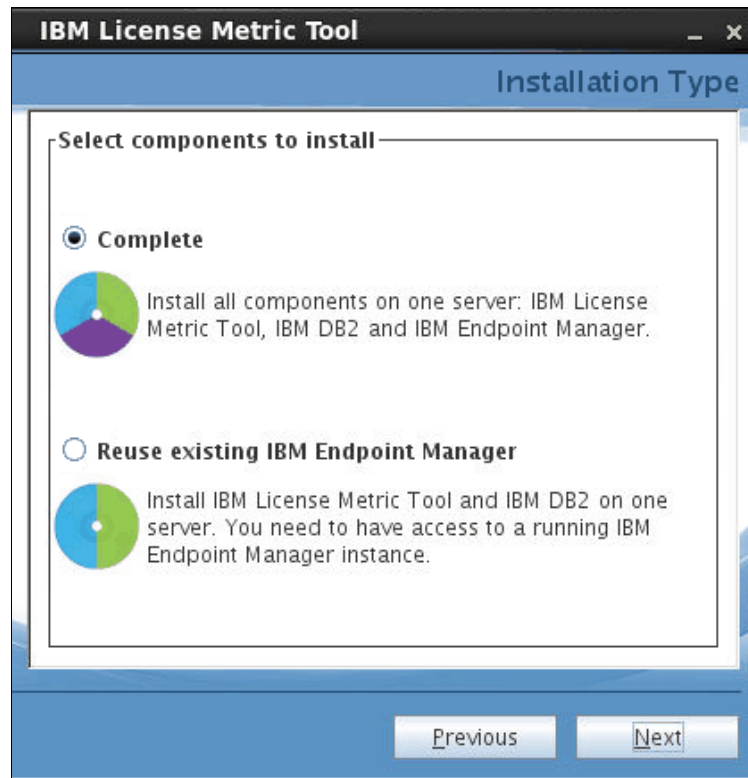


Figure 3-1 Installation options

4. Follow the instructions in the installation wizard. When you are prompted to provide the details for the Endpoint Manager license, complete the following steps, as appropriate:
 - On a computer with the Internet access:
 - Specify your personal details and the Endpoint Manager license parameters: The host name of the computer on which you are performing the installation and the port number that is to be used by Endpoint Manager.
 - Then, choose the key size to encrypt your license and specify the directory where you want to save the license.
 - On a computer without the Internet access:
 - Specify the directory in which you saved the license file that you created in section 3.1.2, "Optional: Create the Endpoint Manager license file" on page 16.
5. When the installation is finished, click **Done**.

Then, the web user interface of License Metric Tool opens.

Note: The web user interface of License Metric Tool can be accessed under the following link:

`https://hostname:port`

If you want to change the host name after the installation, you must reinstall the Endpoint Manager server and clients.

6. If you chose the option to install DB2 and the License Metric Tool only, you must configure the connection to your existing Endpoint Manager server and its database. You must also subscribe to the License Metric Tool action site. For information about subscribing, see 3.2.2, “Subscribe to the License Metric Tool action site” on page 21.

Optional: You can also connect to the Web Reports database to enable Web Reports users to access the application.

Installing all components in silent mode

If you want to install License Metric Tool silently, specify the required installation parameters in the response file. To install all components in silent mode, complete the following steps:

1. Specify the required installation parameters in the response file.
2. Extract the installation package:

```
tar xvf LMT-server-9.1-linux-x86_64.tar
```
3. Read the license agreement in the `/license/your_language.txt` file.
4. Edit the `install_response.txt` file. Specify the parameters according to the type of installation that you want to perform and whether your computer has Internet access.

Specify the following parameters regardless of the installation scenario that you choose:

- RSP_LICENSE_ACCEPTED
- RSP_ADMIN_USER_NAME
- RSP_ADMIN_PASSWORD
- RSP_INSTALL_DB2
- RSP_DB2_INST_PASSWORD
- RSP_DB2_ROOT
- RSP_INSTALL_IEM
- RSP_TLM_ROOT
- RSP_TLM_HTTPS_PORT

If you are installing all three components, also specify these parameters:

- RSP_IEM_BES_WWW_FOLDER
- RSP_IEM_WR_WWW_FOLDER
- RSP_IEM_TEM_USER_PASSWORD
- RSP_IEM_WR_WWW_PORT

Specify the following parameters according to whether your computer has Internet access:

- If your computer does not have Internet access, specify this parameter:
 - RSP_IEM_LICENSE_FILES_DIR

- If your computer has Internet access, specify these parameters:
 - RSP_IEM_FIRST_NAME
 - RSP_IEM_LAST_NAME
 - RSP_IEM_EMAIL
 - RSP_IEM_KEY_SIZE
 - RSP_IEM_LICENSE_HOSTNAME
- 5. To start the silent installation, run the following command:

```
./setup-server-linux-x86_64.sh -f response_file_path -i silent
```
- 6. When the installation finishes, open the web user interface of License Metric Tool.

Note: The web user interface of License Metric Tool can be accessed under the following link: `https://hostname:port`

If you want to change the host name after the installation, you must reinstall the Endpoint Manager server and clients.

- 7. If you chose the option to install DB2 and License Metric Tool only, you must configure the connection to your existing Endpoint Manager server and its database. You must also subscribe to the License Metric Tool action site. For information about subscribing, see 3.2.2, “Subscribe to the License Metric Tool action site” on page 21.

Optional: You can also connect to the Web Reports database to enable Web Reports users to access the application.

3.2 Installing the components separately

In this scenario, the components can be distributed among two or three computers. Typically, the Endpoint Manager server and its database (either DB2 or Microsoft SQL Server) are installed on one computer, and the License Metric Tool and its database (DB2) are installed on another computer. The License Metric Tool installer is deployed from the Endpoint Manager console.

3.2.1 Install IBM Endpoint Manager

IBM Endpoint Manager is a prerequisite for the installation of License Metric Tool. The installation packages are available on the Passport Advantage web page:

http://www.ibm.com/software/howtobuy/passportadvantage/pao_customers.htm

- 1. Download the packages that are relevant for your installation scenario.

To install the Endpoint Manager on a Microsoft Windows system, download the package listed in Table 3-2 (you must have your own SQL server installed):

Table 3-2 Endpoint Manager for a Microsoft Windows system

Part number	Description	File name
CIZ1GML	IBM Endpoint Manager Platform v9.1 for Linux and Windows without DB2 database	CIZ1GML.zip

To install IBM Endpoint Manager and DB2 on a single computer that is running on Linux, download the package in Table 3-3.

Table 3-3 Endpoint Manager and DB2 for a single computer that runs Linux

Part number	Description	File name
CIZ1HML	IBM Endpoint Manager Platform v9.1 for Linux with DB2 v10.5 database	CIZ1HML.zip

To install IBM Endpoint Manager and DB2 on separate computers running on Linux, download the packages listed in Table 3-4.

Table 3-4 Endpoint Manager and DB2 for separate computers that run Linux

Part number	Part number	File name
CIZ1GML	IBM Endpoint Manager Platform v9.1 for Linux and Windows without DB2 database	CIZ1GML.zip
CIKF2ML	DB2 Limited Use v10.5 for Linux (64-bit)	CIKF2ML.zip

2. Create the license authorization file that contains the deployment and licensing information. Go to this web page to create the license authorization file:
<https://www.ibm.com/support/docview.wss?uid=swg24036830&aid=1>
3. Install IBM Endpoint Manager. For information about the possible installation scenarios, see the Endpoint Manager Platform Installation Guide in the IBM Knowledge Center (IBM Endpoint Manager for Software Use Analysis 9.1.0 > IBM Endpoint Manager Platform > Installation Guide):
<http://ibm.co/1zTpdeE>

3.2.2 Subscribe to the License Metric Tool action site

After you install IBM Endpoint Manager, access the console and subscribe the computers in your infrastructure to the License Metric Tool action site. The site contains fixlets, tasks, and analyses that are used to perform actions related to the License Metric Tool. You can use them to download the License Metric Tool installer, configure and initiate software scans, or update the Software Catalog.

To subscribe to the License Metric Tool action site:

1. Log in to the Endpoint Manager console.
2. In the lower left corner, click **BigFix Management** (see Figure 3-2 on page 22).

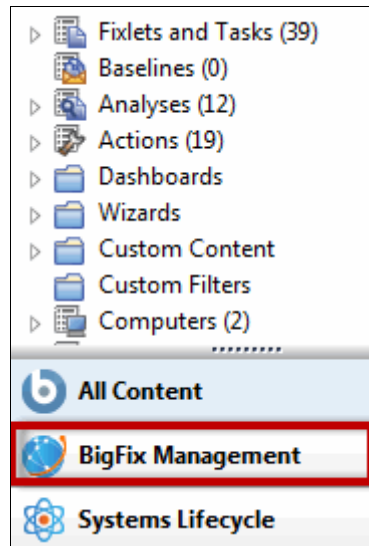


Figure 3-2 Big Fix Management tab

3. In the left navigation panel, click **License Overview**, as shown in Figure 3-3.

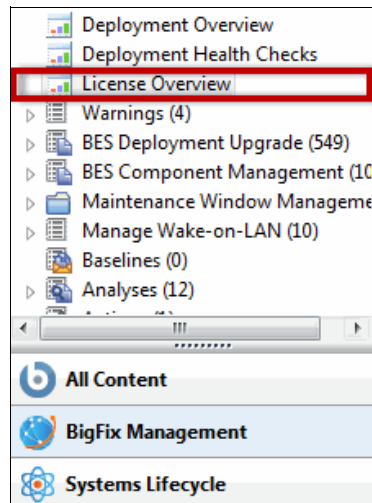


Figure 3-3 License Overview selection

4. Select the IBM License Metric Tool entry, and accept the license agreement.
5. From the list of options, enable **IBM License Reporting v9**.
6. Subscribe all of your computers to this site:
 - a. In the left navigation panel, expand **Sites** → **External Sites** and select the **IBM License Reporting v9** site.
 - b. Open the Computer Subscriptions tab shown in Figure 3-4 on page 23 and select **All computers**.

Figure 3-4 Computer Subscriptions tab

- c. To save your changes, click **Save**.

Note: If the computer where the Endpoint Manager server is installed does not have Internet access, you must use the Airgap tool to download the content of the action site. For more information, see “Downloading files in air-gapped environments” in the IBM Knowledge Center:

<http://ibm.co/111QRj1>

3.2.3 Download the License Metric Tool installer

In this installation type, you use the Endpoint Manager console to download the License Metric Tool installer to a specified computer. Before you deploy the installer, ensure that the Endpoint Manager client is installed on the computer where you want to install the License Metric Tool server. To download the installer, follow these steps:

1. Log in to the Endpoint Manager console.
2. In the navigation bar, click **Sites** → **External Sites** → **IBM License Reporting** → **Dashboards** → **License Metric Tool 9.0**.
3. Select the computer to which you want to deploy the installer, and click **Deploy Installer**.
4. When the download completes, click **Continue**.

The installer is downloaded to the `user_directory/IEMInstaller` directory in the specified computer, where `user_directory` is the directory of the user ID that was used to install the BES Client (`besc1ient.exe`).

3.2.4 Install the DB2 database for License Metric Tool

Before you proceed with the installation of License Metric Tool, you must install the DB2 database. The database can be installed on the same computer as License Metric Tool or on a separate computer. The DB2 installer can be downloaded from the Passport Advantage website. Look for the details cited in Table 3-5.

Table 3-5 License Metric Tool installer

Part number	Description	File name
CIKF2ML	DB2 Limited Use v10.5 for Linux (64-bit)	CIKF2ML.zip

For installation instructions, see the DB2 documentation in the IBM Knowledge Center for Installing DB2 10.5 for Linux, UNIX, and Windows (DB2 for Linux UNIX and Windows 10.5.0 > Database fundamentals > Installing):

<http://ibm.co/lprepEe>

After you install DB2, create an operating system user on the computer where DB2 is installed. The user is needed by the License Metric Tool to access DB2. You can use an existing user or create a dedicated one.

3.2.5 Install the License Metric Tool

After you install IBM Endpoint Manager and DB2, you can proceed with the installation of the License Metric Tool. You can choose either the *interactive* or *silent* mode.

If you want to install the License Metric Tool interactively, ensure that a GUI is available and the X server is configured on the computer where you want to perform the installation. Also, set the *DISPLAY* variable. Otherwise, install the License Metric Tool silently.

Note: If you start the installation as a non-root user, the License Metric Tool server is not registered as a system service.

Installing in interactive mode

1. Copy the installation package to a temporary directory. Run the following command to uncompress the package:

```
tar xvf LMT-server-9.1-tar.gz
```
2. Start the command-line interface (CLI), and switch to the directory with the extracted installation files.
3. Run the **setup-server-linux-x86_64.sh** script.
4. Follow the instructions on the panels and provide all necessary installation parameters.
5. When the installation is complete, click **Done** to exit the wizard.

Installing in silent mode

1. Specify the required installation parameters in the response file.
2. Copy the installation package to a temporary directory. Run the following command to uncompress the package:

```
tar xvf LMT-server-9.1-tar.gz
```
3. Start the CLI and change to the directory with the extracted installation files.
4. Read the license agreement in the `/license/your_language/license.txt` file.
5. Edit the `install_response.txt` response file and adjust it to your installation. Ensure that the `RSP_LICENSE_ACCEPTED` parameter is uncommented and set to true. If you do not accept the license, the installation fails.
6. Start the command-line interface and switch to the directory with the extracted installation files.
7. To start the installation, run the following command:

```
setup-server-linux-x86_64.sh -f response_file_path -i silent
```

3.2.6 Configure connections after the installation

After the installation is finished, you must complete the required configuration. The License Metric Tool must connect with two databases:

- ▶ Its own database, which stores information about the IBM Software Catalog and other information
- ▶ The IBM Endpoint Manager database that stores data from the computers in your infrastructure

To begin completing the configuration, open the web interface of the License Metric Tool:

`https://hostname:port`

The configuration panel is divided into steps so that you can easily move from one page to another, configuring the connections one by one. The first step is configuring the connection to the DB2 database. If your DB2 is on a separate computer, you must complete some extra steps.

Then, you create an account for the License Metric Tool administrator. When the account is created, a new page opens and you can specify connections to the Endpoint Manager database, Endpoint Manager server, and, optionally, the Web Reports database. When all of the connections are configured, you can run the initial import.

1. Configure the connection to the DB2 database.
 - a. Provide the host name and port number of the computer on which DB2 is installed, and specify the name for the database. You can choose any name that meets DB2 naming requirements.
 - b. Provide credentials of the operating system user that will be used for connecting to the database.
2. If the application and the database are on the same computer, select **The application and the database are on the same computer**, and then provide the name of the DB2 instance owner or any other user with the DB2 SYSADM authority. Click **Create**.
3. If the application and the database are on separate computers, clear the check box. You can now see new options to create the database and the database objects. Complete the following steps:
 - a. To download a script that is used to create the database, click **Download Script**.
 - b. Move the script to the computer where DB2 is installed.
 - c. Run the script on the DB2 computer. The script creates a database that can be accessed by the user that is specified in step 1b.
 - d. When the database is created, return to the computer on which you are configuring License Metric Tool.
 - e. To create database objects, such as views and tables, click **Create**.
4. Create an account for the administrator of License Metric Tool. Specify the user name and password, and then click **Create**.
5. Configure the connection to the Endpoint Manager database. The database stores information about the computers in your infrastructure and data that they discover. Specify the host, port, database name, and credentials of the user that can access the Endpoint Manager server database.
6. Configure the connection to the Endpoint Manager server. Specify the host, server API port, and credentials of the user that has the Endpoint Manager Master Operator rights.

7. Optional: Configure the connection to the Web Reports database. Specify the database type, host name, database name, and credentials of the Web Reports database user.
8. To create the connections, click **Create**.

All of the specified connections are created. A new page displays information about the initial import of data.

3.3 Running the initial import

After you finish the installation and configure the required connections, you are prompted to run the initial import. It is a process that initiates actions that are required to gather data from the computers in your infrastructure. During the initial import, these actions occur:

- ▶ The VM Manager Tool is installed on the computer where the Endpoint Manager server is installed.
- ▶ The scanner that gathers software and hardware information is installed on every relevant computer.
- ▶ After the scanner is installed, software and hardware scans are initiated on the target computers.
- ▶ The IBM Software Catalog is uploaded to the License Metric Tool database.
- ▶ Scanner catalogs are generated for every operating system and propagated to the target computers.

After the initial import finishes, information about computers in your infrastructure is displayed in the License Metric Tool. Scans that are necessary to collect software data are running on the target computers. When the scans finish, the data gathered is uploaded to the Endpoint Manager server. The data is displayed in the License Metric Tool after the next import.

3.4 Installing Endpoint Manager clients

An Endpoint Manager client must be installed on every computer that you want to monitor. The installation method depends on the operating system on which you want to install the client.

Table 3-6 lists client installation packages that are provided in the Endpoint Manager package that is available on the Passport Advantage website.

Table 3-6 Client installation packages

Operating system	Client installation packages
IBM AIX	BESAgent-9.1.1082.0.ppc64_aix61.pkg
HP-UX	BESAgent-9.1.1082.0.pa_risc_hpux1111.depot
Red Hat Linux	BESAgent-9.1.1082.0-rhe5.x86_64.rpm BESAgent-9.1.1082.0-rhe5.i686.rpm
SUSE Linux	BESAgent-9.1.1082.0-sle10.i686.rpm BESAgent-9.1.1082.0-sle9.x86_64.rpm

Operating system	Client installation packages
Oracle Solaris	BESAgent-9.1.1082.0.sparc_sol9.pkg BESAgent-9.1.1082.0.sparc_sol10.pkg BESAgent-9.1.1082.0.sparc_sol11.pkg BESAgent-9.1.1082.0.x86_sol10.pkg BESAgent-9.1.1082.0.x86_sol11.pkg
Microsoft Windows	BigFix-BES-Client-9.1.1082.0.exe

Alternatively, you can download the agent installation packages from the IBM BigFix Enterprise Suite Download Center:

<http://support.bigfix.com/bes/install/downloadbes.html>

For information about hardware requirements for the clients, see the “Hardware requirements for the client” topic in the IBM License Metric Tool 9.0 section of the IBM Knowledge Center:

<http://ibm.co/1zTFgcr>

For information about installing clients:

- For Microsoft Windows systems, see “Installing the clients” under “Installing on Windows systems” in the IBM Endpoint Manager, Version 9.1 section of the IBM Knowledge Center (IBM Endpoint Manager Platform > Installation Guide > Installing on Windows systems > Installation Steps > Step 3 - Installing the components > Installing the clients):

<http://ibm.co/1rF3kRE>

- For Linux systems, see “Installing the clients” under “Installing on Linux systems” in the IBM Knowledge Center (IBM Endpoint Manager Platform > Installation Guide > Installing on Linux systems > Installing the clients):

<http://ibm.co/1rF3wQV>

3.5 Uninstalling

You must separately uninstall the License Metric Tool server, the DB2 database, and Endpoint Manager.

3.5.1 Uninstall the License Metric Tool server

You can uninstall License Metric Tool interactively by using the uninstallation wizard or silently by using a response file. If you want to uninstall License Metric Tool interactively, ensure that a GUI is available and the X server is configured on the computer where you want to perform the installation. Also, set the *DISPLAY* variable.

If your computer cannot meet these requirements, uninstall License Metric Tool silently.

Uninstalling in interactive mode

To uninstall License Metric Tool in interactive mode:

1. Log in to the computer where the License Metric Tool server is installed.
2. Go to the `opt/IBM/LMT/Uninstall` directory and run the **uninstall.sh** script.

3. Follow the instructions in the uninstallation wizard. When the uninstallation finishes, click **Done**. The License Metric Tool server is uninstalled but the database, user logins, and passwords are preserved.

Uninstalling in silent mode

To uninstall License Metric Tool in silent mode:

1. Log in to the computer where the License Metric Tool server is installed.
2. Change to the *installation_path/Uninstall* directory and open the *uninstall_response.txt* file. Modify the uninstallation parameters.
3. From the command-line interface, run the following command:

```
uninstall.sh -f installation_path/Uninstall/uninstall_response.txt -i silent
```

3.5.2 Uninstall the DB2 database

Uninstallation of the License Metric Tool does not remove the database, user login IDs, and passwords. To remove the database, log in as the DB2 instance owner to the computer where the database is installed. From the CLI, run the following command:

```
db2 drop db database_name
```

3.5.3 Uninstall the Endpoint Manager server

For information about removing Endpoint Manager that is installed on Windows, see “Removing the Primary Server on Windows systems” in the IBM Endpoint Manager section of the IBM Knowledge Center:

<http://ibm.co/VWhbEh>

For information about removing Endpoint Manager that is installed on Linux, see “Removing the Primary Server on Linux systems” in the IBM Endpoint Manager section of the IBM Knowledge Center:

<http://ibm.co/XZwYn0>



Configuring the License Metric Tool, version 9.0.1

After you install the IBM License Metric Tool, you must configure your environment to ensure that all the necessary data is gathered from all of the computers and that it is matched against the latest IBM Software Catalog and PVU table.

This chapter includes the following sections:

- ▶ 4.1, “Setting up a proxy exception list” on page 30
- ▶ 4.2, “Managing VM managers” on page 30
- ▶ 4.3, “Setting up scans” on page 35
- ▶ 4.4, “Uploading the PVU table” on page 37
- ▶ 4.5, “Updating the IBM Software Catalog” on page 37
- ▶ 4.6, “Uploading part numbers” on page 38
- ▶ 4.7, “Scheduling data imports” on page 39

4.1 Setting up a proxy exception list

If the IBM Endpoint Manager server is configured to use a proxy for the Internet connection to access fixlet sites or prefetch downloads, the License Metric Tool catalog propagation fixlet might not work. This is because the Endpoint Manager server tries to connect to the proxy to download the catalog file for the scanner rather than connecting to the License Metric Tool server directly.

For information about how to configure the proxy exception on the Endpoint Manager server, see the “Setting up a proxy connection” topic in the IBM Knowledge Center (Endpoint Manager V9.1 > IBM Endpoint Manager Platform > Installation Guide):

<http://ibm.co/1q1DPkK>

4.2 Managing VM managers

Scanners that are installed on some types of virtualization technologies, for example VMWare, cannot gather data about the computer system of the physical host. Therefore, they cannot gather information about processor types or the number of processor cores. Without this information, it is impossible to calculate the PVU, RVU, and system capacity for particular software.

To get all of the relevant information, you must configure connections to all virtual machine managers that manage the x86 virtual machines in your infrastructure. To collect the data, use the VM Manager Tool. There are two approaches to virtual machine management: centralized and distributed.

4.2.1 Centralized approach to virtual machine management

Centralized approach is preferred, however, it only applies to environments in which the Endpoint Manager server can connect directly to all virtual machine managers in your infrastructure.

VM Manager Tool is installed and configured automatically on the Endpoint Manager server on condition that the Endpoint Manager client and Web Reports are already installed on this computer. The upload of the scan results from the VM Manager Tool is activated during the configuration of the License Metric Tool server.

In this approach, connections to VM managers are configured, changed, and deleted on the VM Managers panel. VM managers that are listed on the panel are related to the Endpoint Manager server that is defined as the primary data source. If you maintain other data sources that have the VM Manager Tool installed, the related VM managers are not visible on the panel. They can be managed with the distributed approach. When you delete the primary data source, the next data source that you maintain becomes the primary one. In such a case, you must manually install the VM Manager Tool on that data source and then activate the upload of scan results.

For more information about the centralized approach, see the “Centralized virtual machines management” topic in the License Metric Tool 9.0.0 section of the IBM Knowledge Center:

<http://ibm.co/1pnAfbF>

Add VM managers in the centralized approach

To add a VM manager in the centralized approach, use the VM Managers panel. To access the panel, you must have the *Manage VM Managers and Servers* permission.

1. In the top navigation bar, click **Management** → **VM Managers**.
2. To create a new VM manager, click **New**.
3. From the drop-down list, choose the type of the VM manager.

Note: If you choose Microsoft Hyper-V, you can select the option to share credentials with other hosts in the same cluster.

4. Enter the URL of the VM manager that you want to add. You can enter either a full URL, its part, a host name, or an IP address. If you enter the host name, or IP address, the full address of the VM manager is built based on the selected type of the VM manager and protocol (if specified). The HTTPS protocol is used by default.
5. Enter the user name and password.
6. To create the connection, click **Create**.

4.2.2 Distributed approach to virtual machine management

Distributed approach can be used if the Endpoint Manager server cannot connect directly to all virtual machine (VM) managers in your infrastructure, if you want to balance the network traffic between multiple VM Manager Tools, or if you want to filter virtual machines based on UUIDs.

For a more detailed description of the scenarios in which you can use the distributed approach to VM management, see the “Deployment scenarios” topic in the License Metric Tool section of the IBM Knowledge Center:

<http://ibm.co/1lz1bVi>

Install the VM Manager Tool

In the distributed approach, you can install the VM Manager Tool on any computer where the Endpoint Manager client is installed and which fulfills the installation requirements. For a full list of requirements, see the “VM Manager Tool installation requirements” in the License Metric Tool section of the IBM Knowledge Center:

<http://ibm.co/1sLqW37>

To install the VM Manager Tool, follow these steps:

1. Log in to the Endpoint Manager console.
2. In the navigation tree, click **Sites** → **External Sites** → **IBM License Reporting v9** → **Fixlets and Tasks**.
3. In the upper-right pane (Figure 4-1 on page 32), select **Install VM Manager Tool**, and then in the lower pane, click **Take Action**.

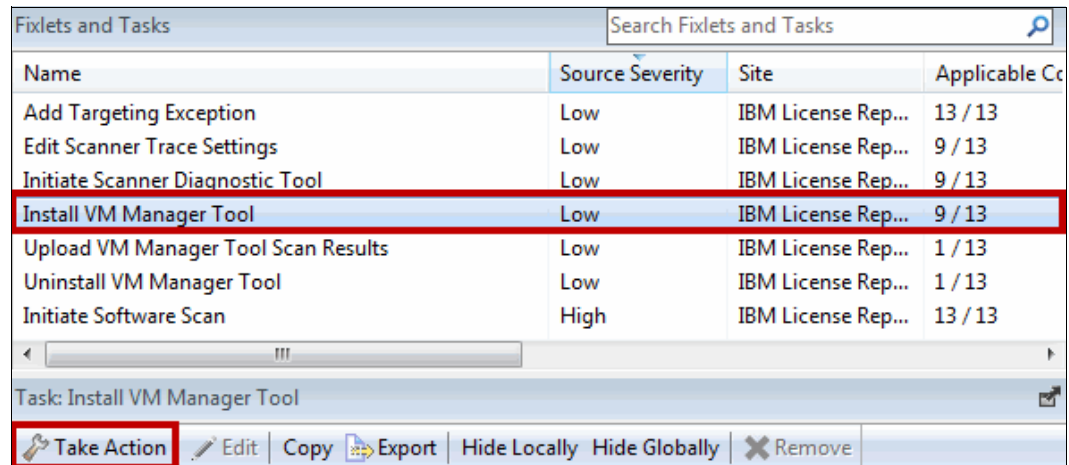


Figure 4-1 Installing the VM Manager Tool

- To select a computer on which to install the VM Manager Tool, open the **Target** tab (Figure 4-2), and select the computer. Then, click **OK**.

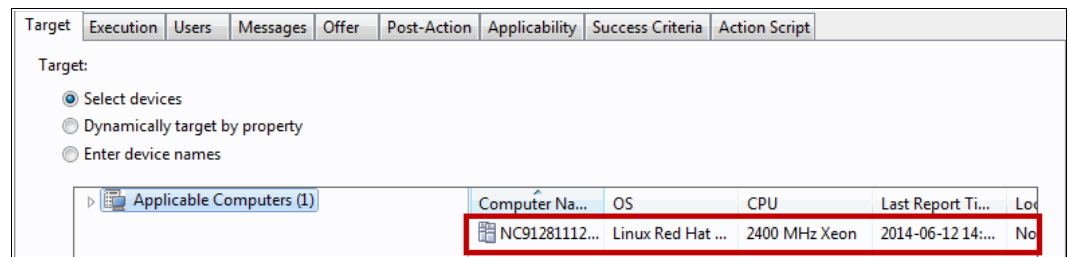


Figure 4-2 Choosing an applicable computer

After the installation finishes, upload the VM Manager Tool scan results.

Upload scan results

In the distributed approach, upload of the scan results must be activated manually after the VM Manager Tool is installed.

To upload scan results:

- Log in to the Endpoint Manager console.
- In the navigation tree, click **Sites** → **External Sites** → **IBM License Reporting (ILMT) v9** → **Fixlets and Tasks**.
- In the upper-right pane (Figure 4-3 on page 33), select **Upload VM Manager Tool Scan Results**, and then in the lower pane, click **Take Action**.

Fixlets and Tasks		Search Fixlets and Tasks	
Name	Source Severity	Site	Applicable Co
Add Targeting Exception	Low	IBM License Rep...	13 / 13
Edit Scanner Trace Settings	Low	IBM License Rep...	9 / 13
Initiate Scanner Diagnostic Tool	Low	IBM License Rep...	9 / 13
Install VM Manager Tool	Low	IBM License Rep...	9 / 13
Upload VM Manager Tool Scan Results	Low	IBM License Rep...	1 / 13
Uninstall VM Manager Tool	Low	IBM License Rep...	1 / 13
Initiate Software Scan	High	IBM License Rep...	13 / 13

Task: Upload VM Manager Tool Scan Results			
Take Action	Edit	Copy	Export
Hide Locally	Hide Globally	Remove	

Figure 4-3 Uploading scan results of the VM Manager Tool

4. To select a computer from which you want to upload VM Manager Tool scan results, open the **Target** tab and select the computer (see Figure 4-4). Then, click **OK**.

Target	Execution	Users	Messages	Offer	Post-Action	Applicability	Success Criteria	Action Script
Target: <input checked="" type="radio"/> Select devices <input type="radio"/> Dynamically target by property <input type="radio"/> Enter device names								
<input type="button" value="Applicable Computers (1)"/>								
	Computer Na...	OS	CPU	Last Report Ti...	Log			
	NC91281112...	Linux Red Hat ...	2400 MHz Xeon	2014-06-12 14:...	No			

Figure 4-4 Choosing the applicable computer

5. To schedule regular uploads of scan results, open the **Execution** tab and complete these actions:
 - a. Clear the **Ends on** check box so that the action does not have an end date.
 - b. Select the **Reapply this action** check box, and set the “while relevant, waiting” option to **12 hours**.
 - c. Clear the **Limit to x reapplications** check box (see Figure 4-5 on page 34).

The screenshot shows the configuration window for scheduling regular uploads of scan results. The 'Constraints' section is at the top, with 'Ends on' highlighted by a red box, set to 2014-06-14 at 14:16:42 on client local time. Below it, the 'Behavior' section is also highlighted by a red box, showing 'Reapply this action' checked, with 'while relevant, waiting' selected and a 12-hour interval between reapplications. Other options include 'On failure, retry' (3 times, 1 hour wait), 'Limit to' (3 reapplications), 'Start client downloads before constraints are satisfied', and 'Stagger action start times over' (5 minutes).

Figure 4-5 Scheduling regular uploads of scan results

Add VM managers

In the distributed approach, you add a VM manager by creating and editing a configuration file. Each time that you create a configuration file, use the `vmmconf_template.properties` file as a template.

Do not copy and edit a configuration file that you previously created for a different VM manager. After you run the configuration file for the first time, an ID is generated for the VM manager. Each ID must be unique. When you copy and edit an existing configuration file, the ID is duplicated.

To add a VM manager:

1. Go to the `<BES Client>\LMT\VMAN\config` directory.
2. Create a VM manager configuration file by copying the `vmmconf_template.properties` file and renaming it (for example, to `vmmconf_VM1.properties`).
3. Edit the file and specify the following parameters:

<code>vmm_url</code>	Specifies the web address of the VM manager. You can specify either a full URL or only the host name or IP address, for example: <code>http://192.0.2.0/wsman</code>
<code>vmm_type</code>	Specifies the type of the VM manager from the possible values: VMWARE_V_SPHERE MICROSOFT_HYPER_V KVM_RHEV_M
<code>vmm_login</code>	Specifies the user name that is used to access the VM manager.
<code>vmm_password</code>	Specifies the password that is used to access the VM manager. The password is encrypted and saved when you load the configuration files.

4. Save the configuration file.

5. Repeat the procedure for each new connection to a VM manager.
6. By default, the VM Manager Tool is installed and run as a system service. Use the `-reloadconfig` command to load a new configuration file and make it visible to the VM Manager Tool.

Advanced configuration

The default configuration helps you gather the required data. However, you can change the global settings of the VM Manager Tool, the settings of particular VM managers, or filter machines based on their UUIDs.

For more information, see the “VM Manager Tool” topic in the IBM License Metric Tool 9.0 section of the IBM Knowledge Center:

<http://ibm.co/YYXKwG>

4.3 Setting up scans

If you installed all components on a single computer by using the single installer, scans that are required for software and hardware discovery are initiated by default on all computers, including computers that are added to the infrastructure after the installation of License Metric Tool. However, in other installation scenarios, you must set up scans manually.

4.3.1 Configure scans manually

1. Activate the required analyses.
2. Install the scanner.
3. Initiate the software scan which collects information about signatures on the computers in your infrastructure.
4. Configure regular uploads of software scan data.
5. Initiate the capacity scan which gathers hardware information about the computers that is necessary to calculate the license use.

All of these steps are performed in the Endpoint Manager console. For more information about each step and detailed instructions, see the “Setting up scans” topic in the IBM Knowledge Center (License Metric Tool 9.0.0 > Configuring > Setting up scans):

<http://ibm.co/1sLnOh5>

4.3.2 Schedule scan frequency

Software scans can be scheduled in the Endpoint Manager console by using the Initiate Software Scan fixlet. However, the basic functionality is also available directly in License Metric Tool on the Scan Configurations panel. On the panel, each row shows the schedule and status of the software scan for a single data source. Updates to the scan configuration schedule are recorded in the Audit Trail report. The schedule that you define on the Scan Configurations panel applies to all computers in your infrastructure and cannot be changed per computer group.

Note: If you manage scans in the Endpoint Manager console and want to switch to using the Scan Configurations panel, manually stop the Initiate Software Scan fixlet in the Endpoint Manager console.

If you manage the scan schedule in License Metric Tool and want to start using the Endpoint Manager console, define the schedule in the console. It will overwrite the schedule that is defined in License Metric Tool.

To change the scan schedule in License Metric Tool, perform the following tasks:

1. In the top navigation bar, click **Management** → **Scan Configurations**, and then select the data source for which you want to change the scan settings.
2. To specify the frequency of scans, select a new frequency from the Frequency list.
3. To specify the start time, enter the start date and time in the Requested Start Date field shown in Figure 4-6.

1 row				
Computer Group	Data Source	Start Date	Frequency	Status
All Computers	Datasource	06/11/2014 05:12 PM	Every day	Active

Edit Scan Configuration

Computer Group: All Computers

Data Source: Datasource

Frequency: Every day

Requested Start Date: 06/11/2014 05:12PM

Save

Figure 4-6 Configuring the scan schedule in License Metric Tool

4. To save your changes, click **Save**.

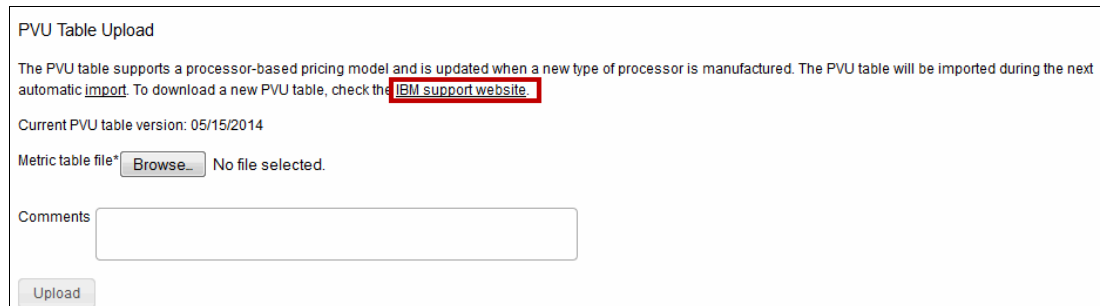
If you manage the scan schedule in the License Metric Tool, the software scan can have one of the following statuses:

Active	The scan schedule is active and software scans are run according to the defined schedule.
Stopped	Scan actions are inactive. You can define a new schedule in the Scan Configurations window.
Managed in Endpoint Manager	Software scans are managed from the Endpoint Manager console. To start managing scans directly from License Metric Tool, you must manually stop the Initiate Software Scan fixlet in the Endpoint Manager console.
Server unavailable	The frequency and status configuration cannot be displayed and set because the connection to the Endpoint Manager server was not established.
Start date unavailable	The Web Reports server is not responding, so the start date cannot be calculated.

4.4 Uploading the PVU table

The PVU table is required to support processor-based pricing models in which charges differ according to the type of processor on which the licensed product is installed and running. In the table, units are assigned to each processor type on which this type of pricing model is available. You must have Manage Uploads permission to do this task.

1. In the top navigation bar, click **Management** → **Metric Table Upload**.
2. Click the IBM Support website link shown in Figure 4-7, and download a new PVU table.



PVU Table Upload

The PVU table supports a processor-based pricing model and is updated when a new type of processor is manufactured. The PVU table will be imported during the next automatic import. To download a new PVU table, check the **IBM support website**.

Current PVU table version: 05/15/2014

Metric table file* No file selected.

Comments

Figure 4-7 IBM Support website link

3. Click **Browse**, select a file to upload, and then click **Upload**.

The PVU table will be imported during the next scheduled import.

4.5 Updating the IBM Software Catalog

To correctly identify the components of various software products in your infrastructure, ensure that your Software Catalog is always up-to-date.

4.5.1 Download the latest catalog

The catalog is downloaded by using the Software Catalog Update fixlet and then uploaded to License Metric Tool.

1. Log in to the Endpoint Manager console.
2. In the navigation bar, click **Sites** → **External Sites** → **IBM License Reporting (ILMT) v9** → **Fixlets and Tasks**.
3. In the upper-right pane, click **Software Catalog Update**, and then click **Take Action**.
4. Select the computer to which you want to download the Software Catalog, and click **OK**. Preferably, download the catalog to a computer from which you can access the web user interface of License Metric Tool. The Software Catalog is downloaded to the lmt_catalog directory that is in the License Metric Tool installation directory, by default:

/opt/IBM/LMT/lmt_catalog

Alternative: You can also download the catalog from the Software Catalog Update for ILMT web page:

<http://www.ibm.com/support/docview.wss?uid=swg24037801>

4.5.2 Upload the new catalog to the License Metric Tool

1. Log in to License Metric Tool.
2. In the top navigation bar, click **Management** → **Catalog Upload**.
3. Click **Browse**, select the catalog file in the .zip file format, and click **Upload**.

The Software Catalog is listed in the Upload and Import History table. The status is Pending until the next import of data.

4.6 Uploading part numbers

Part numbers represent software products that you purchased. They can be used to increase the accuracy of automated bundling by narrowing the number of possible products to which a discovered component can be assigned.

The extent to which part numbers can improve automated bundling is limited by the following factors:

- ▶ Part numbers influence the assignment of only those components without confirmed assignment yet.
- ▶ Part numbers that were purchased before 2010 are not in the Software Catalog.
- ▶ Part numbers that represent products with limited availability are not included in the Software Catalog.
- ▶ Part numbers that represent products that are available only outside of the United States are not included in the catalog.

4.6.1 Prepare the part numbers file

You can download the part numbers file from Passport Advantage or create it manually by following these steps:

1. Log in to Passport Advantage.
2. From the menu on the left, select **Reporting** → **Order history**.
3. If applicable, select the relevant site or sites.
4. For Type of order, select **All**.
5. Specify the **Sales order date** and click **Submit detail report**. Your report is ready.
6. To save the file, click **Download report**, and then select **Comma delimited**.

To create a CSV file yourself, create a file in which the column with part numbers is called *Part number*. Use a comma as a field separator and quotation marks (" ") as text delimiters. See Example 4-1.

Example 4-1 Part numbers file with the order type column

```
"Part number", "Order type"
"D07UMLL", "Licenses"
"D08UMLL", "Licenses"
"D09UMLL", "Licenses"
```

You can also create a CSV file with a single column in which you list each part number in a new line. See Example 4-2.

Example 4-2 Part numbers file with one column

```
D07UMLL
D08UMLL
D09UMLL
```

4.6.2 Upload the part numbers file

After you prepared the part numbers file, upload it to License Metric Tool.

1. In the top navigation bar, click **Management** → **Part Numbers Upload**.
2. Click **Browse** and select the part numbers file to upload.
3. *Optional:* If you want to overwrite the existing part numbers, select the **Overwrite existing part numbers** check box.

Note: The check box is enabled only if you previously imported a part numbers file.

4. Click **Upload**. A new entry is created in the Upload and Import History table. The status is Pending until the next import of data. If more than one entry is pending in the table, only the latest part numbers file will be imported.

4.7 Scheduling data imports

You can schedule the imports of software and hardware data to occur regularly.

1. In the navigation bar, click **Management** → **Data Imports**.
2. To schedule regular imports, select the **Enabled** check box (Figure 4-8), specify the number of daily imports and their hours, and click **Save**.

Import Settings

☒ Enabled

Imports per day (times specified in UTC +01:00)

09:00AM

01:30PM

05:00PM

Figure 4-8 Scheduling regular imports of data



Discovering WebSphere Application Server components

Before any license use report can be generated by the IBM License Metric Tool, the software inventory data must be collected from the managed environment. This means that each and every computer that is running IBM software (WebSphere Application Server, specifically, for the context of this chapter) that is licensed under the *subcapacity* license terms must have the License Metric Tool agent deployed and configured to collect the inventory data.

This chapter describes how the WebSphere Application Server components are discovered by License Metric Tool software. It includes information about how to interpret the inventory reports and provides the technical details about the software detection techniques that the tool uses.

For more information, see “Managing software inventory” in the Metric License Tool section of the IBM Knowledge Center:

<http://ibm.co/1vVjV1Q>

This chapter includes the following sections:

- ▶ 5.1, “Creating a software inventory with the License Metric Tool” on page 42
- ▶ 5.2, “License Metric Tool inventory reports” on page 44
- ▶ 5.3, “Validating accuracy of software inventory data” on page 48

5.1 Creating a software inventory with the License Metric Tool

The License Metric Tool uses the IBM Endpoint Manager Agents, which must be deployed on every computer where IBM software that is licensed under the IBM subcapacity license terms is installed. It runs the discovery processes on those agents to retrieve the most up-to-date scan data, which is later transformed into software inventory reports on the server-side.

5.1.1 Collecting software inventory data

The License Metric Tool runs the software scans on each of the target computers to identify the patterns (markers) that represent the installed software. It uses the Software Identification Catalog that contains the details of the actual marker files that it finds on the target machines and correlates the marker files with its discoverable component names.

The License Metric Tool provides the scanners that run on the user-defined schedule at the computer level. The scanner technology is also called *Common Inventory Technology* (CIT) components, which are the binary files deployed on the target computers. When it is run in the software inventory discovery mode, the CIT component is scanning the entire file system to collect the list of the files available. Later, this list of files and the content of the installation registries is correlated with the Software Catalog signatures.

With this method, the License Metric Tool can discover WebSphere Application Server installations, regardless of whether it was installed by using IBM Installation Manager or extracting stand-alone archive. The tool does not look for a standard installation folder or directory. Instead, it scans the entire file system to ensure that it checks all places where software is installed.

5.1.2 IBM Software Catalog

The Software Catalog is a collection of software product definitions, along with data (signatures), which is updated regularly. The following related terms will help you understand the next sections:

Software product	A packaged unit of software that has a managed development and maintenance lifecycle and visible attributes. It can be a set of components or other products for which licensing might depend on licensing of the full product.
Software component	A software item that cannot be offered separately (cannot be purchased) but can be separately installed. It can be detected as installed or running on computers through its own signatures. It can be assigned to only one product or shared among several products
Signature	A set of data that is unique to a particular distributed software release and can be used to identify it as installed or running on a computer system. The License Metric Tool uses the inventory and recognition signatures to detect whether a component is installed on the system.
Software instance	Recognition of the software signature of a specific software component on a specific target system and the location of this system.
Offering	Software offered for licensing, which typically includes a single license to cover all software components and products bundled with it.
Bundle	A type of offering that includes a collection of separate software products that can be ordered together.

5.1.3 What the License Metric Tool can and cannot discover

The License Metric Tool can automatically discover software *components*, regardless of how they were installed, if the installation process did not tamper with the software recognition marker files. However, the tool cannot automatically discover software *products*, especially when the product is bundled with many different software components.

For example, it can discover the WebSphere Application Server *base component*, which represents the binaries of the WebSphere Application Server. However, it not automatically discover the WebSphere Application Server *base software*, which is the offering.

Here is another example: Although the License Metric Tool can discover the Liberty Profile binaries, it cannot discover whether the Liberty Profile is deployed under entitlement of the WebSphere Application Server (either the base or Network Deployment edition) or the Liberty core product.

When you know that a particular software item is installed in your infrastructure but is not displayed in License Metric Tool, you must open a problem management record (PMR) with the request for a catalog update, and then download the latest IBM Software Catalog.

5.1.4 Software discovery coverage for WebSphere Application Server components

It is sometimes necessary to get detailed information about which version or release that the License Metric Tool can discover for particular software titles. In version 9.0.1, you can use the Catalog Search function, which is available in the web UI dashboard.

To determine which WebSphere Application Server discoverable components in the IBM Software Catalog are already imported into the License Metric Tool server, complete the following steps:

1. Log in to the License Metric Tool web UI by using the user ID that is authorized to navigate catalog content.
2. Type the search term into the Catalog Search section of the Software Catalog dashboard widget, and then click **Search**, as shown on Figure 5-1 on page 43.



The screenshot displays the 'Software Catalog' dashboard. At the top, it lists several statistics in blue text: '3 Publishers', '8,975 Software Products', '12,441 Software Versions', '17,807 Software Releases', '8,845 Software Components', and '27,287 Signatures'. Below these, it shows 'Provider: ILMT' and 'Version: 1074305 (04/24/2014 01:13 PM)'. At the bottom, there is a 'Catalog Search' section with a dropdown menu set to 'All', a text input field, and a 'Search' button. A red rectangle highlights the text input field and the 'Search' button.

Figure 5-1 Using the Catalog Search function

3. Search results are shown on the results page (Figure 5-2).

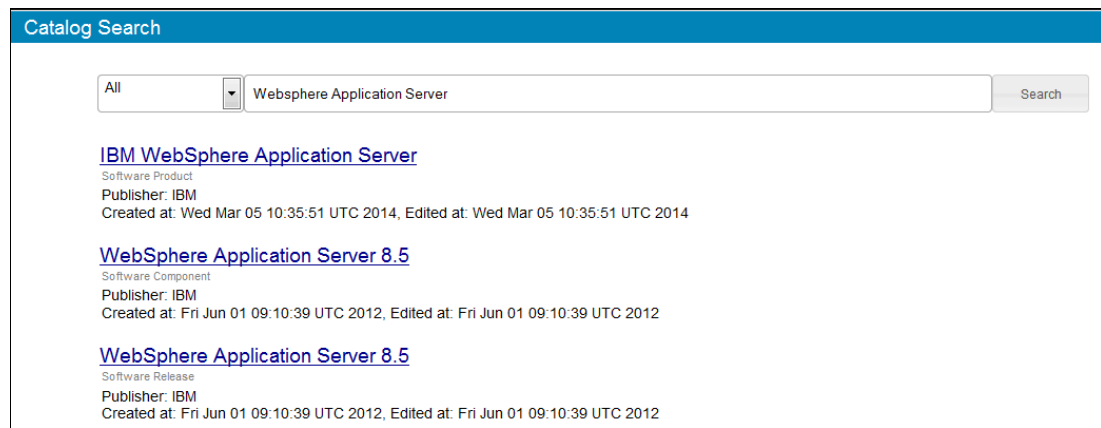


Figure 5-2 Catalog search report

5.2 License Metric Tool inventory reports

IBM License Metric Tool provides different views of the imported software inventory data, each for a different purpose:

Inventory Data	High-level aggregated view of the quantity of the discovered software components and the count of the reporting computers
Inventory Exploration	Hierarchical inventory data, with drill-down options, and aggregated count of the discovered components throughout the hierarchy tree
Software Installations	Flat list report that shows all computers together, with discovered software components for each of them

5.2.1 Inventory Data report

The Inventory Data widget presents a summary of the IBM software that is installed in your infrastructure, your computers, and the computer groups in your infrastructure. It is used to ensure that the count of the managed computers matches the count of computers that are reporting inventory data. Another use for this widget is to quickly assess the volume of the discovered software components and check the more detailed report called Software Installations. Figure 5-3 shows an example.

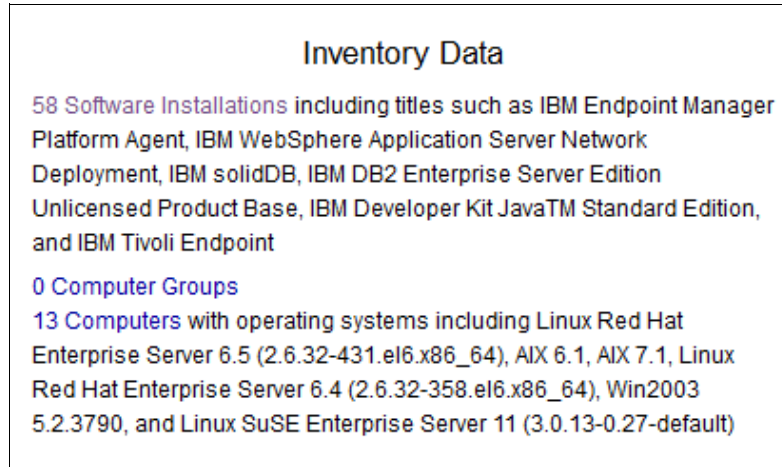


Figure 5-3 Inventory Data dashboard widget report

For a complete description of the elements, see “Software asset management dashboard” in the License Metric Tool section of the IBM Knowledge Center:

<http://ibm.co/VTR0P0>

5.2.2 Inventory Exploration report

The Inventory Exploration report (Figure 5-4) provides a hierarchical view of the software components discovered. It starts with the list of vendors for the discovered software and provides a drill-down option to see the software name, version, release, and reporting levels. It also shows the count of discovered software components for the particular software.

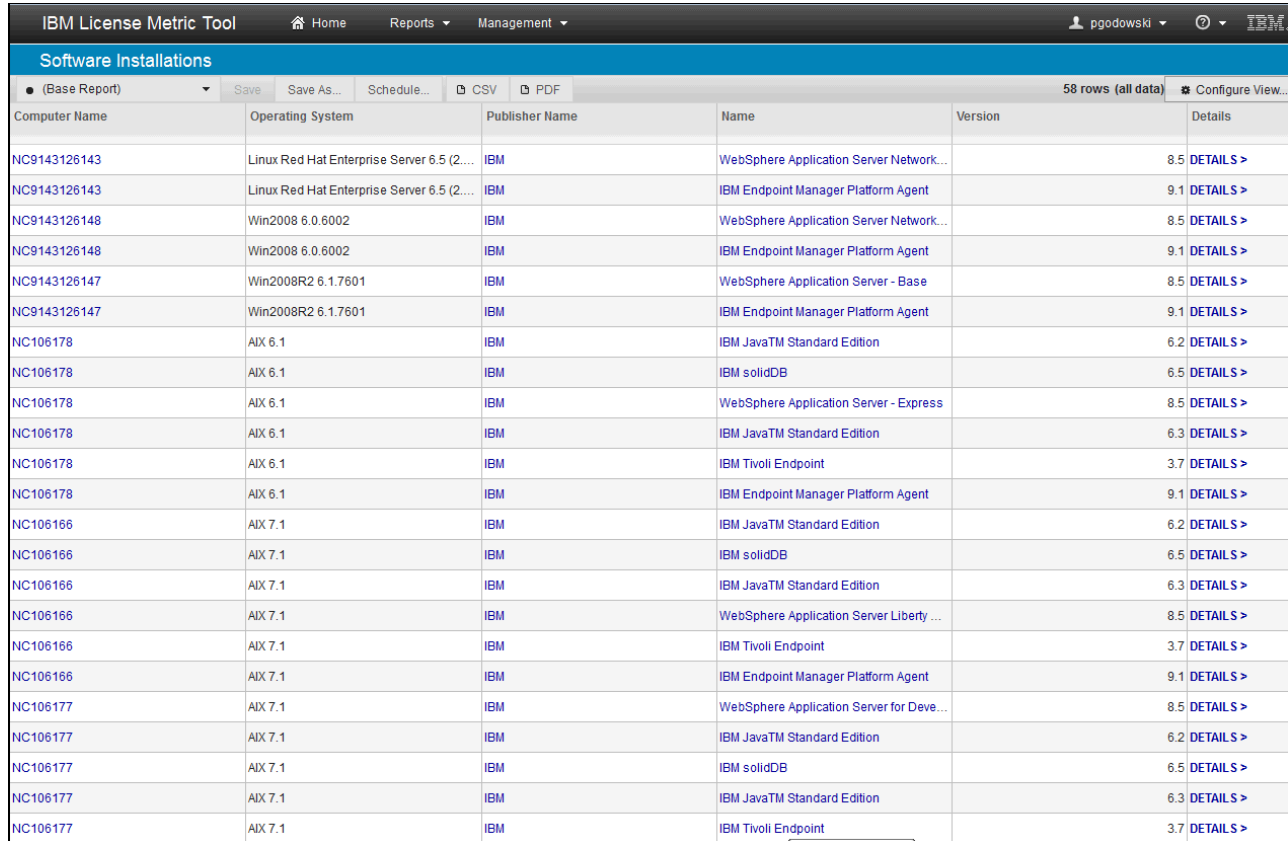
IBM License Metric Tool		Home	Reports	Management	pgodowski	IBM
Inventory Exploration						
(Base Report)	Save	Save As...	Schedule...	CSV	PDF	5 rows (filtered) Configure View...
All > IBM						
Software Product	Computer Count					
IBM WebSphere Application Server Liberty Core	1					
IBM WebSphere Application Server Network Deployment	6					
IBM WebSphere Application Server for Developers	1					
WebSphere Application Server - Base	2					
WebSphere Application Server - Express	2					

Figure 5-4 Inventory Exploration report filtered for WebSphere Application Server discovery

Using this report is easy. It helps you quickly understand how many instances of WebSphere Application Server components are installed across your infrastructure.

5.2.3 Software Installations report

The Software Installations report shows a list of the computers, along with the software components discovered on those computers. It also provides a link to the pane that includes the explanation. Figure 5-5 shows an example of this report.

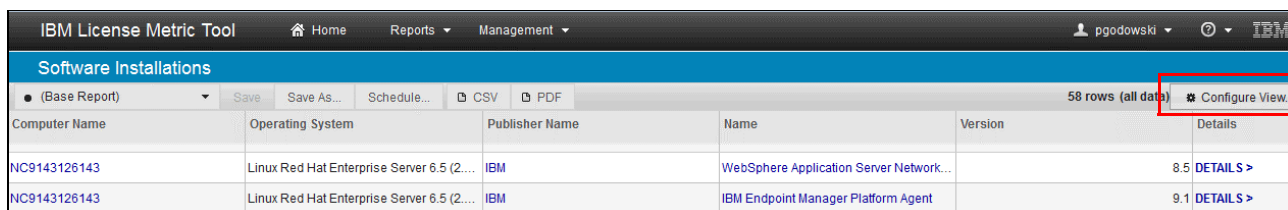


Computer Name	Operating System	Publisher Name	Name	Version	Details
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network...	8.5	DETAILS >
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >
NC9143126148	Win2008 6.0.6002	IBM	WebSphere Application Server Network...	8.5	DETAILS >
NC9143126148	Win2008 6.0.6002	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >
NC9143126147	Win2008R2 6.1.7601	IBM	WebSphere Application Server - Base	8.5	DETAILS >
NC9143126147	Win2008R2 6.1.7601	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >
NC106178	AIX 6.1	IBM	IBM JavaTM Standard Edition	6.2	DETAILS >
NC106178	AIX 6.1	IBM	IBM solidDB	6.5	DETAILS >
NC106178	AIX 6.1	IBM	WebSphere Application Server - Express	8.5	DETAILS >
NC106178	AIX 6.1	IBM	IBM JavaTM Standard Edition	6.3	DETAILS >
NC106178	AIX 6.1	IBM	IBM Tivoli Endpoint	3.7	DETAILS >
NC106178	AIX 6.1	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >
NC106166	AIX 7.1	IBM	IBM JavaTM Standard Edition	6.2	DETAILS >
NC106166	AIX 7.1	IBM	IBM solidDB	6.5	DETAILS >
NC106166	AIX 7.1	IBM	IBM JavaTM Standard Edition	6.3	DETAILS >
NC106166	AIX 7.1	IBM	WebSphere Application Server Liberty ...	8.5	DETAILS >
NC106166	AIX 7.1	IBM	IBM Tivoli Endpoint	3.7	DETAILS >
NC106166	AIX 7.1	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >
NC106177	AIX 7.1	IBM	WebSphere Application Server for Deve...	8.5	DETAILS >
NC106177	AIX 7.1	IBM	IBM JavaTM Standard Edition	6.2	DETAILS >
NC106177	AIX 7.1	IBM	IBM solidDB	6.5	DETAILS >
NC106177	AIX 7.1	IBM	IBM JavaTM Standard Edition	6.3	DETAILS >
NC106177	AIX 7.1	IBM	IBM Tivoli Endpoint	3.7	DETAILS >

Figure 5-5 Software Installation report

Filtering the Software Installations report

You can use the IBM License Metric Tool reports filtering capability to narrow the list of software components for WebSphere Application Server instance. To apply the filter, click **Configure View** at the upper-right part (marked with red rectangle in Figure 5-6).



Computer Name	Operating System	Publisher Name	Name	Version	Details
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network...	8.5	DETAILS >
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	IBM Endpoint Manager Platform Agent	9.1	DETAILS >

Figure 5-6 Launching Configure View on report for specifying filtering criteria

In the Configure View window that opens (Figure 5-7), you can type in your filter criteria.

Figure 5-7 Configure View report window for filter criteria

To show only WebSphere Application Server as the discovered component, add a new criteria, specify Name as the filtering column, an operator to contain the sentence, and use “WebSphere Application Server” as the search term type. After the filter is applied, the filtered report is rendered as the example in Figure 5-8 shows.

Computer Name	Operating System	Publisher Name	Name	Version	Details
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >
NC9143126148	Win2008 6.0.6002	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >
NC9143126147	Win2008R2 6.1.7601	IBM	WebSphere Application Server - Base	8.5	DETAILS >
NC106178	AIX 6.1	IBM	WebSphere Application Server - Express	8.5	DETAILS >
NC106166	AIX 7.1	IBM	WebSphere Application Server Liberty Core	8.5	DETAILS >
NC106177	AIX 7.1	IBM	WebSphere Application Server for Developers	8.5	DETAILS >
NC106207	AIX 6.1	IBM	WebSphere Application Server - Express	8.5	DETAILS >
NC047005	Win2012 6.2.9200	IBM	WebSphere Application Server - Base	8.5	DETAILS >
NC9143126027	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >
NC142184	Linux SuSE Enterprise Server 11 (3.0.1...	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >
NC9143126146	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >
NC046213	Win2003 5.2.3790	IBM	WebSphere Application Server Network Deployment	8.5	DETAILS >

Figure 5-8 Filtered Software Installation report

To save the filter definition for later use, click **Save As**. In the pop-up window, type the name of the saved filter definition. The saved definition is then accessible by using the drop-down button (labelled Base Report) on the toolbar, at the upper-left part of the screen.

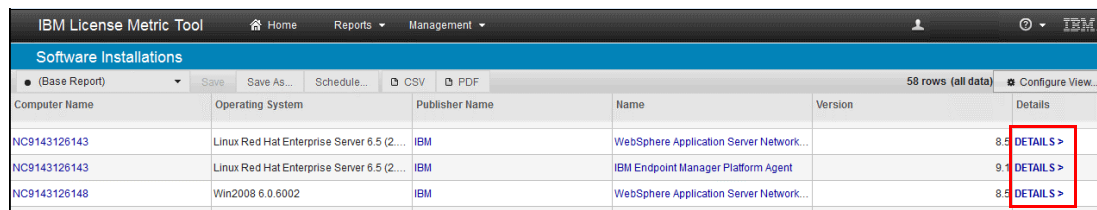
5.3 Validating accuracy of software inventory data

During the process of reviewing the discovered and reported software inventory, the License Metric Tool validates the sources to use to recognize specific software. It stores and provides evidence of the software discovery, which is the pointer to the specific software identification signature that was used for discovery. It also checks for evidence that the signature matches a file system path that contains the marker file, a registry entry, or any combination of those.

5.3.1 Reviewing software inventory discovery details

Use the following steps to get the details about why a particular software component is reported as discovered on the specified machine:

1. From the main License Metric Tool web UI menu, select **Software Installation report**.
2. Identify the computer that you want to assess.
3. Navigate to the links in the Details column shown in Figure 5-9.



Computer Name	Operating System	Publisher Name	Name	Version	Details
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	WebSphere Application Server Network...	8.5	DETAILS >
NC9143126143	Linux Red Hat Enterprise Server 6.5 (2....	IBM	IBM Endpoint Manager Platform Agent	9.	DETAILS >
NC9143126148	Win2008 6.0.6002	IBM	WebSphere Application Server Network...	8.5	DETAILS >

Figure 5-9 Navigating to the discovery details report

4. The report shown is similar to Figure 5-10. It provides details about which software recognition signature was used, with its definition, and the location on the subject computer where the signature was successfully matched.



WebSphere Application Server for Developers on NC106177

WebSphere Application Server for Developers

Publisher
IBM

Product
IBM WebSphere Application Server for Developers

Version
IBM WebSphere Application Server for Developers 8

Release
IBM WebSphere Application Server for Developers 8.5

Component
WebSphere Application Server for Developers 8.5

GUID
0d6ff31d-6b0d-4bbd-990e-a45ca4e39f15

WebSphere Application Server for Developers was detected because the following signature was matched:

- The signature was last modified at 06/05/2013 03:09 PM

A computer has:

- ✓ An IBM License Metric Tool signature that uses: File Signature

```
<MultipleInstances><Iterator name="INSTALL_PATH"><FindFilePathEx name="WebSphere_Application_Server_for_Developers-8.5.5.swtag"/></Iterator><Instance><Variable name="IS_INSTALLED" export="true" /><FileExists absolutePath="{(INSTALL_PATH)WebSphere_Application_Server_for_Developers-8.5.5.swtag}/></Variable><Condition withVariable="IS_INSTALLED"><Action do="SKIP" onValue="false" /></Condition></Instance></MultipleInstances>
```

✓ Discovered matches:

- Install Path: /usr/IBM/WebSphere/Liberty/lib/versions/tags/

Figure 5-10 Details about the discovered software component



Using the License Metric Tool to bundle WebSphere products

This chapter describes the software bundling process and how to use Software Classification panel to manage the software inventory that is detected by the discovery process. This bundle management is a necessary step to synchronize the inventory with the current system infrastructure and to be able to calculate accurate PVU pricing for IBM software products.

This chapter includes the following sections:

- ▶ 6.1, “Software bundling overview” on page 50
- ▶ 6.2, “Bundling review and reconciliation” on page 51
- ▶ 6.3, “Use case scenario” on page 53

6.1 Software bundling overview

For accurate pricing calculations of your purchased IBM products, it is necessary to have the discovered software inventory assigned to the correct *bundle* or *software product*.

A *bundle* is a set of products or *part numbers* that are sold together as a package under a single entitlement or license. You can see the purchased bundles in Passport Advantage, which it is described in Chapter 8, “Comparing License Metric Tool results to a WebSphere license” on page 65.

The License Metric Tool also uses the concept of *software product* as a unit of packaged software that consists of one or more software programs, called *components*. Each component may have more than one instance, or single installations, within your infrastructure.

To illustrate the importance of software inventory management and its classification, we analyze a couple of WebSphere products, as an example.

Suppose that one of the products purchased is WebSphere Application Server V 8.5, and it includes the installer media for WebSphere Application Server - Base. This installer is what we refer to as a *component*. This particular product offering has only one component, but some might have more than one component. The software classification review described in this chapter is the necessary step to ensure that the WebSphere Application Server V 8.5 – Base component is bundled with the correct product and not charged under a different bundle. Figure 6-1 and Figure 6-2 on page 51 depicts this example.

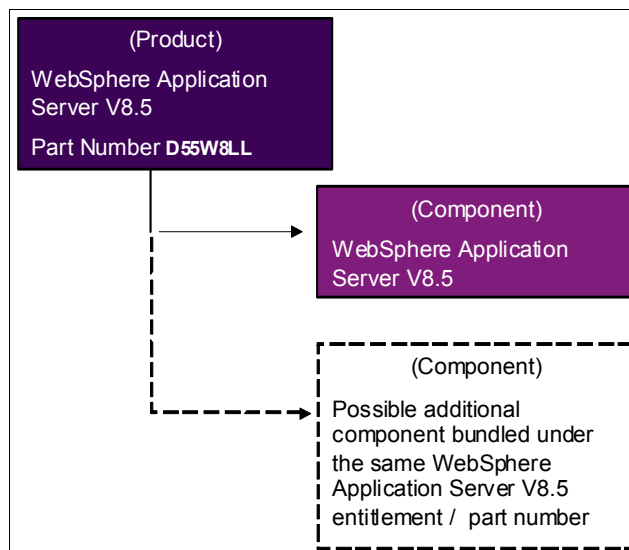


Figure 6-1 Software bundle representation from the entitlement perspective

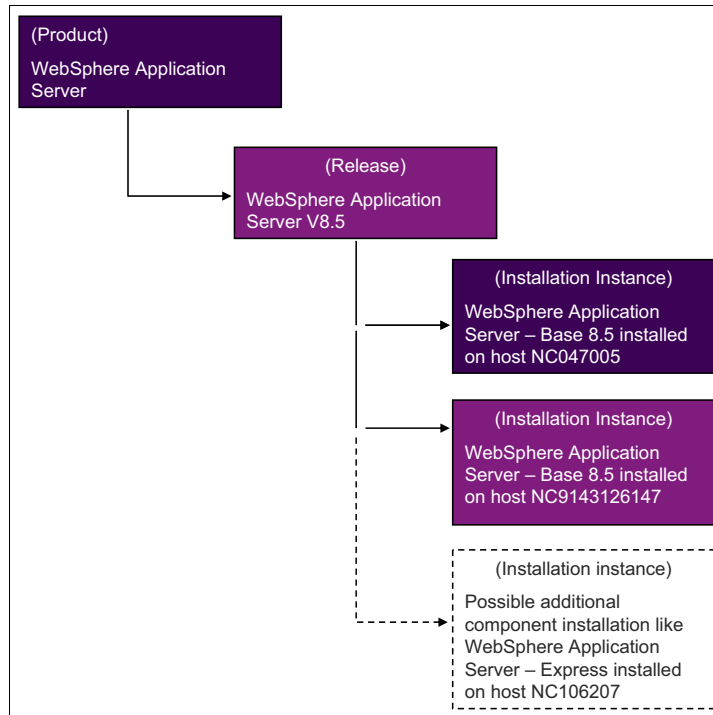


Figure 6-2 Software bundle from the License Metric Tool Software Classification perspective

For example, we also have the WebSphere Application Server Liberty Core Edition product, but this instance or installation is a trial version, so there is no charge for it. This software bundle management step lets the License Metric Tool tool know that this installation instance will not be included in the pricing calculation.

6.2 Bundling review and reconciliation

After new components are discovered by software scans, the server associates those components with products, based primarily on the relationships specified in the IBM Software Catalog. These initial associations are suggestions of how to structure the bundles. It helps with capturing of the bundling structure that reflects your infrastructure and entitlements.

After the initial bundling has been performed, the initial assignments need to be reconciled or confirmed. To compare and reconcile your current infrastructure and entitlements with the suggested bundling, you need to gather the necessary information from your IT specialists. There are two approaches to doing this: top-down and bottom-up.

6.2.1 Top-down approach

1. Create a purchased product list that includes the part number, name, and version of the WebSphere products that you own. You can get this from your IBM Hardware representative or from Passport Advantage.
2. Read the license agreement for those products. Familiarity with reading licenses is helpful to understand the product components, how they are charged, any prohibited features, additional remarks, and whether there are other programs' license agreements to consider.

3. Ask your system administrator for the host name or IP address where the components are installed.
4. Compile the information in one document to compare with the License Metric Tool automated bundle suggestions.

6.2.2 Bottom-up approach

1. Download the discovered software inventory from the License Metric Tool Software Installations panel. The report provides the component name, version, and host name or IP address where the components are installed.
2. Ask the system administrators about those component installations, including which product bundle each component is used with in your installations.
3. Read the license agreement of those products. Familiarity with reading licenses is helpful to understand the product components, how they are charged, any prohibited features, additional remarks, and whether there are other programs' license agreements to consider.
4. Compile the information in one document to compare with License Metric Tool automated bundle suggestions.

You can see an example of the gathered information in 6.3, "Use case scenario" on page 53.

After you start the process of comparing your current infrastructure and entitlement bundles with License Metric Tool suggestions, you can confirm the assignment if they match or reassign product instances to the correct product bundles. You may also exclude instances that are at no charge and can be ignored by pricing calculations, and you can mark instances as shared when they are used by two different products and need to be charged for more than once. This is an iterative process until all instances are confirmed or reassigned. Figure 6-3 on page 53 depicts the flow for this software inventory review process.

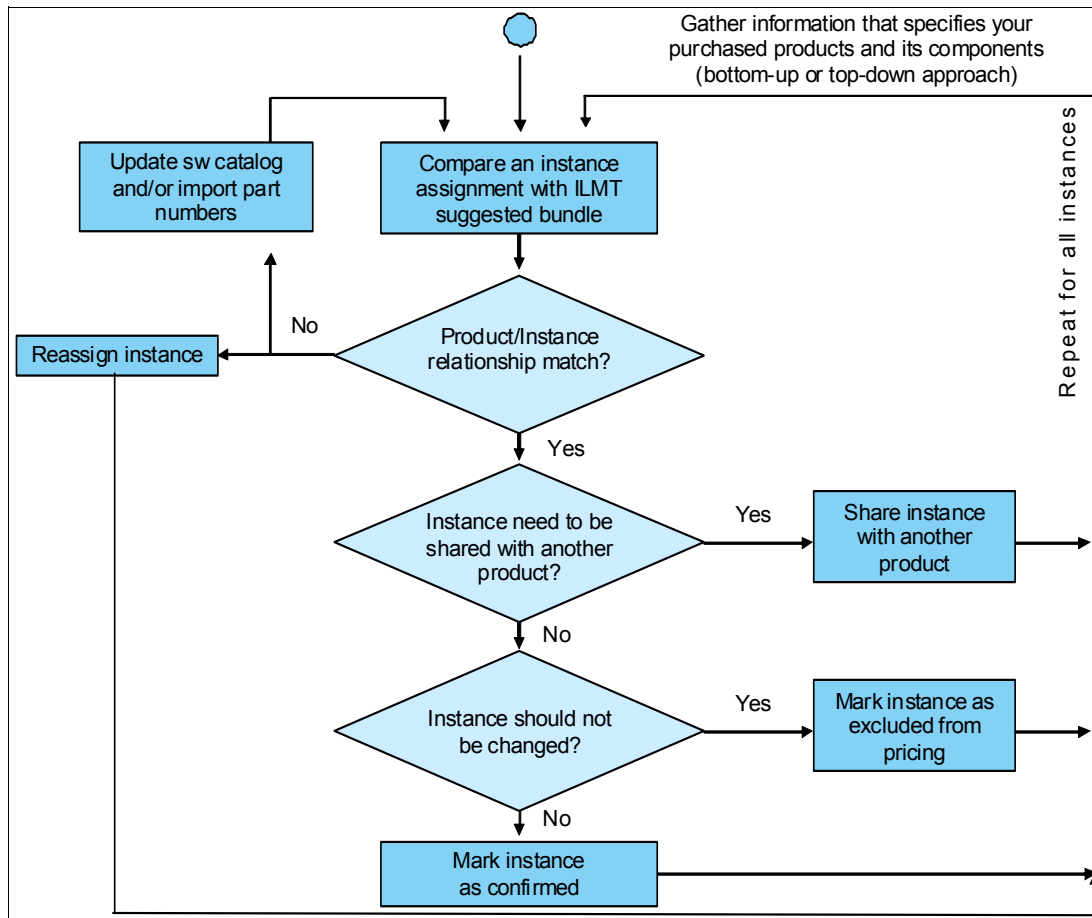


Figure 6-3 Software Inventory Classification Review Process

6.3 Use case scenario

Continuing with the example of discovered products that we started in Chapter 5, “Discovering WebSphere Application Server components” on page 41, assume that the License Metric Tool has discovered installed WebSphere products. It has created an initial classification and shows product bundle suggestions in the Software Classification panel.

Following the top-down approach described in 6.2, “Bundling review and reconciliation” on page 51, a document is generated to gather information about how the bundling will appear, based on the purchased entitlements. The table in Figure 6-4 on page 54 shows an example.

Part Num.	Product	Component	Host Name	License
D55WJLL	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC9143126027	SHARED
	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC9143126143	PVU
	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC9143126146	PVU
	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC9143126148	PVU
	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC142184	PVU
	IBM WebSphere Application Server Network Deployment	WebSphere Application Server Network Deployment 8.5	NC046213	PVU
D55W8LL	IBM WebSphere Application Server	WebSphere Application Server - Base 8.5	NC047005	PVU
	IBM WebSphere Application Server	WebSphere Application Server - Base 8.5	NC9143126147	PVU
	IBM WebSphere Application Server for Developers	WebSphere Application Server for Developers 8.5	NC106177	USER
D582CLL	IBM WebSphere Application Server - Express	WebSphere Application Server - Express 8.5	NC106178	PVU
	IBM WebSphere Application Server - Express	WebSphere Application Server - Express 8.5	NC106178	PVU
	IBM WebSphere Application Server - Express	WebSphere Application Server - Express 8.5	NC106207	PVU
D0ZDZLL	IBM WebSphere Application Server Liberty Core	WebSphere Application Server Liberty Core 8.5	NC106166	PVU

Figure 6-4 Manually compiled document for current infrastructure and entitlements

The next step is to compare the information of both sources and make any necessary adjustments in the Software Classification panel to make them match.

6.3.1 Bundling reflects the infrastructure

There are two ways that help the automatic bundling tool closely align with your purchased offerings and reduce the reconciliation effort:

- Update the Software Catalog to reflect the latest one published by IBM. For detailed instructions on how to get the latest catalog and to upload it, see “Working with software catalogs” in the License Metric Tool section of the IBM Knowledge Center:
<http://ibm.co/1CnThD7>
- Import the part numbers of the software offerings that were purchased from IBM. They can be downloaded from Passport Advantage or obtained from your records. When the product part numbers are imported and processed by the data import mechanism, that forces the autobundling to use those part-number rules to bundle products. For detailed instructions on how to obtain and upload part numbers, see “Part numbers” in the IBM Knowledge Center (License Metric Tool 9.0.0 > Managing software inventory > Reviewing software inventory > Automated bundling > Part numbers):
<http://ibm.co/Y9JIIG>

If the structure is reflected correctly in the License Metric Tool, the next step is to confirm the instances. It is important to confirm them so that bundle assignments get saved, future autobundling is triggered by software discoveries, and Software Catalog updates do not modify the bundles already created. This also assures clarity in pricing calculations.

Instances can be confirmed either one by one as they get analyzed or by release if you are satisfied with the whole release's assignments. To do this, right-click the release that you want to confirm, and select **Confirm the assignment of instances**. All of the instances in this release will be confirmed. A check mark in the Confirmed column indicates that the bundle assignments have been set. You can still change components to another product if they were incorrectly assigned by mistake. The confirmation merely indicates that you agree with the assignments, and calculations in the PVU report can be used for auditing purposes. Figure 6-5 shows an example.

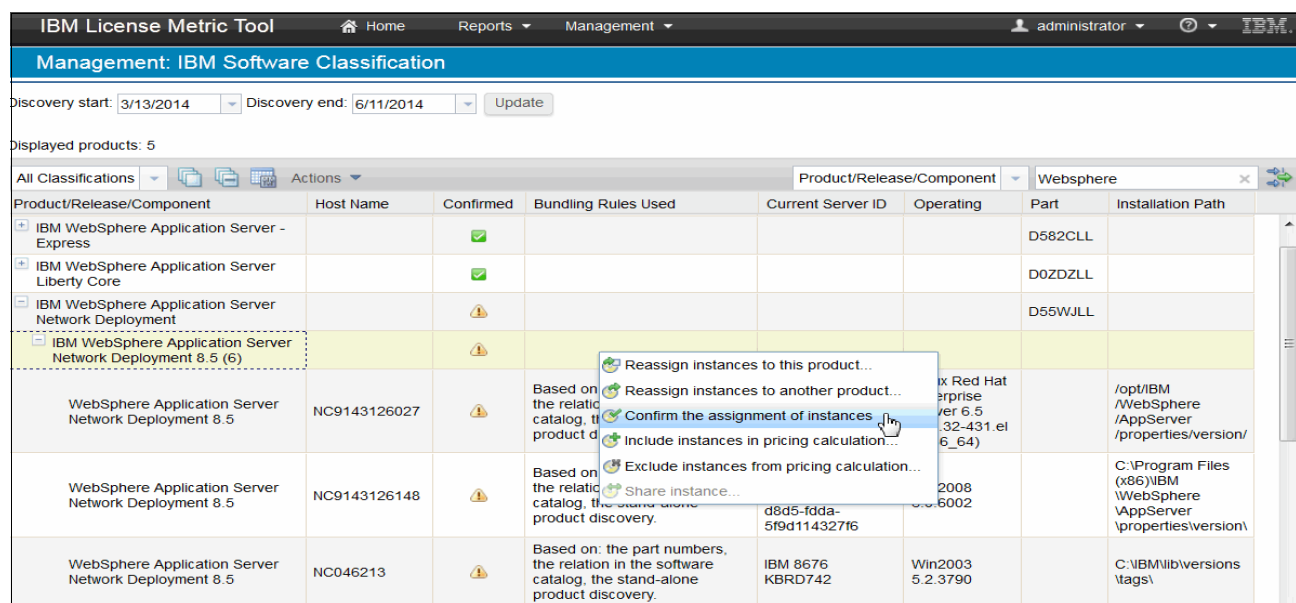


Figure 6-5 Confirmation of instances

The License Metric Tool dashboard, shown in Figure 6-6 on page 56, is a convenient way to see the status of the Software Classification panel and check whether there are unconfirmed IBM products that need to be reassigned or confirmed. The dashboard also indicates whether product part number files have been uploaded. As previously mentioned, that is an important step, because it assists in making bundling adjustments.

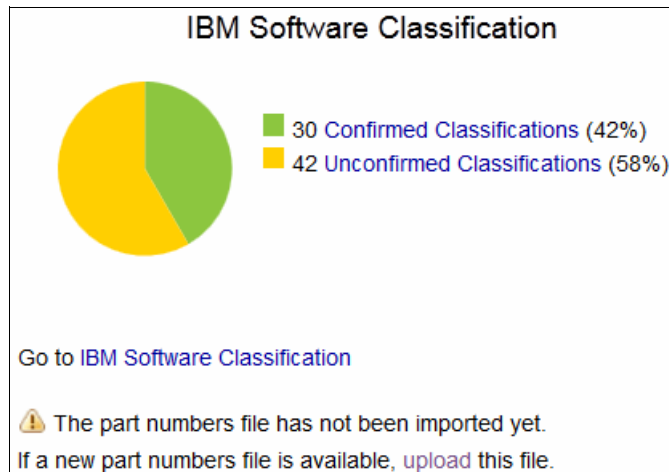


Figure 6-6 IBM Software Classification Dashboard

6.3.2 Bundling does not reflect infrastructure

To further demonstrate the software classification capabilities, assume that you want to adjust the bundling manually and that no part numbers have been imported.

In this example, the host NC9143126147 has an IBM Domino® Enterprise Edition social media hosting platform installed. The system also has an installation of WebSphere Application Server for purposes that are unrelated to the Domino installation.

The initial bundling assigned WebSphere Application Server – Base 8.5 to the Domino Enterprise Edition product, because with both instances on the same machine, the assumption is that they belong together. This is what is called the *co-location rule*. As you know from gathering information about your environment, the WebSphere Application Server – Base 8.5 on host NC9143126147 belongs to the billed product, WebSphere Application Server, and the initial assignment needs to be corrected.

In a similar way, if your infrastructure document was different and you knew that the WebSphere Application Server Base 8.5 component on NC9143126147 was at no charge because it belongs to the Domino Enterprise Edition, and autobundling assigned it to the WebSphere Application Server product, you would need to correct the assignment. By correcting it, your company avoids unnecessary charges.

To reassign it to the correct product, complete these tasks:

1. Right-click the **WebSphere Application Server – Base 8.5** instance from host NC9143126147, which is under Domino Enterprise Edition, and select **Reassign Instances to another product**, as shown in Figure 6-7 on page 57. This will display a list of products that can be related to this particular instance. These suggestions are based on the relationships described on the Software Catalog, among other rules such as part number relationships and co-location.
2. Select the IBM WebSphere Application Server 8.5 and click **Reassign**. You will notice that the instance is no longer related to the Domino installation, and the Unconfirmed warning sign under the Confirmed column has been replaced by a check mark, as shown in Figure 6-8 on page 57. This means that the new assignment has been recorded and autobundling will not try to rearrange this component relationship even if there are new Software Catalog or part number uploads. Also notice the top message that the PVU calculation needs to be updated with the new bundling assignment.

IBM License Metric Tool Home Reports Management administrator IBM

Management: IBM Software Classification

Discovery start: 3/14/2014 Discovery end: 6/12/2014 Update

Displayed products: 6

Unconfirmed Classifications Actions Product/Release/Component Websphere

Product/Release/Component	Host Name	Confirmed	Bundling Rules Used	Current Server ID	Operating	Part Numbers	Installation Path
IBM Domino Enterprise Server							
IBM Domino Enterprise Server 9.0 (1)							
WebSphere Application Server - Base 8.5	NC9143126147		Based on: the software co-location, the relation in the software catalog.	TLM_VM_4236a2f2-ab00-ea7f-bac0-082c83e2ab5f	Win2008R2 6.1.7601		C:\Program Files (x86)\IBM\WebSphere\AppServer\properties\version\
IBM WebSphere Application Server							
IBM WebSphere Application Server 8.5 (1)							
WebSphere Application Server - Base 8.5	NC047005		stand-alone product discovery.	TLM_VM_420b864e-e914-7498-8dea-bb56b607858b	Win2012 6.2.9200		C:\Liberty\lib\versions\tags\
IBM WebSphere Application Server - Express							

Reassign instances to this product...
 Reassign instances to another product...
 Confirm the assignment of instances
 Include instances in pricing calculation...
 Exclude instances from pricing calculation...
 Share instance...

Figure 6-7 Reassignment of an instance, before reassignment

IBM License Metric Tool Home Reports Management administrator IBM

Management: IBM Software Classification

CODUI00401 Action successful. To get an up-to-date usage report, you must now recalculate the metric values. Open the All IBM Metrics report, and click Recalculate.

Discovery start: 3/14/2014 Discovery end: 6/12/2014 Update

Displayed products: 5

All Classifications Actions Product/Release/Component Websphere

Product/Release/Component	Host Name	Confirmed	Bundling Rules Used	Current Server ID	Operating	Part Numbers	Installation Path
IBM WebSphere Application Server							
IBM WebSphere Application Server 8.5 (2)							
WebSphere Application Server - Base 8.5	NC047005		Based on: the relation in the software catalog, the stand-alone product discovery.	TLM_VM_420b864e-e914-7498-8dea-bb56b607858b	Win2012 6.2.9200		C:\Liberty\lib\versions\tags\
WebSphere Application Server - Base 8.5	NC9143126147		User-bundled.	TLM_VM_4236a2f2-ab00-ea7f-bac0-082c83e2ab5f	Win2008R2 6.1.7601		C:\Program Files (x86)\IBM\WebSphere\AppServer\properties\version\
IBM WebSphere Application Server - Express							

Figure 6-8 Reassignment of an instance, after reassignment

6.3.3 Bundling reflects infrastructure and needs further adjustments

There might be cases that components are assigned to the correct product but should not be included in pricing calculations. For example, the WebSphere Application Server Express V 8.5 is installed on host NC106178. The software inventory detected that there are two installations of it in the same system. Your infrastructure analyst concluded that both are components of a different product that will not be charged. You can exclude it by following these steps:

1. Right-click one of the instances of WebSphere Application Server Express 8.5 from host NC106178, and select **Exclude Instances from pricing calculation**. The instance that you selected will be displayed on the pop-up window. Click **Next**.
2. Select the reason for exclusion. For example, **Not eligible for licensing**, as shown in Figure 6-9, and click **Exclude**. Notice that after this step, both instances from host NC106178 are excluded and an exclusion icon appears next to the instances. You could have selected both instances to exclude and attain the same results. This is because pricing calculations are done at the product level, and excluding one instance or multiple instances under the same agent has the same effect for PVU calculations.

The screenshot shows the IBM License Metric Tool interface. At the top, there's a navigation bar with 'Home', 'Reports', and 'Management' tabs. Below this is a header 'Management: IBM Software Classification'. A message box indicates a successful action: 'CODUI00401 Action successful. To get an up-to-date usage report, you must now recalculate the metric values. Open the All IBM Metrics report, and click Recalculate.' Below the message, there are filters for 'Discovery start' (3/14/2014) and 'Discovery end' (6/12/2014), with an 'Update' button. The 'Displayed products: 6' section shows a table of software instances. The table has columns: Product/Release/Component, Host Name, Confirmed, Bundling Rules Used, Current Server ID, Operating, Part Numbers, and Installation Path. The table lists several instances of WebSphere Application Server Express 8.5. One instance is highlighted with a right-click context menu open, showing the option 'Excluded: Not eligible for licensing'. The table also shows instances that are confirmed (green checkmark) and those that are not confirmed (yellow warning icon).

Product/Release/Component	Host Name	Confirmed	Bundling Rules Used	Current Server ID	Operating	Part Numbers	Installation Path
IBM WebSphere Application Server - Express		⚠					
IBM WebSphere Application Server - Express 8.5 (3)		⚠					
WebSphere Application Server - Express 8.5	NC106178	✅	User-confirmed. Based on: the relation in the software catalog, the stand-alone product discovery.	IBM 8233 06A857P	AIX 6.1		/usr/IBM/WebSphere/AppServer/properties/version/
WebSphere Application Server - Express 8.5	NC106178	✅	User-confirmed. Based on: the relation in the software catalog, the stand-alone product discovery.	IBM 8233 06A857P	AIX 6.1		/usr/IBM/WebSphere/Liberty/lib/versions/tags/
WebSphere Application Server - Express 8.5	NC106207	⚠	Based on: the relation in the software catalog, the stand-alone product discovery.	IBM 8233 06A84BP	AIX 6.1		/usr/IBM/WebSphere/Liberty/lib/versions/tags/
IBM WebSphere Application Server Liberty Core		⚠					
IBM WebSphere							

Figure 6-9 Exclusion of an instance

Another scenario that might need bundling adjustment is when two different products use the same component. The products may be charged separately, but the current IT infrastructure has only one installation of that component. For example, the Software Inventory discovered only one instance of WebSphere Application Server Network Deployment 8.5 on system

NC9143126027. In reality, the IBM WebSphere Portal Server 8.0 is also using that application server. These are the steps to mark the instance as shared:

1. Right-click the shared instance of WebSphere Application Server Network Deployment 8.5, and select **Share instance** as depicted in Figure 6-10. The list of products that appear after that represents all possible products that this instance can be related to or shared with, based on the relationship details in the Software Catalog, among other rules.
2. Select **IBM WebSphere Portal Server 8.0**. Search for the product by using the filtering option at the upper-right of the pop-up window. Notice that WebSphere Application Server Network Deployment 8.5 is already selected. The check mark indicates that all of the products that list share this instance.
3. Click **Share**.

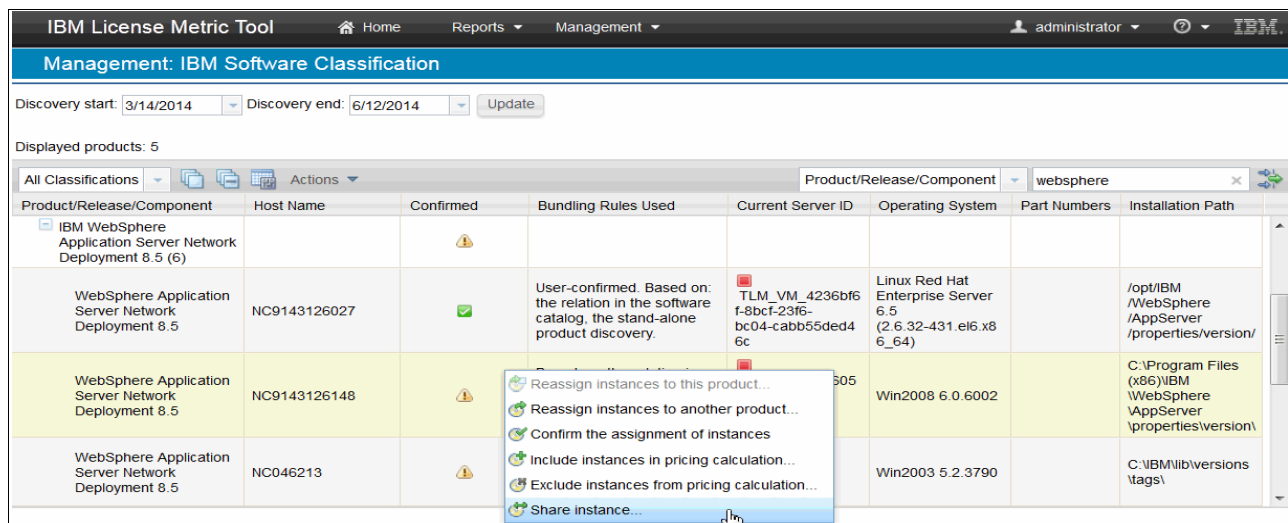


Figure 6-10 Sharing of an instance, before sharing

Notice that the instance is then listed under both products and will be counted twice in pricing calculations, one for the WebSphere Application Server entitlement and one for the WebSphere Portal Server entitlement. However, for this example, License Metric Tool detects in the Software Catalog that the application server used by the portal server is at no additional charge. Therefore, the WebSphere Application Server Network Deployment 8.5 instance will be charged only as a part of the WebSphere Application Server Network Deployment 8.5 product. This is noted on Figure 6-11 on page 60 by the free-of-charge icon that is displayed alongside the WebSphere Application Server Network Deployment 8.5.

IBM License Metric Tool

Home

Reports

Management

administrator

IBM

Management: IBM Software Classification

Discovery start: 3/14/2014

Discovery end: 6/12/2014

Update

Displayed products: 2

Confirmed Classifications

Actions

Product/Release/Component

Deployment

Product/Release/Component	Host Name	Confirmed	Bundling Rules Used	Current Server ID	Operating System	Part Numbers	Installation Path
IBM WebSphere Application Server Network Deployment							
IBM WebSphere Application Server Network Deployment 8.5 (2)							
WebSphere Application Server Network Deployment 8.5	NC9143126027		User-confirmed. Based on: the relation in the software catalog, the stand-alone product discovery.	TLM_VM_4236bf6-f8bcf-23f6-bc04-cabb55ded46c	Linux Red Hat Enterprise Server 6.5 (2.6.32-431.el6.x86_64)		/opt/IBM/WebSphere/AppServer/properties/version/
WebSphere Application Server Network Deployment 8.5	NC9143126148		User-confirmed. Based on: the relation in the software catalog, the stand-alone product discovery.	TLM_VM_42360574-6a36-d8d5-fdda-5f9d114327f6	Win2008 6.0.6002		C:\Program Files (x86)\IBM\WebSphere\AppServer\properties\version\
IBM WebSphere Portal Server							
IBM WebSphere Portal Server 8.0 (1)							
WebSphere Application Server Network Deployment 8.5	NC9143126148		User-confirmed. Based on: the relation in the software catalog, the stand-alone product discovery.	TLM_VM_42360574-6a36-d8d5-fdda-5f9d114327f6	Win2008 6.0.6002		C:\Program Files (x86)\IBM\WebSphere\AppServer\properties\version\

Figure 6-11 Sharing of an instance, after sharing



Reviewing Subcapacity Reports in the WebSphere example

This chapter discusses the IBM PVU Subcapacity Reports that are used to analyze license use and produce the data for IBM licensing audits.

After you read this chapter, you will have an understanding of how this report is calculated and how to adjust the time range of the report to discover over-use or under-use of licenses.

This chapter include the following topics:

- ▶ 7.1, “Understanding PVU Subcapacity Reports” on page 62
- ▶ 7.2, “Actions necessary to prepare the audit report” on page 62
- ▶ 7.3, “Details of the Subcapacity Report” on page 63

7.1 Understanding PVU Subcapacity Reports

As described in previous chapters, to stay compliant with IBM pricing rules, you must provide proof of the entitlements that your company uses. To benefit from *subcapacity* licensing, one of your duties is to install and maintain the IBM License Metric Tool within your infrastructure. The sole purpose of License Metric Tool is to produce the IBM PVU Subcapacity Report that proves that your company is compliant with IBM licensing requirements.

The PVU Subcapacity Report is the primary way of communication between IBM and your company in terms of PVU subcapacity compliance. Essentially, it is an audit report that has several layers:

- ▶ The top layer, called *Product*, gathers information about PVU products discovered in your company's infrastructure, along with the products' names and calculated values. In some specific situations, there is an optional comment for each product.
- ▶ The next layer, called *Servers*, has more detailed information. You can see the PVU for the selected product and specific information about all servers where the product was discovered. This includes all information about PVU values that is used by each physical server and information about the processor that was discovered on each.
- ▶ The last layer, called *Partitions*, contains the most detailed information. It includes all information from the other two layers: Product name, number of PVUs and cores, and processor type. It adds the number of PVUs assigned to the found processor. There is also a list of all physical and virtual systems detected with the product. The list includes the product version and information about when the last software scan was performed.

7.2 Actions necessary to prepare the audit report

To get to the point where you are sure to be compliant, follow this procedure:

- ▶ Make sure that components of the installed products are properly discovered (see Chapter 6, "Using the License Metric Tool to bundle WebSphere products" on page 49).
In the example that we show in this chapter, first make sure that the component named "WebSphere Application Server Network Deployment 8.5" has been discovered. After looking at the Software Installations panel and filtering for "WebSphere Application Server Network Deployment," you can see that it has been discovered on six different machines.
- ▶ Make sure that components are correctly assigned to the products (see Chapter 6, "Using the License Metric Tool to bundle WebSphere products" on page 49) and that any necessary adjustments are made.

For this example, we need to perform the following adjustments to the discovered software:

1. WebSphere Application Server Express edition has been excluded on one machine; therefore, it was not counted in the IBM PVU Subcapacity Report.
2. WebSphere Application Server Network Deployment has been incorrectly assigned by the tool to the IBM Domino Enterprise Server, so we manually changed this assignment.
3. WebSphere Application Server for Developers will not be counted in the pricing calculations because it is not a subcapacity product. We excluded it manually from pricing calculations.
4. Compare the results of the PVU calculations with the number of entitled licences.

This process is covered in Chapter 8, "Comparing License Metric Tool results to a WebSphere license" on page 65.

7.3 Details of the Subcapacity Report

Now we use the IBM PVU Subcapacity Report (also called the *audit report* here) as an example to explain some of the details.

In the License Metric Tool, there is a background process called *Extract-Transform-Load* (ETL) that fetches data from the IBM Endpoint Manager server. It can run either periodically (one or more times a day) or can be triggered manually by the user. Among other tasks, each ETL calculates the PVU values for all currently discovered products.

Every time that a change occurs to the software product bundling through the Software Classification panel, a recalculation is needed to update the reports' values. The recalculation can happen in two different ways: Either with the next scheduled data import or triggered manually.

When a data import is run, it detects that a recalculation is needed and processes the new values. The reports display the updated values after the import has succeeded. Or, if you do not want to wait for the next scheduled data import, you may trigger a recalculation by using the *Recalculate* button in the PVU Subcapacity Report. If the Recalculate button is disabled, that is an indication that the current report has the up-to-date values and no recalculation is needed.

When the PVU Subcapacity Report has all values calculated, you can change the range. The point of doing that will be clear when you know how the actual IBM PVU subcapacity pricing rules work.

7.3.1 How PVU subcapacity pricing rules work

To learn about those rules, take a look at following example, which is based on the real environment discovered. On Day 1 (6 June), there were only four installations on the four different virtual machines that were discovered. This discovery, in total, was calculated to have 600 PVUs. On Day 2 (7 June), two more installations were discovered, and the calculated number of PVUs increased to 940.

If you want to check the report covering 6.06 to 6.06 (only 6 June), you must calculate the maximum value for the entire reporting period, according to IBM pricing rules. Because it's only one day, the calculation assigns 600 PVUs. But if you extend this period to 6.06 through 8.06, you need to take the new discovery and the increased PVU values into consideration. Therefore, the PVU Subcapacity Report shows 940 PVUs, which is the maximum value from the selected period of time. By default, the report covers 90 days in the past, which is easily adjustable by selecting **Configure View** in the upper-right corner.

7.3.2 Sections of the report

Each PVU Subcapacity Report, as described previously, has three layers: product, servers, and installations. You can get different information from each of them.

- The *product* layer has information about all discovered PVU products, the maximum value of the PVU for a selected period of time, and the graph that shows how the PVU values have changed during this period. This is shown in Figure 7-1. When you click any product name, the user is directed to the product's details.

IBM PVU Subcapacity Time Range: 06/05/2014 - 06/11/2014 (UTC+02:00) Current Catalog Version: 1074305		
Product	License Peak Value	License Peak Value History
IBM WebSphere Application Server - Express	200	
IBM solidDB	300	
IBM WebSphere Application Server Liberty Core	100	
IBM WebSphere Application Server Network Deployment	940	
IBM WebSphere Application Server	200	
IBM Tivoli Security Compliance Manager	100	

Figure 7-1 IBM PVU Audit report, products

- In the *server* layer, you can see a list of all physical machines, along with processor type, CPU, and PVU values calculated for each of them. At the top of the table in Figure 7-2, there is information about the peak time, which is the time when the maximum value of the PVU was reached.

IBM PVU Subcapacity > IBM WebSphere Application Server Network Deployment Time Range: 06/05/2014 04:17 PM - 06/11/2014 04:17 PM (UTC+02:00) License Peak Value Time: 06/11/2014 03:00 AM						
Server Name	Processor	CPU Core Subcapacity Limit	CPU Core Subcapacity	PVU Subcapacity Limit	PVU Subcapacity	Comment
TLM_VM_4236064c-1bae-74...	Intel(R) Xeon(R), 3 or 4 Socke...	2	2	200	200	Incomplete virtualization hiera...
TLM_VM_4236b9f-8bdf-23f6...	Intel(R) Xeon(R), 3 or 4 Socke...	2	2	200	200	Incomplete virtualization hiera...
TLM_VM_42360574-6a36-d8...	Intel(R) Xeon(R), 3 or 4 Socke...	1	1	100	100	Incomplete virtualization hiera...
IBM 8676 KBRD742	Intel(R) Xeon(R) or Pentium(R)...	1	1	100	100	
TLM_VM_4236f569-a59d-677...	Intel(R) Xeon(R), 3 or 4 Socke...	2	2	200	200	Incomplete virtualization hiera...
NC142182	Intel(R) Xeon(R) Multi-core 34...	24	2	1,680	140	

Figure 7-2 IBM PVU Audit report, servers

- After clicking on any of physical servers, you can see the *installation* layer, which shows a list of all virtual machines on the product that you selected. The first panel was installed during a peak time (which is shown on the second layer). See Figure 7-3 on page 64.

IBM PVU Subcapacity > IBM WebSphere Application Server Network Deployment > NC142182							
Time Range: 06/05/2014 04:17 PM - 06/11/2014 04:17 PM (UTC+02:00)			Processor: Intel(R) Xeon(R) Multi-core 3400-3699 or 5500-5699		License Type: PVU Subcapacity		
License Peak Value Time: 06/11/2014 03:00 AM			PVU per Core: 70				
Computer	OS	IP Address	Product Version	Component	Path	Last Seen ▲	Comment
⚠ NC142184	Linux SuSE Enterprise S...	9.158.142.184	8.5	WebSphere Application Server Network Deployment 8.5	/IBM/wplib/lib/versions/tags/	06/06/2014	

Figure 7-3 IBM PVU Audit report, product installations

7.4 What to do next

In the next step to make sure that your company is compliant with subcapacity license rules, you compare the tool's calculations with the actual license entitlements. To learn how to do that, see Chapter 8, "Comparing License Metric Tool results to a WebSphere license" on page 65.



Comparing License Metric Tool results to a WebSphere license

This chapter describes comparing the use of subcapacity licenses for WebSphere Application Server products discovered by the IBM License Metric Tool to the entitlement inventory reported in the IBM Passport Advantage portal.

This chapter does not describe the Passport Advantage portal. The purpose is to provide examples of how License Metric Tool reports can be compared to Passport Advantage records. For detailed information about the Passport Advantage portal, see the documentation and help options in the portal.

This chapter includes the following topics:

- ▶ 8.1, “Passport Advantage portal introduction” on page 66
- ▶ 8.2, “Comparing Passport Advantage portal reports to License Metric Tool reports” on page 66

8.1 Passport Advantage portal introduction

The Passport Advantage web pages are the IBM license acquisition and software distribution gateways:

- ▶ Passport Advantage Express is to meet the needs of medium-sized businesses and single-site enterprises.
- ▶ Passport Advantage is for larger enterprises and enterprises with multiples sites. both enable you to handle several kinds of transactions:
 - Acquire IBM software licenses
 - Renew software subscriptions, support, and fixed-term licenses
 - Subscribe to the IBM software as a service (SaaS) cloud offering
 - Acquire IBM appliances
- ▶ Passport Advantage Online is a web portal where you can manage your Passport Advantage accounts online.

8.2 Comparing Passport Advantage portal reports to License Metric Tool reports

In the following example, we assume that an IBM client purchased licenses for the IBM WebSphere Application Server products listed in Table 8-1. Licenses for the software may be purchased through Passport Advantage Online, through an IBM Business Partner, or through a local IBM sales office.

Table 8-1 Part numbers purchased

Item	Part Number
IBM WEBSHERE APPLICATION SERVER PROCESSOR VALUE UNIT (PVU) LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	D55W8LL
IBM WEBSHERE APPLICATION SERVER - EXPRESS PROCESSOR VALUE UNIT (PVU) LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	D582CLL
IBM WEBSHERE APPLICATION SERVER LIBERTY CORE PROCESSOR VALUE UNIT (PVU) LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	D0ZDZLL
IBM WEBSHERE APPLICATION SERVER NETWORK DEPLOYMENT PROCESSOR VALUE UNIT (PVU) LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	D55WJLL
IBM WEBSHERE APPLICATION SERVER FOR DEVELOPERS AUTHORIZED USER LICENSE + SW SUBSCRIPTION & SUPPORT 12 MONTHS	D51JXLL

To review the inventory of the current entitlements and compare the list to the license use reports generated by the License Metric Tool, perform the following steps:

1. Sign in to Passport Advantage Online portal.
2. Navigate to **Entitlements** to view the entitlement inventory and deployments.

3. Select the site that you want to review, and generate a report.

This report provides a consolidated view of your entitlements, based on your transaction history, license migrations, and evolution data. It is not meant to be a definitive record of all entitlements for compliance or audit purposes. Entitlements are to be confirmed your IBM representative for all of your purchases, and you must contact your IBM representative about necessary adjustments.

4. Find the rows that contain the WebSphere Application Server products.

You can search for part numbers that are included in Table 8-1 on page 66 (for example, D55W8LL, D55WJLL, D582CLL) to match against the License Part Number column. You can also search for product names to match against the Current Product column. In the latter case, use the following product names:

- WebSphere Application Server Processor Value Unit
- WebSphere Application Server ND Processor Value Unit
- WebSphere Application Server Express Value Unit

5. Review values in the Software License or Appliance Quantity and in Active Subscription and Support Quantity columns. Examples are provided in Figure 8-1 and Figure 8-2.

Brand	Current Product	Transaction History	Product history and evolutions	Software License or Appliance Quantity	Active Subscription & Support Quantity	Active Subscription & Support End Date	Future Subscription & Support Quantity	Future Subscription & Support End Date
AIM	WAS ND Processor Value Unit			1,000	1,000	31 Dec 2014	0	
AIM	WAS Processor Value Unit			100	100	31 Dec 2014	0	

Figure 8-1 Entitlement records for WebSphere Application Server and WebSphere Application Server Network Deployment, columns 1 - 9

License Quantity Not Covered by Subscription & Support	Fixed Term License Quantity	Monthly License Quantity	SaaS Quantity	Deployed Quantity	License Part Number	Reinstatement Part Number	Renewal Part Number	Additional Part Numbers
0	0	0	0		D55WJLL	D55WKLL	E025SLL	
0	0	0	0		D55W8LL	D55W9LL	E025QLL	

Figure 8-2 Entitlement records for WebSphere Application Server and WebSphere Application Server Network Deployment, columns 9 - 18

6. Compare these values to the License Peak Value in the IBM PVU Subcapacity Report for WebSphere Application Server products that are in the License Metric Tool. Determine whether you have sufficient license, subscription, and support quantities to cover this deployment. Figure 8-3 on page 67 shows an example of the quantities reported.

Product	License Peak Value	License Peak Value History
IBM WebSphere Application Server Network Deployment	940	03/13/2014 - 06/11/2014
IBM WebSphere Application Server	100	

Figure 8-3 PVU Subcapacity Report in License Metric Tool

The Passport Advantage report uses abbreviated product names (for example, WAS ND Processor Value Unit), but the License Metric Tool uses full product names (for example, IBM WebSphere Application Server Network Deployment). If you are uncertain which to use, you can use part numbers that are reported by both tools to unambiguously reconcile the records. Figure 8-4 shows part number information included in the License Metric Tool in the IBM Software Classification panel.



Product/Release/Component	Confirmed	Part Numbers
IBM WebSphere Application Server		E025QLL, D55W9LL, D55W8LL
IBM WebSphere Application Server Network Deployment		D55WKLL, E025SLL, D55WJLL

Figure 8-4 Part number information in the Software Classification panel in License Metric Tool

Table 8-2 summarizes data extracted from License Metric Tool and Passport Advantage reports. Notice that one of the purchased products, IBM Application Server for Developers, is licensed with an Authorized User metric. The License Metric Tool will not calculate the license use for this product at this point. However, this product will be included in the list of discovered software. Similarly, this product will be included in the Passport Advantage Entitlement report if the license has been purchased. You can use this data to make sure that you have a license for the product and that you have installed the licensed product.

Note: If you have multiple sites, you might need to consolidate entitlement quantities across the sites.

Table 8-2 Comparison of license use quantity from License Metric Tool and Passport Advantage data

License Metric Tool product name	Passport Advantage product name	License part number	License Metric Tool license quantity	Passport Advantage license quantity	Active subscription and support quantity
IBM WebSphere Application Server Network Deployment	WAS ND Processor Value Unit	D55WJLL	940	1000	1000
IBM WebSphere Application Server	WAS Processor Value Unit	D55W8LL	100	100	100



A

Maintenance

The following topics in this appendix describe how to maintain the IBM License Metric Tool 9.x application:

- ▶ A.1, “Import the PVU table” on page 70
- ▶ A.2, “Import the latest IBM Software Catalog” on page 70
- ▶ A.3, “Installing LMT 9.x patches” on page 71

A.1 Import the PVU table

IBM continues to update the PVU table to include new processor types and models. This updated table is released periodically through IBM Support and can be imported into IBM License Metric Tool through the user interface.

A.1.1 How to import the updated PVU table

To import the updated PVU table into IBM License Metric Tool 9.x, follow these steps:

1. Log in to IBM License Metric Tool.
2. Under IBM PVU Subcapacity, notice the version of the latest imported PVU table. This version is denoted with a date stamp.
3. Click the **Check** link to go to the IBM Support site to download the current PVU table.
4. After you have downloaded it, return to License Metric Tool and click the **Upload** link.
5. Then, click **Browse**, select the IBM_ProcessorValueUnitTable XML file, and **Open**.
6. Click **Upload**.

Figure A-1 shows the message that is displayed after a successful import.

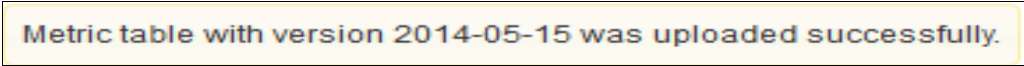
A screenshot of a message box with a yellow border. The text inside reads: "Metric table with version 2014-05-15 was uploaded successfully." The text is in a blue, sans-serif font.

Figure A-1 Successful PVU table upload message

A.2 Import the latest IBM Software Catalog

The Software Catalog is updated regularly to include software signatures for new and existing IBM products. These signatures are used by the License Metric Tool to discover installed software on an endpoint and correctly report its installation.

IBM recommends importing every new release of the Software Catalog. You can import it within the License Metric Tool user interface.

A.2.1 How to import the updated Software Catalog

To import the latest Software Catalog version into IBM License Metric Tool 9.x, please follow these steps. Please note that these steps makes the assumption the update catalog has already been downloaded.

1. Log into IBM License Metric Tool.
2. From the Management drop-down menu, select **Catalog Upload**. Figure A-2 on page 71 shows the location of the Catalog Upload menu item.

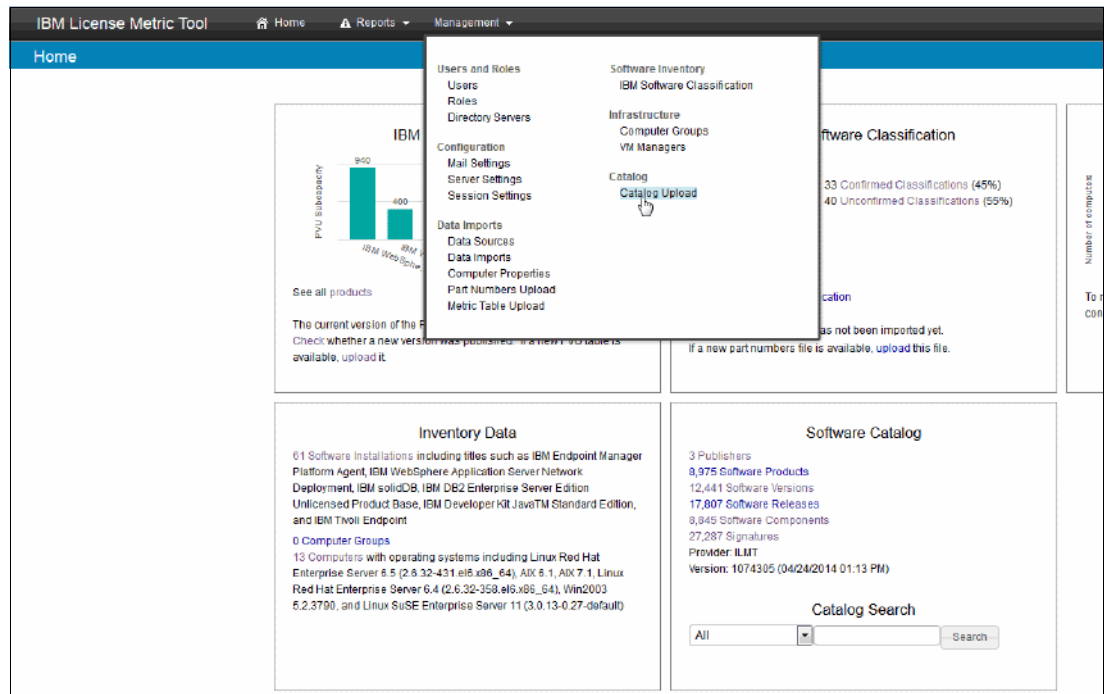


Figure A-2 The Catalog Upload menu item

3. Click **Browse** button and select the updated IBM Software Catalog XML file.
4. Click **Upload** button to complete the catalog update.

A.3 Installing LMT 9.x patches

Patches for the License Metric Tool can contain fixes for security vulnerabilities, along with many other fixes that will keep your environment working optimally and safely. You can install these patches in either of two ways:

- ▶ Automated patch installations
- ▶ Manual patch installations

Both of these methods are discussed in the sections that follow.

A.3.1 Automated patch installation

When IBM releases a patch for the License Metric Tool, it is published to the external IBM production site. You can register this site within your Endpoint Manager console and push the upgrade to your License Metric Tool 9.x server.

To upgrade the License Metric Tool server by using the Endpoint Manager console fixlet, follow these steps:

1. Log in to the **IBM Endpoint Manager** console.
2. From the All Content view, click **Expand Sites** → **External Sites** → **IBM License Reporting (ILMT) v9**.
3. Then, click **Fixlets and Tasks**.

4. From the Fixlets and Tasks pane (Figure A-3), select **Upgrade to IBM License Metric Tool 9 <PATCH_VERSION>**.
5. Click **Take Action** in the bottom pane to open the Take Action dialog window.
6. Under the Target tab, select the name of the License Metric Tool 9.x server, and click **OK**.
7. The “Upgrade to IBM License Metric Tool 9.0” task appears as an action and remains in the Open state until the action is finished.

Fixlets and Tasks						
Name	Source Severity	Site	Applicable Co...	Open Action C...	Category	Download Size
Add Targeting Exception	Low	IBM License Reporting (ILMT) v9	13 / 13	0	Configuration	<no download>
Create Capacity Configuration for Linux on z...	High	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Delete Capacity Configuration for Linux on z...	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Download IBM License Metric Tool	High	IBM License Reporting (ILMT) v9	4 / 13	0	Deployment	300 MB
Edit Capacity Configuration for Linux on z/VM	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Edit Scanner Trace Settings	Low	IBM License Reporting (ILMT) v9	9 / 13	0	Troubleshooti...	<no download>
Initiate Scanner Diagnostic Tool	Low	IBM License Reporting (ILMT) v9	9 / 13	0	Troubleshooti...	63.65 MB
Initiate Software Scan	High	IBM License Reporting (ILMT) v9	12 / 13	1	Scanner	<no download>
Install Scanner	High	IBM License Reporting (ILMT) v9	0 / 13	0	Scanner	61.45 MB
Install VM Manager Tool	Low	IBM License Reporting (ILMT) v9	9 / 13	0	VM Managers	419 MB
Remove Targeting Exception	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Run Capacity Scan and Upload Results	High	IBM License Reporting (ILMT) v9	1 / 13	1	Scanner	284 KB
Run RPM Scan and Upload Results	High	IBM License Reporting (ILMT) v9	9 / 13	0	Scanner	<no download>
Set DSD Mode	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Software Catalog Update	High	IBM License Reporting (ILMT) v9	0 / 13	0	Deployment	14.19 MB
Uninstall Scanner	Low	IBM License Reporting (ILMT) v9	13 / 13	0	Scanner	<no download>
Uninstall VM Manager Tool	Low	IBM License Reporting (ILMT) v9	1 / 13	0	VM Managers	<no download>
Unset DSD Mode	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Configuration	<no download>
Upgrade to IBM License Metric Tool 9.0	High	IBM License Reporting (ILMT) v9	0 / 13	0	Deployment	300 MB
Upload Scanner Diagnostic Data	Low	IBM License Reporting (ILMT) v9	0 / 13	0	Troubleshooti...	<no download>
Upload Software Scan Results	High	IBM License Reporting (ILMT) v9	12 / 13	0	Scanner	<no download>
Upload VM Manager Tool Scan Results	Low	IBM License Reporting (ILMT) v9	1 / 13	1	VM Managers	284 KB

Figure A-3 The Fixlet® and Tasks pane in the IBM Endpoint Manager console

A.3.2 Manual patch installations

There are times when you will need to install an License Metric Tool 9.x patch manually. In these instances, IBM Support will provide the patch installation files.

Follow these steps to install the License Metric Tool patches manually:

Note: These steps are based on the assumption that the patch installation files have already been provided by IBM Support.

1. Copy the .tar installation file to the License Metric Tool server. An example of a name for the .tar file is LMT-server-9.0-20140604-1739-linux-x86_64.tar.gz, where 20140604-1739 represents the time stamp and build number of the patch.
2. As root, type gunzip (or unzip) LMT-server-9.0-20140604-1739-linux-x86_64.tar.gz to unzip the installation files.
3. As root, type tar -xvf LMT-server-9.0-20140604-1739-linux-x86_64.tar to expand the .tar archive.
4. Type cd LMT-server-9.0-20140604-1739-linux-x86_64 to change directory to the patch directory.
5. In the provided upgrade_response.txt file, change the RSP_LICENSE_ACCEPTED parameter to true, and then save that file.

6. To run the upgrade, type `./setup-server-linux-x86_64.sh -f`
`<full_path_to_response_file> -i silent`, and press Enter.
7. After the silent installation finishes, you will be pointed to the log directory that is under
`<INSTALL_PATH>` in an `LMT_9.0_timestamp_logs.tar.gz` archive file.



B

Troubleshooting

In the following topics, this appendix describes various troubleshooting techniques to easily determine and resolve common problems within IBM License Metric Tool 9.x:

- ▶ B.1, “Log collection” on page 76
- ▶ B.2, “Installation” on page 78
- ▶ B.3, “Initiate Software Scan fixlet is unavailable” on page 78
- ▶ B.4, “Debug fixlets” on page 78
- ▶ B.5, “Common problems” on page 80

B.1 Log collection

Version 9.x of the License Metric Tool creates the following log files that can be sent to IBM Support for analysis:

- ▶ Server installation logs
- ▶ Server log file
- ▶ Import logs

B.1.1 Server installation logs

The installer generates log files that can be used to determine why an install failed or to check whether an install completed successfully.

Log files created during installation are located at `$HOME/LMT9.0.0.1` in the `$HOME/ia.log` file. These logs are the first source to analyze if an error occurs while the installation is running.

If the installer completes the task but the installation of IBM License Metric Tool 9.x was not successful, analyze the log files in the `$HOME/LMT_9.0_timestamp_logs.tar.gz` archive.

After a successful installation, logs are located in the `install_path/LMT_9.0_timestamp_logs.tar.gz` archive.

B.1.2 Server logs

While the IBM License Metric Tool 9.x server is active, it continuously writes to the `tema.log` file in the `install_dir/wlp/usr/servers/server1/logs/` directory.

B.1.2.1 Modifiable settings

The application allows administrators to modify the logging properties to best suit their environments. In the `install_dir/wlp/usr/servers/server1` directory, the `server.xml` file can be edited to change the following log settings.

<code>messageFilename</code>	The server log file name. The default is <code>tema.log</code> .
<code>logDirectory</code>	The server log file location. The default location is <code>install_dir/wlp/usr/servers/server1/logs/</code> .
<code>maxFileSize</code>	The maximum file size (in MB) that a log file can reach before it is rolled over. To disable this attribute, set the value to 0. By default, the value is 10.
<code>maxFiles</code>	If an enforced maximum file size exists, this setting is used to determine the maximum number of iterations of the server log file. If the log file reaches the maximum size that is defined in the <code>maxFileSize</code> parameter, the remaining messages roll over to another iteration of the file.

B.1.2.2 Supported log levels

The administrator can modify the `log4j.properties` file under the `/usr/servers/server1/config` directory to set the type of events that are recorded in the server log. The License Metric Tool uses the following log levels:

FATAL	Task cannot continue, and component, application, and server cannot function
ERROR	Error events that might still allow the application to continue running

WARN	Potential error or impending error (can also indicate a progressive failure)
INFO	General information that outlines the overall task progress
DEBUG	Fine-grained informational events that are most useful to debug an application

B.1.3 Import logs

During the import from IBM Endpoint Manager to License Metric Tool, the data import logs are written to the `install_dir\wlp\usr\servers\servers\server1\logs\import` directory. This log can be used to determine why a data import failed. Also, the latest import log can be found in the user interface, which can be accessed from the navigation bar.

Click **Management** → **Data Imports**. See Figure B-1 for an example of the import log, viewed from the user interface.

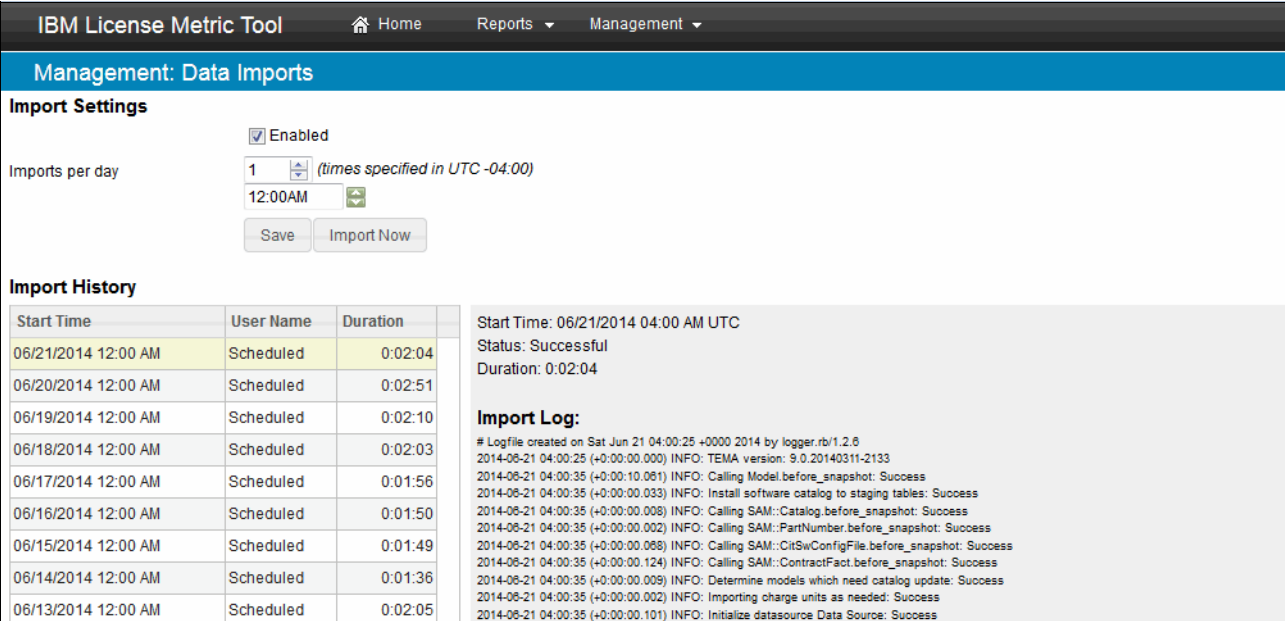


Figure B-1 Example of the import log as viewed from the user interface

B.1.3.1 Debug logging for the import process

If a data import fails, it might become necessary to collect more detailed debug information about what occurred during the import that caused it to fail. The debug entries include information about broken relationships, such as deleted component relationships.

To active the debug level for data imports, follow these steps:

- Go to `install_dir\wlp\usr\servers\server1\` directory and edit the `jvm.options` file.
- Append the following line to the file:
`-DTEMA_LOG_DEBUG=1`
- Restart the IBM License Metric Tool server by running the following scripts:
 - `install_dir\cli\srvestop.sh`
 - `install_dir\cli\srvestart.sh`

B.2 Installation

If you encounter a problem with the installation, analyze the log file that is in the `$HOME/LMT9.0.0.1` directory.

If you encounter a problem with slow installation of the License Metric Tool, check the following items:

- ▶ Check the performance and speed of the hard disk.
- ▶ Check whether the antivirus software scans each file separately. Separate scanning slows down packaging. If the antivirus software is scanning each file separately, turn it off by using the `/etc/init.d/rtvscand stop` command. If it cannot be turned off, expect the installation to be slower.

B.3 Initiate Software Scan fixlet is unavailable

If the Initiate Software Scan fixlet is not available to execute on the IBM Endpoint Manager console, follow these steps to check common reasons.

1. Verify that the Catalog Download task was completed on the affected client.
2. Verify that the IBM Software Catalog was download to the BES Client by checking for the existence of `catalog.bz2` in the `<INSTALL_DIR>/LMT/CIT/` directory.
3. Verify that the `CIT_Deny` parameter is set to 0. If it is set to 1, run the fixlet to Remove Targeting Exception for the affected client.

B.4 Debug fixlets

The Endpoint Manager console and BES Client include the Endpoint Manager Fixlet Debugger utility. This utility can be used to check fixlet relevance against servers that have the BES Client installed.

The Fixlet Debugger utility can be used to check why a task is not available for a given client. Each fixlet can have one or more relevance checks to determine whether a fixlet is valid for a given client.

B.4.1 Starting the Endpoint Manager Fixlet Debugger

This section describes how to start the IBM Endpoint Manager Fixlet Debugger on Microsoft Windows and UNIX operating systems.

Using the Endpoint Manager Fixlet Debugger GUI in Microsoft Windows

Click **Start** → **Programs** → **IBM Endpoint Manager** → **IBM Endpoint Manager Fixlet Debugger**.

Figure B-2 on page 79 shows the Fixlet Debugger prompt and a simple relevance check for `hostname`.

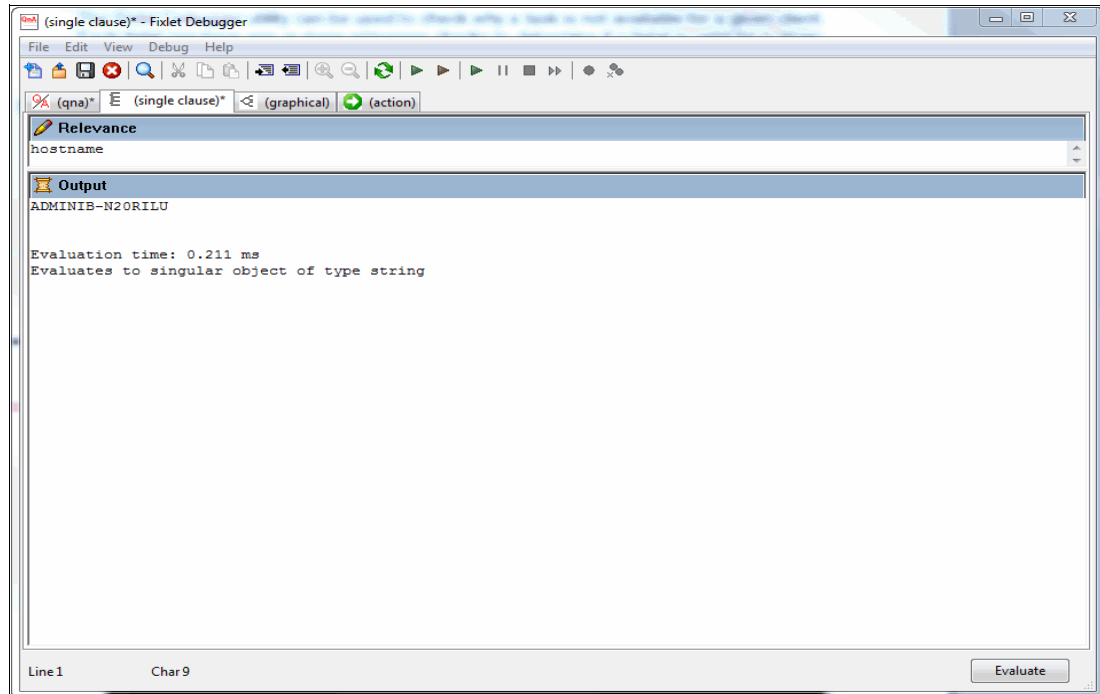


Figure B-2 IBM Endpoint Manager Fixlet Debugger on Microsoft Windows

Using the Endpoint Manager Fixlet Debugger in Red Hat Linux

Run the following command:

```
/opt/BESClient/bin/qna
```

Figure B-3 shows the Fixlet Debugger prompt and a simple relevance check for hostname.

```
[root@NC9128111205 /]# /opt/BESClient/bin/qna
Default masthead location, using /etc/opt/BESClient/actionsite.afxm
Q: hostname
A: NC9128111205
T: 5434

Q: 
```

Figure B-3 IBM Endpoint Manager Fixlet Debugger on RHEL Linux environment

B.4.2 Using Endpoint Manager Fixlet Debugger

IBM Endpoint Manager enables the fixlet developer to check the relevancy of a fixlet on clients. If the fixlet is not applicable for a specific client, the IBM Endpoint Manager Fixlet Debugger can be used to check what criteria is failing.

B.4.2.1 Relevancy check

To check the relevancy of a specific task, follow these steps:

1. Start Fixlet Debugger on the affected client.
2. From the IBM Endpoint Manager Console, copy the relevance from the fixlet to be checked. In this example, the Software Catalog Update fixlet is used.
3. In the Fixlet Debugger, paste the relevance content at the Q: prompt (Linux) or in the Relevance text box (Windows).

4. Press Enter (Linux) or click **Evaluate** (Windows).

In Figure B-4, the Fixlet Debugger checks whether the operating system contains “Linux” and returns *false*.

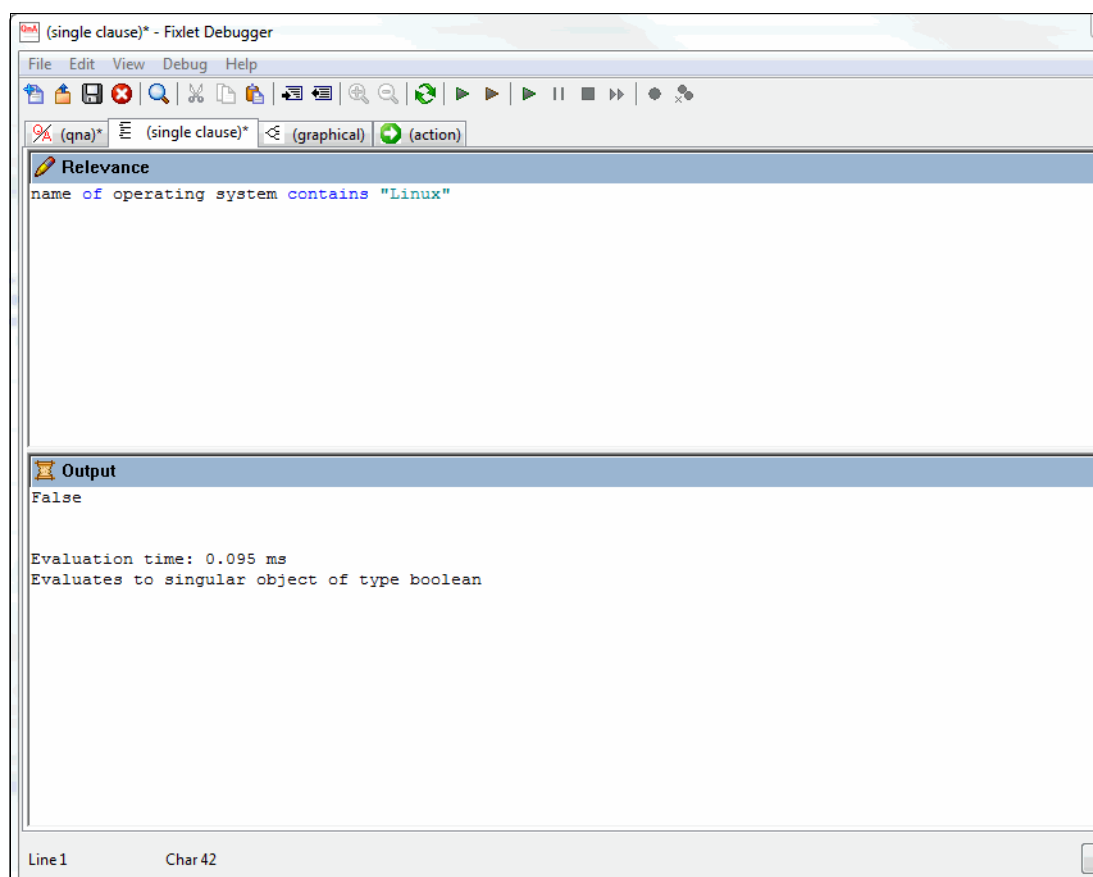


Figure B-4 Example of a relevance check that returns a “false” response

B.5 Common problems

This section describes common License Metric Tool problems and solutions.

B.5.1 The data import fails because the IBM DB2 transaction log is full

It is possible for the data import to fail because the transaction log becomes full and is unable to grow. If that problem occurs, the following error notice is added to the `tema.log` file:

The transaction log for the database is full

Complete the following steps to resolve the problem:

1. From the DB2 command line interface (CLI), connect to the License Metric Tool database.
2. Execute this statement:

```
UPDATE DATABASE CONFIGURATION FOR SUADB USING LOGFILESIZ <value>
```

Note: The <value> parameter is determined by the size of the environment. You can find the suggested values in the License Metric Tool Knowledge Center (License Metric Tool 9.0.0 > Tuning performance > Tuning performance in big data environments > Configuring the transaction logs size):

<http://ibm.co/1qFj0Sq>

3. Restart the DB2 and License Metric Tool applications.

B.5.2 Data import fails because there is insufficient disk space

If the import fails with the following error notice, the License Metric Tool server is out of disk space:

“INFO: ETL from Data Source data_source_name - RawDatasourceFixletResult: Failed”

To solve the problem, free some of the disk space.

B.5.3 DB2 and License Metric Tool logs report “Connection Refused”

After you restart the DB2 and License Metric Tool servers, if a *Connection Refused* message is written to the log file, it is because the DB2 database has not activated yet after the restart.

To establish the connection, follow these steps:

1. Log in to the DB2 command-line prompt.
2. Execute **db2 activate database <database_name>**.

The License Metric Tool can now connect to the DB2 database.

Related publications

The publications listed in this section are considered particularly suitable for more information about the topics covered in this paper.

Online resources

These websites are also relevant as further information sources:

- ▶ IBM License Metric Tool
<http://www.ibm.com/software/products/en/licensemetrictool>
- ▶ IBM License Metric Tool 9.0
<http://ibm.co/1tekn9y>
- ▶ IBM Endpoint Manager 9.1: System Requirements
<http://www.ibm.com/support/docview.wss?uid=swg21652841>
- ▶ Learn about software licensing
http://www.ibm.com/software/passportadvantage/about_software_licensing.html
- ▶ Virtualization Capacity License Counting Rules
<http://ibm.co/1q42AoA>
- ▶ IBM Knowledge Center: Planning and preparing for the installation
<http://ibm.co/1u5I8RF>
- ▶ IBM Endpoint Manager, Version 9.1: Installation Guide
<http://ibm.co/111YupM>
- ▶ IBM License Metric Tool 9.0 information center: Downloading files in air-gapped environments
<http://ibm.co/1wPGXez>
- ▶ DB2 10.5 for Linux, UNIX, and Windows: Installing
<http://ibm.co/1prepEe>
- ▶ You can download the agent installation packages from the IBM BigFix Enterprise Suite Download Center:
<http://support.bigfix.com/bes/install/downloadbes.html>
- ▶ For information about installing clients on Microsoft Windows systems:
<http://ibm.co/1rF3kRE>
- ▶ IBM Endpoint Manager, Version 9.1: Removing the Primary Server on Windows systems
<http://ibm.co/VWhbEh>
- ▶ IBM Endpoint Manager, Version 9.1: Removing the Primary Server on Linux systems
<http://ibm.co/XZwYn0>
- ▶ IBM Endpoint Manager, Version 9.1: Installing the clients
<http://ibm.co/1rF3wQV>

- ▶ IBM Endpoint Manager, Version 9.1: Setting up a proxy connection
<http://ibm.co/1q1DPkK>
- ▶ IBM License Metric Tool 9.0 information center: Centralized virtual machines management
<http://ibm.co/1pnAfbF>
- ▶ IBM License Metric Tool 9.0 information center: Deployment scenarios
<http://ibm.co/11z1bVi>
- ▶ IBM License Metric Tool 9.0 information center: VM Manager Tool installation requirements
<http://ibm.co/1sLqW37>
- ▶ IBM License Metric Tool 9.0 information center: VM Manager Tool
<http://ibm.co/YYXKwG>
- ▶ IBM License Metric Tool 9.0 information center: Setting up scans
<http://ibm.co/1sLnoh5>
- ▶ IBM Redbooks publications
<http://www.ibm.com/redbooks>

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Redpaper™

Simplify Software Audits and Cut Costs by Using the IBM License Metric Tool

Use IBM subcapacity licensing to pay only for actual use of licenses

Monitor IBM software license use to ensure compliance

Bundle IBM WebSphere data for easier audit reports

In this IBM Redpaper publication, you learn how to implement the IBM subcapacity licensing functions and the IBM License Metric Tool to track and manage licenses for your IBM WebSphere Application Server instances. It also summarizes the different licensing models that IBM employs, the advantages of using software asset management for IT companies, and explains how to save money by using these the subcapacity model for WebSphere Application Server licenses.

The primary purpose of the License Metric Tool is counting the processor value units (PVUs) and resource value units (RVUs) for subcapacity and full-capacity licensing models. It is a no-charge metric tool that many companies use as a regular software asset manager for IBM products.

This Redpaper shares installation and configuration scenarios for installing of the Endpoint Manager server, the License Metric Tool server, and the IBM DB2 database on a single computer or in distributed computing infrastructures. It describes how the application server components are discovered by the License Metric Tool software, explains how to interpret the inventory reports, and provides technical details about the software detection techniques that the tool uses.

You also learn about the software bundling process and how to manage the software inventory that is detected by using the Software Classification panel. You can then use the PVU Subcapacity Reports to analyze actual use of your licenses and produce the data for IBM license audits.

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