

# IBM Licensing Tools

ILMT and IBM  
License Service

## User Guide

**Effective:** January 2022

**Last update:** August 2022

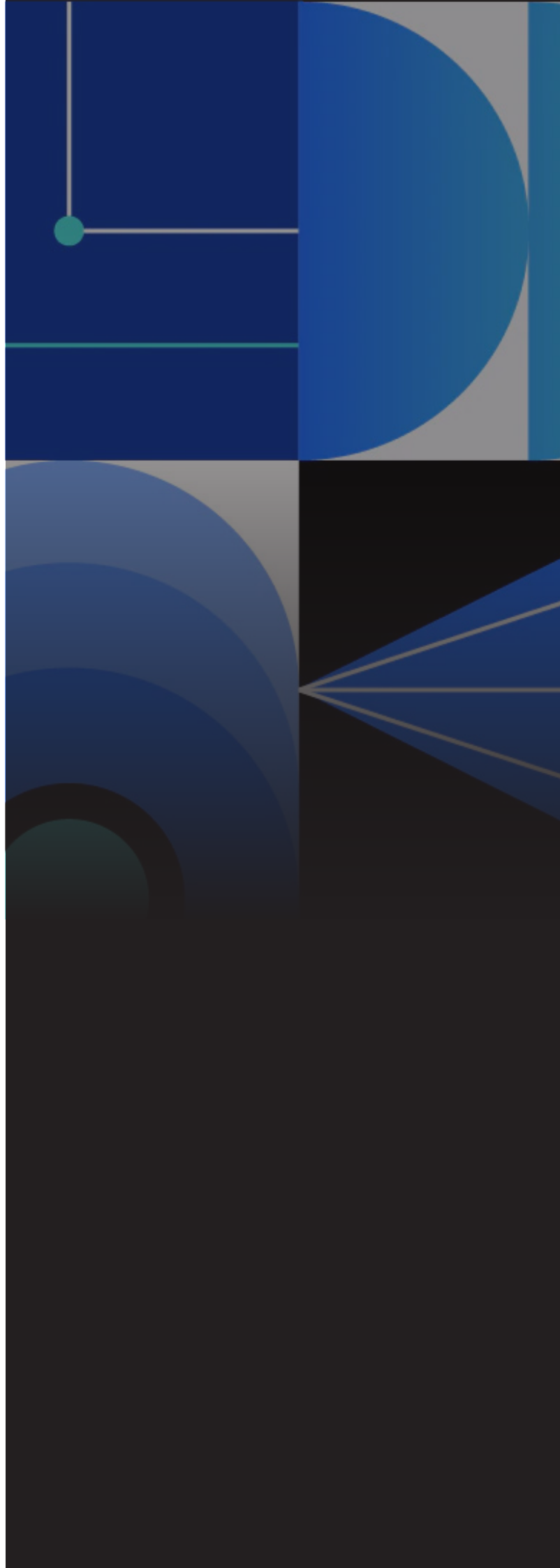


# Version History

Version	Updates
<b>February 2022</b>	<ul style="list-style-type: none"><li>– Initial version</li></ul>
<b>April 2022</b>	<ul style="list-style-type: none"><li>– Added detail regarding the various possible configurations of ILMT, and the components of ILMT which are necessary for a functioning system.</li><li>– Provided further context relating to how ILMT discovers components and assigns them to programs (using the built-in software catalog or software tags).</li><li>– Added content to the IBM License Service section reflecting the recently added capability to account for Hyperthreading and Simultaneous Multithreading (SMT), and provide links that explain how to enable this functionality.</li><li>– Updated the ILMT Lite Scenario to explain that ILMT Lite is now pre-approved for environments up to 500 virtual environments.</li><li>– Added a new Scenario relating to the recently announced Flexera One products.</li></ul>
<b>August 2022</b>	<ul style="list-style-type: none"><li>– Added detail regarding ILMT capability to collect metrics other than capacity based.</li></ul>

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# Overview

The use of an approved license metering tool is necessary to comply with the eligibility requirements of IBM Virtualization Capacity licensing policies for Sub-Capacity and Container Licensing. Clients often have difficulty ensuring that their deployment of these tools is complete and accurate. An improperly configured or incompletely deployed metering tool may report inaccurate license requirements. It may also mean that the client does not meet the Sub-Capacity or Container Licensing terms and is therefore required to license its IBM programs on a Full-Capacity basis. This can lead to significant findings in an audit context.

This guide is intended to provide information and best practice on setting up and managing the two IBM license metering tools: IBM License Metric Tool (ILMT) and IBM License Service. ILMT is one of the two eligible tools which clients must deploy to take advantage of Sub-Capacity licensing; IBM License Service is the only tool which allows clients to take advantage of Container Licensing.

This guide describes relevant scenarios and best practices but it is not intended to provide advice for specific client circumstances. Always consult your IBM representative should you have any questions or concerns about ILMT and IBM License Service tools in your IBM estate.

## Key Terms

The following terms are used throughout this document and are fundamental to understanding its contents. This is not an exhaustive list, and some concepts may be discussed in other licensing guides or rely on assumed knowledge.

### Activated Processor Core

A processor core that is made available to an IBM program, either in a physical or virtual machine, regardless of whether the capacity of the processor core can be (or is) limited through virtualization technologies, operating system commands, BIOS settings or similar restrictions.

### CPU Limit

A setting which constrains the processing capacity consumed by containers in a Kubernetes Namespace.

### Full-Capacity

The licensing of all the activated processor cores installed on the physical machine. In other words, the licensing of the full processing capacity of the physical machine.

### IBM License Metric Tool (“ILMT”)

An IBM tool used to measure consumption of certain IBM software metrics. Use of ILMT or HCL BigFix Inventory is one of the eligibility requirements for Sub-Capacity licensing.

### International Passport Advantage Agreement (“IPAA”)

An agreement which sets out licensing terms for all IBM programs licensed under the Passport Advantage program. It is available [here](#).

### International Passport Advantage Express Agreement (“IPAEA”)

An agreement which sets out licensing terms for all IBM programs licensed under the Passport Advantage Express program. It is available [here](#).

### Kubernetes

A program which manages (or “orchestrates”) the running of containerized applications. Kubernetes is a management platform and can manage multiple types of container technology.

### Kubernetes cluster

One or more worker nodes working together to run containerized applications.

### Pod

A set of one or more containers running on Kubernetes.

### Service Provider

An entity that provides information technology services for end user clients, either directly or through a reseller. This term is defined in the IPAA (clause 1.14), IPAEA (clause 1.10) and IPLA (clause 11).

### vCPU

Virtual Central Processing Unit. In IBM licensing, a vCPU is also referred to as a Virtual Processor Core (VPC). For those processors where hyperthreading or simultaneous multithreading (SMT) is enabled, a vCPU represents an available thread of the physical processor core.

### Virtualization Capacity

Methodology to measure consumption of licenses only for the CPU cores consumed by the virtual environment(s) where the IBM program is installed. The alternative is Full-Capacity, in which license consumption is calculated based on the entire processing capacity of the physical machine or infrastructure.

### Worker Node

A machine that provides a containerized environment for running tasks.

### Worker Node Capacity

The total capacity available to the worker node, measured by either virtual or physical processor cores.

## Introduction

### *Assumed Knowledge*

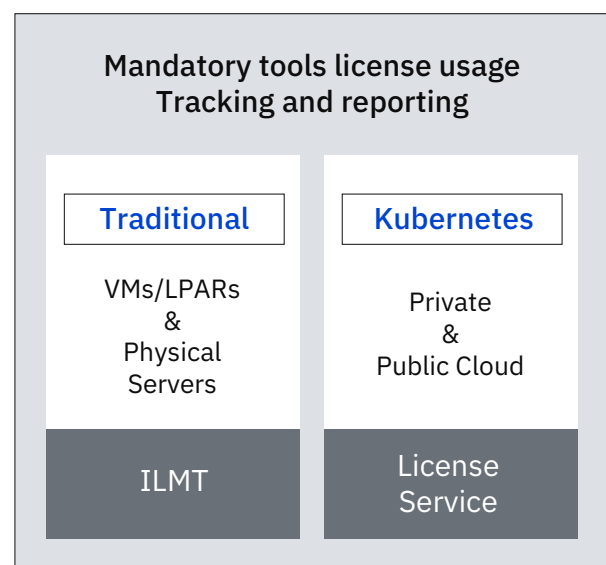
This guide assumes knowledge of the following topics which are the subject of other guides. They are all available on [this page](#).

- Virtualization Capacity: Sub-Capacity
- Virtualization Capacity: Container Licensing
- Cloud Paks
- Public Cloud

### *IBM's Licensing Tools*

ILMT and IBM License Service are IBM license metering tools, use of which is generally required to take advantage of IBM's Virtualization Capacity licensing. The tools perform the task of identifying IBM programs and counting the number of licenses required under certain capacity-based license metrics. They measure license use frequently and track this over time so that reports can be generated that demonstrate the peak license use over a defined period.

These reports must be completed at least quarterly, retained for a period of two years, and provided to IBM and/or its auditors on request. Failure to do so, or failure to correctly configure the tools, requires the IBM programs to be licensed on a Full-Capacity basis.



## ILMT

ILMT is a tool developed by IBM and provided free of charge. It is required for metering and reporting license usage of IBM products deployed in “traditional” virtualization environments to take advantage of Sub-Capacity licensing. IBM approves the use of certain alternate tools in lieu of ILMT. These are listed on the official [IBM Sub-Capacity Licensing page](#).

## IBM License Service

IBM License Service is the only tool permitted by IBM for clients to take advantage of the benefits of IBM Container Licensing. Like ILMT, it meters and reports license usage based on capacity made available to IBM programs (that is, the ‘cpu\_limit’ settings of the containers where IBM programs are deployed), but it is specific to deployments in containers managed by Kubernetes.

In addition to IBM License Service, **IBM License Service Reporter** allows you to consolidate IBM License Service reports across multiple Kubernetes Clusters to present the aggregated peak license use of each IBM program across all relevant clusters. IBM License Service Reporter also accepts ILMT as a data source, so that you can report your Virtualization Capacity license use across both traditional virtualization technologies and containerized deployments in one report.

The key points of similarity and difference between ILMT and IBM License Service are summarized in the table:

	ILMT	IBM License Service
<b>Purpose</b>	To allow clients to take advantage of IBM Virtualization Capacity licensing. Identifies IBM programs, counts their license requirement and records this periodically to enable the reporting of peak license use across a specified period.	
<b>Supported Technologies</b>	Traditional virtualization technologies such as VMware, Hyper-V, PowerVM.	Containerized deployments of IBM programs on environments which are managed (orchestrated) by Kubernetes.
<b>Where is it deployed?</b>	An agent is installed on each virtual (or physical) machine with IBM program(s) installed.	Installed as a self-contained Pod on each Kubernetes Cluster upon which IBM programs are running.
<b>How does it discover IBM programs?</b>	Components are discovered using software ID tags. A software catalog is used to match these to IBM programs and identify bundled and supporting programs.	Uses Kubernetes Annotations to identify IBM programs, relationships between programs (Bundled or Supporting, Cloud Paks, and so on) and license metrics.
<b>Creating Reports</b>	Each ILMT Managing Server will report all deployments reported by agents connected to it.	Will only report those installations in the same cluster. IBM License Service Reporter can be used to aggregate these reports from multiple IBM License Service installations, otherwise this must be performed manually.

This guide discusses ILMT and IBM License Service in greater depth than in the relevant Virtualization Capacity license guides.

# Detail

## ILMT

ILMT is a free of charge IBM program which operates on a client-server basis. Agents are installed on each virtual (or physical) machine on which IBM programs are deployed and are configured to ‘talk’ to the ILMT Managing Server to report measurement data on a periodic basis.

ILMT’s main purpose is to:

- Discover and report the IBM products deployed on your distributed (Linux/Unix/Windows) systems.
- Identify the hardware configurations (both physical infrastructure and virtual environment configuration settings) for “traditional” and eligible virtualization technologies such as VMware, Microsoft Hyper-V and IBM PowerVM.
- Measure and record the license use of identified IBM programs which have a capacity-based license metric such as PVU or VPC.

The requirement under IBM Virtualization Capacity licensing is to generate complete and accurate reports of your license use at least every quarter and to retain these reports for two years. They must be made available to IBM and its auditors upon request.

**ILMT, like any other program, must be installed, configured and managed carefully. Merely installing ILMT will not give you the reporting capability necessary to comply with the Virtualization Capacity licensing rules. It is not ‘set and forget’.**

While this document provides guidance and best practices, always reference the official and comprehensive [ILMT product documentation](#).

## Key Configuration Steps

There are five steps that must be performed upon initial installation and configuration of ILMT:

- 1** Install and update ILMT
- 2** Configure the hardware and software scans
- 3** Classify the identified components
- 4** Review the license usage report
- 5** Generate the Audit Snapshot and archive it

Subsequent changes to the IT environment or deployment of IBM programs will require these steps to be reperformed: for example, adding a new virtual machine will require a new installation and configuration. Steps 4 and 5 will need to be performed each time you generate a license use report, which should be carried out at least quarterly.

If you encounter difficulties properly installing and configuring ILMT in accordance with these steps, best practice is to ensure that you open an IBM Support call to record that you have encountered issues. This can be an important reference point in any subsequent audit. However, opening an IBM Support call does not remove or relax the Virtualization Capacity eligibility requirements for the associated IBM program deployments. IBM Support calls are intended to be used cooperatively to address any impediment to compliance with the requirement to use ILMT. If a client provides a support ticket as evidence for difficulties in installing ILMT, or creating and retaining the required license use reports, we reserve the right to review this to determine whether prompt and reasonable steps have been taken to comply and whether a real technical impediment has prevented compliance.

The five steps are discussed in more detail below:

### *Step 1: Install and update ILMT:*

ILMT is an IBM program licensed through Passport Advantage with dedicated part numbers for the Base License and for annual S&S. Even though there is no license charge for ILMT, you need to have the base license and active S&S on your entitlement records. The part numbers required and instructions on how to order ILMT are documented [here](#). This [support page](#) provides reference links to the ILMT software download of ILMT packages accordingly to the provided ILMT deployment options with references to the ILMT product documentation.

ILMT provides three deployment options to accommodate clients' environments and license usage metering needs:

- **ILMT with HCL's BigFix platform:** For clients who already use HCL's BigFix products or those who require the endpoint management capabilities of HCL's BigFix platform. The platform manages the deployment and status of ILMT scanners, schedules software scans and consolidates the data retrieved and imports them into ILMT. It is a highly scalable platform, capable of managing hundreds of thousands of VMs or LPARs where clients require Virtualization Capacity licensing.
- **ILMT with Red Hat Ansible:** For clients who already use Red Hat Ansible or are looking for an alternative task automation solution to support environments of scale. Ansible can be either the open source or commercially supported product. ILMT with Ansible is a pre-approved deployment configuration. We recommend ILMT version 9.2.26, released in December 2021, is used. ILMT with Ansible uses the ILMT Disconnected Scanner to automatically collect deployment data from endpoints.
- **ILMT Lite:** A highly simplified deployment of ILMT suitable for clients with a small Virtualization Capacity environment. ILMT Lite is pre-approved by IBM for up to 500 target VMs or LPARs. ILMT Disconnected Scanners,

once installed, are automatically gathering capacity data and IBM Software inventory that are stored into output packages on the local VM/LPAR. Clients can use their own solutions to support deployment of ILMT disconnected scanners and data gathering of outputs packages generated by the ILMT Disconnected Scanners to transfer them into a central location for ILMT to import and use.

**If you wish to use the ILMT Lite configuration (or you already use this configuration) and you have more than 500 VMs and LPARs in scope for Virtualization Capacity, you must get approval from IBM. Please contact your IBM representative or send email to [talk2sam@us.ibm.com](mailto:talk2sam@us.ibm.com).**

Regardless of the deployment option chosen, all require the installation of:

- The ILMT Managing Server
- The ILMT Database
- The ILMT Agent or Disconnected Scanner

### **The ILMT Managing Server**

The ILMT Managing Server can be deployed on either Red Hat Enterprise Linux (RHEL) for x/86 or on a supported Windows Server operating system. The ILMT managing server's reporting capabilities allow you to generate reports for specific purposes using only one installation of the ILMT Managing Server, such as:

- (a) Generating reports by IBM Sub-Capacity Regions
- (b) Generating reports by Passport Advantage sites
- (c) View license use per business unit (for internal chargeback purposes)
- (d) Aggregating VMs/LPARs by ILMT Computer Groups and generating license usage and audit reports by Computer Group. For more information please read the tutorial provided in the [ILMT documentation](#).



## The ILMT Database

If the Managing Server is deployed on RHEL, the only supported database is IBM DB2. This program is included in the ILMT software package and is licensed as a Supporting Program for ILMT. It may only be used for the purposes of supporting the functionality of the ILMT Managing Server.

If the ILMT Server is deployed on a Windows Server operating system it requires an installation of Microsoft SQL Server database. This is not included in the ILMT software package and must be provided by the client.

For more information on how to install the ILMT Server and database:

- with HCL's BigFix platform please refer to [this link](#).
- ILMT with Ansible and ILMT Lite prefer refer to [this link](#).

## The ILMT Agent or Disconnected Scanner

ILMT with HCL's BigFix platform: You must deploy the ILMT Scanner together with the BigFix agent on every physical or virtual machine where IBM programs are deployed for which you wish to apply sub-capacity licensing. This includes non-production environments.

ILMT Lite and ILMT with Ansible: Similar to ILMT with HCL's BigFix platform, you must deploy the ILMT Disconnected Scanner on every virtual machine where IBM programs are deployed for which you wish to apply sub-capacity licensing, and on every physical machine where IBM programs licensed under Full-Capacity are deployed which you wish to include for completeness purposes. This includes non-production environments.

## Updates

ILMT is updated every quarter with new features and fixes. New features include support for updated virtualization technologies and operating systems, updates to the PVU Table and the software catalog, as well as security updates and support fixes. ILMT versioning takes the form "9.2.x" where x is incremented with every quarterly release.

You must keep ILMT up to date and current in order to use the latest PVU table and IBM software catalog and to enable support for the latest environments. The latest PVU table and IBM software catalog are included in the ILMT Server component. This means you do not need to update all the components separately every quarter: in most cases an update of the ILMT Managing Server will suffice.

Documentation on updating ILMT is available [here](#). Further helpful links include:

- A summary of [new features](#) each quarter
- A detailed list of ILMT [application updates and content](#)
- "[My Notifications](#)" allows you to subscribe to be notified of any updates to documents

## Step 2: Configure the Hardware and Software scans

The ILMT product documentation describes how to setup hardware and software scans, best practices and the required configurations. There are two relevant documents:

- For [BigFix deployments](#)
- For [disconnected scanners](#)

The following points are also important to ensuring a complete and accurate scan of hardware, software and related license counts:

Consideration	More Detail	
<b>Cessation of eligibility for legacy virtualization technologies</b>	<p>IBM maintains a list of all eligible virtualization technologies <a href="#">here</a>. However, as platforms age and their vendors cease mainstream support, technologies cease to be eligible for Virtualization Capacity. IBM typically waits 180 days after the vendor has ceased mainstream support before removing eligibility, so that most clients will have already moved off the affected platforms. A regularly updated list of impending changes to eligibility is kept at the link to the right.</p> <p><b>If you do not move your IBM programs to an eligible platform, once eligibility has ceased these installations must be licensed on a Full-Capacity basis.</b></p>	<a href="#">Link</a>
<b>x86 Virtualization: VM Manager Configuration</b>	<p>For certain x86 virtualization technologies such as VMware and Hyper-V, ILMT must collect hardware capacity data from the infrastructure used to deploy any virtual machines. This is required to calculate any caps on the number of activated processor cores or other capacity measures, as well as to assign the correct “PVU per core” value for each activated processor core made available to an IBM program licensed with the Processor Value Unit (PVU) metric.</p> <p>To achieve this, ILMT needs to use an additional component called “VM Manager”. The VM Manager connects to the Hypervisor and gathers information relating to the hardware configuration of host machines and clusters.</p> <p><b>Failure to configure the VM Manager will result in ILMT using default placeholder values for PVU per core, and ILMT will also be unable to limit the number of licenses to the processing capacity of the host. It is likely ILMT will report an increased license requirement as a result.</b></p> <p>ILMT’s default behavior is to consider each virtual machine as a physical machine and to assign 120 PVUs per core to each activated processor core. Use of the maximum 120 PVUs per core rating ensures that you are not under-licensed, but your processors may only require 70 or 100 PVUs per core.</p> <p>When Virtualization data are missing the Server Name on which the VM/LPAR is hosted on is reported by ILMT with the TLM_VM prefix followed by the UID (unique identifier) of the VM/LPAR too and the Computer status within the Hardware inventory report of ILMT is set to No VM Manager Data.</p>	<a href="#">Link</a>

Consideration	More Detail	
<b>Public Cloud</b>	<p>You do not need to configure ILMT's VM Manager component unless you are fully managing the Hypervisor of the server too. However, you must configure the ILMT agent or apply a "Tag" to the servers so that ILMT will apply the flat rate of 70 PVUs per vCPU, as per the BYOSL policy for Eligible Public Clouds.</p> <p>If you do not do this, ILMT will apply a rate of 120 PVUs per vCPU.</p>	<p>BigFix: <a href="#">Link</a></p> <p>Disconnected Scanners: <a href="#">Link</a></p>
<b>LMT Disconnected Scanners</b>	<p>ILMT Disconnected Scanners are used by ILMT Lite and ILMT with Ansible deployments by default. ILMT Disconnected Scanners can also be used with ILMT with HCL's BigFix platform configuration deployment when a machine with IBM programs installed does not have connectivity to an ILMT Managing Server, or it is not feasible to create this connection. The ILMT Disconnected Scanner can then be used to collect the hardware and software information to be loaded into the ILMT Managing Server.</p>	<p><a href="#">ILMT Disconnected Scanner</a></p>

### Step 3: Classify the identified components

Software classification is a key step in ensuring an accurate inventory of IBM programs so that the related license usage reports can be created for Virtualization Capacity.

ILMT discovers software components, and maps these components to products based on data contained in a software catalog which is loaded into ILMT and must be kept up to date as IBM releases updates so that the software identification is as complete and accurate as possible. The software catalog is a collection of definitions of software products, their relationships and signatures that are used to detect software as installed or used in an IT environment.

Newer releases of IBM programs make use of software identification tags (as defined by ISO 19770-2). These tags reside in the file system. ILMT finds and uses these to identify the components of IBM programs.

The Overview and Key Concepts sections of the [ILMT documentation](#) provide more information about how the ILMT Software Catalog is conceptually organized: from software signatures to components to related products.

While the [ILMT product documentation](#) discusses the related tasks needed to classify IBM products in some detail, ILMT also has some built-in logic and processes to assign discovered components to IBM programs. The following guidance will help to ensure this is performed accurately:

Consideration	Description	
<b>Currency of the Software Catalog</b>	The ILMT software catalog is updated every quarter along with ILMT Managing Server updates and will often be updated automatically if you update your ILMT Server promptly. Failure to keep the software catalog updated may cause inaccurate software classifications which would need manual intervention to rectify until the software catalog is updated to the latest version.	
<b>Bundled and Supporting Programs</b>	<p>ILMT discovers software components and assigns them to IBM programs. Some components may be included as a Bundled or Supporting Program of a Principal Program and are therefore not licensable themselves if they are used in accordance with the terms of the License Information document.</p> <p>ILMT's software catalog contains the definitions of IBM programs, including non-chargeable components. Keeping the catalog up to date is therefore important. The catalog enables ILMT to make decisions automatically as to the status of Bundled or Supporting Programs when these are installed on the same machine. Where these programs are installed across multiple machines ILMT will be unable to determine the relationship between these programs. This therefore requires manual intervention during software classification to mark relevant installations as Bundled or Supporting.</p> <p>Where the License Information document specifies that a license is required for the use for the program as a whole and Bundled or Supporting Programs are installed on multiple machines, these bundled or supporting programs must be assigned to the Principal Program name so that the license calculation can be performed across the entire installation footprint. See the 'Bundled and Supporting Programs' license guide on the <a href="#">Guides</a> page for more information.</p>	
<b>Part Numbers</b>	<p>Always import the list of part numbers that you have entitlement to and which you are deploying.</p> <p>While ILMT will use the software catalog to identify IBM programs from the installed components, ILMT will perform a 'best guess' as to which IBM program the components belong to. Importing your entitled part numbers increases ILMT's accuracy as it narrows down the number of possible IBM programs which a discovered component can be assigned to.</p>	<a href="#">Link</a>

Consideration	Description	
<b>Use comments</b>	<p>It is possible to exclude discovered components from the license counts, or to suppress them from the reports entirely. When doing so you are required to provide a comment to explain your reasons.</p> <p>Be as accurate and descriptive as possible when providing comments. Add IBM Support Ticket numbers (TSxxxxxx) or any Problem Management (PMR) numbers to clarify the situation and provide a trail for IBM to follow in our own internal documentation.</p> <p>These comments can be useful in an audit context to justify exclusions.</p>	
<b>Cloud Paks</b>	<p>IBM Cloud Paks can also be deployed on traditional virtualization technologies, either solely or as part of a hybrid approach including containerized deployments.</p> <p>If you are deploying programs that are licensed within one of the IBM Cloud Paks, you must classify them in ILMT as belonging to the IBM Cloud Pak program so that ILMT can perform the correct license use report.</p> <p>This is a two-step process:</p> <ol style="list-style-type: none"><li>1. First, assign the discovered components to the related IBM program and the correct license metric</li><li>2. Then, assign the IBM program to the related IBM Cloud Pak.</li></ol>	<a href="#">Link</a>

### *Step 4: Review the license usage reports*

The primary source of information about license usage is the “[All Metrics](#)” report. The report can be filtered to show the relevant IBM products and PVU and VPC license metrics for which you need to generate and archive the related quarterly audit snapshots. You can also drill down further:

- Clicking the product name shows a list of components classified as belonging to the program (as performed during software classification)
- Clicking the metric quantity shows a list of machines where the program has been installed and deployed, along with related license use data

For every product, you can specify a metric threshold to verify whether metric utilization is above or below your expectations. For example, you could set your threshold to be the number of licenses that you hold to each IBM program, enabling you to easily see whether you require additional licenses.

You can also create a snapshot of the report, and store it for audit purposes (see the following paragraph for more info: Generate the Audit Snapshot and Archive it)

### **Make sure the reported license data is current**

In the “All Metrics” report or any other reports such as the “PVU Sub-Capacity report”, look out for red square icons within any of the values of the metric quantity column. These red squares indicate that the license usage data is not up to date and must be recalculated. To address these red squares, you need to click on the “recalculate” task.

This situation might arise, for example, when you perform software classification and make changes to the classification of discovered components. Changes will require a recalculation of the license requirements.

### *Regularly review the licensing usage data to avoid pitfalls*

To ensure completeness and accuracy of license usage data within your reports, ensure:

- All devices where you have deployed IBM products are included in the report and software scan data is collected from the entire environment. To verify whether there are any problems, check the Software Scan Health widget on the [Overview](#) panel.
- Capacity data is collected from the entire environment and the proper PVU per core values are being used. To verify whether there are any problems, check the Capacity Scan Health widget on the [Overview](#) panel.
- Software instances have been correctly classified. Verify that IBM products licensed under IBM Cloud Paks have been properly assigned to the related Cloud Pak they a component of.
- Verify that data imports have been successful. To check the import history, go to ILMT Web UI: Management > Data Imports.

### *Step 5: Generate an audit snapshot and archive it*

Eligibility for Virtualization Capacity requires the generation of an audit snapshot at least quarterly and for these snapshots to be archived for at least two years so that they can be provided to IBM and/or its auditors on request.

The audit snapshot is generated from the “All Metrics” or “PVU Sub-Capacity” reports available in the ILMT Web UI. The process of generating the Audit Snapshot is set out in the ILMT documentation. The Audit Snapshot is a .zip package with a naming convention “audit\_snapshot\_[date]\_[time].zip”. The purpose of each file within the package is documented [here](#), and a fuller description of the contents of each file is documented [here](#).

The generated zip packages are digitally signed to protect their contents from tampering. The package must be provided in full to IBM. **Partial or compromised audit snapshots can lead to your IBM programs being licensed on a Full-Capacity basis.**

How to review and reconcile the data included in the package back to the original ILMT reports (“All Metrics” or “PVU Sub-Capacity”) is documented [here](#).

You can regenerate the audit snapshot at any time for those dates where data is still available in the ILMT database. If you need to update or regenerate the audit snapshot you can run it again and provide comments or attach additional files when generating them.

### *Programs measured by metrics other than capacity-based*

While ILMT has traditionally been used mainly for the monitoring and reporting of license use for programs measured on a capacity basis and for eligibility for Sub-Capacity licensing, ILMT can consolidate your license use across many metrics and for IBM Programs that are not measured on a capacity basis.

This capability allows ILMT to function more as a general Software Asset Management tool for IBM programs and enables a consolidated view of your IBM licensing position for each snapshot generated on an (at least) quarterly basis.

Supported programs can be configured to count the number of licenses required and store this information locally in “Software License Management” (.slm) files within the installation directory of the program. The ILMT scanner will recognize these SLM files and import them into the ILMT database along with the usual hardware and software configuration data.

IBM maintains a [list](#) of programs which support this functionality. Each product and version is listed, along with a link to a page which explains how to enable the functionality.

Generally, the steps to enable the functionality are as follows:

1. Install and configure the tool which creates the SLM files (“SLMTool”)
2. Ensure that ILMT Scanner is installed on each machine where the SLM files need to be picked up
3. Perform any necessary configuration changes to the ILMT Scanner to ensure that it successfully finds the SLM files (for example, if the SLM files are being saved to a non-standard location, or if the installation directory of the IBM program has been customized)

The [ILMT documentation](#) explains how ILMT handles this information.

## IBM License Service

IBM License Service performs the same role for Container Licensing that ILMT performs for Sub-Capacity deployments. IBM License Service monitors the use of processing capacity over time and enables you to create reports which demonstrate the number of licenses needed to cover the peak level of use observed.

The Container Licensing policy covers the use of IBM programs in containerized environments. For IBM licensing purposes, these containers must be managed by a program called Kubernetes. This management is referred to as “orchestration”, and so you will often see the term “Kubernetes-orchestrated” in IBM documentation.

Unlike ILMT, IBM License Service does not require you to perform any software classification because it makes use of Kubernetes Annotations to identify which Pods belong to IBM programs. These Annotations (which are conceptually similar to the software tags used by ILMT) identify a program as being standalone, or part of a bundled solution such as a Cloud Pak. They also allow IBM License Service to apply the licensing rules under the IBM Container Licensing policy and to identify the metric and applicable Cloud Pak ratios.

IBM License Service is included in the [foundation services](#) which come with every Cloud Pak, so it does not need to be ordered and licensed separately for Cloud Paks. For other IBM Programs available as standalone containerized software (for example, IBM Certified Containers), which do not include a copy of IBM License Service, you can download the IBM [License Service Operator from GitHub](#).

## Key Configuration Steps

There are three steps that must be performed to use IBM License Service correctly and generate complete license usage reports to comply with IBM Container Licensing:

- **1**     Deploy IBM License Service
- **2**     Discovery of IBM programs
- **3**     Generation of audit snapshots
- 

If any of these steps is not properly performed, you may need to be licensed on a Full-Capacity basis. Always open an IBM Support call in case of issues with any of the required steps.



### Step 1: Deploy IBM License Service

IBM License Service is a Pod itself. For the most part it is automatically enabled when deploying IBM Cloud Paks.

An instance of IBM License Service is required for each Kubernetes Cluster. A single instance of IBM License Service will monitor all Cloud Paks or IBM containerized programs running on the same cluster as itself. It uses Kubernetes capabilities to discover IBM programs and gather license usage-related data from the running Pods.

To do this correctly, the IBM License Service Operator requires certain cluster permissions which are detailed in the table below (although see the official documentation for the most up to date guidance):

API group	Resources	Verbs	Description
'blank'	<p>pods</p> <p>namespaces</p> <p>nodes</p>	<p>Get</p> <p>List</p>	The cluster permissions for the <code>ibm-license-service</code> service account are <b>read-only access</b> permissions that are required to properly discover the running IBM applications to report license usage of the Virtual Processor Core (VPC) and Processor Value Unit (PVU) metrics.
<a href="https://operator.openshift.io">operator.openshift.io</a>	servicecas	List	These permissions are required to generate the TLS certificate for License Service.
<a href="https://operator.ibm.com">operator.ibm.com</a>	<p>ibmlicensings</p> <p>ibmlicenseservicereporters</p> <p>ibmlicensings/status</p> <p>ibmlicenseservicereporters/status</p> <p>ibmlicensings/finalizers</p> <p>ibmlicenseservicereporters/finalizers</p>	<p>Create</p> <p>Delete</p> <p>Get</p> <p>List</p> <p>Patch</p> <p>Update</p> <p>Watch</p>	The cluster permissions for the <code>ibm-licensing-operator</code> service account are required to properly manage the status of the IBM License Service operator.

IBM License Service has minimal impact on the performance of the cluster: it works transparently in the background and does not require any configuration or user engagement once enabled.

IBM Container Licensing requires physical cores to be counted. Processors which support Hyperthreading (or Simultaneous Multithreading – SMT) present multiple “virtual” cores which IBM License Service must account for when determining the number of physical cores in each Kubernetes cluster which need to be licensed. You need to [enable hyperthreading](#) in IBM License Service for each cluster to ensure it properly accounts for this and counts license usage accurately.

Please refer to the [IBM License Service documentation](#) for more information about how to verify Hyperthreading enabled values for your Kubernetes cluster and how to configure your installation(s) of IBM License Service accordingly:

## Step 2: Discovery of IBM programs

IBM License Service uses Kubernetes Annotations to identify the Pods running IBM programs and which IBM program they represent. The Annotations state whether the IBM program is licensed on its own (i.e., standalone) or whether it is part of a solution bundle such as an IBM Cloud Pak (i.e., whether it is a Bundled or Supporting Program).

**Kubernetes Annotations are essential for IBM programs to be eligible for the IBM Container Licensing policy and metered by IBM License Service. Missing or inaccurate Annotations may require a program to be licensed on a Full-Capacity basis.**

The Kubernetes Annotations are applied to Pods automatically via the provided IBM Operators for the related IBM programs. If IBM Certified Containers can be included in a client's custom application or custom deployments, IBM provides the appropriate Kubernetes Annotations in the program documentation. You must ensure that you reflect these Annotations correctly.

An example of what a Kubernetes Annotation might look like is below:

Program	Example Kubernetes Annotation
<b>IBM WebSphere Application Server Liberty Core (PVU) - standalone install</b>	productID: "87f3487c22f34742a799164f3f3ffa78"  productName: "IBM WebSphere Application Server Liberty Core"  productMetric: "PROCESSOR_VALUE_UNIT"  productChargedContainers: "All"
<b>IBM WebSphere Application Server Liberty Core licensed as part of an IBM Cloud Pak</b>	cloudpakName: "IBM WebSphere Hybrid Edition"  cloudpakId: "6358611af04743f99f42dadcd6e39d52"  productCloudpakRatio: "8:1"  productID: "87f3487c22f34742a799164f3f3ffa78"  productName: "IBM WebSphere Application Server Liberty Core"  productMetric: "VIRTUAL_PROCESSOR_CORE"  productChargedContainers: "All"

### Step 3: Generation of audit snapshots

The Passport Advantage Addendum for Container Licensing requires you to generate license usage reports at least on a quarterly basis. This is the contractual minimum frequency but we recommend that reports are generated monthly to help you maintain compliance with your license limits.

An audit snapshot consists of the following files:

File name	Content
<b>checksum.txt</b>	The unique checksums that are a proof that the audit snapshot was not tempered with.
<b>data_condition.txt</b>	Audit snapshot metadata that includes information about the cluster, the time and date when the report was generated, and the reported period.
<b>products_&lt;reported_period&gt;_&lt;cluster hostname&gt;.csv</b>	The highest license usage for each product that is deployed on the cluster within the reported period.
<b>products_daily_&lt;reported_period&gt;_&lt;cluster hostname&gt;.csv</b>	The highest license usage for each product that is deployed on the cluster within the reported period daily.
<b>bundled_products_&lt;reported_period&gt;_&lt;cluster hostname&gt;.csv</b>	The highest license usage for each bundled product that is included in the IBM Cloud Pak solutions that are deployed on the cluster within the reported period.
<b>bundled_products_daily_&lt;reported_period&gt;_&lt;cluster hostname&gt;.csv</b>	The highest license usage for each bundled product that is included in the IBM Cloud Pak solutions that are deployed on the cluster within the reported period daily.
<b>pub_key.pem</b>	The public key file that can be used to verify the signature.rsa file against the checksums.txt file.
<b>signature.rsa</b>	A digital signature that can be used to verify whether the checksums.txt file was tampered with.
<b>unrecognized-apps- &lt;reported_period&gt;.csv</b>	A list of pods from which the license usage data was not collected on a specified date. The pods have incomplete or missing product annotations that provide the product metadata that is needed for measurements. The information is provided for every date within the reported period. The list contains the namespace followed by a pod name.

You must retain each audit snapshot for at least two years and provide it to IBM or its designated auditors upon request. If an audit snapshot demonstrates that you have exceeded your entitled use, you must promptly order the required number of licenses from IBM or an Authorized IBM Reseller to maintain compliance.

When generating your audit snapshots, we recommend you validate the completeness of the license usage data and follow any of the provided warnings as documented on [IBM License Service documentation](#).

Before you decommission a cluster, be sure to generate the audit snapshot up to the day of decommissioning and archive the snapshots.

### *IBM License Service Reporter*

When IBM programs are deployed on multiple Kubernetes clusters you need to report the aggregated license usage across all clusters. You may prepare a consolidated report manually, but for IBM Cloud Paks you can use IBM License Service Reporter. This is included in every Cloud Pak.

The License Service Reporter is an extension of IBM License Server which does the aggregation across multiple clusters for you and consolidates license usage data into a single report.

One central IBM License Service Reporter instance is deployed on a cluster, and you can configure the data sources which need to be aggregated. This could be IBM License Service instances on other clusters, or even ILMT instances that are monitoring traditional virtual environments. This enables you to have a consolidated view of your license usage across both container and traditional virtualization environments.

Please refer to the [IBM Cloud Pak foundational services documentation](#) for more detailed information on the License Service Reporter and how to deploy, configure, and leverage license usage reports and aggregated audit snapshots.

# Scenarios

## *ILMT Lite*

If your environment consists of up to 500 computers (VMs/LPARs), you can opt to use the *ILMT Lite* deployment configuration. ILMT Lite does not require the BigFix platform to be installed as it uses disconnected (stand-alone) scanners to collect software and hardware information.

**IBM Lite is pre-approved for up to a total of 500 targets (that is, VMs and LPARs). Environments larger than this require approval from IBM.**

While standard ILMT configurations which use the BigFix platform automate the scheduling of scan result uploads, it is your responsibility to do this at least once per week if you use ILMT Lite.

You can use one of the following approaches to upload scan results:

### Manually upload the scan results

This approach is not recommended as it is prone to errors and might cause delays in uploading the data. These delays might in turn result in inaccurate reporting.

### Automate the uploads using Red Hat Ansible

ILMT includes appropriate playbooks to achieve this. This will significantly reduce the amount of effort required and the likelihood of errors.

### Automate the uploads using automation software of your choice

You are always responsible for ensuring timely, complete and accurate uploads of data.

As with a standard ILMT deployment you need to properly install, configure, and manage ILMT Lite to generate accurate license usage reports and to comply with the Virtualization Capacity terms.

The key steps for effective deployment and use of ILMT Lite are:

<b>Step 1: Install and configure (Lite scenario)</b>	In the case of ILMT Lite, you need to install ILMT Server and its database. Then, you need to install the disconnected (standalone) scanner on every machine where you want to collect hardware and software inventory data.
<b>Step 2: Classify discovered software (Lite scenario)</b>	The application discovers software that is installed on your machines where the disconnected scanners have been used. The components are automatically assigned to licensable IBM programs. These assignments must be reviewed and either confirmed as accurate or modified based on your knowledge of your license entitlement.
<b>Step 3: Generate the audit snapshot (Lite scenario)</b>	Generate the audit snapshot periodically (at least quarterly) and store it for at least two years to remain eligible for Sub-Capacity licensing.

Failure to properly implement and manage any of these steps may lead to your IBM programs being licensed at Full-Capacity. The same guidelines, warnings and guidance in respect of standard ILMT deployments apply also for ILMT Lite deployments.

View full ILMT Lite documentation [here](#).

## *ILMT and Red Hat Ansible*

With effect from ILMT version 9.2.25, IBM allows you to use Red Hat Ansible (“Ansible”) Automation Platform in place of BigFix platform when deploying ILMT.

Ansible can be used to manage the ILMT disconnected scanners but requires you to be able to configure and maintain Ansible without support from IBM. Ansible is not included and delivered with ILMT, and it is not supported by IBM's ILMT support provision. It is an open-source program that is available free-of-charge or can be commercially licensed from Red Hat with optional support. Alternatively, you can use a commercially available Ansible Tower product which includes Red Hat support.

The blueprints of the automation tasks run by Ansible are known as “playbooks”. The playbooks that are delivered with ILMT are the only part of the Ansible deployment that is supported by IBM ILMT support.

You can learn more about installing and configuring ILMT disconnected scanners with Ansible [here](#). The same guidelines, warnings and guidance in respect of standard ILMT deployments apply also ILMT deployments using Ansible.

### *Migrating/Moving/Reinstalling the ILMT environment*

There are circumstances where you might need to migrate or move your datacenters, replace or upgrade systems with newer servers, or migrate/move your software deployments from on-premise to public clouds. Any of these situations may also require you to migrate your ILMT deployment.

If such an event occurs, ensure that you perform the following tasks prior to decommissioning the legacy ILMT Server:

- Generate and archive the quarterly audit snapshots reports until you commission the new ILMT Server. They need to be archived for up to 2 years.
- Back-up and archive the database used by the ILMT Server, particularly if you are starting afresh with a new database in the newly-commissioned ILMT Server.
- Back-up and archive the ILMT Server image.

### *HCL BigFix Inventory*

BigFix Inventory is now an HCL product; IBM and HCL have established a collaboration agreement aimed at continuing BigFix Inventory's acceptance as an alternative solution to ILMT for the purposes of Virtualization Capacity.

**If you wish to use the HCL BigFix Inventory product instead of ILMT you must use an accepted and IBM-validated BigFix Inventory version, release or update.** See [the FAQ](#) for more information about this.

Further information about HCL BigFix Inventory is available on [HCL's website](#).

### *Other approved Flexera One products*

The following products are pre-approved by IBM to be used in lieu of ILMT:

- Flexera One IT Asset Management by Flexera – SaaS based solution
- Flexera One with IBM Observability IT Asset Management by IBM – SaaS based solution

The Flexera One solution does not currently support all virtualization technologies eligible for IBM Sub-Capacity licensing. ILMT must continue to be used for eligible virtualization technologies which are not supported by Flexera One.

For more information about the eligible virtualization technologies supported by Flexera One, please refer to the *Flexera One* section of the [Sub-Capacity licensing page](#).

For more information about Flexera One with IBM Observability IT Asset Management please visit the [IBM product page](#).

# FAQs

## IBM License Metric Tool

### How can I be kept up to date with ILMT supported and eligible virtualization environments?

For updates on the development of ILMT, use the [‘IBM Notifications’](#) portal to search for and subscribe to notifications about ILMT. For example, search for ‘IBM License Metric Tool’ and then select the document types you wish to be notified about as changes occur.

For updates on eligible virtualization/processor technologies and products, please consult the Sub-Capacity Licensing page.

### How frequently should ILMT reports be run?

The Virtualization Capacity terms require quarterly reporting at a minimum to remain eligible for Virtualization Capacity licensing. This frequency should suffice for clients with stable environments that are not subject to frequent change. Clients with dynamic environments that are subject to frequent change may prefer to run reports more often than this (for example, monthly or even weekly) to ensure that any additional license need is identified promptly.

Each ILMT audit snapshot official report should be kept for a period of two years and provided to IBM (or to the third-party auditor) on request.

### Am I required to use ILMT even if I have an existing tool that provides the same information?

Yes. The approved monitoring tools are the only tools IBM considers capable of performing the ongoing monitoring of virtual environments to measure the maximum (peak) number of activated processor cores made available to the IBM software, and report these requirements as measured in IBM license metrics such as PVU and VPC.

### Is ILMT “set and forget”?

No. ILMT requires detailed configuration to ensure it is reporting a complete and accurate measurement of the IBM software licenses required. In addition, key data sets used by ILMT to identify and measure the IBM software are updated periodically and included in the ILMT Server component, which needs to be updated on a regular basis.

### Where should ILMT agents be installed?

ILMT agents must be installed in every Eligible Virtualization Environment hosting Sub-capacity Eligible Products. Additionally, for some virtualization technologies, agents need to be installed on system hosting virtual machines. You should also install ILMT agents on any backup server where IBM programs are deployed. You can then exclude such IBM Program instances from PVU/VPC calculations if a license is not required (typically warm/cold back-ups, but the license requirement can vary by product). For specifics, refer to the product’s announcement letter by searching the [Offering Information](#) page or the product’s License Information Document by conducting a [software license agreements](#) search.

### Why do I need to order ILMT? What is the part number to use, and do I need to renew Software Subscription and Support for ILMT?

IBM provides the same support for ILMT that we do for our other mission-critical middleware. So even though ILMT is a no-charge product offering, an order must still be placed to establish an IBM entitlement record for the license as well as software subscription and technical support (S&S) coverage.

The initial order for ILMT should use Part Number D561HLL. To maintain an entitlement record, S&S must be renewed annually using Part Number E027NLL. Please note that keeping ILMT up to date is a requirement of the sub-capacity offering terms and our guidance is to ensure that ILMT Server is always updated with the latest version of the IBM Software Catalog for accurate software classification and Inventory. S&S renewal is therefore a requirement for any client required to use ILMT as it gives access to new versions, releases and updates.



## IBM License Service and License Service Reporter

### Can I use IBM License Service on third party cloud environments?

Yes, you can take advantage of our Bring Your Own Software License (“BYOSL”) policy for deploying IBM software on Eligible Public Clouds. The Eligible Public Clouds are listed on the [BYOSL page](#).

### What if I do not use IBM License Service?

Clients who do not use IBM License Service will be charged for all cores in the entire Kubernetes cluster. This is because when using Kubernetes containers can run on any node throughout the cluster. It is possible therefore that a single program might have containers which take advantage of the entire capacity of the cluster at once.

### How quickly do I have to install IBM License Service?

New Container Licensing clients are required to implement IBM License Service within 90 days of their first Eligible Product deployment within a container. For subsequent deployments the IBM License Service must be deployed and enabled immediately.

### What are the exceptions to the requirement to use IBM License Service for Container Licensing?

There are no exceptions.

### Where does IBM License Service run in my environment?

IBM License Service runs in a Pod within a worker node within the Cluster as determined by Kubernetes scheduler.

### If I have multiple clusters where containerized software is running, does License Service need to be installed on each cluster or does a single installation suffice?

In the case of multiple clusters, License Service is installed in each cluster where containerized software is deployed (the client should verify installation and keep License Service healthy).

### How can I consolidate license usage data among multiple clusters?

IBM License Service will output data that can be used for this consolidation but this must be done manually. Alternatively, clients can use IBM License Service Reporter to automate this task with the option to incorporate outputs from ILMT installations which monitor Sub-Capacity deployments as well.

### How does IBM License Service Reporter work with IBM License Service?

IBM License Service Reporter collects and aggregates data from IBM License Service from multiple clusters and from IBM License Metric Tool. For more details consult the IBM License Service documentation.

### Is it necessary to have IBM License Service on disaster recovery or backup Clusters?

Yes. You need to install IBM License Service on any disaster recovery or backup Kubernetes Cluster. Any IBM Program running Pod within the disaster recovery or backup Kubernetes Cluster will then be counted for IBM Container Licensing.

### How can I get IBM License Service?

IBM License Service may come preinstalled when deploying containerized software via each IBM Cloud Pak’s services and within IBM Certified Containers. Please verify the installation upon your first container deployment. If IBM License Service is not installed, contact product support.



### What is the part number used to order IBM License Service?

There is no part number associated with IBM License Service.

### Does IBM License Service come with Red Hat OpenShift Container Platform (RHOC) entitlement?

No. IBM License Service does not come with a free RHOC entitlement. License Service is included in the IBM Cloud Pak services and therefore leverages available RHOC entitlements of the Cloud Pak or direct entitlements that the client obtains from Red Hat. When IBM License Service is being utilized outside Cloud Paks, you are responsible for any overhead that License Service may require.

### How much resource does IBM License Service consume?

IBM License Service is a lightweight tool that consumes very little resources. Please refer to the knowledge center documentation for more information.

### Am I required to use ILMT if I am using IBM License Service?

If you are only running a containerized environment, then ILMT is not required. However, ILMT is still a requirement for Sub-Capacity environments. If you have a hybrid environment, then both tools must be installed.

### Can I reset the values that are reported by IBM License Service? I have been testing IBM License Service to see how it reports Virtual Processor Core (VPC) programs, or to understand how changes to the deployments affects the reported values.

No. You cannot reset the values that are reported by IBM License Service. You can, however, change the reporting period to compare how the metrics are reported over time, or use a status page for more details.

### Does IBM License Service report license usage for “Monthly API Call” or other metrics aside from Processor Value Unit (PVU) and VPC?

IBM License Service collects information about PVU and VPC metrics automatically for the IBM programs which are enabled for reporting. Additionally, IBM License Service can report license usage for any other metric, including “Monthly API Call”. Enabling a program to be measured by IBM License Service requires the IBM product teams to incorporate the mechanism for delivering measurement data to IBM License Service into the program itself. If your program does not currently have this capability, and you would like it to have it in the future, please contact IBM Support. Understanding client needs in this area will allow IBM to prioritize the integration of this feature appropriately.

### Am I entitled to deploy IBM WebSphere Liberty throughout the cluster as part of an IBM Cloud Pak? Do I need to report the license usage of IBM WebSphere Liberty?

First, you need to assess whether you are using a free version of IBM WebSphere Liberty, or an IBM-supported version. License use does not need to be reported for free versions. A proper reporting mechanism of license use must be used for an IBM-supporting version. Check the IBM WebSphere Liberty documentation or contact Support for details.

### Can I install IBM License Service in an offline environment without installing IBM Cloud Pak foundational services?

Yes. You can use a standalone instance of IBM License Service for validation and testing. For more information, see the [Offline Installation](#) documentation.

### How can I check whether my IBM program is enabled for IBM License Service reporting?

Review the product documentation. If the information is not there, contact Support.

### Are service quota limits taken into consideration when calculating license use?

No. The namespace quota limits are not considered for IBM Container Licensing. For each product, the CPU limits of Pods are considered and capped at the capacity of the Worker Node(s). Therefore, while the namespace quota is capping the real use of capacity, it is possible for the number of licenses required by Pods to exceed the namespace quota because Kubernetes could throttle, but not terminate, Pods when the available CPU capacity is lower than “cpu\_max” or Pods are using less CPU resources than their cpu\_max setting. This mechanism is the result of the Container Licensing rules.

### Can I sign up for a demo of IBM License Service? Are such sessions available?

No. There is no IBM License Service demonstration environment for common access and use. In addition, IBM License Service demonstration sessions are not currently held. If you are interested in setting up a demonstration environment, enquire with your IBM Cloud Pak or containerized IBM program product team.

### I have IBM App Connect Enterprise (“ACE”) Virtual Processor Core Hybrid Entitlement and the ACE is installed on IBM Cloud Kubernetes. Can I use fractional cores when calculating license use?

The products that you license are always licensed according to your license agreement. For reporting license use, IBM License Service measures fractional values and rounds the totals to the nearest whole number for each cluster.

# Further Reading

## IBM License Service Operator

A GitHub repository providing information on IBM License Server and detailed instructions on how to deploy IBM License Service for Container [Licensing](https://ibm.biz/license_service4containers).  
[https://ibm.biz/license\\_service4containers](https://ibm.biz/license_service4containers)

## IBM Cloud Pak Foundational Services

A page providing documentation relating to IBM License Service and IBM License Service Reporter.  
<https://www.ibm.com/docs/en/cpfs?topic=tluime-tracking-license-usage-in-multicluster-environment-license-service-reporter>

## IBM License Information Documents

A searchable repository of documents, each of which discusses in detail the licensing terms for an individual IBM program (or family of programs).  
<https://www-40.ibm.com/software/sla/sladb.nsf>

## IBM BYOSL Policy on Public Cloud

The BYOSL policy detailing the terms and conditions for deploying IBM software in an eligible public cloud.  
[https://www.ibm.com/software/passportadvantage/eligible\\_public\\_cloud\\_BYOSL\\_policy.html](https://www.ibm.com/software/passportadvantage/eligible_public_cloud_BYOSL_policy.html)

## IBM Cloud Paks

A page that provides details and useful resources relating to IBM Cloud Paks.  
<https://www.ibm.com/cloud/paks>

## IBM Certified Containers

A page that details the features of an IBM certified container.  
<https://www.ibm.com/docs/en/cloud-private/3.2.0?topic=started-cloud-paks-certified-containers>

## International Passport Advantage Express Agreement (“IPAEA”)

The agreement relating to software licensed under Passport Advantage Express  
[www.ibm.com/terms?id=Z125-6835](http://www.ibm.com/terms?id=Z125-6835)

## International Passport Advantage Agreement (“IPAA”)

The agreement relating to software licensed under Passport Advantage  
[www.ibm.com/terms?id=Z125-5831](http://www.ibm.com/terms?id=Z125-5831)

## IBM Notifications

The IBM Portal where you can subscribe to notifications about various documents and keep up to date with the latest news that affects your IBM licensing.  
<http://www.ibm.com/support/mynotifications>

## Sub Cap Eligible Processor Technologies

A list of processor technologies which are deemed eligible for Sub-Capacity licensing.  
[http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Eligible\\_Processor\\_Technology.pdf](http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Eligible_Processor_Technology.pdf)

## Sub Cap Eligible Programs

A description of the products that are eligible for Sub-Capacity licensing and a list of products which are not.  
[http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Sub\\_Capacity\\_Eligible\\_Programs.pdf](http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Sub_Capacity_Eligible_Programs.pdf)

## Sub Cap Eligible Virtualization and OS Technologies

A list of virtualization technologies and operating systems which are deemed eligible for Sub-Capacity licensing.  
[http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Eligible\\_Virtualization\\_Technology.pdf](http://public.dhe.ibm.com/software/passportadvantage/SubCapacity/Eligible_Virtualization_Technology.pdf)

## Sub Capacity License Counting Rules

Provides links to the documents which explain how to count the number of activated processor cores on various virtualization technologies.  
[https://www.ibm.com/software/passportadvantage/Counting\\_Software\\_licenses\\_using\\_specific\\_virtualization\\_technologies.html](https://www.ibm.com/software/passportadvantage/Counting_Software_licenses_using_specific_virtualization_technologies.html)

## Technologies No Longer Eligible for Sub Capacity

A frequently updated list of technologies that will no longer be eligible for Sub-Capacity licensing, and the date at which they cease to be eligible.  
<https://www.ibm.com/support/pages/node/1079427>

## Flexera One with IBM Observability

The IBM product page for Flexera One with IBM Observability.  
<https://www.ibm.com/products/flexera-one>

**IBM Products that deliver SLM tags**

*The list of programs which can be configured to create SLM files for ILMT to determine license use*

<https://www.ibm.com/support/pages/node/1281988>

**ILMT Documentation for collection and reporting of 'Other Metrics' data**

*The official documentation for ILMT which discusses the reporting of license metric data for programs measured by metrics which are not based upon processing capacity.*

<https://www.ibm.com/docs/en/license-metric-tool?topic=metrics-other>

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