Preparing for an IBM Audit

User Guide

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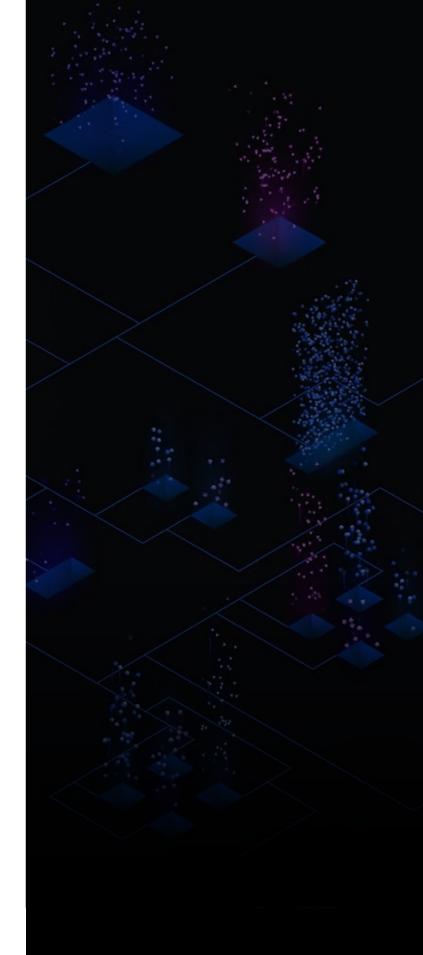
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IBM

Version History

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Contents

Overview

This guide provides helpful information on preparing for an IBM audit, that is, where IBM verifies a client's compliance with software licensing terms, usually with the assistance of a third-party auditor.

Effective preparation will help:

1. Avoid unbudgeted expense.

2. Identify house-keeping issues which can be addressed ahead of the audit and risk areas which can be proactively managed for a favorable resolution.

3. Reduce time, effort and resources required to respond to the audit.

4. Comply with the obligations in IBM's license agreements to install tools for Virtualization Capacity eligibility and to produce and maintain deployment records.

The principal preparatory step is the creation of an accurate Effective License Position but there are other important actions you can take to prepare for an audit as set out in this guide.

This guide is intended as a general licensing knowledge resource and it is not intended to provide advice for specific client circumstances. Always consult your IBM representative should you have any questions or concerns about licensing and compliance.

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.

Audit

A licensing verification activity initiated by IBM to determine a client's compliance with IBM's licensing terms

Container Licensing

Methodology to measure consumption of licenses only for the virtual CPUs used by containerized software on Kubernetes-orchestrated container platforms. Use of IBM License Service is mandatory to qualify for Container Licensing.

Discovery Tool

Tools with a more limited functionality than SAM Tools, typically capable of discovering attributes of hardware and software deployed.

Effective License Position ("ELP")

A reconciliation of license entitlement to consumption.

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.

IBM License Service

An IBM tool used to measure consumption of certain IBM licensing metrics in containerized environments. Use of IBM License Service is a prerequisite to take advantage of IBM's Container Licensing policy.

IBM License Service Reporter

An IBM tool used to aggregate the license count from IBM License Service installations across multiple Kubernetes clusters. ILMT installations can also input and be consolidated into the report to present license consumption across both container and traditional virtual environments.

Software Asset Management ("SAM") Tool

An application used to automate the discovery, measurement and recording of license consumption and reconciliation to entitlements.

S&S

Software and Support

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 full processing capacity of the physical machine or infrastructure.

Introduction

IBM operates a worldwide licensing verification program whose goal is to verify that clients are compliant with the license terms governing the IBM programs they use. Verification typically takes the form of an audit conducted by an independent auditor.

A description of IBM's audit process is set out [here](#).

An audit has two key objectives:

1. To measure your consumption of licenses and S&S for deployed IBM programs and check that this is within your licensed limits; and

2. To check that your use of IBM programs is compliant with IBM's software licensing terms and policies.

For clients, an audit provides a point-in-time confirmation of compliance, once any necessary remediation steps have been taken, and a practical test of the effectiveness of the client's SAM processes. It can identify errors and misunderstandings which internal audits and other controls may struggle to detect, and often gives clients a better appreciation of their overall software footprint.

The main agreements governing use of IBM software (including the International Program License Agreement ("[IPLA](#)"), the International Passport Advantage Agreement ("[IPAA](#)") and the Customer Relationship Agreement ("[CRA](#)")), contain IBM's right to verify clients' use of its software and your obligations in that respect. It is your responsibility to create, retain and provide the necessary information to IBM and its auditors.

Preparing and maintaining a complete and accurate set of information in advance of the audit is not only a requirement of your license agreements with IBM but will dramatically reduce the effort needed from your organization and the timeframe required to complete the audit. It will also help you identify and manage potential audit risk areas.

If an audit has not yet been formally notified, you may want to consider whether enrolment in the IBM Authorized Software Asset Management (SAM) Provider ("IASP") Program would be beneficial, particularly if you know there are areas of risk in your IBM estate. Find out more about the IASP Program [here](#).

Steps to Prepare for an IBM Audit

The following table sets out the steps covered in this guide to help you prepare complete and accurate information in advance of an IBM audit, information which the auditors will test during the audit. Each step is then discussed in more detail.

1	Identify the people that need to be involved
2	Summarize your entitlements
3	Know the licensing terms (including Agreements) applicable to you and your IBM programs
4	Identify areas of focus
5	Define the data points, data sources, and collect the information
6	Calculate license consumption and compare to entitlements

These steps reflect a typical IBM client and may not reflect your organization's particular circumstances. This guide does not cover the detailed data requirements for individual IBM programs. License Information documents and IBM software licensing policies should be consulted to understand this in more detail. See 'Further Reading' at the end of this document for some useful links.

Step 1: Identify the People That Need to be Involved

It is highly likely that multiple people across your organization, both functionally and geographically, will need to be involved in gathering and understanding the information necessary for an IBM audit. Finding and coordinating the necessary expertise is usually the initial priority.

The diagram below is a guide to those typically involved on behalf of the client in preparing for an IBM audit, and their principal contributions:

Internal Software Asset Managers	**Discovery & SAM Tool Admins**	**ILMT/HCL BigFix Inventory/ IBM License Service Admins**
General licensing knowledge, prior audit experience	Tool coverage, configuration expertise	Tool coverage, configuration and compliance with Virtualization Capacity and Container Licensing terms
CMDB	**IBM Contract Owner(s) [typically Procurement]**	**Infrastructure Management**
Complete view of the IT estate, types of environment, ownership and use of the machines	Collating agreements and contracts, identifying specific terms, collecting Proofs of Entitlement	Understanding of the IT architecture, hardware configurations, known gaps, DMZ, upcoming change freezes etc.
Application Owners	**Service Providers**	**Public Cloud Providers**
Use and configuration of the IBM programs and potentially detailed knowledge of specific licensing terms relating to the IBM programs they manage	Custodians of configuration and management data. May be involved in data collection if they manage the IT estate on your behalf	Understanding the technologies underpinning your Public Cloud deployments
Your IBM Reseller	**Legal**	**SAM Providers**
Proofs of Entitlement, copies of Agreements	Proofs of Entitlement, copies of Agreements	Software Asset Management records and data, advice relating to collecting data and measuring license use

Step 2: Summarize Your Entitlements

A clear view of your entitlements is your second priority. Knowing which IBM programs you have licenses for and in what quantity will give you the earliest opportunity to prioritize efforts in the next steps:

– The quantity of licenses you have purchased gives a sense of scale

– The license metric applicable to the Programs indicates the data points that must be gathered

– The entities which have purchased IBM licenses will indicate which subsidiaries and countries may need to be involved in the process

– Software which is under active S&S provides a good indication of those IBM programs which are in active use

If you are unable to trace your own copies of your entitlements, IBM provides access to them and other useful information through Passport Advantage Online ("PA Online"). PA Online records may not be a complete view of your entitlement position and may need to be supplemented with internal records.

M&A Activity

If IBM has not been informed about merger or divestiture activity not all your PA sites may be included in your data. Conversely, some sites may need to be excluded from the data.

IBM Acquisitions

IBM regularly acquires other software companies. It can take some time for their license records to be migrated to IBM's system. You may need to locate your copies of the original purchases.

OEM licenses

Some IBM software may be included as an embedded component of a third-party solution ("OEM" software). Your entitlement to use this IBM software is detailed in your agreement with the third-party vendor, and will not be recorded in PA Online.

PA Express

Organizations using PA Express also need to check for entitlements held under those Agreements. PA Express entitlements are visible in PA Online.

Product Evolutions

If a product has evolved and that evolution has resulted in a replacement part number, PA Online will automatically show entitlement to the new part number however you can only deploy the part number that is present in your Proof of Entitlement

PA Online records are accessed for each individual Site Number. There can be multiple sites in an organization, with parent ("Originating") and child ("Additional") sites. Sites are logical repositories for your license entitlements. Sometimes the Primary Contact for a site may have left the company and without self-nominating a replacement, it may be difficult to access the entitlement records in the site which they controlled. A review of the contacts for your sites is recommended as a precursor to an audit.

Guidance on using PA Online to establish a complete view of your license entitlements is set out in the associated guide on the Guides page.

Step 3: Identify the Terms Applicable to Your IBM Programs

Having identified the full extent of your IBM entitlements, the next step is to understand the detailed terms that apply to the IBM programs.

General licensing terms are found in the following places:

Agreements and Contracts	The Agreements between you and IBM, and the Transaction Documents under which you purchase the IBM programs. For more information read this page which will help you understand the agreement structure.
License Information ("LI") Documents	Detailed licensing information specific to each release of each IBM program. To learn more, read the licensing guide on the Guides page.
Enterprise Agreements	In some cases, agreements signed enterprise-wide may include terms which relate specifically to your organization's use of IBM programs. Identifying these terms in the agreements and ensuring that they are applied to the license measurement is very important.

Some terms are associated with pre-conditions or eligibility criteria. For example, the terms offered in respect of licensing virtualized and containerized environments. If you expect to take advantage of these terms it is essential to understand, and check compliance with, the necessary pre-conditions and eligibility criteria.

Detailed guidance on the steps to be taken in respect of virtualized and containerized environments is set out in the corresponding license guides which you can find here.

Step 4: Identify Areas Of Focus

Having assembled a comprehensive view of entitlements and the key license terms, you should consider where to focus effort. If you have not historically maintained records of your IBM Program use, you will need to prioritize certain areas in the time available.

These might include:

Known Risk Areas	Known Inaccuracies, Gaps in Data	Virtualization
Known problems relating to programs or technologies used that will require additional time and effort to rectify.	If your tools are known to report inaccurate information for certain platforms, or if there are areas of the environment not covered (such as DMZ), an earlier start on collecting this data might be necessary.	We have found that clients often have compliance issues concerning Virtualization Capacity licensing. This relates to traditional virtual machine environments.
Container Licensing	**Strategic and High Value Products**	**Outsourced Environments**
As this is a newer area of IBM licensing, clients may not be fully aware of the licensing terms and eligibility criteria such as IBM License Service.	Products with a high unit cost are typically higher risk. Even relatively minor shortfalls can have a significant financial impact.	Compliance issues can arise due to gaps in the respective responsibilities of client and outsourcer.

To help you identify areas for particular attention, a set of licensing guides has been compiled which covers the areas clients often ask questions about. The topics covered may be a good starting point when thinking about your own areas of focus. See the list of guides here.

Step 5: Data Points, Data Sources and Collection

The information necessary to measure consumption varies considerably by product. It can usually be identified from the License Information document for the relevant program. Guidance on using License Information documents is available on the [Guides](#) page.

Research may be needed to assess which of your internal resources, data repositories and tools may be able to provide this information, and to check alignment between the data available from these resources and the IBM definitions of the necessary data.

You must also take care that the data is reliable: that it is complete, accurate and current. In some cases, the relevant data points may be extracted from the IBM Program itself.

Data points commonly collected for the hardware on which IBM products are deployed or which they manage include:

The name of the machine

The environment the machine is in (Production, Development, Test, and so on)

The status of the machine (Active, Hot, Warm, or Cold Standby, DR, High Availability)

Processor details (CPU make, model, total cores, hyperthreading status)

Size of the RAM (relevant to some IBM programs)

Machine Type (physical machine, virtual machine, container)

Virtualization or Container Platform Details (name of cluster, name of the host if a virtual machine)

IBM programs installed on the machine

Data points typically gathered in relation to the IBM software itself include:

The edition and version of the IBM program

Programs bundled with or supporting the program

The purpose of the program, including both its business purpose, such as provision of services to external end users, and whether it is in development, test or production

Resources that are managed by the IBM program (if applicable)

Names and classification of authorized users

Amount of storage used or managed

Identifying the data sources

If you have a robust discovery tool or SAM tool, then much of the information necessary may be readily available. However, the full picture will probably need to be collated from various sources.

Goal	Potential Data Sources
Identifying the total estate	Active Directory (Microsoft Windows-based estate) LDAP records (Unix-based estate) CMDB records Anti-virus records Network health monitoring programs Cybersecurity monitoring programs Ping tests (to test for currency of the data) The entities that have signed Agreements with IBM Mainframe records
Identifying Hardware configurations	SAM or Discovery Tools CMDB IBM License Metric Tool BigFix Inventory IBM License Service, possibly in conjunction with IBM License Service Reporter Sub-Capacity Reporting Tool (mainframe)
Identifying Software Installations	SAM or Discovery Tools CMDB IBM License Metric Tool BigFix Inventory IBM License Service / IBM License Service Reporter
Understanding application use or access control	Commands and reports from the IBM Program Active Directory or LDAP security groups Application Virtualization platforms such as Citrix XenApp Knowledge from application owners Joiners/leavers/movers processes and records from Human Resources

If you run IBM programs measured on a capacity basis on virtualized environments or as containerized applications and comply with the Virtualization Capacity or Container Licensing terms you will have an IBM-approved metering tool installed. This is a key source of information for hardware and software configurations and can automatically calculate the license requirement for some programs and license metrics.

Step 6: Calculate Consumption and Prepare Audit Packs

Once you've identified and collected the information necessary to calculate license consumption for your IBM programs, assembling the data collected and applying the licensing rules will enable you to create a license and S&S consumption position for each product and to compare this with your entitled amounts.

These positions should be checked with the product owners to ensure they are an accurate representation of how and where the software is deployed. It is also worth reviewing the list of Common Compliance and Audit issues to ensure that these have been effectively addressed.

In most cases this Effective License Position should provide a strong basis for a future audit. The work that you have performed to arrive at this position should be documented, both for presentation to the auditor and for ongoing management of your IBM compliance.

A useful way to keep the information is as program-specific packs which set out the licensing position of each program:

– The entitlements held

– The installations identified

– The data points collected to measure the license consumption, their source, and when they were collected

– Copies of exports, reports or screenshots collected as evidence of the license consumption

– A copy of your calculation of license use, including detailed evidence where installations have been deemed not to be licensable

– The comparison of license consumption to entitled quantity

These audit packs will enable the creation of the Effective License Position to become a repeatable business process with clear roles and responsibilities.

It is likely that the work will identify opportunities for reducing some license consumption. Common examples include:

– Removal of users who have left the organization but have not been removed from user access control lists

– Adjustments to the configuration of virtualized estates

– Deletion of deployments no longer in use

– Programs or capabilities deployed or retained in error

Addressing these, and any defects in eligibility for Virtualization Capacity or Container Licensing ahead of an audit notification will reduce the likelihood of an unbudgeted expense. Similarly, if consumption is temporarily inflated because of migrations or similar circumstances, IBM's approval should be sought in accordance with IBM's Temporary Additional Use Policy.

If preparatory work does identify a need for additional licenses and S&S, clients should raise this pre-emptively with their IBM Sales Representative to avoid having to address this in an audit context.

Checklists

Overall Audit Readiness

Step	√
1. Define leadership, roles and responsibilities in relation to audit activity	
2. Understand your IBM entitlements position, reconciling IBM's records with yours, and covering S&S, base licenses and cloud entitlements	
3. Familiarize yourself with IBM terms and conditions and the metrics that apply, both standard terms and any specific to your organization	
4. Understand where IBM software is deployed and check completeness of this	
5. Ensure ILMT/HCL BigFix Inventory or IBM License Service is running, operational and creating meaningful outputs	
6. Collect data from non-PVU or RVU instances directly from the software or manually	
7. Create an effective licensing position using the available information	
8. Check:	
a. Are all non-licensable instances correctly excluded?	
b. Are production and non-production instances correctly classified?	
c. Are there instances which have been decommissioned but not yet uninstalled?	
d. Are there instances which have been uninstalled but still appear in the records used for license consumption measurements?	
e. Are there any products which appear to have been installed in error?	
f. Are the ILMT connections to VM Managers correctly configured?	
g. Are any unexpected products shown as installed?	
h. For user-based metrics are any obsolete usernames (for example, leavers) included?	
i. Are there users who no longer require access to the program (for example, changes in role)?	

j. Do any users have higher levels of access than they require?	
k. Have all entitlements been considered? Are any of the identified deployments covered by entitlements included in third party software license agreements?	
9. Consider opportunities for optimization and mitigation, including temporary approvals, correction of errors	
10. Document and communicate your process for responding to an audit notification	
11. Purchase any necessary additional licenses and S&S reinstatements	

Virtualization Capacity: Sub-Capacity

In the checklist below, references to 'metering tool' mean an IBM-approved Virtualization Capacity metering tool – that is, IBM License Metric Tool or HCL BigFix Inventory. Certain clients may have an agreement with IBM to use Flexera FlexNet Manager, and IASP Clients may use additional tools.

Step	√
1. If you are running an older version of the metering tool, you should upgrade to the latest release of ILMT or HCL BigFix Inventory.	
2. Update the software and hardware recognition catalogs to those most recently issued.	
3. Verify that agents are deployed on all the servers running IBM programs that you wish to count on a Virtualization Capacity basis.	
4. Deploy any additional agents required and ensure that all agents are reporting back to the metering tool's managing server correctly.	
5. Verify that the links between the metering tool and the VM Managers are functioning correctly and that the metering tool is populating the correct information regarding the physical hardware supporting the virtual machines. *Failure to do so will mean that the installation will be measured at the highest level of 120 PVUs per core even if the actual PVU rating is lower.*	
5. Ensure that detected installations are correctly assigned to the product license they relate to. *The metering tool will conduct some automatic recognition of products, but since code is shared extensively between IBM products, the metering tool's initial categorization will need to be checked and either confirmed, or the detected components re-allocated to their correct licensable product. Without this validation, the metering tool's measurements may not be accurate.*	
5. Classify the discovered instances of software to exclude from the license consumption measurement any instances which do not require software licenses. *Typical exclusions include Bundled and Supporting programs (where not separately licensable), certain standby configurations and certain development and test use-cases.*	
6. Execute the Virtualization Capacity PVU report and assess the reported values against your expectations. If the reported values appear incorrect, perform root cause analysis, and make any further corrections necessary.	
9. When the reported values appear to be correct, run the report and retain a copy for submission to the auditors and IBM upon request.	
10. Have you collected all previously generated reports (at least quarterly) for the last two years?	

Virtualization Capacity: Container Licensing

See the Container Licensing guide for more information as well as the "IBM Licensing Tools" user guide available on the Guides page.

Step	√
1. Is IBM License Service deployed and enabled in each Kubernetes cluster?	
2. If using IBM License Service Reporter to monitor multiple Kubernetes clusters, are all the data sources reporting correctly?	
3. Are all Cloud Paks and IBM Certified Containers included in the audit snapshot as expected?	
4. Is other containerized software appearing in the audit snapshot as expected, or do Kubernetes Annotations need to be updated?	
5. Have all warnings listed in the IBM License Service logs and in the unrecognized_apps.csv file of the audit snapshot been rectified?	
6. Have you collected all previously generated audit snapshots (at least quarterly) for the last two years?	
7. For IBM programs (other than Cloud Paks and IBM Certified Containers) which you have containerized, have you applied the necessary Kubernetes Annotations to enable IBM License Service to identify and measure the license consumption?	

Hardware Configuration

The list below is a suggested level of information for each machine where IBM programs measured on a capacity basis are installed. Examples of capacity-based license metrics are 'Processor Value Unit', 'Core', 'Virtual Server', 'Virtual Processor Core'.

Data Point	√
Individual Machines	
1. Machine Name	
2. Operating System (publisher, name, version)	

3. Virtualization Status (physical machine, virtual machine)	
4. Virtualization Technology (including capped/uncapped status for PowerVM)	
5. Host Name (if virtual)	
6. Cluster Name (if virtual, or a physical host machine)	
7. Machine Manufacturer and Model	
8. Maximum Number of Processors Supported	
9. Number of Processors Installed	
10. Processor details (vendor, make, model)	
11. Total cores (both activated and deactivated)	
12. PVU per core Rating (per the PVU Table or the PVU calculator)	
13. Hyperthreading or Simultaneous MultiThreading (SMT) status (for example, SMT-4, SMT-8)	
14. Total activated cores (vCPUs for virtual environments)	
15. Environment (e.g., Production, Development, Test)	

Virtualization Infrastructure	
16. Name of Cluster	
17. For each physical host machine, the data points listed above in "Individual Machines"	
18. Exported log files demonstrating virtual machine mobility events (for example, vMotion or Live Migration)	

Software Installations

The list below is a suggested level of information for each IBM Program installation.

Data Point	√
1. Program Name	
2. Program Publisher	
3. Program Version	
4. Installation Date (this is particularly important if a license shortfall is identified as maintenance will only be charged back to the time of installation)	
5. Installation Path	
6. Identity of License Manager (if applicable, for example some Rational products use FlexNet License Manager)	
7. Date Last Used (information provided by some operating systems)	
8. Bundled or Supporting Status	
9. Name of Principal Program	
10. Location of installation of Principal Program	
11. Details of resources that the IBM program is managing, if applicable	

FAQs

What help is available to assist me in creating my effective license position?

IBM provides a considerable amount of information online to help clients understand their licensing and to help them calculate their license position. This can be found on our [website](#).

Does IBM have any partner programs that offer consulting work to assist me in the preparation of reports?

IBM offers the IASP Program to selected clients. This program allows clients to work with an authorized SAM Partner of their choice to produce their own effective license position for submission to IBM. More guidance is set out in the "The IBM Authorized SAM Provider (IASP) Program" user guide on the [Guides](#) page.

Further Reading

IBM Agreements
Sets out the main licensing agreements and other documents that are relevant to the licensing of IBM software, highlighting the key terms.
www.ibm.com/about/software-licensing/licensing/agreements_and_contracts

IBM License Guides
A set of guides which discuss licensing or user scenarios commonly encountered by clients when measuring and managing IBM software.
www.ibm.com/about/software-licensing/licensing/guides

Sub-Capacity Terms
An explanation of the terms relating to Virtualization Capacity licensing for 'traditional' virtualization environments.
https://www.ibm.com/software/passportadvantage/subcaplicensing.html

International Program License Agreement ("IPLA")
The license agreement which covers the majority of IBM software (English version).
https://www.ibm.com/support/customer/csol/terms/?id=i125-3301&lc=en#detail-document

IBM License Metric Tool ("ILMT")
Information relating to one of the two approved Virtualization Capacity license metering tools, IBM License Metric Tool (ILMT).
https://www.ibm.com/software/passportadvantage/ibmlicensemetrictool.html

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.ibm.com/terms/?cat=software-license

International Passport Advantage Express Agreement ("IPAEA")
The agreement relating to software licensed under Passport Advantage Express
www.ibm.com/terms?id=Z125-6835

International Passport Advantage Agreement ("IPAA")
The agreement relating to software licensed under Passport Advantage Express
www.ibm.com/terms?id=Z125-5831

IBM License Metric Tool ("ILMT") User Guide
See the user guide at the Software Licensing & Compliance site to read more about ILMT.
www.ibm.com/about/software-licensing/licensing/guides

Questions and Comments:

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