

FLEXera

Software License Optimization Practice Guide

FlexNet Manager Suite 2019 R1



Legal Information

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Scope

The Software License Optimization Practice Guide is a prescriptive guide to producing and refining your license position using FlexNet Manager Suite's best practices. It provides recommendations that apply to any software vendor and should be considered general best practices. It is intended to enhance existing product knowledge and augment other material, such as our free training courses, and the FlexNet Manager Suite online help. See the [Useful Resources](#) chapter for a full list of these resources including a list of learning paths which we recommend you review before using this practice guide.



Note: *There are several use cases for Software License Optimization (SLO) and not all of them are addressed in this practice guide, such as software asset management (considered here only as a follow up effort that transitions an SLO project into an operational program) or hardware asset management.*

The Software License Optimization Practice Guide follows a **milestone approach** to software asset management. This approach is based on achieving an increasing level of maturity by incrementally adding data to continuously improve compliance and accuracy.

This practice guide is supplemented by specialty practice guides (such as the **IBM® Practice Guide**, **Microsoft® Practice Guide**, **Oracle® Practice Guide**, **SAP® Practice Guide**, or the **VMWare® Practice Guide**) which provide additional vendor specific or use-case specific context, as well as the more technical **Business Adapter Practice Guide**.

For concurrent licensing, please see the **Concurrent Licensing Practice Guide**.

For hardware asset management, please see the **Hardware Asset Management Practice Guide**.

All guides are found in our Learning Center, accessible via the [Customer Community](#).

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FlexNet Manager Suite Coverage Summary



The first thing to consider when undertaking a SLO project is how you will collect application attributes. Many attributes are collected natively by inventory tools; however others require a different approach. When assessing whether your applications are supported by the available inventory technology, it is critical to start with the license metric (such as users, devices, cores, and so on) and how the application is deployed and/or accessed. Knowing which attributes to count will allow you to determine whether that data is collected by inventory, or how else you can collect it.

The table below summarizes the commonalities among products based on the most common deployment methodologies:

Deployment	Examples	Coverage Summary
On Premises (Desktop and/or Data Center)	<ul style="list-style-type: none"> • IBM WebSphere Application Server • Microsoft Office • Oracle Database • Tableau Desktop • Toad 	<p>Most applications in this category are quickly recognized as installed, including their different components (for bundled applications). Key application attributes such as editions, options, and add-ons are often not available in the evidence collected by standard inventory. When these attributes are available, it is usually in the form of tag files.</p> <p>The FlexNet inventory agent includes custom technology which collects important attributes for the highest value applications across different vendors. Some applications may not be natively supported and will require additional effort to identify.</p>
Infrastructure as a Service (IaaS)	<ul style="list-style-type: none"> • Amazon Web Services Elastic Cloud Compute (AWS EC2) • Microsoft Azure • VMware vCloud Air • IBM SoftLayer 	<p>Gathering inventory from IaaS environments is similar to on premises environments. Conventional agent-based and agent-less approaches should be used, and you can expect similar results (unless otherwise noted), however virtualization and partitioning details will not be available as underlying hardware is inaccessible to inventory scans in IaaS environments.</p> <p>Bring Your Own Software License (BYOSL) licensing rules often apply. These rules generally ignore virtualization and partitioning requirements, making it easier to calculate consumption. Different use rights for on premises and IaaS environments will typically require separate license records. A best practice is to allocate machines in each environment to their respective licenses, and then automate the inventory gathering process using a business adapter. Discovery scanning is not typically possible in these environments. Also, it may be necessary to integrate with the service provider's application programming interface (API) to generate inventory targets. Many service providers position infrastructure outsourcing as IaaS. However, vendors often list the service providers which qualify to use BYOSL rules. If a service provider is not on the vendor's list, the standard On-Premises licensing rules will typically apply.</p> <p>Managing the costs and risk of these environments will require reporting from the IaaS itself (such as access to APIs and other reports that provide the details of the underlying infrastructure). This data should be used to import and allocate consumption entitlements to licenses in FlexNet Manager Suite.</p>
Infrastructure outsourcing (Private Cloud) and Service Providers	<ul style="list-style-type: none"> • IBM Managed Services • Microsoft SPLA 	<p>Infrastructure outsourcing and Private Cloud environments are essentially outsourced data centers which follow the same licensing conventions as the On Premises environments outlined above.</p> <p>Be cautious of the same service provider infrastructure challenges as with IaaS.</p>

Deployment	Examples	Coverage Summary
Platform as a Service (PaaS)	<ul style="list-style-type: none"> • IBM • Force.com • Google App Engine • OpenStack • CA AppLogic • AWS Elastic Beanstalk • AWS RDS 	<p>Most PaaS licenses require a similar approach to SaaS (see below), where the platform itself is priced based on usage.</p> <p>Like SaaS or IaaS, managing the costs and risk of these environments will require reporting from the service itself (such as access to APIs and reports that provide the details of the underlying infrastructure). This data can then be used to import license data into FlexNet Manager Suite and then assign consumption.</p>
Software as a Service (SaaS)	<ul style="list-style-type: none"> • Salesforce.com • Microsoft Office 365 • Box • Google Apps • Workday • ServiceNow • Concur • Atlassian JIRA 	<p>Most SaaS applications are user or usage based. Consumption metrics can be obtained through integration with the service provider's API or other regular reporting mechanism. We recommend using Flexera's SaaS Inventory Framework.</p> <p>The focus is on cost control, not necessarily on compliance (although compliance might still be an issue with some providers). It may be possible to track end user client application installs and usage through inventory solutions just like any other on premises application.</p> <p>See Managing SaaS for a brief summary of other management and optimization concerns and some current capabilities.</p> <hr/> <p> Note: Many products are available as On-Premises and cloud offerings today.</p>
Appliances	<ul style="list-style-type: none"> • Oracle Exadata • Oracle Exalogic • Symantec NetBackup Appliance • Email Gateway 	<p>Appliances can be physical or virtual, and may be located on premises or in the cloud. Appliances are typically licensed per appliance device, however some appliances may be licensed based on organizational or technical metrics, such as the number of users protected by an email spam filter, or the amount of data stored in a database.</p> <p>Appliances typically encounter the same challenges as On Premises deployments when identifying editions, options, add-ons, and measuring license consumption.</p> <p>Appliances are usually low risk instances and are often excluded from automated discovery.</p> <p>Manual data collection of consumption metrics is expected.</p>

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Overview of a License Reconciliation Project

One of the most important steps of any license reconciliation project is to start by defining the activities, timeline, and scope. Most licensing projects can be broken down into the same key phases, and the milestone approach outlined in this document provides an implementation framework which maximizes time to value by focusing on the fastest delivery of an initial license position and constantly improving that position by following a standardized framework. The four (or more) key milestones each share the same, repeatable, four workstreams which in turn creates an easy and standardized process, improves efficiency, and provides the fastest outcome for our software license optimization solutions.

With limited exception, defining the scope of a license reconciliation project is relatively consistent across vendors. While there are many methods documented in the industry, the method of [Scoping by Gross Value](#) has proven to be particularly successful for FlexNet Manager Suite implementations of all sizes.

This methodology is successful because it focuses on addressing areas where you have invested the most. As you begin scoping your projects (or as you are adding more to your already established position), we recommend you only accept very limited risks in areas that will require extra effort to accomplish. Each new milestone should expand on the first scope to either add new products or vendors, or to add new inventory or data sources for an enhanced license position. The emphasis is to show success early while frequently improving and communicating next steps. License positions will typically need to be scrutinized and refined before reaching an optimized state, so this should be considered a continuous process, instead of a singular set of tasks.

Following our milestone logic, you will only undertake necessary tasks early in the process, and then improve your licensing position using an iterative process. A standard set of reports is provided at the end of each milestone for tracking purposes. The results will ultimately improve future milestone work because issues and gaps will be identified. Standard reports can be found in the [Reporting & Governance Workstream](#) section, alongside some very useful custom reports that take advantage of the rich data FlexNet Manager Suite offers.

At first, expect your license position to be a rough estimate (likely with well-known gaps) that summarizes the initial information you have collected or have available. As more data is integrated through later milestones, the quality of the license position will steadily improve, until you reach an optimized state. Be aware that it is perfectly normal for gaps to exist even at later milestone stages. These should be well documented and assessed. Over time you will gain alignment with, and incorporate appropriate data from, all SAM stakeholders.

While the organization is working to establish the initial license position, a range of activities must be undertaken within the organization to commence an efficient and effective Software Asset Management (SAM) program. A SAM program is a business practice that involves managing and optimizing the purchase, deployment, maintenance, utilization, and

disposal of software applications within your organization.

These activities will run in parallel with the license reconciliation effort as a part of the project to ensure the established licensing positions continue to be maintained over time. Over the course of the project, the commencement of the SAM program can be broken down into these key establishing components:

- Establish a SAM Governance program. This governing body monitors the progress of the SAM program, removes any obstacles, and serves as the escalation point for the SAM team. A SAM governance team consists of senior leadership and SAM stakeholders’ leadership.
- Assess the current state of the software lifecycle and determine the future state
- Determine software data management
- Determine ways to measure the effectiveness of the SAM program and processes
- Determine how the SAM program will communicate

Each of these SAM program components will be developed over the course of the license reconciliation project milestones.

Below is a breakdown of the four recommended milestones:

- **Milestone 0 (Planning)** — Scoping the project, developing a project plan, and reviewing technical requirements.
- **Milestone 1 (Initial Insight)** — Using FlexNet Manager Suite to establish baseline data and integrate with existing inventory and entitlement sources. This produces a first view of your license position that identifies risks and other areas requiring focus in future milestones.
- **Milestone 2 (Initial Position)** — Delivering a meaningful representation of the license position, while continuing to document and close gaps.
- **Milestone 3 (Refined Position)** — Delivering an optimized position, including remaining open issues, actions and recommendations. In many instances, 100% accuracy may not be feasible and additional milestones may be required to further refine your position.

To summarize:

- Plan the project as a series of smaller projects with frequent milestones as checkpoints
- Continue working on the same workstreams every time for consistency and best results
- Prioritize any items that are critical to facilitate the next milestone, or are identified as having uncertainties that must be addressed to prevent disruption to a later milestone.

The below table shows most important activities at the different stages of your SAM project. More details are provided in the milestones and recommended workstreams sections. This list assumes you have an operating instance of ready for use.

Table 1: License Reconciliation Project Milestones

Planning & Implementation Workstream	Discovery & Inventory Normalization Workstream	License Creation & Optimization Workstream	Reporting & Governance Workstream
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Milestone 0 (Planning)

Planning & Implementation Workstream	Discovery & Inventory Normalization Workstream	License Creation & Optimization Workstream	Reporting & Governance Workstream
<ol style="list-style-type: none"> 1. Set initial scope 2. Identify SAM stakeholders and set expectations 3. Identify SAM stakeholder change management requirements 4. Perform SAM assessment. 	<ol style="list-style-type: none"> 1. Identify existing inventory and entitlement sources 2. Review product requirements and prerequisites 3. Identify whether FlexNet Inventory deployment is required. If yes, choose method(s) and plan for deployment. 	<ol style="list-style-type: none"> 1. Identify the initial baseline, or identify sources required to create a baseline manually (a recent audit report, purchase orders, contracts) 2. Begin baseline collection (if applicable) 3. Review requirements for assets, users, purchases and enterprise groups. 	<ol style="list-style-type: none"> 1. Create a project plan 2. Create an issue register and gap analysis document 3. Create an implementation architecture and technical requirements document 4. Define requirements for later milestones 5. Map future-state SAM process, identify SAM stakeholders and construct governance team.

Milestone 1 (Initial Insight)

<ol style="list-style-type: none"> 1. Start planning for later milestones 2. Consider additional data source integration(s) 3. Communicate progress 4. Engage SAM stakeholders. 	<ol style="list-style-type: none"> 1. Import existing inventory <ol style="list-style-type: none"> a. Begin deployment of FlexNet Inventory (if required). 	<p>Choose from the following:</p> <ul style="list-style-type: none"> • Import existing baseline • Create baseline from entitlement reports • Import a copy of the effective license position (if applicable). 	<ol style="list-style-type: none"> 1. Initial license position insight 2. Produce normalized inventory reports 3. Gap analysis/KPIs 4. Define SAM program KPIs, communicate SAM lifecycle processes.
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Milestone 2 (Initial Position)

Planning & Implementation Workstream	Discovery & Inventory Normalization Workstream	License Creation & Optimization Workstream	Reporting & Governance Workstream
<ol style="list-style-type: none"> 1. Consider additional data source integration(s) 2. Determine whether legacy or out-of-service licenses should be tracked 3. Communicate progress 4. Implement SAM future-state lifecycle processes. 	<ol style="list-style-type: none"> 1. Expand inventory to cover identified gaps and identify inventory to ignore 2. Cross reference discovery sources (Active Directory) 3. Import device roles. 	<ol style="list-style-type: none"> 1. Obtain initial set of contracts, and review your proof of entitlement 2. Create a revised entitlement position 3. Start refining use rights (basic allocations and device role exemptions). 	<ol style="list-style-type: none"> 1. Initial license position 2. Gap analysis/KPIs 3. New SAM processes are implemented.

Milestone 3 (Refined Position)

<ol style="list-style-type: none"> 1. Further refine data sources 2. Initiate policy and process enhancements 3. Automate collection of KPIs 4. Identify enterprise group assignment needs 5. Communicate progress. 	<ol style="list-style-type: none"> 1. Scan networks for missing devices 2. Complete VM introspection 3. Import user data 4. Identify enterprise structures (if applicable) 5. Inventory role set for active inventory (if role-based exemptions are needed). 	<ol style="list-style-type: none"> 1. Incorporate manual inventory 2. Review all contracts and add renewals 3. Further refine use rights 4. Review license bundles 5. Input pricing details 6. Provide consumption counts for license types that require manual configuration. 	<ol style="list-style-type: none"> 1. Optimized license position 2. Gap analysis/KPIs 3. Custom reports.
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Overview of Milestones

The milestone process delivers value fast by allowing you to obtain an initial license position without waiting for your inventory data to be perfect. In this modular framework, the individual workstreams are interchangeable, and some are even removable, based on your desired outcomes and your project scope. This level of flexibility is especially useful when you need to deliver a license position quickly, are dealing with complex scenarios, or are taking a niche approach to your SAM journey. For example, in complex scenarios, it may be challenging to follow the guidelines rigidly (such as creating licenses, then assessing entitlement and contracts, and then optimizing your license position) as your license entitlements and contracts may determine the way licenses need to be created.

The timeframes for delivering milestones will also differ from environment to environment, and from project to project. For example, if you are deploying inventory agents to a large number of servers, the timeline for [Milestone 1 \(Initial Insight\)](#) will be longer to allow for specific deployment requirements that need to be considered.

The following sections in this chapter provide an overview of the milestones outlined in the above table.

In addition, each workstream has dedicated chapter where overall best practices are shared, and useful tips and tricks are given by our team of experts. Please see the [Planning & Implementation Workstream](#), [Discovery & Inventory Normalization Workstream](#), [License Creation & Optimization Workstream](#) and [Reporting & Governance Workstream](#) chapters.

Milestone 0 (Planning)

Milestone 0 (Planning) focuses on planning rather than implementation; however it is included in the overall framework because careful planning, thought and consideration are essential to ensure your project is executed quickly and is likely to succeed. By identifying requirements and prerequisites, Milestone 0 (Planning) enables you to start [Milestone 1 \(Initial Insight\)](#) ready to import the necessary entitlements and match them to your inventory. This creates your first insight into the license position and enables you to meet the important goal of reporting a license position back to SAM stakeholders early on in your project lifecycle.

We also recommend implementing an effective SAM program that will support the established license position, demonstrate value, and avoids unnecessary software licensing and maintenance spend going forward. To achieve an effective SAM program, SAM teams must create and implement Operational KPIs (Key Performance Indicators) that enable team members to measure, report on, and monitor SAM processes, staffing, work instructions, and tool sets.

During this initial stage, the project team should:

- Review the project scope and objectives with the SAM stakeholders.

- Develop a project plan and set clear expectations.
- Request baseline reports, contracts, and access to required systems.
- Review network architecture to determine the appropriate technical architecture.
- Review product requirements and prerequisites.
- Obtain access to existing inventory systems.
- Determine if deployment of FlexNet inventory agent is required. This is crucial for vendors where traditional inventory sources, such as Oracle, are not effective.
- Review enterprise groups and reporting requirements. This is crucial to enable enterprise groups and/or territory to determine a license position.
- Review requirements for assets, users and purchases for vetting in future milestones.
- Identify your initial baseline or the sources needed to create one.
- Hold planning and design sessions which can consist of phone calls, virtual sessions, or on-site workshops.
- Develop a SAM program governance team who will be responsible for supporting SAM process development and execution; will serve as a program escalation point; determine SAM program KPIs; and support the SAM team.
- Assess and map both current and future state SAM processes. This is crucial to ensure an efficient SAM program.

Milestone 1 (Initial Insight)

Milestone 1 (Initial Insight) focuses on achieving an initial insight into your license position. You will also start to prepare future milestones, but that should not change the initial focus of getting that first insight. In this milestone, things should be kept simple, clean and at a minimum. Import inventory, import baseline, get outcome, report gaps. [Milestone 2 \(Initial Position\)](#) and [Milestone 3 \(Refined Position\)](#) will assist you to optimization your license position, but the Milestone 1 (Initial Insight) foundation is extremely important.

Valuable data is collected throughout this first operational milestone. This data can be utilized through reporting for different business initiatives related to the asset lifecycle or the overall software supply chain. The value can and should be shared through the organization to enhance or create various processes. Some corporate roles that might benefit include procurement, operations, security, vendor management, and finance.

During this milestone you should communicate any process changes or modifications which have occurred as a part of moving to the future state of the SAM program. Information sharing, engagement, and obtaining the approval from each of the SAM stakeholders is crucial to ensure the successful deployment of any changes to existing process areas.

During this stage, the project team should:

- Start planning for later milestones.
- Import data from existing data sources (both inventory and entitlements). No additional discovery should be undertaken during Milestone 1 (Initial Insight).
- Install a beacon/beacons.
- Connect to existing inventory sources.

- The [FlexNet Manager Suite Coverage Summary](#) section of this practice guide provides a framework for understanding inventory requirements for various applications.
 - Evaluate the key applications in scope.
 - Document any extra efforts necessary to complete a license position.
- Import existing baseline entitlements obtained from the vendor(s), an audit report, or manually create them.
- Identify KPIs based on inventory and licensing requirements (virtual, asset status, role, location, line of business) to determine major gaps in your data source.
 - In addition, the SAM team works with the SAM governance team to determine the appropriate KPIs required to measure the effectiveness of the SAM processes.
- Engage and obtain buy-in from key SAM stakeholders to support future state SAM processes.
- Communicate the future state SAM program processes that will be implemented.



Note: If additional supplemental data is available, we do not recommend adjusting it at this stage as this will be addressed from [Milestone 2 \(Initial Position\)](#) onwards.

It will be useful to run the following FlexNet Manager Suite reports at this stage. These reports will provide you a first glimpse into your inventory estate and applications by vendor. This is crucial for planning next steps, such as determining which vendors you should focus on first and which can be deferred to a later stage; or determining whether you have important gaps in inventory that can be covered during later Milestones.

Installed Applications Report

1. Navigate to **License Compliance > Installed Applications**.
2. Filter the results by entering a [vendor name] in the **Publisher** column and selecting **Commercial** from the **Classification** column.

All Inventory Report

1. Navigate to **Discovery & Inventory > All Inventory**.

Milestone 2 (Initial Position)

Milestone 2 (Initial Position) is when you start looking at the wider picture. It is where compliance and optimization start becoming important and you begin investigating use rights, contracts, proof of entitlement, or additional inventory sources. It is perfectly normal to have some missing or delayed data at this stage as you will continue to revise your position, identify issues and close some of those gaps in the future milestones.

To support the initial license position that has been established, we recommend that newly created SAM program, and/or modified processes are put into place. Once the SAM stakeholders have all agreed to the new and modified processes, it is time to execute these changes. Without the process changes in place, the license position that the SAM team has worked diligently put into place will become outdated, irrelevant, and you will not achieve an optimal return on time investment. As such, it is imperative that you communicate these processes to your SAM Governance program stakeholders and ensure they are being followed.

During this stage, the project team should:

- Consider additional data sources for future deployments.
- Expand existing inventory to cover some of the previously identified gaps.
- Obtain additional entitlement documents for identified vendors.
- Obtain contracts for identified vendors.
- Leverage existing discovery sources, such as Active Directory.
- It is important to start tracking inventory saturation as one of your KPIs (see the [Reporting & Governance Workstream](#) chapter).
- Import device roles.
- Use allocations and exemptions to make sure machines are assigned to the appropriate licenses. Additional data can be imported using the CSV import feature, if needed.
- Create additional licenses to cover previously unidentified software in scope (if applicable).
- Allocate inventory devices to specific licenses. For example, you may choose to allocate a machine to a Named User Plus license when it is in a test or development environment; or choose a Processor license if it is an Oracle application in a production environment.
- Continue reporting identified gaps and known issues.
- Implement the SAM program processes.

Milestone 3 (Refined Position)

Now is the time to get serious about optimization and cost savings so you can deliver an optimized license position. Here you will refine use rights, ensure inventory is nearing 100%, import user data, and input manual data as needed. However, your work is not done with this last milestone — going forward, other products or vendors may need to be added to the initial scope, which means you may need to repeat some earlier milestone action items.

Also, now that the SAM processes have been deployed and the license position is in place, it's time to implement some SAM program KPIs. The SAM program KPIs must run on a regular defined cadence and be communicated to the SAM governance team, SAM stakeholders, and a defined broader organization distribution. These KPIs will have supporting processes and operating procedures for the SAM team and organization to follow as corrective action when necessary. The KPIs will provide insight into the effectiveness of the SAM program and processes as well as determine if any gaps in the processes and operating procedures exist.

During this stage, the project team should:

- Further refine the existing data sources
- Start initiating the first policy and process enhancements
- Start KPI automation processes for a faster and more reliable long-term tracking strategy
- Scan for new and unknown devices — this should be operationalized going forward
- Deploy inventory extensions to automate the collection of additional data (if applicable)
- Include any remaining gaps or future actions in gap analysis and recommendations reports

Overview of Milestones

- Include further use right adjustments, allocations and exemptions based on the vendor's licensing policy
- Incorporate additional data not gathered by existing inventory sources (for example, licenses based on business metrics)
- Identify installations that are missing entitlements, these represent a financial risk
- Identify licenses for re-harvesting or shelving (see the [License Optimization](#) section)
- Identify role-based exemptions (for example, disaster recovery rules, test/development exemptions)
- Continue reporting identified gaps and known issues. Work will not stop with Milestone 3 (Refined Position).

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Planning & Implementation Workstream

The Planning & Implementation workstream provides guidance; and adjusts the project scope as the project matures, objectives are defined, and data sources and KPIs are identified.

As previously stated, it is important that the team understands the goals and desired outcomes, and can clearly define the project deliverables before commencing the project as this helps drive value within the organization and prevents delays from occurring during the first week of the project. Scoping by gross value and developing the project plan are the first, and some of the most important, elements of the project because they help determine the initial project goals.



Note: *The Software License Optimization Practice Guide does not cover planning industry standards. For more details on industry best practices, SAM/ITAM integration, or for an introduction to FlexNet Manager Suite, we recommend the “Getting Started & Plan for Success with FNMS” learning path in Flexera’s Learning Center. See [Useful Resources](#) for more details.*

We recommend aligning our best practice methodologies with your existing processes to identify process gaps and create a tailored solution for your specific requirements. Although there may be dependencies that drive larger value, there are always immediate benefits driven through the project plan definition. For the milestone approach, the main goal of planning is to plan just enough to get going on the current tasks, while anticipating hurdles and addressing risks in a timely fashion.

In addition, it would be beneficial to the overall SAM program, as well as the success of the license reconciliation project, to have a governance framework in place. SAM Governance is a way to encourage desirable behavior in the use of the organizations software investments.

The primary purpose of governance is to align the value creation efforts of the SAM program with the strategic objectives of your organization by developing the components of the program (such as policy, processes, integrations, communications) in a way that produces valuable information about, and to further, those objectives. A governance framework works by providing an outline of how the organization makes decisions, reviews results, identifies risks, and holds people accountable for progress.

Governance is a continuous process which commences at the start of the program and is executed at regular intervals, and at every major decision. Governance refers to the way the program components are developed, and the way they are then continuously measured and reinforced. In order to achieve success, governance must also define a clear set of responsibilities and who is accountable for each.

Governance should answer some key questions, such as how the program is functioning overall, what key metrics management needs, and what return the program is giving back.

Scoping by Gross Value

The gross value method focuses the project on addressing the areas where enterprises have invested the most in software assets and equally where product features and functionality are strongest. The basic steps are:

1. Review all current entitlements
2. Match the entitlements with pricing information
3. Group the entitlement summary into product families
4. Calculate and rank each product family
5. Adjust the project priorities.

1. Review all current entitlements

It is important to compile a comprehensive list of entitlements, including entitlements acquired through recent agreements, to create a baseline summary of current entitlements. You may need to coordinate with application specialists in the enterprise. It is also possible to assemble a draft baseline summary using a detailed list of individual purchase records; however, this will be more time consuming. If you only have individual purchase line information available, then you may want to skip normalizing them into a baseline and move on to the next step which normalizes entitlements by product family.

2. Match the entitlements with pricing information

Unit cost information is key to defining the value associated with each group of entitlements. To obtain unit cost information, search the cost or price value and then multiply this number by the entitlement quantity of each line item. If it is not feasible to use real pricing, available price lists can be used. The end goal of this step is to define the relative monetary value associated with each product family, and not to define the total actual money spent on each product family. After the relative value of each product family is calculated, it is much easier for SAM stakeholders to discuss which products are critical for the initial license position, and which can be deferred to a later phase.

Once you have identified a price to use for each entitlement, you can then calculate the total value of those entitlements by multiplying the unit cost by the number of units. After sorting the entitlements into product families, this sum will now contribute to the overall value associated with that product family. The different product families can then be ranked against each other to determine their importance.

3. Group the entitlement summary into product families

The focus of this step is to group line items into high level product families which clearly show where your enterprise has made the greatest investments in software assets. Although there is no single number that will fit all cases; most projects will need approximately 10-15 different product families.

Commence this step at a very high level. For example, with Oracle, product families such as Database, Technology, Middleware, Applications, and E-Business Suite are a good choice. Within those families, identify sub-groups where a significant amount of value has been invested in a product range. An enterprise whose investment in Oracle Applications is composed of large separate investments in Siebel and PeopleSoft should probably have a separate product family for **Applications - Siebel**, a separate product family for **Applications - PeopleSoft**, and combine the remaining Oracle

products in the general **Applications - Other** group.

Because different levels of inventory coverage will result in different levels of risk, investment, and value; it is useful to have an understanding of the inventory available and how that inventory will support a license position for the different groups of products. See the [FlexNet Manager Suite Coverage Summary](#) chapter in this practice guide and in the vendor-specific practice guides for more information.

4. Calculate and rank each product family

Now that the individual entitlement line items have been converted to an overall value and mapped to a higher-level product family, this data can be quickly summarized.

If you have been using Microsoft Excel to keep track so far, you can do this by inserting a Pivot Chart as follows:

1. Select your data and create a pie chart in a new worksheet.
2. When that worksheet opens with the pivot chart settings, select the product family mapping field as a row in the table and the sum of your Total Value Calculation field as the value. This displays a table with your product family mappings on the left, and the overall sum of the value for each product family on the right.
3. Right-click on the values on the right and select **Show values as...** and select **% of Grand Total** to convert these raw numbers to percentages that are appropriate to share and discuss.

5. Adjust the project priorities

At this point, the key product families should clearly stand out. Initial license reconciliation projects should focus on the products that compose the bulk of the value (our recommendation is approximately 80%). This is often a much smaller list of products than you might imagine, and it typically aligns well with the technology available for automating inventory and license calculations.

Although an important objective measurement of the key products, this process may not provide you with a complete picture of your license position. For example, if there is an upcoming contract renewal for a certain set of products, it may be beneficial to include that set of products in the project scope instead of others. When making these decisions it is helpful to consider the effort required to complete a license position for any product included in the scope, keeping in mind that anything not directly addressed by technology will require some manual effort to complete. Some products require significantly more manual effort than others, so take care to ensure the overall effort required does not exceed the project timeline and resourcing allowances.

Throughout your project, it is common for issues and goals to arise that were not part of the initial scope. Prioritize each new item against the other deliverables and assess whether it is more important than existing items. If so, you may choose to add the new item to the project and remove another item of equivalent effort to keep the scope balanced. If however the change is significant, or modifies the language found in contracts governing the project, it may require a change order. Balancing these changes is one of the most important indicators of a successful project.

Project Plan Considerations

Now that your assets have now been ranked and the scope of the SAM project has been defined, it's time to start the operational side of the project. Key items to consider for your project plan include:

- Publishers and products in scope
- Overall solution requirements

- Requirements of a license position
- Impacts and changes on systems, functions and processes
- Confirm high level design discussions with SAM stakeholders.

There are important items that can shape and change the project plan midway through the project, and that's expected. Considering the below questions will improve data accuracy, keep the project focused on delivering value, and ensure you are prepared for the next step. Use your answers to adjust your project plan and discuss any with your SAM stakeholders.

- What will be the cadence of updating purchases and entitlements?
- Are there existing data sources?
- Will licensing information come from a reseller or directly from the vendor?
- Do you need to request a reseller report in a specific format?
- Do current entitlements have SKUs or part numbers?
- Do existing data sources have pricing information? (For example, a Microsoft MLS does not include pricing.)
- How will pricing be updated and managed?
- Does the existing inventory have usage data or metering enabled?
- Are there any security or network requirements?
- Does existing inventory capture user information? If not, what will be the source of user information?
- Does existing inventory capture data required for vendors or application specific: cores, sockets, processors? If not, what is the best source of that data?
- Is managing complex licensing metrics required?
 - Complex licensing metrics may be defined by named user or by site/location. Understanding where this data will come from is important. For example, is MSDN currently managed in the Microsoft Volume Licensing Center? Will sites or location information come from Active Directory or PeopleSoft?
- Do locations need to be managed for licensing purposes, or hardware by locations?
 - This requires an understanding of your enterprise structures.
- What is the source for contract management data?
- What existing processes could impact the software lifecycle?
- What changes are required to support the needs of the SAM program?
- Which SAM stakeholders will be impacted by process changes?
- What measurements (KPIs) must be deployed to ensure changes to the SAM process changes are operating correctly?

Giving due consideration to the above items will improve data accuracy, keep the project focused on delivering value, and ensure the SAM program is adequately prepared for the next steps. Any changes that arise from these considerations should be added as adjustments to the project plan and discussed with the stakeholders.

SAM Team Considerations

The size of a SAM “run team” will vary according to a multitude of external factors. Consider the following when deciding the size of your team:

- The number of devices for the software to be managed
- The number of contracts and products to be managed
- The license complexity and level of automation of your inventory and entitlements
- The overall robustness of your SAM processes.
- The expertise level of your team members

If the deciding factor is devices per Full-Time Equivalent (FTE) then, based on industry experience, we recommend:

- Organizations in early stages of their SAM maturity (those with very limited processes, who may perform tool set-up themselves, and have very limited knowledge transfer) can achieve approximately 8,000 devices per FTE
- A somewhat mature organization (which has moderate processes, and a standard investment in tool set-up and reconciliation/SAM services) can achieve approximately 10,000-15,000 devices per FTE
- A more mature organization (which has robust processes, invests in expert services set-up, and performs full knowledge transfer to team members) can achieve approximately up to 30,000-40,000 devices per FTE.

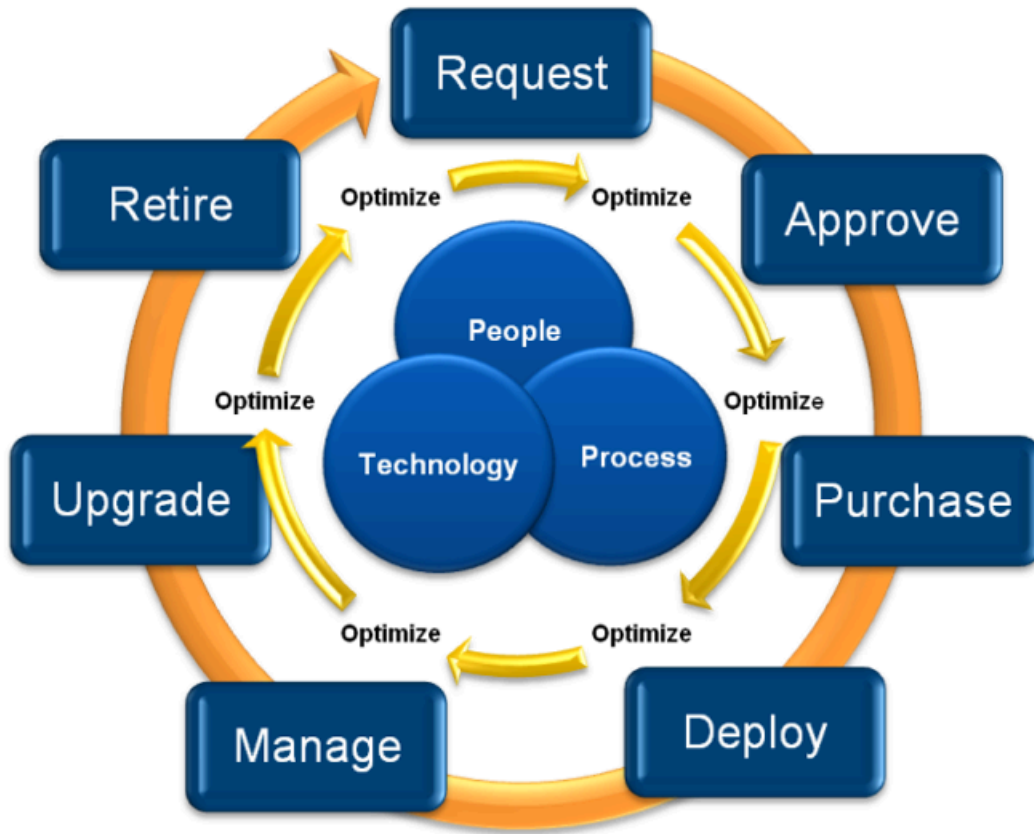


Note: *In this scenario, “run team” excludes incremental labor effort necessary to provide initial data cleansing or data entry to populate the SAM optimization toolset.*

Software Lifecycle


The SAM lifecycle starts when the software license entitlement or installation is initially requested and ends when the software reaches its end-of-life which occur when the software is uninstalled, or when the application reaches its end-of-support.

Figure 1: SAM lifecycle



There are multiple process areas, toolsets, and individuals who impact the software management lifecycle. Each must work cohesively to effectively maintain the established license positions. Although the SAM team is not necessarily the owner of each of these processes and toolsets, they must ensure all process areas have clearly defined operating procedures with identified SAM stakeholders. In turn, SAM stakeholders must have a clear understanding of their role within the SAM program.

Each organization must clearly define their software lifecycle based on current business processes. These processes will impact software and how it is the licensing position is maintained. Governance will work to support the SAM team to ensure that the lifecycle meets the organizations goals for the SAM program. The existing processes that support the organization’s SAM lifecycle will need to be documented and assessed based on the organization’s strategic direction. Future state SAM lifecycle processes will need to also be documented. Modifications to existing and the need for new processes will need to be documented and included in the project plan. Once the future state processes have been documented, it will be crucial to have the SAM stakeholders review the processes for agreement to implement. Without this agreement, the SAM program will not be successful.

 **Tip:** Maximize the success of your SAM program by engaging SAM stakeholders. Invite them to attend process review meetings and future state definition meetings. This way SAM stakeholders understand the impact to their process area, operating procedures, and toolsets and can communicate these changes early in the project.

Communications

Quality communication establishes an effective working relationship between your SAM team, your organization, and SAM stakeholders. It provides timely and relevant information to invested parties, proactively engages those who are disconnected from SAM governance, and can facilitate organizational change.

Various communication components are used to enable the SAM team to communicate updates and metrics, and share the progress and development of the SAM program. Key foundational communication components are the:

- Communication Plan
- Program updates and reporting
- Enterprise Communications Campaign, and the
- Communications Value Roadmap (CVR).

Communication Plan

Your communications plan determines how, and to whom, the SAM Program will communicate. Along with KPIs, the communications plan, which is part of [Milestone 2 \(Initial Position\)](#), is one of the foundational components of your SAM program. The communication plan is a governance-driven approach to providing SAM stakeholders with information about the program. It formally defines who should be given specific information, when that information should be delivered and what communication vehicles will be used to deliver the information. The communication plan determines who has the authority to communicate confidential or sensitive information (risk from license compliance). It also defines what communication channels SAM stakeholders should use to provide feedback. The communication plan determines how communication documentation will be archived as part of the program records.

Program updates and reporting

Reporting and updates is where governance, processes, data management, metrics and communications come together. It may provide updates during enterprise communications campaign, organization-wide education initiatives, SAM stakeholder status reviews, quarterly program meetings, advisory council meetings, software compliance meetings, and so on.

Enterprise Communications Campaign

A SAM program impacts multiple organizations and needs enterprise support to be successful. The information managed by a SAM program serves IT and the enterprise (finance, security, planning, risk). The Enterprise communications campaign promotes governance of SAM policies and processes and educates the organization on policy, key controls, processes and roles and responsibilities. The enterprise communications campaign creates awareness of enterprise impacts and requirements by using targeted communications such as blogs, internal websites, corporate training, annual attestations, and so on to disseminate information. The campaign should focus on:

- Corporate Policy
- Enterprise responsibilities and impact, and
- Soliciting feedback.

Communications Value Roadmap (CVR)

An industry best practice for any major business initiative is to leverage a phased value roadmap. Provide an executive one page summary that shows how you will create and capture value over time. Include key capabilities and metrics, demonstrate return-on-investment, and highlight areas for continued optimization. The CVR must provide a summary of everything important with the initiative aligned with the detailed implementation plan and maturity model. The CVR identifies the competencies needed to realize value creation and must be updated over the entire lifecycle of the initiative.

The CVR aligns the implementation of a SAM program, SAM program maturity levels, capabilities and metrics, with business strategy.

The CVR will streamline cross-functional communications with a focus on:

- Business Strategy
- Business Initiative
- Benefits
- Phased Implementation of Strategic Framework and Solution Components
- Capabilities, and
- Value Scorecard.

6

Discovery & Inventory Normalization Workstream

The Discovery & Inventory Normalization workstream, as defined in the milestone framework, provides useful best practices and suggestions to maximize your existing inventory capabilities.

Overview of Discovery and Inventory

Discovery

Discovery is often incorrectly confused with inventory. Discovery is the process of identifying target devices, users, and other objects in an environment that must be incorporated into the license position. Discovery specifically finds devices and users but it may not be able to identify any details pertaining to the device or user (for example, discover may not be able to determine whether a device is an IP address or a host name).

Inventory

Inventory is the collection of attributes that describe the physical or virtual characteristics of a device, such as processors, RAM, and the software installed.

Four key inventory data layers are important for license reconciliations:

- Hardware and software inventory, including partitioning information on all non-Windows systems
- Virtualization inventory, partitioning information, host to guest relationships
- Application editions, options, and features installed, and whether they are in use
- Other application attributes related to licensing, such as application users, revenue, number of records, and other organizational metrics.

The license model requirements are the best guide to determine which attributes are necessary to collect. Each metric will have special requirements and Flexera's discovery and inventory capabilities supports a wide variety of these natively. For more information about integration with third-party discovery solutions, refer to *tFlexNet Manager Suite 2019 R1 Inventory Adapters and Connectors Reference* PDF, available through the title page of online help.

If there is uncertainty about the license model requirements for a specific metric, review the metric definition, as well as vendor documentation and vendor official websites.

When considering inventory for hardware and software details, you must choose whether to leverage existing data

sources or deploy a new one. To maximize your time to value, carefully evaluate inventory sources and use the best one. Keep in mind that most inventory solutions don't collect all the data required. For example, since the primary function of Oracle systems is not for license management, Oracle typically requires a specific feature set. While basic inventory might be enough to start with, ensure a plan exists to transition to a more thorough inventory in later milestones.

As previously mentioned, all inventory tools have shortcomings for license management because many application attributes are difficult to measure automatically. Because there is no single tool that can do it all, it is best practice to choose a combination of inventory sources that take maximum advantage of what is already deployed and ready to use. Combine these sources with FlexNet inventory agent and other custom solutions to fill in important gaps. Remember, your objective is to deliver an initial license position fast, while establishing a roadmap for future success. Connecting to various inventory sources may not be a [Milestone 1 \(Initial Insight\)](#) objective, but it will be one further along the way.

FlexNet Manager Suite currently supports four mechanisms:

- FlexNet inventory agents deployed automatically from beacons or installed manually on devices
- Remote inventory is executed by the beacons remotely against a targeted set of devices
- Deployment of the core inventory collection executable locally scheduled on each device
- Inventory spreadsheet or .csv import (either a one-time import using FlexNet Manager Suite or configured as an inventory source via a beacon).

The FlexNet inventory agent is a highly effective agent as it collects key hardware and software data by reading common installer repositories, scanning files, and other techniques for specific vendors where detection is harder.



Note: *Non-hardware metrics such as employees, revenue, student counts and so on, will always need to be collected using manual methods.*

For more information on which inventory solution to leverage, please see [Appendix 1: Choosing the Right Inventory Method](#).

Additional Resources

For more details on managing inventory devices, hardware, virtual devices or discovered devices with FlexNet Manager Suite, see the “Inventory Normalization” learning path in Flexera’s Learning Center. See [Useful Resources](#) for more details.

We recommend reviewing these materials *prior* to implementing the best practices outlined in this document.

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For more information on which inventory solution to leverage, see [Appendix 1: Choosing the Right Inventory Method](#).

Unspecified Editions and Unknown Components

When reviewing inventory results from certain applications, you are likely to encounter several types of records reflecting different issues with the underlying inventory in the Application Recognition Library, such as:

- Installs with version and edition (for example, "Oracle Database 11g R2 Enterprise") — These are fully recognized applications, including advanced inventory edition recognition from WMI evidence or Flexera Oracle Inventory.
- Installs with "unspecified" version or edition (for example, "Oracle Database 10g R2 UNSPECIFIED") — These installations indicate an install of the application, but inventory is not returning all required data for full recognition. For example, Flexera Oracle Inventory may be missing. Some free components may leave traces of ambiguous evidence. Add these to the list of installations for inventory troubleshooting.

- Installs with "unknown component" (for example, from installer evidence like "Oracle 11g") — These installations are ambiguous and cannot be determined as a database or not. They are often repackaged installers and may or may not indicate a risk. They should be added to an issue register document.
- Other components (for example, "Oracle Starter Database 9i R1") — These should all be low or no risk items. The ARL clearly identifies all known components to reduce the number of "unknown components" and yield better overall results.

Troubleshooting unknown component issues in FlexNet Manager Suite:

Issue Description	Likely Cause	Resolution
"Unspecified" edition installations are appearing on known systems that should have high quality results, such as Oracle Database, SQL Server, or WebSphere MQ.	An issue with the collection of the specific inventory data that provides the edition recognition, such as WMI evidence for SQL Server, Flexera Oracle Inventory for Oracle Database, and queue managers for WebSphere MQ.	Generate the appropriate inventory for the affected systems.
The fully recognized installation is found on a system side-by-side with an "unknown component" record for the same product.	The ARL is still recognizing some lower quality evidence in addition to the higher quality, fully recognized application.	Submit a case to Flexera Support for review. A precedence rule may need to be added or updated to hide the lower quality installation.
Some free, limited use components are installed on this system and not the full, licensable application.	The evidence left behind by the installer does not specify those components clearly, or otherwise leaves ambiguous evidence that the full product may be installed. This is common with many data center applications, such as the Oracle Database Client (free) or the SQL Server Management Studio.	Exempt these systems from consuming against production licenses and submit a case to support for review along with evidence from the affected system. It may be possible to improve the recognition of the specific components.
Some entirely different product is installed on this system, not the "unknown component" reported in inventory.	Some infrastructure app, such as a database, has been installed on that system as part of a bundle and it may not need a production license. For example, Tuxedo is often packaged with PeopleSoft.	Exempt these systems from consuming against production licenses. Submit a case to Flexera Support for review. This may require enhanced support for bundles.
There is no known reason for this "unknown component" to be found on this system.	The link between the evidence collected and the reported installations may not be clear, or the ARL may be incorrectly interpreting the evidence. These may be legitimate unknown systems that were not expected in the inventory.	Review the raw evidence to determine why this "unknown component" was identified. After reviewing the evidence, if you need further support, or updates made, submit a case to Flexera Support.

Overlapping Evidence

Sometimes, a local evidence (typical one which has been created manually) can overlap with the same evidence from the latest ARL which may contain additional details. A best practice is to monitor the **Evidence > Discovered Evidence** page and filter the list to find any items with an "Overlapping Evidence" alert. You can then open the properties of the evidence and navigate to the **Applications** tab to see the duplicate software titles that this evidence is linked to. More than likely, one of the applications will have a source of Flexera and the other title(s) will have a source of Local or Flexera (Extended). Edit the software title that does not show Flexera as the source and unlink the evidence to remove the duplicate assignment. For full details see the "Resolving the Alerts about Overlapping Applications" topic in online help.

To be further proactive, you can navigate to the **All Evidence** page and look for overlapping evidence. This allows you to see all the overlapping evidences, and whether is installed or not. See the "Resolving the Application's Overlapping Evidence Alerts" topic in online help for full details.

Virtualization Inventory

Virtualization and partitioning details are essential for accurate license consumption calculations. For example, on non-Windows systems, the FlexNet inventory agent automatically collects partitioning information. When the data for these systems is processed, host, processor pool, and guest host-to-guest relationships are automatically built. Host devices for AIX, Solaris, and similar hard partitioned environments are created using the collected data. Here are some practical recommendations:

- If Oracle Virtual Machine (OVM) or VMware is implemented, Flexera Inventory must be run against the OVM, vCenter, or Elastic Sky X (ESX) API, to collect cluster, host, and guest relationships. In most environments, Flexera virtualization inventory is configured using one or more defined inventory rules. For more details, see the *FlexNet Manager Suite 2019 R1 System Reference* PDF, available through the title page of online help.
- In cases where it is not feasible to create a connection to a vCenter or ESX environment, the stand-alone VMware Inventory tool (ESXQuery) is used. Download this utility and documentation from the "Flexera Product and License Center".
- Solaris Zones with Hyperthreading and Solaris Logical Domains (LDOMS) are supported.
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For detailed custom reports on your virtualized estate, see the section.

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For detailed custom reports on your virtualized estate, see the section.

Cloud Service Provider Inventory

You can view a list of inventory devices revealed in inventory gathered from AWS EC2 by navigating to **Discovery & Inventory > Cloud Service Provider Inventory** page in FlexNet Manager Suite. Detailed inventory can also be collected in other ways, such as by including the FlexNet inventory agent in the image used to initiate virtual machines in AWS.

See the online help topic "Managing AWS EC2 Connections" topic for full details.

Collection of Supplemental Inventory

The most common gaps in inventory occur when editions, options, and add-ons are not accessible to an inventory tool. These attributes are often not in the evidence found in the file system or package repositories. Instead, system commands and other proprietary application commands must be run to detail the configuration of each instance.

Application and Device Roles

In addition to collecting hardware and software inventory, many licenses have use rights that allow (or penalize) certain device roles (cold and warm standby servers). Sometimes this information comes from standard inventory, but often it's found in asset data contained in a configuration management database (CMDB) or another business data source. If available, import this data into FlexNet Manager Suite.



Note: Integration with these data sources should be pre-planned during [Milestone 1 \(Initial Insight\)](#).

Using the CSV Import Feature

For an overview of how to manually import inventory, refer to the *Importing Inventory Spreadsheets and CSV Files* chapter of the *FlexNet Manager Suite 2019 R1 System Reference* PDF, available through the title page of online help. Data sociability may be an issue with some inventory sources when using the .csv import feature therefore it should only be used when there are no other options are available.

Data Platform Integration

Having normalized inventory is a crucial step in helping organizations better understand, manage and evolve their enterprise ecosystems. Leveraging Flexera's Data Platform for application recognition and license management in FlexNet Manager Suite enriches the data available, resulting in better quality license positions and data usability across different organizational areas.

Utilizing a connector that imports normalized data from Normalize v5 into FlexNet Manager Suite makes the first step of this integration possible:

1. Normalized software data is imported into FlexNet Manager Suite as evidence ("Flexera ID" type)
2. The evidence is matched against the ARL
3. When a match is found, the installed application record is created as part of the import process
4. Inventory devices records (both physical servers and VMs) and installation records are also imported from Normalize v5 and linked to recognized applications.



Note: When an application is found in [Technopedia](#) but it is not in the ARL, then it is not yet recognized as an application in FlexNet Manager Suite and will be listed as **Unrecognized Evidence**. It is a best practice to start with the unrecognized evidence records to re-create your local application record within FlexNet Manager Suite.

Inventory gathered only from Normalize v5 could also be insufficient for complex license requirements such as Oracle license calculations, IBM server license calculations or licenses that rely on VM details (where the core, processor count, host, pools and clusters are important elements). The best practice here is to always install the FlexNet inventory agent on these target devices. The FlexNet inventory agent is optimized to collect license-related inventory. FlexNet Manager Suite then reconciles over multiple overlapping inventory sources to create unified records as appropriate, so there is not risk in combining the two approaches.



Note: There are some prerequisites to consider, as the data integration is not enabled by default with the FlexNet Manager Suite product upgrade. For more information, visit our [Product and License Center](#).

7

License Creation & Optimization Workstream

The License Creation & Optimization workstream, as defined in the milestone framework, and provides best practices and advice on creating and configuring licenses, and optimizing your license position. To gain an initial insight into your license position, as defined in [Milestone 1 \(Initial Insight\)](#), you must obtain your initial inventory and entitlement positions.

An initial insight into your license position can be achieved by importing an existing baseline, creating a baseline from existing baseline reports, or creating a baseline from existing transactions.

Additional considerations for obtaining an initial entitlement position include:

- Choose one of the following recommended data sources:
 - Publisher Licensing Statements (such as Microsoft License Statement, VMware Installed Base Report, Adobe License Intelligence Report)
 - Publisher online licensing portal (if applicable)
 - List of entitlements purchased from the reseller (if applicable)
 - Publisher contract records that contain entitlement numbers (such as the Microsoft Enterprise Agreement)
 - Volume purchase data that is not covered by the above (such as those purchases made for a subsidiary not covered by global agreements)
 - Retail (Full Packaged Product) or Original Equipment Manufacturer (OEM) purchases, including their proof of license documents (such as End User License Agreements, retail boxes, Certificate of Authenticity stickers, paid invoices, and so on)
 - Any other data sources.
- Create a spreadsheet summary of these entitlements and prepare it for import.
- Import the spreadsheet summary into FlexNet Manager Suite as a set of purchases (See [Purchase Order Upload](#) for full details), observing the following requirements:
 - Do not set automated processing of purchases on import

- Select all unprocessed purchases with recognized stock keeping units (SKUs) and click to process automatically
- Manually process all other baseline purchases using the processing wizard to select the appropriate application and license model for each entitlement.
- Define a set of processes to follow when processing imported purchases to optimize a license position including:
 - Additional purchases of existing entitlements
 - Purchases of new entitlements
 - Maintenance subscription renewals
 - Upgrade purchases
 - Splitting entitlements.



Note: *Contracts are not required for an initial license position, but they offer significant benefits, such as ease of management and further proof of entitlement. It is a best practice to manage contracts and associate them with license records.*

It is always easier to determine a moment in time from where the license position is calculated, instead of going too far back and including agreements that might not be relevant anymore. A best practice is to find the most recent event where a license position was agreed upon with your software vendor. Such event could be an annual True-Up, an audit, or a renegotiation of licenses.

Importing and Creating a Baseline

In a best-case scenario, baseline purchases are easily imported as one-off uploads, however it is important to review the licenses and agreements prior to importing this information. In the case of the Microsoft MLS, Microsoft may have added a company that is not related. When reviewing licenses, ensure you remove duplicates to avoid over-inflated license counts. For example, VMware's IBR or Oracle's Inventory Report shows all purchases, even those used to upgrade to a different version or True-Ups. In these cases, the newest license should be processed as an upgrade and attached to the base license. If a vendor's licensing statement is not available, consider using the results from the most recent audit as the initial baseline. Some publishers do not provide any summarized baseline reports; for these publishers, relevant transactions should be summarized in a single spreadsheet (.xlsx or .csv).

Current license position

To gain an insight into your current license position, see the *Purchase Order Upload* page of the online help for instructions on importing your purchase data.

For baselines that require configuration before importing, FlexNet Manager Suite template supports the following data fields:

- PO Number — if no Purchase Order (PO) number is available, then use "<Publisher> Baseline"
- PO Line Number — unique identifier for each row on a Purchase Order
- Publisher
- Vendor — may be different from Publisher if the data provided by a reseller

- Description — entitlement description, including product, version, edition, metric, and purchase program
- Date — If no purchase date is available, use the deemed date of the baseline
- Qty — The quantity of the same item purchased at this time)
- SKU — The stock-keeping unit (SKU) or Manufacturer Part Number. For example, 79P-05550
 - Reseller SKUs can help if manufacturer SKUs are not available, but they are not in the SKU library — they can only serve as a foundation of FlexNet Manager Suite learning
- Whether the entitlement is software (with or without Maintenance), an upgrade (with or without maintenance), or standalone maintenance
- Maintenance details — present or absent, start date, end date.

See the *Purchase Order Upload* page of the online help for the complete list of supported data fields.



Note: It is not advisable to set automated processing of purchases on import, as it could result in an incorrect license creation.

Processing Purchases

License Naming Convention

A standard license naming convention should be established for all licenses. This is our recommendation:

<Publisher> <Product> <Edition> <Version> <Identifying details>

If the license is under maintenance, clear the **Copy Version and Edition from the most recent application** check box on the **Identification** tab of the license so that you can set the license name to the appropriate value of "Current" (licenses with upgrade rights do not cover a fixed application). For more information on this setting, see the *Copy Version and Edition from the Most Recent Application* page of the online help.

Examples of names following this best practice:

- Adobe Photoshop Creative Cloud Named User Subscription
- Adobe Acrobat Pro XI CLP
- Microsoft Office Professional Plus Current L&SA EA
- Microsoft Windows Server Data Center 2012 1 Proc (volume).

Processing Baseline Purchases into Licenses

See the *Unprocessed Purchases* page of the online help for detail of how to process your imported purchases into licenses. Best practices for completing this process are outlined below.



Note: This step is not required for Microsoft MLS baselines, which are automatically converted into licenses (with some exceptions).

Processing Purchases with Recognized SKUs (including for Baselines)

Select one purchase for a license with a recognized SKU and click **Process** to process automatically. A recognized SKU is highlighted in the data grid (sort, not group, by **Part no./SKU** to see which SKUs are recognized).



Note: *It can be difficult to recognize which purchases are for licenses, upgrades, and maintenance. Be sure to inspect the SKUs to ensure licenses are processed first, then upgrades, and maintenance last.*



Important: *Do not multi-select and process multiple rows that share the same SKU and no license recommendation.*

1. Click **Recalculate** after processing each purchase during this stage to prevent the creation of incorrect licenses.
2. Begin by only processing purchases with No recommendation calculated displayed in the Recommended licenses column during the first pass.
3. After processing each purchase (remember, you will be processing one and only one purchase with a given SKU), be sure to click **Recalculate** to ensure no purchase with a valid recommended license is processed.
4. Before processing the purchase, carefully review all SKU and purchase characteristics including:
 - License type/metric
 - Purchase program
 - Maintenance/support
 - Maintenance/support end date
 - License end date (if subscription, Cloud, or temporary)
 - Others (may vary by vendor).
5. Once a license has been created for this purchase, navigate back to the **Procurement > Unprocessed Purchases** page and process purchases for each recognized SKU *without* a recommended license. There could be more than one different SKU that are all recommended to link to the exact same license, but only process one of these SKUs.
6. After one purchase has been processed into one unique license for each purchase uploaded, navigate back to the **Procurement > Unprocessed Purchases** page and click **Recalculate**.
7. When all purchases with recognized SKUs have a recommended license, filter the **Recommended licenses** column to only show purchases with a recommendation. Once all purchases without a valid recommendation have been eliminated, select the check box in the column header to select all remaining purchases (or only the purchases where the recommended license should be accepted) and click **Accept**.



Note: *Software suppliers are increasingly re-using SKU numbers for multiple versions of an application. Typically, the SKU does not define the application version and SKUs are, by default, linked to the newest version of the application. One way to address this issue is to use the Purchase Order date together with the application release date as the SKU value; however, Flexera does not provide release date information for all applications and the release date information may also depend on the EOSL data pack availability. We recommend that you always validate the applications linked to a license are assigned the correct version of the application. This should not be an issue for active maintenance software where you have the right to use the most recent version.*

Recommended License Changes

See the *Recommended License Changes* section of the online help for full details.

Processing Baseline Purchases with Unrecognized or Blank SKUs

How to process purchases without SKUs begins similarly as those with recognized SKUs.



Note: Only one purchase order should be processed at a time.

1. Navigate to **Procurement > Unprocessed Purchases** (in the **Purchases** group).
2. Locate and select a purchase order which *does not* have a SKU value in the **Part no./SKU** column, and displays **No recommendation** calculated in the **Recommended licenses** column.
3. Click **Process**.
4. Select the appropriate application and license model for each entitlement.
5. Select the highest version of the application the license covers, which may be higher than any version currently deployed in the environment. By doing this, the license will not require reconfiguration if a different, upgraded version of the application is deployed.

Examining which related products have installations is helpful to understand which of a set of closely related products is the right one to license.

If the license is a bundle (a primary application with additional applications that support it), select the primary bundle application first.

- a. If the application does not exist in the ARL, manually configure the **Purchase type**, **Maintenance**, **License type**, and **License name** fields (following the naming conventions above), then click **Create**. You should return to this license during [Milestone 2 \(Initial Position\)](#) to configure the appropriate license consumption data.
 - b. If the application exists in the ARL, overwrite the license name in the **Purchase overview** section with a name following the naming convention. In many cases, one or more license models are recommended (see example above). If no license model or only inappropriate license models are shown, try clearing the **Show only recommended license models** check box and selecting the **Show all bundles** check box to allow more flexibility in selecting a correct license model. To filter this grid, use the grid controls, not the purchase overview controls.
6. Once the application is selected, the license name corrected and either selected the correct license model (preferred) or used the **Purchase Overview** to manually set the license characteristics, click **Create**. The system will navigate into **License Properties** so that the product use rights and other license attributes can be reviewed and edited (for non-standard terms and conditions that might apply).
7. Validate if the license was created correctly:
 - If processing purchases for a product is not yet completed, you should ignore alerts pertaining to “incomplete maintenance”, as this may be resolved after the maintenance purchases are processed.
 - The most common remediation for expired maintenance is to select the **Planned Non-Renewal** check box to indicate that maintenance on that license is not intended to be current.
 - Ensure that the version and edition of the license are correct. In the case of a product under maintenance, ensure you clear the **Copy version and edition** check box to change the version to current to represent the

upgrade rights.

- Confirm that all covered applications are linked under **Applications**.
- Confirm that every setting on the **Use rights and rules** tab is accurate, especially if the license is for a bundle, where non-standard terms and conditions might apply or if selecting the desired license model from the **Purchase Processing** wizard was not completed.

During [Milestone 1 \(Initial Insight\)](#), you only need to ensure that the license type, maintenance settings and dates are correct. You can then continue with the process, leaving a more thorough review of the license use rights until later milestones.

For processing “Unlimited” licenses (for example, Oracle's ULA), a best practice is to have “UNLIMITED” in the license name for tracking purposes, set the **license count** as "1" and ensure the **Subject to true-up** check box is selected. An alternative approach would be to set the license count as 999,999 to prevent the license from consuming. Enterprise licenses can also be used when there is no need to track consumption for later renewals.

Processing Upgrades and Maintenance

The best practice is to process purchases of upgraded licenses first, and then process purchases of maintenance licenses.

There will be some upgrades or maintenance that have no appropriate base license. Exclude these from the license position unless a business decision is made to assume the risk of treating an upgrade or maintenance purchase as a stand-alone entitlement. If not, these should not be used as part of the license position. After processing all purchases, review all licenses for alerts indicating a need to re-mediate maintenance issues.

If all the upgrades or maintenance for a given license do not have the same maintenance end date, do not process them at the same time using multi-select, instead process the ones that belong together. For more information, see [Appendix 2 - Management of Upgrade, Subscription and Maintenance Entitlements](#).

If you need to create a baseline with only maintenance POs, you can either remove the SKUs, change the **Purchase type** to Software and then process it. Alternatively, you can import or manually create licenses and then process the maintenance licenses.

Setting Ongoing Processes for Purchase Processing (Steady State)

A set of processes needs to be defined after [Milestone 3 \(Refined Position\)](#) for processing imported purchases to maintain an optimized license position. These processes should include the following:

- Additional Purchases of existing entitlements
- Purchases of new entitlements
- Maintenance/subscription renewals
- Upgrade purchases
- Splitting entitlements.

Managing Blanket Purchase Orders

A blanket or call-off order is a PO that allows multiple delivery dates and has typically been negotiated with a supplier to take advantage of predetermined pricing. New items can be added to a blanket PO over time and you will be given a new

version number each time a revision made. A best practice is to include the version number or the update date in the **Purchase order no.** field to enable FlexNet Manager Suite to identify each item as a separate purchase order. For example, you could enter “4500023 (updated 2017-09-12)” or “4500023 (rev 2)” and change the appended [revision number] or [Revision date] whenever a new line is added. In FlexNet Manager Suite, the **Purchase order no.** field is used to identify a purchase order, so you should include all relevant details in here that uniquely identify a fixed date, vendor and set of purchase order lines.

Managing Unlimited Licenses

For cases where vendors permit unlimited quantities of their software, FlexNet Manager Suite provides a way to define a rule that characterizes the entitlement limits defined by the license agreement, and affects how the license is flagged if consumption exceeds the entitlement limits. To do so, go to the **Entitlements and consumption** section in the **Compliance** tab of license properties and set the **Entitlement limits**.

Choose a rule that appropriately reflects the entitlement limits defined by the license agreement. The rule affects how the license is flagged if consumption exceeds the entitlement limits. Choose one of the following radio buttons:

- **As purchased** — Terms of the license set the number of entitlements purchased as the cap for consumption. The license is flagged as **At risk** when consumption exceeds purchased entitlements.
- **Subject to true-up** — Terms of the license allow consumption to exceed purchased entitlements as long as additional licenses are purchased at the end of the true-up period (as defined in the relevant purchasing agreement). The license remains **Compliant** when consumption exceeds purchased entitlements.
- **Unlimited** — Terms of the license allow for unlimited entitlements. Consumption can exceed purchased entitlements. Unlike **Subject to true-up** licenses, with **Unlimited** licenses you do not need to purchase additional entitlements to rectify overages because the license allows for unlimited entitlements. The license remains **Compliant** when consumption exceeds purchased entitlements. As there is no relationship between the purchased entitlements and the consumption, **Shortfall/Availability** is not reported for these licenses.



Note: For the majority of licenses and for most vendors, Entitlement limits is set to **As purchased**.

Distributed Software License Management Responsibilities

This section covers the scenario when the responsibility for managing different licenses for the same application used within an organization is shared between multiple parties.

Responsibility for (a) providing, and (b) managing compliance with different licenses for the same application is commonly spread across different companies (or even different groups within a single company). This is particularly common within organizations making use of outsourced IT service providers, and Platform as a service (PaaS) services.

- **Example 1:** Acme Corp engages ABC as an IT service provider. Under the contract, ABC provides a service to Acme Corp. Under the service, ABC provides and manages a range of hardware and software running within Acme Corp’s network. ABC is responsible for procuring and managing compliance with licenses for IBM DB2 running on the servers used as part of their service. Acme Corp has no direct entitlement to access or otherwise make use of the DB2 software. Acme Corp retains responsibility for providing and managing DB2 licenses for the rest of the organization.
- **Example 2:** Acme Corp engages ABC as an IT service provider. Under the contract, ABC provides servers where they are responsible for procuring and managing licenses for the OS and database. Acme Corp is responsible for procuring and managing licenses for software that sits higher in the stack on these servers.

- **Example 3:** Acme Corp subscribes to Azure SQL Database or SQL Server on Azure Virtual Machines. Acme Corp does not need to worry about tracking licenses for the OS and SQL Server installations (including core details and so on) provided under this service, as they are included. However, Acme Corp does need to provide and manage licenses for other software that is installed on an Azure virtual machine.
- **Example 4:** Various product groups are limited to the licenses they are responsible for. As of 2017 R3, the views into licenses can be scoped by enterprise groups.

Techniques that can be applied in FlexNet Manager Suite to manage these sorts of scenarios include:

- Create multiple license records to represent different domains of responsibility, using an appropriate naming convention.
- Use explicit allocations and/or group scoping to control which license records cover which software use.
- Fabricate purchase records representing entitlements to use software which are derived from actual POs. For example, I have a PO for an Azure SQL Database subscription and may choose to fabricate purchase records to represent the separate Windows and SQL Server entitlements derived from this subscription.
- Use license exemptions.
- The SAM processes and practices must consider this scenario and provide ways to initially identify who is responsible for managing licenses, so it can be modeled in FlexNet Manager Suite. Responsibility for some license types cannot easily be partitioned if the software is running on shared infrastructure. For example, if Oracle Database was running in a VMware cluster, then the licensing needs to be managed at the cluster level as it is impractical to have different parties responsible for licensing on different servers or VMs within the cluster.

SKU Overview

Product barcodes include a SKU (stock keeping unit) which are used by producers to track inventory stock. Reseller can also use SKUs to keep track of their purchases. For more details, see the [definition of SKU](#).

SKUs for Software

As with any product purchase that uses SKUs, when you purchase software you can buy one copy, or multiple copies. Some software can be purchased with a software license that allows it to be used on a specific number of machines, while other times you would purchase the same software licensed for a specific number of users. Each of these is a unique instance that needs to be tracked separately. It's because of the uniformity and broad use of SKUs that it is imperative that any [Software Asset Management Tool](#) include capabilities to track software by SKUs.

Most vendors reference their software using a SKU. This SKU is usually attached to every purchase order line to clearly identify which software or package is purchased by a customer. Even if there are very small differences between two software titles sold by a vendor reseller, such as, the vendor program or in the maintenance, they usually carry two different SKUs.

For instance, below are two SKUs.

- SKU: 810-03324;
- Publisher= Microsoft, Product = Microsoft SQL Server 2005 Enterprise Edition Win-64Bit 1 Processor German 2 Years Software Assurance OPEN C
- SKU: 810-03537;

- Publisher= Microsoft, Product = Microsoft SQL Server 2005 Enterprise Edition Win-64Bit 1 Processor German 2 Years Software Assurance OPEN NL

When you import PO information into a software asset management solution, one of the biggest challenges is to normalize the PO data and understand which applications they are related to. Often purchasing departments will manually enter their own short description when issuing a purchase order which is unlikely to be the same across two identical POs. They also attach the exact SKU related to the purchase.

Using the SKU data helps a SAM solution to automatically:

- Normalize and translate incoming PO data
- Identify the applications, license metrics, and basic maintenance terms of the purchase
- Generate new licenses or attach new PO lines to existing licenses
- Identify how the software was purchased and any additional use rights associated with the license.

Using SKUs in the Context of SAM

SKUs are used within the context of software asset management during a post PO import process. POs are imported into FlexNet Manager Suite using either a financial importer or they are manually created. If a new license is created from the PO using the SKU:

- The license type should be suggested/used accordingly to SKU definition.
- The SKU normalized data (such as description, publisher, version, and so on) will be used by FlexNet Manager Suite.
- PO should be linked to the software license and licensing info (quantity) reported in the license.
- Attached application(s) from the application recognition library to the software license. The next inventory import should then use this software license and link computers/users to it.
- Apply additional use rights (such as the right to upgrade or downgrade) to the license.
- Existing candidate licenses for POs containing SKU are the same license with the same SKU in the database. The benefit is to avoid redundant data entry by the end user. If a SKU is unknown or the link cannot be found automatically, the first time the SKU appears, the end user will manually select the existing license. Once the system has “learned” about this SKU, the second time the same SKU is used in a PO, the link will be suggested by FlexNet Manager Suite.

Additional Resources

More information on managing purchases, creating contracts or creating initial license positions with FlexNet Manager Suite can be found under the “Establish a License Position in FNMS” learning path in Flexera’s Learning Center. See [Useful Resources](#) for more details.

License Optimization

SAM optimization is vital to reduce risks and achieve cost savings (which can range from 5% to 25% of annual software spend) which significantly boost the return on investment of your SAM program. The right optimization strategy enables you to understand software usage in a dynamic environment; deploy the most cost-effective solutions; and implement

strategic planning by simulating future use scenarios based on each vendor's specific licensing rules.

This section summarizes the primary focus areas for optimization, compliance risk, and provides recommendations on how you can tweak licenses (such as allocations, exemptions, bundles, license priorities) to refine your license position.



Note: An initial license position must be achieved by completing [Milestone 1 \(Initial Insight\)](#) prior to optimization, however most optimization exercises should wait until [Milestone 2 \(Initial Position\)](#) or even [Milestone 3 \(Refined Position\)](#).

Viewing License Properties and Use Rights

The first step in license optimization is to review the license properties and use rights.



To review license properties:

1. Navigate to **License Compliance > All Licenses** (in the **Licenses** group).
2. Select a license and click **Open**.

The **License Properties** page displays. Here you can further configure the license to optimize consumption of devices, users, processor points or other, depending on the license type. This section includes these tabs:

- **Compliance** — high-level information about license consumption. Consumption is calculated based on the number of raw installations less Product User Rights (PUR) savings (D–E=F). PUR savings include the use rights benefits that are included with the license.
- **Identification** — displays and enables editing of high-level information about the consumption of the licenses, such as the license type, duration, edition, version or status.
- **Use rights & rules** — enables greater control of how license entitlements are consumed. Use rights and rules are often defined by the method of procurement and will vary between vendor. Understanding the software vendor agreement types and product use rights is important to ensure accurate configurations of use rights. Pre-defined product use rights are set automatically from the PURL. Here you can assign or change:
 - **Upgrade rights** — an upgrade right provides entitlements to one or more future versions of the same product, at no extra cost.
 - **Downgrade rights** — a downgrade right provides entitlements to one or more previous versions of the same product, at no extra cost. This permits the continued use of a previous version (or edition) of the product.
 - **License consumption rules** — a good place to further tweak how consumption of entitlements is calculated.
 - **Right of second use** and **Right of multiple use** — the right of second use permits the use of the same software on a second device, without additional license costs, subject to restrictions. The right of multiple use allows the user to install the software on several different devices.
 - **Rights on virtual machines and hosts** — used to configure how license entitlements are consumed in virtualized environments.
 - **License mobility rights** — the right to move a licensed installation from one device to another. For virtual machines to migrate from one physical host to another within a specific time frame. For third-party service providers to deploy licensed software to a public or private cloud.

- **Exemptions** — used in specific circumstances in which an installation may be used without consuming a license.
- **Notes** — offers licensing information and resources.



Note: See the *All Licenses* page of the online help for full details.

Hard Verses Soft Cost Savings

Cost savings are commonly classified as either “hard” or “soft” by accounting and budgeting practices. A simple definition of these terms is:

- **Hard cost savings** — immediately reduce forecasted or budgeted expense and are the savings most executives think of when cost savings are mentioned. Examples include maintenance renewals, anticipated license payments, and headcount.
- **Soft cost savings** (also known as cost avoidance) — represent software cost savings that are not immediately realized in the budget. Examples include identifying significant overspend, previously unknown license liabilities, and contract restructuring (except where the contract costs were budgeted in the current year).

Companies are most interested in hard cost savings, but soft savings have a significant positive impact. For a third-party perspective on the interpretation of these concepts, read this external article: [Hard and Soft Savings: What Counts Can Be Counted](#).

License Re-Harvesting and Shelving

Recovery of unused license rights for reuse helps you avoid unnecessary purchasing of new license which in turn reduces spend on license, support, and maintenance. Finding unused, underused or misused software requires metering. It applies to users that have software installed but have never used it, or only need a view-only license. Unused software always represents a tool for negotiations, such as requesting a migration of unused products to cloud products for future business needs.

In some circumstances, depending on the vendor's policy, you have the right to shelve the operational use of the software until support is reinstated. This avoids terminating the unused licenses, keeping them available for future business needs. It is important to mention that, in most cases, to regain the previous use rights, a reinstatement of support may result in incremental fees for lost support time and upgrades. The advantage is the Licensee maintains flexibility and control over installation and use. See the *Devices Tab* page in the Applications section of the online help for full details.



To view unused applications:

1. Navigate to **License Compliance > Installed Applications** (in the Applications group)
2. Filter results by **Name**, **Publisher** and (most importantly) the **Classification** of **Freeware** and **Commercial**.

A list of your unused applications displays.

3. Select an application and click **Open** to view the application properties.
4. Select the **Devices** tab.

A list of the related devices displays with details of the **Assigned user** and the **Discovery date**.

User Optimization

Technology, middleware and application products often have user-based metrics defined in the contract. There are many ways to define users such as Oracle's NUP or Application User, IBM's User Value Unit (UVU) or Concurrent User. Some user metrics are instance agnostic, meaning one user can have access to multiple software instances regardless of the underlying technology. Others measure the user peak at any given point in time, or specific corporate roles such as employees, partners, customers, trainees, and so on. If applicable, minimums defined by the vendor are also something to consider when counting users. Also, if multiplexing is involved, you will usually have to license users at the multiplexing front end. With so many licensing rules to look after, managing users can be cumbersome, but it can provide great cost savings if done properly.

Best Practices

- Free up licenses for new employees by actively monitoring usage and removing individuals that change roles or have not used a license in a long time.
- Identify duplicate users. For example, in case of SAP's Named User, each user requires one license, regardless of how many SAP systems they are accessing. Be aware that users can have different user names on different systems, so it is important to actively monitor and validate against consolidated user account data.
- License production environments by cores/processor and only test or development by users. This limits your multiplexing exposure and can generate a surplus of licenses because of the low number of individuals connecting.

Optimizing Users

How to optimize licenses by exempting, deallocating or edit users allocations.

1. Navigate to **License Compliance > All Licenses** (in the **Licenses** group).
2. Select and open a license.
3. Select the **Consumption** tab to view a list of all users or devices consuming an entitlement.
4. Exempt, deallocate or edit users on the **User Properties** tab, according to your user management strategy.

Application Portfolio Rationalization

If your organization has accumulated an unmanaged collection of applications through shifting business strategies, mergers or acquisitions, you should plan for an application portfolio rationalization exercise. This clean-up can include replacing legacy systems, retiring non-valued applications, eliminating functional redundancy or re-platforming applications, all cost saving exercises. For a rationalization strategy to take place, vital data such as: maintenance and infrastructure allocations, functionality, usage, and cost is required. Based on this information, you can create an internal decommissioning process.

Using the categories in the ARL, look for all related products and other major vendors. For example, if you are analyzing Oracle Databases, also look for IBM DB2, Microsoft SQL Server, and other similar databases in your environment. If you are analyzing Oracle WebLogic, start looking for IBM WebSphere Application Server, Microsoft IIS / Application Server, and other similar application servers. Often, you will find there is a significant amount of overlap. Make rationalization a priority if you find you have multiple unlimited license agreements for the same categories of products from different

vendors or even from the same vendor.

Consolidating on fewer technologies will bring significant hard and soft cost savings from eliminating contract payments, deeper pricing discounts, fewer contracts, and less technical support.

Maintenance Savings

Publishers continue to rely on recurring maintenance revenues. Typical software maintenance fees are around 20% to 22% of the license fees. Removing maintenance costs can have a big impact on optimization and you should make sure you are only paying support for products that meet business needs and generate value through version upgrades and patches.

Identifying maintenance cost savings can be challenging due to the structure of contracts and purchasing documents. Many enterprises continue to pay for maintenance renewals long after they have migrated away from the product. If contracts can be cancelled, these maintenance issues provide valuable hard cost savings.

Software that is retired with an active maintenance agreement, that is unused, underused, or no longer supported by the vendor (end-of-life) is a prime candidate to do with support and realize savings.

To identify opportunities for maintenance savings, generate a quick report in the **Reports** section by combining the "Contract" and "Licenses" values and filtering on "Contract Type" = Software maintenance and support, and license "Status" = Retired.

To identify opportunities where active software is unused or underused, review the active licenses with high numbers of available entitlements and partial or no usage. These are prime candidates for support cancellation or license re-harvesting. When qualifying these opportunities, make sure to filter only the ones with maintenance.

Many organizations have difficulty upgrading legacy applications due to extensive integrations. Over time, organizations end up with software in use that is no longer supported by the vendor. End-of-life (EOL) is a term that indicates the vendor has stopped patching, supporting and selling the product. When this happens, an expensive custom maintenance contract must be negotiated with the vendor, or you will not get the maintenance for which you are paying.

Often, upgrade and downgrade rights are granted for as long as maintenance is kept current (for example, Software Assurance for Microsoft). These are important when newer or older versions of a software are used by providing coverage under the same license, reducing the need to purchase additional licenses.

Virtualization Rules

Virtualization technologies offer high availability and mobility, but vendor specific rules for using software in these environments is often restrictive, loosely defined and confusing. It is easy to inadvertently deploy products in partitioned environments that require more licenses than expected. Most vendors still license software based on physical capacity, such as Central Processing Unit (CPU) or cores that are dynamic in a virtualized environment. Publishers have different policies regarding this topic. For example, a single VM in a vCenter cluster can cause all the hosts in that cluster to be licensed. In some cases, for newer versions of VMware ESXi, it may even require all vCenters to be licensed. These configurations often require many more licenses than are being used by the products themselves.

Often, it is best to completely reconfigure these environments from a "soft partitioned" to a "hard partitioned" one, so that remaining hosts and clusters can be better utilized. For example, avoid putting Oracle Databases into newer version VMware clusters, unless those clusters are highly saturated with Oracle Database instances (in which case they may be a very attractive option). If not, consider using a capped LPAR configuration or Solaris Zones. Note that even if

you reconfigure the environment, the configuration still needs to be reviewed by the vendor to determine if it falls under their hard-partitioned list and standards.

The rights on virtual machines and hosts are used in FlexNet Manager Suite to configure how license entitlements are consumed in virtualized environments. Correct configuration of virtualization use rights based on the vendor's policy is paramount for correct consumptions, compliance and optimization. Modify the default use rights so that any special requirements are configured and adapted. This can be performed on the **License Properties** page, on the **Use rights & rules** tab.

Bundle Management

Bundle management is a good way to save costs by merging one or more applications together under one consumption count and it is best practice to do so whenever possible. It also helps reduce the number of unprocessed evidences organizations usually struggle with. The term bundle is typically used to describe two or more distinct applications or components that are packaged and sold together as a single product. Many complex products leave behind installer records for the various components. This can make analyzing the software inventory difficult, but it does not necessarily qualify as a bundle.

A bundle, as defined by Flexera, is a multi-product license that contains a primary product, and one or more supplementary products. A single primary must be present to consume a bundle license. The supplementary products may be on the same device or installed on a separate server. The rule to remember is that one license covers all products, both primary and supplementary. Having “primary” and “secondary” is an unusual convention, as most vendors supply bundles where all products are equal. The most frequent specification of “primary” and “secondary” are in IBM and Oracle bundles, where the secondary applications/components/features are tasked with supporting and/or enhancing the primary's functionality. Often, the secondary products are the ones that give the product edition (Oracle WebLogic).

The difficulty this adds to the license position is determined entirely by the entitlements available and inventory quality. For example, if a single entitlement can match each bundle, all the installations will be associated with that entitlement. If multiple entitlements are available (some for WebLogic Server Enterprise and some for SOA Suite), it may be difficult to separate installations for one from the other. It may also be impossible to differentiate the two based on installed components alone. If the installed components are not readily distinguishable, it is often due to ambiguous installer evidence.

The two most commonly used tools to handle bundles are license exemptions and suites. When adjusting license configurations, it is important to remember one thing: only link applications to a license that you want to trigger license consumption. Any application added to a license will contribute directly to consumption calculations. Thus, only commercial components of a product should be added to a license.

An example of a multi-product license is IBM's WebSphere Application Server (WAS). WAS has a number of supporting products that are exempted from consuming a license under the use rights stipulated in the License Information Document ([IBM WebSphere Application Server License Information Document](#)).

Manage products covered by multi-product licenses on the **Applications** tab of the **License Properties**. When there is more than one application present, the appearance of the **Use rights & rules** tab changes so that the following can be done:

- Configure the upgrade and downgrade rights for each product in the bundle individually
- Determine which products are primary and which are supplementary
- If supplementary products must be counted for license compliance, set the permitted ratio of supplementary

product installations for each instance of the primary product (beyond this count, the supplementary products will consume licenses in their own right).

When calculating license consumption, FlexNet Manager Suite assesses the individual product installations on a device. If any grouping of products matches the primary product(s) on an existing multi-product license, consumption occurs against the multi-product license rather than against several single-product licenses. Once the grouping of primary products is satisfied, the same license may also cover supplementary products where these have been identified on the same device. Allocations to cover permitted installations of a supplementary product on a separate server can be configured by adding the device(s) on the **Consumption** tab.

Items of note include:

- Displays whether the associated application is a primary or supplementary product
- Identifies the associated product name, edition and version
- Identifies the use rights that have been configured or the associated product(s).

For many bundles, alternative entitlement options are probably available. We recommend these alternatives to reduce risk or cost in the license optimization report.

The Flexera Research Team creates multiple bundles that can be selected when creating a license. Note that gaps could exist due to lack of ARL evidences for supplemental components or incomplete vendor documentation. New bundles are constantly configured and added to the ARL.

See the *License Compliance Calculations* page in online help, for a detailed explanation of the bundle license compliance process.

Bundle Verses Suite

A significant number of SKUs created by vendors relate to a single purchase that contains multiple disparate licenses. This type of SKU is called a "Bundle" as it represents two or more applications or components that may otherwise be licensed separately. The distinction between a suite and a bundle is that a suite has been represented by the vendor as a single offering and sold as a single license that is then represented in the ARL as a single application (a one-to-one relationship), whereas a bundle may require that all, some, or none of the applications it covers are installed on one computer.

Limited Use Licenses

A limited use license represents a second product that is included for "free" with a primary product.

One common provision is that the secondary product must be used only in support of the primary product. Dependency mapping is required to accurately determine which systems are dependent upon other systems in this manner. Databases and application servers are two common types bundled like this. For example, Oracle EBS comes with a limited use license for Oracle Database.

However, there are strict use limitations that most customers are not able to meet, such as not extending the database schema beyond the default. Violating these use limitations invalidates the bundled entitlement and may be a compliance risk. Any such risks should be noted in the license compliance report and further investigated. Exceptions or follow up actions associated with bundles should be noted in the issue tracking document. Note that FlexNet Manager Suite will not automatically determine the scope of usage for the secondary bundled applications therefore it is your responsibility to investigate whether the limited-use restrictions are enforced. This can usually be done by reviewing the explanatory notes provided with most individual applications and PURL templates.

Prerequisites

Some vendors define a set of prerequisites for licensing rules which require a prerequisite application to have a full-use license before you can use the desired application. This typically happens when the functionality is linked with one application requiring the other to act as a platform or to support certain tasks.

If this licensing condition is not met, the prerequisite is in breach and a license fee is due. Review the vendor's licensing documentation or master agreements to identify any prerequisite licensing requirements.

Please note that most bundles will have such requirements. For help with these scenarios read the explanatory notes in the PURL templates. Notes are constantly updated and reviewed by the Flexera Research team.

Exemptions

Exemption rules are often misunderstood because vendors have different disaster recovery, test, and development rules. This makes it easy to confuse licensable scenarios with those that don't require a license.

There are many different disaster recovery (DR) techniques. Some are "cold" and usually exempted from a license requirement. Others are "warm" and require a license because of high availability, such as standby or remote mirroring configurations. There can be other limitations as well. A vendor might require the DR server to be in different location from the Production server or prohibit DR and Production clustering.

Some vendors offer generous rights to use a wide range of otherwise expensive products for development use only. Sometimes these licenses are free, such as with Oracle Technology Network. However certain restrictions apply. These products may only be used for development, testing, prototyping, and demonstrating. Restrictions are often modeled using device roles. However, some restrictions are not as easy to detect, including limitations on numbers of users, customizations, database schema changes or even direct database access.

Understanding the vendor's policy is the first step in maintaining compliance and optimizing your estate. By exempting certain machines from consuming a license, you further reduce licensing costs. Modeling limitations are part of a second phase project, with process-based restriction compliance activities following soon after.

FlexNet Manager Suite automatically takes license types that support role exemptions into account when calculating license consumption.

The **Device role** is not updated by automatic inventory imports and therefore must be specified on the **General** tab of the **Inventory Device properties** page. Each inventory device may have only one role, chosen from:

- Backup / Archive
- Cold Standby / Disaster Recovery
- Development
- Hot Standby / Active Failover
- Production
- Test
- Training
- Warm Standby / Passive Failover.

See the *General Tab* page within the Discovery and Inventory section of the online help for full details.

Configure the license to record which exemptions are granted under the license agreement. When both steps have been set up, the effects are visible after the next reconciliation.

There is no automated method to determine which systems are which type of disaster recovery environment. In cases where large numbers of allocations need to be made it is generally most efficient to use a business adapter to allocate a large list of servers to licenses all at once. As a side note, deploying licenses in a virtualized environment often eliminates the need for maintaining a DR site.

Flexera's PURL has pre-configured DR rules based on our licensing research for major vendors. Choosing the correct license type when configuring your baseline will help enforce the correct rules early on.

Restrictions

Often, licenses are restricted to user groups, subsidiaries or locations (territory). These restrictions cause compliance risks if not properly isolated. By leveraging Global Enterprise Agreements that allow worldwide consumption and avoiding duplicate spending by independently operating business units, you can generate considerable savings. If restrictions apply, use the **Restrictions** tab to restrict consumption of licenses to an enterprise group or groups. Restrictions prevent consumption by unauthorized groups.

Open the license that needs restricting, select the **Restrictions** tab and **Search** to define the group(s). Then, select the appropriate enterprise groups and click **Add groups**. For the changes to be reflected execute a **Reconcile**. It is a best practice to name the license entitlement to reflect restrictions so that others know who the license is for.

Managing BYOSL

The Bring Your Own Software License (BYOSL) model is a key transition area for most customers that are considering hybrid environments or want to gradually move to a SaaS-only model. From a licensing perspective, vendors are creating new rules to protect their IP in the public cloud and they may only consider certain cloud providers as "authorized" (such as Oracle for AWS and Azure). This means new licensing rules (which typically involve moving away from the physical core calculation to a vCPU one) will only apply to software being run on those defined platforms. The rules can also be different from one cloud service provider to another. For example, IBM rules can be different for AWS, Google, Azure and IBM Cloud Managed Services or Bluemix. As a rule, modeling the correct rules to calculate vCPUs instead on physical ones saves licensing costs.

The first step is to identify the software running in the public cloud and properly manage the licenses using the correct rules and conditions. FlexNet Manager Suite has capabilities to manage license requirements in the public cloud. Well-known cloud service providers are included by default in FlexNet Manager Suite, with the option to manually configure others if required. Users can identify and assign the devices that are coming from Cloud providers:

- In the **System Settings** page, there is a **Cloud Service Providers** tab, where additional cloud service providers may be specified.
- In the **License Properties**, under the **Use rights & rules** tab, there is a **License Consumption Rules** section for **Cloud service providers** that enables you to limit where devices must be hosted before they can consume from the license.
- In **Points Rule Set Properties**, look for additional settings in the **Points Rules tab** that ensure the correct points rule is used for consumption calculation. You may also define your own points rules. Each point rule may be linked to one or more cloud service providers, where the vendor specifies differences; or a single points rule may apply to any

cloud service provider. FlexNet Manager Suite includes by default points rule for IBM PVU licenses that applies to the default set of cloud service providers.

- A virtual machine can be linked to the cloud service provider where it is hosted.



Note: *The **Located in the Cloud** and **Service Provider** properties need to be managed by the end user for the inventory devices. Setting these properties via a Business Adapter is recommended.*

Managing SaaS

SaaS agreements are simpler than On-Premises ones, and often subscription-based. This simplicity can generate a false sense of security, but these licenses and contracts must be optimized.

Usage tracking is provided mainly by the vendor's desire to support platform adoption and not necessarily cost control and optimization. With SaaS license models, compliance is often less of a concern, but minor compliance risks need to be managed (credential sharing). In some cases, SaaS vendors do not restrict how many licenses are used (see Box or Workday), so tracking the number of licenses used becomes important. But if compliance is not a worry, only focus your efforts on implementing cost control and optimization that provide the usage data needed to quantify costs.

Measuring SaaS is like any other application or service in the data center:

- Import access and usage data using a custom business/inventory adapter or using our SaaS Inventory Framework
- Track client application installs and usage through inventory solutions
- Monitor website access using a web tracking solution (for example, access to post-login landing page)
- Sometimes a combination of all the above is needed.

In most cases, the only way to get complete information about license consumption is only via integration with vendor's portals. Access tracking will provide basic usage discovery, but it is unlikely to provide a complete and accurate picture of your overall compliance.

Another important aspect is related to product fees. Fees are based on what has been purchased, not what is used. It is best practice to negotiate contract renewals with real usage data, so that you properly identify who is using which features and negotiate a discount that correlates to value derived.

Before requesting a new login, always check for users that are not using the application to re-harvest unused licenses. Also, always look for duplicate user accounts that inflate license counts (Office 365, Salesforce). Optimize your product mix and look for lower-cost alternatives. To achieve a lower average cost per unit, migrate and/or hybridize. Always take advantage of billing and financial cycles by renewing contracts at times when vendor sales representatives are trying to make quota (usually the end of financial periods). Place new orders at the start of the month because monthly prorated amounts are usually billed at full months.

SaaS Inventory Framework

With Flexera's SaaS Inventory Framework, you can use a common platform to create integrations with any SaaS application that supports APIs for usage and compliance management. The Framework is designed to allow anyone with programming knowledge to create a SaaS vendor connection and map incoming data into FlexNet Manager Suite. The integration will execute based on a customer-defined schedule from FlexNet Manager Suite. The Framework leverages PowerShell scripting language and created integrations with network management, SSO, financial management and other solutions that can discover and provide SaaS usage insights. This feature is delivered with

FlexNet Manager Suite.

Managing Salesforce

For Salesforce management, FlexNet Manager Suite provides an inventory adapter that enables you to import Salesforce license allocations and usage data.

FlexNet Manager Suite imports Salesforce license information and creates one SaaS User license for each instance of Salesforce that is connected, showing consumption information for each user in your organization that is accessing Salesforce.

The result of this import are available in the **SaaS Usage Summary** report which displays accessing and non-accessing users for each instance. This report is very powerful for user management and cost reduction.

Note: Email ID's are normalized using corporate directory.

To determine unused subscriptions, you can specify a certain number of days in a **SaaS Usage Summary** report and then drill through to the users to view which ones have not accessed Salesforce over that period.



Note: You must be connected to Salesforce for FlexNet Manager Suite to provide Salesforce information.

Use this feature to manage Salesforce licensing and consumption costs, identify unused subscriptions and reduce your renewal costs.

End of Service Life

Service Life represents the total release cycle of a software or hardware product and is represented by key dates you need to know. End of Service Life (EOSL) is a term used to indicate that the product is in the end of its useful life (from the vendor's point of view). The lack of updates, upgrades, improvements, bug and security fixes cause serious compliance and security risks. Compatibility, migration and overall support problems rise, with even simple upgrades become a major challenge. For example, Microsoft marked Windows 98 for end-of-life on June 30, 2006. Software produced after that date may not work for it, such as Microsoft's product Office 2007 (released November 30, 2006).

Understanding the End of Life dates for applications is a critical part of SAM processes. You need to know when the vendor stops marketing, selling, or sustaining the product. Unsupported applications pose a security risk since they are no longer being patched. Obsolete software is a primary target for hackers. End of Life applications can be costly, as organizations may be paying maintenance for software that is no longer being upgraded or supported by the vendor.

Some of the main challenges include:

- The number of applications in your enterprise. (Remember to include the minor versions and service packs.)
- Service Life details are often difficult to find
- Publishers have a variety of service life policies (some have none)
- Service Life dates are sometimes not published
- There might not be any standardized support policies to follow
- Many vendors offer "standard support" and "extended support" however the support provided with each can vary greatly.

Key terminology:

- **Start of life** — The date on which this software application was first available for use, possibly as an alpha or beta release
- **Release date** — The date when the application was Generally Available (GA) for customers to download and use
- **End of sales** — The vendor stops selling the product, but it might still be supported
- **End of support** — The vendor stops providing support and updates, but often still provides security fixes and critical support
- **End of extended support** — The vendor stops providing any support or fixes
- **End of life** — The product can no longer be bought or supported in any way.

Flexera's Service Life Data Pack helps eliminate wasteful maintenance, avoid security risks and improve the overall operational efficiency. More information in our [Data Sheet](#).

Additional Resources

For more details on a license reconciliation overview, advanced license considerations, bundles, allocations or exemptions, see the “License Analysis & Optimization with FNMS” learning path in Flexera’s Learning Center, and the [Useful Resources](#) chapter.

8

Reporting & Governance Workstream

FlexNet Manager Suite offers rich reporting capabilities by providing:

- Over 60 inbuilt web reports
- The ability to create custom reports using all exposed objects
- Flexera Analytics.

Reports

The **Reports Index** page of FlexNet Manager Suite is accessed by clicking the **Reports** button located above the top modal menu. The **Reports Index** enables you to view, create, and manage reports. FlexNet Manager Suite offers the following types of reports:

- **Inbuilt reports:** FlexNet Manager Suite comes with a set of inbuilt reports that assist with decision making based on current data. For example, you can generate a report to view the installations of a selected application.



Tip: If the report you require doesn't exist, you might consider adding columns and applying filters on the appropriate management view. For more information, see the topics under [Using Filters to Limit Data Size](#).

- **Custom reports:** Design and save your own reports by adding objects (such as applications, licenses or purchases) and choosing which related information to include. For example, you can create a report to view non-compliant Microsoft licenses in a particular enterprise group. A custom report is accessible only to the user who creates it unless the **Public access** permission is set on the report. For more information, see [Working with Custom Reports](#).

Access rights required for reports

Access to the **Reports Index** page is governed by the following access rights which can be configured in the **Management views and reports** section of the **Roles** tab on the **Accounts** page (see [Roles](#)):

- **List reports** — Enables you to view the publicly-accessible reports
- **Create, modify or delete a report** — Enables you to create, modify, or delete custom reports.

Generating an Inbuilt Report

How to generate an inbuilt report.

1. Click the **Reports** button located above the top modal menu.

The **Reports Index** page displays.

2. To select and open a report:

- Navigate to a group of reports using the navigation tree on the left and click a report to open it.
- Use the top modal menu to locate and open a report. For example, select the **Oracle Server Worksheet for Oracle Database** report from the **License Compliance** menu.

3. Set one or more report criteria or report filters as desired.

The **Run report** button enables for reports that require criteria to be selected.



Tip: Some reports may output a large number of rows. It is a recommended practice to set the appropriate filters before you run a report. Once you have made your selection in the search window (that appears when you click any search icon), you may need to click the close (x) button on the search box to continue.

4. Click **Run report**.

The result displays.



Note: You can use filters to restrict the number of results. You can click the small arrow on the top of the report grid to view the applied filter conditions. For more information on using filters, see [Using Filters to Limit Data Size](#).

Inbuilt Reports

The following reports (categorized by menu section) are available in FlexNet Manager Suite. See the Report section in online help for full details.

License Compliance reports

Optimization:

- **License Overlap** — lists one or more licenses which have been allocated more than once to the same application.
- **Retired Licenses with Active Payment Schedules** — lists licenses that are marked as retired, but which still have active payment schedules. Generate this report on a regular basis to optimize your license position by identifying licenses which your enterprise may be paying for unnecessarily.
- **Savings Through Product Use Rights** — displays possible savings to be made by setting the correct product use rights, such as right of second use, on licenses.

Compliance:

- **Compliance Trend** — displays the compliance position, purchased count, and consumed count for each selected license at the start and the end of the chosen period. Use this report to chart license compliance and see how their compliance position has changed over time. This report is available as both a visual report and in the grid view.
- **Entitlement Position History for a License** — displays changes to the entitlement position of selected licenses with a running entitlement position total.
- **ILMT and FlexNet Manager License Positions** — compares ILMT and FNMS sub-capacity licenses (Only if ILMT data imported).
- **Oracle Server Worksheet** — provides details of your Oracle deployment. Each record in the report represents one Oracle database instance. The report provides you with the information that you must provide to Oracle during a license true-up or whenever you are audited. You can export this report and use the information to populate the Server information, Database information, and Hardware information sections of the Oracle Server Worksheet.

Licenses:

- **Device License Details** — displays the license consumption details for a specific license. This report is designed to help represent consumption by Access Mode for virtual access to applications.
- **IBM PVU License Consumption** — displays a list of software covered by Processor Value Unit (PVU) licenses and the license entitlements consumed against those licenses. Meet your contractual obligations to IBM by generating this report every three months to provide them with a valid audit report of your IBM PVU license consumption. Consider grouping the results by License name for ease of viewing. You may choose to generate the IBM Out-of-Date and IBM Overrides reports before running this report to ensure your data is correct.
- **CAL License Summary** — lists the total number of users and devices which have accessed applications licensed with CALs, as well as access inventory for SaaS license types. This report assists software asset managers to identify users/devices using CALs across business unit, geographic location, and/or cost center, and then use this information to accurately chargeback licensing costs to the correct groups within the enterprise.
- **License Allocation History** — lists all devices that have been allocated to, or deallocated from, any licenses within a specified period before today.
- **Licenses with Upcoming Payments** — lists licenses with upcoming payments. Software asset managers, purchasing officers and contract managers may choose to generate this report monthly or quarterly basis. Understanding the value of license payments which are due in the next period assists with budgeting and planning for these payments and knowing if any additional spend is available in the budget.
- **Licenses by Group Assignment** — lists the details of any licenses which match the compliance status and enterprise group filters applied to this report. License practitioners may wish to generate this report on a weekly or monthly basis as part of a review process to gain insight into the way licenses are being consumed in different enterprise groups.
- **Licenses Consumed and Allocated by Enterprise Groups** — lists the total license consumption and allocation figures for each enterprise group.
- **User License Details** — lists the details of one or all user licenses and helps you represent consumption by Access Mode for virtual access to applications.

- **SaaS Usage Summary** — lists user access (within a selected period) to applications that have a SaaS User license.

Applications:

- **Application and License Installations** — lists all installations of applications, and the license each installation is consuming. Software asset managers and license practitioners may use this report to identify any non-licensed installations at a device level.
- **Application Installation Details** — lists application installations along with details of the inventory device they were discovered on, and the details of any linked asset.
- **Device Installation Details** — lists installations of applications for a specific device.
- **Installed Applications for License True-Up** — lists software licenses with payment schedules of the type "license true-up" that have payment due.
- **Related Installations** — lists all installations of applications related to other applications and the license each is consuming.
- **Suite Members** — lists licensable application suites alongside the applications (suite members) that can belong to that suite. Each record displays the number of installations of the suite member within the application suite. For applications that may also be licensed separately, any stand-alone installations are not included in this report..
- **Unauthorized Installations** — lists all current unauthorized installations of software and the number of installation counts.

Hardware Assets reports

- **Asset Assigned User Changes** — lists all changes to the assigned user of an asset within a selected period.
- **Asset Location Changes** — lists changes made within a selected period to the location to which an asset is assigned. Operators with a focus on hardware asset management may wish to generate this report weekly or monthly as part of a regular review process.
- **Assets not in Inventory** — lists inventory devices that have been removed from inventory, but are still being managed as assets. Because the underlying inventory device has been retired or disposed of, the assets listed in this report are therefore likely candidates for retirement or disposal.
- **Assets with Duplicate Asset Tags** — lists the details of assets that have duplicate asset tags.
- **Retired or Disposed Assets with Active Payment Schedules** — lists licenses that are marked as retired, but which still have active payment schedules. Generate this report on a regular basis to optimize your license position by identifying licenses which your enterprise may be paying for unnecessarily.

Discovery & Inventory reports

- **Inventory Errors on All Discovered Devices** — lists all inventory failures of discovered devices within a selected period.
- **IBM PVU Out-Of-Date Inventory** — lists devices, with installations previously consuming IBM PVU licenses, have not reported inventory for greater than the selected period.
- **IBM PVU Overridden Inventory** — lists devices consuming an IBM PVU license where the inventory values have been

manually overridden. Generate this report to determine whether any inventory device values have been manually overridden. If there are matching results, provide this report to your Infrastructure department so they can determine whether the values should be reset before generating the IBM PVU License Consumption report.

- **CAL Usage Inventory** — lists users and devices that are using applications which require a Client Access License (CAL) or a SaaS license.

Procurement reports

Purchases:

- **Purchase Orders by Vendor** — lists the total number and total value of purchase orders assigned to one or more vendors within a date range. A summary of the total number and value of unassigned purchase orders may also be generated. This report is available as both a visual chart and as a list.
- **Count of Purchase Orders by Enterprise Group** — lists the total number of purchase orders, and their total expenditure for each enterprise group.

Contracts:

- **Contract Hierarchy** — lists details of contracts and master contracts.
- **Microsoft Enterprise Agreement** — lists all Microsoft Enterprise Agreement (EA) contracts and the computers which are linked to these contracts.
- **Payment History** — lists the payment history for payments made against the payment schedule of a contract.
- **Payment Schedule Details by Month** — lists the total budgeted, estimated and actual amounts for payment schedules in a chosen month.

Vendors:

- **Vendor Roll-up** — lists the amount spent with each vendor across all purchases within a selected period.

Working with Custom Reports

Your organization may use a suitable strategy to create a set of custom reports. The following are some example strategies that could be used to create a set of custom reports.

Demand-based reporting

You can create a set of reports to meet the demands of one or more users such as a software asset manager. The following list provides a set of example questions that you can ask yourself before building a set of reports:

- What type of reports are required to provide data on current license position?
- Which reports should be good to better prepare for software audits or true-ups?
- Which reports should be helpful in accessing CALs usage?

Software asset management maturity level-based reporting

Reports can be used to measure software compliance against a specific Software Asset Management (SAM) maturity level (SAML). For each additional level of compliance, you may need to produce additional reports. For example,

- For the first level, you may need some reports reflecting software installations on various inventory devices within your organization.
- The second level may require additional reports on license compliance and unlicensed application installations.
- The third level may require some advanced reports like unrecognized evidence or scheduled payments.

Task-based reporting

You can also create reports based on the software license optimization tasks that are performed on a regular basis. For example:

- A Monthly Tasks folder might have the following set of reports:
 - Devices in storage for over three months
 - Multiple assets assigned to a user
- A Weekly Tasks folder might have the following set of reports:
 - Assets assigned to terminated employees
 - License compliance changes for a publisher

Reports folders

To separate the custom reports from the inbuilt reports, it is recommended that you create a new folder hierarchy to save your custom reports. You can use the **Create a folder**, **Rename folder**, and **Delete folder** icons (on the **Reports Index** page) to manage folders. To create a subfolder, select the parent folder from the index and click **Create a folder** icon.

- To create a custom folder structure, you need to highlight the folder where you will create your structure (the top level to start), click the **Create Folder** icon, and provide a folder name.
- To avoid confusing your custom reports with the inbuilt reports, it is a best practice to create your own folder structure for all your custom reports. Private reports should ideally only be created in your own personal use folders, and public reports created in general/team folders.
- To rename a folder, first select the **Report** folder, then click the rename folder icon, rename the folder and click the check to save or the discard icon to discard the changes.



Note: You cannot delete or rename pre-existing folders.



Caution: Deleting a folder will also delete the reports within that folder, including the private reports created by other operators which you will not be able to see.

Custom Reporting Object/Table Joins

Below are a few examples of Custom Reporting Object/Table joins that are commonly used for reporting purposes. You will need to select and add any relevant fields to these reports.

Application installation information with device (including VM & Host) and User information

Starting with the Installation object/table, add the Inventory Device object/table, then add the Virtual Machine object/table, and finally add the Host Computer object/table.

Oracle Options, Oracle Instances and Inventory device information

Starting with the Oracle Options object/table, add the Oracle Instances object/table, then add the Inventory Device object/table.



Note: Adding the Oracle Options field Requires License allows reporting of Options that are reported Used and are therefore requiring a license.

Application Suites, Installations and Inventory Device Info

Starting with the Suite Members object/table, add the Suites object/table, then add the Installations object/table, and finally add the Inventory Device object/table.

Virtual Machine, Host, Cluster Relationship Info

Starting with the Inventory Device object/table, add the Virtual Machine object/table, then add the Host Computer object/table and finally add the Clusters object/table.

Management Dashboard

The FlexNet Manager Suite Management Dashboard provides a useful overview of the vendors at risk total number, under purchased total value, unlicensed installations, device and payment reports. The cards are interactive, allowing users to dive deeper into specific interest areas.

The **License Compliance** tab also contains other useful insights on licenses at risk, vendor, product or license summaries.

Flexera Analytics

FlexNet Manager Suite provides powerful data analysis functionality, through an update to Flexera Analytics. Dashboards for software and hardware asset management provide a display of near real-time data about applications, licenses, assets, and inventory, enabling business-critical reporting and decision making. A simple and efficient interface delivers an “at a glance” view of your managed environment, with the ability to explore the data to identify any issues quickly.

The following pages can be accessed from the Flexera Analytics page when Report mode is selected:

- Software Asset Management
- Hardware Asset Management

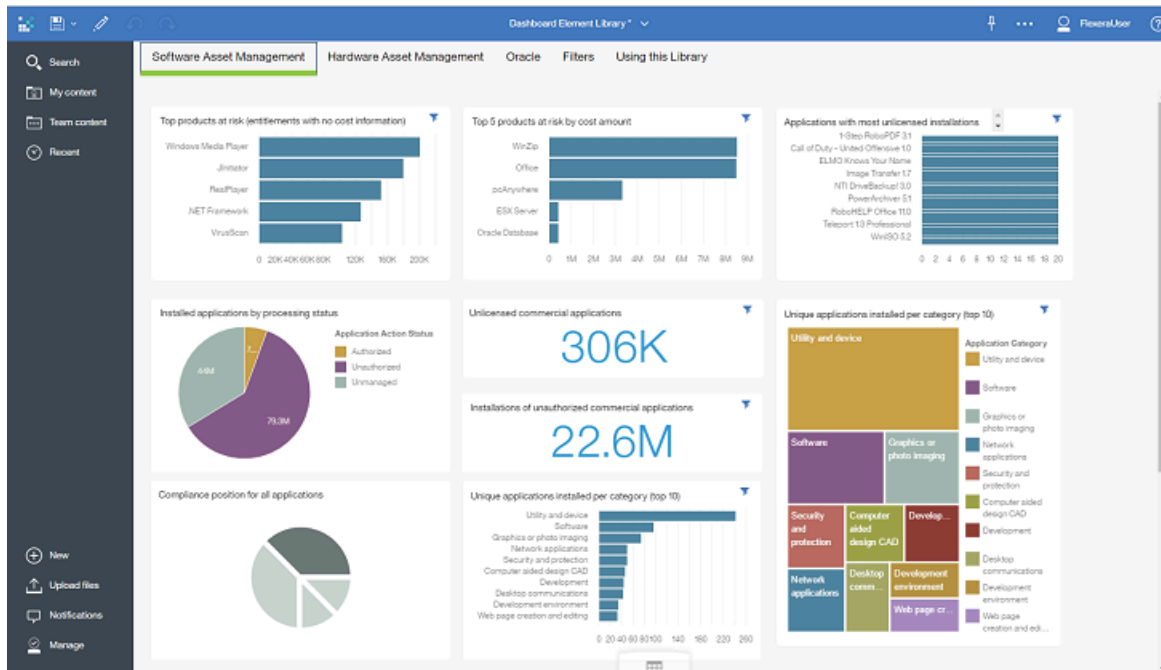
- My Analytics home.

My Analytics home is a personal dashboard enabling the creation of a customized dashboard, populated using a variety of supplied widgets, for each operator's specific needs. Each widget has dynamic filtering functionality which dynamically updates the data displayed across all widgets on the page. For example, the Software Asset Management dashboard can be filtered by **Publisher**. In addition, clicking on the data within a widget displays more detailed information. When viewing data for a product, it is possible to drill-down to see that data by application version and edition. Flexera Analytics also includes support for contract and purchase related data which enables you to build dashboards and reports pertaining to your procurement data. Search for "Procurement" under the existing Widget Library to showcase some of the possible ways the models can be used to build procurement related widgets.



Note: For more information, refer to the *FlexNet Manager Suite 2019 R1 System Reference PDF* available through the title page of online help.

Figure 2: My Analytics in FlexNet Manager Suite



Gap Analysis

It is a best practice to keep track of gaps in a document that will be used later to identify problems in management reports. For example, a 50% inventory coverage of devices, should be considered a gap. Only when the percentage of inventory imported exceeds a pre-defined limit, it should be considered complete. As such, gap reports must have thresholds which measure the accuracy of the underlying data. Every organization will have different outcomes to track and measure. Flexera does not have recommendations on target numbers. These will all depend on your internal process, goals, expectations and maturity level.

We recommend running the following Gap Analysis reports on a regular basis to check inventory health include:

- **Percentage of inventoried devices:** Navigate to **Discovery & Inventory > All Inventory** and filter by the **Active**

column.

- **Number of inventoried devices whose inventory date is older than 60 days:** Navigate to **Discovery & Inventory > Out of Date Inventory** and choose a time limit of 30, 60 or 90 days.
- **Number of inventoried devices with no serial number:** Navigate to **Discovery & Inventory > Inventory Issues**.

Key Performance Indicators (KPIs)

Key Performance Indicators (KPIs) are used to demonstrate how effectively you achieve key business objectives, allow you to provide feedback to your organization on the progress and achievements of the SAM program, and support executive and SAM stakeholder buy-in.

Organizational metrics allows tangible numbers to allow comparison of results with peers in similar organizations. Together, KPIs and metrics highlight challenges and opportunities for improvement such as justifying the need for additional resources, therefore choosing the right KPIs and defining your organization metrics will depend on your vendors and your goals. Both the SAM team and the governance team must establish a list of metrics that are important to the organization from a program data, business participation, and strategic direction perspective:

- **Measurement of program data** is important to ensure data completeness and accuracy in the source systems
- **Measurement of business participation** is necessary to ensure compliance to policy and key controls are in place
- **Measurement of strategic direction** is vital to measure progress against milestones on the organization's implementation roadmap and publisher license positions.

The SAM and governance teams must work together to establish the finalized list of metrics and KPIs along with the cadence for generation. These measurements will be communicated to not only the governance and leadership teams but SAM stakeholders as well.



Note: Each company will use different KPI types to measure success based on their specific business goals. See some common examples below.

Tracking Inventory Saturation

Navigate to **Discovery & Inventory > All Inventory**.

- Filter on **Active status** and add any additional criteria (such as **Assigned/Calculated User**, Processors, Cores, Host, Location, Operating System, Role, VM Name, and so on) to the report and then download the report

Considerations include:

- How many devices (including servers and laptops/workstations) are you expecting? If you want to see quantity for only one type, filter the report by **Inventory device type**, otherwise, download the entire report to Excel and then apply your filters
- If there are less devices than expected, there is a gap that needs to be identified.
- If there are more devices than expected, are there duplicates? Are there old devices that have never been ignored?
- This report can be used to verify whether hardware inventory is coming into FlexNet Manager Suite with characteristics such as Processors, Cores, Roles, and so on.

Unlicensed Commercial Applications

1. Navigate to **License Compliance > Unlicensed Installations**.
2. Filter by **Publisher** and set the **Classification** to **Commercial**, and add any additional criteria to report prior to downloaded (for example, version, edition, and so on.)
3. Download as a .csv, .pdf, .rtf, or .xlsx.



Note: Use the *Related Licenses* column to view the number of existing licenses which you can use to license these installations.

Considerations include:

- Are there additional licenses available that need to be linked to these applications?
 - If not, can you optimize the current license?
- If there are no licenses that can be linked to the installed application, this is a financial risk. It is good practice to create a license with a zero (0) quantity that can be used to identify the shortfall in the **All Licenses** page.

Hardware Inventory Health

- List of Inventory Sources
 - For a complete list of inventory sources, navigate to **Settings > Data Inputs > Inventory Data**.
 - For more information on inventory imports (for example, completed or failed status, dates of completion, number of devices imported, and so on), navigate to **Settings > System Health > System Tasks**.
- Key attributes
 - Missing cores, processors (see the [Tracking Inventory Saturation](#) section above).
- Virtualization and Partitioning
 - To view clustered servers — navigate to **Discovery & Inventory > Virtual Devices and Clusters**.
 - To drill down into each cluster to see hosts and guests — click the **Plus** sign to the left of the cluster's name.
 - To view unclustered hosts and VMs — click the **Plus** sign to the left of an option.
 - Hosts with VMs are identified with a **Plus** sign to the left of the Host name. To drill down into the host's guest VMs — click the **Plus** sign. Note that Hosts without VMs and VMs without hosts do not have a **Plus** sign.
 - To view the number of VMs without a host or other devices with an alert — click the blue alert located under the box labeled **Create a Cluster** and then hover over the box with the number of alerts to see a breakdown.
- Duplicate inventory
 - Measure the number of devices with a bad serial number (blank, duplicate, or blacklisted). Navigate to **Discovery & Inventory > Inventory Issues**. The number of devices with bad serial numbers is provided in the blue alerts box.

Software Inventory Health

To view the health of your software inventory:

1. Navigate to **License Compliance > Installed Applications** (located in the **Applications** group).

2. Filter results by the **Publisher** column.
3. Click the **Choose the columns to display** icon and display the **Classification** and **Usage** columns.
4. Filter the **Classification** column by **Commercial**.
5. Note the installed vs. used numbers which display in the **Usage** column.

Custom Report Examples

You can also create your own SQL reports to expose, customize and enhance the rich data which FlexNet Manager Suite natively captures. You will find the following custom reports, which have been all developed and tested by our experienced field consultants, are very useful.



Note: *The reports listed below are only available for On-premise customers. While these custom reports are simple SQL queries used to extract and expose already existing data, we recommend caution when implementing the code and/or changing any configuration element. Flexera does not take responsibility for any data loss or errors that might occur.*

Virtualization Discovery and Inventory Report

Understanding the gaps in inventory is a never-ending activity for the SAM Manager, particularly for virtualized environments which change frequently, are complex to track, and are a high risk for compliance. Virtualized environments deserve strong attention and adequate reporting. This custom report offers:

- A first "Virtualization Discovery Details (NR)" custom view that provides detailed information on Hypervisors (vCenters, HyperV, Oracle VMs hosts, ESX servers) that have been discovered online by the beacons
- A second "Virtualization Overview incl. vCenters (NR)" view provides a deep level of detailed information on the vCenter. It lists the vCenters, Clusters, Hosts and Virtual Machines, including the virtual machines not inventoried.

These two views bring the following value:

- If you compare the list of active vCenters of the first view with the list of inventoried vCenters in the second, you know where you should focus your vCenter inventory effort
- The second view gives the list of vCenters and their links to Clusters, hosts and VMs. This can be useful for Oracle (where Oracle Database are supposed to be licensed at vCenter level for versions of vCenter greater than 5.0)
- Identifies VMs that are managed by inventoried vCenters but not inventoried by FlexNet Inventory Manager or other inventory tools (and that have no record in the **All Inventory** page). These VMs are flagged as "Not Inventoried".



Note: *To generate these reports, see Knowledge Base article #26485.*

SAM Objects Historical Changes Report

FlexNet Manager Suite provides advanced change tracking capabilities that can be accessed in the **History** tab in the properties pages for inventory devices, licenses, contract, and purchases.

The view below shows a central overview of all changes that have been applied to the licenses, purchase orders and contracts.



Note: To generate this report, see Knowledge Base #26486.

Entity by Entity Compliance Detailed Report

In complex situations where licenses can cover overlapping application versions, the three views below give a very useful overview of purchases and consumption.

This custom view provides:

- Local purchases, consumptions, and balance (including balance cost using the license override cost or last purchase order line per right cost)
- Rolled up purchases, consumptions and balances (as displayed in the **Group Assignment** tab of license properties)
- Build a detailed pivot table to analyze large quantities of information. Use columns such as:
 - Entities hierarchies
 - Main product covered by the license or list of products
 - Main product with edition
 - Entity: level 1, 2, 3, 4
 - Entity full path
 - Sorting column (License Name/Entity path) to re-establish the hierarchy
 - List of installations covered by the license.

These views apply user access restrictions the same way as the "Group Assignment" does in a license detail. The view can be exported to Excel and a Pivot table can be created to provide enhanced analysis and filtering capabilities.



Note: To generate this report, see Knowledge Base article #23753.

Device Evidences Custom View

Management of application recognition is an advanced area that requires sometimes analysis and tracing back to objects that are not always visible in FlexNet Manager Suite for performance reasons, such as:

- File evidences
- Installer (add remove programs typically)
- And WMI evidences (used to identify applications that have no reliable file or installer evidences (SQL Server (for Editions), Windows).

The present view can be imported in FlexNet Manager Suite custom views using Microsoft SQL Server Management Studio with a Power User on the FlexNet Manager Platform Database (that can create stored procedures and views records).



Note: To generate this report, see Knowledge Base article #23948.

Allocation Automation for FlexNet Manager SaaS Devices

The goal of this solution is to automate the allocation of unallocated devices according to IP address, domain name or computer name. To allow advanced scripting you can use local SQL Express Staging Database on a connected FlexNet Beacon to run the scripts before uploading the data back to the SaaS instance using a classical beacon integration.



Note: FlexNet Manager Suite you does not allow direct connection to the SaaS (and multitenant) database, therefore the following custom reports are only available for On-Premise installations of FlexNet Manager Suite .

The approach is the following:

- A first importer (*importIPToCorpUnitMapping.xml*), imports the reference data. This report runs manually whenever the allocations rules changes and will need to be uploaded in the reference table.
- A second importer (*AutomationForDevicesWithNoCorpUnitUpdate.xml*) is scheduled by the Windows task scheduler launching the */XXX/YYY/ZZZ.bat* file every day. This reads in the SaaS Database and uploads the results “Servers with No Corporate Units” view, loads the data into a local SQL Database and uses the allocation rules reference data imported with another importer to allocate corporate units based on the IP Address, then the server domain, then the name.
- Finally, a Business Importer scheduled from the beacon.

There are prerequisites to make this automation possible, such as enabling the web service API on the FlexNet Manager SaaS instance, creating a Web Service account, installing a staging database or making it Business Adapter Studio compatible.



Note: To generate this report, see Knowledge Base article #26487.

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Useful Resources

FlexNet Manager Suite Online Help

It is a best practice to consult the FlexNet Manager Suite online help which can be accessed by clicking the **Help** icon located in the top right-hand corner of FlexNet Manager Suite. Online Help contains complete product information including license creation; configuring your web browser for an optimal experience; and working with management views, discovery and inventory, evidences, applications, licenses, procurement, users and assets.

Flexera HelpNet

Flexera HelpNet is an online library of Flexera product documentation including user guides, installation guides and release notes.

Customer Community Resources

Flexera's [Customer Community](#) page offers resources such as:

- **Knowledge Base** — find answers to common questions such as product access, product FAQs, error documentation, and problem resolution
- **Forums** — discuss and receive expert advice on all things related to Flexera products

You can login to the Community to submit support cases, propose product enhancements, access our Knowledge Base and more.



Note: *It is a best practice to always check Flexera's [Customer Community](#) for new materials and product updates. The practice guides will not dive deep into product enhancements, FlexNet Manager Suite versioning and other configuration topics.*

Flexera's Learning Center

Flexera's Learning Center is the place to go for product enablement and training materials, including the latest practice guides. You can access the Learning Center via our [Customer Community](#) which is available to all customers free of charge.

We recommend you review the following courses before using this practice guide:

Table 2: Learning Path: Getting Started & Plan for Success with FlexNet Manager Suite

Course	Role
Intro to FlexNet Manager Suite Solution	Everyone
Plan for SAM Success with FNMS	Project Manager
Align with SAM Industry Best Practices	Software Asset Manager
SAM/ITAM Integration, Data Flow and Analysis	Project Manager
Plan to Implement FNMS (Technical Planning)	Project Manager
Introduction to FlexNet Manager Suite UI	Everyone

Table 3: Learning Path: Inventory Normalization with FlexNet Manager Suite

Course	Role
Managing the Organizational Structure in FNMS	Hardware Asset Manager
Managing Users in FNMS	Hardware Asset Manager
Introduction to Managing Hardware in FNMS	Hardware Asset Manager
Managing Inventory Devices in FNMS	Hardware Asset Manager
Managing Virtual & Remote Device Inventory in FNMS	Hardware Asset Manager
Managing Hardware Assets in FNMS	Hardware Asset Manager
Managing Discovered Devices in FNMS	Hardware Asset Manager
Managing Applications to Improve your License Position in FNMS	Hardware Asset Manager
Application Recognition in FNMS	Hardware Asset Manager

Table 4: Learning Path: Establish a License Position in FlexNet Manager Suite

Course	Role
License Entitlement Basics with FNMS	Software Asset Manager
Create and Manage Purchases in FlexNet Manager Suite	Software Asset Manager
Create an Initial License Position	Software Asset Manager
Configure License Entitlements in FlexNet Manager Suite	Software Asset Manager
Advanced License Properties in FNMS	Software Asset Manager
Managing Contracts in FNMS	Software Asset Manager
Subscriptions, Upgrades & Maintenance with FNMS	Software Asset Manager

Table 5: Learning Path: License Analysis & Optimization with FlexNet Manager Suite

Course	Role
FNMS License Reconciliation Overview	Software Asset Manager
Licensing Virtual & Cloud Technologies in FNMS	Software Asset Manager
Choosing the Right License Type in FNMS	Software Asset Manager
Advanced License Configuration in FNMS	Software Asset Manager
Configuring Product Use Rights in FNMS	Software Asset Manager
License Usage & Analysis Optimization in FNMS	Software Asset Manager
Bundle Licenses in FNMS	Software Asset Manager
Bulk Allocations and Exemption in FNMS	Software Asset Manager

Table 6: Learning Path: Publisher Specific Licensing with FlexNet Manager Suite

Course	Role
Microsoft Licensing in FNMS	Software Asset Manager
Office 365 in FNMS	Software Asset Manager
Microsoft CALs in FNMS	Software Asset Manager

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Acronyms

Below is a list of useful acronyms:

Acronym	Term in full
API	Application Programming Interface
APR	Application Portfolio Rationalization
ARL	Application Recognition Library
BYOSL	Bring Your Own Software License
CAL	Client Access License
CMDB	Configuration Management Database
COA	Certificate of Authenticity
CPU	Central Processing Unit
DR	Disaster Recovery
EOL	End of life
EOSL	End of Service Life
ESX	Elastic Sky X
FNMP	FlexNet Manager Platform
FNMS	FlexNet Manager Suite
FPP	Full Packaged Product
IaaS	Infrastructure as a Service
IBR	Installed Base Report
KPI	Key Performance Indicator
LDOMS	Logical Domains
LIR	License Intelligence Report

Acronym	Term in full
MLS	Microsoft License Statement
NUP	Named User Plus
OEM	Original Equipment Manufacturer
OOTB	Out of the Box
OVM	Oracle Virtual Machine
PaaS	Platform as a Service
POL	Proof of License
PO	Purchase Order
PURL	Product Use Rights Library
SA	Software Assurance
SaaS	Software as a Service
SAM	Software Asset Management
SKU	Stock Keeping Unit
SLO	Software License Optimization
SQL	Structured Query Language
UI	User Interface
UVU	User Value Unit
WAS	WebSphere Application Server

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Appendix 1: Choosing the Right Inventory Method

Once you have made the decision to use our inventory capabilities, the next decision will be which method to use to collect inventory using the FlexNet inventory agent.

The four primary methods of inventory collection used by FlexNet Manager Suite directly are:

1. Command Line (Remote and Local Command) Inventory
2. Full Agent Based Inventory
3. Network Scan
4. Manual One-Off Spreadsheet Inventory Import.

1. Command Line (Remote and Local Command) Inventory

Command line inventory, (sometimes referred to as “zero touch”) requires no agent to be installed but instead runs a command line utility (ndtrack.exe or flexerainventoryscanner.exe) from a remote location such as a network share, or from a local copy of the executable.

- Command Line inventory from a login script or existing batch file mechanism
- Launched from any existing remote execution tool
- Manually from the command prompt of the local system
- Use an existing deployment tool to copy NDTRACK files locally and create a local schedule task to run an inventory regularly.

Command line inventory uses the same executable from the full inventory agent but is called from a direct command line instead of a schedule on the fully installed agent. This inventory agent will collect a complete hardware and software inventory and does not collect software usage details.

There are two executables which can be used for command line inventory: ndtrack.exe and the FlexeraInventoryScanner.exe. There are versions for Windows and a shell script (ndtrack.sh) for non-windows systems.



Note: The agent and all associated dll's are also combined into one self-executable Inventory Scanner for ease of use

"FlexeraInventoryScanner.exe". This makes it much easier to distribute and use as it requires maintaining only one file which will contain all needed components for a full inventory.

A common configuration is to upload collected inventory to an inventory beacon where it will automatically be forwarded to the central server for FlexNet Manager Suite. It can conveniently be called from another tool, allowing powerful and configurable inventory collection without the overhead of deploying another agent. Command line options can be configured to expand and configure the behavior of the inventory agent including options such as including CAL usage collection, turning on or off hardware or software inventory, designating a location to upload the inventory to and many more options.

For a complete list of options available for the inventory agent please refer to the "FlexNetInventoryAgentAndMDs.pdf" available for download from the Product & Licensing Center.

Common scenarios when the Command line method should be used of inventory collection:

- high frequency scanning for sub-capacity licensing is not required
- If you only require targeted data collection as supplemental inventory (for example, SQL Server editions)
- Environments restrictions prohibit usage of another agent
- VDI templates that are provisioned in XenDesktop for reference inventory
- If fine grain control of execution using command line parameters is required.

Limitations of the command line inventory collection method:

- Requires InventorySettings.XML for Oracle introspection
- Cannot be used in IBM sub-capacity licensing scenarios
- Cannot track usage of applications using standalone binaries.

2. Full Agent Based Inventory

Agent-based inventory requires the Managed Device agent installed on the system being inventoried. This provides more dynamic control of the agent, allowing the agent to be self-sufficient and auto-updating, as well as automatically scheduling inventory collection and uploads.

- Manually deploy agent
- Deploy agent with existing 3rd Party Deployment Tool
- Use FlexNet Remote Adoption to Deploy Agent.

The full FlexNet inventory agent can be deployed from UI using rules/actions and targets or deployed using third party tools.

File evidence collection and scan paths are configured in the UI and passed on to the agent through the settings. During agent installation, it downloads the settings, policy and schedules from the beacon. Once the schedules are in place, the agent will collect and return inventory at the scheduled time. The same command line options available for the command line are also configurable for the agent-based inventory tool. Please refer to the "FlexNetInventoryAgentAndMDs.pdf" document. If usage tracking is enabled, it will track processes that are launched and upload the usage data periodically.

3. Network Scan

Network scanning is used when specialized technology inventories such as Oracle and VMware inventories use different executables and are often run as remote command line from the FlexNet Beacon.

- Uses the FlexNet Beacon to remotely scan a network for discovery
- Uses the FlexNet Beacon to remotely execute commands to collect inventory
- Good when local execution or local install of agents is not allowed
- Requires credentials be set on the inventory beacon for each inventory type
- Requires security hurdles be overcome to allow remote execution on systems.

FlexNet Manager Suite uses network connections to scan for specific inventories. This includes scanning to discover what's out there, as well as remote network execution of commands to collect detailed inventory from certain sources. While many of these inventory sources can also be scanned with a local agent, some can only be collected via the network scanning method.

Here is a short table of the inventory types that use remote network scanning:

Inventory Source	Remote Network Scan	Local FlexNet Manager Agent
General Hardware/Software Inventory, incl. desktop/ server applications, IBM, Oracle, and so on.	Yes	Yes
Oracle Database and Options	Yes	Yes
Virtual Desktops (Citrix)	Yes	
Virtual Applications (Citrix, App-V)	No	Yes
SQL Server Editions	Yes	Yes
Virtual Servers (VMWare vCenter & Clusters, Oracle VM)	Yes	No
IBM sub-capacity Inventory	No	Yes
Application Usage	No	Yes



Note: IBM Inventory technically could be collected using Network Remote Execution, but because of the requirements for frequent inventory every 30 minutes, and because of the unreliability of remote execution to adhere to these requirements, it is not recommended to use remote execution for inventory collection on systems with IBM license requirements, especially when replacing ILMT for sub-capacity licensing.

4. Manual One-Off Spreadsheet Inventory Import.

- Uses inventory import templates
- Good for one-off imports from systems where no inventory agent is available
- Can be used to import from a 3rd party system for which no default inventory adapter is available.



Note: A fully installed agent-based solution is required to collect software usage statistics.

Among many supported methods of importing software and hardware inventory details, FlexNet Manager Suite supports the import of inventory information in either comma-separated value (.csv) files, or Microsoft Excel spreadsheets (.xlsx files).

There are several reasons you might choose to use the one-off inventory import method, including:

- One-off inventory imports are used for systems that are not allowed to have an inventory agent installed
- To represent systems that are not on the current network but represent systems that need to be managed from an inventory stand point.

Inventory spreadsheets can be imported in one of two ways:

- A 'one-off' import through the web interface of FlexNet Manager Suite
- A repeatable, scheduled import through an inventory beacon.

The formats of these imported files are fixed and defined by downloadable templates. The documentation of each of these templates, and the mapping of all the spreadsheet columns to the compliance database, is included in the "Inventory Spreadsheet Templates" chapter of the companion volume, *FlexNet Manager Suite 2019 R1 Schema Reference* PDF available through the title page of online help.

Inventory Comparison Matrix

Inventory Source	Supported Versions	OOTB	Tier 2 (Services Supported)	Desktop	MAC	WinTel Server	Linux UNIX	Oracle	IBM PVU	Additional Comments
FlexNet inventory agent	8.5–9.2, 2014–2019 R1	Yes		Yes	Yes		Yes	Yes	Yes	Multiple connection types (Agent and Agentless) are available. If IBM is to be collected, a full agent must be used.
BMC Discovery (ADDM)	9.0, 10.0–10.2, 11.0–11.3	Yes				Yes	Yes			
Casper JAMF			Yes		Yes					Adapter requires customization at each implementation to validate it works with the Casper and FlexNet Manager Suite version.

Inventory Source	Supported Versions	OOTB	Tier 2 (Services Supported)	Desktop	MAC	WinTel Server	Linux UNIX	Oracle	IBM PVU	Additional Comments
HP Discovery and Dependency Mapping (DDMI)	9.30	Yes		Yes		Yes	Yes			DDMI has been known to cause duplicate devices due to how Serial, Domain, and Hostname are collected.
HPE Universal Discovery (HP-UD)	10.10, 10.11, 10.33, 11.1	Yes		Yes		Yes	Yes			
IBM BigFix Inventory	9.0, 9.1	Yes	Yes			Yes	Yes		Yes	Only used for IBM software. The primary use case is for IBM PVU licenses.
IBM BigFix Inventory on IBM DB2	9.2.5–9.2.14	Yes	Yes			Yes	Yes		Yes	Only used for IBM software. The primary use case is for IBM PVU licenses.
IBM BigFix Platform (previously Tivoli Endpoint Manager) on Microsoft SQL Server	8.2–9.5.11	Yes				Yes	Yes		Yes	
IBM ILMT on IBM DB2	9.0, 9.1, 9.2.5–9.2.14	Yes	Yes			Yes	Yes		Yes	Only used for IBM software. The primary use case is for IBM PVU licenses.
IBM ILMT on Microsoft SQL Server	9.2.3–9.2.14	Yes				Yes	Yes		Yes	Only used for IBM software. The primary use case is for IBM PVU licenses.

Inventory Source	Supported Versions	OOTB	Tier 2 (Services Supported)	Desktop	MAC	WinTel Server	Linux UNIX	Oracle	IBM PVU	Additional Comments
Microsoft SCCM (previously SMS)	2007, 2012, 2012 R2, 1511-1810	Yes		Yes		Yes				While SCCM supports WinTEL servers, it is not recommended for them as it is unable to collect SQL Edition.
ServiceNow	<ul style="list-style-type: none"> • Geneva • Helsinki • Istanbul • Jakarta • Kingston • London. 		Yes	Yes	Yes	Yes	Yes			It is important to note that ServiceNow does not collect file evidence and therefore is not a recommended source.
Symantec IT Management Suite (Altiris)	6.5, 7.1, 7.5	Yes		Yes						

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Appendix 2: Managing Upgrade, Subscription and Maintenance Entitlements

This appendix explains the meaning of maintenance, subscription and upgrade licenses and provides best practices for managing these licenses in FlexNet Manager Suite. The below chart outlines the similarities and differences between these license types.

License Type	Perpetual (never expires)	Non-Perpetual (has expiry dates)	Base license required	Upgrade rights to new versions releases	Must remove all versions when license expires
Maintenance		Yes	Yes	Yes	
Subscriptions		Yes		Yes	Yes
Upgrades	Yes		Yes		

Managing Subscription Entitlements

Subscriptions differ from perpetual licenses in that they can only be used for a specific period (while you are paying for the subscription). Once the subscription expires, you are no longer allowed to use the software. However, there may be exceptions to this rule (some software installed while having an active Microsoft MSDN subscription can continue to be used after the subscription expires). Subscriptions are similar to perpetual software with maintenance. Both enable the user to install and use the latest version of the software. The difference is when the subscription expires the user is no longer able to use the software. When maintenance expires, the user is still able to use the software at the version level that was available when the maintenance expired.

Processing a Software Subscription Purchase

To easily manage subscription licenses, a purchase type of “software subscription” is available within FlexNet Manager Suite. This purchase type allows to easily capture both effective and expiry dates when entering a new purchase.

Process for Expiring or Expired Subscription Entitlements

Renew all or partial entitlements of the Software Subscription. If renewing the subscription, create a new purchase (with new effective and expiry dates and purchase type of “software subscription”) and link it to the existing expired license.

Choose Not to Renew a Software Subscription

If you do not renew, you should verify the following:

- The quantity applied to the license will automatically change to **zero (0)** after the expiration date.
- The **Planned non-renewal** check box must be selected on the **Compliance** tab of the license.
- The **License Status** on the **Identification** tab should be manually updated to "retired". While this is not required for compliance, it is considered a best practice.

Managing Maintenance Entitlements

In addition to selling perpetual software, vendors sell software maintenance entitlements. One primary advantage of purchasing maintenance entitlements is the ability to upgrade the software to newer versions. In addition to getting upgrade rights, the vendor may offer other use rights, such as Microsoft’s maintenance program named Software Assurance (SA) which includes a host of additional benefits. For more details, visit <https://www.microsoft.com/en-us/licensing/licensing-programs/software-assurance-default.aspx>.

There are three possible options to manage maintenance entitlements:

- Create one license and then create different contracts matching each of the maintenance’s expiry dates. Then manage the maintenance entitlements using the contracts.
- Create one license and navigate to the **License and Maintenance Expiry** page to manage the different expiry dates.



Note: This feature is only available in FlexNet Manager Suite 2016 R1 and later.

- Create as many licenses as there are maintenance expiry months. This is *not* recommended as reporting and managing licenses becomes very difficult.

To create a maintenance purchase with a base entitlement it is recommended to use the **Create a Purchase** wizard on the **Procurement** tab, using the vendor’s SKU. This method allows the correct purchase type of Software to appear and automatically selects the **Maintenance** check box.

Publishers’ SKUs should always be used if possible when creating a purchase. The FlexNet Manager Suite SKU library knows whether the entitlement includes maintenance, and how the software is measured for compliance (device, named user, processor, and core). The SKU can then be used to choose the proper license model from the PURL which defines the use rights.

To process a maintenance/upgrade purchase, a base entitlement must already exist. If the base entitlement does exist, the maintenance/upgrade purchase can be linked to it. A base entitlement is a traditional perpetual license that is required for an upgrade (either version or edition) or maintenance license to be applied. If a base entitlement doesn’t exist, you have the following options:

- Assume the company has purchased the base license. Create a base license representing the current position. No further attempt is made to find the base license.

- The same as above, except the base license is later replaced with the actual license.
- Maintenance/Upgrade purchase cannot be processed so the purchase will need to be deferred. Locate the base license and process it in FlexNet Manager Suite. Once complete, the maintenance/upgrade purchase can be processed and linked to the base license.

Process for Expiring or Expired Software Maintenance

When maintenance is about to expire, or has expired, you have a few options available: renew the maintenance (in full or partially) or do not renew the maintenance.

If the decision is made not to renew all the maintenance for a license, all use rights that required active maintenance will no longer be granted. Therefore, the name of the license will need to be updated. The Expired license name should be edited (the word "Maintenance" or "SA" should be removed and the word "Current" replaced with the latest qualified version of the software).

If the decision is made to renew the maintenance, a new maintenance only purchase (with new effective & expiry dates and purchase type of "Software Maintenance") should be entered in FlexNet Manager Suite. The SKU library knows the SKU is a maintenance only purchase and doesn't apply any new license entitlements. In addition, the maintenance check box will be automatically selected.

If the maintenance was only renewed for a partial number of licenses, the following should occur:

- Once the partial maintenance only purchase is processed and attached to the appropriate license, there will be a gap in the number of licenses with maintenance from those without maintenance
- The license maintenance should reflect the furthest most date that any maintenance expires
- The licenses without maintenance will need to be moved to a new or existing license that doesn't provide use rights that are associated with maintenance (for example, upgrade rights). Please use the process from the [Split License Entitlements](#) section below.

Alerts for Gap in Maintenance

FlexNet Manager Suite will alert you when the quantity of licenses does not match the quantity of maintenance attached to the license. This is considered a "Gap in Maintenance". This gap can result from maintenance expiring on a license and that maintenance is not being renewed or only partially renewed.

If you know that you do not plan on renewing the maintenance on a particular license, you can manually select the **Planned Non-renewal** check box on the **Compliance** tab of the license. This prevents you from receiving maintenance expiry alerts on this license.

Split License Entitlements

If a license has entitlements with current maintenance as well as entitlements with expired maintenance, then this license will generate an alert representing the gap in maintenance coverage. Therefore, these two entitlements can no longer be managed under one license and must be split apart (one with maintenance and one without). A "Move Maintenance" wizard was created for this specific function.

Managing Upgrade Entitlements

Upgrade purchases are unique because they require a base license where the upgrade can be applied. Upgrade purchases can either allow the user to upgrade to a newer version or a different edition. For example, Acrobat 6 Standard is the base license required to upgrade the version to Acrobat 9 Standard.

Upgrade purchases may appear to be similar to maintenance because both need a base license before they can be processed, however upgrade purchases are often applied to perpetual licenses and do not need to be renewed, whereas maintenance entitlements are purchased in a similar way to subscriptions with effective and expiry dates.

The quantity of base entitlements for the version you want to upgrade from must be verified. If they match the number of upgrade licenses purchased, the purchase can be processed and applied to the existing base license. If there are fewer upgrade licenses than base entitlements, the entitlements will need to be split. The quantity of base entitlements without an upgrade will stay as is. The quantity of base entitlements with the upgrade will be moved to create a new license.

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Appendix 3: Custom Report Object Tables

- Allocation
- Application
- Category
- Cluster
- Contract
- Contract document
- Contract history
- Contract note
- Corporate structure
- Cost center
- Document note
- Hardware asset
- Installation
- Inventory device
- License
- Location
- Oracle instance
- Oracle option
- Payment
- Payment schedule

- Purchase
- Purchase order
- Responsibility
- Suite
- Suite members
- Term/Condition
- User
- Vendor
- Vendor contact
- Virtual machine

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Appendix 4: Logical Data Models Between Object Tables

The following diagrams display the logical data models between object tables:

Figure 4: Logical Data Model - Simplified High Level View

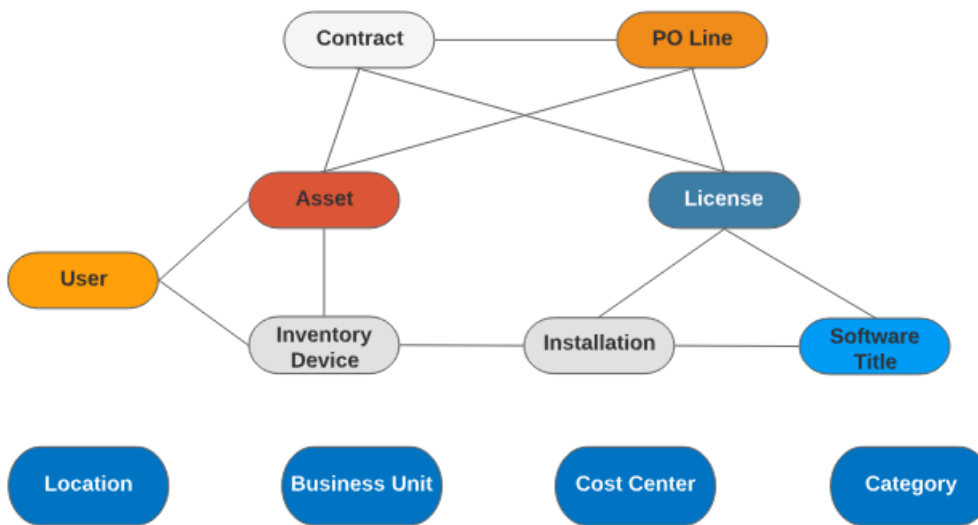


Figure 5: Logical Data Model Overview - Asset

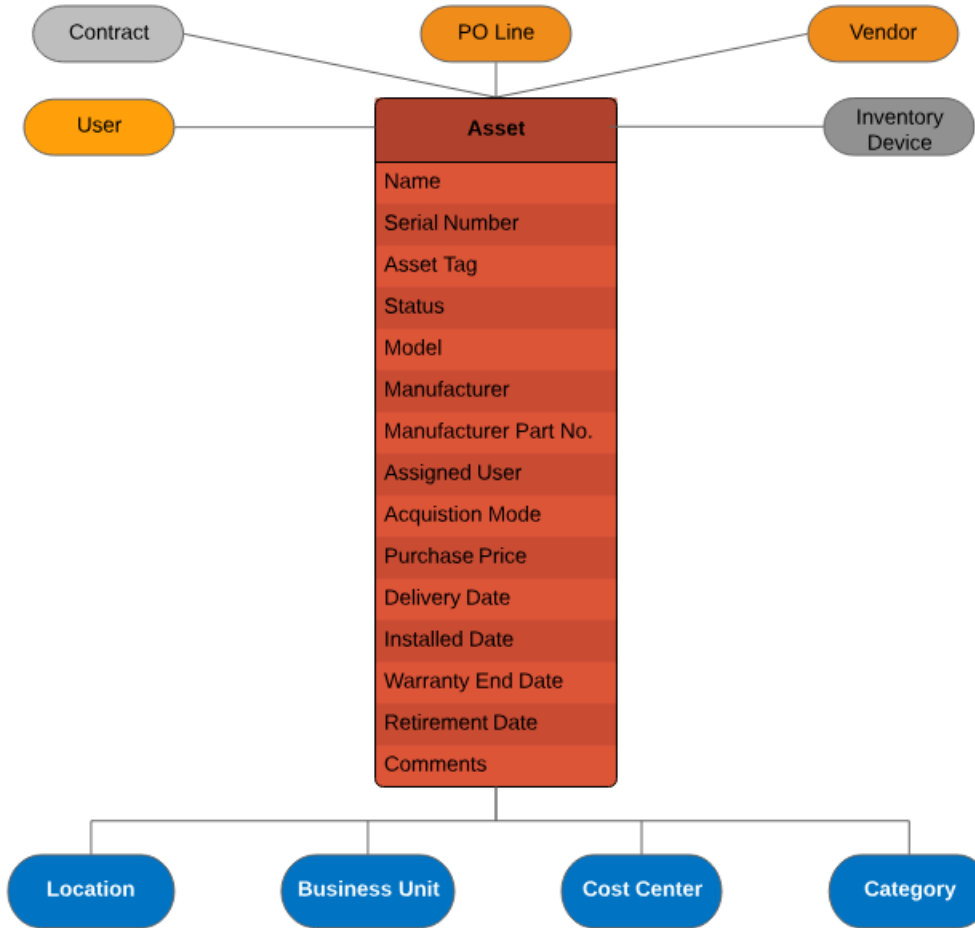


Figure 6: Logical Data Model Overview - Inventory Device

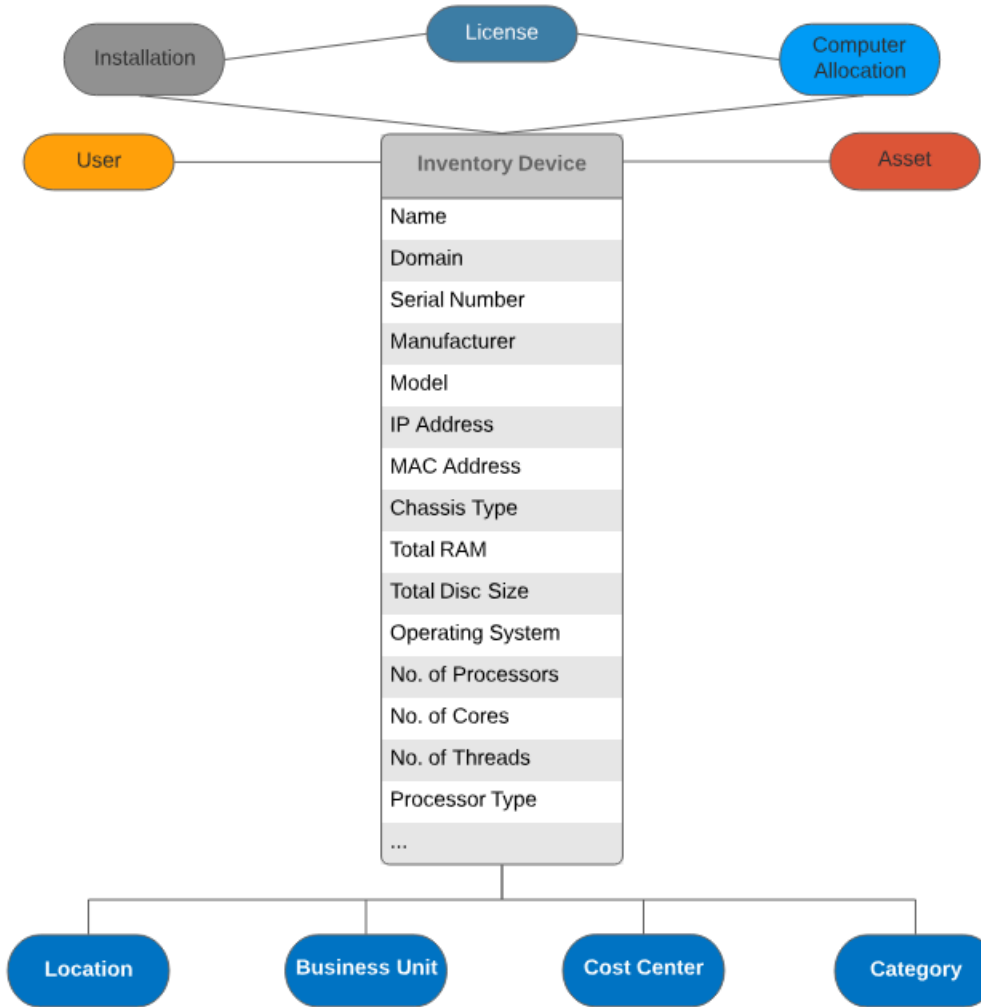


Figure 7: Logical Data Model Overview - Software Title

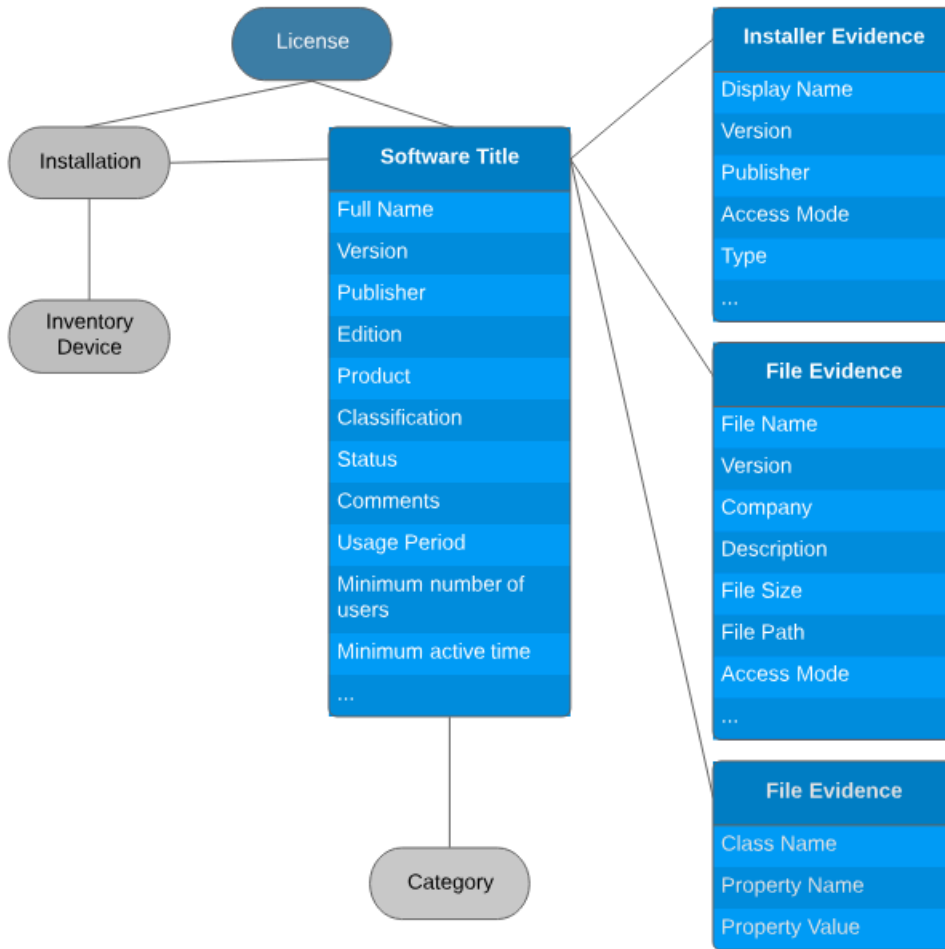


Figure 8: Logical Data Model Overview - License

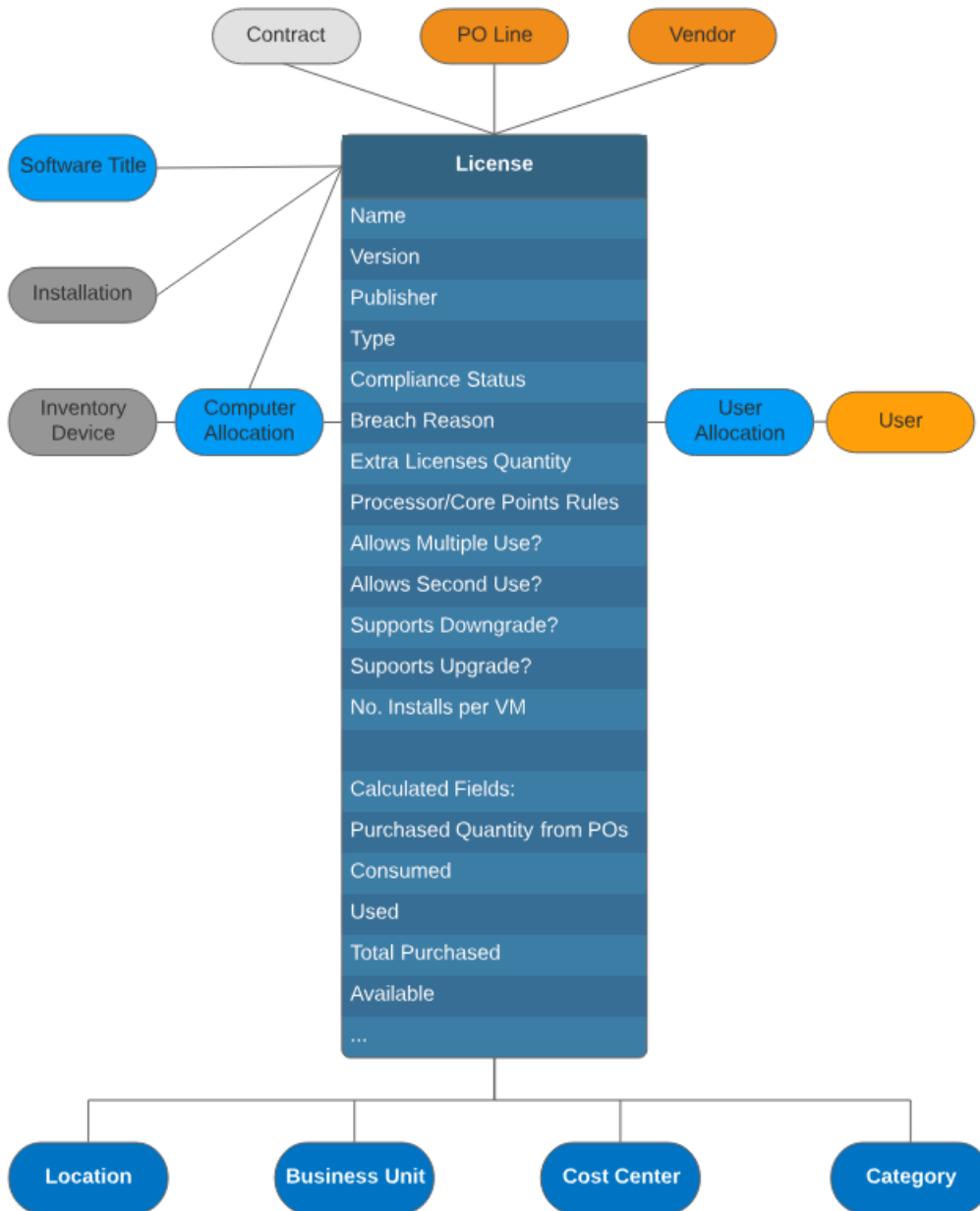


Figure 9: Logical Data Model Overview - Purchase Order

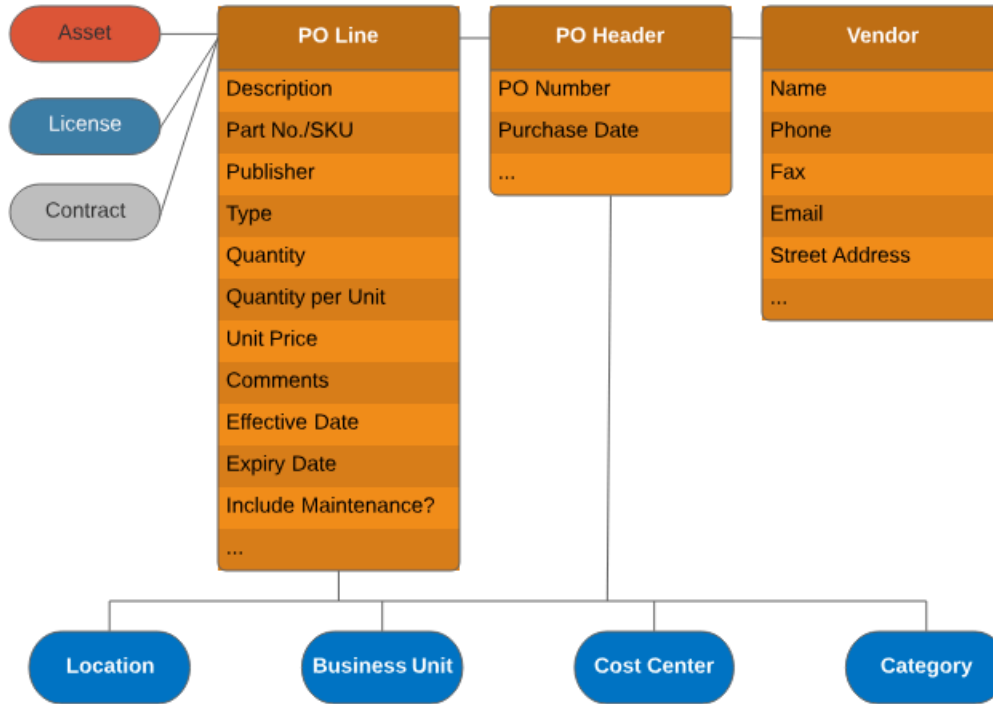


Figure 10: Logical Data Model Overview - Contract

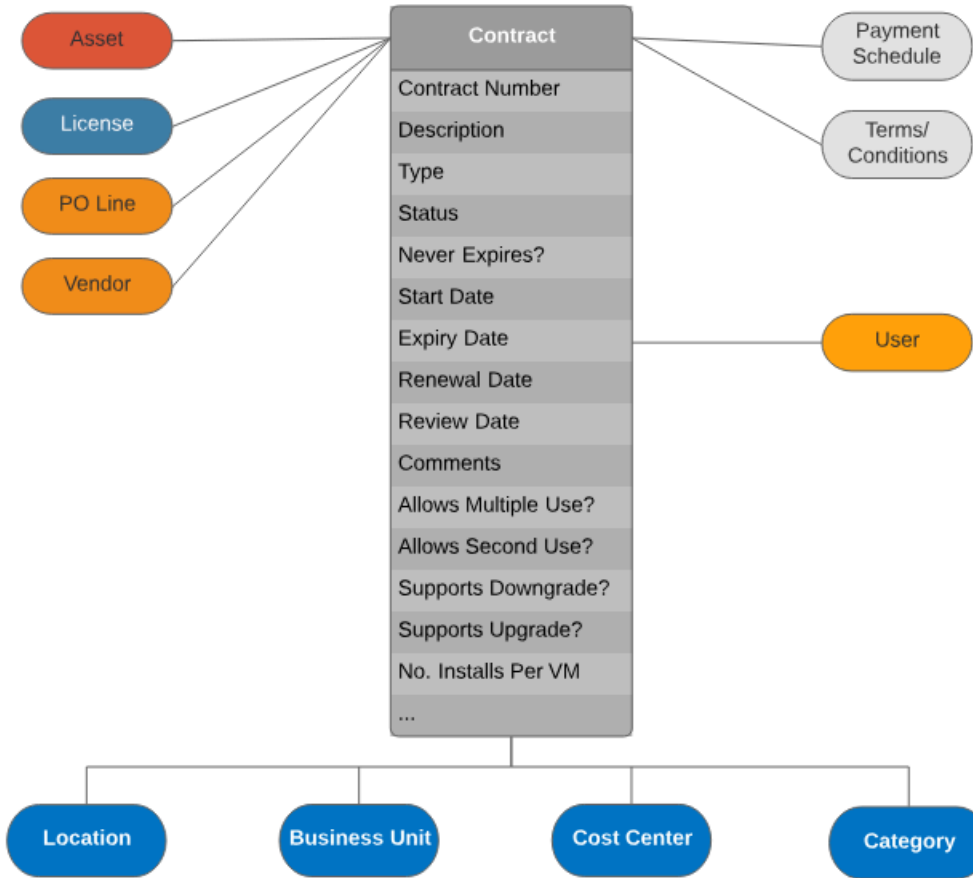


Figure 11: Logical Data Model Overview - User

