



# **Software Licensing Life Cycle Management**



## Overview

Traditionally, software licensing solutions protected intellectual property from unauthorized use – intentional or unintentional – by providing the tools necessary to manage license compliance. Today, licensing flexibility can be a key competitive differentiator for Independent Software Vendors (ISVs), as customers demand more value from their software investments.

Software license management solutions can allow developers to expand revenue opportunities, improve ordering and delivery processes, and reduce the operational and development costs associated with implementing and managing licenses.

To fully realize the benefits gained from implementing a license management solution, careful consideration must be given to the various phases of the license life cycle. Licensing is complex, and there are many business and technical options you should consider. This paper outlines the best practices for successfully selecting, implementing, and managing a license management solution throughout the entire product life cycle.

## License Life Cycle Management

A license management solution serves as a tool to help software vendors manage the entire license life cycle from inception to renewal. The license life cycle is made up of three stages, as described below.

### Life Cycle Stages

#### 1. Planning and Design

- Which licensing models are best suited to the product?
- What strategies are best suited to the market requirements?

#### 2. Fulfillment

- How can I integrate licensing with my back office systems and fulfillment processes in order to fully automate licensing?
- What administration tools are necessary to manage and track license usage?

#### 3. License Upgrades and Ongoing Maintenance

- How can I deliver self-service license upgrades or renewals to my users to maximize revenues?

### Planning and Design

For most developers the benefits of software licensing are well understood. Beyond the protection of intellectual property, there are several license models that can be used to increase revenue opportunities. Software licensing helps software publishers price and package their products according to market needs and customer requirements. The same software targeted at different markets can benefit from offering a variety of license models.

Following are some of the factors that need to be considered when planning and designing license management into a software product.

### *Levels of Security*

A license management solution can provide varying degrees of security. Software protection can be implemented to allow the level and type of security to vary according to the needs of the product and market served.

An effective license management system must balance the concerns of unauthorized use and usability. It may be important to implement maximum security in regions with higher piracy. In this case, a hardware security solution is your best bet. The hardware key must be present for the software to run, resulting in the most secure solution.

To further bolster security, supplementary methods may also be employed. For example, code obfuscating and wrapping/shelling software can be used to encrypt licensed applications and software code to add an even higher level of security.

If piracy resulting from deliberate software hacking is not a major issue for your organization, your priority may be to make it as easy as possible for users to access and navigate the software. Software-based licensing allows users to flexibly access software while still providing a level of security to support license compliance. Licensing schemes, such as unlocked licenses, can be used in these cases to minimize the user's interaction with and awareness of electronic licensing.

Choosing the appropriate level of security requires the assessment of market conditions, product requirements, and user needs. Security should maintain a balance between protections afforded and ease of use.

### *License Models*

A license management system enables choices beyond simply allowing or denying an application to run. Innovative licensing models can be leveraged to help generate new markets and revenue opportunities. User registration can be enforced to allow a publisher to perform market trend analysis. Functionality within an application can be enabled and disabled by using licenses as a means of control.

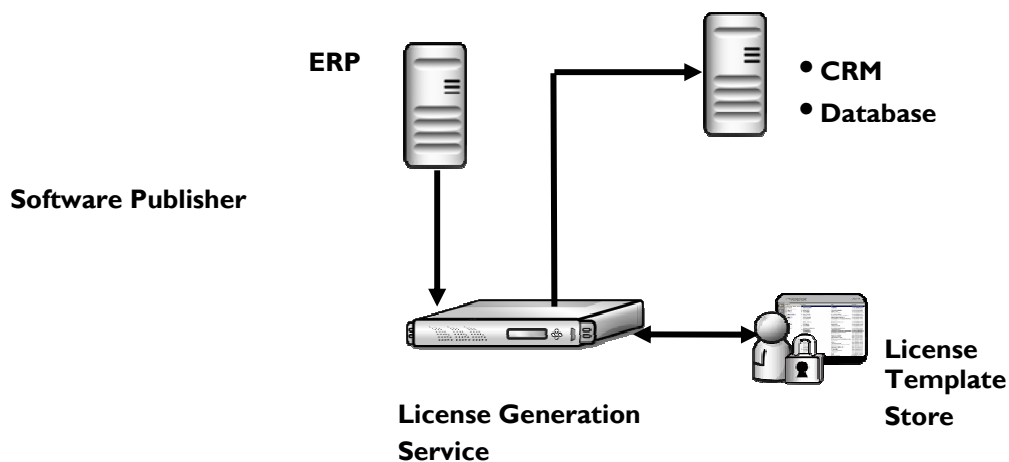
<b>License Type</b>	<b>Description</b>	<b>Benefit</b>
<b>Evaluation</b>	Time-limited trial evaluations	Enables ISV to seed the market with a new software product quickly and securely; offering demos helps to promote a product while limiting duration of use
<b>Commuter</b>	Also referred to as a "floating" license; allows users to checkout a license and gain application access while out of the office	Provides users with the flexibility to access software in multiple working environments, such as office and home
<b>Feature-based</b>	Licensing based on features or bundles of features	Enables ISVs to establish value for software features and earn additional revenue by charging higher fees for premium features

<b>Leasing/Rental</b>	Leased or rented time-based license models	ISVs are able to offer the flexibility of a time-limited license to customers who do not require perpetual licenses. Also allows for recurring revenue.
<b>Pay-Per-Use</b>	Billing based on product usage	Provides users with the option of paying for software only in direct correlation to the amount of software use

To realize the potential benefits of software licensing, it is important to have the flexibility of offering a variety of license models. Ideally, ISVs should be able to generate a variety of license models from one single development effort.

### Fulfillment

The fulfillment phase is often the most underestimated, and yet possibly the most critical, component of a licensing life cycle management strategy. A software license impacts every aspect of an enterprise. A successful implementation benefits from collaboration between all affected departments. Whatever solution you choose, you need to understand the implications it has on your existing back office systems and processes.



### Integration into Operations

The license needs to follow the same life cycle as the software with which it is associated. Systems must be updated to reflect this relationship. This may require updates to ERP and CRM systems, as well as establishing the license generation system. Streamlining and automating the license fulfillment process can significantly reduce operational costs. It also facilitates the tracking of licenses which has several benefits, such as the information about a software product that a publisher can obtain. Integrating licensing with all aspects of order management and fulfillment allows other departments, such as sales, customer service and IT, to access and track licensing information.

### Ease of Fulfillment

It is important to ensure that the process of fulfilling licenses synchronizes with the existing order process systems and does not create a hindrance to operations. An automated license fulfillment process can greatly simplify order entry tasks, leading to reductions in operating costs and improved customer service.



### *License Delivery Methods*

Software-based licenses provide you the flexibility of online license delivery. The Internet can enable self-service and 24/7 license fulfillment support. Additionally, an Internet connection allows the license to be bound to a client machine invisibly with little user interaction. One-click electronic license fulfillment can truly be realized.

However, the ability to manually deliver licenses must remain an option to meet customer needs. Internally, both automated and manual fulfillments should update the same order entry applications. This can be achieved by creating an intranet and extranet that interfaces with back office systems as well as with the license generation and fulfillment applications.

### *Licensing Generation Access Control*

If you sell through resellers, you need to consider how to manage distribution channels, which need to be regulated to ensure all revenue opportunities are secured. A software license generation system can be configured to allow access by channel partners.

Another potential method is to use hardware keys which assign and embed encryption keys during the manufacturing process, enabling you to control the creation of licenses for channels. Additionally, assigning customized access to software functions, or providing role-based access to software license generation systems, ensures only necessary stakeholders, including distribution channels, have visibility to the functions they require.

### *License Server Configuration*

Software license management can provide the flexibility of licensing on a network, allowing end users to checkout and share a pool of licenses. Such an application running on servers at the end users site should meet several key requirements:

- The license administration application is likely to monitor licensed software that is running on various operating systems. It is critical to be able to diagnose and monitor across multiple platforms with relative ease.
- At no point should a valid user be denied a license. Failover support is vital in accomplishing 100% license availability. One or more backup license servers should be available to take over should some hardware or software failure disable a license server.
- Diagnostic and monitoring tools have value for the end user's IT department. The IT department can use license administration tools for audit purposes to provide reports of active licenses.
- The administration console should also support the ability to provide alerts, reserve and revoke licenses, and monitor the status of license servers.
- Additionally, usage tracking is beneficial for the ISV looking to perform market trend analysis. This information can be used to encourage user upgrades and renewals, as well as improve customer satisfaction. The publisher can also use these reports to implement pay-per-use software.



## License Upgrades and Ongoing Maintenance

### *Remote Updates*

Once licenses have been distributed in the field, it is often necessary to continue to manage your products based on your customers' requirements. Over time, customers' security implementations and system requirements may change, or you may need to distribute new product updates. For example, customers may wish to upgrade from a demo to a perpetual license, or a company may need to increase the number of authorized users.

These changes may require you, the software publisher, to update deployed licenses. With hardware tokens, you may be forced to recall the tokens and send new ones every time security implementations demand change. You may also need to ship new software or visit the customer's site.

The ability to update licenses remotely in the field is ideal. Remote updates need to be protected to ensure that only the intended license is updated. To send updates to users remotely, your security solution should support multiple methods.

### *Bidirectional Update*

One way in which an ISV can remotely update a license is through a bidirectional update. In this process, there is a two way flow of update information between the end user and the developer. The user provides unique information about the license to the developer, who, in turn, provides an update code specifically for that key. This means an update cannot be used by any key other than the one for which it was intended.

Facilitating an exchange of secure communications means that end users can use a customer portal to obtain licensed information, and purchase updates and upgrades remotely, providing autonomy to the end user and no strain on the ISV's resources. Despite the convenience this brings to the user, security is never compromised in this process. Update code is encrypted with a secret key, cannot be used more than once, and a unique pair is assigned between the update code and the request code.

### *Unidirectional Broadcast Update*

Often times, you may want to send a unidirectional, or a one-way update, targeting multiple tokens present in the field without requesting code from end users. This can also be referred to as a "broadcast" update.

This type of update may be necessary due to privacy laws that prevent certain information from being gathered from an end user's machine. Additionally, these updates can be reapplied. In turn, they should be limited to features that are not affected by reuse. This refers to data fields stored in a key that do not change, such as an algorithm used for security.

An additional benefit of a unidirectional update is the ability to ship out blank keys in mass quantities and then program them at a later date out in the field.



### *Global Updates*

Global updates are a flexible way of sending license updates to all deployed tokens in the field. They can be sent with no direct communication between the ISV and the user, and do not require the user to be online to get the update. Global updates enable ISVs to deliver updates to numerous customers in a way that is time efficient and scalable.

A security solution that allows for various types of remote updates is very beneficial for both you and your end users.

## **Conclusion**

When implementing an electronic licensing scheme, a primary goal is to increase revenue opportunities. In order to maximize the efficiency of a license management scheme, it is critical to spend time in planning and design. Numerous license models can be used to increase revenue opportunities, and varying degrees of security can be incorporated. In selecting a license management scheme, the end user's interaction with the system must also be considered. Such interactions include multi-platform support, failover, and centralized management. Ideally, the license management system will synchronize with existing business processes, enhance operations by reducing costs and increasing revenue, and remain flexible in order to adapt as the enterprise grows.

## **About SafeNet, Inc.**

SafeNet is a global leader in information security. Founded 25 years ago, the company provides complete security utilizing its encryption technologies to protect communications, intellectual property, and digital identities, and offers a full spectrum of products, including hardware, software, and chips. UBS, Nokia, Fujitsu, Hitachi, Bank of America, Adobe, Cisco Systems, Microsoft, Samsung, Texas Instruments, the U.S. Departments of Defense and Homeland Security, the U.S. Internal Revenue Service and scores of other customers entrust their security needs to SafeNet. In 2007, SafeNet was taken private by Vector Capital.

For more information about SafeNet's solutions for software protection and licensing, please visit [www.safenet-inc.com/sentinel](http://www.safenet-inc.com/sentinel).