Protect, License and Sell Xojo Apps

To build great software with Xojo, you focus on user needs, design, code and the testing process. To build a profitable business, your focus expands to protection and licensing, the sales process and ongoing customer support and enhancements.

If you sell software products or plan to, you are probably aware of some of the options available to developers including the Apple or Microsoft App Store. These options are popular for games and low cost applications, especially for developers that do not have a website, sales or distribution channel.

The App Store model is often not applicable to large or vertical market applications. Those applications often require customer support, long term vendor/customer relationships, flexible licensing and upgrade options, reseller and affiliate sales, companion products, a hardware and software bundle or a common sales and distribution process for Mac, Windows or Linux.

Some vendors have implemented their own protection and licensing system. The development effort, schedule time and specialized technical skills required to achieve the level of protection and desired features often exceeds the budget of a single developer or small company. This article will discuss QuickLicense and other tools our company makes to satisfy these needs.

This article describes how to protect a Xojo application with computer unique activation, apply various types of licenses, support human managed or online activation and automate the sales and distribution process for Mac, Windows or Linux products from your web site, mail order CD, resellers or affiliates.

Simple Protection and Activation

Software protection, activation, licensing, sales and order automation are big topics with many options to consider. Before exploring those topics in depth, consider a simple licensing solution presented by AppProtect.

To protect a Xojo application on Mac or Windows, launch AppProtect and select the application. Select a few options in the main window, then click the Build Protected Application button to output a protected application ready to distribute to customers.
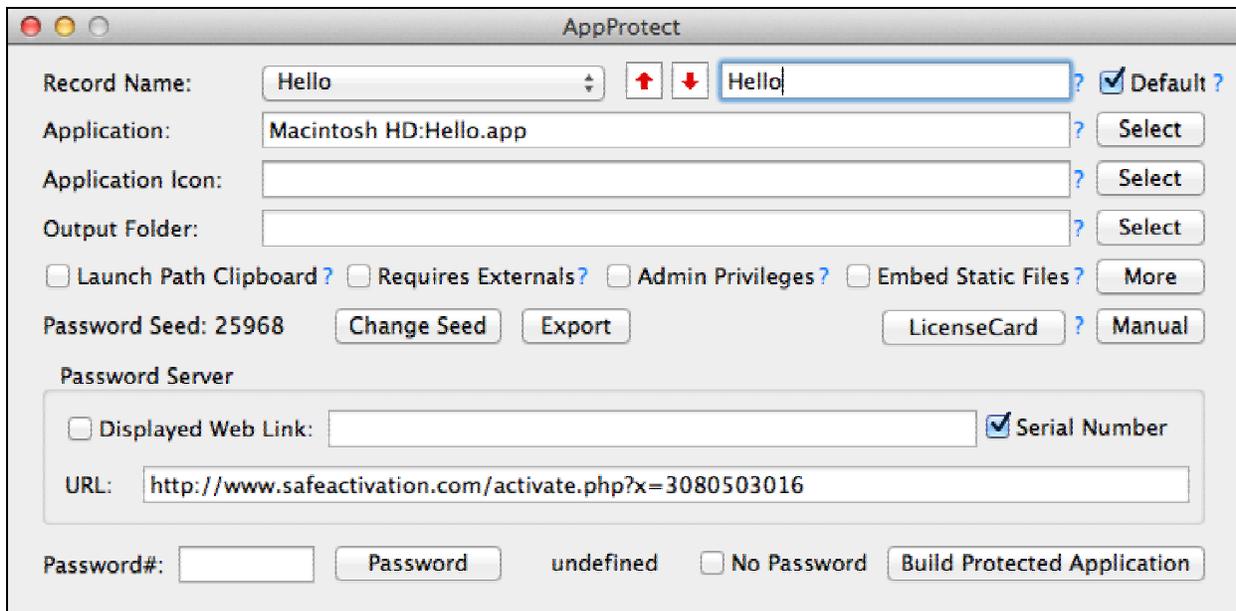
Protect an Application with AppProtect

On first launch on a customer computer, the Enter Password dialog is presented. The customer provides the password number, the vendor enters it into AppProtect and returns the unique password needed to activate the application on that machine. The application now runs forever, but only on that computer.
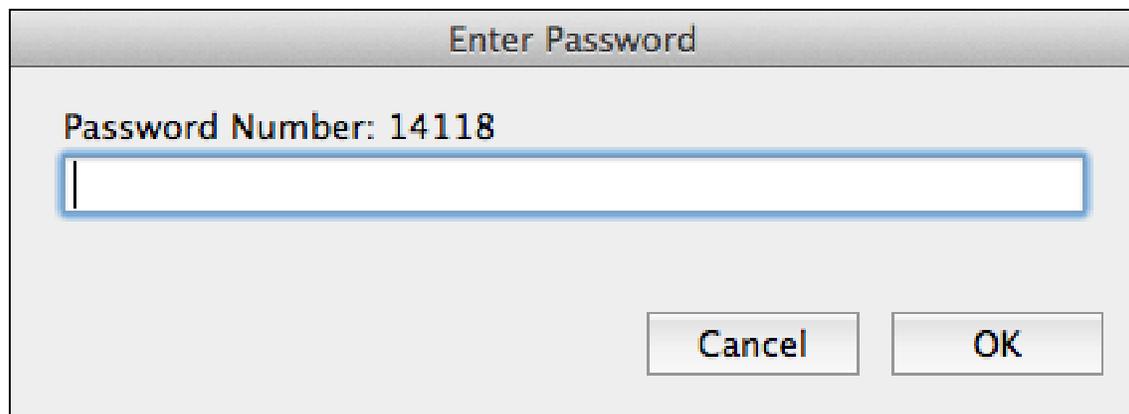
Enter Computer Unique Password to Activate Protected Application

The activation process can be automated with an online activation server discussed below. On first launch on a customer computer, the Enter Serial Number dialog is presented. The customer enters the Serial Number received at the time of purchase.
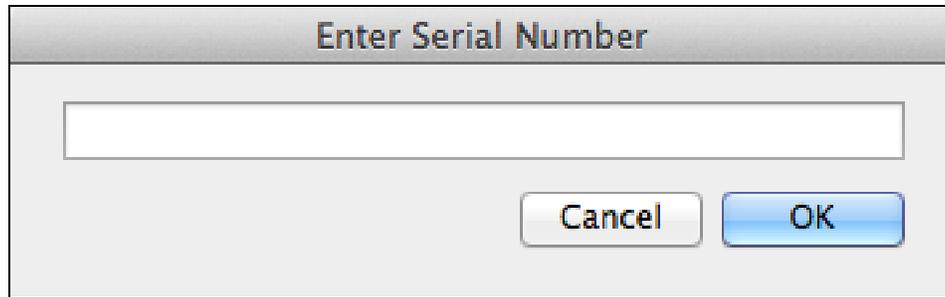
Enter Serial Number for Online Activation

Protection

Most commercial products require some kind of activation process that enables the software to run on a specific computer or fixed number of computers. The license type applied to an application determines if it expires after some time period, runs forever or requires a monthly fee to use the application. License types, features and the activation process will be discussed later, but first we focus on how a Xojo application can be protected with a license using the QuickLicense system.

QuickLicense is a protection and licensing system that can be applied to any kind of software (application, dll, plugin, library, etc), written in any programming environment (Xojo, Xcode, Delphi, Visual Studio, Java, FileMaker, Adobe Air, Unity or MAX MSP) with runtime support on many platforms (Mac, Windows, Linux and Android). This article will specifically focus on Xojo applications that run on Mac, Windows or Linux.

QuickLicense consists of a Mac or Windows application used to define a license and generate a Ticket file plus runtime software that is included with your Xojo application to implement the various license types, features and the activation process.

Use QuickLicense to configure the license restrictions, options, activation system and customer data gathering process. Data for a specific license is stored in a tiny encrypted platform neutral Ticket file. The Ticket file can be used by your Xojo application running on Mac, Windows or Linux and distributed for use on any number of customer computers.

There are two ways to apply a Ticket to a Xojo application:

- **Wrapping Approach**

  QuickLicense includes the AddLicense wrapping tool. Use AddLicense to wrap your unprotected application to output a protected EXE or APP file.

- **API Approach**

   Add some code that calls the QuickLicense runtime software directly to bind your application to a specific Ticket file that defines the license. The QuickLicense runtime file includes over a hundred runtime commands to enable some very sophisticated licensing features, but many applications only use a single command.

Most of the license types, activation processes and license features described in this article are applicable to both the Wrapping and API approach.

The Wrapping approach requires no code changes to your application. Just select your application and the Ticket file. Now click a few buttons to apply the license, assign custom text to runtime dialogs or even embed support files directly into the executable.

For example, a Xojo app on Windows may have an external Libs folder that can be embedded within the EXE. The Ticket and runtime software is built into the application file (APP on Mac or EXE on Windows). The wrapping process is only available for Mac or Windows, so Linux developers must use the API approach.

The API approach is technically more secure and provides full access to the licensing runtime commands. There are several runtime files available including QuickLicenseRuntime.dll and QuickLicenseRT.exe on Windows, QuickLicenseRT delivered as a Carbon or Cocoa application on Mac and the QuickLicenseRT executable on Linux.

QuickLicense includes sample Xojo code to send commands to the runtime for Mac, Windows or Linux. When using the API approach, distribute the Ticket and royalty-free runtime file with your application.

PluginXojoQLRT is the easiest way to call the QuickLicense runtime API from your Mac or Windows Xojo application. Simply drop the plugin into your Xojo Plugins folder and call one function from your code. The function sends a runtime command and returns the response string that tells the application to run normally or quit.

When using PluginXojoQLRT, the activation, validation and licensing features are the handled by the runtime software built into your application. You will still distribute a Ticket file with your application. You will need QuickLicense on either Mac or Windows to build the platform neutral Ticket used on each platform.

License Types

QuickLicense supports many different license types including Trial, Product, Try/Buy and Subscription. Options related to a specific license are defined in the Ticket file. An application can be distributed with multiple Ticket files to several license types.

For the most part, everything related to licensing and activation is a point and click configuration process that requires no programming. Xojo developers can stay focused on the core features provided by their application.

- **Trial License**

  Some vendors provide a free Trial edition of their application that runs for a number of hours, days or executions before it expires. The customer can try it out before committing to a purchase. A Trial license can be configured to auto-activate on first launch or first collect some customer data that is sent to the vendor, then activate to start the Trial period.

- **Product License**

  Once activated with a human or online process described below, a Product license allows the customer to run the software forever on a specific computer.
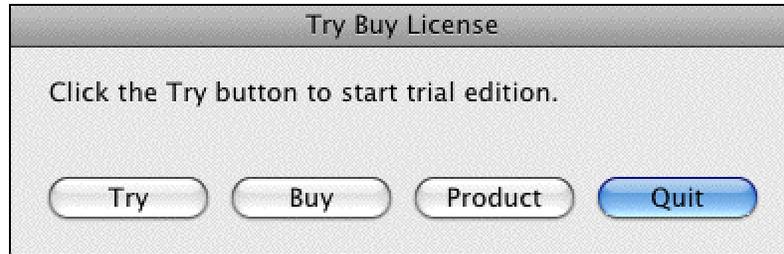
- **Try/Buy License**

  Some vendors combine the Trial and Product license into the same application. This allows the customer to try it for a while, then buy and activate the Product without downloading another application. During development, you will define separate Trial and Product ticket files. To present the Try/Buy dialog shown below, use the AddLicense wrapping tool to reference both Tickets or with the API approach use QuickLicense Pro to reference the Trial ticket from the Product ticket.

- **Subscription License**

  A Subscription license requires a periodic Subscription Code to continue to use the application. The monthly, quarterly or annual Subscription Code can be provided by phone or email and entered by the customer or fully automated with an online activation server as discussed below.

A Try/Buy license combines the Trial and Product license into one application. When launched on a new computer, a Try Buy License dialog is presented. The user can start the process by clicking on the Trial button.

On each application launch, the user will see this dialog. Click the Trial button to continue the Trial process, click the Buy button to present the vendor website in the default web browser or click the Product button to activate the Product license. Once the product is activated, the Try Buy License dialog is never presented.


Try Buy License Dialog Lets Users Try Before Buying

Activation Process

On first launch of a protected application, an activation process activates the license to a specific computer. For a Trial edition, you might choose to have the application activated without user involvement. Most license types will use a manual or online activation process that presents an activation dialog to the user on first application launch.

For a manual process, the Activation dialog shows a Request Number and accepts an Activation Code. The Request Number is unique to that computer and is based on various hardware and software characteristics of the computer at the time of activation. The customer gives the Request Number to the vendor by phone or email and gets back an Activation Code that uniquely activates the license on their computer.
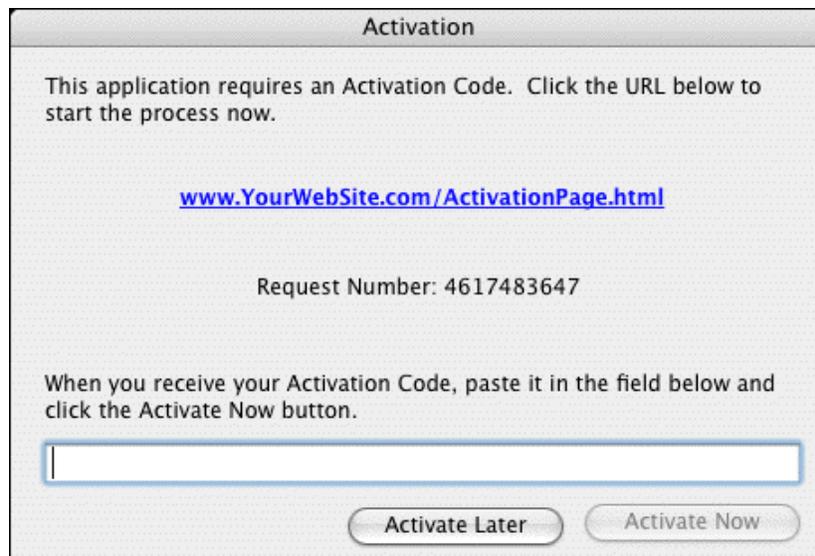
Activation Dialog for a Manual Activation Process

The vendor generates an Activation Code by typing or copying the Request Number into QuickLicense and clicking a button. That code is given to the customer to complete the Activation dialog.

Notice the Activation Page URL shown in the dialog. Some vendors use this optional feature to collect data from the customer including Request Number and Email address in a web page. QuickLicense Pro can generate an automated page for your website that sends the customer data to you in an email message. Now with a few button clicks you can send back a template driven email message to the customer with their Activation Code.

An online activation process uses an activation server on the Internet to instantly activate the license on a customer computer. A Serial Number is given to the customer during the purchase process. On first launch, the Serial Number and other optional data is collected in an Activation dialog and store in the activation server. When the customer clicks Activate Now, the license is immediately activated.
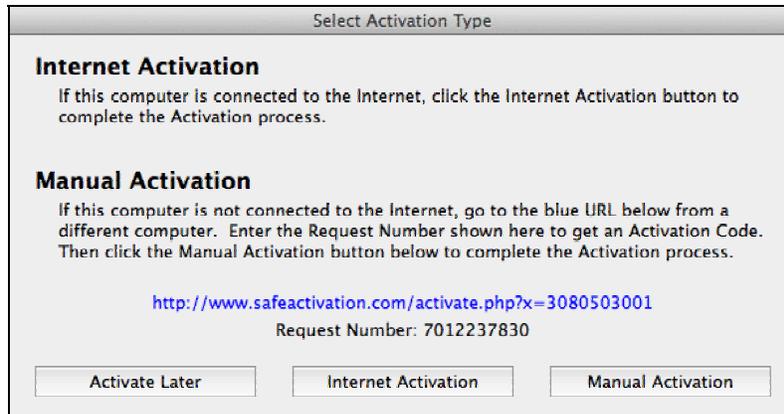
Activation	
Serial Number	80231-10000-86356-50101
First Name	John
Last Name	Smith
Company	Excel Software
Email	info@excelsoftware.com

Activate Later   Activate Now

Custom Dialog for Online Activation with a Serial Number

With an online activation process, the customer can activate an application within minutes of making a purchase. Each Serial Number can grant a specified number of active licenses to an application. Other features in the licensing system can be fully automated without vendor participation such as the ability to securely move an active license from machine to machine or software subscription management.

Most customers have Internet access when purchasing an application, so online activation is quick and easy. When activating a license on a computer without Internet access, a dialog is presented with instructions on how to do a manual activation using an Activation Code retrieved from a web page with another computer or directly from the vendor by phone or email.

User Can Select an Internet or Manual Activation Process

License Features

Imagine that your customer has purchased and activated your product on their computer. A few months from now they might decide to buy a new machine and want to move your application to the new computer. QuickLicense supports Block and Unblock codes that will ensure a license is blocked from running on an old computer before activation is allowed on a new computer.

With a manual activation process, the customer contacts the vendor to exchange Block and Unblock codes when securely moving a license from machine to machine. With an online activation server, that process is fully automated with a few customer button clicks. No extra Xojo programming is required. Just enable that feature when setting up the Ticket and activation server. The vendor may choose to allow an active license to bounce back and forth between computers like a hot potato.

Some vendors allow a 10-day Trial license. It is not uncommon to have a potential customer activate the trial and then leave for a two-week vacation. When they return, the license has expired. QuickLicense can generate an Expiration Code that extends the license to a specific date when entered by the customer into a dialog presented by a special key sequence. Expiration Codes are computer specific and that process can be used any number of times for each license.

QuickLicense has many options to customize the licensing process. A License agreement or other information can be presented in a dialog prior to activation. Information messages like time remaining in a Trial license can be presented on each launch. All text, buttons and titles of licensing dialogs can be customized. If your application supports different human languages like German, Spanish or Japanese, create a custom text file for each language to control all text seen by a customer.

Each Ticket holds a hundred feature flags. If the Xojo application uses the API to bind to a license, those flags can control which features in the application are enabled. Each feature can be enabled with a unique password generated from QuickLicense for a specific computer. Features can also be remotely enabled from an activation server. This makes it easy for the vendor to offer different product options without supporting multiple application builds or extra downloads by the customer.

Multiple applications can share the same license. When one is activated, all are active. The same application can be distributed with multiple licenses such as a Product, Subscription, Student or Teacher license where each may enable different features.

Activation Server

QuickLicense and AppProtect each support three online activation servers.

- Safe Activation
- Desktop License Server
- WebActivation

Safe Activation is an online service where you log into your account with a browser, setup some information for each product that you sell and give each customer a Serial Number to activate your software. Safe Activation is available with different account sizes and features in Service 1, 2 or 3. Service 1 provides basic activation features for each product that you sell, a form that collects customer data during activation and a list of Serial Numbers that each allow X computers to be activated. When activations occur, a customer record is added that stores the customer-entered data.

Service 2 adds licensing features like release, restore, reset and suspend. It also has features to manage a software subscription or remotely enable feature flags in your product license for a specific customer based on Serial Number. Service 3 adds order process automation that is discussed in more detail in the Sales and Order Process section below. There are no setup costs, time commitments or web programming required with Safe Activation. You can grow your account size as needed or cancel the service at any time.

Desktop License Server is a product that runs on your own Linux or Windows website with an Apache or Windows IIS server and PHP support. You will need a Virtual Private Server (VPS) hosting account that allows you to run executables and read and write data files. No web programming is required, but you will need to create folders, copy data files and the executable to the server and set file and folder permissions.

Desktop License Server includes a separate Admin application that runs on a Mac or Windows computer to setup licenses, generate Serial Numbers and manage the activation server. The server is scaleable and priced based on the database size you need. It is somewhat comparable in features to Safe Activation Service 2.

WebActivation is a self-hosted activation server that runs on a Windows IIS server that you manage. It is designed for integration into an existing business system. It offers flexibility and almost unlimited Product and Serial Number capacity but may require some programming effort to achieve the desired customer experience.

Sales and Order Process

There are many questions to ask yourself when it comes to selling software and processing orders that will affect your website, shopping cart, payment process and order fulfillment.

Will you be selling by phone, online, through resellers or affiliates? Will you deliver software on CD with printed manuals shipped to a customer, direct downloads from your website or through some other distribution channel? Will customers pay with a credit card, Paypal account, Net 30 PO, company check or bank wire. Answers to these questions will depend on your specific products, customers and sales volume.

Consider some common scenarios and a cost effective sales and order process to satisfy each scenario.

One Product with Low Volume

For a higher cost, low volume product or your first product with uncertain sales volume, you can reduce startup cost by using a manual activation process. After a customer buys your product, they will contact you by phone or email with a Request Number from their computer. You will phone or email them with the Activation Code generated from QuickLicense or AppProtect.

If your company already processes credit cards with a phone line connected keyboard terminal, you are ready to accept orders by phone. You can also accept purchase orders payable Net 30 by company check or bank wire.

A Paypal Merchant account is a popular way to accept online orders paid with a credit card or from a Paypal account. Simply generate a Buy button from your Paypal account and paste that HTML code snippet into a page on your website. No shopping cart is required if the customer buys just one product per order. The Buy button can have a drop down menu offering 1-computer activation for $X, 2-computer activations for $Y and 5-computer activations for $Z.

When the customer clicks your Buy button, they enter payment details and are sent to a landing page on your website where they can download your protected application. You will receive an email from Paypal indicating the customer name, email address and other order details.

Authorize.Net, Amazon Payments and Google Checkout also offer online merchant accounts to process payments for products purchased from your website with a Buy button. Due to its popularity and for brevity, Paypal will be referenced in this article as the online merchant account. Many of the same features are also supported by other merchant accounts.

One Product with High Volume

Once your product starts selling in volume or you want to automate the customer activation process, the next logical step is to setup an activation server. The activation server stores a pre-generated group of Serial Numbers that you control for each product. When you receive the order data email from your merchant account, simply email the next unused Serial Number to that customer.

There are several ways to automate the order fulfillment process.   An automated order process can be defined in Safe Activation Service 3. That order process will build a custom email message, assign a Serial Number based on the purchased product and send that email message to the customer. This process is fully automated by putting a URL in the Instant Payment Notification field of the PayPal merchant account.

Let us review the customer experience. The customer visits your website and clicks a Buy button for your product. Paypal collects Credit card data. Funds are deposited in your bank account. Paypal posts the order data to Safe Activation that assigns a Serial Numbers and sends the product download link and Serial Number to the customer email address. After purchasing the product, the customer is taken to a landing page on your website. The customer is instructed to download your software and activate with the Serial Number from the Order Summary email message that was sent to them.

There are other ways to process orders and deliver a Serial Number to the customer. Using an online shopping cart like ejunkie.com or an open source shopping cart running on your website, you can copy the list of Serial Numbers from your activation server into the shopping cart. As each order is processed, that Serial Number is removed from the list so it is not given to another customer. You will still need a Paypal merchant account to process credit cards. This process works with Safe Activation, Desktop License Server or WebActivation.

Software Subscription

Some vendors offer their product as a monthly, quarterly or annual service rather than a one-time product purchase. This lowers the entry cost for new customers and encourages long-term relationships between the vendor and customer.

For a Subscription license, an Activation Code is needed on first launch and a unique Subscription Code is needed on first launch of each new subscription period. These codes can be generated with QuickLicense and provided by phone or email to the customer. QuickLicense Pro can store a list of customers and periodically send Subscription Codes in a batch email to active subscribers.

The easiest way to automate a software subscription is to let the activation server do all the work. Simply set the Subscriber checkbox for all new Serial Numbers and clear that checkbox for a specific Serial Number if the subscription is cancelled. The protected product and the activation server will automatically manage the subscription. Safe Activation Service 2 or 3, Desktop License Server or WebActivation can each support this automate process.

Paypal has a nice feature for software subscriptions when used with Safe Activation. Within the merchant account you can create a Subscription button. When purchasing with this button, a reoccurring charge item is added to the buyer's Paypal account.

When Paypal posts the order data to Safe Activation Service 3, an email message with download link and Serial Number is sent to the customer. If the customer later cancels the subscription, Paypal posts that data to Safe Activation to clear the Subscriber checkbox associated with that Serial Number. This fully automated system allows subscriptions to be purchased, maintained or cancelled without vendor participation.

Multiple Products

When selling a single product or even multiple products that are purchased individually, no shopping cart is needed. A simple Buy button can be used to automate the purchase process and email delivery of the Serial Number needed for activation.

If you want to allow several products to be purchased on one order, an online shopping cart is needed. A shopping cart allows the customer to browse your website, add multiple products to the shopping cart and then later checkout to pay for all items with one credit card charge.

There are many online shopping cart services and stores that can be used to present and sell your products. Most charge a monthly fee and some require a separate Paypal merchant account or work with other payment processors. Safe Activation Service 3 includes a default shopping cart that you can use from your website. That shopping cart and checkout process can be embedded within a region of your web page.

Safe Activation has been integrated with payment processors and about a dozen online shopping cart services like Shopify, Ultracart, FastSpring and others to easily complete the order fulfillment process. When an order is processed, data is posted from the online service to the Safe Activation server to assign a Serial Number for each purchased product and email it to the customer.

Resellers and Affiliates

Some vendors sell products through resellers or affiliates. The built in shopping cart in Safe Activation Service 3 and most online shopping cart services provide features for selling to resellers at a discount or through affiliates that receive a commission from you.

A reseller will typically sell products from multiple vendors. The customer buys directly from the reseller using the reseller's online purchase process. The reseller buys your product at a discount. Today, Electronic Download is used to deliver most software. The reseller is essentially buying a Serial Number that they transfer to the customer.

An affiliate is typically a blogger, industry leader or related company that promotes your products for a commission they receive on each sale. Affiliates are usually not in the business of selling software directly to customers. Sales typically occur through your online purchase process, but they may be initiated from a special Buy button that resides on the affiliate website. The purchase process notifies the vendor and the affiliate when an affiliate sale occurs and a commission is due.

Floating License

So far we have discussed licensing an application for use on each computer. That is the most common approach when selling applications to companies, organizations or individual users.

For an educational application used in a school or university or a business application used by a large group of people on the organization's network, a floating license server may be a better solution. A specified number of active licenses can float between computers in the network. A floating license system runs self-contained within the network with no Internet access required.
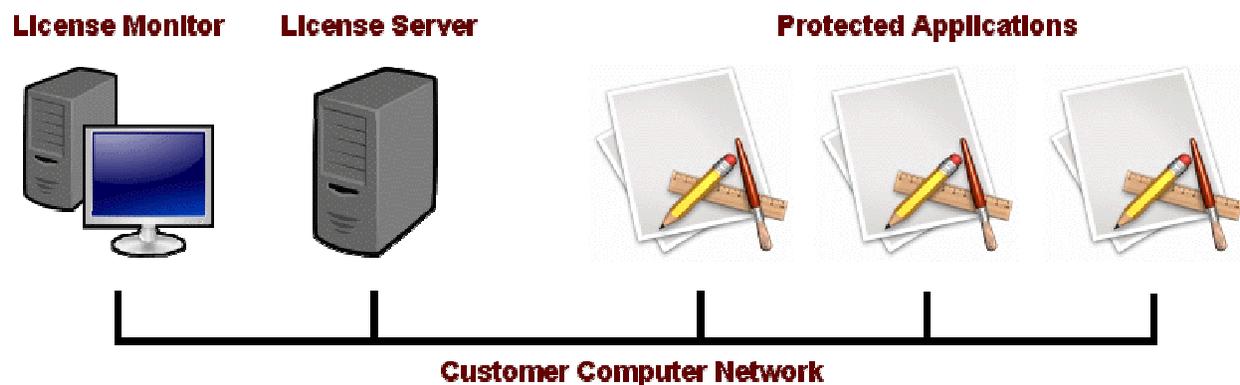
Build a Floating License Server for Your Apps with No Programming Required

There are three parts to a floating license system, the license server, the license monitor and the protected application. The license server runs silently at a fixed IP address on one computer in the network and grants a license to run the application on up to X computers within the network. The license monitor is used to start and stop the license server, monitor the number of active licenses and increase the number of active licenses allowed on the network by entering a code provided by the vendor.

The license monitor is activated on a specific computer to control use of the floating license system within each organization. The application can be freely copied to any computers on the network. The server must grant a temporary license each time the application is used.

Users on the network simply launch your application from any computer. A no license available message is presented if there are too many current users.

A license server running on a Windows computer can serve licenses to applications running on Mac, Windows or Linux. Likewise, the license server or monitor running on a Mac computer can serve licenses to applications on any platform. If the license server is configured to support ten active licenses, the application can run on any mix of ten Mac, Windows or Linux computers.

The protected application is built using QuickLicense and PluginXojoQLRT with a specially configured Ticket file. The license server and monitor applications are generated with QuickLicense Server.

No programming is required to generate the license server and monitor. This point and click development process takes a few minutes to complete and yields a royalty-free floating license system that can be distributed to any number of organizations.

Summary

This article has presented many options to consider for software protection, activation, licensing, sales and order automation. Features and pricing are scaleable starting with a basic product license using AppProtect at $295. Most capabilities discussed will require QuickLicense Standard edition at $595. If you are calling the API directly, you will probably want the Mac and Windows bundle of PluginXojoQLRT at $495.

Here are a few key conclusions:

- The best solution for each product or company involves a unique mix of tools, services and features.

- The same product can often be sold to different customers and markets with different licensing.

- Licensing features are usually accomplished with a configuration process rather than added programming logic.

- The right mix of human effort versus automation during the license and order process depends on many factors.

Demonstration videos are available on the Excel Software website for many of the tools and methods presented in this article. Some videos on topics mentioned include "QuickLicense Intro", "AppProtect" and "Xojo Protection".

www.excelsoftware.com/videos

Excel Software offers a large suite of protection and licensing tools plus associated services for almost any digital product or platform.