

# ADOBE® LICENSE MANAGER

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This white paper provides an overview and a technical description of Adobe License Manager (ALM) for IT professionals, including options for deployment. The paper assumes you are a knowledgeable IT professional or software license administrator.

## Introduction

Adobe License Manager is an embedded e-license management system that enables automated license management, eliminating virtually all of the manual steps required to discover software applications and reconcile inventories with purchased licenses. Introduced with Adobe Acrobat® 8 software for Windows, ALM helps organizations manage Adobe software e-licenses, monitor e-license usage, and track e-license compliance for ALM-enabled Adobe products. It will be integrated into all of Adobe's best-selling desktop applications and suites sold through volume licensing plans as new versions are introduced for both Windows and Macintosh.

An e-license is the electronic representation of your organization's entitlement as an Adobe customer. It is the purchased software license for a specific product under a specific licensing model. Tightly integrated with the overall ordering process and system, ALM focuses on managing the entitlement rather than the application files. It automatically downloads the appropriate e-licenses for software installations and provides reports to help simplify record-keeping for internal controls and government regulations (in countries where companies are required keep compliance records and certified information). The license management process downloads e-licenses to your users' machines without hindering their ability to use the software. ALM lets you manage the complete lifecycle of the Adobe software license electronically for as many licensing seats as your organization has purchased using the method that best fits your organization's needs and IT resources.

ALM also helps organizations administer multiple licenses across an enterprise. You can easily find out how many e-licenses have been downloaded and to which machines. Information provided by an organization's software asset management solution can be augmented by the e-license allocation status provided by ALM.

ALM shields users from the complexities of licensing details. Applications are used the same way as before—e-licenses need only be downloaded once without further need for a live Internet or local area network (LAN) connection. ALM-enabled desktop software can be used for a 30-day grace period without downloading an e-license.

You can choose to manage e-licenses in-house running Adobe License Server Tools on one or more of your own servers, or use the Adobe-hosted service. Your organization can even set up a mixed in-house and Adobe-hosted service. Adobe also offers serial number only hosting, a simplified version of the Adobe-hosted service with all configuration options preset. With the Adobe-hosted service or serial number only hosting, your organization does not have to set up and maintain an in-house server for license management. Users connect directly to Adobe's service over the Internet to download e-licenses anytime during the 30-day grace period.

Many enterprises prefer in-house hosting for greater flexibility when managing licenses. This is also the appropriate choice for organizations in which network access and security policies restrict open access to external sites over the Internet. For organizations that manage e-licenses in-house, Adobe provides the Adobe License Server Tools package, which is free and runs on Windows and Mac OS X.

### The Adobe e-licensing ecosystem

ALM provides a secure ecosystem with a range of choices for managing, downloading, and tracking Adobe e-licenses. It also establishes a metering foundation and the automated processes necessary for electronic license management, enabling Adobe to offer different licensing options over time based on customer needs and market demand.

The ALM ecosystem is a distributed client/server solution with additional administrative and back-end systems. In a typical licensing cycle, shown in Figure 1, purchase orders enter the Adobe Order Management System, which generates the licensing information for the Adobe hosting service or for your in-house Adobe License Server. The ALM client component is embedded in Adobe desktop applications and downloads e-licenses from Adobe's hosting service or your in-house Adobe License Server, based on the administrator's settings.

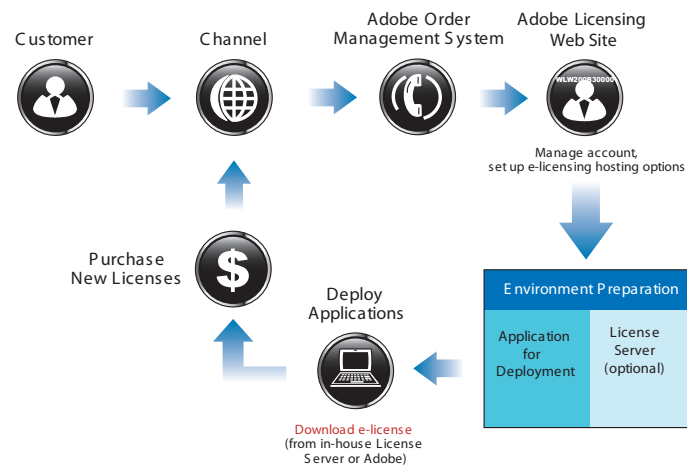


Figure 1. In the typical licensing cycle, ALM keeps track of licenses generated from purchases and downloads e-licenses to ALM-enabled applications. You use Adobe Licensing Web Site to manage accounts and choose hosting and configuration options for your pool of licenses.

### ALM components

Adobe Licensing Web Site (LWS) allows you to choose hosting and configuration options for managing your organization's e-licenses. With the Adobe-hosted option, you also view the status of e-licenses on LWS. If you host e-licenses in-house, you use Adobe License Server Tools to manage your organization's e-licenses. Following are descriptions of these components.

#### Located on the Adobe site

**Adobe Order Management System:** The Adobe Order Management system is part of Adobe's SAP enterprise resource planning system. It keeps track of your organization's orders and invoices, which reflect your organization's entitlement with regard to product licensing. Based on this official entitlement, ALM generates the appropriate number of e-licenses for a particular ALM-enabled application.

**Adobe Licensing Web Site:** Organizations participating in any of the Adobe Open Options volume licensing programs already visit LWS to view order history and retrieve serial numbers. With the introduction of ALM, LWS has been enhanced to help organizations choose license hosting options, manage e-licenses, and view the status of e-license pools.

**ALM Back-End Service:** Integrated with Adobe’s business systems (including Adobe Order Management System and LWS), the ALM Back-End Service generates the e-licenses corresponding to each of your volume licensing purchases. With Adobe-hosted e-licensing, the ALM Back-End Service downloads individual e-licenses to users’ machines. With in-house hosted e-licensing, it downloads batches of e-licenses to the in-house Adobe License Server.

#### Located in-house

**ALM-enabled desktop applications:** Currently embedded in Acrobat 8 for Windows and to be embedded in future versions of best-selling Adobe desktop applications, ALM makes an application license-aware, enabling automatic tracking of e-license downloads to specific machines.

**Adobe License Server Tools (for in-house hosting of the e-license pool):** Adobe License Server Tools is a bundle of applications and utilities for managing e-licenses behind your organization’s firewall. Available for Mac OS X and Windows, it comprises the following components:

- **Adobe License Server:** Adobe License Server is a lightweight background process responsible for serving e-licenses to ALM-enabled products, independent of operating system or hardware platform and licensing model. Your organization can host all of its Adobe e-licenses on a single Adobe License Server or distribute e-licenses among multiple servers.
- **Adobe License Server Charging Utility:** This small application retrieves a batch of e-licenses for your organization’s in-house e-license pool from the ALM Back-End Service hosted at Adobe. When you set up Adobe License Server Tools, you use this utility to “charge” your local license pool with e-licenses corresponding to any new volume licensing purchase. You can also use the Charging Utility to return a batch of e-licenses to the ALM Back-end Service (for example, if you want to transfer some e-licenses to a new Adobe License Server for a different department or division).

The License Server Charging Utility is the only component within Adobe License Server Tools that connects to the ALM Back-End Service. It communicates with the service whenever you download a batch of e-licenses from Adobe or return a batch to Adobe. The Charging Utility does not transmit any information to Adobe about internal e-license pool allocation or use.

- **Adobe License Server Console:** Adobe License Server Console is a web-based administration application for managing an Adobe License Server hosted in-house. Using the console, you can view the status of Adobe License Server and track e-license allocation. It shows the number of e-licenses downloaded to client machines, along with the number remaining on the server. You also can set up custom filters to reserve e-licenses for specific users, machines, or groups and manage settings for alerts—displayed in the console or e-mailed to a specified recipient list. The alerts are sent automatically if the server is down or if specific licensing events occur, such as a low e-license count or no e-licenses available (see “E-license tracking”). All the information captured by the console can be exported for further analysis and integrated with other asset reports.
- **Command line utilities:** Adobe License Server Tools includes a series of command line utilities for administrators to create basic scripts (using batch, shell, or PERL) for controlling Adobe License Server.

### ALM license pool hosting options

ALM offers multiple options for managing the pool of e-licenses. Serial number only hosting at Adobe offers simplicity at the expense of customization, as all parameters are preconfigured. After the application is installed, users will be asked to download an e-license from the pool hosted at Adobe. The ALM Back-End Service lets you customize settings to make the e-license download invisible to users and to include e-license download information in e-license reports. In-house hosting offers customizable settings and more flexibility in hosting and managing the e-license pool.

#### Serial number only hosting at Adobe

This form of hosting requires the least effort to set up and manage. Your organization's e-licenses are hosted at Adobe without a personalized License Setup file. Users simply install the ALM-enabled product using the serial number provided on LWS. The client's machine name is sent to Adobe but is not stored, nor does it appear in the e-license download reports on LWS. Adobe protects your organization's privacy by not transmitting or storing any personally identifiable information.

#### Adobe-hosted licensing with the ALM Back-End Service

Adobe-hosted licensing is an excellent choice if you don't want to set up and maintain a local server for license management but do want to customize the user's experience. Licenses hosted at Adobe are simpler to set up because the client machines connect directly to the ALM Back-End Service to download e-licenses. Users of client machines need Internet access but not access to an organization's LAN (see Figure 2). You control whether Adobe stores the machine name of each client that downloads an e-license; the name appears in the download reports on LWS, making it easy to see which machines have downloaded the e-licenses. To use Adobe-hosted licensing, download the License Setup file from LWS and distribute it along with the ALM-enabled product installation package. End users connect one time to download an e-license; no reconnection or revalidation is required.

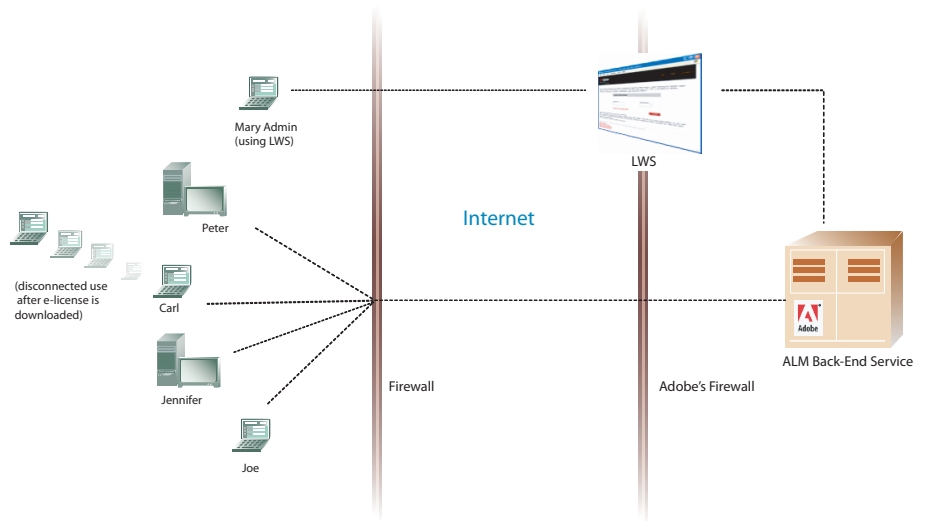


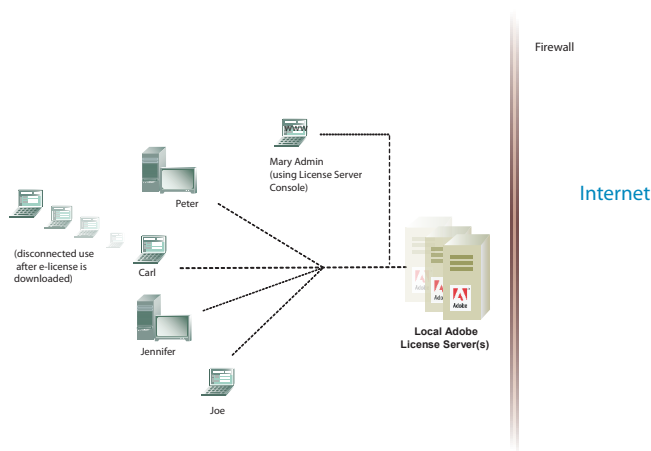
Figure 2. Hosting ALM e-licenses at Adobe using the ALM Back-End Service.

### In-house hosted licensing

In-house hosted licensing is the best choice if you need enhanced capabilities and more control over your organization's IT environment. It is also suitable for organizations with users who have access to the LAN but not to secure Internet sites (see Figure 3). With in-house hosting, your organization manages the e-license pool on one or more internal servers, and client machines download e-licenses from them over the LAN. In-house hosting also provides the most configuration options (see Table 1).

Adobe License Server software is provided as part of Adobe License Server Tools and has minimal hardware requirements (see "Setting up ALM"). All Adobe e-licenses can be served from a single server or distributed among multiple servers to separate the licenses for different products, regions, or groups. You can configure e-license filters on the License Server to either reserve or disallow e-license use for specific users or machines (or groups of either).

To set up in-house hosting, run the License Server Tools installer, charge the server with e-licenses using the Charging Utility, customize the License Setup file with the License Server's host name, and distribute this file along with the ALM-enabled product installation package. In-house hosting uses a client-server topology—client machines using ALM-enabled desktop products communicate via an encrypted TCP socket connection with the in-house License Server. External communication is required only for transferring a batch of e-licenses from Adobe to the in-house License Server after your organization places a new order. The transfer happens via a secured Internet connection (HTTPS) when you use the Charging Utility.



**Figure 3. Hosting ALM e-licenses in-house using Adobe License Server. The Adobe License Server Charging Utility, under control of the administrator, needs to connect to the Adobe Back-End Service over the Internet only to obtain e-licenses after new orders have been placed.**

## Mixed hosting

The mixed hosting option enables organizations to deploy one or more servers to host some e-licenses in-house and to manage the rest with the ALM Back-End Service. For example, a majority of e-licenses could be hosted in-house for users on a LAN at a company's main site, while Adobe-hosted e-licenses could be provided for users at remote locations. When setting up licenses for a new order through LWS, you can specify the number of e-licenses to be hosted in-house and the number to be hosted at Adobe.

Capabilities and requirements	Hosted At Adobe		Hosted in-house	Mixed hosting
	Serial number only	Adobe-hosted licensing		
Need access to the Internet	✓	✓		✓ <sup>1</sup>
Distribute Client License Setup file with ALM-enabled product installer		✓	✓	✓
Include/exclude machine name tracking		✓		✓ <sup>1</sup>
Need access to LAN			✓	✓ <sup>2</sup>
Install an Adobe License Server			✓	✓ <sup>2</sup>
Use e-license filter to control which users may download			✓	✓ <sup>2</sup>
1 For users connecting to the license pool hosted at Adobe only 2 For users connecting to the pool of licenses to be managed in-house				

**Table 1. E-license hosting models: Capabilities and requirements.**

## ALM custom settings

You can customize ALM's behavior in the Adobe desktop application. For example, set up ALM to track the names of machines requesting e-licenses and choose whether the e-license download process is visible or invisible to users. For in-house hosting of the license pool, you can customize ALM settings to indicate the specific machine running Adobe License Server software.

All of the custom settings discussed in this section are included in the Client License Setup file (a simple XML-based file that is edited by the administrator to indicate specific preferences). The file must be included when installing the ALM-enabled application on users' machines (with the exception of serial number only hosting, in which all settings are predefined and a customized Client License Setup file is not necessary).

### Tracking client machine names

With Adobe-hosted e-licensing, you choose whether client machine names are tracked by LWS or not by using the following options (included in the Client License Setup file):

**Send and Record:** ALM sends the name of the machine in the e-license download request, and Adobe saves this information to include in reports.

**Send and Discard:** ALM sends the machine name in the e-license download request, but Adobe does not save this information. This option is useful for changing the machine name tracking option on LWS. For example, you can tell Adobe whether or not to record the name of the machine requesting or returning an e-license without changing the deployed Client License Setup file installed with the application.

**Don't Send:** ALM does not send the machine name in the e-license download request.

By editing the Client License Setup file (see "Setting up ALM"), you can switch between the Send and Don't Send options. You can also change the selection to allow or disallow saving of the machine name by visiting LWS and updating the account profile.

### E-license download options

You control whether or not users see the e-license download dialog boxes by editing the following options in the Client License Setup file (see “Setting up ALM”):

**Verbose:** Users are prompted to download an e-license.

**Silent:** ALM automatically downloads an e-license without displaying a dialog box; however, an error will be displayed if the download fails.

**All Silent:** ALM automatically downloads an e-license every time the application is launched but does not display an error if the download fails. Users only see a dialog box when the 30-day grace period expires.

### Specifying the location of an in-house license pool

When installing and maintaining an in-house Adobe License Server, you specify the location and the specific communications port, if not the default, by editing the Client License Setup file. The ALM-enabled application uses the information in this file to locate the License Server when downloading an e-license.

### E-license tracking

ALM makes it easy to track how many e-licenses have been downloaded and to which client machines. The process of creating and maintaining the list of machines with e-licenses is automatic and provides information to significantly reduce—if not eliminate—the need to manually reconcile licenses with purchase records.

With Adobe-hosted e-licensing, you can visit LWS to view e-license usage. The report provides a history of all e-license download and return transactions and shows the number of licenses allocated and unused in the Adobe-hosted e-license pool. If client machine name tracking is enabled, this information is displayed in the detailed license activities. To help you monitor and manage e-license usage, LWS can provide automatic e-mail notification when the pool is low on e-licenses and when all have been downloaded. You can optionally add up to five more e-mail addresses for notification. LWS sends out four types of alerts: low license count, out of licenses, overdraft license issued, and out of overdraft licenses.

For e-licenses hosted in-house, the usage report on LWS shows the history of licenses downloaded to all in-house license servers. You can use the License Server Console provided with the License Server to view the same alerts provided by LWS. The License Server Console also sends an alert when it detects that the License Server is down; alerts are always sent to the list of specified recipients and never to Adobe. With the License Server Options file you can set up filters to grant or disallow e-license download privileges for specific groups, users, or hosts.

ALM also provides an overdraft capability with all hosting options so that if all e-licenses have been downloaded, you can deploy overdraft e-licenses. These temporary e-licenses allow usage by additional users for up to 120 days, giving an organization extra licenses at a moment's notice. It is important to note, however, that while ALM allows 120 days of overdraft use, you need to verify the specific policy in your Adobe volume licensing contract. Once an overdraft e-license expires, the user must download a permanent e-license for uninterrupted use of the product. The ALM Back-End Service automatically allocates ten percent of overdraft e-licenses with every new order of an ALM-enabled application. For an order with less than ten seats, ALM allocates one overdraft e-license. The maximum number of overdraft licenses per order is 2,500.

### How ALM works

Each time an ALM-enabled application runs, it checks for an e-license on the user's machine. The ALM embedded component verifies that the application has a proper e-license. If no e-license is found, it requests one from the e-license pool, making a one-time connection to either the in-house Adobe License Server or ALM Back-End Service, depending on the chosen hosting option. Once an e-license is downloaded, no further communication with the server is required. The e-license downloaded ranges in size from 3Kb to 20Kb, depending on the ALM-enabled application. The

bandwidth demands for ALM are minimal due to the small size of the e-license and the one-time connection to download it.

If the user does not have access to the license pool or cancels the licensing process when prompted, the product can still be used for a 30-day grace period. Once the grace period expires, the user must download an e-license for uninterrupted use of the product.

### **How ALM-enabled applications communicate**

ALM is based on FLEXnet licensing technology from Macrovision. For more details about FLEXnet, see the appendix, “Background on Macrovision FLEXnet.”

In response to an e-license download request, Adobe License Server or the ALM Back-End Service sends the requester an e-license as signed text. ALM processes this license using FLEXnet libraries and stores it in a secure container on the user’s client machine. Once an e-license has been downloaded, no additional network packages or requests are transmitted.

For Adobe-hosted e-licenses, the ALM-enabled application sends a download request to the Adobe ALM Back-End Service with information about the application and version, a machine identifier generated by ALM, the Adobe Order Management System customer identifier located in the Client License Setup file (described in “Setting up ALM”), and the client’s machine name if you’ve enabled tracking. Adobe uses the machine name only for reporting purposes and does not share the information with any other parties or use it for any other purpose. All requests sent to Adobe from ALM components are transmitted over HTTPS on port 443, using the Secure Sockets Layer protocol (SSL) over HTTP.

For e-licenses hosted in-house, the ALM-enabled application never connects to Adobe—it communicates with the in-house hosted Adobe License Server using the FLEXnet-proprietary TCP-based encrypted socket connection. By default, Adobe License Server uses a port in the range 27000 to 27009 to listen for incoming requests, but you can configure it to use a port of your choice. Adobe License Server does not send any information to Adobe or any other entity on the Internet.

The Adobe License Server Console is a Java™ based web application running on the default port 8888 to listen for incoming requests (this port can also be configured). You can access the console with any standard web browser (Firefox 1.1+ or Microsoft Internet Explorer 6.x on Windows, or Safari 1.2 or later on Mac OS X). The Adobe License Server Console also offers accessibility support, which can be accessed on the console using a specially configured URL. The Adobe License Server Console does not send any information to Adobe or any other entity on the Internet.

Use the License Server Charging Utility to download a batch of e-licenses from Adobe to the in-house license server. The Charging Utility connects to Adobe using HTTPS on port 443 and sends the download request indicating the product name, version, and quantity of e-licenses requested. In addition, the e-license request includes the Adobe customer identifier, machine identifier and name, operating system, and version that will be included in reports you can obtain on LWS. Adobe does not share this information with any third party or use it for any sales or marketing purposes.

### **Setting up ALM**

As your organization purchases ALM-enabled applications, you use LWS to view order history, manage e-licenses, download setup files, and set up how your organization wants to host the license pool for a specific recent order—serial number only (at Adobe), Adobe hosted, in-house hosted, or mixed.

### **Client License Setup file**

Each time you set up an e-license hosting method on LWS for a new order, the site prompts you to download the corresponding personalized Client License Setup file to distribute to users with the ALM-enabled application installation package. If you choose serial number only hosting, there is no Client License Setup file. Only a serial number is required, so serial numbers should be distributed with care.

The Client License Setup file, copied to the client machine along with the ALM-enabled application, tells the application where to find the license pool for downloading the e-license. It keeps the application binary image intact and separate from the licensing information and the location of the license server. As a result, you can set up different methods of managing e-license pools independent of the application binary image.

If you order more licenses for the same version of an application and select the same hosting method, the setup file is identical to the one previously customized and downloaded, so you don't have to download it again or alter your application installation image.

### **Setting up Adobe License Server Tools in-house**

As indicated in the "ALM license pool hosting options" section, the License Server Tools installer includes Adobe License Server, Adobe License Server Console, and Adobe License Server Charging Utility. For Windows systems, the License Server and License Server Console are installed as services that start automatically. For Mac OS X, the License Server Console runs as a service at startup, and the License Server can be started through the console.

Corresponding to a specific volume licensing order, you receive a Server License Setup file similar to the Client License Setup file. Using the License Server Charging Utility, you select the Server License Setup file, which includes a digitally signed list of products licensed in the order along with the Adobe customer identifier. The Charging Utility uses this information when sending a download request to Adobe for a batch of e-licenses for the purchased applications. This process simplifies the overall operation of transferring e-licenses from the vendor to the customer.

ALM and the License Server Charging Utility support the use of network proxies. For Windows, the Internet Explorer proxy settings are used. For Mac OS X, ALM components use the operating system proxy settings configured through the network system preferences.

### **Support for international standards**

The International Organization for Standardization ([www.iso.org](http://www.iso.org)) introduced a standard for Software Asset Management (SAM) processes and best practices in May 2006. The standard (ISO/IEC 19770-1: 2006) describes the process, inputs, and outputs for organizations to implement sound SAM practices. However, ISO 19770-1 does not provide any specifications for independent software and tool vendors to improve fundamental processes such as discovery and inventory for software assets.

Since the introduction of the process-based standard, Adobe has been working with other leading ISVs, tool vendors, and industry organizations such as the International Business Software Management Association (IBSMA) to define a universal software tag for identifying and managing software assets. The new ISO 19770-2 standard is expected to be completed over the next three to five years per the ISO process.

Adobe is committed to open industry standards and will augment the ALM solution as such standards are fully defined and implemented.

### **Future directions**

The Adobe License Manager solution will be incorporated into new versions of all of Adobe's best-selling desktop applications and suites starting in late 2006. By the end of 2007, IT and systems administrators will be able to manage licenses electronically for most Adobe desktop applications. Plans to incorporate ALM into the rest of the desktop and nondesktop products will be announced as they are completed.

Similarly, Adobe will monitor overall market reactions and the need to support Adobe License Server Tools on platforms other than the initial versions of Windows and Mac OS X.

After the initial shipment of the ALM solution in late 2006, Adobe plans a number of enhancements over time including:

- **Enhanced automation and default settings:** These settings will enable administrators and procurement managers to assign default settings for their organization's choice of e-license hosting method and automatic e-mail alerts.
- **Enhanced support for multiserver in-house deployments:** Adobe will provide added flexibility for administrators to establish a list or a chain of authorized in-house servers for downloading e-licenses.
- **Increased support for complex corporate infrastructures:** Adobe will provide integration with other corporate infrastructure components, such as domain controllers and LDAP directories, to allow improved e-license filtering support via the License Server Console and additional capabilities.
- **Simplified recovery of e-licenses:** Adobe will simplify the recovery of stolen e-licenses or e-licenses lost due to fatal system or disk errors.
- **Enhanced convenience and usability:** Adobe will provide additional administration capabilities in both LWS and the License Server Console and improve integration with the License Server Charging Utility.
- **Scripting support:** You will be able to automatically export e-license download reports for inclusion in other corporate reports and/or asset databases.

Adobe welcomes customer feedback to make ALM a better solution for IT organizations, systems administrators, procurement managers, and end users.

## **Appendix: Background on Macrovision FLEXnet**

ALM is based on Macrovision's FLEXnet electronic licensing technology. The prior version of FLEXnet, FLEXlm, has been the leading product in concurrent (floating) license management for over 15 years. FLEXlm is commonly found in CAD/CAM (Computer Aided Design and Computer Aided Manufacturing) applications as well as Product Life Cycle (PLC) solutions. Over the years FLEXlm has proved to be a robust technology, scalable to millions of licensing transactions per year. The newest release as of this writing—FLEXnet version 11—incorporates increased security, management simplifications, and extensive support for mainstream models such as per-seat (permanent) and term-based licensing.

Macrovision has independently conducted a third-party security review of its FLEXnet solution. Because of the limited information transmitted between components, FLEXnet does not introduce any vulnerability that could be exploited by a virus or other malicious code attacks.

ALM uses FLEXnet version 11 as the core technology in Adobe's solution for retail activation as well as electronic license management for customers purchasing licenses through one or more of the Adobe Open Options volume licensing programs.

### **More information**

For more details about e-licensing for Adobe products, visit [www.adobe.com/licensing](http://www.adobe.com/licensing).

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