

# Adobe® Flash® Media Rights Management Server

Generate new revenue and reach new audiences with a cross-platform, end-to-end content protection and distribution solution

## Table of contents

- 1 Adobe Flash Media Rights Management Server overview
- 3 Reach new audiences and generate new revenue
- 6 Flash Media Rights Management Server technology overview
- 8 Deploying Flash Media Rights Management Server
- 9 Summary

Delivery of entertainment over the Internet is growing rapidly. With a click of the mouse, consumers can watch concerts, movies, television shows, and made-for-Internet video. Meanwhile, content creators and copyright owners—movie studios, broadcast television networks, cable and satellite TV operators, and creative houses—need to make sure content is not misused or altered. Distributors and service providers must demonstrate that they can maintain the integrity and security of the content entrusted to them, while also creating an engaging user experience. Content producers and distributors share a common goal: to maximize potential revenue by expanding their reach and market share using new distribution channels and by creating new business models that differentiate them from the competition.

Adobe Flash Media Rights Management Server software offers content producers and distributors exciting new ways to monetize their media assets while protecting those assets from misuse.

## Adobe Flash Media Rights Management Server overview

Flash Media Rights Management Server lets content producers and distributors control how and where their content can be distributed and experienced, providing end-to-end protection throughout the content lifecycle. It encrypts Flash Video or H.264 (FLV or F4V) video files that are streamed or downloaded to a Mac or Windows® platform and enforces usage permissions to support business models such as online rental or advertising-funded viewing. End users can enjoy high-quality downloaded content at their convenience, whether they are online or offline. Flash Media Rights Management Server offers key advantages that content producers and distributors can use to quickly deliver new services that differentiate them from the competition.

## Unprecedented reach

Most content protection solutions available today are limited to certain platforms or devices, which either restricts the market for content distributors or requires costly duplication of infrastructure. Flash Media Rights Management Server works with client applications based on the Adobe AIR™ runtime—including Adobe Media Player software—to deliver more secure, custom experiences on Mac or Windows systems.

### **Persistent content protection**

Adobe has a long history of providing proven content protection solutions to enterprises, government, and online content providers. Adobe is a leader in using public key encryption (PKI), digital signatures, and flexible rights management capabilities to control text, graphics, and streaming video and audio. Flash Media Rights Management Server enables more secure distribution of FLV and F4V files to consumers, partners, and employees. Content is protected throughout the distribution chain, enabling video to be hosted more securely on a content distribution network (CDN). Cached and downloaded content is stored in an encrypted form on the client, and usage permissions are enforced to support differentiated business models.

### **Flexible, dynamic rights management**

Usage permissions or rights enable business models that would not be possible with unprotected content. For instance, a content distributor can use Flash Media Rights Management Server to:

- Enforce time constraints on content for rental models
- Require playback of digitally signed playlists to support advertising-funded models
- Bind content to a user account or group of users in “download-to-own” scenarios

### **Systems integration**

Flash Media Rights Management Server is designed to integrate with the existing infrastructure, such as content management systems. Content distributors can leverage their existing order management and user access control systems to quickly develop new services that will generate new revenue from their existing customer bases.

### **Adobe AIR**

Adobe AIR is a cross-operating system runtime that allows content producers to extend their existing investments in the web to the desktop by designing customized multimedia applications. Built on proven, open technologies, it provides a reliable, simplified way for businesses to develop and deploy custom applications that can be trusted to deliver a more secure, enjoyable user experience. Adobe AIR allows businesses to easily integrate rich media to create a more immersive and interactive user experience. It lets developers use familiar tools such as HTML, JavaScript, Flash, Adobe Flex® software, or PDF to deploy their unique combination of rich Internet applications to either Windows or Mac desktops. Businesses have complete control of the user interface, and they can design a user experience to reflect and reinforce their brand. With built-in support for playback of content protected with Flash Media Rights Management Server, Adobe AIR helps create custom, end-to-end content distribution chains. Adobe Media Player runs on Adobe AIR. For more information on Adobe AIR, visit [www.adobe.com/go/air](http://www.adobe.com/go/air).

### **Adobe Media Player**

Adobe Media Player is a next-generation desktop media player and management application. Based on Adobe AIR, it provides high-quality playback of streamed, downloaded, or locally stored video content, including feature films and TV shows. For content publishers, Adobe Media Player provides the means to customize the playback screens surrounding content, allowing deeper branding experiences and monetization through advertising using banners, overlays, and Flash hot spots. For end users, Adobe Media Player presents an intuitive and visually appealing way to find, view, and manage video content. In conjunction with Flash Media Rights Management Server, Adobe Media Player enables subscription models for premium video content; content can be automatically downloaded for future playback. Adobe Media Player also integrates with Adobe Flash Media Server products for more secure streaming. For more information or to download Adobe Media Player, visit [www.adobe.com/go/amp](http://www.adobe.com/go/amp).

### **Reach new audiences and generate new revenue**

Flash Media Rights Management Server—together with Adobe Media Player or Adobe AIR—gives content producers and distributors the features and flexibility to effectively monetize their digital content. Flash Media Rights Management Server can tightly associate content with branding and advertisements for advertising-supported business models. Content distributors can also support rental and “download-to-own” models. In addition, developers can build custom applications on the Adobe AIR platform that incorporate downloaded video as part of a rich Internet media experience.

Flash Media Rights Management Server is also ideal for enterprises that want to control the distribution of training videos or corporate broadcasts. Finally, service providers can use Flash Media Rights Management Server to offer a hosted service to several different content producers and distributors, such as online movie stores and broadcasters.

The following application examples highlight the features and flexibility of Flash Media Rights Management Server.

#### **Application example 1: Flash Media Rights Management Server delivers advertising-supported content more securely**

In this example, CBS decides to launch another distribution option for their popular television show *CSI*. Fans of the show can already watch the show via streaming video clips from the CBS.com website. Now, CBS wants to give viewers the opportunity to watch episodes in high-quality video, in their entirety, whether they are online or not. CBS also wants to be able to sell new advertising strictly for its Internet distribution.

Flash Media Rights Management Server lets CBS’s Internet distribution arm easily and more securely manage their content, while providing a new, lucrative way to provide quality entertainment to CBS viewers. Flash Media Rights Management Server bundles advertisements and content so advertisements are always displayed, and it includes security controls that prevent tampering. Advertising can be inserted as pre-, post- or in-roll; alternatively, the client application can display banners or video overlays that appear during the show (see Figure 1). CBS can also use a video overlay or a static network logo or banner to promote their own brand or other programs. Flash Media Rights Management Server protects the enhanced playlist of both the show and the embedded branding and advertising, and it encrypts the show for more secure distribution. Advertisers can rest assured that their commercials will be delivered with the show. With a client application developed on Adobe AIR, CBS can track how many times episodes have been viewed, so advertisement charges can be accrued on a per-view basis.

Viewers add their favorite shows to a season’s pass at the CBS.com website. Each episode automatically downloads to the client application on their desktops, and they can view it at their convenience. CBS can change the advertising without repackaging and reencrypting the episodes, so viewers always see the latest advertising. For example, a viewer who downloads an episode several weeks old can still see the latest commercials.

Flash Media Rights Management Server gives CBS the flexibility to assign availability windows to episodes, even after they are downloaded to the viewer’s desktop. For example, they can make the entire season available until the start of the show’s next season. Or they can make episodes available for only a certain amount of time after they air on TV, after which time the downloaded episode will no longer play. Conversely, if viewers are given a two-day license to watch an episode and they want to watch it again before the end of the availability window, CBS can grant them a new license to watch the episode again.

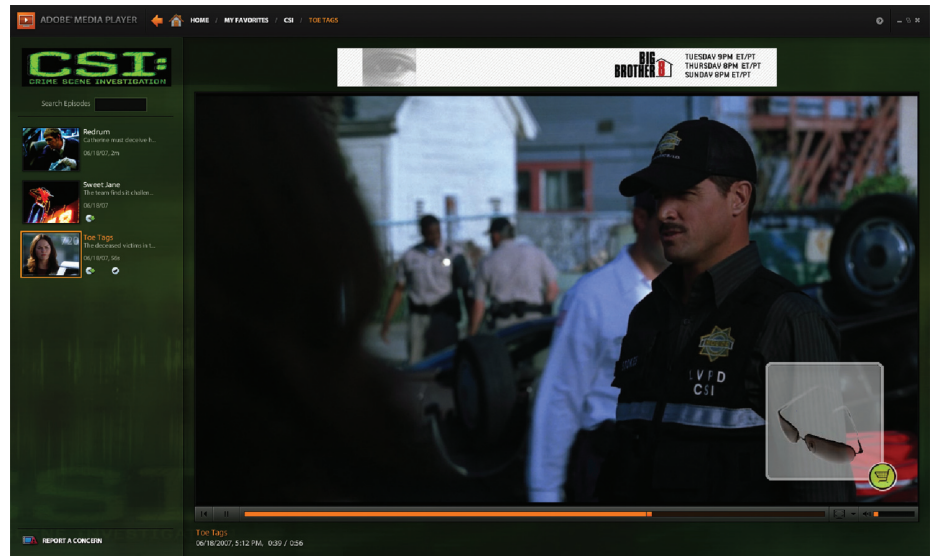


Figure 1. Adobe Media Player shows protected, high-quality video.

### Application example 2: Flash Media Rights Management Server allows authenticated customers to rent movies over the Internet

In this example, an online retailer is licensed to distribute movies over the Internet for a major studio. Flash Media Rights Management Server is the perfect choice, as it allows retailers to monetize content using their preferred business model, while controlling who can view which movie and for how long. Authenticated customers can stream or download movies to their desktops, while the retailer is able to set and enforce usage rights.

With Flash Media Rights Management Server, the retailer can offer a monthly subscription or charge on a per-movie basis. It can specify the number of days for which the rental is valid or assign an expiration date, after which the downloaded movie will no longer play. It can give subscribers a time window to watch a movie once or as many times as they want. For example, the retailer can grant a movie license to customers for 30 days, but once customers start watching the movie they only have two days to finish. The retailer can require customers to log in to its website each time they want to watch the movie, or grant them a license immediately, so they can view the movie when they are offline. It even has the flexibility to extend or “top-up” the rental period if a customer requests it.

Flash Media Rights Management Server integrates with the retailer’s existing user ID and order management systems, so existing customers do not need to create a new account with a new username, password, and credit card information. They can simply download the client application, such as Adobe Media Player, to their Mac or Windows desktops. Once customers have been authenticated, they can instantly watch movies or download them for later viewing during the rental period.

Flash Media Rights Management Server protects video assets throughout the distribution chain. All movies are encrypted, and only customers who have been authorized for a particular movie can play it. This limits misuse and piracy, since redistributing the movie file itself will not allow other viewers to watch it without the proper authorization.

### Application example 3: Flash Media Rights Management Server and Adobe AIR distribute video more securely as part of a rich media experience

In this example, a popular sports television network wants to extend its brand by offering personalized content to customers. Adobe AIR is the perfect platform on which to build a branded, customized, lightweight application that can deliver rich Internet media from its

website to customers' Windows and Mac desktops. Flash Media Rights Management Server lets the sports network extend its brand while protecting its high-quality video content from being misused or repurposed.

Adobe AIR makes it fast and simple to build custom desktop applications. The network can apply the same technologies used in its sports website to deliver text, chat, interactive games, audio and video streaming, and video downloads to subscribers' desktops. Subscribers get personalized content on their favorite teams, players, and sports delivered right to their desktops, without having to sift through all the sports news. They can keep track of the latest sports scores, chat with other subscribers, build their fantasy team, view highlights from last night's game, and watch sports programs in their entirety. The result is a more responsive, engaging rich media experience. Using Adobe AIR as the runtime environment assures that downloaded content is protected from misuse, even when the subscriber is offline.

**Application example 4: Flash Media Rights Management Server enables training and communications for distributed enterprises**

In distributed organizations, video broadcasts are an efficient and cost-effective tool for training or issuing important corporate announcements, as they reduce or eliminate the time and expense associated with travel. Many enterprises are already familiar with the benefits of using Adobe LiveCycle® Rights Management ES software to protect and track their documents as they move through the organization. Flash Media Rights Management Server extends content protection and distribution in the enterprise to high-quality video. With Flash Media Rights Management Server, employers can leverage the same access control solution they use for other corporate applications. Employees can enter their usernames and passwords, download a training video or corporate announcement, and play the video segments at their convenience.

Flash Media Rights Management Server also allows enterprises to specify who gets what content and when they can view it. Organizations can verify that all employees get important messages, since they can track through an external authorizer who views content. They can also limit messages to certain individuals or groups, as well as schedule more timely communications to expire at a certain date or after a few viewings. With the video encrypted, only authorized end users with a valid copy of a client application, a username, and a password can access the video, helping to ensure that corporate communications do not end up on the Internet.

**Application example 5: Flash Media Rights Management Server permits service providers to deploy hosted offerings**

Service providers can use Flash Media Rights Management Server to offer more secure, customized hosted services to online retailers, networks, and broadcasters. In this example, a service provider offers a hosted service to a U.S.-based online movie retailer, an English language broadcaster in Japan, and a European television network. Each of these three customers has different users, business models, and policies for their content. Each only accepts end-user customers within their geographic areas. The movie retailer rents movies, the Japanese broadcaster allows online anonymous access to any viewer in Japan, and the European television network requires their clients to register for premium content. With Flash Media Rights Management Server, the service provider can create different policies and different authentication and authorization handlers for each customer. It can customize client applications to reflect each customer's branding and usage rights. The time differences between these customers allow the service provider to share the same infrastructure among the three of them, including the Flash Media Rights Management Server cluster. Flash Media Rights Management Server also includes tools that let service providers automate the policy creation and packaging process and integrate it with their existing content management workflow process.

## Flash Media Rights Management Server technology overview

Flash Media Rights Management Server software consists of three major components: Rights Manager, Media Packager, and Adobe Media Orchestration Documents (AMOD) Signer (see Figure 2). Administrators access these components via command-line interfaces (CLIs) or Java™ APIs. In addition, Flash Media Rights Management Server contains a service provider interface (SPI) that lets content producers leverage existing user authentication and authorization mechanisms.

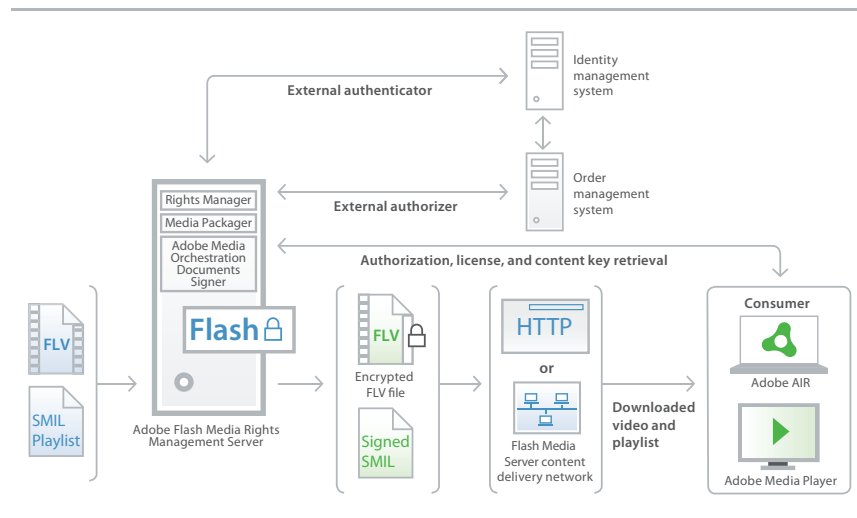


Figure 2. Flash Media Rights Management Server solution architecture overview.

### Rights Manager

The Rights Manager lets administrators create, list, view, and update content protection policies. Policies specify rights for media content, and several pieces of content may share the same policy. Administrators must create at least one policy to package content. Once created, policies are stored in the server; a copy travels with the content. The Rights Manager stores encryption keys in a relational database.

Administrators can specify the following content protection features in each policy, which is then assigned to content or groups of content:

- Start and end date for the policy
- Number of days the policy is valid
- Number of days the license is valid after the user downloads and authenticates the content
- Number of days the license is valid after the user begins watching the content
- Whether the license can be renewed or “topped up”
- Client applications and versions that can access content (for example, users must have a certain custom Adobe AIR application or a certain version of Adobe Media Player)
- Authentication domains against which users must be checked
- Anonymous access allowed or denied
- Offline user access to content allowed or denied
- Name of the external authorization service attached to the policy

Administrators can change or update these policies at any time, and the updated content protection policy is associated with the content immediately and automatically. For example, in application example 1, CBS may decide to extend the number of days a *CSI* episode is available for viewing

from one week to two weeks. Viewers who download episodes after the policy change will have two weeks to watch them, and existing viewers will have their policies updated when their client application next connects to the CBS website.

In the same example, the Rights Manager has a role to play if the content protection is cracked by a hacker. Once CBS has obtained an updated version of their client application that fixes the problem, they can change their content protection policy to require all viewers to download the updated client application before they view another episode.

### **Media Packager**

The Media Packager protects content encoded with Sorenson, VP6, or H.264 and associates a particular content protection policy with it. The packager embeds the policy in the FLV/F4V file and encrypts the file using a content encryption key. Each piece of content has a unique encryption key.

Once the video file is encrypted via the Media Packager, it does not need to be touched again, even if the content protection policy or associated advertising changes. In application example 2, for example, the content protection policy or the trailers for a movie can be changed at any time via the Rights Manager, while the movie itself remains encrypted. Content producers can maintain strict control over their valuable digital content.

### **AMOD Signer**

Playlists give content providers greater flexibility and control over how their video content is presented to end users. Playlists typically contain video content, along with advertisements that can be video, animation, or images. Advertisements can change over the lifetime of the playlist.

The AMOD Signer takes a Synchronized Multimedia Integration Language (SMIL) playlist and digitally signs it to promote the integrity and authenticity of the downloaded content. It helps ensure that the entire contents of the playlist, including encrypted video content and advertisements, remain associated. This prevents malicious users from stripping advertisements from the digital content or changing the advertisements that play with the video. The AMOD Signer gives advertisers peace of mind, knowing that their content will be viewed as part of the file. It also helps ensure that consumers view only authentic and protected content.

Adobe issues a unique credential to every content owner/distributor that needs to create playlists.

### **Flash Media Rights Management Server SPI**

The Flash Media Rights Management Server SPI lets content distributors leverage their existing implementations for user authentication and authorization, including Lightweight Directory Access Protocol (LDAP) and Microsoft Active Directory. For example, FLV/F4V file access can be controlled by the same mechanism as that used by an order management system. With the Flash Media Rights Management Server SPI, developers can create an external authorization handler that grants a user a voucher for the FLV/F4V file only if the order management system indicates that the user has paid for access to the content.

For services requiring user authentication, the SPI sends a user's username, password, IP address, and any configuration information to the authentication provider, which returns the result. Based on this information, the Flash Media Rights Management Server SPI either lets the user log in or denies the user access to the service.

The Flash Media Rights Management Server SPI and the Rights Manager work together to control access and enforce policies for downloaded media. In application example 4, for example, the external authorization system can monitor the number of times a license for a corporate announcement is issued to the same employee (that is, how many times it is downloaded). The content protection policy can specify that if any license is downloaded more than three times, the license expires, and the employee can no longer access the content, even if several copies are already resident on the employee's desktop.

For more information on custom authentication and authorization service providers, visit [www.adobe.com/go/fmrms](http://www.adobe.com/go/fmrms).

## Administration Console

The Administration Console is a web-based portal used by IT administrators to deploy, configure, and manage Flash Media Rights Management Server and to configure its users, groups, and their associated permissions. Communication from the web-based Administration Console is encrypted via Secure Sockets Layer (SSL).

## Deploying Flash Media Rights Management Server

Flash Media Rights Management Server is based on the same software stream as that of LiveCycle Rights Management ES, a component of Adobe LiveCycle ES (Enterprise Suite) software. LiveCycle ES is a proven, integrated J2EE server solution that helps create and deliver rich and engaging applications that reduce paperwork, accelerate decision-making, and help ensure regulatory compliance. Flash Media Rights Management Server integrates with existing IT infrastructures through Java APIs and support for web services. It requires a Windows Server® 2003 or Red Hat® Enterprise Linux® ES 4 operating system and installs on a WebLogic J2EE or JBoss application server. An Oracle, Microsoft SQL Server, or MySQL database stores encryption keys and access control lists.

Like LiveCycle ES, Flash Media Rights Management Server can grow as a service grows by running across multiple application servers in a J2EE cluster. There are no geographic limitations on or minimum bandwidth requirements for communication between Adobe AIR clients and Flash Media Rights Management Server. Content is downloaded to AIR clients via HTTP before playback, and content protection communications between client and server are small and stateless. Content can also be streamed to AIR clients from Flash Media Server. For more information on deploying and scaling Flash Media Rights Management Server, refer to the Adobe LiveCycle ES documentation at [www.adobe.com/support/documentation/en/livecycle](http://www.adobe.com/support/documentation/en/livecycle).

Flash Media Rights Management Server components can be installed in different physical locations and even be administered by separate teams. This is particularly useful for business partners that work together to produce and distribute media. For example, imagine a movie studio that works with an advertising agency and a service provider to securely distribute their movies over the Internet. The movie studio limits access to unprotected copies of its movies to very few people in its own organization and maintains strict physical security. An employee in a secure facility encrypts the movies using the Media Packager (see Figure 3) and sends them to the service provider's distribution arm.

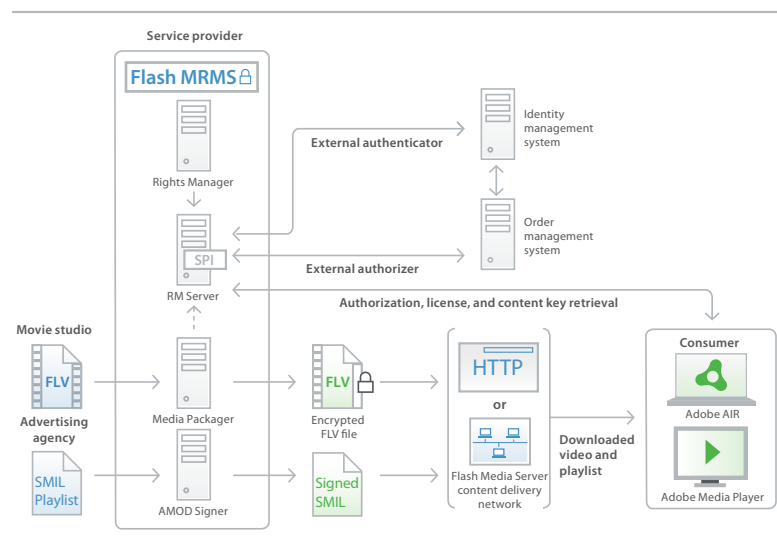


Figure 3. Three business partners use Flash Media Rights Management Server at their locations to package, encrypt, distribute, and control access to movies over the Internet.

### Service Provider

Using the Rights Manager, the service provider sets the policies for movie access and integrates them with its order management and user authentication processes using the Flash Media Rights Management Server SPI. Meanwhile, the advertising agency uses Adobe Media Player to compile a list of advertisements that will be shown before the movie, as well as any studio branding that will appear on the video itself. The agency then digitally signs the playlist, which includes the content identification for the movie. This helps ensure that the movie cannot play without the rest of the playlist.

### Adobe Flash Media Server

Flash Media Server is a scalable, real-time media server that delivers video and audio streams in an efficient, reliable manner. It is ideal for video on demand, live video, streaming music, video blogging, video messaging, multimedia chat environments, real-time datacasting, multiuser gaming, and more. Flash Media Server 3 now supports content protection and a host of other features. For more information on Flash Media Server, visit [www.adobe.com/go/fms](http://www.adobe.com/go/fms).

### Summary

In this digital age, content producers want to take advantage of the new channel opportunities and lower cost of goods promised by Internet distribution. To maximize revenue and protect their brand, their content must be adequately protected from unauthorized viewing or tampering. Flash Media Rights Management Server lets retailers and service providers protect and control access to their valuable content with branded rich media applications that help generate new revenue or reach new audiences. It gives retailers the flexibility, reach, and embedded tools to develop innovative business models quickly. With clients built on Adobe AIR, consumers can enjoy access to more quality online media through an intuitive, convenient, and engaging interface.



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