

Adobe® Flash® Media Rights Management Server

Generate new revenue or reach new audiences with a secure, flexible media content protection and distribution solution

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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, creators and owners of digital content—movie studios, broadcast television, independent stations, and creative houses—need to make sure it is not stolen 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. Both 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 distribute, differentiate, and generate revenue from their media assets—without risking the security or integrity of those assets.

Introducing Adobe Flash Media Rights Management Server

Flash Media Rights Management Server lets content owners and distributors control how and where their content can be distributed and experienced, even after it has been downloaded. It encrypts FLV/F4V files that are downloaded onto a Mac and/or Windows® platform and sets policies for their access. Together with a client, Flash Media Rights Management Server enables users to download video content and enjoy it at their convenience, whether they are online or offline. Flash Media Rights Management Server also offers key advantages that content owners 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 solutions. The two client options for Flash Media Rights Management Server—Adobe Media Player and Adobe AIR™—allow users to download media content to either their 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. Now with Flash Media Rights Management Server, businesses can securely distribute FLV and F4V files that are downloaded and played back on desktops.

Flexible dynamic rights management

What happens to media after it has been distributed is a key concern for content owners. Flash Media Rights Management Server is based on the same platform as that of Adobe LiveCycle® Rights Management ES software, a proven solution that thousands of enterprises rely on to protect and manage their documents. Flash Media Rights Management Server allows content owners to keep track of media content and to change its usage rights, even after it has been downloaded and viewed.

Easy system integration

Flash Media Rights Management Server is designed to work smoothly with existing standard access protocols, as well as all custom portal management environments. 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 Media Player

Adobe Media Player software is a next-generation desktop media player and management application. Based on Adobe's FLV platform, it provides high-quality video playback of streamed, downloaded, or locally stored Internet TV shows and video podcasts. 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 users, Adobe Media Player presents an organized, intuitive, and visually appealing way to find, view, and manage video content. In conjunction with Flash Media Rights Management Server, Adobe Media Player lets users subscribe to video content and then downloads it automatically for future playback. Adobe Media Player is the client for Adobe Flash Media Server products and Flash Media Rights Management Server. For more information or to download Adobe Media Player, visit www.adobe.com/go/amp.

Adobe AIR

Adobe AIR is a new cross-operating system runtime that allows content owners 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 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®, or PDF to deploy their unique combination of rich Internet applications to either Windows or Mac desktops. It also provides businesses with complete control of the user interface. Adobe Media Player runs on Adobe AIR. For more information on Adobe AIR, visit www.adobe.com/go/air.

Reach new audiences or generate new revenue

Flash Media Rights Management Server—together with Adobe Media Player or Adobe AIR—gives content owners and distributors the features and flexibility to develop new business models that produce new revenue streams or audiences for their digital content. Flash Media Rights Management Server can tightly associate content with branding and advertisements for advertising-supported business models. Or owners and distributors can license digital assets to users or groups of users. Another option is a custom application—developed on the Adobe AIR platform—that incorporates downloaded video as part of a rich Internet media experience. Finally, enterprises that already enjoy the security of Adobe LiveCycle Rights Management ES can extend that security to downloaded video broadcasts.

Application example: Flash Media Rights Management Server delivers advertising-supported content securely

In this example, CBS decides to launch another distribution option for their popular television show *CSI*. Users can already watch the show via streaming video clips from the CBS.com website. But CBS wants to give users the opportunity to watch shows 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 with content. It also contains security controls that prevent tampering.

Advertisers can advertise via a traditional commercial block within the program, or program sponsors can choose 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 brand their content. 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. Downstream service providers, for example, in other network jurisdictions, may be allowed to change the advertising referenced in the playlist, but they cannot change the show. Nor can they remove commercials entirely. Advertisers can rest assured that their commercials will be delivered with the show. With Adobe Media Player, CBS can track how many times content has been viewed, so advertisement charges can be accrued on a per-view basis.

Subscribers sign up at the CBS.com website for a free season's pass of the show. Each episode is automatically downloaded to Adobe Media Player on their desktops, and they can view it at their convenience. Depending on when the show is downloaded, subscribers may see different advertising. For example, a new user watching a show from early in the season, as opposed to a user who downloaded the show when it was first aired, may see the advertiser's latest commercials.

Flash Media Rights Management Server gives CBS the flexibility to assign expiration dates to their content, even after it is downloaded to the subscriber's system. For example, they can set the entire season of shows to expire at the start of the show's next season. Or they can make shows available for only a certain amount of time after they air on TV, after which time the downloaded show will no longer play.



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

Application example: Flash Media Rights Management Server allows authenticated users 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. It allows the retailer to control who can view which movie and for how long. Authenticated and authorized consumers can purchase and download movies to their desktops, while the retailer maintains control over content integrity and access.

With Flash Media Rights Management Server, retailers can offer a monthly subscription or charge on a per-movie basis. They can specify the number of days the rental contract is valid or assign an expiration date, after which the downloaded movie will no longer play. They can ask their clients to authenticate each time they want to watch the movie or only after a certain period of time has passed. They can also require their clients to authenticate each time they want to watch a movie, even if it is already downloaded.

The solution is convenient for retailers' clients as well. Flash Media Rights Management Server has the flexibility to integrate with the retailer's current user ID management and order management systems. Thus existing customers do not need to create a new account with a new username, password, and credit card information. Clients simply download Adobe Media Player from the retailer—which is customized to display the retailer's and movie studio's brands—to their Mac or Windows desktops. Once their credentials have been verified, users can download movies and view them on their computers during the rental period or until the movie expires.

Besides providing flexibility and convenience, Flash Media Rights Management Server is designed to protect video assets. All movies are encrypted, and only a user with a valid username, password, and proper credentials for a particular movie can unlock it. In case of misuse, for example, downloading multiple copies of the same movie, the retailer can deny new licenses to users once their existing licenses for that movie expire.

Application example: 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 website wants to offer personalized content to their clients' desktops. Adobe AIR is the perfect platform on which to build a branded, customized, light-weight application that can deliver rich Internet media to Windows and Mac desktops.

Adobe AIR makes it fast and simple to build custom desktop applications. The company can apply the same technologies used in their sports website to deliver text, chat, interactive games, audio and video streaming, and video downloads to their subscribers' desktops. Subscribers can have news 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.

As with Adobe Media Player, using Adobe AIR as the runtime environment assures that downloaded content is protected from misuse, even when the subscriber is offline.

Application example: 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. For enterprises already using LiveCycle Rights Management ES to protect and track their documents as they move through the organization, Flash Media Rights Management Server and Adobe Media Player extend content protection and distribution to high-quality video. With Flash Media Rights Management Server and Adobe Media Player,

employers can leverage the same access control solution they use for other corporate applications. And employees can enter their username and password, download the program, 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 and when and how often. 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 users with a valid copy of Adobe Media Player, a username, and a password can access the video, helping to ensure that corporate communications do not end up on the Internet.

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 three tools via Java™ based command-line interfaces (CLIs). In addition, Flash Media Rights Management Server contains a service provider interface (SPI) that lets content owners leverage existing user authentication and authorization mechanisms.

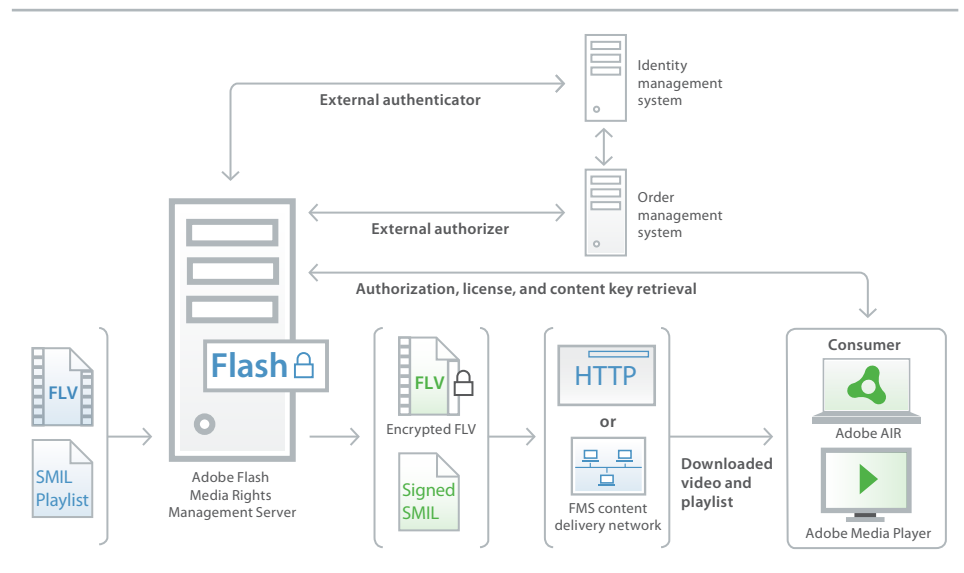


Figure 2. Flash Media Rights Management Server solution architecture overview.

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 an Oracle database that it passes to the Media Packager.

With Flash Media Rights Management Server, administrators can specify the following content protection policy features in each policy, which is then assigned to media or groups of media:

- 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
- 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. In the advertising-supported business model case, for example, CBS may decide to extend the number of days a show is available on their website (for example, from one week to two weeks). New subscribers enjoy this policy change immediately, and existing subscribers see the policy change once they renew their licenses.

As another example, suppose the content protection is cracked by a hacker and posted on a website. CBS can obtain an updated version of Adobe Media Player from Adobe that fixes the problem. Then they can change their content protection policy to require all users to view content in the updated version of Adobe Media Player. Users who want to view the CBS show would first need to download a new version of Adobe Media Player.

Media Packager

The Media Packager encrypts Sorenson, VP6 codec, or F4V (H.264 codec) files and associates a particular content protection policy with them. It 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, which is discarded after the content is encrypted.

Once the video file is encrypted via the Media Packager, it does not need to be touched again, even if the content protection or associated advertising must change. In the movie rental case, for example, the content protection policy for the movie can be changed at any time via the Rights Manager. And new trailers can be added to the encrypted movie via the AMOD Signer. This separation helps ensure that valuable, unencrypted media remains within the control of an exclusive group.

AMOD Signer

Playlists give content providers greater flexibility and control over how their video content is presented in Adobe Media Player. 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 allows consumers to view only authentic and secure 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 consumer'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 the movie rental case, for example, the external authorization system can monitor the number of times a license for a movie is issued to the same user (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 user can no longer access the content, even if several copies are already resident on the user's desktop.

For more information on custom authentication and on authorization service providers, visit 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 Media Player clients and the Flash Media Rights Management Server server. Content is downloaded to Adobe Media Player via HTTP before playback, and content protection communications between client and server are small and stateless. Content can also be streamed to Adobe Media Player 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.

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.

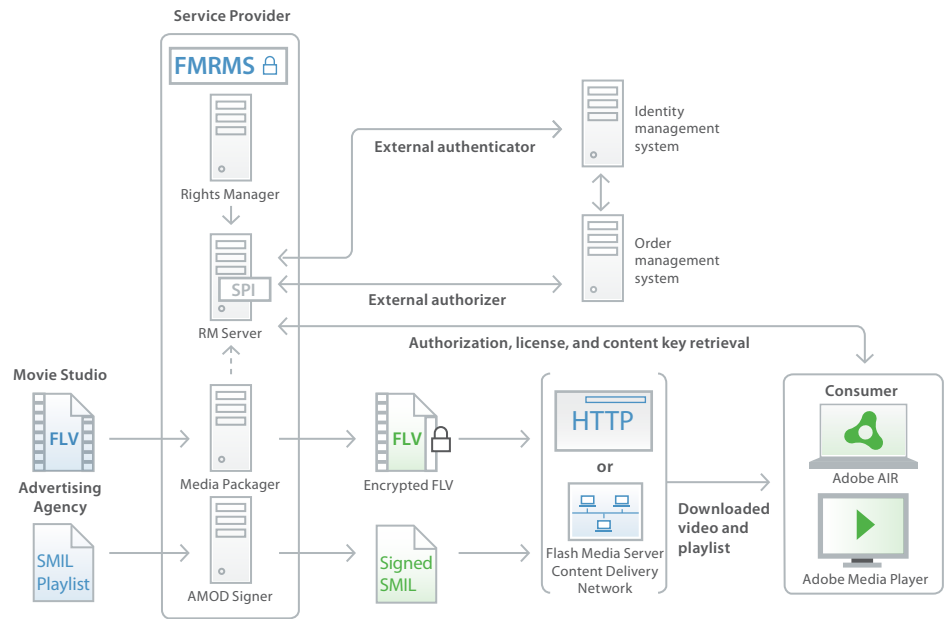


Figure 3. Three business partners use Flash Media Rights Management Server at their locations to package, encrypt, distribute, and control access to movies over the Internet.

Using the Rights Manager, the service provider sets the policies for movie access and integrates them with their 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.

Summary

In this digital age, content owners want to take advantage of the new channel opportunities and lower cost of goods promised by Internet distribution. But to maximize revenue, 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 Adobe Media Player, consumers can enjoy access to more quality online media through an intuitive, convenient, and engaging experience.



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