

How to Get Started with Digital Rights Management

A Service Provider's Perspective

While Digital Rights Management (DRM) technologies have been around for many years, only recently is this technology starting to find its way into practical business applications. For organizations seeking to leverage their digital media assets over the Web, DRM enables pay-per-view, pay-per-subscription and user authentication capabilities on streaming and permanent downloads to increase interactivity with end-users and provide for new sources of revenue.

For organizations interested in utilizing DRM, there are two practical paths to consider. One way is to license the technology directly from a company like Microsoft. This involves programming, database management and website integration. This may prove attractive for organizations that already are managing their Web hosting services in-house. The other option is to outsource this to a DRM service provider that licenses these technologies and operates the datacenter environment. For organizations that have outsourced their Web hosting services, they will likely find that this makes more economical sense. With outsourcing, organizations can leverage the technical competency of a DRM service provider while eliminating the overhead costs associated with running a 24/7 datacenter.

If a decision has been made to use a DRM Service Provider, the next step involves locating a DRM Service Provider that will meet your needs and budget. As DRM services may be applied to downloadable content, as well as streaming media content, it may make sense to look for a DRM service provider that also specializes in streaming media services. An added benefit in outsourcing DRM services through a streaming media service provider is that some do not charge for the DRM service, but provide it as a value-added feature for their core hosting services.

At PlayStream, a streaming media service provider that offers DRM capabilities, we examined the available technologies in the market place before deciding to implement Microsoft's Windows Media DRM 9 Series platform as part of our core streaming media hosting services. We selected Microsoft's DRM platform based on its high security capabilities, rich features, flexible business models and smooth integration into their popular Windows Media 9 Series technologies. Given that PlayStream provides streaming as well as downloadable (progressive) content storage spaces via a single account, the DRM technology provided a logical expansion to help our customers leverage the capabilities of our service.

For PlayStream's customers, DRM now opens up many new ways to deploy digital media. For example, let's say a music label is currently streaming free sound clips over its Web site to entice its consumers to purchase a music CD online for \$9.00 plus shipping and handling fee of \$3.00. With DRM, the music label can now offer the option to purchase a downloadable version of the music CD for \$9.00 - without charging for shipping and handling – and that allows for that digital version to be copied to CD. Not only does the consumer save money on shipping and handling, but the consumer now realizes immediate delivery of the product. For the skittish consumers who aren't so sure the music CD is a good investment, the music label decides to use DRM to also offer a 3 day license to playback the music for \$3.00. If the consumer decides they like the music and wishes to purchase the full rights, they would be entitled to a \$3.00 discount off the purchase price of the full music CD or digital download. If not, the playback capability of the music will cease after three days. The license could have been designed for three times instead of three days if the music label had so chosen. This example is just one of many possible business scenarios that can be designed using DRM.

So how does this work? The first step the music label will take is to complete the online DRM Profile, so that when consumers attempt to view content without having proper access, the DRM profile will be displayed with instructions for that consumer (e.g. instructions to pay, instructions on who to contact for further support, instructions to complete a survey, etc.). Next, the music label will use PlayStream to create an online subscription and set various rights and permissions that will be used as part of the subscription. Let's take a look at the Chart below, which depicts some of the available rights that the music label can define as part of their subscription:

Subscription Rights for Using Windows Media Files on a Computer (DRM v9.0):

- **AllowPlayOnPC** - This right allows the consumer to play the Windows Media file on a computer.

- **Playcount** - This right specifies the number of times the consumer is allowed to play the Windows Media file.
- **AllowBurnToCD** - This right allows the consumer to copy a Windows Media file to a CD in the Red Book audio format. Once a Windows Media file is copied to a CD, the Windows Media file is no longer protected.
- **BurnToCDCCount** - This right specifies the number of times the consumer is allowed to copy a Windows Media file to a CD.

Subscription Rights for Licenses (allows you to specify when a license for a Windows Media file is valid):

- **BeginDate** - This right specifies a date after which the license is valid. Before this date, the Windows Media file cannot be played. By default, the license BeginDate is set to the date the subscription is created.
- **ExpirationDate** - This right specifies a date after which the license is no longer valid and the Windows Media file can no longer be played. By default, this right is not set and the license never expires.
- **ExpirationAfterFirstUse** - This right specifies the length of time (in hours) a license is valid after the first time the license is used. By default, this right is not set and the license never expires.
- **ExpirationOnStore** - This right specifies the length of time (in hours) a license is valid after the first time the license is stored on the consumer's computer.
- **DeleteOnClockRollback** - This right deletes the license if the consumer's computer clock is set to an earlier time. By default, this right is not set and licenses are not deleted when the clock is rolled back.
- **DisableOnClockRollback** - This right disables a license if the consumer's computer clock is rolled back. The license is enabled again when the clock is corrected. By default, this right is not set and licenses are not disabled when the clock is rolled back.

Additional rights are available for areas such as controlling access to SDMI or Non-SDMI compatible devices, transfer counts, etc., but they are beyond the scope of this article.

To help simplify the settings of the various rights, PlayStream provides popular scenarios and the corresponding rights that would be utilized in creating the subscription online. Some of these scenarios are:

Basic playback. For basic playback functionality, allow the following rights:

- **AllowPlayOnPC**
- **AllowBackupRestore**

Promotional material. To distribute promotional material for limited use, use the following rights:

- **AllowPlayOnPC**
- **BeginDate and ExpirationDate** (to limit the time during which the license is valid)
- **DeleteOnClockRollback or DisableOnClockRollback**
- **MinimumAppSecurity** (set to a low value so that more consumers can play the Windows Media file)

Rental. To let consumers play a Windows Media file for a period of time starting from when they first open the file, use the following rights:

- **AllowPlayOnPC**
- **ExpirationDate**
- **ExpirationAfterFirstUse or ExpirationOnStore**
- **DeleteOnClockRollback or DisableOnClockRollback**

Other scenarios are available, such as how to allow consumers to play their Windows Media files on portable devices.

Once the music label sets the various rights to be used, then the subscription process has been completed. The next step will be to encrypt the Windows Media content using the subscription that was just created. During this encryption process, the media content will be assigned a unique key/content ID for the purpose of data security. The encrypted file is then associated with the subscription. At that point, the encrypted file is ready for distribution, either as downloadable content or streaming content. When a consumer attempts to access the encrypted media, the consumer's media player will automatically request a license key from PlayStream that allows for decryption and playback. Without the license key, the media will not play.

There are more sophisticated ways to utilize the DRM service, which is currently running in version 9.0. For example, you can associate multiple key/content ID's with a single subscription. You may also create a DRM encoder profile to encode multiple pieces of content with the same key/content ID. In that scenario, you could encode 100 files using the same key/content ID and only have to associate that key/content ID once with a subscription to generate a license that works for all 100 files. You can also use the DRM encoder profile to generate encrypted live streams. You can also integrate shopping cart technology to implement pay-per-view capabilities. While these topics are beyond the scope of this article, having awareness of the capabilities of DRM will help one develop an implementation plan. It is also worth noting that Microsoft's Windows Media DRM 10 is available at this time in a limited release beta format and upon its full release, will offer even more features.

For more information about how to use the PlayStream DRM services, we recommend you visit the PlayStream Web site at <http://www.playstream.com>.