

## Using Marlin DRM to protect non-audiovisual assets



### Introduction

Marlin DRM is an open standard and a highly versatile multi-purpose digital rights management (DRM) system for protecting any digital assets ranging from audiovisual content to e-book and bytecode files.

This document gives a brief overview of Marlin DRM as a standard and then focuses on how it can be applied to content beyond audiovisual assets.

### Open-standard Marlin DRM

In 2005, Intertrust teamed up with four of the largest consumer electronics (CE) manufacturers in the world: Panasonic, Philips, Samsung, and Sony to co-found the Marlin DRM standard. Together, they created an open-standard DRM that would not only be used for their own devices, but also could be adopted globally. The result of this unprecedented collaboration was the release of Marlin, an open-standard DRM.

Since its launch, there have been many collaborations with device manufacturers, streaming services, and content rights holders. As a result, Marlin has become very popular globally. Companies worldwide are involved in Marlin's membership as partners, adopters, developers, and trusted service providers.

Marlin is an open-standard DRM, which means that rather than being a proprietary technology owned and updated by its creators, Marlin is overseen by two organizations: The Marlin Development Community (MDC) and the Marlin Trust Management Organization (MTMO).

The Marlin Development Community drives innovation and development within Marlin through an open community development process.

The Marlin Trust Management Organization is responsible for granting commercial licenses for using Marlin and underpins the key management element of Marlin offerings.

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## ExpressPlay and Marlin DRM

ExpressPlay multi-DRM service supports Marlin DRM from both the service and the client side. The ExpressPlay DRM cloud service exposes a set of REST APIs allowing service providers to request Marlin DRM licenses for Marlin Broadband (MBB) and Marlin Simple Secure Streaming (MS3).

- **MBB licenses:** These are persistent DRM content licenses that are stored in the client device and therefore can be used in offline applications. MBB licenses can carry an expiration date after which the content cannot be accessed.
- **MS3 licenses:** These are transaction-based licenses (“use-and-forget”), hence they must be acquired every time the protected content is accessed by the client. They are not persistent and they cannot carry any time-based access control information as in the case of the MBB licenses.

In addition to service side logic, ExpressPlay also provides a client implementation of the Marlin DRM for various platforms via the ExpressPlay Client SDK. There are two types of SDKs available:

- **Source code SDK:** This SDK is for CE device manufacturers integrating Marlin DRM functionality into their platforms. The SDK includes the necessary components and API to develop Trusted Applications (TA) to be run in modern Trusted Execution Environments (TEE).
- **Binary SDK (Android / iOS):** This is a secure implementation of the Marlin DRM stack for Android and iOS platforms, and it is protected against reverse engineering using white-box cryptography via Intertrust’s class-leading whiteCryption technology.



## Protecting various content types with Marlin DRM

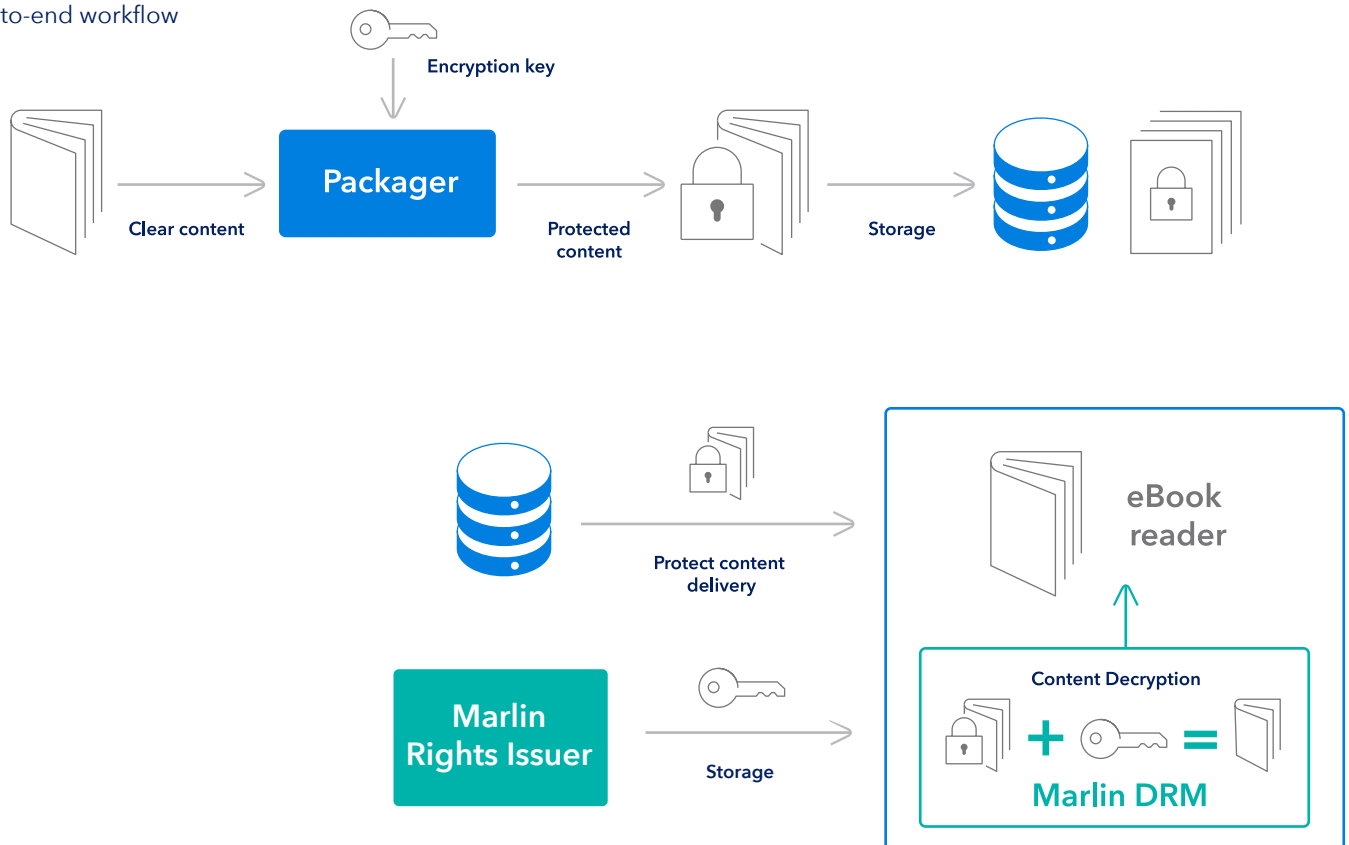
Marlin DRM, like any other mainstream digital rights management schema, is mostly used to protect audio-video media thus enabling video service providers to deliver premium content according to the licensing rules set by the studios. At the same time, Marlin DRM is content agnostic, which means that, beyond music and videos, it can be used to protect virtually any type of content.

### e-books

Protecting e-book content using Marlin DRM is straightforward as long as the following conditions are satisfied:

- The e-book packager is able to package the content according to a format supported by the Marlin DRM client implementation. In the case of the ExpressPlay Client, such a format is represented by the standard Document Content Format (DCF).
- The e-book provider is able to request Marlin DRM licenses from a Marlin rights issuer service such as the ExpressPlay Multi-DRM Cloud Service.
- The e-book client integrates Marlin DRM functionality using ExpressPlay Client SDK.

**Fig. 1**  
The end-to-end workflow



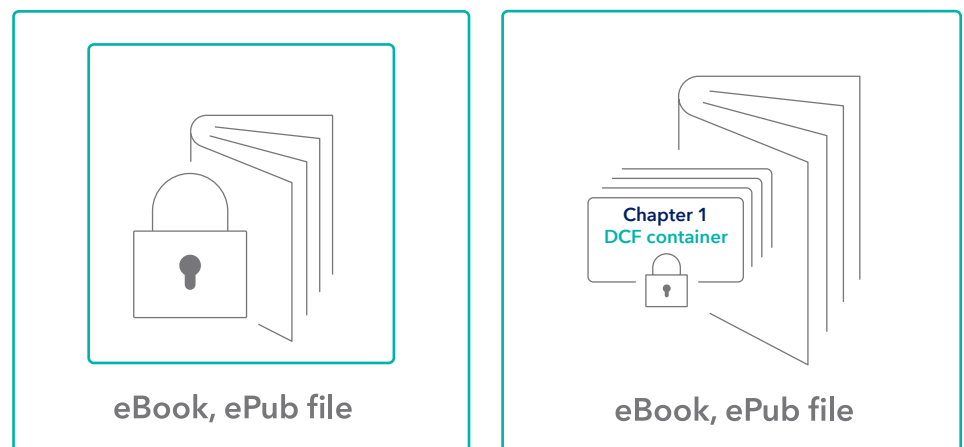


The packager, as the name suggests, packages the content according to the e-book format of choice, for example the standard ePUB format, or a bespoke proprietary format defined by the service provider. Regardless of the reading format, which is understood by the e-book reader, the parts that need to be protected are packaged as DCF and encrypted with a 128-bit key.

The service provider is free to place the entire eBook inside the DCF, or to only encrypt sections (or chapters) of the e-book. It is the responsibility of the e-book reader client to understand the format and when to request the content to be decrypted by the underlying Marlin DRM subsystem.

### DCF container

**Fig. 2**  
Examples of  
DCF containers



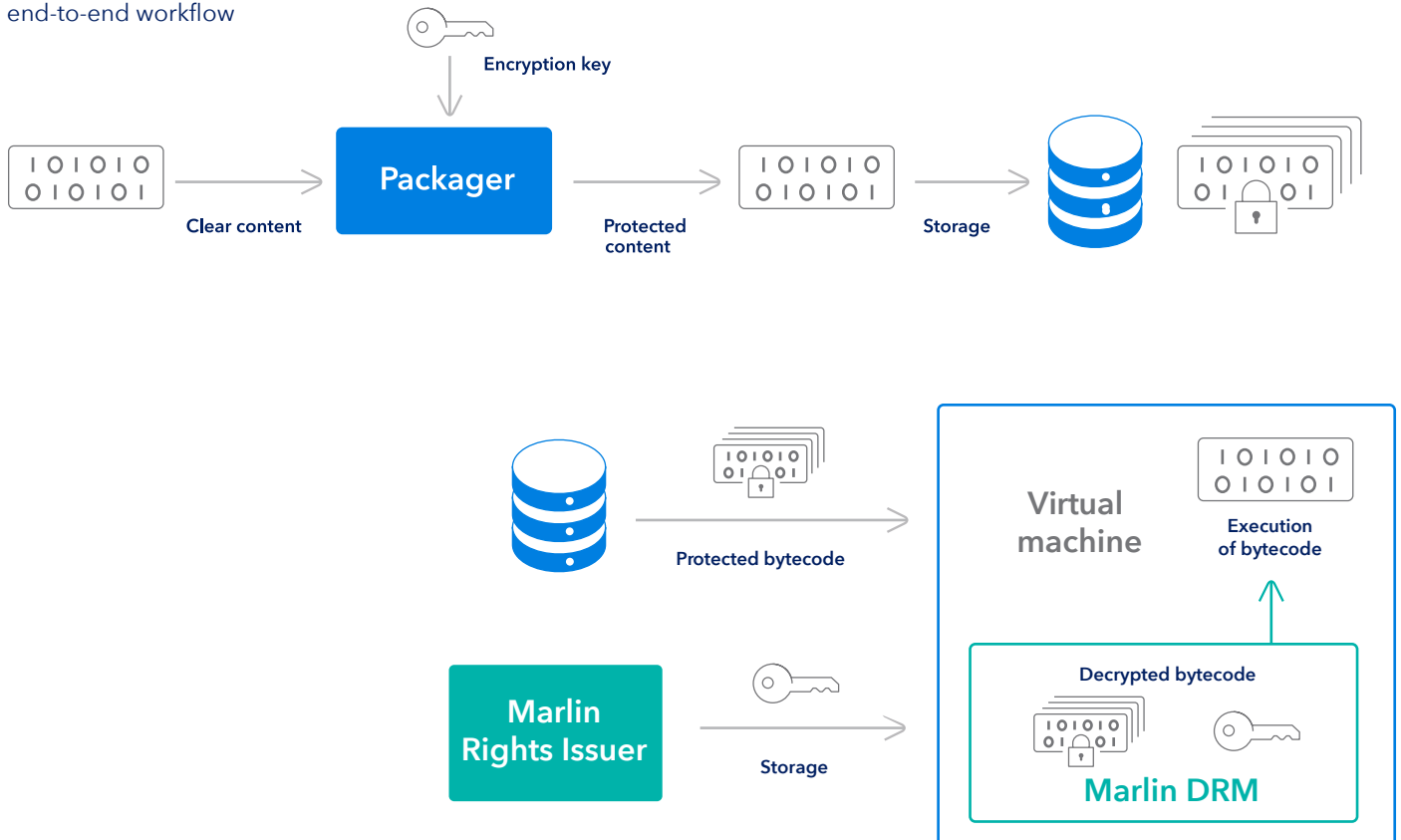
In both cases, the e-book reader will get access to the decrypted content in the form of a byte stream and start the rendering accordingly.

## Bytecode

Similar to how Marlin protects e-books, it can also protect bytecode (data that is processed by virtual machines). Also, in this case, there is a set of conditions that need to be satisfied:

- The data/bytecode is packaged according to a format supported by the Marlin DRM client implementation. In the case of the ExpressPlay Client, such a format is represented by the standard DCF.
- The service provider that needs to grant access to a specific bytecode to a client must be able to request a Marlin DRM license from a Marlin DRM rights issuer such as ExpressPlay Multi-DRM Cloud Service.
- The client processing the bytecode (the virtual machine) must integrate Marlin DRM functionality using ExpressPlay Client SDK.

**Fig. 3**  
The end-to-end workflow





## Why Marlin DRM?

In summary, the open-standard Marlin DRM provides a versatile content protection schema that allows a service provider to protect any type of content as long as the following conditions are satisfied:

- The content can be packaged in a Marlin compliant format,
- The target client integrates the Marlin DRM functionality, and
- The service provider issuing the content is able to request Marlin DRM licenses from a Marlin DRM Rights Issuer.

The ExpressPlay Client SDK and ExpressPlay Multi-DRM Service provide the service provider with the Marlin DRM rights issuer service and a Marlin DRM client implementation for various platforms.

**To learn more, visit:**

[www.marlin-community.com](http://www.marlin-community.com)

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