



## Getting Started with Widevine DRM

version 2.2

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Version	Date	Description	By
1.0	3/11/2016	Initial revision	Alex Lee
1.2	5/25/2016	Updated Firefox support	Alex Lee
1.3	6/1/2016	Updated doc links	Alex Lee
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1.5	6/21/2016	Updated supported platforms, added ecosystem view	Alex Lee
1.6	7/8/2016	Updated doc links	Alex Lee
1.7	7/22/2016	Updated doc links	Alex Lee
1.8	8/25/2016	Added Chrome CDM System Codes reference	Alex Lee
1.9	10/3/2016	Updated doc links <ul style="list-style-type: none"> <li>• Filenames changed, versions unchanged</li> </ul> Updated Vendor Extensions for Android reference	Alex Lee
2.0	11/13/2016	Added Introduction to Encoding and Packaging Added Using the Shaka Packager	Alex Lee
2.1	3/10/2017	Added link to Getting Started for Devices guide	Alex Lee
2.2	7/25/2017	Added table of <a href="#">supported encryption schemes</a>	Alex Lee

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## Summary

This document outlines the process, documentation and downloads to use Widevine DRM server and client technology components.

The target audience for this document are content providers or solution integrators who are involved in the production of encrypted media, application design or development and are responsible for interacting with a DRM license service.

If you are interested in integrating the Widevine CDM client into a device, please [contact us](#). There is a [Getting Started for Devices](#) guide specifically designed for device integration.

## Contact Us

For all questions, please [contact Widevine](#) from our website - [www.widevine.com](http://www.widevine.com).

## Introduction

Widevine DRM is Google's content protection system for premium media. It is used by major partners around the world such as Google Play, YouTube, Google Fiber, Netflix, Hulu, Amazon and much more. The focus of Widevine is to provide the best experience for viewing premium content over a digital distribution method.

A license agreement is required for the use of Widevine products or services. **Widevine does not assess any license fees for use of its products and services.**

Our [architecture overview](#) provides a comprehensive description of the technologies and standards used.



Widevine DRM is currently on version 7 (for CDM and DASH implementations). Previous Widevine DRM versions (up to 6.x) are based on legacy technology and proprietary media formats.

The Widevine client is embedded into a device platform unless otherwise noted.

Device or Platform	Supported ?
Android 4.0 Ice Cream Sandwich	-
Android 4.1 and 4.2 Jellybean	-
Android 4.3 Jellybean MR2	Yes <sup>2</sup>
Android 4.4, 5.x, 6.x and 7.x	Yes
Android TV	Yes
Widevine on Apple iOS	Yes <sup>1</sup>
Apple TV (tvOS)	-
Chrome browser	Yes
ChromeOS (Chromebook)	Yes
Chromecast	Yes
Google Home	Yes
Chromium browser	Yes
Chromium Embedded Framework (CEF), Electron	Yes
Firefox browser	Yes
Internet Explorer browser	-
Opera (browser and embedded devices)	Yes
Safari browser (desktop)	-
Roku	Yes
Sony Playstation	Yes <sup>1</sup>
<a href="#">TV sets and Blu-ray players</a>	Yes
Xbox	-

<sup>1</sup> **Available as a separate client library**

<sup>2</sup> **On selected devices only**

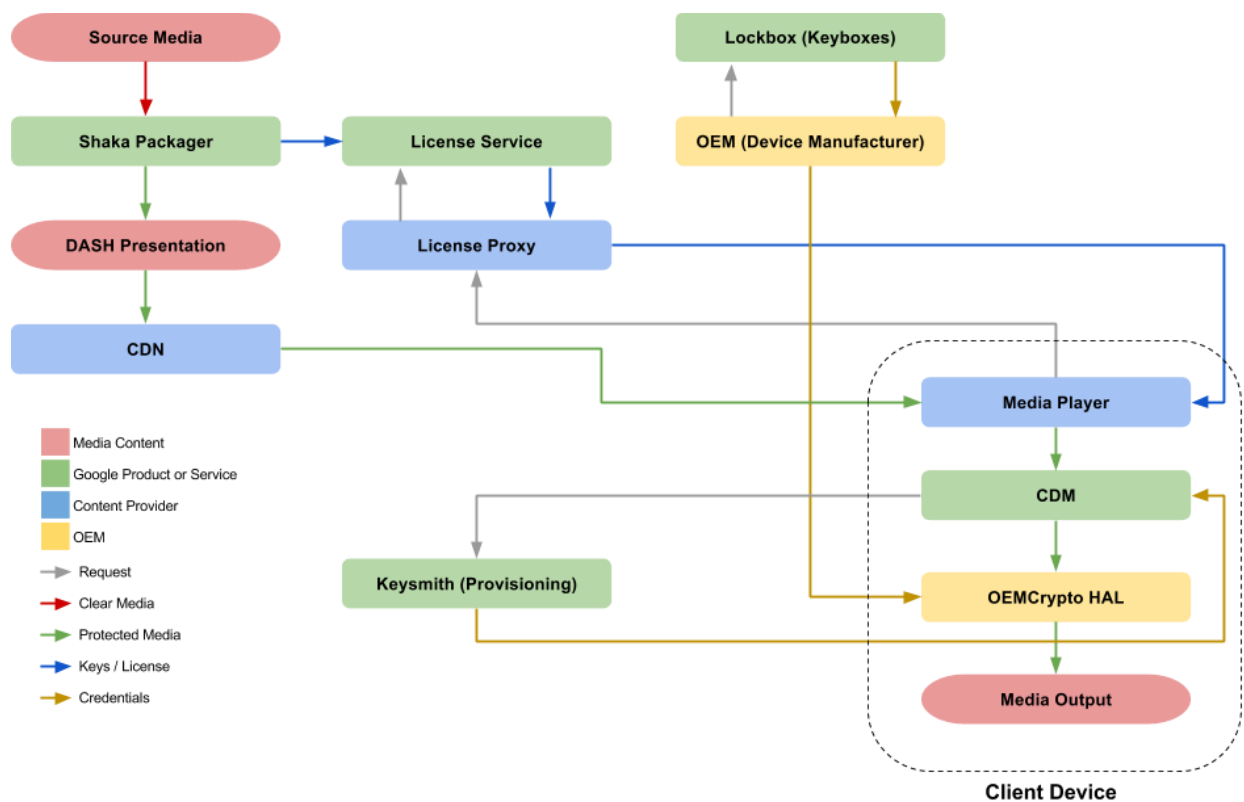
	 <b>LG</b>	<b>Panasonic</b>	<b>PHILIPS</b>	 <b>SAMSUNG</b>	<b>SHARP</b> <b>AQUOS</b>	<b>SONY</b> <b>BRAVIA</b>
Operating System	WebOS	FirefoxOS	AndroidTV	Tizen	AndroidTV	AndroidTV
Cloud License Service	✓	✓	✓	✓	✓	✓
Hardware DRM (Level 1)	✓	✓	✓	✓	✓	✓
DASH	✓	✓	✓	✓	✓	✓
HTML5	✓	✓	✓	✓	✓	✓
VP9 Profile0 (8bit)	✓	✓	✓	✓	✓	✓
VP9 Profile2 (10bit)	✓	2017	2017	2017	2017	2017

## Supported Encryption Schemes

The table below provides a mapping of encryption schemes across Widevine integrated platforms.

Platform	cenc	cens	cbc1	cbcs
Android 4.4 - 6.x (includes Android TV)	Y	-	-	-
Android 7.x and later (includes Android TV)	Y	Y	Y	Y
Chromecast	Y	-	Y	-
Google Home	Y	-	-	-
Smart TVs and BDs	Y	-	-	-
Widevine iOS	Y	-	-	-
Chrome browser (desktop) and ChromeOS	Y	-	-	-
Chrome browser (mobile)	Y	-	-	-
Mozilla Firefox	Y	-	-	-
Opera	Y	-	-	-
NexPlayer SDK	Y	-	Y	-

# Ecosystem



The diagram above illustrates the available Widevine components within the DRM ecosystem.

The Lockbox, Keysmith, OEMCrypto components are specific to device integration.

If you are interested in integrating the Widevine CDM client into a device, please [contact us](#). There is a [Getting Started for Devices](#) guide specifically designed for device integration.

## Using Widevine Cloud License Services

Access to Widevine Cloud License Services is only permitted using per-organization credentials. If you require a set of credentials, please [contact us](#).

Widevine maintains 2 separate cloud license environments with separate APIs to enable content packaging and content playback:

- ❑ Test (UAT)
  - ❑ <https://license.uat.widevine.com>
  - ❑ This service is for development and testing only. It is not adequately resourced for load testing or performance testing.
- ❑ Production
  - ❑ <https://license.widevine.com>
  - ❑ This service is fully scalable for production usage.
  - ❑ For any expected activity above 250 qps, please [contact us](#).

## Content Encryption

The use of this API requires a signature field generated using the per-organization unique credentials.

The [Encryption API document](#) describes how to construct a JSON-payload to request a set of content keys from the Widevine License Service, in addition to the construction and use of a Widevine PSSH.

The service end-points for encryption are as follows:

- ❑ Test (UAT)
  - ❑ <https://license.uat.widevine.com/cenc/getcontentkey/<organization>>
- ❑ Production
  - ❑ <https://license.widevine.com/cenc/getcontentkey/<organization>>

## Related documentation

- ❑ [Key Rotation](#)
  - ❑ This technical document describes how key rotation support is implemented for a content encryption perspective.



## Content Playback

The use of this API requires a signature field generated using the per-organization unique credentials.

The [Proxy Integration document](#) describes how to construct a JSON-payload to request a license, containing appropriate content keys and business rules, for playback.

A license request from the originating client device will be received by a provided-operated (3rd party) proxy mechanism (over HTTPS). This proxy mechanism will validate the request and modify / append the request with additional business rules before generating a signature to append to the payload, which is sent to the Widevine License Service. ***The client device does not communicate directly with the Widevine License Service, under any circumstances.***

The service end-points for license generation are as follows:

- ❑ Test (UAT)
  - ❑ `https://license.uat.widevine.com/cenc/getlicense/<organization>`
- ❑ Production
  - ❑ `https://license.widevine.com/cenc/getlicense/<organization>`

### Related documentation

- ❑ [Widevine Sample License Proxy](#)
  - ❑ A Python example of a license proxy implementation, with signature generation function call.
- ❑ [License Renewal Overview](#)
  - ❑ This document describes the concepts and implementation of a license renewal mechanism.
- ❑ [Using License Renewals](#)
  - ❑ This document describes how to implement a license renewal feature with the Widevine Cloud License Service.
- ❑ [Working with Foreign Keys](#)
  - ❑ This document describes how to support multiple DRM systems within the Widevine ecosystem.

## Using the Shaka Packager

The [Shaka Packager](#) (formerly known as the eDASH-Packager) from Widevine is an open-source reference implementation on how to generate DASH-compatible MP4 formats, perform encryption using a Widevine PSSH and generating a DASH manifest. Please use the [github page](#) to file bugs and feature requests.

Currently supported codecs are as follows:

Codecs	ISO-BMFF	WebM	MPEG2-TS	WVM <sup>1</sup>
H264 (AVC)	I / O	-	I / O	I
H265 (HEVC)	I / O	-	I	-
VP8	I / O	I / O	-	-
VP9	I / O	I / O	-	-
AAC	I / O	-	I / O	I
Dolby AC3 / EAC3	I / O	-	-	-
DTS	I / O	-	-	-
Opus	I / O	I / O	-	-
Vorbis	-	I / O	-	-

Note: I for input and O for output.

<sup>1</sup> Widevine Classic Media Format

### Related documentation

- ❑ [Introduction to Encoding and Packaging](#)
  - ❑ Basic primer on media encoding and encryption.
- ❑ [Using the Shaka Packager](#)
  - ❑ Introduction on building and using the Shaka Packager.

## Clients - Android

The [Widevine Architecture Overview](#) document provides a general introduction to using the Widevine Android CDM client which ships natively on modern Android devices with Google Apps (e.g. Play Store, Gmail).

Widevine provides the [Vendor Extensions](#) document as an addendum to the mediaDrm API that exposes CDM client-specific information. This allows APIs to query the status of the licenses and client properties. In addition, the [Using Key Rotation](#) document describes how to implement license request calls via mediaDrm to support live streaming content (the code examples in ExoPlayer demonstrate VOD requests only).

The Google-maintained open-sourced [ExoPlayer](#) project is the recommended reference player library that demonstrates playback of Widevine CENC media. Building ExoPlayer, by default, will generate a demo app which contains a preset list of known-good CENC content from the Widevine team.

Looking to integrate an Android device?

- ☐ Do you need Google Apps (Play Store, Gmail, YouTube and more)?
  - ☐ Please reach out to the Android Partnership team.
- ☐ Is it based on AOSP **and** do not require Google Apps?
  - ☐ [Contact Us](#).

## Clients - Browser

The [Widevine Architecture Overview](#) document provides a general introduction to using HTML5 and EME on a browser framework like Chrome, ChromeOS and Chromium.

The [Shaka Player open-source project](#) is Widevine's initiative to provide a comprehensive cross-browser Javascript library framework to support CENC HTML5 playback using a CDM (preferably Widevine). Outside of github, a [Shaka Player Users discussion group](#) is available and monitored by the Shaka Player developer team from Widevine.

The Shaka Player offers:

- ☐ Fully featured open source player framework
- ☐ Configurable and customizable UI
- ☐ Cross-platform and cross-browser capable
- ☐ Support for HTML5, MSE, EME & DASH
- ☐ Multi-DRM options

## Related documentation

- ❑ [Chrome Browser CDM System Codes](#)
  - ❑ A list of system codes returned by the browser CDM with description.

## Clients - iOS

The [Widevine Architecture Overview](#) document provides a general introduction to using the Widevine iOS CDM client.

For access and integration, please see the [Getting Started guide to Widevine on iOS](#).

## Training and Certification Program

Widevine conducts an industry-standard [training and certification program](#) (Certified Widevine Implementation Partner) designed to provide participants with the necessary skills to integrate and launch a Widevine solution.

Participation in this program is optional. Please [contact us](#) for more details.