WIDEVINE®

CYPHER FOR DIGITAL MEDIA

MANAGING ASSETS AND POLICIES

VERSION: 1.5

CONTENTS

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Document Status Sheet

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Status	~~Work In Progress~~	Draft	~~Issued~~	~~Closed~~
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Version	Date	Description	By
1.0	08/30/2010	Updates for 4.4.5 release	Alex Lee
1.1	10/11/2010	Updates for 4.5.0 release	Alex Lee
1.2	11/09/2010	Added purchase duration feature Update Terms and Abbreviations	Alex Lee
1.3	02/27/2011	Updated with new policy features	Alex Lee
1.4	04/11/2011	Updated policy fields	Alex Lee
1.5	04/20/2011	Clarification on purchase duration value	Alex Lee

1.   PURPOSE

The purpose of this document is to provide an understanding of the concepts of assets and policies within the Widevine framework.

2.   TERMS AND ABBREVIATIONS

- **Asset -** Physical media such as a H.264-encoded movie
- **Asset Name –** A valid name of the asset that must be unique when combined with the Asset Owner.
- **Asset Owner –** The entity that is encrypting or packaging the asset. A Widevine-provided System ID is required for all Asset Owners.
- **Asset Provider –** The entity that will be providing the asset to the end user. This is identical to the portal or license proxy (id field) that is requesting a license. A portal will only obtain a license if it is listed as an asset provider for that asset.
- **Catcher** - A temporary storage device used to collect on- demand files and request missing parts (due to unreliable transport) prior to provisioning of content to the video delivery servers
- **Client device -** the equipment used by consumers to view digital media.
- **Container -** A container format is a computer file format that can contain various types of data, compressed by means of standardized audio/video codecs
- **Container -** A container format is a computer file format that can contain various types of data, compressed by means of standardized audio/video codecs
- **Content –** A collection of assets and metadata files
- **Digital Rights Management (DRM)**-security software to allow a Service Provider to implement business rules which control a consumer's access to digital media.
- **E-portal –** Refer to License Proxy.
- **License –** Encrypted data that contains the viewing rights associated with digital media and the key to unlock the content key. Each license is generated dynamically and individualized to the requesting client. A license request may only originate from a Widevine client.
- **License Duration –** The amount of viewing / playback time (content decryption)
- **License Proxy –** A software component that performs the business logic (authorization and validation) functions prior to making a license request from the Widevine License Server.
- **License Server –** Also known as key server. The Widevine License Server maintains the secure storage of all encryption information as it pertains to assets. It also maintains the policies (business rules) that are managed by a provider. The primary function of a

license server is to issue licenses (governed by configurable business rules) when requested by authorized entities.

- **Portal –** Refer to License Proxy.
- **Purchase Duration –** Commonly referred to as rental window or license validity window. This refers to the allowed grace period in which playback is permitted. This value must be non-zero.

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3. OVERVIEW

The Widevine system of a license manager (a component of each client) and organization of assets and policy association, allows for maximum flexibility in the implementation of business rules.

Each customer has a unique identifier associated with all assets, policies and licenses. This is also known as a portal or provider id. It is used during content encryption, asset management, policy management and license request. Widevine maintains the provider database and assigns the values.

A policy is a set of rights. Policies govern the business rules for the assets associated with it. When a policy is associated with an asset, the asset takes on the rights of the policy.

Only one policy may be applied to an asset at any time.

An asset is the identifier for a piece of content – it does not necessarily reference a specific type of content (VOD or linear channel).

Every asset must be associated with a policy. If no policy is specified, the policy named "default" will be used.

An asset may have multiple policies from multiple providers. This permits other providers who did not encrypt (own) the asset to issue licenses for it.

4. ASSETS

An asset is the identifier for a piece of content – it does not necessarily reference a specific type of content (VOD, linear channel, groups of media).

A policy is a set of rights. When a policy is associated with an asset, the asset takes on the rights of the policy.

4.1. ASSET REGISTRATION

There are 2 methods available.

4.1.1. AUTOMATIC (RECOMMENDED)
Assets are typically registered at the point of encryption, via the PackageNotify method.

4.1.2. MANUAL
Assets are pre-registered by manually adding an asset via the VOD Dealer user interface.

Register Asset (MP4)

Asset Name: _____

Content Owner: _____

Overwrite ☐

Provider Information

Content Provider: _____

Policy: default

License Start: _____

License End: _____

[Add Provider]

Provider	Policy	License Start Date	License End Date	

Access Criteria: Restrict By Region ▼

Regions

☐ EVERYONE ☐ United States ☐ Canada ☐ Germany
☐ Switzerland ☐ Austria ☐ Jersey ☐ Guernsey
☐ Isle of Man

Digital Copy Protection (DCP) Rules

Video Playback: Stop video ▼

Logging Events: Log events ▼

Copy Control Information

Encryption Mode Indicator: Copy not restricted ▼

Analog Protection System: Copy protection encoding off (macrovision off) ▼

Constrained Image Trigger: No Image Constraint Asserted ▼

High Bandwidth Protection: HDCP Off ▼

Heart Beat Message: Heart Beat Message Off ▼
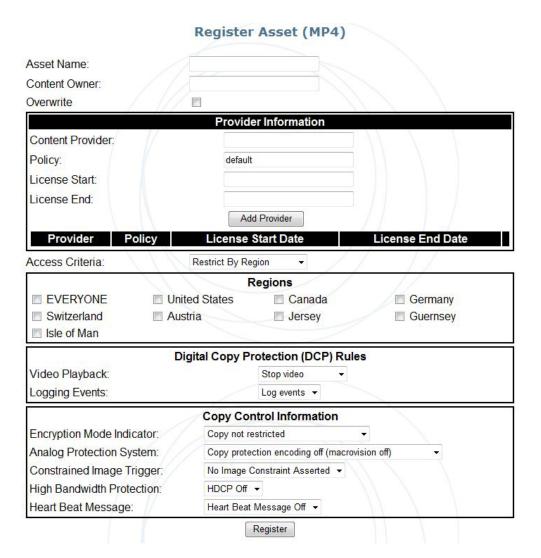
[Register]

FIGURE 1 – ADD ASSET (MANUAL)

Under Asset management, it is highly recommended that the Regions, DCP Rules and CCI settings are managed under policies. Policy settings for these values take precedence over asset-level settings. Asset-level granularity will be deprecated in future updates.

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The fields in the page are as follows:

- **Asset Name** – the package name the encryption parameters will be assigned to and the asset will be encrypted against.
- **Content Owner** – the owner of the content.
- **Content Provider**– the Widevine provider id of the content (delivering content to the end user).
- **Policy** – the policy associated with the package, per provider.
- **License Start and End** – the beginning and ending of the license window, per provider. The format is as follows: <year>-<month>-<day> <hour>:<minute>:<second> NOTE: the hours use the 24 hour clock.
- **Overwrite** – permits an asset of the same name to be registered repeatedly.
- **Access Criteria** – options for access to the content.
  - Region – limited to geographical regions allowed.
  - Purchase – Not available, use proxy integration.
  - Subscription – Not available, use proxy integration.
  - Blocked – No license or encryption allowed.
  - Unrestricted – No limitations on encryption, packaging or playback.
- **Digital Copy Protection (DCP) Rules**
  - Video Playback – options for how the Widevine client responds to a DCP alert.
    - Stop video
    - Degrade video
    - Do not alter video
  - Logging Events – options for how the alert is logged.
    - Log events
    - Do not log events
- **Regions** – available regions for geo-filtering restrictions. Additional regions are available upon request.
- **Copy Control Information**
  - Please refer to VOD Packager document for CCI functionality.
- **Register / Register & Encrypt** – provides the option to encrypt as well registering an asset. When this is checked, the user must supply either a file or ftp path to the asset. In this example, a file path is used however in customer installations an source and destination ftp URL would be used instead which would have the following format:
  - ftp://user:password@host:port/path

4.2. MODIFY ASSET

Assets can be modified via the VOD Dealer user interface.

FIGURE 2 – MODIFY ASSET

5. POLICIES

Policies govern the business rules for the assets associated with a specific policy. Policies are managed via the VOD Dealer user interface.

It is recommended that policies are used as the primary method to govern content rights.

A policy can be associated with multiple assets. Only one policy may be applied to an asset at any time.

Each asset must be associated with a policy – if no policy is specified, the system will automatically use the policy titled "default" for the content provider.

5.1. ADD POLICY
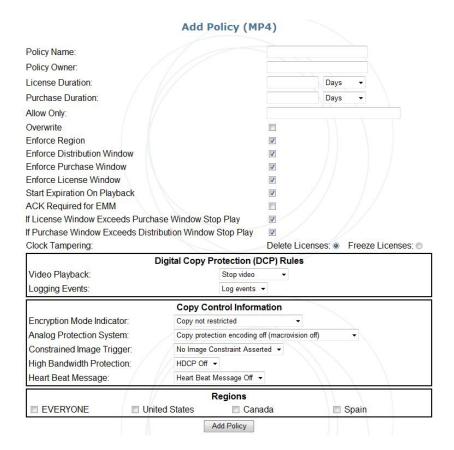
Policies can be added via the VOD Dealer user interface.

FIGURE 3 – ADD POLICY

The fields are defined as follows:

- **Policy Name -** the name of the policy. The first policy that a customer should create is 'default'. The 'default' policy will be used if no policy is specified.
- **Policy Owner -** the Widevine provider ID of the customer.
- **License Duration -** The amount of time the license is valid once delivered or executed. This parameter can be overridden during a license request from a proxy. This must be a non-zero value.
- **Purchase Duration –** The time period in which the license duration is valid. This parameter can be overridden during a license request from a proxy. Also known as the rental window. ***This must be a non-zero value***, usually greater than the license duration value.
- **Allow Only -** a comma separated (no spaces) list of IPs that are allowed to make license requests.
    - 67**.**105 – matches first 2 octets of IP
    - 67**.**105.198 – matches first 3 octets of IP

      ```
      e.g
      1.2.3.4,10.11.12,20.21
      ```

- **Enforce Region On Server** – Denotes playback limitation based on geographic location. This is a server-side capability.
- ~~**Enforce Distribution Window –** This setting enables the License Start Date and License End Date fields for the asset. (disabled)~~
- ~~**Enforce Purchase Window –** This setting enforces the Purchase Duration value. (disabled)~~
- **Enforce License Window** – This settings enforces the License Duration value.
- **Start Expiration on Playback** – License duration will begin upon initial playback. Otherwise, license duration begins on license generation.
- **ACK required for EMM** - The Widevine client will send an ACK message indicating it received a license. The ACK url is defined in the license request.
- **If License Window exceeds Purchase Window, stop play** – When enabled, if the license duration exceeds the remaining purchase duration, playback is halted. Otherwise, the default behavior is to allow playback as long as the license duration is non-zero.
- **If Purchase Window exceeds Distribution Window, stop play** – When halted, if the purchase duration value exceeds the distribution window, playback is halted. Otherwise, the default behavior is adhere to the purchase duration value.
- **Clock Tampering** – If clock tampering (unusual modification of device time) is detected, the client needs to either disable or remove the license.
- **Digital Copy Protection (DCP) Rules**
    - Video Playback – options for how the Widevine client responds to a DCP alert.
        - Stop video

- ▪ Degrade video
- ▪ Do not alter video
  - o Logging Events – options for how the alert is logged.
    - ▪ Log events
    - ▪ Do not log events
- **Copy Control Information**
  - o Please refer to VOD Packager document for CCI functionality.
- **Regions** – available regions for geo-filtering restrictions. Additional regions are available upon request.

5.2. MODIFY POLICY

Policies are modified via the VOD Dealer user interface.

Modify Policy

Policy Name:	default
Policy Owner:	widevine
License Duration:	3600 Seconds ▼
Purchase Duration:	30 Days ▼
Allow Only:	any
Enforce Region On Server	☑
Enforce Distribution Window	☐
Enforce Purchase Window	☐
Enforce License Window	☐
Start Expiration On Playback	☑
ACK Required for EMM	☐
If License Window Exceeds Purchase Window Stop Play	☐
If Purchase Window Exceeds Distribution Window Stop Play	☐
Clock Tampering:	Delete Licenses: ◉ Freeze Licenses: ◉

Digital Copy Protection (DCP) Rules

Video Playback:	Stop video ▼
Logging Event:	Log events ▼

Copy Control Information

Encryption Mode Indicator:	Copy not restricted ▼
Analog Protection System:	Copy protection encoding off (macrovision off) ▼
Constrained Image Trigger:	No Image Constraint Asserted ▼
High Bandwidth Protection:	HDCP Off ▼
Heart Beat Message:	Heart Beat Message Off ▼

Regions

☑ EVERYONE   ☐ United States   ☐ Canada
☐ Spain

[Update] [Cancel]

FIGURE 5 – MODIFY POLICY

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