# Using ExoPlayer with Uplynk’s WideVine content

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This guide uses the ExoPlayer “demo” app from the ‘release-v2’ branch of the official repository. Assets can be added to the ‘media.exolist.json’ file which will be presented as a list when the app starts.

Example media.exolist.json entry:

{  
 "name":"Example Uplynk Content",  
 "uri":"https://content.uplynk.com/abcdefghijklmnopqrstuvwxyz.mpd",  
 "drm\_scheme": "widevine",  
 "drm\_license\_url": "https://content.uplynk.com/wv"  
}

Code can be found in Uplynk’s github repo: <https://github.com/Uplynk/ExoPlayer/tree/drmManager>

# Contacting the Key Server

In the asset entry above, the “drm\_scheme” is set to “widevine”, but “drm\_license\_url” is a placeholder because the actual license server info is given when we download the MPD. This is due to the Uplynk system architecture, load balancing, etc.

The request to download the MPD is executed in the DefaultHttpDataSoruce class, so this is where to read the Uplynk Prefix header and store its value. First, define the header name to look for:

private static final String UPLYNK\_PREFIX\_HEADER = "X-Uplynk-Prefix";

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/library/src/main/java/com/google/android/exoplayer2/upstream/DefaultHttpDataSource.java#L91>

Next, watch for that header in the `public long open(DataSpec dataSpec)` method:

Map<String, List<String>> headerFields = connection.getHeaderFields();

List<String> uplynkHeader = headerFields.get(UPLYNK\_PREFIX\_HEADER);

if (uplynkHeader != null) {

UplynkServerInfo.serverPrefix = uplynkHeader.get(0);

}

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/library/src/main/java/com/google/android/exoplayer2/upstream/DefaultHttpDataSource.java#L242>

The UplynkServerInfo class is a simple class with a static string storage so that it can be retrieved from the HttpMediaDrmCallback class and override the default “drm\_license\_url”:

if (url.equals("https://content.uplynk.com/wv")) {

url = UplynkServerInfo.getWidevineURL();

}

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/library/src/main/java/com/google/android/exoplayer2/drm/UplynkServerInfo.java>

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/library/src/main/java/com/google/android/exoplayer2/drm/HttpMediaDrmCallback.java#L83>

The WideVine server URL is the “Uplynk-Prefix” value, appended by “/wv” for WideVine.

# DrmSessionManagers

ExoPlayer was designed to receive all the WideVine keys in a single request. The DefaultDrmManager is the class that does this. For VOD assets with unencrypted ads this may be sufficient, but for live streams it will not work.

Uplynk is providing a replacement for the DefaultDrmManager named UplynkDrmManager which is capable of making new requests whenever a new key is needed.

# DefaultDrmManager

To use the DefaultDrmManager, an additional request parameter is needed named X-DASH-SEND-ALL-KEYS, which can be added to the ‘media.exolist.json’ entry with the following syntax:

"drm\_key\_request\_properties": {"X-DASH-SEND-ALL-KEYS":"1"}

# UplynkDrmManager

The UplynkDrmManager is *nearly* a drop-in replacement for DefaultDrmManger. It requires modifying the method ‘private MediaSource buildMediaSource(Uri uri, String overrideExtension)’ in the PlayerActivity class to construct the UplynkDrmSessionManager:

return new UplynkDrmSessionManager<>(uuid,

FrameworkMediaDrm.newInstance(uuid), drmCallback, null, mainHandler, eventLogger);

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/demo/src/main/java/com/google/android/exoplayer2/demo/PlayerActivity.java#L362>

And to modify the EventLogger class to implement the UplynkDrmSessionManager.EventListener interface (which replaces the DefaultDrmSessionManager.EventListener interface)

/\* package \*/ final class EventLogger implements ExoPlayer.EventListener,  
 AudioRendererEventListener, VideoRendererEventListener,

AdaptiveMediaSourceEventListener,  
 ExtractorMediaSource.EventListener,  
 UplynkDrmSessionManager.EventListener,  
 MetadataRenderer.Output { … }

<https://github.com/Uplynk/ExoPlayer/blob/drmManager/demo/src/main/java/com/google/android/exoplayer2/demo/EventLogger.java#L64>