

DVD CPRM Downloadable Video Guideline for content creation

Version 1.0

April 2007

Conditions for publication

Copyright Holder

The DVD Forum*

* The DVD Forum is a voluntary, ad hoc association of hardware manufacturers, software firms and other users of digital versatile discs (the "DVD Format"), created for the purpose of exchanging and disseminating ideas and information about the DVD Format and its technical capabilities and improvements and innovations.

Licensing

License is required for the application of the DVD specifications in products such as equipment.

Exemption

None will be liable for any damages from use of this document.

Inquiry

In case of any questions about the contents of this document, please forward it to the publisher in writing.

Publisher

DVD Format/Logo Licensing Corporation

Daimon Urbanist Bldg. 6F, 2-3-6 Shibadaimon, Minato-ku, Tokyo, 105-0012 Japan

E-mail: info@dvdflc.co.jp Fax: +81-3-5777-2884

Revision history

- This guideline was drafted by a TCG adhoc, AH0-18, of the DVD Forum.
- April 2007
The Version 1.0 was issued. The Version 1.0 defines guidelines for products (and content) which use specifications for DVD CPRM Downloadable Video (DVD-DLV) and Content Protection for Recordable Media (CPRM).

DVD CPRM Downloadable Video Guideline for content creation

1. General	DLV1-1
1.1 Scope	1
1.2 Abbreviations	2
2. DVD CPRM Downloadable Video Contents	DLV2-1
2.1 Restrictions for content in the DVD-Video zone	1
2.2 How to create the Title in DVD-Video zone	3
2.3 Content protection for the content in DVD-DC zone	5
3. Image data onto a Dual Layer disc	DLV3-1
Annex A (Informative) : An example of the courtesy message	DLVX-A1
A.1 Underlying principle for the courtesy message	1
A.2 Example courtesy message language	1
A.3 Considerations	2
A.4 Legal Disclaimer	2

1. General

1.1 Scope

This document defines guidelines for products (and content) which use specifications for DVD CPRM Downloadable Video (DVD-DLV) and Content Protection for Recordable Media (CPRM)*.

This guideline shall be used by service providers and content providers as they prepare and deliver content to DVD CPRM Downloadable Video products. This document is normative and shall be used in conjunction with the related optional DVD Specifications. Please refer to the following related specifications:

- DVD-Video Specifications Version 1.1/
Optional Specifications: DVD CPRM Downloadable Video for DVD Writable Disc Revision 1.0
- DVD-R for General Part 2 File System Specifications Version 2.1/
Optional Specifications: DVD CPRM Downloadable Video Revision 1.0
- DVD-R for Dual Layer Part 2 File System Specifications Version 3.0/
Optional Specifications: DVD CPRM Downloadable Video Revision 1.0

This Guideline defines requirements that must be met by content providers or service providers when preparing content for the DVD CPRM Downloadable Video Optional Specifications.

*: CPRM is licensed by the 4C Entity, LLC. (<http://www.4centity.com/>)

1.2 Abbreviations

CPRM	Content Protection for Recordable Media
DVD-DC	DVD Downloaded Content
DVD-DLV	DVD CPRM Downloadable Video
MKB	Media Key Block
PG	Program
PGC	Program Chain
VMG	Video Manager
VOB	Video Object
VTs	Video Title Set

2. DVD CPRM Downloadable Video Contents

2.1 Restrictions for content in the DVD-Video zone

Content in the DVD-Video zone shall be used to provide a courtesy message and may be used for other promotional or educational purposes that are within these guidelines. Because existing players are not able to handle contents in DVD-DC zone, the DVD-Video zone is only intended to be played back on existing (legacy) DVD-Video players.

The usage of content in DVD-Video zone is limited, therefore it is required that the content be created as a sequential title with no branching. The DVD-Video zone's playback order shall start with the courtesy message followed by other content (if any) without any branching by navigation commands or by user operation. When playback of the content reaches the end of the DVD-Video zone, the content shall be created to either stop or automatically repeat from the beginning of the courtesy message.

A users operation during the playback of the content is possible if the content does not prohibit it. Since user operation for skipping a chapter is limited within a PGC or within a Title, it is strongly recommended that the content is created as a sequential PGC and at least shall be created as a Title, since the user function to skip the chapter is mandatory within a PGC (PrevPG_Search() and NextPG_Search()) and is optional within a Title (PTT_Search()).

Total playback time of the DVD-Video zone content is strongly recommended not to exceed 10 minutes.

In addition to the details defined above, the following restrictions shall be applied to the DVD-Video zone content:

- No menus shall be called by navigation command or user operation.
→ VMG menu and VTS menu shall not exist.

- Only one title shall be allowed for the DVD-Video zone title.
→ The number of VTS shall also be one.

Note : Since one VTS shall be allowed for the DVD-Video zone title, the attributes of each Video Object such as video or audio codec, aspect ratio of video, number of audio channels or others shall be same for all objects within a title if two or more Video Objects exist in the DVD-Video zone title.

- Parental control shall be prohibited in the content.
→ No PGCs shall exist in a PGC Block.

(Continued)

2. DVD CPRM Downloadable Video Contents
2.1 Restrictions for content in the DVD-Video zone

- Multi-angle and/or Multi story shall not exist in the content.
 - No Cells shall exist in a Cell Block (no multi-angle).
 - No commands which cause the branching of playback shall exist (there shall be no multi-story).
- The content in the DVD-Video zone shall not be protected by any content protection technology.
 - "Adapted disc type" in VMGI and DSI shall be set to "01b" (This Part 3: VIDEO SPECIFICATIONS is adapted to a DVD-R for General / DVD-R for DL / DVD-RW disc).
 - "PES_scrambling_control" in each packet (Video packet, Audio packet for LPCM/ Dolby AC-3/MPEG audio/ DTS/ SDDS, Sub-picture packet) shall be set to "00b" (no specific data structure for copyright protection system).
- The content shall be played back in all regions.
 - No Region management shall be set in VMGI (region free).

2.2 How to create the Title in DVD-Video zone

As defined in 2.1, the title in DVD-Video zone shall be a sequential title.

When a disc which includes DVD CPRM Downloadable Video titles is inserted in a DVD-Video player, the playback of the DVD-Video zone title is automatically started if the DVD player supports DVD writable media. The DVD-Video zone title shall then be played back to the end of the DVD-Video zone title without any branching, if there is no user operation. In order to realize this behavior;

- First Play PGC which includes a command to automatically start the playback of Title#1 (JumpTT #1 (TTN = 1)) shall exist.

Once the playback of the DVD-Video zone title reaches the end, the playback shall be stopped or shall be restarted from the beginning of the DVD-Video zone title. In order to realize this behavior;

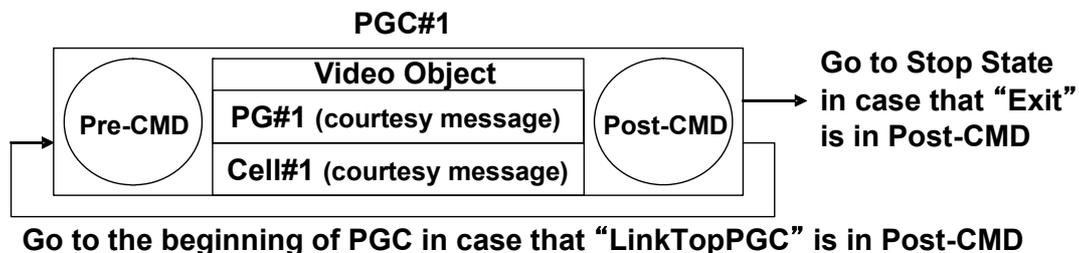
- The "Exit" command shall exist in the Post-Command (POST_CMD) Area in the last PGC of the title and/or
- The commands to restart from the beginning of title, such as "LinkTopPGC (in case that the title is created by one PGC)" or "LinkPGCN#1 (in case that the title is created by two or more PGCs)", shall exist in the Post-Command (POST_CMD) Area in the last PGC of the title.

There are several ways to create Video Object(s) for a DVD-Video zone title and to map each logical unit defined in the DVD-Video specifications. The following is three typical examples:

a) **The DVD-Video zone title is created and only used for a courtesy message (refer to [Figure 2.2-1])**

- One Video Object is created and
- The Video Object is mapped to a Cell/a PG/a PGC.

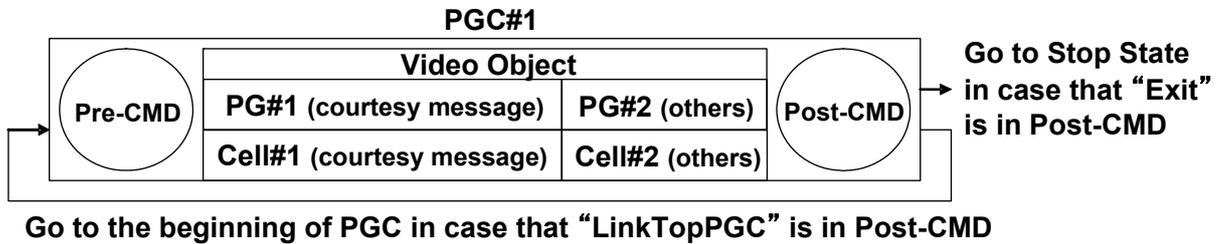
◇ **Figure 2.2-1 : An example with a courtesy message only**



b) The DVD-Video zone title is created with a courtesy message and other promotional or educational content (refer to [Figure 2.2-2])

- One Video Object, which consists of a courtesy message and one or more portion of others, is created.
- Each portion of a Video Object is mapped to a Cell/a Program
- All Cells and Programs are mapped to a PGC
- In this case, each portion is played back seamlessly and skipping to each other is possible by every player.

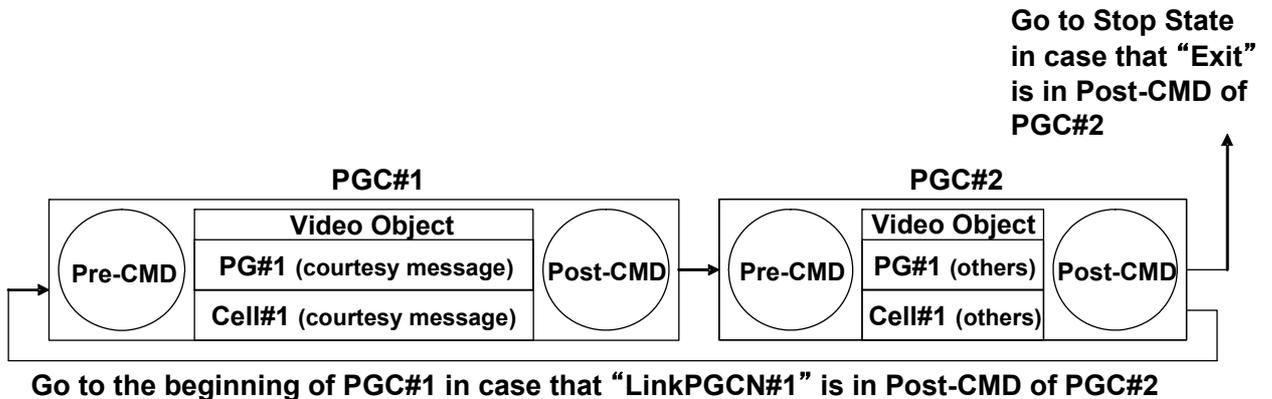
◇ Figure 2.2-2 : An example with a courtesy message and other promotional or educational content



c) The DVD-Video zone title is created for courtesy message and others (refer to [Figure 2.2-3])

- Two or more Video Objects for courtesy message and others are created respectively.
- Each Video Object is mapped to a Cell/a Program/a PGC.
- Each PGC is connected sequentially.
- In this case, seamless playback between Video Objects is not guaranteed.

◇ Figure 2.2-3 : An example with a courtesy message and others



2.3 Content protection for the content in DVD-DC zone

For CPRM specifications and details about DVD-DLV contents, please refer to 4C Entity, LLC.

3. Image data onto a Dual Layer disc

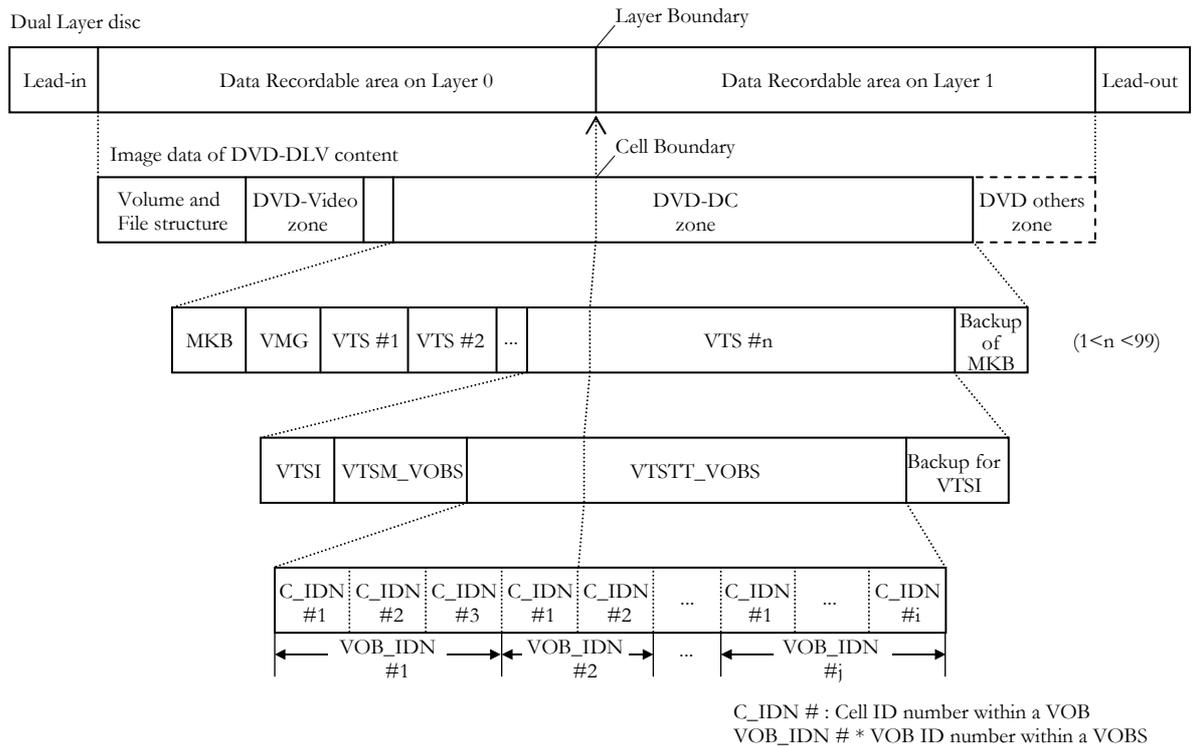
When image data is created for a Dual Layer disc, the Last address of Data Recordable area on Layer 0 of the disc is needed, as this address may be different for each disc.

There is a requirement that a Cell shall be allocated on the same layer and two Cells which are presented seamlessly shall be allocated on the same layer.

Therefore, if two Cells presented non-seamlessly are recorded across the layer, the DVD-DC zone shall be allocated in the image data so that the end of the first Cell shall be aligned at the end of Data Recordable area on Layer 0 using the Last address of Data Recordable area on Layer 0 of the disc. When the allocation of the DVD-DC zone is changed, related data in Volume and File Structure shall be changed.

See [Figure 3-1].

◇ Figure 3-1 : Image data onto Dual Layer disc



Annex A (Informative) : An example of the courtesy message

A.1 Underlying principle for the courtesy message

This Annex describes a courtesy message that shall be included by content providers or service providers when preparing content or products for the DVD CPRM Downloadable Video Optional Specifications as defined in the DVD CPRM Downloadable Video Guideline for content creation. The DVD-DLV content (including one DVD-Video zone and one DVD-DC zone) shall be downloaded or copied to a DVD writable disc.

As defined in the Optional Specifications and this normative guideline, content providers must provide a courtesy message in the DVD-Video zone. The courtesy message is intended to be played back by DVD players which support writable media but do not support the DVD-DLV zone and/or CPRM content protection. The intent of the courtesy message is to inform consumers that a DVD CPRM Downloadable Video disc may not be compatible with all DVD players but the DVD CPRM Downloadable Video disc is still recognized for playback in their (legacy) DVD player for purposes of informing the consumer that the disc is not corrupt or malfunctioning. It is strongly recommended that the courtesy message, promotional and educational content (if any) in the DVD-Video zone should be used to provide information that helps DVD-Video consumers experience consistent playback of DVD CPRM Downloadable Video content protected by CPRM.

Content and service providers are encouraged to provide other informational resources, in addition to the courtesy message, that consumers can easily access for additional information about DVD CPRM Downloadable Video protected by CPRM, related products or services.

Content providers shall provide a courtesy message in the DVD-Video zone. For this purpose, content providers may wish to consider the following as an example of a courtesy message.

A.2 Example courtesy message language

The DVD Forum provides the following sample courtesy message which can be used for CPRM protected disc products in the above-specified purpose (hereafter "the courtesy message").

"Caution: This DVD disc includes DVD CPRM Downloadable Video (DVD-DLV) content which is protected by Content Protection for Recordable Media (CPRM), and may not be compatible with this DVD player. Please review your content provider's website or visit the DVD Forum's website <http://www.dvdforum.org/mi-dvd-dlvguide.htm> for more information."

A.3 Considerations

The DVD Forum offers the example courtesy message only as an example for each content provider's consideration and individual judgment. It is the content providers' sole discretion whether to use this example, modify it or elect to generate their own courtesy message in order to inform consumers about DVD CPRM Downloadable Video and CPRM compatibility issues.

Content providers are further advised that the physical characteristics of any such notice with respect to DVD products, such as placement, type size, style, and color, etc, shall be determined at the sole discretion of content providers.

Content providers may wish to consult their own legal counsel regarding the use of the courtesy message with respect to their products and services.

A.4 Legal Disclaimer

THE SAMPLE COURTESY MESSAGE IS PROVIDED ONLY AS AN EXAMPLE. THE DVD FORUM MAKES NO REPRESENTATIONS OR WARRANTIES, EXPRESS, IMPLIED, STATUTORY OR OTHERWISE, AND EXPRESSLY DISCLAIMS IMPLIED WARRANTIES OF MERCHANTABILITY AND FITNESS FOR A PARTICULAR PURPOSE, AND ANY EQUIVALENTS UNDER THE LAWS OF ANY JURISDICTION, WITH RESPECT TO THE USE OR NON-USE OF THE SAMPLE NOTICE OR OTHER NOTIFICATION, INCLUDING WITHOUT LIMITATION THE LEGAL EFFECT OF THE USE OR NON-USE OF SUCH NOTICE.

FURTHER, NEITHER THE DVD FORUM NOR ITS MEMBERS SHALL BE LIABLE TO SUBSCRIBERS FOR ANY DIRECT, INDIRECT, INCIDENTAL, CONSEQUENTIAL, SPECIAL OR PUNITIVE DAMAGES ARISING OUT OF ANY CAUSE OF ACTION RELATING TO USE OR NON-USE OF THE SAMPLE NOTICE, OR BASED ON MAKING, USING, SELLING OR DISTRIBUTING ANY DVD PRODUCTS WITH OR WITHOUT THE SAMPLE NOTICE OR OTHER NOTIFICATION.

DVD CPRM Downloadable Video Guideline for content creation:

Version 1.0 — April 2007