

CUE sheet format

Analysis of the CUE format

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Summary

The extension CUE is used to specify the table of contents (TOC) of optical media images, e.g. BIN or ISO.

This document is intended as a working document for the CUE sheet specification. Which should allow other tooling to be able to process this file type.

Document information

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Abstract: This document contains information about the CUE sheet format.

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Version

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0.0.2	J.B. Metz	November 2010	Thanks to P. van Hove creator of IsoBuster for providing additional information about the CUE sheet and the IsoBuster add-ons.
0.0.3	J.B. Metz	December 2010	License version update
0.0.4	J.B. Metz	January 2011	Additional information about format. Changed MODE2/2342 into MODE2/2324.

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1. Overview

The extension CUE is used to specify the table of contents (TOC) of optical media images, e.g. BIN or ISO.

The CUE sheet originates from CDRWIN, but various additions have been made.

The CUE sheet is a text file; the format defines no restrictions on the format of the text itself, e.g. extended ASCII or UTF-8.

The CUE sheet consists of multiple sections:

- main section
- session section
- track section

Each section contains keywords which are commonly referred to as commands.

Main section specific commands:

- CATALOG
- CDTEXTFILE
- FILE
- REM ORIGINAL MEDIA-TYPE
- REM SESSION
- TRACK

The session section specific commands:

- The track commands
- REM LEAD-OUT
- REM RUN-OUT

Track section specific commands:

- FLAGS
- INDEX
- ISRC
- POSTGAP
- PREGAP

Note that the following commands can be present in both sections:

- The CD-Text commands
- REM (remarks)

Come CUE sheets contain comments which are defined by a semi-colon (;), e.g.

```
; Just commenting
```

2. Commands

2.1. CATALOG

The CATALOG command is used to specify the "Media Catalog Number". It will typically be used when mastering a CDROM for commercial production.

The CATALOG command is defined as:

```
CATALOG [media catalog number]
```

The media catalog number must be a numeric value of 13 digits and encoded according to UPC/EAN (Universal Product Code/European Article Number) rules.

The CATALOG command can appear only once in the CUE sheet. It will usually be the first command in the CUE sheet, but this is not mandatory.

2.2. CDTEXTFILE

The CDTEXTFILE is used to specify the name of a file that contains the CD-TEXT information.

```
CDTEXTFILE [filename]
```

If the filename contains any spaces, then it must be enclosed in quotation marks.

[TODO format of this file?] Binary data from the “Read TOC CD-Text command” without the 4 bytes header.

2.3. FILE

The FILE command is used to specify a file that contains data.

```
FILE [filename] [file type]
```

If the filename contains any spaces, then it must be enclosed in quotation marks.

The first FILE command should be the commands in the CUE sheet with the exception of the CATALOG command.

2.3.1. File types

Value	Description
BINARY	Binary data in little-endian (Intel format)
MOTOROLA	Binary data in big-endian (Motorola format)
AIFF	Audio data in AIFF 44.1KHz 16-bit stereo format
WAVE	Audio data in WAVE 44.1KHz 16-bit stereo format
MP3	Audio data in MPEG 1 layer 3 (MP3) 44.1KHz 16-bit stereo format

2.4. REM

The REM command is used to specify remarks.

```
REM [remarks]
```

Note that the remarks also contain additional commands, see section: 4 Remarks commands.

2.5. TRACK

The TRACK command is used to specify a track.

```
TRACK [track number] [track type]
```

The track number should be a number ranging from 1 to 99. It is unclear of the index number should always be represented by 2 digits.

The first track number can be greater than one, but all track numbers after the first must be sequential. The CUE sheet should at least contain 1 TRACK command.

2.5.1. Track types

Value	Description
AUDIO	Audio (sector size: 2352)
CDG	Karaoke CD+G (sector size: 2448)
MODE1/2048	CD-ROM Mode 1 data (cooked) (sector size: 2048)
MODE1/2352	CD-ROM Mode 1 data (raw) (sector size: 2352)
MODE2/2048	CD-ROM Mode 2 XA form-1 data (sector size: 2048)
MODE2/2324	CD-ROM Mode 2 XA form-2 data (sector size: 2324)
MODE2/2336	CD-ROM Mode 2 data (sector size: 2336)
MODE2/2352	CD-ROM Mode 2 data (raw) (sector size: 2352)
CDI/2336	CDI Mode 2 data
CDI/2352	CDI Mode 2 data

3. CD-Text commands

TODO

ARRANGER
COMPOSER
DISC_ID
GENRE
ISRC
MESSAGE
SIZE_INFO
TOC_INFO1
TOC_INFO2
UPC_EAN

3.1. PERFORMER

The PERFORMER command is used to specify the name of a performer.

```
PERFORMER [string]
```

If the string contains any spaces it must be enclosed in quotation marks. Strings should be limited to a maximum of 80 characters.

If the PERFORMER command appears before any TRACK commands it represents the performer of the entire disc. If the command appears after a TRACK command it represents the performer of the current track.

3.2. SONGWRITER

The SONGWRITER command is used to specify the name of a song writer.

```
SONGWRITER [string]
```

If the string contains any spaces it must be enclosed in quotation marks. Strings should be limited to a maximum of 80 characters.

If the SONGWRITER command appears before any TRACK commands it represents the song writer of the entire disc. If the command appears after a TRACK command it represents the song writer of the current track.

3.3. TITLE

The TITLE command is used to specify the name of a title.

```
TITLE [string]
```

If the string contains any spaces it must be enclosed in quotation marks. Strings should be limited to a maximum of 80 characters.

If the TITLE command appears before any TRACK commands it represents the title of the entire disc. If the command appears after a TRACK command it represents the title of the current track.

4. Remarks commands

TODO

```
REM DATE  
REM REPLAYGAIN_ALBUM_GAIN  
REM REPLAYGAIN_ALBUM_PEAK  
REM REPLAYGAIN_TRACK_GAIN  
REM REPLAYGAIN_TRACK_PEAK
```

4.1. REM LEAD-OUT

The REM LEAD-OUT command is used to specify the length of a lead-out.

```
REM LEAD-OUT [MSF]
```

The lead-out data can either be stored or not stored in the file specified by the FILE command. The only indication is the size of the file.

The REM LEAD-OUT command must appear after a REM SESSION command and a REM RUN-OUT command if specified. Only one REM LEAD-OUT command is allowed per track.

Also see section: 6.1 MSF

This command is an IsoBuster add-on.

4.2. REM MSF

The REM LEAD-OUT command is used to specify the LBA corresponding to an MSF.

```
REM MSF: [MSF] = LBA: [LBA]
```

Also see section: 6.1 MSF

This command is an IsoBuster add-on.

4.3. REM ORIGINAL MEDIA-TYPE

The REM ORIGINAL MEDIA-TYPE command is used to specify the original media type.

```
REM ORIGINAL MEDIA-TYPE: [media type]
```

It is often specified before any REM SESSION commands.

This command is an IsoBuster add-on.

4.3.1. Media types

Value	Description
<i>Compact Disk</i>	
CD	Generic CD
CD-RW	Re-writable CD
CD-MRW CD-(MRW)	TODO
<i>Digital Video Disc or Digital Versatile Disc</i>	
DVD	Generic DVD
DVD+MRW	TODO

Value	Description
DVD+(MRW)	
DVD+MRW DL DVD+(MRW) DL	TODO (double layered)
DVD+R	TODO
DVD+R DL	TODO
DVD+RW	TODO
DVD+RW DL	TODO
DVD+VR	TODO
DVD-RAM	TODO
DVD-R	TODO
DVD-R DL	TODO
DVD-RW	TODO
DVD-RW DL	TODO
DVD-VR	TODO
DVDRW	TODO
<i>High density DVD</i>	
HD DVD	TODO
HD DVD-RAM	TODO
HD DVD-R	TODO
HD DVD-R DL	TODO
HD DVD-RW	TODO
HD DVD-RW DL	TODO
<i>Blu-ray Disk</i>	
BD	Generic BD
BD-R	TODO
BD-R DL	TODO
BD-RE	TODO
BD-RE DL	TODO

4.4. REM RUN-OUT

The REM RUN-OUT command is used to specify the length of a run-out.

REM RUN-OUT [MSF]

The run-out data is considered not to be stored in the file specified by the FILE command if the FILE command was specified after the REM SESSION command.

The REM RUN-OUT command must appear after a REM SESSION command, but before a REM LEAD-OUT command. Only one REM LEAD-OUT command is allowed per track.

Also see section: 6.1 MSF

This command is an IsoBuster add-on.

4.5. REM SESSION

The REM SESSION command is used to specify sessions

```
REM SESSION [session number]
```

The session number should be a number ranging from 1 to 99. It is unclear of the index number should always be represented by 2 digits.

TODO maximum of 50 sessions on a CD?

This command is an IsoBuster add-on.

5. Track commands

5.1. FLAGS

The FLAGS command is used to define special sub-code flags for a track.

```
FLAGS [flag types]
```

The flags types contain one or more track flags.

The FLAGS command must appear after a TRACK command, but before any INDEX commands. Only one FLAGS command is allowed per track.

5.1.1. Flag types

Value	Description
4CH	Four channel audio
DCP	Digital copy permitted
PRE	Pre-emphasis enabled, for audio tracks only
SCMS	Serial copy management system

TODO add more info about flags]

There is also a sub-code flag "DATA" which is set for all non-audio tracks. This flag is set automatically based on the track type.

5.2. INDEX

The INDEX command is used to specify indexes or sub-indexes of the track.

```
INDEX [index number] [MSF]
```

The index number should be a number ranging from 0 to 99. **It is unclear of the index number should always be represented by 2 digits.**

The index number have the following meaning:

- 0 specifies the pre-gap of the track;
- 1 specifies the start of the track;
- 2 – 99 specify a sub-index within the track.

Also see section: 6.1 MSF

5.3. ISRC

The ISRC command is used to specify the International Standard Recording Code (ISRC) of a track. It will typically be used when mastering a CD for commercial production.

```
ISRC [ISRC code]
```

The ISRC code must be 12 characters in length. The first five characters are alphanumeric and the last seven are numeric.

The ISRC command must be specified after a TRACK command, but before any INDEX commands.

5.4. POSTGAP

The POSTGAP command is used to specify the length of a track post-gap.

```
POSTGAP [MSF]
```

The post-gap data is considered not to be stored in the file specified by the FILE command.

The POSTGAP command must appear after all INDEX commands for the current track. Only one POSTGAP command is allowed per track.

Also see section: 6.1 MSF

5.5. PREGAP

The PREGAP command is used to specify the length of a track pre-gap.

```
PREGAP [MSF]
```

The pre-gap data is considered not to be stored in the file specified by the FILE command.

The PREGAP command must appear after a TRACK command, but before any INDEX commands. Only one PREGAP command is allowed per track.

Also see section: 6.1 MSF

6. Data types

6.1. MSF

The MSF consists of minutes:seconds:frames (mm:ss:ff), the MSF is either relative to the last FILE command or relative to the start of the optical media. There are 75 frames per second, 60 seconds per minute.

Note that the MSF is defined without the 2 seconds MFS offset, therefore MSF 00:00:00 equals LBA 0. This is different from the MSF for the CD itself where MSF 00:02:00 equals LBA 0.

Appendix A. References

[DIGITALX]

Title: Digital Audio | Cue Sheet Syntax
URL: <http://digitalx.org/cuesheetsyntax.php>

[LIBCDIO]

Title: GNU Compact Disc Input and Control Library
Author(s): Free Software Foundation
URL: <http://www.gnu.org/software/libcdio/>
URL: <http://www.gnu.org/software/libcdio/libcdio.html#SEC22>

[LIBCUE]

Title: CUE Sheet Parser Library
Author(s): jrky
URL: <http://sourceforge.net/projects/libcue>

[WIKI]

Title: Cue sheet (computing)
URL: [http://en.wikipedia.org/wiki/Cue_sheet_\(computing\)](http://en.wikipedia.org/wiki/Cue_sheet_(computing))

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