

Cue sheet

A **cue sheet** (or **CUE file**, **.cue**, **CUE sheet**, etc.) is a formatted text file which provides index and other supplemental information for one or more audio files. A cue sheet is generally used in conjunction with either extracting from or burning to [CD](#). For example, when a CD's complete audio content has been ripped to a single file, a cue sheet contains information about the track boundaries, and CD-R burning software can use it to make a copy of the original CD with the same track layout as the original. Cue sheets can also be used when writing data CDs.

Increasingly, cue sheets are being used as playlists: you load the cue sheet in a media player, and it can play an "image" (single-file) rip as if it were separate files, one for each track. Cue sheets can be used for file-per-track rips as well, but many such rips require that the cue sheet not adhere strictly to the original specification's rules.

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Cue sheet contents

All cue sheets contain the following info:

- The name & type of at least one file being indexed (an audio file, normally);
- A numbered list of tracks each file corresponds to or contains;
- The start point (index 01) for each track, time-wise (MM:SS:FF format).

Cue sheets may contain the following additional info:

- CD-Text [metadata](#) such as performer, title, songwriter for the disc and/or each track;
- ISRCs (sound recording IDs to burn)
- Special flags for CD burning (e.g. for pre-emphasis)
- Gap info (how much silence to insert before or after each track)
- Comments (which are used by some programs to store nonstandard metadata like genre, freeDB disc ID, etc.)

A cue sheet isn't necessary to make an exact copy of the audio portion of a

CD; ripping & burning software will get you the audio wave data and can figure out where each track starts. However, a cue sheet *can* be used to specify the location of the first track (if it deviates from the standard), as well as certain subcode information, such as non-01 index points, CD-TEXT (which may not exist on the original CD), UPC/ISRC data, and [pre-emphasis](#) information.

A cue sheet *is* required to burn "hidden track one audio" ([HTOA](#)), which is audio that can only be played after scanning backwards from the beginning of track 1. A cue sheet may be needed when silent frames have been omitted from the beginning or end of files to be burned; the cue sheet can be used to reconstruct the pauses by telling the burner or player where to insert silence. A cue sheet may also be needed when there is a mix of audio and data tracks to be burned (unless the burning software is told which tracks are which).

History

The cue sheet format was invented by Jeff Arnold of [GoldenHawk Technology](#) for use with his [DAO](#) (**D**isc **A**t **O**nce) and [CDRWIN](#) applications. The format has since been adopted as the *de facto* standard, and is used by various other applications, including the audio player [foobar2000](#). The official cue sheet specification is widely accepted to be Appendix A of the CDRWIN User's Guide.

The name is taken from the **SEND CUE SHEET** command (as defined in the *SCSI-3 Multimedia Commands* specification), used for sending a binary-format cue sheet describing the disc layout to the drive before writing starts in SAO (Session-At-Once) write mode. The drive writes to the disc, using the cue sheet information to generate the P and Q subchannel data, and to retrieve the format and block size of the data transferred with the **WRITE**

command.^[1]

The DAO and CDRWIN software was developed for use on MS-DOS and early Windows systems, when it was common to refer to types of files by their file name extensions, in all-caps: TXT for text, DOC for Word document, and so on. Early references to cue sheets likewise referred to *CUE files*. This convention continues to the present day, but the *cue* in the term *cue sheet* is not an acronym and need not be capitalized.

Cue sheet commands

The following commands are detailed in the Appendix A of the [CDRWIN User's Guide](#):

- CATALOG – A 13-digit UPC/EAN code, also referred to as the Media Catalog Number (MCN). 12-digit UPC codes should be prefixed with a "0".
- CDTEXTFILE – A path to a file containing CD-Text info.
- FILE – A path to a file containing audio data, and to which subsequent commands apply.
- FLAGS – Per-track subcode flag(s):
 - DCP – Digital copy permitted.
 - 4CH – Four channel audio.
 - PRE – Pre-emphasis enabled (audio tracks only).
 - SCMS – Serial Copy Management System (not supported by all recorders).
- INDEX – Per-track index(es).
- ISRC – Per-track ISRC(s).
- PERFORMER – Per-disc or per-track performer name for CD-Text data.
- POSTGAP – Amount of post-track silence to add.
- PREGAP – Amount of pre-track silence to add.

- REM – A remark/comment to be ignored.
- SONGWRITER – Per-disc or per-track songwriter name for CD-Text data.
- TITLE – Per-disc or per-track title for CD-Text data.
- TRACK – Type of track to create, and to which subsequent commands apply.

Most often used

FILE

The FILE command specifies the file that the cue sheet is currently referencing. Valid file types are WAVE, MP3, AIFF, BINARY and MOTOROLA. Other formats, such as the lossless formats [WavPack](#) or [FLAC](#), can also be used under the WAVE file type.

INDEX

A number between 00 and 99. Index points are specified in MM:SS:FF format, and are relative to the start of the file currently referenced. MM is the number of minutes, SS the number of seconds, and FF the number of frames (there are seventy five frames to one second). INDEX 01 commands specify the beginning of a new track. INDEX 00 commands specify the pre-gap of a track; you may notice your [Audio CD](#) player count up from a negative value before beginning a new track - this is the period between INDEX 00 and INDEX 01.

PERFORMER

At top-level this will specify the CD artist, while at track-level it specifies the track artist.

PREGAP

Used to specify the length of a track pre-gap, in MM:SS:FF format. Although the SCSI specs reserve the term *pre-gap* for the pause before a data track, in a cue sheet the PREGAP command can be used to

create a pause before any kind of track, data or audio.

REM

Used to record comments in a cue sheet. This command is often used to store additional meta data to TITLE and PERFORMER, e.g.: the date or genre of the disc.

The following REM comments can be written to a disc's CD-Text section and read by an application such as [cdrdao](#) or ImgBurn:

REM UPC

The "UPC" is not necessarily the same as "CATALOG", and can be 12 or 13 digits in length.

REM DISCID

Although programs such as [Exact Audio Copy](#) use this to store the disc's CDDDB1 value, other programs can extract the disc's true Disc ID, which is usually the disc's label-specific catalog number (see the example TOC file on the [cdrdao](#) page and the "DISC_ID" field for an example).

TITLE

At top-level this will specify the album name, while at track-level it specifies the track name.

TRACK

A number between 01 and 99, indicating the track number.

Quotation marks

The use of quotation marks around strings for PERFORMER, TITLE, etc., is standard practice, however, for programs such as ImgBurn, they are not mandatory.^[2]

By omitting quotation marks, this allows the use of quotation marks within the string itself. For example:

TRACK 01 AUDIO

TITLE Theme Of "Rome"

PERFORMER Danger Mouse & Daniele Luppi

ISRC GBAYE1001378

INDEX 01 00:00:00

This does not, however, work for strings that need to display quotation marks at the beginning of the string, as ImgBurn only parses the text contained *within* the quotation marks.

Whitespace

Line breaks must be used between commands. Spaces or tabs can be used to indent; they're ignored but can make the file easier to understand when viewing or manually editing. Customarily, for audio CDs, all the commands which apply to a particular file are indented under the FILE command, and those which apply to a specific track are further indented under the TRACK command.

Examples

A standard single file cue sheet

REM GENRE Alternative

REM DATE 1991

REM DISCID 860B640B

REM COMMENT "ExactAudioCopy v0.95b4"

PERFORMER "My Bloody Valentine"

TITLE "Loveless"

FILE "My Bloody Valentine - Loveless.wav" WAVE

TRACK 01 AUDIO

TITLE "Only Shallow"

```
PERFORMER "My Bloody Valentine"  
INDEX 01 00:00:00  
TRACK 02 AUDIO  
TITLE "Loomer"  
PERFORMER "My Bloody Valentine"  
INDEX 01 04:17:52
```

The cue sheet above, created by [EAC](#), shows the first two tracks of a standard single file cue sheet. Note the use of REM commands to record additional [metadata](#), in the format **REM <TAG> "<value>"**. The **PERFORMER** and **TITLE** commands at the top of the cue sheet detail the [CD](#) artist and album name respectively. The **PERFORMER** and **TITLE** commands at track-level specify the track artist and title.

TRACK 02's INDEX 01 entry does not state that the track is 4m 17.693s long, but that the beginning of the track is 4m 17.693s into the file (so TRACK 01 was in fact 4m 17.693s long). If TRACK 02 was 3m long exactly, TRACK 03's INDEX 01 value would be 07:17:52.

Also note the file reference specifying a relative path to the file (references can also be absolute) and the file type: [WAVE](#).

A single-file cue sheet with a TRACK 01 INDEX 00 hidden track

```
PERFORMER "Bloc Party"  
TITLE "Silent Alarm"  
FILE "Bloc Party - Silent Alarm.flac" WAVE  
TRACK 01 AUDIO  
TITLE "Like Eating Glass"  
PERFORMER "Bloc Party"  
INDEX 00 00:00:00  
INDEX 01 03:22:70  
TRACK 02 AUDIO
```



```
TITLE "Helicopter"  
PERFORMER "Bloc Party"  
INDEX 00 07:42:69  
INDEX 01 07:44:69
```

The cue sheet above shows the first two tracks of a single file cue sheet for a disc with a hidden track at the start. Note that TRACK 01 INDEX 01 starts at 03:22:70 (3m 22.933s) instead of 00:00:00 as in the first example, and most cue sheets. The INDEX 00 index on TRACK 02 displays the more usual behaviour, being two seconds before INDEX 01.

As the INDEX 00 is on TRACK 01 you will not normally see the usual countdown from a negative value that you might see from an INDEX 00 command on a subsequent track. To listen to this track on a [Audio CD](#) player you will need to start the disc playing and press rewind, to rewind, essentially, from 3m 22s into the disc back to the true beginning.

Also note that the file referenced is [FLAC](#), but the [WAVE](#) files type is used. For [MP3](#) files the file type "[MP3](#)" should be used, for [AIFF](#) you should use "[AIFF](#)", but for all other types "[WAVE](#)" is used.

Multiple files with corrected gaps

```
FILE "The Specials - Singles - 01 - Gangsters.wav" WAVE  
  TRACK 01 AUDIO  
    TITLE "Gangsters"  
    PERFORMER "The Specials"  
    INDEX 01 00:00:00  
FILE "The Specials - Singles - 02 - Rudi, A Message To You.wav" W  
  TRACK 02 AUDIO  
    TITLE "Rudi, A Message To You"  
    PERFORMER "The Specials"
```

INDEX 00 00:00:00

INDEX 01 00:00:28

This multiple file cue sheet, created by [EAC](#), has gaps prepended to the next track. This method allows users to retain gaps, but by prepending the gap to the next track each track may begin with silence, which makes playback less satisfactory. This is a very uncommon way to rip CDs, even though it is more in line with the disc's actual track layout.

Multiple files with gaps left out

```
FILE "The Specials - Singles - 01 - Gangsters.wav" WAVE
  TRACK 01 AUDIO
    TITLE "Gangsters"
    PERFORMER "The Specials"
    INDEX 01 00:00:00
FILE "The Specials - Singles - 02 - Rudi, A Message To You.wav" W
  TRACK 02 AUDIO
    TITLE "Rudi, A Message To You"
    PERFORMER "The Specials"
    PREGAP 00:00:28
    INDEX 01 00:00:00
```

This multiple file cue sheet, created by [EAC](#), has removed the gaps, but artificially recreates silence between tracks using the PREGAP command. This is fine if the gap was silence, but unsatisfactory if it contained audio.

Multiple files with gaps (Noncompliant)

```
FILE "The Specials - Singles - 01 - Gangsters.wav" WAVE
  TRACK 01 AUDIO
    TITLE "Gangsters"
```

```
PERFORMER "The Specials"
INDEX 01 00:00:00
TRACK 02 AUDIO
TITLE "Rudi, A Message To You"
PERFORMER "The Specials"
INDEX 00 02:47:74
FILE "The Specials - Singles - 02 - Rudi, A Message To You.wav" W
INDEX 01 00:00:00
```

This multiple-file cue sheet, created by [EAC](#), has gaps appended to the previous track, and is a favourite among users who rip to track files but wish to retain gap information. This format allows the user to retain gaps, but in a position in the track file that does not hinder playback. Unfortunately, this format is non-compliant; this type of rip, despite its popularity, was not supported by the original DAO and CDRWIN software for which cue sheets were designed. Applications that adhere to the cue sheet specification, like [foobar2000](#), will not be able to read it. Of course, [EAC](#) will read these cue sheets, as will the [CD](#) burning application [Burrn](#).

Note that INDEX 00 of TRACK 02 is set while still referencing the first FILE.

Single file version of the cue sheet used above

```
FILE "The Specials - Singles.wav" WAVE
TRACK 01 AUDIO
TITLE "Gangsters"
PERFORMER "The Specials"
INDEX 01 00:00:00
TRACK 02 AUDIO
TITLE "Rudi, A Message To You"
PERFORMER "The Specials"
INDEX 00 02:47:74
INDEX 01 02:48:27
```

For reference, the cue sheet used in the examples above is in single file format.

Example cue sheet

```
REM GENRE Ska
REM DATE 1991
REM DISCID D00DA810
REM COMMENT "ExactAudioCopy v0.95b4"
PERFORMER "The Specials"
TITLE "Singles"
FILE "The Specials - Singles.wav" WAVE
  TRACK 01 AUDIO
    TITLE "Gangsters"
    PERFORMER "The Specials"
    INDEX 01 00:00:00
  TRACK 02 AUDIO
    TITLE "Rudi, A Message To You"
    PERFORMER "The Specials"
    INDEX 00 02:47:74
    INDEX 01 02:48:27
  TRACK 03 AUDIO
    TITLE "Nite Klub"
    PERFORMER "The Specials"
    INDEX 00 05:41:50
    INDEX 01 05:42:27
  TRACK 04 AUDIO
    TITLE "Too Much Too Young"
    PERFORMER "The Specials"
    INDEX 00 08:53:47
    INDEX 01 08:54:37
  TRACK 05 AUDIO
    TITLE "Guns Of Navarone"
```

PERFORMER "The Specials"

INDEX 00 10:59:20

INDEX 01 11:00:17

TRACK 06 AUDIO

TITLE "Rat Race"

PERFORMER "The Specials"

INDEX 00 13:20:55

INDEX 01 13:20:67

TRACK 07 AUDIO

TITLE "Stereotype"

PERFORMER "The Specials"

INDEX 00 16:29:67

INDEX 01 16:30:30

TRACK 08 AUDIO

TITLE "International Jet Set"

PERFORMER "The Specials"

INDEX 00 20:19:27

INDEX 01 20:20:20

TRACK 09 AUDIO

TITLE "Do Nothing"

PERFORMER "The Specials"

INDEX 00 24:30:70

INDEX 01 24:32:27

TRACK 10 AUDIO

TITLE "Ghost Town"

PERFORMER "The Specials"

INDEX 00 28:23:30

INDEX 01 28:23:42

TRACK 11 AUDIO

TITLE "Why?"

PERFORMER "The Specials"

INDEX 00 34:21:37

INDEX 01 34:21:47

TRACK 12 AUDIO

TITLE "Friday Night, Saturday Morning"

PERFORMER "The Specials"
INDEX 00 38:16:50
INDEX 01 38:16:55
TRACK 13 AUDIO
TITLE "War Crimes"
PERFORMER "The Specials"
INDEX 00 41:50:07
INDEX 01 41:51:00
TRACK 14 AUDIO
TITLE "Racist Friend"
PERFORMER "The Specials"
INDEX 00 45:50:55
INDEX 01 45:51:72
TRACK 15 AUDIO
TITLE "Nelson Mandela"
PERFORMER "The Specials"
INDEX 00 49:35:55
INDEX 01 49:38:22
TRACK 16 AUDIO
TITLE "(What I Like Most About You Is Your) Girlfriend"
PERFORMER "The Specials"
INDEX 00 54:11:00
INDEX 01 54:12:40

Useful applications

Playing

- [foobar2000](#)

Splitting

- [ACDIR:](#)
http://nyaochi.sakura.ne.jp/xoops/modules/mysoftwares/tc_2.html

- CUE Splitter: http://www.enfis.it/downloads.php?cat_id=1
- CueProc: http://nyaochi.sakura.ne.jp/xoops/modules/mysoftwares/tc_6.html (that domain appears to be lost, but <https://github.com/rinrinne/cueproc-alternative> looks like a derivative)
- CueTools: <http://www.hydrogenaudio.org/forums/index.php?showtopic=41476>
- foobar2000: <http://www.foobar2000.org/>
- mp3DirectCut: <https://mpesch3.de/>
- mp3splt: <https://github.com/mp3splt/mp3splt>
- pcutmp3: <http://www.hydrogenaudio.org/forums/index.php?showtopic=35654>
- shntool: <http://shnutils.freeshell.org/shntool/>
- WavSplit: <http://tangerine.uw.hu/prog/>

Joining

- CueMake: <http://www.synthetic-soul.co.uk/files/cuemake/>
- CueTools: <http://www.hydrogenaudio.org/forums/index.php?showtopic=41476>
- foobar2000: <http://www.foobar2000.org/>
- shntool: <http://shnutils.freeshell.org/shntool/>
- XRECODE: <https://xrecode.com/>

Creating

- CD Wave: <http://www.milossoftware.com/cdwave/> - only reads .wav, .flac, .ape, .w64
- CUEgenerator: <http://cuegenerator.net/> (online web app)
- CueMaster: <http://cuemaster.org/>
- CueTools: <http://www.hydrogenaudio.org/forums/index.php?>

[showtopic=41476](#)

- [foobar2000](#): <http://www.foobar2000.org/>
- [Goldwave](#): <http://www.goldwave.com/>
- [imgburn](#): <https://www.imgburn.com/> - (Tools menu -> Create CUE File)
- [shntool](#): <http://shnutils.freeshell.org/shntool/>
- Wave Repair: <https://www.delback.co.uk/wavrep/> - only reads in .WAV files

References

1. ↑ Text adapted from [a post by Martin H.](#)
2. ↑ [double-quotation marks in track title](#)

See also

- [Gap settings](#)
- [EAC CUE Sheets](#)

External links

- [libodraw cue sheet documentation](#)
- [CDRWIN 3.8 Users Manual.book - cdrwin.pdf](#) via archive.org - Cue sheet commands are listed under Appendix A.
- [goldenhawk.com](#) via archive.org
- [Cue sheet \(computing\)](#) on Wikipedia