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General information

PoINT TOC Printer is an application designed for printing TOC files in two different ways:

1. As a Table

You may choose a font for the table and determine which information of the TOC (titles, filenames, ISRC/Copy Protection and/or Indices) should be printed.
Two different timeformat are available (MSF and Sampleframes).

2. As a Booklet and Inlay

You may choose one font for the title of the CD and a different one for the rest of the booklet.
Numbers, title and length (MM:SS) of a track are printed.
Additionally information about Indices may be printed.

To exit just press



To get this Helpinformation press



To get information about TOC Printer press



Print TOC as Table

To change the font, press the Choose Font button. A dialog will appear, and all characteristic font attributes may be set.

Timeformat

In order to switch between the two different time formats use one of the radio buttons

MSF

Time is printed in Minute:Second:Frame format
e.g. 00:02:00

Sample frames

Time is printed in Sample frame format
e.g. 88200

Include

To specify additionally information, which should also be printed, use the check boxes described below.

Titles

Print the Titel of the Track

File Names

Print the path and the filename (only enabled if Titles is enabled!)

ISRC / Copy prot

Print **ISRC**, **Copy protection** and **Pre-emphasis** information

Indices

Print information about **Indices**

To print the Table press this button



To preview the Table press this button



Print TOC as Booklet

Choose Title Font...

To change the font for the title of the CD, press this button. A dialog will appear, and all characteristic font attributes may be set.

Choose Body Font...

To change the font for the booklet, press this button. A dialog will appear, and all characteristic font attributes may be set.

Include Indices

Prints information about Indices like number, title and time.

Print both sides (manually)

In order to print the booklet to both sides of the paper check this button.

To print the Booklet press this button



To preview the Booklet press this button



To save the TOC information in a text file press this button



MSF

MSF is an abbreviation of minutes/seconds/frames and denotes the presentation and the special format of addresses used on CDs.

Audio frames on a CD are addressed by minutes (0-99), seconds (0-59), and frame number (0-74).

An MSF address is displayed as a group of three decimal numbers in the form MM:SS:FF.

Track

The term track denotes a group of at least 300 subsequent audio frames (4 seconds) on an audio CD.

The start addresses of all tracks are stored in the table of contents of the CD which is located before the first track. An audio track starts at the corresponding start address and ends implicitly at the start of the next track. Therefore tracks cannot overlap each other. CD players can immediately jump to the start of each track by means of this TOC and can begin to play the track.

Track numbers as well as the addresses of the respective audio frames in relation to the start of the disc and to the start of the track are stored in the Q-channel.

Audio CD

Physically an audio CD consists of subsequent audio frames without any gaps. The absolute address 00:00:00 is always assigned to the first audio frame on the disc, the second frame has address 00:00:01, the third frame 00:00:02 and so on. The absolute addresses should increase monotonously up to the last audio frame on a CD. The maximum number of audio frames is limited by the capacity of the CD medium (about 74 minutes for CD-R media).

Logically the sequence of audio frames is divided in several tracks to delimit different pieces of music from each other. All Tracks are numbered. In general number 1 is assigned to the first track, the maximum track number is 99.

In addition to the audio tracks an audio CD contains a lead-in-area at the beginning of the disc and a lead-out-area at the end.

Index

Additional start addresses can be defined within each track. These start addresses are called indexes or subindexes. The MSF addresses of indexes are not stored in the table of contents of the CD. The current index number is part of the Q-channel of the audio frames. The first audio frame of a track has always index number 1. The index number can be increased up to number 99 in the remainder of the track by placing indexes.

Since the index addresses are not part of the table of contents CD players cannot immediately jump to the start of an index, but players have to search the track sequentially for the audio frame at which the index number adopts the wanted value. Searching is difficult and time expensive and is probably a reason for the fact that many CD players do not support indexes at all.

Pause

Silence between neighboured tracks can be created by placing silence (0 samples) at the beginning or the end of a track. The disadvantage of silence is that CD players "play" the silence also in case that only one track shall be played because the silence cannot be distinguished from "real" audio signals.

Therefore the Red Book provides the opportunity to mark silent areas. Marked silent areas are called pauses. Audio frames of pauses belong to the subsequent track (track number in the Q-channel), but are placed before the start address of this track. Within the pause area the reserved index number 0 is used and track relative addresses count down to 00:00:00 at the start address of the track. Playing of one track can then be stopped at the beginning of the subsequent pause.

ISRC

The international standard recording code (ISRC) serves to identify audio and video recordings. It consists of four components, the country code, the owner key, the year number and the recording key.

Country code: 2 capital letters 'A' - 'Z'.

Owner key: 3 capital letters 'A' - 'Z' or numbers '0' - '9'.

Year number: 2 numbers '0' - '9'.

Recording key: 5 numbers '0' - '9'.

The layout of the ISRC is defined by international standards (for example DIN 31621 in Germany), codes are controlled by national institutes.

Pre-emphasis

The encoding or sampling of the source audio signal may have been carried out either without pre-emphasis or with first order pre-emphasis. Constraints and pre-emphasis characteristics are defined in the international standard IEC 908 (International Electrotechnical Commission, Publication 908, 1987) or in the Red Book.

Red Book

The Red Book is the first and basic standard for CDs. It defines all parameters for the creation of audio CDs. All further CD standards have been derived from the Red Book or define extension to it.

The physical part of the Red Book includes specifications of the size of a CD medium, of storing data on lowest level, and so on.

The following sections list the important definitions. If you pay attention to these definitions while you are creating the TOC with Samplitude CD then you will be able to record audio CDs without modifications and problems.

Minimum length of a track:

An audio tracks, pauses not included, must occupy at least 4 seconds (300 audio frames). Shorter tracks will automatically be padded with silence (0 samples).

Pause before the first track:

Before the beginning of the first track of an audio CD a pause of 2 - 3 seconds (150 - 225 audio frames) must be placed. This pause will automatically be added if you omit it.

Pause and pre-emphasis:

Between two track, one recorded with and one recorded without pre-emphasis, a pause of at least 2 seconds (150 audio frames) must be inserted. This pause will automatically be added if you omit it.

Silent audio frames at the beginning of audio tracks:

This is not a definition of the Red Book but a hint of the developers. No audio signal should be recorded in at least the first 12 audio frames at the beginning of a track. Instead these frames should be filled with 0 samples. This avoids noise if playing is started at the beginning of the respective track in slow or inaccurate CD players. You can easily insert this silence by placing the start address of the track 12 frames before the start of the first WAVE file. The resulting gap will automatically be filled with 0 samples.

Audio Frame

An audio frame is the smallest addressable data unit on an audio CD. An audio frame is also called audio sector or, short, frame.

The audio frame stores 588 sample frames and additionally a few bytes which belong to 8 sub-channels called P, Q, R, S, T, U, V und W. Each audio frame is assigned a unique absolute address which is located in the corresponding Q-channel. For the presentation of the address the MSF format is used.

Settings

All settings like fonts, window sizes and options are stored when you leave the application.

TOC

TOC is an abbreviation for Table Of Contents.

PoINT TOC Printer uses a file format defined by PoINT to store all information about the contents of an audio CD. This set of information is called TOC within PoINT TOC Printer.

The TOC defines which (parts of) WAVE files are to be transferred to the CD and at which locations tracks shall start and indexes shall be placed.

Sample Frame

A sample frame consists of two samples, one for the left and one for the right channel of a stereo audio signal. Exactly 588*75 sample frames are created per second if an analog stereo audio signal is sampled with a sampling rate of 44100 kHz and a resolution of 16 bits (2 bytes) per sample. These sampling parameters are defined for audio data which shall be stored on a CD.

Sample

A sample is a number which is created by sampling an analog audio signal and which represents the level of the audio signal at a certain time.

WAVE

The term WAVE (more precisely RIFF/WAVE) denotes a special file format which is used in Microsoft Windows environments to store audio data.

WAVE files basically consist of a file header, which provides a description of the contained audio data, and of the actual audio data.

Copy protection

Copy protected materia
Higher generation copy

The track(s) contain audio material which is protected by copyright laws.
The track(s) contain a second or higher generation copy of copyright protected material.

