



KITCHEN MASTERING — CD TEXT & METADATA

A common question we (and other mastering facilities) receive is: *‘Why doesn’t the artist name and song titles come up in my media player when I insert my new CD?’*

The answer to this lies in the difference between CD Text, CD registries, and metadata. Specifically:

CD TEXT - A method for storing text information in the lead-in and data areas of a CD-DA disc. Data is either embedded into the approximately 5kb lead-in portion of a disc or in subcode regions R through W of the data portion of a Red Book compatible disc. Typical data fields include information pertaining to the artist, album title, song title, composer, and songwriter. CD Text is typically read by hardware CD players (standalone, portable, and automotive). However, many CD players (including some computer disc drives) can not read the subcode regions R-W and therefore can not read the CD Text.

CD DATABASE - There are multiple CD databases that operate via internet connection to identify physical media inserted into a disc drive on a computer. Most of these databases do not read the CD text but in fact read the total number of CD frames on a disc (there are 75 frames per second), the total number of tracks, and the total number of frames per track to determine any particular disc inserted into a computer hard drive. This is why, sometimes, when you insert a particular disc into a hard-drive, that a CD Database may prompt you to select from multiple options for which disc you just inserted.

There are public domain databases, such as MusicBrainz (musicbrainz.org) and FreeDB (<http://www.freedb.org/>), and privately operated databases such as Gracenote (a subsidiary of Escentia, a media player manufacturer).

Both the public domain databases and private databases operate similarly; you insert a CD, enter in the corresponding meta data into data entry fields in your media player, then submit the data to the database for inclusion.

Here are specific instructions on how to submit metadata to Gracenote via iTunes 11:

- Open iTunes
- Insert CD
- Locate CD in iTunes (do NOT import yet)
- Highlight all of the cd tracks
- Right click and select “Get Info”
- Click the “Info” tab
- Change the album title/artist name/year/genre
- Click “OK”
- Now use this procedure for individual track names
- Highlight track 1 and right click to select “Get Info”
- Click on the “Info” tab
- Update the “Name” and then click “Next”
- Once you finish writing in your info for all tracks click “OK”
- Highlight all of the tracks again
- Click on the “Options” symbol on the upper right corner of the tracklist window
- Select “Submit CD Track Names...”
- Wait for the progress bar to complete prior to exiting the application

ID3 TAGS - An ID3 tag is a data container within an MP3, M4A or AAC audio file stored in standardized format. This data commonly contains the Artist name, Song title, Year and Genre of the current audio file. ID3 tags are not embedded into physical CD's, and therefore, are not utilized to identify discs inserted into disc drives.

The ID3 tag has been expanded and modified over the years and, at the time of drafting this article, is currently at ID3V2.4 (even though this version is years old).

ID3V2 tags are utilized extensively by multiple software and hardware media players including:

- iTunes
- Windows Media Player
- Winamp
- VLC Media Player
- Apple
- Samsung
- Sony

Of note though, is the fact that ID3V2.3 seems to be the most universally supported due to disagreements about the feature modifications between V2.3 & V2.4. This coupled with the political weight of both the software and hardware marketplace by certain entities has slowed the adoption of ID3V2.4. Of note, no version of Windows Explorer or Windows Media Player properly decode ID3V2.4 tags.

Below is a listing of the standardized available data 'frames' into which specific data may be entered and included into the ID3V2 tag. The first column depicts the version in which the frame was added, the second column is the feature abbreviation, the last column depicts the data descriptor.

REV.	ABBREV.	DESCRIPTION
4.20	AENC	Audio encryption]
4.15	APIC	Attached picture
4.11	COMM	Comments
4.25	COMR	Commercial frame
4.26	ENCR	Encryption method registration
4.13	EQUA	Equalization
4.6	ETCO	Event timing codes
4.16	GEOB	General encapsulated object
4.27	GRID	Group identification registration
4.4	IPLS	Involved people list
4.21	LINK	Linked information
4.5	MCDI	Music CD identifier
4.7	MLLT	location lookup table
4.24	OWNE	Ownership frame
4.28	PRIV	Private frame
4.17	PCNT	Play counter
4.18	POPM	Popularimeter
4.22	POSS	Position synchronisation frame
4.19	RBUF	Recommended buffer size
4.12	RVAD	Relative volume adjustment
4.14	RVRB	Reverb
4.10	SYLT	Synchronized lyric/text
4.8	SYTC	Synchronized tempo codes
4.2.1	TALB	Album/Movie/Show title
4.2.1	TBPM	BPM (beats per minute)
4.2.1	COM	Composer
4.2.1	TCO	Content type
4.2.1	TCOP	Copyright message
4.2.1	TDAT	Date

4.2.1	TDLY	Playlist delay
4.2.1	TENC	Encoded by
4.2.1	TEXT	Lyricist/Text writer
4.2.1	TFLT	File type
4.2.1	TIME	Time
4.2.1	TIT1	Content group description
4.2.1	TIT2	Title/songname/content description
4.2.1	TIT	Subtitle/Description refinement
4.2.1	TKEY	Initial key
4.2.1	TLAN	Language(s)
4.2.1	TLEN	Length
4.2.1	TMED	Media type
4.2.1	TOAL	Original album/movie/show title
4.2.1	TOFN	Original filename
4.2.1	TOLY	Original lyricist(s)/text writer(s)
4.2.1	TOPE	Original artist(s)/performer(s)
4.2.1	TORY	Original release year
4.2.1	TOWN	File owner/licensee
4.2.1	TPE1	Lead performer(s)/Soloist(s)
4.2.1	TPE2	Band/orchestra/accompaniment
4.2.1	TPE	Conductor/performer refinement
4.2.1	TPE4	Interpreted, remixed, or otherwise modified by
4.2.1	TPOS	Part of a set]
4.2.1	TPUB	Publisher
4.2.1	TRCK	Track number/Position in set
4.2.1	TRDA	Recording dates
4.2.1	TRSN	Internet radio station name
4.2.1	TRSO	Internet radio station owner
4.2.1	TSIZ	Size
4.2.1	TSRC	ISRC (international standard recording code)
4.2.1	TSSE	Software/Hardware and settings used for encoding
4.2.1	TYER	Year
4.2.2	TXXX	User defined text information frame
4.1	UFID	Unique file identifier
4.23	USER	Terms of use
4.9	USLT	Unsynchronized lyric/text transcription
4.3.1	WCOM	Commercial information
4.3.1	WCOP	Copyright/Legal information
4.3.1	WOAF	Official audio file webpage
4.3.1	WOAR	Official artist/performer webpage
4.3.1	WOAS	Official audio source webpage
4.3.1	WORS	Official internet radio station homepage
4.3.1	WPAY	Payment
4.3.1	WPUB	Publisher's official webpage]
4.3.2	WXXX	

To summarize, CD Text is typically read and displayed by dedicated hardware CD players. In order for metadata corresponding to your disc to display properly in a software based media player, you must submit the metadata to the online CD database managers (MusicBrainz, FreeDB, Gracenote). It typically takes several weeks for the data to enter into the database once submitted. ID3 Tags include metadata that are typically attached to digitally distributed files and not physical media.

If you want your CD to populate your media player with metadata when inserted into one of your fan's computer disc drives, you must submit the metadata for your CD to one or all of the online CD database managers.