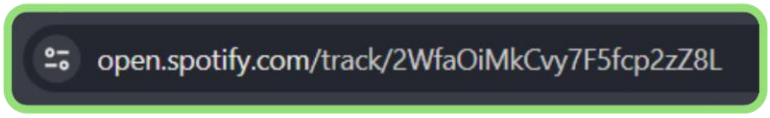
Spotify Song Attributes

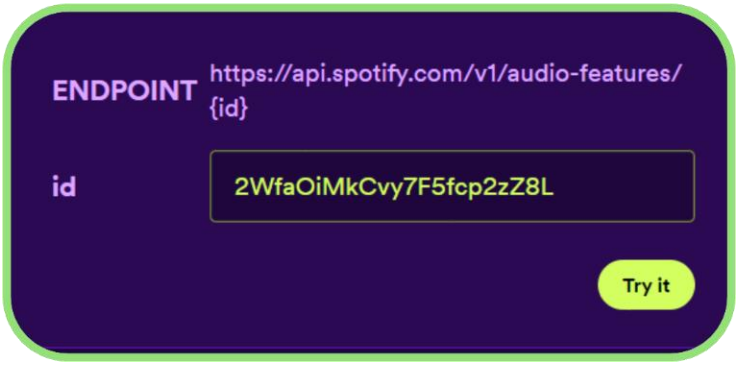
Spotify's Web API provides attributes, which Spotify officially refers to as a tracks' audio features, to songs which can be used by their algorithms for various purposes. (classifying similar tracks, creating official playlists, recommending new tracks to users etc.)

In this report, I will use the song "Take on Me" by a-ha as an example to explain what each attribute/feature means.

Navigating to the song's page in Spotify, we can see the URL on our browser as follows:



Here, "2WfaOiMkCvy7F5fcp2zZ8L" is the ID of the track which we can use to find it's features using Spotify's Web API documentation.



RESPONSE SAMPLE


```
{
  "acousticness": 0.018,
  "analysis_url": "https://api.spotify.com/v1/audio-analysis/2WfaOiMkCvy7F5fcp2zZ8L",
  "danceability": 0.573,
  "duration_ms": 225280,
  "energy": 0.902,
  "id": "2WfaOiMkCvy7F5fcp2zZ8L",
  "instrumentalness": 0.00125,
  "key": 6,
  "liveness": 0.0928,
  "loudness": -7.638,
  "mode": 0,
  "speechiness": 0.054,
  "tempo": 84.412,
  "time_signature": 4,
  "track_href": "https://api.spotify.com/v1/tracks/2WfaOiMkCvy7F5fcp2zZ8L",
  "type": "audio_features",
  "uri": "spotify:track:2WfaOiMkCvy7F5fcp2zZ8L",
  "valence": 0.876
}
```

Useful features of a track can be defined as follows:

acousticness (0.018) A measure between 0.0 and 1.0 that indicates how acoustic a track is. Acoustic music involves instruments which produce sound naturally, for example: acoustic guitar, violin, flute, saxophone etc.

“Take on Me” has a very low acousticness, which is accurate since it contains a lot of electrical instruments and digitally synthesized sounds.

danceability (0.573) A measure between 0.0 and 1.0 that indicates whether a track is suitable for dancing or not. It is a combinational measure of various factors such as beat strength, tempo, rhythm stability and overall regularity.

“Take on Me” has average danceability, which is fair since the song has a strong beat and good tempo, but the regularity of the beat is weak so while some parts of the song are great for dancing, other parts are lacking.

energy (0.902) A measure between 0.0 and 1.0 that indicates how energetic a track is. Energetic tracks are perceived as fast paced, loud and noisy.

“Take on Me” has high energy, which makes sense as it contains a symphony of many complex instrumental beats and loud vocals at high tempo.

instrumentalness (0.00125) A measure between 0.0 and 1.0 which predicts if a track has no vocals. Vocal sounds that are not actually words (“Ooh”, “Aah” etc.) are also treated as instruments in this context.

“Take on Me” has a very low instrumentalness, which is valid as it contains a lot of vocal lyrics.

liveliness (0.0928) A measure between 0.0 and 1.0 to detect the presence of an audience in the track. This is useful to recognize tracks which are recorded in live events such as concerts where background audience can be heard.

“Take on Me” has a very low liveliness, which is accurate since the track is a studio recording of the song and not a live performance.

loudness(-7.638) A measure between -60db and 0db (decibels) of the overall average loudness of a track.

“Take on Me” has a high loudness, which is an accurate measurement as the track has few moments of silence.

speechiness(0.054) A measure between 0.0 and 1.0 that indicates if a track contains speech-like recording (talk shows, audio books, poetry etc.). Values > 0.66 are most likely completely speech based and values < 0.33 are music.

“Take on Me” has a very low speechiness, which is an accurate measure.

tempo (84.412) The estimated tempo of a track, measured in BPM (Beats Per Minute).

“Take on Me” has a tempo of 169 BPM according to the official composition, but Spotify’s algorithm calculates it as 84.412. This BPM might be calculated at half time.

valence (0.876) A measure between 0.0 and 1.0 which indicates the positive feeling conveyed by a track. High valence means that a track is more positive, and low valence means the opposite.

“Take on Me” has a high valence, which is a valid estimate as it is a happy sounding song.