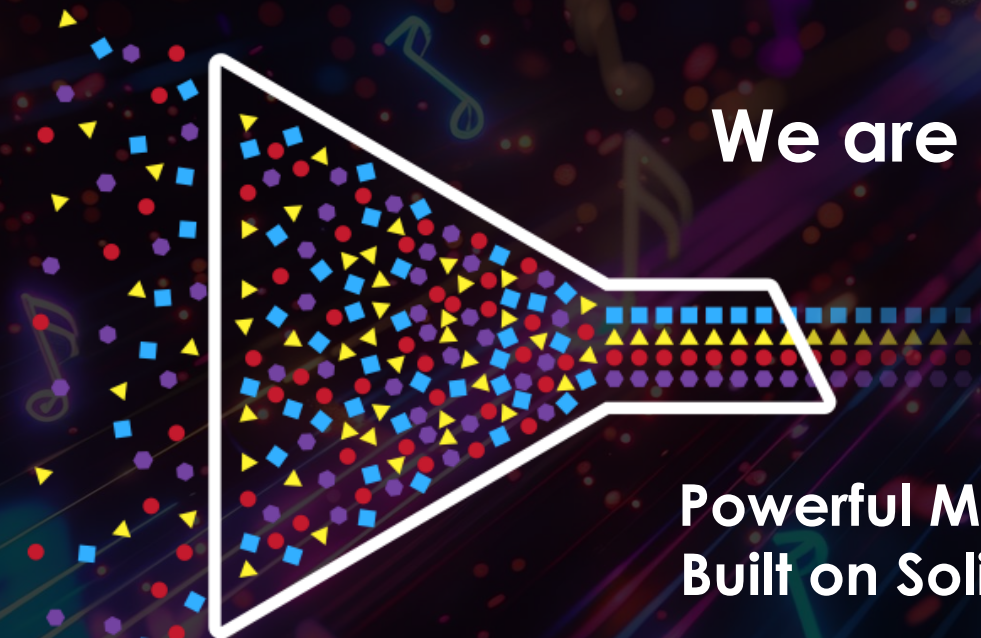


XPERI®

## TiVo Music Metadata

SOLUTIONS OVERVIEW





We are  **TiVo**<sup>®</sup>



**Powerful Music Metadata  
Built on Solid Foundations**

# Introduction



We are the original online music metadata source



Started in the 1990s as consumer-oriented “All Music Guide” and evolved with the digital music industry



TiVo Music combines rich editorial content with curated accuracy and machine-based processing to offer insights across a global catalog



Supports all key brands in music streaming across broadcast radio, retail, consumer electronics, digital search / discovery



Key component of DTS Autostage, Xperi’s media platform for connected cars

# Metadata Partners / Industry Leaders



**20M+**

TV shows/movies

**5M+**

Albums

**40M+**

Song tracks

**6M+**

Unique images

**100K+**

Enriched radio stations metadata

## PERSONALIZED CONTENT DISCOVERY

## METADATA



# TiVo Music Metadata – Key Features



## Original Content

- For 30 years, a trusted source for Artist Biographies and Album Reviews
- Dedicated team of expert curators and writers with decades of industry experience
- Support for eight languages
- Addresses the global catalog



## Data Accuracy & Structure

- Data has been structured to optimize search, discovery, and catalog organization
- Dependable source of truth
- Authoritative sources normalized and curated to eliminate noise and ensure accuracy
- Reliably unique IDs for each person, work, and asset



## SongConnect & Machine Learning

- SongConnect graph uses proprietary machine learning to create insights into 40+ million tracks
- Creates a content-first view of Songs and Compositions
- De-duplicated "Songographies" for artists
- Deep descriptors including genres, moods, themes, popularity, release years
- Insights into songwriters, compositions, and cover versions

# What Makes Us Special



**Innovative data structure** – object hierarchy, weighted attributes & associations were industry first and still the gold standard for precise information



**Emphasis on quality first, quantity second**



**Extensive catalog of curated and custom editorial**

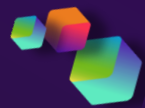


**Flexible use cases and implementation**



**Integrated with broadcast radio + OEM automotive**

# Key Customer Needs that Music Metadata Provides



Customer Need	What Music Metadata Provides
<b>Display Enrichment</b>	<ul style="list-style-type: none"><li>• High quality licensed images</li><li>• Original artist biographies and album reviews</li><li>• Associations between artists, songs and albums for instant stickiness and browsing</li></ul>
<b>Ease of Discovery</b>	<ul style="list-style-type: none"><li>• Deep descriptors</li><li>• Ease of search optimization</li><li>• Data &amp; services for recommendations and similarity</li></ul>
<b>Catalog Management</b>	<ul style="list-style-type: none"><li>• De-duplication of assets across provider catalogs</li><li>• Normalization of artist &amp; title strings</li><li>• Surfacing of back catalog for recommendations to new listeners</li><li>• Providing the most familiar image against an asset</li></ul>

25 05

# High Level Product Features



# Artist Portraits

From promotional sources, updated regularly, archival







**Gary Bartz**  
Artist, Performer, Songwriter, Production team, Producer

Play Shuffle

Follow Credits Artist radio Share More

**Top Tracks** VIEW ALL

TITLE	ARTIST	ALBUM	TIME	
 JAZZ IS DEAD (feat. Gary Bartz & Kassa Overall) <small>MASTER</small>	Theo Croker, Gary Bartz, Kassa Overall	JAZZ IS DEAD (feat. Gary Bartz & Kassa Overall)	5:07	+ ❤️
 Music Is My Sanctuary	Gary Bartz	Music Is My Sanctuary	6:22	+ ❤️
 Winding Roads	Gary Bartz	The Shadow Do!	3:19	+ ❤️
 Gentle Smiles (Saxy)	Gary Bartz	The Shadow Do!	4:21	+ ❤️

# Artist Biographies

Expert-written text designed to drive user engagement

- Original biographies consistent in style and tone, updated with new artist activity, provided in different lengths for any use case, hyperlinked to artists & albums, and supplemented with accompanying descriptive data



## Dua Lipa

English-Albanian pop superstar, model, and social advocate Dua Lipa showcases a throwback vibe and a knack for catchy pop with soulful grit, delivering her chart-topping hits with a sly wink and smile.

After a steady rise in the U.K., she broke onto the international charts with a series of cross-genre collaborations, as well as multi-platinum singles "New Rules" and "IDGAF" from her 2017 debut, [Dua Lipa](#).

Riding high from her breakthrough, she won 2019 Grammy Awards for Best New Artist and Best Dance Recording for her collaboration with [Silk City](#), "Electricity."

She hit new heights in 2020 when her chart-topping, Grammy-winning sophomore set, the club-inspired [Future Nostalgia](#), shot her into the pop stratosphere, leading to more high-profile collaborations, a massive tour, and a lifestyle newsletter/podcast.

# Artist Portraits

Sources from official promotional materials and tagged with metadata



- Curated and verified, our Artist Portraits are ready-made for programmatic layouts

## Descriptors:

- Subjects with NameIDs
- ImageIDs
- Width and Height
- Editorial Pick
- Source
- Color or Black & White
- Zoom Level

# Credits

Comprehensive credits from the world's experts in associative data



Verified through curation



De-duplicated



Normalized to a unique ID space



High quality across multiple content providers

## Song Credits:

- Type
- Artist name
- Role
- NameID
- RoleID

## Album Release Credits:

- Remixing, Restoration
- Compiler, Liner Notes, Research
- Executive Producer
- Photography
- Design
- Bass, Composer, Piano, Vocals
- Art Direction, Design

# Album Reviews

Expert written text to drive user engagement

- Original reviews consistent in style and tone, contextualized within an artist's career and genre, hyperlinked to artists & albums, with accompanying descriptive data, and available in different lengths for any use case
- Personalized and not machine learning or AI

## Miles Davis -- Kind of Blue (MW0000191710)

**Rating:** 5 Stars

**Headline review:** Played by an exceptional band at the peak of its powers, this is a towering work of jazz that is also extraordinarily enjoyable.

**Review quotes:**

"**Kind of Blue** isn't merely an artistic highlight for Miles Davis, a musician with more than his fair share of artistic highlights. It's an album that towers above its peers, a record generally considered as the definitive jazz album."

"... it's the kind of record that remains enchanting to those that have heard it hundreds of times, just as it will turn jazz neophytes into converts."

"For casual listeners, this is the kind of jazz that easily conjures romantic images of smoky, intimate after-hours clubs."

**Review Quality:** 1

**Positive/Negative:** Positive

**Word Count:** 366

## Britney Spears – Britney (MW0000006300)

**Rating:** 4.5 Stars

**Headline review:** Bolstered by retro-futuristic funk and disco grit, the teen-pop star deepens her persona with some of her finest songs.

**Review quotes:**

"... the record where she strives to deepen her persona, making it more adult while still recognizably Britney."

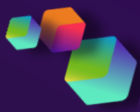
"Rhythmically and melodically, the whole album is sharper, tougher than what came before. What used to be unabashedly frothy has some disco grit, underpinned by Spears' self-determination that helps sell hooks that are already catchier, by and large, than those that populated her previous two albums."

"...the work of a star who has now found and refined her voice, resulting in her best record yet ..."

**Review Quality:** 1

**Positive/Negative:** Positive

**Word Count:** 492



# Localization & Languages

*Biographies and album reviews in a selection of popular languages*

- Written by native speakers
- Refreshed with every chart appearance

## Localized Language Reviews (Beyoncé)

### English:

The first 346 days of Beyoncé's 2013 were eventful enough. She headlined the Super Bowl XLVII halftime show, joined by Destiny's Child partners Kelly Rowland and Michelle Williams. The trio released "Nuclear," an excellent song disregarded for not being an anthem. A documentary, *Life Is But a Dream*, aired on HBO. There were appearances on albums by Rowland, the-Dream, and husband Jay-Z, as well as a Soundcloud upload "Bow Down/I Been On," passionately debated for its aggression and vulgarity, and the more "ladylike" "Standing on the Sun," a clothing retailer tie-in.

## Localization Example

### Spanish:

Tras un año de fuerte presencia mediática, Beyoncé sorprendió al mundo el 13 de diciembre de 2013 al lanzar sin previo aviso su quinto álbum solista, titulado simplemente con el nombre de esta diva del r&b contemporáneo. La sorpresa mayor, sin embargo, fue constatar que Beyoncé es sin dudas el mejor trabajo de la cantante desde *B'day*, además de uno de los más entretenidos y sexualmente explícitos – aunque devoto a la monogamia.

## Supported Languages:

English  
Spanish  
Italian  
German  
Dutch  
French  
Portuguese  
Japanese

# Identity Management

Curated entry for every entity – artists, musicians, labels

- All artist content – albums, songs, credits, associations – linked to unique ID space and differentiated, regardless of content source
- Independent source of truth bringing together who's who and what they did

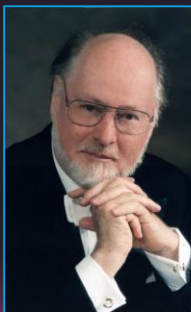
## Artist Deduplication / Identity Management

### John Williams [Film Composer]

MN0000232480

One of the pillars of film scoring, John Williams has created music for some of the most successful movies in Hollywood history -- Star Wars, E.T. the Extra Terrestrial, Jurassic Park, and Harry Potter are just a handful from an extensive catalog that has included over 50 Academy Awards nominations.

His ominous, encroaching "Shark Theme" for Steven Spielberg's Jaws in 1975 and his five-note spacecraft melody from 1977's Close Encounters of the Third Kind (also with Spielberg) likely would have cemented his stature as the go-to Hollywood composer for thrilling fare even without the colossal success of 1977's Star Wars, his most iconic score.



## Artist Deduplication / Identity Management

### John Williams [Guitar]

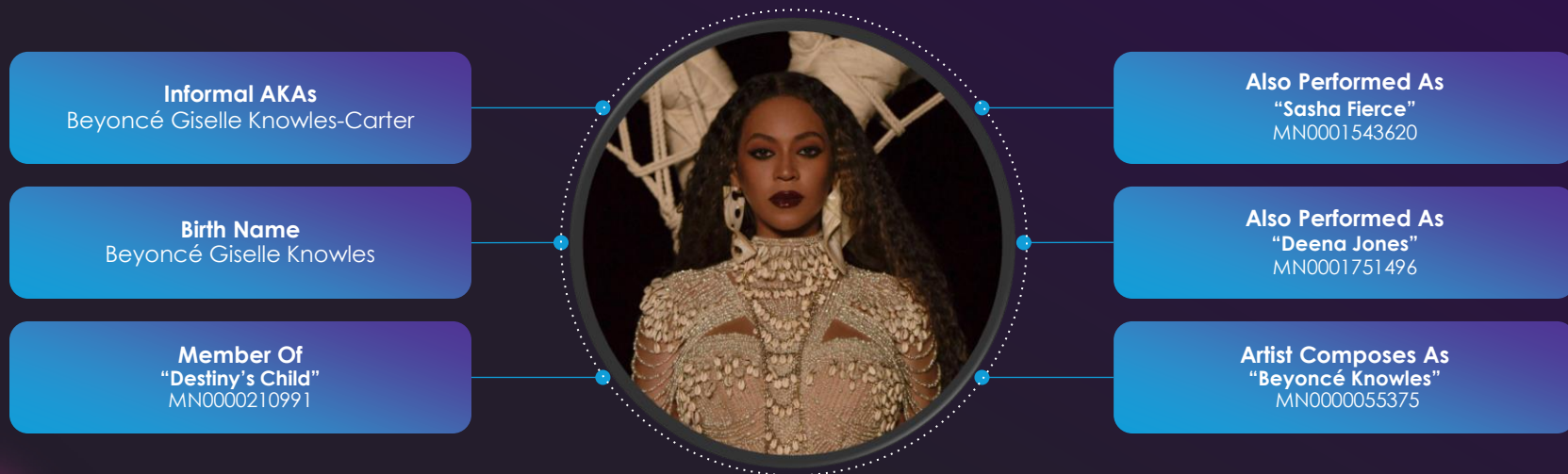
MN0000815705

Australian-born guitarist **John Williams** was given his first guitar at the age of four. He studied with **Andrés Segovia** during the late '50s, and together with **Julian Bream**, was instrumental in popularizing the classical guitar. Although the classical establishment reacted with disdain, he took flamenco into the pop charts with **John Williams Plays Spanish Music** (1970). He also enjoyed a hit single in 1979 with "Cavatina," memorably used as the theme to the film **The Deerhunter**.



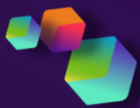
# Aliases, AKAs, Structured Relationships for Improved Voice & Search Experiences

*The many names of Beyoncé*



- Make Beyoncé's entire discography available via one voice query
- Promote "Main Track" among multiple variants
- Unify or separate discography by artist billing, era, sub-genre %, influencers/followers
- Identify songs written by Beyoncé Knowles regardless of performing AKA





# Discography Management

Unify and de-duplicate label catalogs using a tightly managed, reliably unique set of IDs for Artists, Albums and Songs

- Single entry for every album, with album flags and original release dates, making it easy to identify main releases and distinguish albums from singles / EPs
- Removing the noise from artist discographies delivers a chronological view of an artist's career

## Discography Management / Album Deduplication

**Artist:** Green Day  
**Artist ID:** MN0000154544

**Album:** *Dookie*  
**Album ID:** MW0000107965

**Original Release**  
**Release ID:** MR0003314710  
**Original Release Date:** 1994-02-01

**Label of Release:** Reprise

## 30th Anniversary Deluxe Edition

**Release ID:** MR0006109971  
**Original Release Date:** 2023-09-29

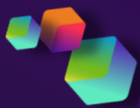
**Label of Release:** Reprise

## Song: "Basket Case"

**Track ID:** MT0043767311  
**Song ID:** SD0000008757  
**ISRC:** USRE 19900151

## Single: Basket Case

Album ID: MW0001048267  
Original Release Date: 1994-08-30  
Label: Reprise



# SongConnect: Song & Composition Insights

New data improves automated playlist generation, de-duplication, "covers" discovery, and attribution

## Song ID

Associates different recordings of a song by the same artist

*Guardians of the Galaxy:  
Awesome Mix, Vol.1*

*The Very Best of 10cc*

*Super Hits of the '70s, Vol. 14*

*The Virgin Suicides: Music from the  
Motion Picture*

*'70s: Gold*

*Have a Nice Decade:  
The '70s Pop Culture Box*

**Composition:**  
"I'm Not in Love"

**Composers:**  
Graham Gouldman / Eric  
Stewart

**Weighted Exposure Metrics:**  
Song # / Temporal # / Viral

**Song Level Original Release:**  
1975

## Composition ID

Associates SongIDs of the same original composition

**Song:** "I'm Not in Love"  
**Performer:** Richie Havens

**Song:** "I'm Not in Love"  
**Performer:** Pretenders

**Song:** "I'm Not in Love"  
**Performer:** Peggy Lee

**Song:** "I'm Not in Love"  
**Performer:** Will to Power

**Song:** "I'm Not in Love"  
**Performer:** Diana Krall

**Song:** "I'm Not in Love"  
**Performer:** Queen Latifah

# Programming and Playlisting

*Playlists and recommendations to discover new content from a single song*

- Create compelling listening experiences with APIs that support similarity and station-building
- FTP data can be used to build custom content "recipes"

Song Recommendation	Release Year	MainTrackID	SCSongID
BTS – “Boy With Luv ”	2019	MT0056643125	SD0015230972
Sia – “Cheap Thrills”	2016	MT0052630296	SD0003944303
Doja Cat – “Boss Bitch”	2020	MT0057379535	SD0016537651
Ariana Grande / Victoria Monét – “Monopoly”	2019	MT0056626339	SD0015225044
Dua Lipa – “New Rules”	2017	MT0053357583	SD0014047425
Harry Styles – “Satellite”	2022	MT0060525190	SD0018748876

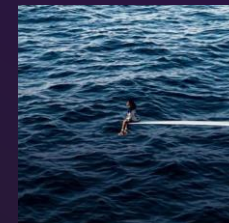


# Deep Descriptors

Key Ingredients for great playlisting and programming, unified in a tightly organized ID space

- Multiple ingredients that can be combined, such as descriptors plus popularity, similar artists, sound characteristics, etc.

SongID	Property Attribute ID	Property Type	Value Attribute ID	Value	Weight
SD0021612541	MA0000000089	Genres	MA0000002809	R&B	9
SD0021612541	MA0000000089	Genres	MA0000002969	Contemporary R&B	9
SD0021612541	MA0000000089	Genres	MA0000013375	Alternative R&B	4
SD0021612541	XA0000000081	Moods	XA0000001066	Plaintive	9
SD0021612541	XA0000000081	Moods	XA0000000722	Intimate	9
SD0021612541	XA0000000081	Moods	XA0000000713	Flowing	9



## Deep Descriptors – Material

### SHA – “Kill Bill”

**Release Year** – 2022

**Track Count** – 26

**Popularity** – 9/9

**Composer** – Carter Lang / Rob Bisel / Solana Rowe

**Original Album** – SOS (2022)

# Classical Catalog

The only source for classical music data – composers, works, artists – at scale in the industry, consistently formatted and curated by classical music experts.

- Listeners can find what they're looking for by composer, artist, type of composition, era and instrument

Unique ID	MN0000691239
Short Title	<ul style="list-style-type: none"><li>▪ Trout Quintet in A, D667</li></ul>
Composition Date	<ul style="list-style-type: none"><li>▪ 1819</li></ul>
Composer	<ul style="list-style-type: none"><li>▪ Franz Schubert</li></ul>
Genre(s)	<ul style="list-style-type: none"><li>▪ Chamber Music (9)</li><li>▪ Classical (9)</li></ul>
Work Type	<ul style="list-style-type: none"><li>▪ Quintet</li></ul>
Period	<ul style="list-style-type: none"><li>▪ Romantic</li></ul>
Parts / Movements	<ul style="list-style-type: none"><li>▪ Allegro vivace</li><li>▪ Andante</li><li>▪ Scherzo, Presto</li><li>▪ Theme and Variations (on the song "Die Forelle"). Andantino</li><li>▪ Finale. Allegro giusto</li></ul>

Descriptor	Weighted Value
Instrumentation	<ul style="list-style-type: none"><li>▪ Piano</li><li>▪ Double Bass</li><li>▪ Cello</li><li>▪ Viola</li><li>▪ Violin</li></ul>
Sound	<ul style="list-style-type: none"><li>▪ Major Key</li><li>▪ Dynamic Range: Wide</li><li>▪ Moderate Volume</li><li>▪ Rhythmic Intensity: Moderate</li><li>▪ Tuneful</li><li>▪ Consonant</li></ul>
Moods	<ul style="list-style-type: none"><li>▪ Cheerful (8)</li><li>▪ Carefree (7)</li><li>▪ Summery (7)</li><li>▪ Whimsical (6)</li><li>▪ Melodic (5)</li></ul>



In the summer of 1819, Schubert traveled with the famous baritone Johann Michael Vogl to the river town of Steyr, where there was an abundance of musical activity. Schubert and Vogl's performance of some of the composer's songs -- especially "Erkönig" and "Die Forelle" ("The Trout") -- attracted the notice of Sylvester Paumgartner, a wealthy mining executive ...

Learn more.



<https://business.tivo.com/products-solutions/metadata>

