Rovi Data Solutions

Rovi Music Data Dictionary

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Introduction

Rovi Music allows online stores, portals, social networking sites, service providers and mobile, PC and embedded application developers to differentiate their offerings, increase usage and drive sales. Descriptive metadata, extensive search and discovery capabilities, and rich commerce support tools allow consumers to more easily discover, manage and enjoy digital music across multiple platforms and devices.

- *Rovi Music* is one of the most extensive and richest databases of music metadata content on the market and extends basic descriptions to include editorial data, such as biographies, reviews, and related content, and features audio and video samples to deliver an engaging consumer experience.
- *Rovi Music* includes one of the most extensive image libraries available on the market.
- *Rovi Music* is built on a robust and agile data management infrastructure to keep pace with the constant change of entertainment content and customer requirements.
- *Rovi* offers solutions that integrate seamlessly with *Rovi Music* to further enhance the consumer experience, including LASSO media recognition that can be embedded into CE devices and PC applications or used to clean an existing content catalog; and Personal Media Manager*, a skinnable PC application that includes media recognition and DLNA capabilities and allows consumers to clean, manage and stream multiple media types stored on disparate devices on a home network.

This document serves as the technical product implementation guide for Rovi Music data types, structure, and design. It presumes familiarity with modern data technologies and experience in implementing and administrating large scale database systems. It also provides data delivery details such as downloading procedures from a Rovi FTP site, the different data distribution options available, and where and how to perform updates.

Additionally, this document provides detailed information to guide the user through all aspects of technical implementation of *Rovi Music* including:

- Accessing the data packages
- Publishing schedules
- Data structure
- Table overviews
- Working with the data
- Implementing common SQL queries

Each data table is described, together with its respective fields and the properties and associations. Sections are provided for Associations and Properties, two critically important attribute types that are essential to harnessing the comprehensive and robust functionality of the *Rovi Music* database.

To aid in retrieving data and practical implementation of *Rovi Music*, a SQL reference section is included, which illustrates the most common types of queries users are likely to utilize.

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Overview

Rovi Music provides descriptive data for all music genres, with coverage for approximately 1.8 million album releases and 16 million music tracks. *Rovi Music* contains tens of millions of data attributes that include essential top-line information such as artist, album, track, genre, release date, and product codes, as well as highly informative editorial, artist, album and track associations, comprehensive biographies, and extensive descriptive profiles. *Rovi Music* provides front and back cover art, along with thirty-second music preview samples in MP3, AAC+, AMR-NB and Windows Media formats.

Rovi Music's characteristics and capabilities include the following:

- Flexible and persistent ID system for all key elements in the database
- New and upgraded descriptive system with expanded attribute system
- New, upgraded, and expanded links and associations
- Ranking, sorting, and custom list attributes
- Easy maintenance, integration, and deployment

Rovi Music Data Packages

Rovi Music is available as modular data packages, allowing companies to utilize exactly the data they need for their specific business requirements:

Inform

Inform gives consumers the basics – commercial data and factual descriptions of albums and artists. This is our base package which comes standard with Rovi Music.

NOTE: All additional Rovi Music packages require Inform.

- Artist
- Album title
- Track title
- Times
- Formats and flags
- Front cover art
- Classical composers
- Product descriptions
- Genres
- Product codes
- Label
- Release date

Discover

With Discover, consumers gain extensive editorial data, detailed album-level descriptions and links to related music and other media for the full "6 degrees of information" experience.

- Biographies
- Profiles
- Review excerpts
- Artist to artist relational links
- Ratings
- Album-level recommendations
- Moods
- Styles
- Tones
- Track Flags
- Track level Publisher
- Track level Copyright
- ISRC

Experience

Experience engages the consumer and brings music enjoyment to the next level with rich graphics and audio and video content that are compatible with multiple platforms.

- High-resolution front cover art
- Low- and high-resolution back cover art
- 30-second sound samples
- Artist Images

Influence

Influence's track-level capabilities can help hone recommendations and playlists based on a song's specific characteristics. Descriptors include:

- Genre
- Tonality/mode
- Harmonic stability
- Rhythmic intensity
- Performance energy
- Dynamic range
- Loudness
- Textural stability
- Tempo
- Complexity
- Density
- Melodic presence

NOTE: The ATTRIBUTELINK table rounds out the Influence package with genre and sub-genre data at the track level.

Rovi Music Data Structure

This section details the design objectives and resulting functionality of *Rovi Music*, and how the infrastructure achieves it.

Rovi Music utilizes unified data structures for each content area. For example, all identifiers for names have the MN prefix, all releases the MR prefix, all documents the MD prefix, and so on. The common alpha-numeric IDs provide an easy method for determining the area of origin, and provides a discreet, logical relationship between entries and its table. Moreover, it contributes to the efficient handling of disparate data types.

This principle of coherence also is applied to the design of the data tables themselves. *Rovi Music* table structures reflect the most common entry points to the database, and are designed to best accommodate large numbers of queries.

The *Rovi Music* database consists of several major data categories and employs explicit table structures to support cross-connections between the content areas without undue complexity.

Objects

Contributors (names)

Contributors are stored in the Name table.

Name (MN)	
PK	**NameID**
	Type ImportanceTier PopularityTier ArtisiticTier Name KeyName Differentiator p_MainGenreAttributeID n_Images Action

Names are commonly linked with the Attributes and Associations areas, which, respectively, provide the Name, its descriptors and its links to attributes or to other objects (Name to Name, Name to Document, Name to Album). Because all names incorporate unique and persistent identifiers, the chances for data inconsistency and data redundancy are greatly reduced. *Rovi Music* includes both IDs and keys for all names, (producers, illustrators, publishers, etc.), not simply the attributed album artists.

Creations (titles)

The Creations content area corresponds with the Album, Release, Track, Performance, Media, Part, Composition, Location and Event object tables in *Rovi Music*.

Album (MW)	
PK	**AlbumID**
	Type MusicType Article Title KeyTitle MainReleaseID ProductFormAttributeID p_MainGenreAttributeID Performer PerformerCount OriginalReleaseDate Rating n_Releases n_Tracks Action

Release (MR)	
PK	**ReleaseID**
FK1	AlbumID MediaFormatAttributeID ProductFormAttributeID ReleaseDate ProductCode ProductCodeTypeID ParentalAdvisoryID Duration DistributionDate DiscontinuedDate Available p_Label p_Distributor p_CurrentDistributorID p_TrackSignature n_Medias n_Tracks Action

Track (MT)	
PK	**TrackID**
FK1	MediaID ReleaseID AlbumID MediaNum PhyTrackNum TrackNum Article Title KeyTitle Duration Pick PerformanceID p_CompositionID p_Composers p_Performers Action

Composition (MC)	
PK	**CompositionID**
	IDM Type ImportanceTier MusicType Title KeyTitle Complete ComposedDate p_Composers n_Parts Action

Location (MZ)	
PK	**LocationID**
	Type Name CountryAttributeID Action

Media (MM)	
PK	**MediaID**
FK1	ReleaseID MediaNum MediaFormatAttributeID n_Tracks Action

Part (MO)	
PK	**PartID**
FK1	Type CompositionID Title KeyTitle Sequence Action

Performance (MQ)	
PK	**PerformanceID**
	ReleaseID CompositionID Complete Sequence p_Duration Action

Event (ME)	
PK	**EventID**
	Type Title Action

Links and Associations

Links and Associations connect object-to-object and object-to-attribute. Associations are portable, meaning that one attribute or object can be concurrently associated to multiple objects. A weighting mechanism has been included to designate the strength of an association, both for object-to-object associations stored in the weight field of the Association table and object-to-attribute associations stored in weight field of the AttributeLink table. Higher integer values represent stronger associations, and lower integers represent weaker associations. Values are 0 (empty), 1 (low) to 10 (high). Weight values are only meaningful for editorial associations (e.g. Similar Artists, Genres, etc.).

Associations between two objects are performed through the *Association* table:

Association (MX)	
PK	**AssociationID**
	ID_1 ID_2 AssociationType Weight Rank SortOrder Object_1 Object_2 p_BaseObjectID Action

The two ID fields are the objects being associated; the Association Type is the association attribute (Relative of, Contemporary, Contributor of interest) being applied. The association is saved as a unique table entry in the Association table.

Associations between objects and attributes are done through the *AttributeLink* table:

AttributeLink (ML)	
PK	**AttributeLinkID**
 FK1 FK2	ObjectID PropertyAttributeID ValueAttributeID Value Weight Rank SortOrder p_BaseObjectID Action

The ObjectID indicates which primary object is being described. The PropertyAttributeID indicates the type of information carried within the AttributeLink record (Musical Genre, ISRC, Alternate Title, etc.) The ValueAttributeID indicates the specific value being applied, if the assigned property has a normalized vocabulary (Musical Genre = “MA0000002467” (Blues), for instance.) Properties that do not have normalized value vocabularies store their values as text in the “Value” field (ISRC = “ushm80425038,” for instance). The link relationship is saved as a unique table entry in the AttributeLink table.

The Hyperlink table provides hyperlinked text and associated object IDs, identifying the link between hyperlink tags within a unique document and the tagged object.

Hyperlink (XH)	
PK	**HyperlinkID**
FK1	HyperlinkType HyperlinkText ObjectID TargetObjectID TargetText Action

The TrackQuantitativeValue table provides values that describe a track's core musical, mode-based, and textural elements profile on the basis of 15 different attributes.

TrackQuantitativeValue	
PK	**TrackID**
	TempoPrimary TempoConfidence TempoSecondary Tonality TexturalStability RhythmicIntensity RhythmicComplexity PerformanceEnergy MelodicPresence MelodicComplexity Loudness HarmonicStability HarmonicComplexity DynamicRange Density Action

An external link table, *VendorLink*, is provided to link vendor and/or distributor- product codes to specific releases.

VendorLink (MB)	
	VendorLinkID
FK1	ReleaseID SourceAttributeID VendorCode ProductCode CurrencyAttributeID VendorPrice Action

Controlled Vocabulary

Controlled Vocabulary tables within *Rovi Music* restrict the values accepted by the database (i.e., by the values assigned to the given attribute category). A controlled vocabulary type (Track Flags, Media, Album Flags, etc.) can be used in your application to access a ready-made set of associated values from a drop-down list.

Descriptors are in the Attribute table, which contains all attribute type and category designations, as well as all attribute properties and values.

Attribute (MA)	
PK	**AttributeID**
	Type PropertyTypeID Attribute KeyAttribute Description Format Range EnumeratedValues n_Links Action

The value of having a dedicated Attributes table is twofold. Table structures are kept to a minimum size, and the attributes are easily portable to multiple different objects.

Links also can be created between attributes through the AttributeAssociation table.

AttributeAssociation (MS)	
PK	**AttributeAssociationID**
FK1 FK2 FK3	AttributeID_1 AttributeID_2 AssociationType GroupID Action

For international packages of Rovi Music, the translation table provides language translations for descriptive attributes.

Translation (XT)	
	TranslationID
	ObjectID LanguageAttributeID Translation Type Value Action

See Chapter 5, Attributes and Associations, for further details.

Assets

The Asset tables of *Rovi Music* provide links from contributor and creation tables to associated text, and image and files.

The Image table provides cover art for selected releases and artist images for selected names in numerous sizes and resolutions.

Image (MI)	
PK	**ImageID**
	ImageType Ratio PublishDate Size75 Size250 Size400 Size500 Size1080 Action

The Image Key table provides the URL for the images made available in Rovi Music.

ImageKey (MI)	
	ImageID
	URL Format Action

The ImageLink table provides links for the objects and their associated images.

ImageLink (MP)	
	ImageLinkID
	ObjectID ImageID ImageType SortOrder Action

The Document table provides artist profile information, biographies, review excerpts, and other pertinent documents relating to a specific release.

Document (MD)	
PK	**DocumentID**
	TypeAttributeID Title Text LanguageAttributeID p_MainAuthorID SourceID n_Words Action

The Audio Sample table provides audio sound sample information necessary for the Experience package.

AudioSample (MG)	
PK	**AudioSampleID**
	TrackID MediaID ReleaseID MediaNum PhyTrackNum Sequence URL Format Action

Database Conventions

This section briefly describes the general design conventions used throughout *Rovi Music*.

Identifier Format

Identifiers throughout Rovi Music use a 12-character format. The first character stands for the content area (e.g., 'G' for games, 'M' for music, 'V' for video, and 'B' for books). The second character indicates the object type and table of origin ('W' for Work, 'N' for Name, etc.). The final 10 characters are a numeric ID, left-padded with zeros.

Field Naming Conventions

In general, field names are designed to descriptive. Alternating casing is used to visually separate words (e.g.: KeyTitle). There are two types of special fields that are named with prefixes to separate them from other fields:

Projected Fields (prefix "p_")

These fields are projected from another table for the convenience of the user.

Calculated Fields (prefix "n_")

Like projected fields, these fields are provided as a convenience. The calculated fields are counts of items in the database. For example, the "n_Releases" field in the Album table is a count of the number of releases that are associated to the given album record.

Rovi Music is designed to be as space-efficient, optimized, and internally consistent as possible. Each of the nine primary object tables contains only those fields which are most essential, most frequently applicable, and accountable for with single values.

Data points that are less consistently applicable, less standardized, or which can take multiple assignments for a single object are moved into separate association and link structures. This greatly reduces the number of empty fields in object tables and helps to maintain consistency between tables. It also means that, when new elements and attributes are added to the Rovi Music product, the field structures of tables usually will not need adjustment. The features and content of the product can evolve without requiring development work on the part of clients.

Each object table includes a persistent primary ID that allows individual objects to be accurately and consistently identified across the Rovi Music data set. The ID prefix for each object type is distinct ('MR' = 'Release,' etc.), allowing for object types to be easily filtered & identified within the shared Association and Attribute Link tables.

Key Structural Advantage Summary:

- Faster, more accurate searches
- Efficient data storage
- Structural sustainability
- Optimizes data normalization and standardization of vocabulary

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Database Distribution and Updates

Online Data FTP Information

This section provides instructions for accessing and downloading Rovi Music online data files.

Rovi FTP Information

Update files can be downloaded from the Rovi FTP site (ftp.rovimusic.rovicorp.com). You will need to provide a valid user ID and password – provided by Rovi – to access your initial directory.

To transfer files from our FTP site, you must make contact using any standard FTP utility.

Copyright Files

The \copyright directory holds various formats of a Rovi copyright notice. These notices must appear when displaying Rovi data.

Copyright Statements

\ftp directory\ file name	File Type
\copyright\Copyright.doc	Copyright statement (MS Word file)
Copyright.text	Copyright statement (text file)

Display logo files

\ftp directory\ file name	File Type
Rovi_Logo_Core_Black_RBG.jpg	JPG-format Rovi logo
Rovi_Logo_Core_White_RBG.jpg	JPG-format Rovi logo
Rovi_Logo_Hero_Black_RBG.jpg	JPG-format Rovi logo
Rovi_Logo_Hero_White_RBG.jpg	JPG-format Rovi logo
Rovi_Logo_Mono_Black_RBG.jpg	JPG-format Rovi logo
Rovi_Logo_Mono_White_RBG.jpg	JPG-format Rovi logo

Sample Datasets

Data samples are available for all file formats.

Contact Information

If you have any questions or comments about this product (or this document), please contact **Rovi Customer Service** by email at **clientservices@rovicorp.com**.

Implementation

This section contains implementation procedures for the initial data transfer, and all subsequent data updates.

Obtaining Data: The FTP Site

You must download startup data files through Rovi's FTP site: ftp://ftp.rovimusic.rovicorp.com. Rovi will provide a user ID, password and directory for the initial data download (passwords are case-sensitive).

In order to transfer files from our FTP site, you must connect to our site through an FTP utility or an Internet browser.

NOTE: File size is dependent upon data options selected.

Data Packages

Rovi Music data packages are prepared in the following formats:

- XML files
- (Delimited) UTF-8 files

Update Types

There are three types of updates available:

- **Full** – This option downloads the entire current, cumulative database produced monthly.
- **Cumulative** – This is the cumulative updates to the database for the current month, beginning on the month's first day. When a new month begins, the update is cleared and new update content replaces the previous month.
- **Daily Incremental** – The incremental updates as performed on a daily basis.

Update File Syntax

Each section of an update file's name is delimited by an underscore. All updates are maintained as .tar.gz compressed files. The first characters in a file's name describe the type of update:

- full = Full update;
- cumu = Cumulative update;
- inc = Daily incremental update.

The second section of the file name describes the package type to which the update is being applied:

- Inform = Inform + Experience package;
- Discover = Inform + Discovery + Experience package

The third portion of the file is a date stamp in YYMMDD format.

The last section of the file name describes the file format:

- xml = XML file;
- utf8 = UTF-8 file format

Note The music previews and images in the Rovi Music Experience package are distributed from a hosted server, and require a client-specific FTP location to perform downloads.

Rovi Music Data Files

XML FTP Directories

Rovi Music XML data is available in three distinct product packages, each having its own directory at the FTP site. XML files are UTF-8 encoded.

NOTE Getty Images and Twitter data are available as add-ons to the Experience package.

Product	Main FTP Directory
Rovi Music Inform	/rovimusic/inform/XX/xml/...
Rovi Music Discover	/rovimusic/discover/XX/xml/...
Rovi Music Experience	/rovimusic/experience/XX/xml/...
Rovi Music Influence	/rovimusic/influence/XX/xml/...
Getty Images	/rovimusic/getty/XX/xml/...
Twitter	/rovimusic/twitter/XX/xml/...
Facebook	/rovimusic/facebook/XX/xml/...

XX corresponds to a geographic package of Rovi Music

- NA – North America
- EU – European Union
- UK – United Kingdom

XML update files are available for download daily 9:00 PM Eastern Time.

Product Example	Filename
Rovi Music **Inform**	
• Full	• full_inform_YYMMDD_xml.tar.gz or full_inform_latest_xml.tar.gz
• Incremental	• inc_inform_YYMMDD_YYMMDD_xml.tar.gz or inc_inform_latest_xml.tar.gz
• Cumulative	• cumu_inform_YYMMDD_YYMMDD_xml.tar.gz or cumu_inform_latest_xml.tar.gz

- Full output files contain the entire set of data as of the date reflected in the file name.
- Incremental output files contain only the latest set of data, from the date range reflected in the file name.
- Cumulative output files contain all updates to the database for the current month, beginning on the month's first day.
- Incremental and cumulative outputs are marked with two dates, the start date and end date for the update.
- The latest incremental and cumulative outputs are also copied into the inc_*tier*_latest_xml.tar.gz, cumu_*tier*_latest_xml.tar.gz files for compatibility with previous shipping product's naming conventions.

UTF-8 FTP Directories

Rovi Music data is also available in the UTF-8 format, delimited with U+0001 and U+0002 field and record delimiters. The UTF-8 data is available in three distinct product packages; each has its own directory at the ftp site within the UTF8 folders:

NOTE Getty Images and Twitter data are available as add-ons to the Experience package.

Product	Main FTP Directory
Rovi Music Inform	/rovimusic/inform/XX/utf8/...
Rovi Music Discover	/rovimusic/discover/XX/utf8/...
Rovi Music Experience	/rovimusic/experience/XX/utf8/...
Rovi Music Influence	/rovimusic/influence/XX/utf8/...
Getty Images	/rovimusic/getty/XX/utf8/...
Twitter	/rovimusic/twitter/XX/utf8/...
Facebook	/rovimusic/facebook/XX/utf8/...

UTF-8 update files become available for download **daily** after 9:00 PM Eastern Time.

Product Example	Filename
Rovi Music **Inform**	
▪ Full	▪ full_inform_YYMMDD_utf8.tar.gz *or* full_inform_latest_utf8.tar.gz
▪ Incremental	▪ inc_inform_YYMMDD_YYMMDD_utf8.tar.gz *or* inc_inform_latest_utf8.tar.gz
▪ Cumulative	▪ cumu_inform_YYMMDD_YYMMDD_utf8.tar.gz *or* cumu_inform_latest_utf8.tar.gz

- Full output files contain the entire set of data as of the date reflected in the file name.
- Incremental output files contain only the latest set of data, from the date range reflected in the file name.
- Cumulative output files contain all updates to the database for the current month, beginning on the month's first day.
- Incremental and cumulative outputs are marked with two dates, the start date and end date for the update.
- The latest incremental and cumulative outputs are also copied into the inc_tier_latest_utf8.tar.gz, cumu_tier_latest_utf8.tar.gz files for compatibility with previous shipping product's naming conventions.

Rovi Music Image Files

Inform Image Directories

Rovi Music Inform consists of front cover art in three pixel widths: 75, 250, and 400 (image height varies). All images are 72 DPI.

Rovi Music Inform Images	Description	Images Size Directories	Image Subdirectories
/rovimusic/inform/na/images	Incremental Daily Images	Archive	All prior incremental (Archive for one year)
		Latest Incrementals (Rolling 7 days plus latest)	image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_YYMMDD
			image_inform_latest

Experience Image Directories

Rovi Music Experience consists of front & back cover art and artist images in the following pixel widths: 500 and 1080 (image height varies). Back cover art and artist images are also available in 75, 250, 400 pixel widths, and their original source sizes. All images are 72 DPI.

Rovi Music Experience Images	Description	Images Size Directories	Image Subdirectories
/rovimusic/experience/ na/images	Incremental Daily Images	Archive	All prior incremental (Archive for one year)
		Latest Incrementals (Rolling 7 days plus latest)	image_experience_YYMMDD
			image_experience_YYMMDD
			image_experience_YYMMDD
			image_experience_YYMMDD
			image_experience_YYMMDD
			image_experience_YYMMDD
			image_experience_latest

NOTE Getty Images are available as an add-on to the Experience package. If they are part of your subscription, the Getty directory will be in your initial directory.

Content Updates

Performing an Update

Incremental Rovi Music updates are provided for each data table. When data is deleted, added to or changed in the database, Rovi re-sends a database record for that deletion, change or addition.

Database Revisions

When processing update files, use the Action field to determine how to process the record. While order should not matter, it is recommended that you process deletions first, updates second, and additions last.

- First, delete records where the Action field contains 'D'; delete the record using the primary key for the table
- Update all fields for records where the Action field contains 'C'; update records using the primary key for the table
- Append records where the Action fields contains 'A'

Image Crediting

Getty Images have to be displayed with the following credit lines, as well as any credit lines (if any) that are included with the image itelf:

"[Photographer's Name]/[Collection Name]/[Getty Images]"

Note the following:

- No content embedded with the images can be deleted (i.e. copyrights, etc)
- Photographer credits can be found in the "Image Author" attribute, MA0000005862.
- The name/collection is stored as part of the Getty caption.

To identify a Getty Image and caption:

Attribute	Type	Ship	Tier	# <	Links	Attribute ID
Getty Portrait	V			0	8016	XA0000001181
Getty Portrait Caption	P			0	8168	XA0000001182

Building Experience Image URLs

The Experience package includes cover art and artist portrait images that are not available for FTP download. To take advantage of these images you will need to build an image URL to capture and pull that image down from the Rovi image servers.

You will need to identify the target ImageID (ID of the artist image), construct an image URL call, and then use the image call to capture the image to your system.

Note: To build the URL you need to use the unique IMAGEKEY file that is specific to your account. This file is found here: ftp.rovimusic.rovicorp.com/experience2/links/(your_unique_directory)

IMAGEKEY details are highlighted below in the sample data from the IMAGEKEY table:

Field	Example Values	Possible Values
ImageID	MI1234567890	MI prefix, followed by a ten-digit identifier.
URL	http://rovimusic.rovicorp.com/image.jpg?c=MDZP--Ks2jB_jZ7xNq311qUAjjTIOhFP8f1ywErxXcI=&f=1	URLs that point directly to individual images.
Format	1, 2, 3, 4, 5, 6	1, 2, 3, 4, 5, 6
Action	A, C, D	A – Add; C – Change; D - Delete

The URL call will be in the following format: {ftp root} + {image.url} + =&f= + {format.code}

- **ftp root** is static (http://rovimusic.rovicorp.com/image.jpg?c=)
- **image.url** is unique to your account and is found in the IMAGEKEY file associated to the imageID (for example, fnQwvm63qC5TChf1YIbLCc7IN7DJ-eS0ZhrydmPKE-s)
- **format.code** is used to specify the images size value, is unique to the image file, and is found in the IMAGEKEY file associated to the imageID (for example, 1)

Note: Accepted values for format.code are noted above, and the IMAGEKEY file provides details on which of the accepted values are available for a specific image – not every image is always available in every described size. Source size artist images are not available via a URL call, only FTP download. All other images and identified image formats are available via a URL call.

Example image calls:

http://rovimusic.rovicorp.com/image.jpg?c=fnQwvm63qC5TChf1YIbLCc7IN7DJ-eS0ZhrydmPKE-s=&f=4

http://rovimusic.rovicorp.com/image.jpg?c=VI8JJhBDvl2ke1zG89rHGuX3aDHdFQ7ufFugyQV3WHw=&f=1

IMAGEKEY file example:

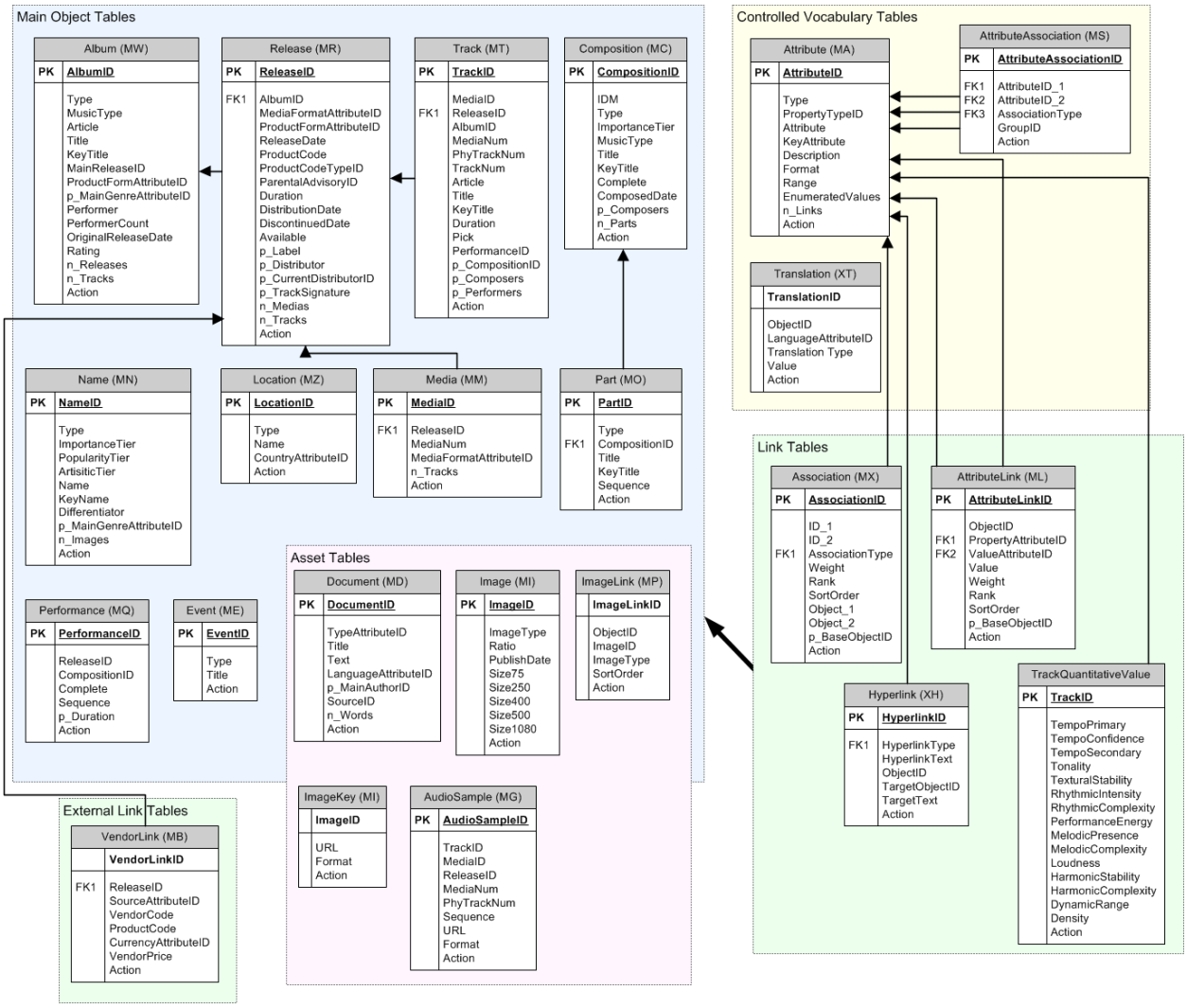
```
ImageIDFormatURLAction
MI000073447613456-6yoTkAjwgs00mIpuLIC0k23JLsGQ6uBVJ8_w8VFOBY=D
MI000020884113456YNy7vdEgIwAAdeb5WGxLOvmPs0ij3G7Ihmznd9uuwkY=C
MI000020884213456YNy7vdEgIwAAdeb5WGxLOnsC6-OgCnbdPMK-CLW1aLI=C
```

Ongoing images will be available via FTP however, due to space limitations the full catalog is not on the image ftp server.

4

Database Schema Diagram and Table Descriptions

This section provides the database schema for Rovi Music and descriptions for all tables. Tables are described collectively by their functional category: Object tables, Controlled Vocabulary tables, Link tables, and Asset tables. Individual fields in each table are also described.



Rovi Music Data Tables

Rovi Music data tables are categorized by four areas: *Object, Controlled Vocabulary, Asset,* and *Link*.

Main Object Tables

The Main Object tables represent the primary objects that the Music product describes. These objects include albums, releases, tracks, compositions and their corresponding parts, names (artists and contributors within the universe of music) and more.

The Main Object tables are composed of basic fields that describe the object. Additional information about these objects is linked employing the link tables (see Link Tables, below).

Controlled Vocabulary Tables – Attribute, AttributeAssociation, Translation

The Controlled Vocabulary tables describe the different attributes and associations that an object may possess in the database. The Attribute table describes multiple characteristics: possible properties that an object may have (e.g., the “Musical Genre” attribute), possible values that a property may have (e.g., the “Pop Vocals” value), as well as associations between objects (e.g., the “Similar Artist” association). The AttributeAssociation table describes relationships between these attributes (for the previous examples, the AttributeAssociation table would describe the relationship between “Pop Vocals” and “Easy Listening”).

Link Tables – Association, AttributeLink

The Link tables contain properties for, and associations between, objects in the main object tables. The Association table contains the associations, and the AttributeLink table contains property value assignments. In addition to the predefined fields in the main tables, most data elements in Rovi Music are represented as records in the AttributeLink table, or in the Association table.

The Vendor Link table is also provided to link external, vendor specific product identifiers to Rovi data.

Asset Tables

The Asset tables contain content that supports or enhances the Music browsing experience. For example, the Image table store information about available images for an album. The Document table stores artist biographies and album descriptions.

In the following sections each table in the database is described by its respective category, together with each of its fields. Most common Property and Association attributes that apply to the table are listed as well.

Note: If no Properties or Associations are listed with the table, none currently exist.

Note: IDs used in the samples that follow are for example purposes only; the numeric portion may not correspond to an actual value.

Object Tables

ALBUM (MW)

The Album table represents musical works (one or more audio tracks) produced by an artist or group of artists. Albums are conceptual entities, describing a specific work (e.g., “The White Album”) and do not refer to a format (Vinyl, CD, Digital, etc.). Each album relates to one or more releases (RELEASE table) representing the form of the album made available to consumers.

Field	Type	Length	Description
AlbumID	char	12	The primary key for the table, this field uniquely identifies an album (ID prefix ‘MW’).
Type	char	1	The type of the album, either Album (‘A’) or Series (‘S’). Series are collections of albums.
MusicType	char	1	The music type of the album, either Pop (‘P’), Classical (‘C’), Both Pop and Classical (‘B’) or Undefined (‘U’). While the genre properties are the best source of this information, this field is provided for clients who wish to handle classical content differently than pop content.
Article	nvarchar	5	Lead word of a title when that title starts with an article.
Title	nvarchar	300	The title of the album.
KeyTitle	nvarchar	300	The title for the album used for sorting (leading articles are removed, diacritics are removed).
MainReleaseID	char	12	The “main” release for the album, picked by Rovi.
ProductFormAttributeID	char	12	An Attribute ID that indicates the product form (Album, Single, EP, Maxi-Single, etc.)
p_MainGenreAttributeID	char	12	Projected ID of the main genre attribute based on the parent genre with the highest weight
Performer	nvarchar	300	The name of the performer as listed on the album.
PerformerCount	char	1	The number of main performers that are attributed for the album. A value of ‘V’ indicates a Various Artists disc.
OriginalReleaseDate	nvarchar	30	The original release date for the album.
Rating	char	1	An editorially assigned rating in the range from 1-9. The higher the number, the larger the album's editorial significance. An album with a 0 value is unranked. **NOTE:** Null values are permitted in this field. Album ratings are applied locally within each artist’s discography (e.g., "This is a 9 rating album for U2, one of their best."). **NOTE:** Applies to non-classical only. Performance quality rating is used for classical.
n_Releases	int		The number of releases for this album.
n_Tracks	int		The number of tracks on the main release of this album
Action	varchar	1	Character to identify the record as either an addition, change, or deletion.

ALBUM (MW) Sample Data

Field	Example Values	Possible Values
AlbumID	MW1234567890	MW, followed by a ten digit identifier
Type	A, S	(A)lbum, (S)eries
MusicType	P, C	(P)opular, (C)lassical
Article	The	Article if the lead word of a title
Title	John Wesley Harding	The full name of the album or series, to 300 characters
KeyTitle	John Wesley Harding	The name of the album, which is used for sorting. Like Title, can be up to 300 characters long.
MainReleaseID	MR1234567890	MR, followed by a ten-digit identifier
ProductFormAttributeID	MA0000001928	MA, followed by a ten-digit identifier associated with the selected attribute.
p_MainGenreAttributeID	MA0000002575	MA, followed by a ten-digit identifier associated with the selected attribute.
Performer	Bob Dylan	The full name of the performer, in first name, last name format.
PerformerCount	1,2,3,V	The number of main performers. The V value reflects various artists.
OriginalReleaseDate	1968-12-19	The release date of the album, in YYYY-MM-DD format.
Rating	1, 9	Any number 1-9; the higher the number the larger the album's editorial significance. An album with a 0 value is unranked
n_Releases	1,2,8	An integer reflecting the total number of discreet, different releases of the album.
n_Tracks	12,18,4	The number of musical tracks on the album.
Action	A, C, D	A – Add; C – Change; D - Delete

RELEASE (MR)

The Release table defines releases of an album, either physical or digital. This table contains descriptive information particular to the release itself, such as release date and product code.

Field	Type	Length	Description
ReleaseID	char	12	The primary key for this table (ID prefix 'MR').
AlbumID	char	12	The identifier of the album to which this release belongs.
MediaFormatAttributeID	char	12	An Attribute ID that indicates the media format (CD, Cassette, Vinyl, Digital Download, etc).
ProductFormAttributeID	char	12	An Attribute ID that indicates the product form (Album, Single, EP, Maxi-Single, etc.)
ReleaseDate	nvarchar	30	The date for the release.
ProductCode	nvarchar	20	The main product code for the release. Additional product codes (added by distributors or 3rd parties) are added as attribute links.
ProductCodeTypeID	char	12	The type of the product code (UPC, EAN-13, etc).
ParentalAdvisoryID	char	12	An attribute that indicates the parental advisory for the release. This field is null if no parental advisory is assigned.
Duration	int		The duration, in seconds, of the audio content for the release. This field is null if the duration is not defined.
DistributionDate	varchar	30	The date of distribution, in Rovi Date format.
DiscontinuedDate	varchar	30	The date this release was discontinued, in Rovi Date format.
Available	char	1	Indicates release availability.
p_Label	nvarchar(MAX)		The list of all labels linked to release (multiple labels will be separated by a forward slash – /).
p_Distributor	nvarchar(MAX)		The name of the most recent/currently active distributor.
p_CurrentDistributorID	char	12	ID of the most recent/currently active distributor.
p_TrackSignature	nvarchar	300	A convenience field of a concatenated string of the first letter in every track title.
n_Medias	int		The number of individual discs or physical media comprising this release.
n_Tracks	int		The number of tracks in this release.
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

RELEASE (MR) Sample Data

Field	Example Values	Possible Values
ReleaseID	MR0000000001, MR0000098765	MR prefix, followed by a unique, ten-digit identifier for the release.
AlbumID	MW0000000001, MW0000067876	MW prefix, followed by a unique, ten-digit identifier for the album.
MediaFormatAttributeID	MA0000001831	Unique attribute IDs (prefix MA) followed by ten-digit identifier. Used to designate media (CD, Cassette, Vinyl, Digital Download, etc.)
ProductFormAttributeID	MA0000001928	Unique attribute IDs (prefix MA) followed by ten-digit identifier. Used to designate the media product form (Album, Single, EP, Maxi-Single, etc.).
ReleaseDate	2004-06-22	The release date, in YYYY-MM-DD format.
ProductCode	630428017924	The unique product code for the release.
ProductCodeTypeID	MA0000002977, MA0000002978	MA prefix followed by a unique ten-digit identifier for product code type (UPC, EAN-13, etc.).
ParentalAdvisoryID	MA0000001356	MA0000001356
Duration	3600, 2978, 3347	[Null] if unavailable, else the total duration in seconds of the release.
DistributionDate	1993-03-22	Distribution date of the release, in YYYY-MM-DD format.
DiscontinuedDate	1993-03-23	Discontinuation date of the release, in YYYY-MM-DD format. [Null} if not applicable.
Available	A (available), S (soon)	Indicates release availability, A or S.
p_Label	Universal Records	The label name for the release.
p_Distributor	EMI Music Distribution	The current distributor name for the release.
p_CurrentDistributorID	MN0000236979	The current distributor ID name for the release.
p_TrackSignature	WIFGBNSAMM, NNN	The first letter of each track title.
n_Medias	1,2,3,4, etc.	The number of media in the release.
n_Tracks	1,22,33,44, etc.	The number of tracks in the release.
Action	A, C, D	A – Add; C – Change; D - Delete

TRACK (MT)

The Track table defines information about a specific audio track on a release.

Field	Type	Length	Description
TrackID	Char	12	The primary key for the Track table, and the unique identifier for a track (ID prefix 'MT').
MediaID	Char	12	The media to which this track belongs, if any. *(See the Media table.)*
ReleaseID	Char	12	The release to which this track belongs.
AlbumID	Char	12	The album to which this track belongs.
MediaNum	int		The sequential media number. This indicates on which disc (or other media) that this track resides.
PhyTrackNum	int		The physical track number on the media.
TrackNum	int		The sequential track number, irrespective of which media the track exists. [TrackNum does not start over after every disc; PhyTrackNum does.]
Article	nvarchar	5	Lead word of a title when that title starts with an article.
Title	nvarchar	300	The track title.
KeyTitle	nvarchar	300	The track title used for sorting (no leading article).
Duration	int		The length of the audio track, in seconds.
Pick	tinyint		Indicates a recommended track by Rovi editors.
PerformanceID	char	12	The ID of the performance to which this part belongs. *(See the Performance table.)*
p_CompositionID	char	12	The composition ID projected for convenience if track is linked to a composition.
p_Composers	nvarchar(MAX)		The concatenated string of composer names projected from the track associations.
p_Performers	nvarchar(MAX)		The concatenated string of performer names projected from the track associations.
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

TRACK (MT) Sample Data

Field	Example Values	Possible Values
TrackID	MT0000000987	MT prefix, followed by a unique 10-digit identifier for the track.
MediaID	MM0000067574	MM, followed by a unique 10-digit identifier for the media.
ReleaseID	MR0000000213	MR, followed by a unique 10-digit identifier for the release on which the track was included.
AlbumID	MW0009876578	MW, followed by a unique 10-digit identifier of the album on which the track was included.
MediaNum	1,2, null	The number of the disc (or other media) on which the track is included.
PhyTrackNum	1,5,9	This value reflects the physical track number.
TrackNum	1,2,7,22	The sequential track number, across multiple media.
Article	The	Article if the lead word of a title
Title	The Long and Winding Road	The name of the track, up to 300 characters.
KeyTitle	Long and Winding Road	The sort name of the track.
Duration	214, 366, 71	The length of the track, in seconds.
Pick	1	1 indicates track as a pick track
PerformanceID	MQ000000022	MQ prefix, followed by a unique 10-digit identifier for the track.
p_CompositionID	MC0000625811	MC, followed by a unique 10-digit identifier for the composition on which the track was included.
p_Composers	Irving Berlin	The composer name.
p_Performers	Ella Fitzgerald	The Performer name.
Action	A, C, D	A – Add; C – Change; D - Delete

COMPOSITION (MC)

The Composition table contains one record for each distinct musical composition that has been catalogued within Rovi Music. Compositions are linked to their composers through the Association table, and they are linked to Tracks and Releases through the Performance table (detailed below). Certain compositions are further subdivided into parts (i.e. movements), which can be found in the Parts table.

Field	Type	Length	Description
CompositionID	char	12	The primary key, and unique identifier for a composition (ID prefix 'MC').
Type	char	1	The composition type. One of the following values: Work, Metawork
ImportanceTier	char	1	The editorially assigned importance of the composition.
MusicType	char	1	The music type of the album, either Pop ('P'), Classical ('C'), Both Pop and Classical ('B') or Undefined ('U'). While the genre properties are the best source of this information, this field is provided for clients who wish to handle classical content differently than pop content.
Title	nvarchar	300	The title of the composition.
KeyTitle	nvarchar	300	The sort form of the composition title.
Complete	char	1	Indicates that composition has all associated parts or is complete as is.
ComposedDate	varchar	50	The date that composition was composed.
p_Composers	nvarchar(MAX)		The projected list of composers that that have authored the composition
n_Parts	int		The number of parts contained in the composition.
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

COMPOSITION (MC) Sample Data

Field	Example Values	Possible Values
CompositionID	MC1234567890	The unique identifier for the composition. Its prefix is MC, followed by a unique ten-digit number.
Type	W, M	(W)ork (M)etawork
ImportanceTier	1,5,9	Editorially assigned importance of a composition, from 1-9. The higher the number, the larger the historical significance.
MusicType	P, C	(P)opular, (C)lassical
Title	The Cajun Twist	The title of the composition, up to 300 characters.
KeyTitle	Cajun Twist	The title of the composition, used for sorting.
Complete	Y, N	Yes or No
ComposedDate	1988-??-??	YYYY-MM-DD
p_Composers	John Lennon, Paul McCartney	The listed names of the composers. No character limit is applied to this field/
n_Parts	0,1,2,3*	The number of discreet parts contained in the composition
Action	A, C, D	A – Add; C – Change; D - Delete

NAME (MN)

The Name table defines any named entity such as an individual, group, organization, character that contributes or exists within the universe of music.

Field	Type	Length	Description
NameID	char	12	The primary key and unique identifier for a name (ID prefix 'MN').
Type	char	1	The name type. One of the following values: Individual ('I') – an individual person; Group ('G') – two or more persons, defined by members; Organization ('O') – company or other entity; Unknown ('U'); and Character ('C') – a fictional character.
ImportanceTier	char	1	Editorially assigned importance of an artist or name type such as their historical impact. Importance only applies to performing artists – composer names are ranked with the Composer Importance attribute MA0000005868.
PopularityTier	char	1	Editorially assigned importance of an artist or name type based on popularity.
ArtisticTier	char	1	Editorially assigned importance of an artist or name type based on artistic merit
Name	nvarchar	300	The name of the entity.
KeyName	nvarchar	300	The sort version of the name (leading articles removed, last name first).
Differentiator	nvarchar	50	An optional differentiating characteristic used to disambiguate two records having the same text in the name field.
p_MainGenreAttributeID	char	12	The projected ID of the main genre attribute based on the parent genre with the highest weight. (See Attribute Reference Guide for Genre Hierarchy)
n_Images	int		The number of images for this artist, projected from the image table.
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

NAME (MN) Sample Data

Field	Example Values	Possible Values
NameID	MN0000000001, MN0008786654	MN, followed by a ten-digit unique identifier for the name.
Type	I, G, O, U, C	(I)ndividual, (G)roup, (O)rganization, (U)nknown, (C)haracter
ImportanceTier	1,5,9	1-9; the higher the number the more important the artist (editorially assigned).
PopularityTier	1,5,9	1-9; the higher the number the more important the artist (editorially assigned).
ArtisticTier	1,5,9	1-9; the higher the number the more important the artist (editorially assigned).
Name	The White Stripes, Neil Young	Name of the artist, up to 300 characters.
KeyName	White Stripes, Young, Neil	Sort name of the artist (last name first).
Differentiator	Rap, Blues, Jazz, Electronic	A characteristic up to 50 characters
p_MainGenreAttributeID	MA0000004433	MA, followed by a ten-digit unique identifier for the genre.
n_Images	4	Calculated integer, number of images for this artist, projected from the image table.
Action	A, C, D	A – Add; C – Change; D - Delete

LOCATION (MZ)

The Location table stores locations of musical events.

Field	Type	Length	Description
LocationID	Char	12	The primary key for the location table (ID prefix 'MZ').
Type	Char	1	[Reserved for future use.]
Name	Nvarchar	300	The name of the location (e.g., 'Pasedena, California').
CountryAttributeID	Char	12	The unique identifier for a country (ID prefix 'XA').
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

LOCATION (MZ) Sample Data

Field	Type	Description
LocationID	MZ0000000001, MZ0000008787	The Location ID is comprised of an MZ prefix, followed by a ten-number identifier.
Type	[Reserved for future use]	
Name	Duluth, Minnesota, San Jose, Costa Rica, The Greek Theatre	The name of the location, up to 300 characters.
CountryAttributeID	XA0000000065	Country attribute ID
Action	A, C, D	A – Add; C – Change; D - Delete

MEDIA (MM)

The Media table defines an individual piece of media within a release. Example: for a CD release, there will be one record in the media table for every CD in a release

Field	Type	Length	Description
MediaID	char	12	The primary key for the table, and the unique identifier for a media (ID prefix 'MM').
ReleaseID	char	12	The release corresponding with this media.
MediaNum	int		The sequential number of the media.
MediaFormatAttributeID	char	12	The format of the media (CD, DVD, Vinyl, etc.)
n_Tracks	int		The number of tracks on the media/disc.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion.

MEDIA (MM) Sample Data

Field	Example Values	Possible Values
MediaID	MM0000000012, etc.	MM prefix, followed by 10-digit identifier.
ReleaseID	MR0000000012, etc.	Valid release ID.
MediaNum	1,2,3, etc.	Sequential number of media in release.
MediaFormatAttributeID	MA0000001831	Valid media format ID.
n_Tracks	10, 15,20, etc.	The number of tracks on the selected media.
Action	A, C, D	A – Add; C – Change; D - Delete

PART (MO)

The Part table contains the individual parts (movements or sections) of a composition.

Field	Type	Length	Description
PartID	char	12	The primary key for the Part table (ID prefix 'MO').
Type	char	1	The Part type. One of the following values: P – Part; S - Section
CompositionID	char	12	The ID of the composition to which this part belongs. *(See the Composition table.)*
Title	nvarchar	300	The title of the part (e.g., "Andante").
KeyTitle	nvarchar	300	The sort form of the title.
Sequence	int		The sequence number of the part (the order in which it appears within the composition).
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

PART (MO) Sample Data

Field	Example Values	Possible Values
PartID	MO0000059992	MO prefix, followed by a unique, ten-digit identifier.
Type	P, S	(P)art, (S)ection
CompositionID	MC0002355458	MC prefix, followed by a unique, ten-digit identifier
Title	Il penseroso	The title of the part or section.
KeyTitle	Penseroso	The sort listing of the part.
Sequence	1,2,3,7,8	An integer value reflecting the sequence in which this part appears in the composition.
Action	A, C, D	A – Add; C – Change; D – Delete

PERFORMANCE (MQ)

The Performance table contains performances of compositions.

Field	Type	Length	Description
PerformanceID	char	12	The primary key for the Performance table (ID prefix 'MQ').
ReleaseID	char	12	The ID of the release to which this performance belongs. *(See the Release table.)*
CompositionID	char	12	The ID of the composition to which this performance belongs. *(See the Composition table.)*
Complete	char	1	Y indicates the performance is complete; N indicates the performance is incomplete.
Sequence	int		The sequence number of the performance (the order in which it appears within the release).
p_Duration	int		The length of the track, in seconds.
Action	varchar	1	Character to identify the record as an addition, change, or deletion.

PERFORMANCE (MQ) Sample Data

Field	Example Values	Possible Values
PerformanceID	MQ0002363552	MQ prefix, followed by a unique, ten-digit identifier.
ReleaseID	MR0002089685	MR prefix, followed by a unique, ten-digit identifier
CompositionID	MC0002363552	MC prefix, followed by a unique, ten-digit identifier
Complete	Y, N	Yes or No
Sequence	1,2,3,7,8	An integer value reflecting the sequence in which this part appears in the song
p_Duration	1966, 3611	The length of the Performance in total seconds.
Action	A, C, D	A – Add; C – Change; D - Delete

EVENT (ME)

The Event table contains territory specific distribution information of objects and associations.

Field	Type	Length	Description
EventID	char	12	The primary key for the Event table (ID prefix 'ME').
Type	char	1	The Event type (currently only shipping Distribution Events
Title	nvarchar	600	Event Title, currently only shipping Distribution Events
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

Event (ME) Sample Data

Field	Example Values	Possible Values
EventID	ME000000022, ME0000008675	ME prefix, followed by a unique, ten-digit identifier.
Type	D	Distribution Event
Title	Distribution Event	Title
Action	A, C, D	A – Add; C – Change; D - Delete

Controlled Vocabulary Tables

ATTRIBUTE (MA)

The Attribute table contains all controlled vocabulary attributes. This encompasses the specific descriptive vocabulary captured about music products, from genre to parental advisory indicators, including all levels (super & subset) of hierarchy.

Field	Type	Length	Description
AttributeID	char	12	The primary key, and unique identifier for an attribute (ID prefix 'MA').
Type	char	1	This field indicates the attribute's type: T-type, C-category, V-value, P-property, G-group, and A-association.
PropertyTypeID	char	12	Contains the AttributeID of this property's type.
Attribute	nvarchar	100	This field contains the name of the attribute.
KeyAttribute	nvarchar	100	Convenience field of the attribute formatted without lead article.
Description	nvarchar(MAX)		A brief description of the attribute.
Format	varchar	200	The format of the attribute's values.
Range	varchar	100	The range of the attribute's values.
EnumeratedValues	nvarchar(MAX)		Enumeration of the attribute's values.
n_Links	int		Total number of links for this attribute.
Action	varchar	1	Character to identify the record as an addition, change, or deletion

ATTRIBUTE (MA) Sample Data

Field	Example Values	Possible Values
AttributeID	MA0000000001, MA9898987654	The MA identifier followed by a ten-digit number.
Type	T, C, V, P, G, A	(T)ype, (C)ategory, (V)alue, (P)roperty, (G)roup, (A)ssociation
PropertyTypeID	MA0000000039	MA, followed by a ten-digit identifier. It reflects the ID of the selected attribute.
Attribute	Contribution Attribute, Genders: controlled vocabulary. Integer type	The full name of the attribute, up to 100 characters long.
KeyAttribute	Contribution Attribute, Genders: controlled vocabulary. Integer type	The name of the attribute (formatted without lead article)
Description	Type attribute: Data Type, Type Attribute:Genders: controlled vocabulary, Type attribute: Integer type	A description of the attribute. No set character limit is applied.
Format	[Reserved for future use.]	
Range	[Reserved for future use.]	
EnumeratedValues	[Reserved for future use.]	
n_Links	1, 99, 2091	Total number of links for the attribute (calculated).
Action	A, C, D	A – Add; C – Change; D - Delete

ATTRIBUTEASSOCIATION (XS)

The AttributeAssociation table establishes links between the different attributes (controlled vocabulary values). Relationship types are also defined in the Attribute table (e.g.: 'is a subset of'). AttributeAssociation allows for the grouping of like attributes, and the creation of a hierarchical categorization.

Field	Type	Length	Description
AttributeAssociationID	char	12	The primary key (ID prefix 'XS') for the association.
AttributeID_1	char	12	The ID of the first attribute being associated.
AttributeID_2	char	12	The ID of the second attribute being associated.
AssociationType	char	12	The attribute ID of the association type.
GroupID	char	12	ID defining the group or hierarchical tree to which this association belongs.
Action	varchar	1	Character to identify the record as an addition, change, or deletion

ATTRIBUTEASSOCIATION (XS) Sample Data

Field	Example Values	Possible Values
AttributeAssociationID	XS0000009991, XS999000765, etc.	XS0000000001-XS999999999
AttributeID_1	MA0000002224, MA1234567890, etc.	MA0000000001-MA999999999 or XS0000000001-XS999999999
AttributeID_2	MA0000002200, MA1234567865, etc.	MA0000000001-MA999999999 (must be different ID than AttributeID_1)
AssociationType	MA0000000323, MA0000004293, etc.	All valid association attributes.
GroupID	MA0000000021, MA0000000048, etc.	All valid group IDs.
Action	A, C, D	A – Add; C – Change; D - Delete

TRANSLATION (XT)

The translation table provides language translations for descriptive attributes. This table is only applicable for clients who license international packages of Rovi Music for non-English speaking territories. Note: translated documents are contained in the document asset table.

Field	Type	Length	Description
TranslationID	char	12	The primary key (ID prefix 'XT) for the association.
ObjectID	char	12	The ID of the object or attribute being translated.
LanguageAttributeID	char	12	The ID of the language being associated.
TranslationType	char	12	The attribute ID of the translation type.
Value	nvarchar(MAX)		The translated text
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

TRANSLATION (XT) Sample Data

Field	Example Values	Possible Values
TranslationID	XT0000009991, XT999000765, etc.	XT0000000001-XT999999999
ObjectID	MA0000000390	
LanguageAttributeID	XA0000000458	
TranslationType	MA0000000390	All valid association attributes.
Value		All valid group IDs.
Action	A, C, D	A – Add; C – Change; D - Delete

Link Tables

ASSOCIATION (MX)

The Association table establishes links between the different objects (table entries). The Association table is a link table of relationships between different music objects. For instance, the Association table is used to link contributors (Name table) to albums (album table), and to link artists (Name table) to artists.

Field	Type	Length	Description
AssociationID	char	12	The primary key, and identifier for the association (ID prefix 'MX').
ID_1	char	12	ID of the first object being associated.
ID_2	char	12	ID of the second object being associated.
AssociationType	char	12	ID of the association type (an attribute ID).
Weight	tinyint		Indicates the strength of the association among similar associations, where variation needs to be noted.
Rank	tinyint		
SortOrder	int		The order in which associations appear.
Object_1	nvarchar(MAX)		Object being associated to the other; used only when ID_1 is blank due to a credit having no ID.
Object_2	nvarchar(MAX)		Object being associated to the other; used only when ID_2 is blank due to a credit having no ID.
p_BaseObjectID	char	12	The base object to which the association belongs. It is a convenience field used to easily retrieve all associations for a given object (for example, to retrieve all associations for a name).
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

ASSOCIATION (MX) Sample Data

Field	Example Values	Possible Values
AssociationID	MX1234567890	MX, followed by a ten-digit number that uniquely identifies this association.
ID_1	MN2345654321	MN, followed by a ten-digit identifier. It reflects the ID of the first object in this association.
ID_2	MN34567876543	MN, followed by a ten-digit identifier. It reflects the ID of the second object in this association.
AssociationType	MA0000000293	MA, followed by a ten-digit identifier. It reflects the type of association being established between the objects.
Weight	1,3,9	A number representing the strength of the association. The higher the number, the stronger the association between the objects.
Rank		
SortOrder	1,5,22	An integer reflecting the sort order of the objects.
Object_1	MW0000000456	MN, followed by a ten-digit identifier. It reflects the ID of the first object in this association.
Object_2	MN0000000756	MN, followed by a ten-digit identifier. It reflects the ID of the second object in this association.
p_BaseObjectID	MT0000034211	MT followed by a ten-digit identifier. It reflects the base object to which this association belongs.
Action	A, C, D	A – Add; C – Change; D - Delete

ATTRIBUTELINK (ML)

The AttributeLink table links attributes to objects by ID.

Field	Type	Length	Description
AttributeLinkID	char	12	The primary key (ID prefix 'ML').
ObjectID	char	12	ID of the object being linked.
PropertyAttributeID	char	12	ID of the attribute of the data element being linked.
ValueAttributeID	char	12	The attribute ID of the value for the data element, if the data element is a member of a controlled vocabulary.
Value	nvarchar(MAX)		The specific value being assigned via this link when the value is not a member of a controlled vocabulary
Weight	tinyint		Indicates the strength of the data element among similar elements, where variation is required.
Rank	tinyint		A number that reflects a ranking for different data elements.
SortOrder	int		Indicates a sequential sort order for attribute links.
p_BaseObjectID	char	12	The base object to which the attribute link belongs. It is a convenience field used to retrieve all attribute links for a given object (for example, to retrieve all associations for a name).
Action	varchar	1	Character to identify the record as either an addition, change, or deletion.

ATTRIBUTELINK (ML) Sample Data

Field	Example Values	Possible Values
AttributeLinkID	ML0000000001, ML0000000002, etc.	ML0000000001-ML999999999
ObjectID	ML0000079173, MC0000160941, etc.	Any valid object ID.
PropertyAttributeID	MA0000000232, MA0000000109, etc.	Any valid object ID.
ValueAttributeID	MA00000001514, MA0000003908, etc.	Any valid Value ID.
Value	Stereo, True, Studio, 411795	Any valid Value
Weight	1,3, 5	1-9
Ranking	0,1,2,4	1-9
SortOrder	1,3,5, etc.	A number reflecting the sort order for the attribute links.
p_BaseObjectID	MN0000791763, MN0000060244	Any valid Object ID.
Action	A, C, D	A – Add; C – Change; D - Delete

HYPERLINK (XH)

Rovi Music text documents (biographies and album reviews) can contain embedded textual hyperlink tags. Taking advantage of the hyperlinks provides a unique experience for your users to explore artists or titles noted within the document.

The published Hyperlink table is where you will find the hyperlinked text and associated object IDs. The table identifies the link between the hyperlink tags within a unique document and the tagged object.

Field	Type	Length	Description
HyperlinkID	char	12	The primary key (ID prefix 'XH').
HyperlinkType	char	12	Type of hyperlink.
HyperlinkText	nvarchar	300	Text of hyperlink.
ObjectID	char	12	ID of the object being linked.
TargetObjectID	char	12	ID of the object being linked to.
TargetText	nvarchar	300	Text of the Object ID.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion.

HYPERLINK (XH) Sample Data

Field	Example Values	Possible Values
HyperlinkID	XH0000001290	XH0000000001-XH9999999999
HyperlinkType	XA0000000047	XA0000000001- XA9999999999
HyperlinkText	Bruce Springsteen	Text of the link
ObjectID	MA00000001514, MA0000003908, etc.	Any valid object ID.
TargetObjectID	MN0000530745	Any valid object ID.
TargetTExt	Bruce Springsteen	Text of the Object ID
Action	A, C, D	A – Add; C – Change; D - Delete

Implementing Hyperlinks

Hyperlinks within biographies and reviews will always be indicated as follows:

- [roviLink="MN"]Madonna[/roviLink]
- [roviLink ="MW"]The Stone Roses[/roviLink]

Where [roviLink ="MN"] and [roviLink ="MW"] indicate the beginning of a string of hyperlinked text, and [/roviLink] indicates the end of the string.

To implement the link, you will need the DocumentID of the document containing the hyperlink and the text within the hyperlink tag.

If the Hyperlink table contains a row where ObjectID+HyperlinkText = DocumentID+Text from the document and a valid Rovi ID in the TargetObjectID field, the TargetObjectID value is the target of the link.

An example using ObjectID MD0002878459:

> "While it didn't set the charts on fire like her previous albums, the ambitious [roviLink ="MW"]Erotica[/roviLink] contains some of [roviLink ="MN"]Madonna[/roviLink]'s best and most accomplished music..."

To resolve the first link, you can look at the Hyperlink table for rows containing an ObjectID of MD0002878459 and HyperlinkText of "Erotica." In this case, it can be seen that the link points to the albumID for Madonna's album Erotica (TargetObjectID = MW0000017824).

```
select * from Hyperlink2 where ObjectID = 'MD0002878459' and HyperlinkText = 'erotica'
```

Results | Messages

HyperlinkID	HyperlinkType	HyperlinkText	ObjectID	TargetObjectID	TargetText	Action
XH0003277074	XA0000000048	Erotica	MD0002878459	MW0000017824	Erotica	A

To resolve the second link, you can look at the Hyperlink table for rows containing an ObjectID of MD0002878459 and HyperlinkText of "Madonna." In this case, it can be seen that the link is to Madonna's NameID. (TargetObjectID = MN0000237205).

```
select * from Hyperlink2 where ObjectID = 'MD0002878459' and HyperlinkText = 'madonna'
```

Results | Messages

HyperlinkID	HyperlinkType	HyperlinkText	ObjectID	TargetObjectID	TargetText	Action
XH0000295845	XA0000000047	Madonna	MD0002878459	MN0000237205	Madonna	A

Additional Comments

- If you do not wish to take advantage of included hyperlinks, you need to strip the text from the document – this would require the addition of logic to remove the embedded markings during your ingestion process.
- Records in Hyperlink without a valid TargetObjectID are unresolved, the record is still valid.
- Unresolved TargetObjectID values can be handled in one of two ways.
  1. Strip the Hyperlink tags from the document and leave as-is without a hyperlink.
  2. Strip the Hyperlink tags from the document and utilize a text search function to lookup the tagged text.
     - The Hyperlink Type attribute will identify the text type (name, release, etc). This is how you can focus your search results.

TRACKQUANTITATIVEVALUE

For Rovi Music Influence customers, the TrackQuantitativeValue table provides quantitative values that describe a track's core musical, mode-based, and textural elements profile on the basis of 15 different attributes. NULL values **are** permitted in the TrackQuantitativeValue table.

NOTE: The decimal field length notation (M,D) represents a decimal number up to M digits with D of them on the right of the decimal point.

Field	Type	Length	Description
TrackID	varchar	12	The primary key for the table, and the unique identifier for a track.
Tempo Primary	decimal	18,5	Indicates the pace of the music with a precise measurement of beats per minute. If a song has extreme fluctuation in perceived tempo or if no regular pulse exists, a value of 0 will be reported.
Tempo Confidence	decimal	18,5	Indicates the likelihood of interpretative accuracy, most relevant when multiple tempo candidates are discovered.
Tempo Secondary	decimal	18,5	Indicates a double- or half-time pace to the music, to determine the tempo that most closely correlates with general listener interpretation.
Tonality/Mode	decimal	20,15	Categorizes each harmony in the track according to its mode (major, minor, etc.) and the amount of dissonance present, providing an account of the brightness or darkness of the mood created by the harmonies in a track.
Textural Stability	decimal	20,15	The frequency and degree of large-scale textural changes. Pronounced changes in texture (timbre) contribute significantly to defining musical form.
Rhythmic Intensity	decimal	20,15	Extracts a rhythmic power profile describing the music's rhythmic elements and providing an indicator of "danceability." Indicates if the music is dominated by hard-hitting beats or has a smooth and connected sound.
Rhythmic Complexity	decimal	20,15	Identifies the rhythmic patterns that most uniquely define a particular piece of music. Provides insight into the perceived intricacy or simplicity of those patterns.
Performance Energy	decimal	20,15	A combination of musical and sonic elements that create a perceived amount of excitement or energy in a musical performance. An indicator of mood as related to the energy of individual instruments/performers.
Melodic Presence	decimal	20,15	Indicates the presence or absence of a tune performed by a lead voice (vocal or instrumental). Quantifies the amount of melodic lead present in the musical foreground (e.g., lower value indicates vocals buried in the mix).
Melodic Complexity	decimal	20,15	Extracts melodic components and identifies their primary tendencies, measuring how a melody behaves (i.e., does it behave naturally or is it full of surprises?).
Loudness	decimal	20,15	Measures average audio power throughout the piece as perceived by the typical listener. This is the perception of loudness change as a function of the amplitude, frequency, and duration of the audio signal.

Field	Type	Length	Description
Harmonic Stability	decimal	20,15	Indicates stability or repetition of harmonic content. Stable or repetitive patterns create a sense of familiarity and comfort. Shifting harmonic patterns challenge the listener.
Harmonic Complexity	decimal	20,15	Provides a measurement of how common or novel harmony is with regard to principles of music cognition, identifying the most characteristic harmonic progressions in the music.
Dynamic Range	decimal	20,15	Measurement in decibels that indicates the amount of dynamic fluctuation over the course of a piece of music. The value varies according to musical style, performance, and how the recording techniques are captured.
Density	decimal	20,15	Describes the continuity of sound over time as measured over multiple frequency bands, averaged over each beat throughout the entire track. This value quantifies the “thickness” or “thinness” of the musical sound.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion.

TRACKQUANTITATIVEVALUE Sample Values

The following data is not a sample of the table itself. The values displayed are only examples that illustrate the range of possible values with tracks and the values assigned for the tracks.

Field	Low	High	Example	Artist	Track
TrackID	N/A	N/A	MT0001504394	Pearl Jam	Smile
TempoPrimary	0	399	92	The Roots	Water
TempoConfidence	0	3	2	Weezer	Buddy Holly
TempoSecondary	0	399	108	Common & Jill Scott	I Am Music
Tonality/Mode	0	1	0.54627033	Branford Marsalis	The Nearness of You
TexturalStability	0	4788	1.8070443	Elvis Costello	Brilliant Mistake
RhythmicIntensity	0	1	0.06840219	Weezer	Buddy Holly
RhythmicComplexity	0	1	0.35	Pet Shop Boys	Domino Dancing
PerformanceEnergy	0	4	0.5134322	TV on the Radio	Ambulance
MelodicPresence	0	1	0.78975364	Yellowcard	Breathing
MelodicComplexity	0	2	1.07582386	The Black Keys	Set You Free
Loudness	0	1	0.40816055	Snoop Dogg	Sumthin Like This Night
HarmonicStability	0	1	0.40802676	Dierks Bentley	Cab of My Truck
HarmonicComplexity	0	2	1.05389222	White Denim	Everybody Somebody
DynamicRange	0	65	45.7108563	Rush	Spirit of Radio
Density	0	1	0.70831015	Trey Songz	Wonder Woman
Action	N/A	N/A	A, C, or D	N/A	N/A

External Link Table

VENDORLINK (MB)

The VendorLink table links vendor/distributor-specific product identification codes to Releases. This table is used to link Rovi data to vendor/distributor data.

Field	Type	Length	Description
VendorLinkID	char	12	The primary key (ID prefix 'MB').
ReleaseID	char	12	The release to which this vendor link applies.
SourceAttributeID	char	12	The Attribute ID that defines the vendor or distributor that is the source of this link.
VendorCode	varchar	30	The vendor- or distributor-specific product code for the item.
ProductCode	varchar	20	The non-vendor-specific product code that is linked by the vendor (usually UPC), if available.
CurrencyAttributeID	char	12	The Attribute ID that indicates the currency of the vendor price.
VendorPrice	float		The price of the item, as supplied by the Vendor / distributor.
Action	varchar	1	Character to identify the record as an addition, change, or deletion

VENDORLINK (MB) Sample Data

Field	Example Values	Possible Values
VendorLinkID	MB0000000001, MB0000000002, MB0000000003, etc.	'MB' prefix, followed by a ten-digit identifier.
ReleaseID	MR0000000001, MR0000000002, MR0000000003, etc.	'MR' prefix, followed by a ten-digit identifier.
SourceAttributeID	MA0000004314, MA0000004385, etc.	Attribute ID of the distributor.
VendorCode	CSPHLO 1118, FKL70.4, etc.	The vendor- or distributor-specific product code.
ProductCode	0116798765,11, 033651198764, etc.	Twelve-digit non-vendor-specific product code that is linked by the vendor (usually UPC), if available.
CurrencyAttributeID	MA0000004400, etc.	The Attribute ID that indicates the currency of the vendor price.
VendorPrice	10.98, 19.99, 29.99, etc.	The price of the item, as supplied by the vendor/ distributor.
Action	A, C, D	A – Add; C – Change; D - Delete

Asset Tables

DOCUMENT (MD)

The Document table stores written content about an object in the music universe. Documents are associated to objects via the Association table.

Field	Type	Length	Description
DocumentID	char	12	The primary key. The identifier for the document. MD prefix, followed by a ten-digit number.
TypeAttributeID	char	12	The attribute associated with the document. MA prefix, followed by a ten-digit identifier.
Title	nvarchar	300	A description of the document.
Text	nvarchar(MAX)		The text of the document
LanguageAttributeID	char	12	An identifier reflecting the language in which the document was written.
p_MainAuthorID	char	12	Projection of the ID of the Author name from the Association table.
SourceID	char	12	The ID that indicates the source of the document. MN prefix, followed by a ten-digit identifier.
n_Words	int		The total number of words in this document.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

DOCUMENT (MD) Sample Data

Field	Example Values	Possible Values
DocumentID	MD0000000001, MD98797979	The unique identifier of the document. Its syntax is an MD prefix followed by a ten-digit number
TypeAttributeID	MA0000000491, MA3256707611	The unique attribute associated with this document. Its prefix is MA, followed by a ten-digit number.
Title	Annotation,	A brief description that characterizes the content of the document. It may be up to 300 characters long. Not required
Text	“Gadfly Records is pleased to announce the release…”	The text of the document. No character limit is applied to this field.
LanguageAttributeID	MA0000004024	Any attribute that reflects a language type (MA3954-MA4223).
p_MainAuthorID	Nate Knaebel, EPM	The author ID of the document.
SourceID	MN0000422993, MN0000898817	The Source ID of the document.
n_Words	239,890,3066	The number of words contained in the document (calculated).
Action	A, C, D	A – Add; C – Change; D - Delete

IMAGE (MI)

The Image table stores information about individual images. These images are then linked to objects in the database through the ImageLink table.

Note: While not directly identified within the Image table, it is assumed all artist images will have a companion 'source size' image size available.

Field	Type	Length	Description
ImageID	char	12	The primary key. The unique identifier for the image. Prefix is MI, followed by a ten-digit number.
ImageType	char	12	The attribute type of which this image belongs.
Ratio	Numeric	24, 12	The image aspect ratio.
PublishDate	datetime		The date and time an image the image was added to the dataset
Size75	varchar	1	75 x 75 Image Size (X indicates image exists in data; blank, it does not)
Size250	varchar	1	250 x 250 Image Size (X indicates image exists in data; blank, it does not)
Size400	varchar	1	400 x 400 Image Size (X indicates image exists in data; blank, it does not)
Size500	varchar	1	500 x 500 Image Size (X indicates image exists in data; blank, it does not)
Size1080	varchar	1	1080 x 1080 Image Size
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

IMAGE (MI) Sample Data

Field	Example Values	Possible Values
ImageID	MI0000075432	MI prefix, followed a by a ten-digit identifier.
ImageType	MA0000001393, MA0000001394	MA prefix, followed by a ten-digit identifier.
Ratio	1.290159189580	Numeric value.
PublishDate	2/26/2008 10:06:00 AM	Date and time hh:mm:ss.
Size75	X	X – has Image; blank – does not have image.
Size250	X	X – has Image; blank – does not have image.
Size400	X	X – has Image; blank – does not have image.
Size500	X	X – has Image; blank – does not have image.
Size1080	X	X – has Image; blank – does not have image.
Action	A, C, D	A – Add; C – Change; D - Delete

Note: Information about color type for artist images is provided using PropertyAttributeID MA0000005859 (Image Color Type) and ValueAttributeID MA0000006124 (Black & White) or MA0000006125 (Color).

IMAGELINK (MP)

The ImageLink table links images to objects by their respective ID.

Field	Type	Length	Description
ImageLinkID	char	12	The primary key (ID prefix MP).
ObjectID	char	12	ID of the object being linked (ID prefix MR or MN).
ImageID	char	12	ID of the image being linked (ID prefix MI).
ImageType	char	12	The attribute ID of the value for the image, if the image element is a member of a controlled vocabulary.
SortOrder	char	1	The sort order applied to the image.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

IMAGELINK (MP) Sample Data

Field	Example Values	Possible Values
ImageLinkID	MP1234567890	MP prefix, followed by a ten-digit identifier.
ObjectID	MR1234567890	MR prefix, followed by a ten-digit identifier.
ImageID	MA1234567890	MI prefix, followed by a ten-digit identifier.
Image Type	MA0000001394, MA0000004236	Back Cover, Portrait
Sort Order	1,3,6,8	A single integer reflecting the sort order of the image.
Action	A, C, D	A – Add; C – Change; D - Delete

IMAGEKEY (MI)

The ImageKey table provides the image URL and format.

Field	Type	Length	Description
ImageID	char	12	ID of the image being (linked ID prefix MI).
URL	nvarchar(MAX)		URLs that point directly to individual images.
Format	nvarchar(MAX)		Accepted values: 1 = JPEG 75 3 = JPEG 250 4 = JPEG 400 5 = JPEG 500 6 = JPEG 1080
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

IMAGEKEY (MP) Sample Data

Field	Example Values	Possible Values
ImageID	MI1234567890	MI prefix, followed by a ten-digit identifier.
URL	http://rovimusic.rovicorp.com/image.jpg?c=MDZP--Ks2jB_jZ7xNq311qUAjjTIOhFP8f1ywErxXcI=&f=1	URLs that point directly to individual images.
Format	1, 2, 3, 4, 5, 6	
Action	A, C, D	A – Add; C – Change; D - Delete

AUDIOSAMPLE (MG)

The audiosample table provides the IDs and URLs associated with supply sound samples.

Field	Type	Length	Description
AudioSampleID	char	12	The primary key. The system-generated identifier for the entry. Prefix is MG, followed by a ten-digit number.
TrackID	char	12	The identifier for the album. Prefix is MT, followed by a ten-digit number.
MediaID	char	12	The media to which this track belongs, if any *(see the Media table).*
ReleaseID	char	12	The identifier for the album release. Prefix is MR, followed by a ten-digit identifier.
MediaNum	int		The sequential media number. This indicates on which disc (or other media) that this track resides.
PhyTrackNum	int		The physical track number on the media.
Sequence	int		The sequence number of the sample (the order in which it appears within the release).
Format	nvarchar(MAX)		Accepted values: A = WMA 64 E = AAC+ 32 F = AMR-NB 12.2 G = MP3 16 H = MP3 16_SHORT I = MP3 64 J = MP3 96
URL	nvarchar(MAX)		URLs that point directly to individual tracks.
Action	varchar	1	Character to identify the record as either an addition, change, or deletion

AUDIOSAMPLE (MG) Sample Data

Field	Example Values	Possible Values
AudioSampleID	MH0000002121	Prefix MH, followed by a unique ten-digit identifier. It represents a discreet audio sample object.
TrackID	MT0000000987	Prefix MT followed by a unique ten-digit identifier. It represents a specific track object.
MediaID	MM0000876576, MM0000005720, etc.	Prefix MM followed by a unique ten-digit identifier. It represents a specific media release.
ReleaseID	MR0000486812	Prefix MR followed by a ten-digit identifier.
MediaNum	1,2, null	The number of the disc (or other media) on which the track is included.
PhyTrackNum	1,5,9	This value reflects the physical track number.
Sequence	1,2,3,7,8	An integer value reflecting the sequence in which this part appears in the song
Format		
URL	1rrD1fcmq4_2uEolFYMvLPDrK09ymdd-5IQATMhdTCpYVK4iTP0oNYa-ywXv_K0a	
Action	A, C, D	A – Add; C – Change; D - Delete

Image Files

Rovi provides cover art and artist images as a hosted images should a client prefer not to host the image files on their own services.

All image URL requests are served from http://rovimusic.rovicorp.com/

Full Image URL Structure	"http://rovimusic.rovicorp.com/image.jpg?c="+ {IMAGE.url} + ["&f="+{FORMAT.code}]
Actual Image URL	http://**rovimusic.rovicorp.com**/image.jpg?c=MDZP--Ks2jB_jZ7xNq311qUAjjTlOhFP8f1ywErxXcI=&f=1

Audio Sample files

Rovi provides audio samples for various Rock, Pop, Jazz and Classical recordings. Each URL URL encrypts the audio clip ID, client ID and security key. The Audio Sample table is delivered to a client specific product folder and the clip URLs are unique for each client. The available formats are specified in the terms of each client's licensing agreement. Each audio clip is 30 seconds long along with the exception of MP3 10's that are 10 seconds long.

All URL requests are served from http://**rovimusic.rovicorp.com**/ and each audio sample includes a format hint, URL, and format code. The URL and format codes are in the Audio Sample table. The full codec and bitrate will be encrypted in the full URL.

Full URL Structure	"http://rovimusic.rovicorp.com/" + [{Format.hint} + "?c " + {AUDIO CLIP.url} +"&f="+{FORMAT.code}]
Actual URL	http://rovimusic.rovicorp.com/playback.asx?c=1rrD1fcmq4_2uEolFYMvLPDrK09ymdd-5IQATMhdTCpYVK4iTP0oNYa-ywXv_K0a&f=A

Format Hints:

Windows Media	http://rovimusic.rovicorp.com/playback.asx?c=
MP3	http://rovimusic.rovicorp.com/playback.mp3?c=
3GP (AAC+ or AMR)	http://rovimusic.rovicorp.com/playback.3gp?c=

Audio Clip Formats

The following formats are available for license in the Rovi Music Experience package.

Format	Bitrate	Approximate File Size	Description
MP3	64 kbps	250kB	MP3 file encoded 64 kbps, stereo
MP3	96 kbps	357kB	MP3 file encoded 96 kbps, stereo
WMA	64 kbps	250kB	Windows Media file encoded 64kbps, stereo
MP3 - short	16 kbps	20kB	MP3 10 second file encoded at 16kbps, 16kHz, mono For mobile implementation only.
MP3	16 kbps	60kB	MP3 file encoded at 16kbps, 16kHz, mono For mobile implementation* only.
AAC+	32 kbps	122kB	3GP file encoded with AAC+ (HE AAC), v1, mono, 32kbps, 44kHz, no hinting For mobile implementation* only.
AMR	12.2 kbps	54kB	3GP file with AMR-NB, mono, 12.2kbps, 8kHz For mobile implementation* only.

*For mobile implementations: Be sure that your chosen device is compatible with MP3, AAC+ or ARM-NB audio files.

Your Rovi Music 2.0 Audio Clip Directory

Rovi protects the rights of its content providers by enforcing certain access restrictions. The file you download is posted to your home ftp location that contains content specifically prepared in accordance with your license agreement.

Contact a Rovi Account Manager to obtain your unique audio clip download permission profile.

Security

Security for Rovi audio clips, and accounting for which account is charged for an audio clip request, is done with encrypted text in the audio clip request. A symmetric key encryption is employed to minimize the implementation effort required from the client.

All URLs are encrypted with a master key that is solely controlled by Rovi. In the event that this key is compromised, Rovi creates a new key and issues a full update to clients. Any URL created with the compromised key will not successfully decrypt and will not work.

The encrypted text, when decrypted will show 3 pieces of key information:

1. The audio clip ID requested
2. The client ID
3. A client's key generation number

After decrypting the text, the audio clip is retrieved and served. If the decryption does not find these 3 pieces of information in the format expected, the request will be considered to be fraudulent and the request will fail. Three additional security mechanisms are available, upon request, to the client:

- **Referrer Blocking:** Clients can view the referrers who are directing users to the audio clips that are being billed to them. If they determine if there is any theft of their URLs, they can block the offending referrers and the audio clips will no longer be served to the blocked referrer given that client ID.
- **Referrer Approval:** Clients can add whitelist domains whereas the whitelist will be checked, and a referrer not appearing in the whitelist will be denied access thereby allowing the client to block all domains outside of a defined set. This is a pro-active method of ensuring audio clips are not accessed by unauthorized referrers rather than the reactive method of referrer blocking.
- **Key Generation:** Each encrypted URL contains a key generation. This is a number associated with each client that is maintained by Rovi and is transparent to the client. If a client wishes to expire their set of URLs for security purposes, Rovi can change the key sequence (for example, all clients may begin with a key generation of 0, and then the generation is incremented by 1 whenever a client requests new URLs). By changing this key generation, the encrypted text in the URL will also change. Any request coming in with a key generation that does not match Rovi's current stored generation for a given client will be considered expired and the audio clip will not be served.

Note: If a client requests a new key generation, they will be required to take a full update in order to acquire the new valid URLs, however clients may keep a previous key generation active in order to give them time to fully update their servers with new URLs and to let the change propagate through the clients' systems without disruption of service.

5

Attributes and Associations

The Rovi Music data architecture is both flexible and compact. These are accomplished by employing controlled vocabulary tables and link tables.

Controlled vocabulary tables in Rovi Music are comprised of two tables: the Attribute table, which serves as a repository of all definition and descriptive information used in the database for object linking and definition; and the supplementary AttributeAssociation table, which defines the relationships between the attributes. Each is pivotal in understanding of the database's structure and its implementation.

Complimenting these tables are two Link tables, Association and AttributeLink. The first contains all associations between objects in the database; the second stores all links between objects and attributes.

These four tables are fundamental to the structure and functionality of Rovi Music. They permit extending the number and types of attributes or associations without impacting the structure of the database. This clean design provides for unlimited extensibility and eliminates sparsely populated data columns from the main object tables.

What are Attributes?

Attributes are properties or characteristics that extend the meaning of an object. For example, the Name table provides the object or "what" (Bob Dylan, Miles Davis); the Attribute table provides characteristics (via AttributeLink) about the object. Bob Dylan is a performer whose main instruments are Guitar and Harmonica, and who is a Vocalist. Miles Davis was Born On 1926-5-26 and Died On 1991-9-28, and was a notable Jazz and Bebop artist. These are examples of attributes in their most direct application to the objects. There are numerous attributes used in Rovi Music, which are further explained in the follow sections.

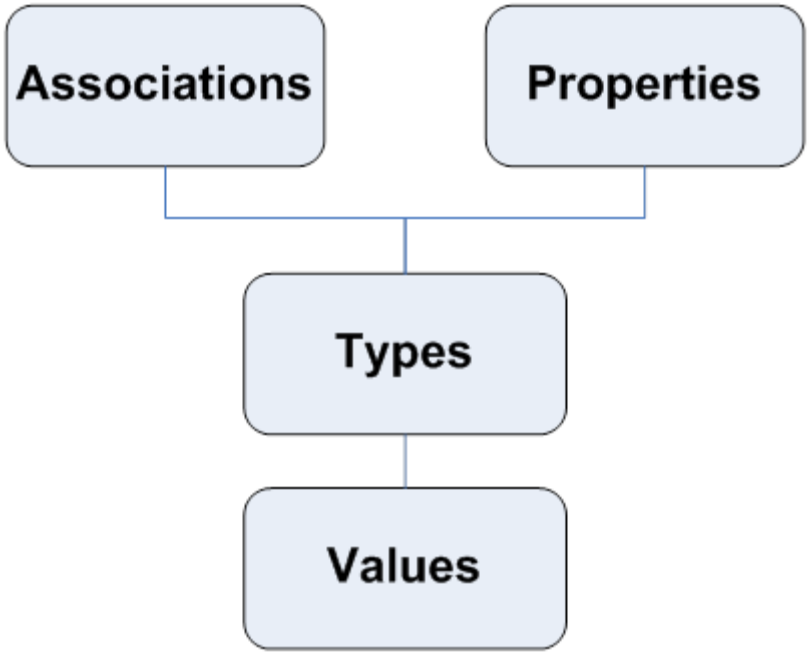
Note: All entries in the Attribute table have an ID with an MA prefix, followed by a ten-digit, system-generated identifier.

Layers of Definition

Attributes are properties or characteristics that extend the meaning of an object. Rovi Music data follows a multi-layered structure that contains four distinct forms of attributes - **Association**, **Property**, **Type** and **Value**.

This diagram below represents how the five distinct attribute forms relate to one another.

Attributes



Each attribute is assigned its own unique persistent ID which improves data normalization and optimizes search relevance. Please refer to the *Attribute Reference Guid*e for a complete listing of properties, types and association IDs.

Property

Properties are attribute types that can be assigned to any object. A p*roperty* is an entity that can be assigned to an object and typically has a value (UPC code, for instance). Think of a property as a placeholder for a value that has yet to be described. It defines the value and gives it context.

Properties nearly always belong to a category, as a means to providing logical organization.

In the Attributes table, Properties are designated with a **"P"** in the Type column, and have an assigned PropertyTypeID, which associates them to a particular data type or controlled vocabulary at the Type level. This determines which values they can assume.

AttributeID	Type	PropertyTypeID	Attribute
MA0000000085	P	MA00000000...	Key Signature
MA0000000086	P	MA00000000...	Wholeness
MA0000000089	P	MA00000000...	Musical Genre
MA0000000090	P	MA00000000...	Print Lyric Availability
MA0000000091	P	MA00000000...	Media
MA0000000092	P	MA00000000...	Spars Code
MA0000000096	P	MA00000000...	Area Of Operation
MA0000000097	P	MA00000000...	Ensemble Type
MA0000000102	P	XA0000000033	IsBoxSet
MA0000000103	P	XA0000000033	IsPromo
MA0000000105	P	MA00000000...	Album Flag
MA0000000106	P	MA00000000...	Track Flag
MA0000000109	P	XA0000000033	IsLimitedEdition
MA0000000111	P	MA00000058...	Copyright Info
MA0000000112	P	MA00000058...	Publishing Copyright Info

AttributeID - Like all attributes, each property has its own unique identifier.

PropertyID - Lists the data type or controlled vocabulary associated with the property. In each property listed above, the identifier used designates *Event Information, Start, End, Involved Contributions.* In this case, no controlled vocabulary is defined, so the values entered do not have vocabulary restrictions applied to them. Any attribute type that includes the *"controlled vocabulary"* suffix has a defined, restricted set of values associated with it.

Description - The name of the property.

Associations

Associations are actually the attributes that define the type of a relationship that might exist between different database objects, and as such are stored in the Attribute table.

Object-to-Object Associations

The actual links between different objects are represented using the *Association* table. It is one of the designated link tables in the Rovi Music database design, and acts as a repository for all linked objects. All associated objects are stored here as records with three main fields: the IDs of the two objects being associated, plus the association attribute that defines the relationship of the objects.

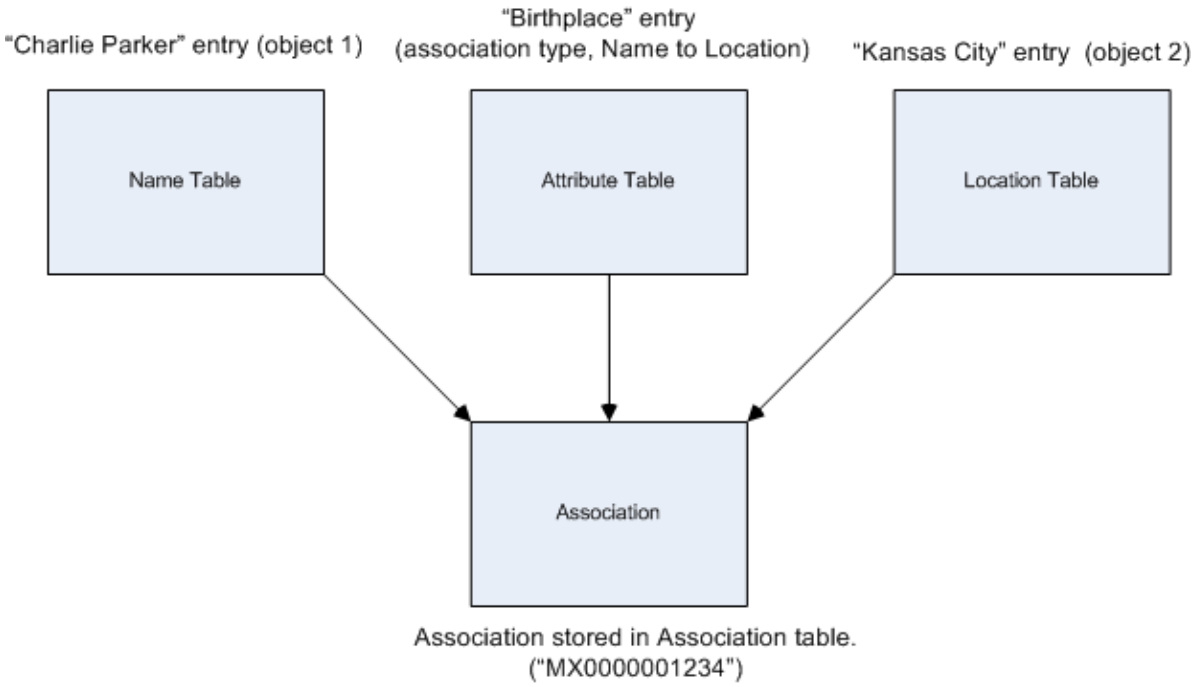
In the illustration below, associations are shown for a Name-to-Name association. This can be determined by looking at the prefixes of the entities being associated.

AssociationID	ID_1	ID_2	AssociationType
MX0000117724	MN0000499384	MN0000918400	MA0000000297
MX0000117725	MN0000499384	MN0000919603	MA0000000298
MX0000117726	MN0000499384	MN0000507555	MA0000000297
MX0000117727	MN0000499384	MN0000759001	MA0000000297
MX0000117728	MN0000499384	MN0000076602	MA0000000298
MX0000117729	MN0000499384	MN0000172612	MA0000000297
MX0000117730	MN0000499384	MN0000611929	MA0000000297
MX0000117732	MN0000499384	MN0000681154	MA0000000298
MX0000117733	MN0000499384	MN0000580344	MA0000000298
MX0000117736	MN0000499384	MN0000351288	MA0000000298
MX0000117737	MN0000499384	MN0000322452	MA0000000298
MX0000117738	MN0000499384	MN0000012972	MA0000000298
MX0000117739	MN0000499384	MN0000131650	MA0000000297
MX0000117740	MN0000499384	MN0000073587	MA0000000298
MX0000117741	MN0000499384	MN0000138833	MA0000000297
MX0000117742	MN0000499384	MN0000793821	MA0000000297
MX0000117744	MN0000499384	MN0000553483	MA0000000297
MX0000117745	MN0000499384	MN0000128099	MA0000000297
MX0000117746	MN0000499384	MN0000071231	MA0000000297
MX0000118214	MN0000919805	MN0000074966	MA0000000298
MX0000118215	MN0000919805	MN0000629342	MA0000000298

ID_1 is the entity being associated to ID_2. In this case, the associations being established are of “Distributor For” type (the MA00000000293 attribute ID):

MA0000000290	A		Member Of
MA0000000291	A		Is Associated With
MA0000000292	A		Relative Of
MA0000000293	A		Distributor For
MA0000000294	A		ID Merged With
MA0000000295	A		Collaborator With
MA0000000296	A		Influenced
MA0000000297	A		Followed

Below is a logical view of how an association is made between Name and Location objects:



The Association mechanism keeps the database design compact by storing descriptive information about an object in a separate table, thereby minimizing the size of the table and facilitating almost unlimited reusability.

Supported Types of Object Associations

The following table lists which objects can be linked together, and in which direction. The object placement in an association is critical: for instance, you'll see a Name to Location association is supported, but not a Location to Name association.

Object 1		Object 2	
Composition	MC	Document	MD
Composition	MC	Name	MN
Document	MD	Name	MN
Event	ME	Name	MN
Name	MN	Location	MZ
Name	MN	Document	MD
Name	MN	Name	MN
Name	MN	Album	MW
Name	MN	Track	MT
Part	MO	Name	MN
Part	MO	Part	MO
Part	MO	Composition	MC
Performance	MQ	Location	MZ
Performance	MQ	Name	MN
Release	MR	Document	MD
Release	MR	Name	MN
Release	MR	Event	ME
Release	MR	Location	MZ
Track	MT	Composition	MC
Track	MT	Document	MD
Track	MT	Name	MN
Track	MT	Part	MO
Track	MT	Location	MZ
Album	MW	Document	MD
Album	MW	Name	MN
Album	MW	Album	MW
Album	MW	Release	MR

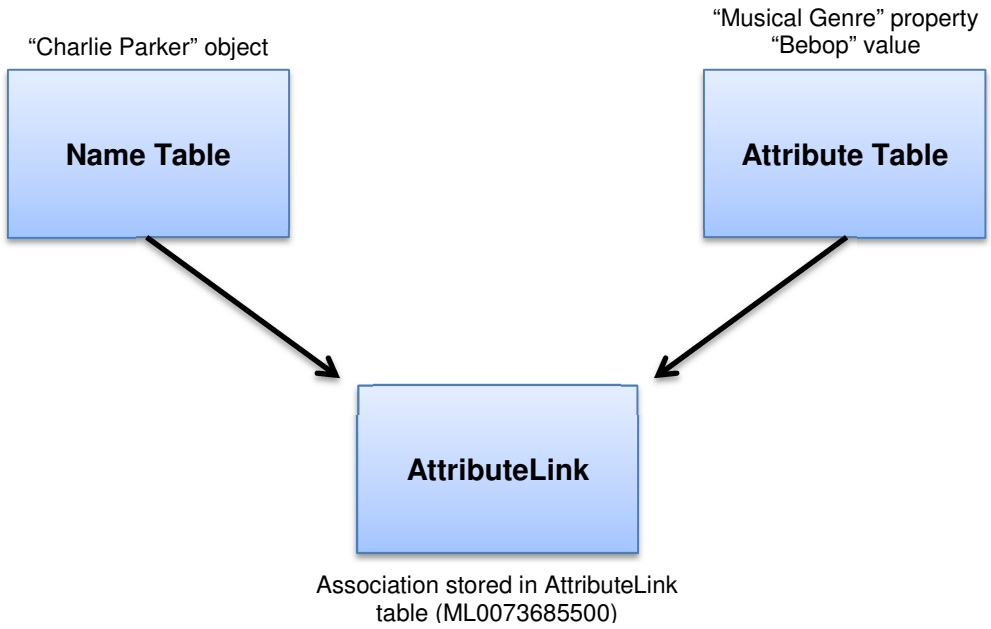
This grid below shows all supported object relationships in an association:

MC		X		X					
MD				X					
ME				X					
MN		X		X			X	X	X
M0	X				X				
MQ				X					X
MR		X	X	X					X
MT	X	X		X	X				
MW		X		X		X		X	
	MC	**MD**	**ME**	**MN**	**MO**	**MR**	**MT**	**MW**	**MZ**

Object-to-Attribute Links

Object-to-attribute links are achieved using the **AttributeLink** table. It is used for creating an association between an entity in the main object tables and a property used for descriptive purposes. This is perhaps the most widely used descriptive mechanism in Rovi Music.

The following diagram illustrates how the logical association between object and property is achieved:



An object is selected from its respective table, and then a valid property type for the object is selected from the Attribute table. A value is assigned to the property, and then the association is saved with an ML prefix followed by a unique ten-digit identifier.

The following tabular view shows how the object-to-attribute association is saved to the database:

AttributeLinkID	ObjectID	PropertyAttributeID	ValueAttributeID	Value	Weight	Rank	SortOrder	p_BaseObjectID	Action
ML0266691871	MW0002092899	MA0000000078	MA0000003908	Studio Recording	5	0	0	MW0002092899	A
ML0266691872	MW0002092899	MA0000000089	MA0000002613	Pop/Rock	5	0	0	MW0002092899	A
ML0266691873	MW0002092899	MA0000000089	MA0000012230	Alternative/Indie Rock	5	0	0	MW0002092899	A
ML0267899636	MW0002092899	XA0000000079	XA0000000902	2010s	5	0	0	MW0002092899	A
ML0267985907	MW0002092899	XA0000000081	XA0000000980	Earnest	8	0	0	MW0002092899	A
ML0267985909	MW0002092899	XA0000000081	XA0000001008	Gentle	7	0	0	MW0002092899	A
ML0267985910	MW0002092899	XA0000000081	XA0000000719	Hypnotic	8	0	0	MW0002092899	A
ML0267985912	MW0002092899	XA0000000081	XA0000001032	Laid-Back/Mellow	8	0	0	MW0002092899	A
ML0267985913	MW0002092899	XA0000000081	XA0000001036	Literate	9	0	0	MW0002092899	A
ML0267985914	MW0002092899	XA0000000081	XA0000000734	Melancholy	5	0	0	MW0002092899	A
ML0267985917	MW0002092899	XA0000000081	XA0000000753	Reflective	9	0	0	MW0002092899	A
ML0266691874	MW0002092899	MA0000000089	MA0000002422	Alternative Pop/Rock	5	0	0	MW0002092899	A
ML0267985894	MW0002092899	XA0000000077	XA0000000344	United States of America	7	0	0	MW0002092899	A

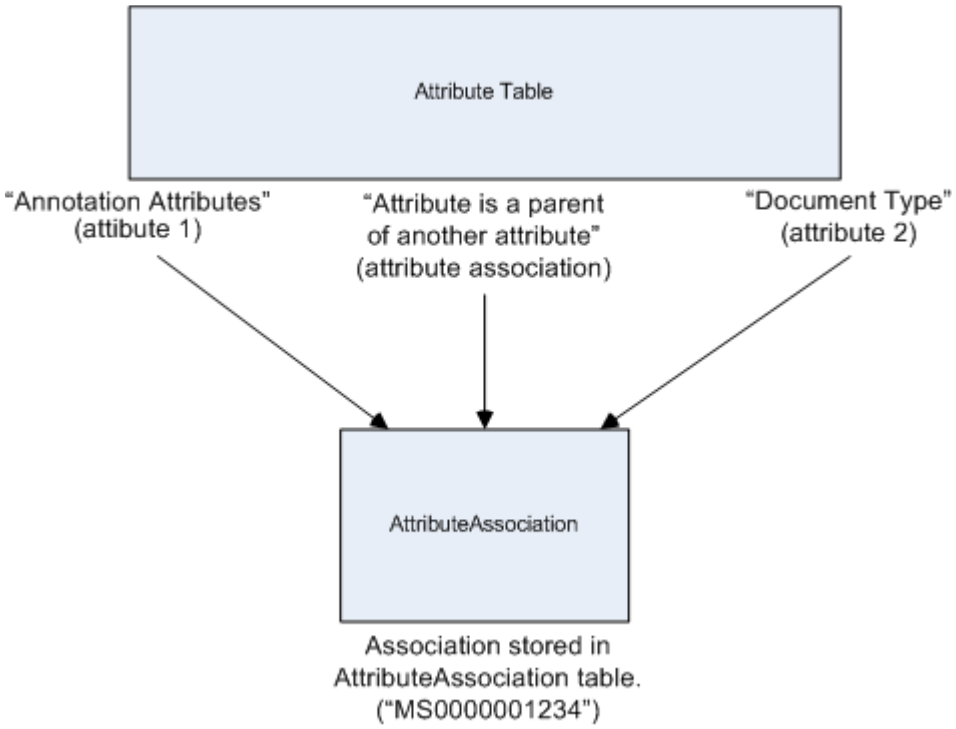
Field	Description
AttributeLinkID	The Unique AttributeLInk record identifier.
ObjectID	The object in the association.
PropertyAttributeID	The PropertyTypeID of the property attribute being used in the association.
ValueAttributeID	The ValueAttributeID of the value being assigned to the property.
Value	The value.
Weight	The relative weight (for a given object) of the association between the object and the attribute. The default value is 5; the larger the number the stronger the association.
Rank	Indicates the importance of the ObjectID within the scope of the assigned PropertyAttributeID or ValueAttributeID. For instance, if the ObjectID is a NameID, the PropertyAttributeID is the ID for “Musical Genre,” and the ValueAttributeID is the ID for “Blues,” then the name is important within the field of Blues. This is the opposite meaning of the “Weight” field in AttributeLink, which denotes the importance of the Assigned Property or Value to the ObjectID. **NOTE:** This field is not currently maintained.
SortOrder	Allows multiple AttributeLinks that share an ObjectID and a Property to be ordered. **NOTE:** This field is not currently maintained.
p_BaseObjectID	Indicates the Object to which an AttributeLink applies. In most cases, it will match ObjectID. It is only different in cases of recursive AttributeLinks (e.g., where an attributelinkID is used as an ObjectID for another Attributelink). In those cases, the p_BaseObjectID should reflect the ObjectID of the original attributelink).
Action	Character to identify the record as either an addition, change, or deletion.

Attribute-to-Attribute Associations

Rovi Music also includes *attribute-to-attribute* associations.

The mechanism works similarly to the previous association types described, except that the two objects (attributes) associated and the association type are saved to the **AttributeAssociation** controlled vocabulary table.

The illustration below shows how the attribute-to-attribute association is achieved:



All entries being associated are contained in the Attribute table. The table below illustrates how the attributes are assembled and saved as an association:

AttributeAssociationID	AttributeID_1	AttributeID_2	AssociationType	GroupID
MS0000000001	MA0000000046	MA0000000075	MA0000000322	MA0000000046
MS0000000002	MA0000000049	MA0000000076	MA0000000322	MA0000000049
MS0000000003	MA0000000049	MA0000000077	MA0000000322	MA0000000049
MS0000000004	MA0000000049	MA0000000078	MA0000000322	MA0000000049
MS0000000005	MA0000000049	MA0000000079	MA0000000322	MA0000000049
MS0000000006	MA0000000049	MA0000000080	MA0000000322	MA0000000049
MS0000000007	MA0000000049	MA0000000081	MA0000000322	MA0000000049
MS0000000008	MA0000000049	MA0000000082	MA0000000322	MA0000000049

Field	Description
AttributeAssociationID	The unique AttributeAssociation record ID. Each identifier begins with an MS prefix, and is followed by a unique ten-digit number.
AttributeID_1	The ID of the first attribute in the association
AttributeID_2	The ID of the second attribute in the association.
AssociationType	The ID for an attribute of the association type.
GroupID	Designates the attribute category to which the association is assigned.

Type

Type is the most abstract level of description for an attribute. Some Types simply describe the value's data type (integer, string, Boolean, etc.). Most Types, however, are *controlled vocabulary* types, meaning that they define a set of enumerated values. The selection of a value using a controlled-vocabulary Type is restricted to only those values associated with it. For instance, a set of enumerated-value attributes for Document Types (below), are *Biography, Note, Publisher's Note,* and *Review Excerpt(s).* Selecting a document type is therefore limited to these four values. Essentially, Types are meta definitions for standardizing data selection in Rovi Music.

In the Attributes table, Types are designated by "**T"** in the Type column:

Below is a listing of all Type attributes in Rovi Music.

Table 1: Attribute Type Listing

Attribute ID	Type
MA0000000001	Album Flags
MA0000000003	Area of Operation
MA0000000004	Associated Performance Period
MA0000000007	Books link Information
MA0000000041	Credits and Instruments
MA0000000022	Musical Genres
MA0000000026	Name Roles
MA0000000027	Packaging Types
MA0000000032	Product Forms
MA0000000035	Recording Context
MA0000000037	Sound Types
MA0000004243	Themes
MA0000000042	Track Flags
MA0000000043	Version Type
MA0000000044	Video link Information
MA0000000045	Wholeness

Value

Values are the most common type of attribute, and are simply literal (constant) numeric and string values that, for consistency reasons, are tracked via their unique IDs. Values are assigned to properties when they are selected from an enumerated set as a description qualifier for objects. All values are designated in the Attribute table with the **"V"** type.

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Document Revision History

Version	Date	Change Description
1.0	03/02/2010	Original
1.1	03/12/2010	Edits and clarifications to Table details
1.2	03/24/2010	Updates to package details
1.3	05/17/2010	Section 5: Inclusion of clip and image implementation instructions Removal of Full Image set file locations Removal of Category Attributes and Tier field in Attribute Table
1.4	11/2010	Edits and clarifications to Table details and structure
1.5	01/2012	Updates for source size artist images (Experience Image Directories and Image MI).
1.6	04/20/2012	Clarified file delivery times under Rovi Music Data Files. Clarified information about image aspect ratios under Rovi Music Image Files. Added the Building Experience Image URLs section. Changed the separator for the p_label field from comma to forward slash in the RELEASE (MR) table. Clarified meaning of possible values for the Available field in the RELEASE (MR) Sample Data table. Added more details about how to use the information in the HYPERLINK (XH) table. Updated the contents of the Attribute Type Listing table under Type. Removed Size170 from the IMAGE (MI) table. Updated the description for the Rating field in the ALBUM (MW) table. Added Getty and Twitter information in Rovi Music Data Files and Rovi Music Image Files. Added information about new Property and Value AttributeIDs used to denote color or black and white artist images under the IMAGE (MI) table. Updated the example image and descriptions for the AttributeLink table under Object-to-Attribute Links. Added a note to the Rating field in the ALBUM (MW) table to inform customers that *null* values are permitted.
1.7	5/9/2012	Added the Influence package, which includes the TRACKQUANTITATIVEVALUE table, and updated the Database Schema Diagram to reflect it. Added Rovi Music Influence paths to Rovi Music Data Files. Added information about image attribution/crediting.
1.8	3/25/2014	Added FTP locations for Facebook link files. Updated file delivery times from 12:00 (noon) EST to 9:00 PM EST.