MN Open API Implementation Guide Part One: Features and Business Rules

January 2020 [2020-01-28]

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Audiences for this Document

The MN Open API Implementation Guide is composed of three parts:

1. **The MN Open API Implementation Guide Part One: Features and Business Rules** (this document), which provides an overview of features and the options for engagement.
2. **The MN Open API Implementation Guide Part Two: Technical Details of the MN Open API**, which includes API definitions, extensive technical guidance, and use cases.
3. **The MN Open API Implementation Guide Part Three: Sample Code**, which includes API sample code and snippets to help jumpstart development.

The MN Open API Implementation Guide is written for two Customer audiences:

- Business decision makers
- Technical implementers.

Part One is applicable to both groups, while Part Two contains the technical details required for a successful implementation, and is intended for a technical audience. As such, the second section assumes a certain level of proficiency with web technologies to include HTTP, HTML, and JavaScript, as well as with at least one programming language; e.g., PHP, Java, ASP, JQuery, etc. Part Three contains example code snippets.

Customer Support for the MN Open API

To ask questions about and receive support for the MN Open API, please contact apisupport@mndigital.com. This is a MediaNet distribution list monitored by subject matter experts around the company. Support will respond to Customers within **24 hours next business day** 9AM to 5PM (Pacific Time).

With any correspondence, please include:

- Name of the MN Open Customer entity
- Issue Description including expected and actual results
- Repro Steps
- API call(s) and response(s)
  - URL(s) with query string(s)
  - POST body content if applicable
  - Complete response

Please visit www.mndigital.com for more information.

Part One: Features and Business Rules

The MediaNet MN Open API is an easy-to-use interface, providing Customers with rich functionality for media discovery, metadata, and fulfillment of MediaNet's music catalog. Technically it is similar to APIs offered by Internet leaders like Google, Flickr, Facebook, and others. Customers who have worked with any of those APIs will find the MN Open API immediately familiar.

US and International Territories/Catalogs: MediaNet supports multiple territories/catalogs: US, Canada and the UK. Customers of MN Open will have a default territory, plus one or more additional territories depending on Customers MN Open Agreement. MediaNet addresses all territory-specific differences including: rights, pricing, currencies, publishers, etc. The MN Open Ecommerce solution is available for the US and Canada (only), and addresses the differences in territory-specific tax rules, reporting requirements, Terms of Use, consumer protections, and payment methods. Launch in the UK requires the Account Balance model, where Customers will utilize their own ecommerce.

Catalog Access via API vs. Feed: Instead of the default practice of acquiring metadata through the API dynamically, Customers can subscribe to the MediaNet XML Content Data Feed (one per territory/catalog). Subscription to the XML Feed is an additional feature: a value-add that requires

additional terms and fees. The feed provides everything Customers need to know about the MediaNet catalog, allowing Customers to flexibly program content as necessary. The feed is an XML Schema (XSD) -based file published five days a week, generally M-Th and Sat. Content Partners provide new release content in advance, which appears in the feed with future dates so programming staff can feature these releases on the street date. If interested, contact sales@mndigital.com.

Transaction Processing: Customers can utilize their own existing ecommerce solutions or choose to use ecommerce provided by MediaNet:
- Credit card payments: using the MN Open APIs to bill end-user's credit cards for purchases. In this model, the retail price is set by MediaNet and Customers receive a revenue share on all transactions (deposited into the Customer revenue share balance). *Available in the US, Canada*.
- Account balance payments: deducting the MN Open wholesale cost from the Customer account balance. In this model, Customers set the retail price while the MN Open wholesale content cost is deducted from the Customer account balance. *Available in the US, Canada, and the UK*.
  Important Points:
    o Requires additional terms in MNOpen Agreement.
    o Only available option supported in the UK

Technology: The MN Open API is a REST-based[1] HTTP service that is built on top of the MN Open Platform, our enterprise-class media delivery technology enabling access to a media catalog. The API is stateless, easy to work with using any programming language, returns responses as XML or JSON, and includes all the transactional capabilities Customers need to create a complete music application.

In a nutshell, interacting with our API consists of:
1. An HTTP request, and
2. An HTTP response returned to the caller as either XML or JSON (the default)[2].

At a more detailed level, it consists of:
- Appropriate HTTP actions supported by the API:
    o GET to make calls where all parameters are provided in the URL (query string format[3])
    o POST to make calls requiring large/complex data sets that cannot be provided in the URL
- Parameters (scoping) will be specified in the query string and must be URL-encoded[4]
    o Complex data will be sent using JSON or XML in the body of a POST.
    o URL (query string) parameter names and values are not case-sensitive. Element names for XML-formatted POST bodies are case-sensitive.

    Example -- parameters are in bold: http://int-api.mndigital.com?**method**=search.gettracks&**artist**=Pearl+Jam &**APIKey**=YourAPIKey&**cc**=us&**page**=1&**pageSize**=1

- An HTTP response consisting of XML (MIME type application/XML) or JSON (MIME type application/javascript).

Errors: are indicated within the HTTP response inside an XML- or JSON-formatted Error node (not to be confused with HTTP response codes). The Error node will contain a relevant MN Open API error code and human-friendly message. Please refer to "Common Errors" in Part Two: Technical Details of the MN Open API.

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[1] Representational State Transfer; please see http://en.wikipedia.org/wiki/REST
[2] JavaScript Object Notation; please see http://en.wikipedia.org/wiki/JSON.
[3] Query String; please see http://en.wikipedia.org/wiki/Query_string.
[4] Also known as Percent Encoding. Please see http://en.wikipedia.org/wiki/URL_encoding.

For clarity: since the service is HTTP-based, all responses will have both an HTTP protocol response code and status message[5] in addition to the API response success and error messaging.

Security: Customer Authentication and Encryption

MediaNet will assign each Customer an API Key and a Shared Secret pair (one pair per environment).

- API Key: This unique identifier will be required for all API calls. MediaNet will use this to authenticate and identify each Customer's account.
- Shared Secret: This will be required for many API calls. It will be used to create a Signature: an HMAC-MD5 hash[6] of the query string. The Shared Secret should be kept highly secure. ***Never send it via email***.
- SSL: This will be required for any API calls with sensitive or transaction-related data. It will be implemented simply by calling the command using **https**:// instead of **http**://.

Keep the API Key and especially Shared Secret secure. The Shared Secret is used to generate a signature for each API call. Please see "Generating Signatures with the Customer Shared Secret" in Part Two for more detail. Note that some client-side implementations may expose the API Key. If such an implementation would disclose the Shared Secret, it is not allowed.

Important Note: If a Customer's API Key and/or Shared Secret become compromised, new ones will need to be issued, which may result in a service interruption.

For more information, please see "Generating Signatures with the Customer Shared Secret" in Part Two: Technical Details of the MN Open API.

Transaction Options

As mentioned above, Customers may use their own ecommerce solutions or use MediaNet's -- or both. Use of Customer Commerce aka Account Balance aka MediaNet Account requires a Plus Agreement. Customers may use their shopping cart or MediaNet's. MN Open Customers may mix and match across multiple territories. This section describes in greater detail how credit card payments and account balance payments work. There is also discussion about pricing and tax collection and reporting. Customers may use both options.

Credit Card Payments

To offer conventional credit card payments to end users, Customers can use the MN Open Provisioning APIs, which features support for all major credit cards (see next for territory breakdown), industry-standard encryption and security, shopping cart functionality, a la carte transactions, and more. The complexity is handled by MediaNet. Transactions will appear on end user credit card statements as "<CustomerName> MP3" (limited to 25 characters).

Credit Cards by Territory:
- US: Visa, MasterCard, Discover, and American Express
- Canada: Visa, MasterCard, and American Express
- UK: ***not available***; *the only supported option is Customer Commerce aka Account Balance*

When using the MN Open Ecommerce solution, the retail price for each item is returned in the Content Discovery APIs. Each purchase made using MediaNet credit card processing will earn a revenue share. Customer revenue shares are based on the retail cost for each item sold, excluding taxes and other fees. The credit card processing transaction fees are absorbed by MediaNet.

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[5] For details on HTTP status codes, see http://en.wikipedia.org/wiki/List_of_HTTP_status_codes
[6] Please see http://en.wikipedia.org/wiki/HMAC-MD5

The revenue share earned on each transaction is deposited into Customer revenue share accounts (maintained separately from the account balance). MediaNet applies a 30-day hold on all revenue share transactions to protect against fraud; e.g., to ensure that an end user does not issue a chargeback for a transaction. After the 30 days, the revenue share is available for Customers either to transfer into the regular account balance or for withdrawal. Thus first revenue shares appear in the Revenue Share Balance, and then 30 days later in the *Available* Revenue Share Balance. Revenue Share Balances update 72 hours after each transaction.

Customers can optionally create users in the MN Open Platform, including storing their credit card number for future purchases. (The default is to *not* store credit card numbers.) Credit card payments for a given territory are currently available only for card holders residing (billing address) in each territory. For example, a resident of the United States can purchase only from the US catalog. Please see below for more information.

Account Balance Payments

A second option for processing transactions is to use the MediaNet Account Balance payment model, also called Customer Commerce or MediaNet Account. Customers can deposit funds into their account balance(s) using a credit card at initial set up or any time thereafter via the Partner.RefillBalance API, or by check. To fund or refill by check or wire transfer, please contact ApiSupport@mndigital.com directly. There is a 3% processing fee when refilling by credit card. Funding or refilling by check can take up to 30 days before the funds are reflected in an account balance.

For Plus Customers with Multi-Territory, there is a separate Account Balance per Territory. In Production, balances must be funded in order to transact. In the MediaNet Integration Environment, test credit cards may be used to fund balances (note that real download locations will not be provided); details may be found in the Part Two API doc.

With this payment model, every purchase transaction is deducted against the Customer Account Balance(s). The amount deducted for each transaction is the MN Open Wholesale Cost for the content that is exposed within the Content Discovery APIs. MediaNet also offers a Management API that allows Customers to retrieve account balances at any time: Partner.GetBalance and for Plus Customers with Multi-Territory: Partner.GetBalance**s**.

Customer Account Balances and Revenue Share Balances are viewable in the MN Open Customer Portal. There it is also possible to register credit cards and set auto-refill thresholds and refill amounts per territory. Customers set their own login credentials for the Customer Portal during Signup.

With this payment model, combined with a Customer's own commerce system, Customers are free to set the end-user retail price at any amount, with certain exceptions described under "Pricing, MediaNet Required Retail Price," next.

Pricing, MediaNet Required Retail Price

When Customers retrieve metadata via the Search APIs, it will be accompanied by the MN Open Wholesale Cost and a Suggested Retail Price (SRP). When Customers use their own commerce system (per the discussion above), generally Customers may set retail prices. However, some content is accompanied by a MediaNet Required Retail Price. The MediaNet Required Retail Price will be indicated in Search responses as the element: IsSetPrice=True. Requirement: implement in code that any appearance of IsSetPrice=True must be observed.

Example
```
"PriceTag": {
        "Currency": USD,
        "Amount": 1.29,
        "IsSetPrice": true,
        "Wholesale": 1.02
```

```
        },
```

When present, the value from the Amount element must be used.

Internet Radio Streaming Overview

The MN Open Platform offers Non-interactive Internet Radio Streaming (e.g., DMCA compliant radio).

Item	Description
On-by-default?	No; requires an Agreement
Falls under Label Submission Process?	Some labels: Yes
End User Experience	Non-interactive In the United States must comply with DMCA rules; e.g., no look ahead, only 3 songs/artist/hour, and more. See https://www.soundexchange.com/service-provider/licensing-101/ for further requirements. In Canada, must comply with all DMCA rules (see above), as well as any additional restrictions that may be set out in your licenses. See https://connectmusic.ca/licensing/streamingwebcasting/microcastersemi-interactivenon-interactive-webcasting.aspx for further requirements.
Label and Artist Rights	Customer must license rights from the following entities: US: SoundExchange (https://www.soundexchange.com/) Canada: Connect Music Licensing (https://connectmusic.ca/), Re:Sound (https://www.resound.ca/)
Publisher and Songwriter Rights	Customer must license rights from the following entities: US: ASCAP (https://www.ascap.com/), BMI (https://www.bmi.com/), GMR (https://globalmusicrights.com/), SESAC (https://www.sesac.com/) Canada: SOCAN (http://www.socan.com/), CMRRA (https://www.cmrra.ca/)
APIs	Radio.GetMediaLocation – retrieve URLs to streaming tracks Radio.ValidateRadioPlaylist – assists with creation of pre-programmed playlists Search.GetGeoLocation – check IP location of user.

Territory Restriction: Catalogs by Country/Territory

Each country (territory) has its own catalog. All content available via the MN Open APIs for a particular territory (catalog) is available for sale only in that territory. For business models that involve gifting or code redemption -- where the purchaser and recipient may be different entities -- both must reside in the same territory. For example, the default MN Open catalog is for the US. Purchaser and recipient must be in the US. To aid in enforcement, MediaNet makes an API available (Search.GetGeoLocation) that returns an end user's country/territory based on their IP address.

US and International Territories/Catalogs: MediaNet supports multiple territories/catalogs: US, Canada and the UK. Customers of MN Open will have a default territory, plus one or more additional territories depending on Customers MN Open Agreement. MediaNet addresses all territory-specific differences including: rights, pricing, currencies, publishers, etc. The MN Open Ecommerce solution is available for the US and Canada (only), and addresses the differences in territory-specific tax rules, reporting requirements, Terms of Use, consumer protections, and payment methods. Launch in the UK requires the Account Balance model, where Customers will utilize their own ecommerce.

From a technical integration perspective, MN Open Customers will always work by default with their chosen catalog. No additional steps are required. In the case of MN Open Customers that have multiple territories configured, to access and work with their non-default territories, application code must be modified to include with API calls the target country (the "country code" parameter: &cc) so that appropriate rights, pricing, and reporting are obtained.

Karaoke Content

In addition to the prolific "duplication" of real content in karaoke versions (no lyrics sung), there are numerous companies that make their own versions of popular songs. Most Customers are not interested in this category:

- Karaoke content is by default filtered out from Search APIs; use includeKaraoke=true to find it

Important Note: all Karaoke content in MediaNet's catalog is audio-only. Our Karaoke tracks cannot be used with Karaoke machines to display the "bouncing ball" on lyrics.

Album / Track Revocation

From time to time, the full set of albums and tracks that are available through the API may change as albums and tracks are added to, or deleted from, the full catalog offerings. MediaNet receives content rights updates and requests for content removals on a daily basis and every Customer application must take this into account. Reasons for this include rights changes by content owner(s) or ownership conflicts.

Bitrate Information

All purchased content available via the MN Open APIs is 320kbps except for Sony and Warner content, which is 256kbps.

If you have negotiated 320kbps with Sony and/or WMG, you must use the MN Enterprise Platform; contact MediaNet Business Development for details.

MN Open API Best Practices Checklist

The following list of MediaNet Best Practices comes from multiple decades of experience working with Customers to build and deploy successful music services. Observing these practices will help shorten the time to launch, and result in fewer defects along the way.

1. **Design, then build**: Architect and design application functionality and then code a prototype.

2. **Authentication**: Keep the API Key and especially Shared Secret secure. Note that some client-side implementations may expose the API Key or Shared Secret. If the API Key and Shared Secret become compromised, new ones will need to be issued, which may result in a service interruption.

3. **Scenarios**: Review the "Use Cases" section of the MN Open API Implementation Guide Part Two: Technical Details of the MN Open API to help envision the use cases that end users may have.

4. **Required Retail Price**: observe the IsSetPrice flag.

5. **Caching Guidelines**: If a Customer application uses caching for a portion of the catalog (metadata only, not media locations), refresh the cache at least once a day to avoid any issues with Album or Track Revocation. To cache for longer, subscribe to the XML feed (#10 below)

6. **Bundles**: Observe the AlbumPurchaseOnly flag. Some tracks are available only as part of an album.

7. **Search aka How to avoid Karaoke**: For more exact searches of Albums, include Search.GetAlbums mainArtistOnly flag, otherwise karaoke will be returned.

8. **Catalog Access via API vs. Feed**: Instead of the default practice of acquiring metadata through the API dynamically, Customers can subscribe to the MediaNet XML Content Data Feed (one per territory/catalog). Subscription to the XML Feed is an additional feature: a value-add that requires additional terms and fees. The feed provides everything Customers need to know about the MediaNet catalog, allowing Customers to flexibly program content as necessary. The feed is an XML Schema (XSD) -based file published five days a week, generally M-Th and Sat. Content Partners provide new release content in advance, which appears in the feed with future dates so programming staff can feature these releases on the street date. If interested, contact sales@mndigital.com.

   MediaNet generates a FULL feed once monthly. The feed is delivered via a Secure FTP (SFTP) transfer and the files are in UTF-8. For more information on loading the XML feed into a Customer's database application, that database's documentation regarding XML Bulk Loading, UTF-8, and DTD schemas.

Searching by Genre

Customers can use the following Genres in calls to Artist.GetTracks, Artist.GetAlbums, Search.GetAlbums, Search.GetArtists, and Search.GetTracks:
1. Alternative/Indie
2. Blues
3. Cast Recordings/Cabaret
4. Children's
5. Christian/Gospel
6. Classical/Opera
7. Comedy/Spoken Word
8. Country
9. Electronica/Dance
10. Folk
11. Instrumental
12. Jazz
13. Latin
14. New Age
15. Pop
16. Rap/Hip Hop
17. Reggae/Ska

18. Rock
19. Seasonal
20. Soul/R&B*   *the ampersand in "R&B" must be URL-encoded; i.e., represented as %26*
21. Soundtracks
22. Vocals
23. World

Genre classifications are maintained and published by the record labels; i.e., not maintained or edited by MediaNet – we pass them through. Please note that a track may appear in one or more Genres and an album may have different genres for each of its tracks. In general using Genre along with other keywords and search terms will result in narrower search results. Using multiple Genres in the same query is not supported; however, integrators can concatenate search results from one or more Genres. The result set of a genre search is already sorted by popularity ranking. Artists do not have genres assigned to them.

Important Note: The result set may include items that have genres different from the one searched; this is expected as many assets have both primary and secondary genre classifications.

Searching by Label

Using the API dynamically it is not possible to compose searches by label; i.e., with label as an input parameter. Instead, all Search and Get responses include <Label> and <LabelOwnerId> (the latter being more significant) in the metadata returned. Customers thus can perform searches and then process the results. This scenario is well-served by subscription to the MediaNet XML Content Data Feed; see Best Practice #10 above.

Launch: Going Live with End Users and What is Required

Customers may launch as soon as their technical integration, technical review, and approval is complete -- but only from PRD, the MN Open Production environment. Customers are not allowed to launch from INT, the MN Open Integration Environment, which is intended solely for development and testing.

Catalog Availability

One item that may motivate a Customer to postpone launch is the catalog, specifically due to the availability of certain content in PRD. That is, on signup only a portion of MediaNet's catalog will be available. *Content from certain labels are filtered out; MediaNet manages/coordinates this filtering as part of a Label Submission and Service Review process.*

In INT, for development and testing purposes, a limited catalog will be available. Please work with ApiSupport@mndigital.com to initiate Submission to Labels, and the Label Review Process. The process may begin only when both of the two following steps are completed:
1. The Customer has completed API Signup and provided sufficiently detailed answers, and
2. The Customer's website or service is stable enough to be viewable by labels.

Branding Requirements

Customers of MN Open are obligated to follow the MediaNet MN Open Branding Schedule available for review at: http://www.mndigital.com/legal/mnopen-branding-schedule.html.

Compliance with MN Open Terms of Service

To launch, Customers must comply with the MN Open Terms of Service (visit http://www.mndigital.com/legal/ for territory-specific versions) and the MN Open Service Guidelines (PDF). Please contact MediaNet Business Development for a copy.

Press and Marketing Communications

Per the MediaNet MN Open Terms of Service ("TOS"), press releases mentioning MediaNet, our technology, or the catalog obtained from us, must be reviewed by us prior to publication. Do not mention

any labels by name in press releases or other marketing or business communications without review from us and/or the mentioned label(s). *Doing otherwise may result in temporary or **permanent** loss of access to that/those Major(s) catalog.*

MN Open API Metadata

The following pieces of metadata are exposed via the MN Open API. Most are common across methods, but some come back only from one or a handful of the API.

Metadata Item	Description	Notes
Album Art URLs	Paths to album images	
Album MnetID	Unique identifier for an album	MnetID is our catalog primary key for everything
Album Title	Name of an album	
Artist	Name of an artist	
Artist MnetID	Unique identifier for an artist	
Bitrate	Purchase files: 256 or 320kbps Stream files: • 256 or 320 kbps MP3 • 128 kbps MP3 • 64 kbps AAC+ • 48 kbps AAC+	See section "Bitrate Information"
DiscNumber	To account for sets of discs	
Duration (track)	Track time in minutes and seconds	
Duration (album)	Total time for an album	
Explicit Lyrics	(Boolean)	
FeaturedArtists	Secondary artists for a work	
Genre	MediaNet tracks 23 genres. Please see discussion following this table.	Please see list following this table
Label	The string representation of the Content Provider name	
LabelOwnerId	Numeric representation of Content Provider	Some Content Providers are owned by other Content Providers. This field shows which company is the ultimate "parent" owner.
Mp3Rights, containing: • CanSampleStream • CanPurchaseDownload • AlbumPurchaseOnly • CanStream	 (Boolean) (Boolean) (Boolean) (Boolean)	
NumberOfTracks	Total number of tracks in an album	
PriceTag, containing: • Currency • Amount • IsSetPrice • Wholesale	 (Boolean)	See section "Pricing, Required Retail Price and Tax Handling" for more information about IsSetPrice=true case
ReleaseDate	The digital release date	Not the same as the original, physical release date
ReleaseDate (at track level)	The digital release date	
SampleLocations, containing: • MediaLocation • MnetID	The path to the sample for a track	
Track MnetID	Unique identifier for a track	
Track Title	Title of a track	
TrackNumber	On a given disc	Example: Track 3 of 8 total on album