

MigratoryData Client API for Python

Developer's Guide and Reference Manual

October 9, 2015



Copyright Information

Copyright © 2007-2015 Migratory Data Systems. ALL RIGHTS RESERVED.

THIS DOCUMENT IS PROVIDED "AS IS" WITHOUT WARRANTY OF ANY KIND, EITHER EXPRESS OR IMPLIED, INCLUDING, BUT NOT LIMITED TO, THE IMPLIED WARRANTIES OF MERCHANTABILITY, FITNESS FOR A PARTICULAR PURPOSE, OR NON-INFRINGEMENT.

THIS DOCUMENT COULD INCLUDE TECHNICAL INACCURACIES OR TYPOGRAPHICAL ERRORS. CHANGES ARE PERIODICALLY ADDED TO THE INFORMATION HEREIN; THESE CHANGES WILL BE INCORPORATED IN NEW EDITIONS OF THE DOCUMENT. MIGRATORY DATA SYSTEMS MAY MAKE IMPROVEMENTS AND/OR CHANGES IN THE PRODUCT DESCRIBED IN THIS DOCUMENT AT ANY TIME.

Contents

- 1 Developer's Guide** **1**
- 1.1 Overview 1
- 1.2 Creating Python clients for MigratoryData Server 1
- 1.2.1 Step 1 - Include the library 1
- 1.2.2 Step 2 - Attach an entitlement token 1
- 1.2.3 Step 3 - Define the cluster of MigratoryData servers where to connect to 1
- 1.2.4 Step 4 - Create messages 1
- 1.2.5 Step 5 - Publish messages 2
- 1.3 Examples 2

- 2 Class Index** **3**
- 2.1 Class List 3

- 3 Class Documentation** **5**
- 3.1 MigratoryDataClient Class Reference 5
- 3.1.1 Detailed Description 5
- 3.1.2 Member Function Documentation 6
- 3.1.2.1 setEntitlementToken 6
- 3.1.2.2 setServers 6
- 3.1.2.3 publish 6
- 3.1.3 Member Data Documentation 7
- 3.1.3.1 NOTIFY_PUBLISH_OK 7
- 3.1.3.2 NOTIFY_PUBLISH_FAILED 7
- 3.1.3.3 NOTIFY_PUBLISH_DENIED 7
- 3.1.3.4 NOTIFY_PUBLISH_NO_SUBSCRIBER 7
- 3.1.3.5 NOTIFY_PUBLISH_TIMEOUT 7
- 3.2 MigratoryDataException Class Reference 7
- 3.2.1 Detailed Description 8
- 3.2.2 Member Function Documentation 8
- 3.2.2.1 getCode 8
- 3.2.2.2 getCause 9
- 3.2.2.3 getDetail 9

3.2.3	Member Data Documentation	9
3.2.3.1	E_INVALID_SUBJECT	9
3.2.3.2	E_TRANSPORT_INIT_FAILED	9
3.2.3.3	E_CONNECTION_FAILED	9
3.2.3.4	E_MSG_NULL	9
3.2.3.5	E_MSG_INVALID	9
3.2.3.6	E_MSG_FIELD_INVALID	10
3.2.3.7	E_CLUSTER_MEMBERS_CONNECTION_FAILED	10
3.2.3.8	E_INVALID_URL_LIST	10
3.2.3.9	E_INVALID_URL	10
3.2.3.10	E_INVALID_PROTOCOL	10
3.2.3.11	E_ENTITLEMENT_TOKEN	10
3.3	MigratoryDataField Class Reference	10
3.3.1	Detailed Description	10
3.3.2	Constructor & Destructor Documentation	11
3.3.2.1	MigratoryDataField	11
3.3.3	Member Function Documentation	11
3.3.3.1	getName	11
3.3.3.2	getValue	11
3.4	MigratoryDataMessage Class Reference	11
3.4.1	Detailed Description	11
3.4.2	Constructor & Destructor Documentation	12
3.4.2.1	MigratoryDataMessage	12
3.4.3	Member Function Documentation	12
3.4.3.1	getSubject	12
3.4.3.2	getContent	12
3.4.3.3	getFields	12

Chapter 1

Developer's Guide

This guide includes the following sections:

- [Overview](#)
- [Creating Python clients for MigratoryData Server](#)
- [Examples](#)

1.1 Overview

This client Application Programming Interface (API) library contains all the necessary operation for connecting to a cluster of MigratoryData servers and publishing real-time messages.

Before reading this manual, it is recommended to read *MigratoryData Architecture Guide* ([PDF](#), [HTML](#)).

1.2 Creating Python clients for MigratoryData Server

A typical API usage is as follows:

1.2.1 Step 1 - Include the library

```
sys.path.append("../..lib/")
from migratorydata_client import *
```

1.2.2 Step 2 - Attach an entitlement token

Use the method [MigratoryDataClient.setEntitlementToken\(\)](#) to assign an entitlement token to the client.

1.2.3 Step 3 - Define the cluster of MigratoryData servers where to connect to

Use the API method [MigratoryDataClient.setServers\(\)](#) to specify a list of one or more MigratoryData servers to which the client will connect to. In fact, the client will connect to only one of the MigratoryData servers in this list. But, defining two or more MigratoryData servers is recommended in order to achieve load balancing and failover.

1.2.4 Step 4 - Create messages

Use the class [MigratoryDataMessage](#) to create messages.

1.2.5 Step 5 - Publish messages

Use the API call `MigratoryDataPublisher.publish()` to publish messages.

1.3 Examples

Examples built with this API are available in the folder `examples` of this API package; start with the `README` file which explains how to run them.

Chapter 2

Class Index

2.1 Class List

Here are the classes, structs, unions and interfaces with brief descriptions:

- [MigratoryDataClient](#)
This class implements all the necessary operations for connecting to a cluster of MigratoryData servers and publishing real-time messages 5
- [MigratoryDataException](#)
Define the *error codes* of the API, and their corresponding *error texts* and *error causes* 7
- [MigratoryDataField](#)
Represent a message field 10
- [MigratoryDataMessage](#)
Represent a message 11

Chapter 3

Class Documentation

3.1 MigratoryDataClient Class Reference

This class implements all the necessary operations for connecting to a cluster of MigratoryData servers and publishing real-time messages.

Public Member Functions

- [MigratoryDataClient](#) ()
Create a [MigratoryDataClient](#) object.
- void [setEntitlementToken](#) (String token)
Assign an authorization token to the client.
- void [setServers](#) (List< String > servers)
Connect to a MigratoryData server in the list provided by the argument.
- String [publish](#) ([MigratoryDataMessage](#) message)
Publish the message provided in argument.

Static Public Attributes

- static final String [NOTIFY_PUBLISH_OK](#) = "NOTIFY_PUBLISH_OK"
Indicate that the client successfully published a message.
- static final String [NOTIFY_PUBLISH_FAILED](#) = "NOTIFY_PUBLISH_FAILED"
Indicate that the client was unable to publish a message.
- static final String [NOTIFY_PUBLISH_DENIED](#) = "NOTIFY_PUBLISH_DENIED"
Indicate that the client was unable to publish a message because it is not allowed by your entitlement rules.
- static final String [NOTIFY_PUBLISH_NO_SUBSCRIBER](#) = "NOTIFY_PUBLISH_NO_SUBSCRIBER"
Indicate that the client was unable to publish a message because there is no client subscribed to the subject of the message.
- static final String [NOTIFY_PUBLISH_TIMEOUT](#) = "NOTIFY_PUBLISH_TIMEOUT"
Indicate that the client timed out when trying to get a response for a message publication.

3.1.1 Detailed Description

This class implements all the necessary operations for connecting to a cluster of MigratoryData servers and publishing real-time messages.

3.1.2 Member Function Documentation

3.1.2.1 void MigratoryDataClient.setEntitlementToken (String *token*)

Assign an authorization token to the client.

To define which users of your application have access to which subjects, you will first have to configure the parameter `Entitlement` in the configuration file of the MigratoryData server — see the parameter `Entitlement` in the *MigratoryData Configuration Guide* ([PDF](#), [HTML](#)).

Then, you will have to use the entitlement-related part of the MigratoryData Extension API to allow or deny certain users to subscribe / publish to certain subjects or use the Basic entitlement mode which do not require any programming.

Note

If you configured the `Basic` entitlement method in your MigratoryData servers using the parameter `Entitlement`, then, in order to be able to publish messages, the token defined by this API method must be equal to the value of the parameter `EntitlementAllowToken` of your servers.

Parameters

<i>token</i>	A string representing an authorization token.
--------------	---

3.1.2.2 void MigratoryDataClient.setServers (List< String > *servers*)

Connect to a MigratoryData server in the list provided by the argument.

Parameters

<i>servers</i>	The addresses of the MigratoryData servers in the cluster.
----------------	--

Exceptions

MigratoryDataException	<p>Exceptions with the following error codes:</p> <ul style="list-style-type: none"> • E_INVALID_URL_LIST • E_CLUSTER_MEMBERS_CONNECTION_FAILED • E_ENTITLEMENT_TOKEN
--	--

3.1.2.3 String MigratoryDataClient.publish (MigratoryDataMessage *message*)

Publish the message provided in argument.

Parameters

<i>message</i>	A MigratoryDataMessage object
----------------	---

Returns

A string representing the response received from the MigratoryData cluster:

- NOTIFY_PUBLISH_OK,
- NOTIFY_PUBLISH_FAILED,
- NOTIFY_PUBLISH_DENIED,
- NOTIFY_PUBLISH_NO_SUBSCRIBER, or

- NOTIFY_PUBLISH_TIMEOUT

Exceptions

MigratoryDataException	<p>Exceptions with the following error codes:</p> <ul style="list-style-type: none"> • E_MSG_NULL • E_MSG_FIELD_INVALID • E_MSG_INVALID • E_INVALID_SUBJECT • E_INVALID_PROTOCOL
--	---

3.1.3 Member Data Documentation

3.1.3.1 `final String MigratoryDataClient.NOTIFY_PUBLISH_OK = "NOTIFY_PUBLISH_OK" [static]`

Indicate that the client successfully published a message.

This constant is used to indicate that the publication of a message has succeeded.

3.1.3.2 `final String MigratoryDataClient.NOTIFY_PUBLISH_FAILED = "NOTIFY_PUBLISH_FAILED" [static]`

Indicate that the client was unable to publish a message.

This constant is used to indicate that the publication of a message has failed.

3.1.3.3 `final String MigratoryDataClient.NOTIFY_PUBLISH_DENIED = "NOTIFY_PUBLISH_DENIED" [static]`

Indicate that the client was unable to publish a message because it is not allowed by your entitlement rules.

This constant is used to indicate that the publication of a message has failed. The publication failed because the client – identified with the token defined with the API method [MigratoryDataClient.setEntitlementToken\(\)](#) – is not allowed to publish on the subject of the message.

3.1.3.4 `final String MigratoryDataClient.NOTIFY_PUBLISH_NO_SUBSCRIBER = "NOTIFY_PUBLISH_NO_SUBSCRIBER" [static]`

Indicate that the client was unable to publish a message because there is no client subscribed to the subject of the message.

This constant is used to indicate that the publication of the message has failed. The publication failed because there is no client then subscribed to the subject of the message.

3.1.3.5 `final String MigratoryDataClient.NOTIFY_PUBLISH_TIMEOUT = "NOTIFY_PUBLISH_TIMEOUT" [static]`

Indicate that the client timed out when trying to get a response for a message publication.

This constant is used to indicate that the publication of the message timeout without knowing if the message was published or not.

3.2 MigratoryDataException Class Reference

Define the *error codes* of the API, and their corresponding *error texts* and *error causes*.

Public Member Functions

- int `getCode ()`
Get the error code.
- String `getCause ()`
Get the error cause.
- String `getDetail ()`
Get the error text.

Public Attributes

- int `E_INVALID_SUBJECT = 1`
Indicate an invalid subject syntax.
- int `E_TRANSPORT_INIT_FAILED = 2`
Indicate a transport initialization failure.
- int `E_CONNECTION_FAILED = 3`
Indicate a connection failure.
- int `E_MSG_NULL = 4`
Indicate that the message supplied for delivery is null.
- int `E_MSG_INVALID = 5`
Indicate that the message supplied for delivery is invalid.
- int `E_MSG_FIELD_INVALID = 6`
Indicate that the message supplied for delivery has an invalid field.
- int `E_CLUSTER_MEMBERS_CONNECTION_FAILED = 7`
Indicate that the client failed to connect to all MigratoryData servers in the cluster.
- int `E_INVALID_URL_LIST = 8`
Indicate an invalid list of MigratoryData servers.
- int `E_INVALID_URL = 9`
Indicate an invalid address for a MigratoryData server.
- int `E_INVALID_PROTOCOL = 10`
Indicate an internal error during communication with a MigratoryData server.
- int `E_ENTITLEMENT_TOKEN = 11`
Indicate that the entitlement token was not supplied.

3.2.1 Detailed Description

Define the *error codes* of the API, and their corresponding *error texts* and *error causes*.

3.2.2 Member Function Documentation

3.2.2.1 int MigratoryDataException.getCode ()

Get the error code.

Returns

The error code.

3.2.2.2 String MigratoryDataException.getCause ()

Get the error cause.

Returns

The error cause.

3.2.2.3 String MigratoryDataException.getDetail ()

Get the error text.

Returns

The error text.

3.2.3 Member Data Documentation

3.2.3.1 int MigratoryDataException.E_INVALID_SUBJECT = 1

Indicate an invalid subject syntax.

This error code indicates that the subject used to build a new message has an invalid syntax.

The corresponding error cause contains the invalid subject itself.

3.2.3.2 int MigratoryDataException.E_TRANSPORT_INIT_FAILED = 2

Indicate a transport initialization failure.

This error code indicates that the client was not able to establish the transport connection to a MigratoryData server.

The corresponding error cause contains the address of the MigratoryData server to which the client failed to establish the transport connection.

3.2.3.3 int MigratoryDataException.E_CONNECTION_FAILED = 3

Indicate a connection failure.

This error code indicates that the client was not able to connect to a MigratoryData server.

The corresponding error cause contains the address of the MigratoryData server to which the client failed to connect.

3.2.3.4 int MigratoryDataException.E_MSG_NULL = 4

Indicate that the message supplied for delivery is null.

The message supplied for delivery is null

3.2.3.5 int MigratoryDataException.E_MSG_INVALID = 5

Indicate that the message supplied for delivery is invalid.

The message supplied for delivery is invalid.

3.2.3.6 int MigratoryDataException.E_MSG_FIELD_INVALID = 6

Indicate that the message supplied for delivery has an invalid field.

The message supplied for delivery has an invalid field.

3.2.3.7 int MigratoryDataException.E_CLUSTER_MEMBERS_CONNECTION_FAILED = 7

Indicate that the client failed to connect to all MigratoryData servers in the cluster.

The client failed to connect to all MigratoryData servers in the cluster.

3.2.3.8 int MigratoryDataException.E_INVALID_URL_LIST = 8

Indicate an invalid list of MigratoryData servers.

The list of MigratoryData servers is incorrectly specified.

3.2.3.9 int MigratoryDataException.E_INVALID_URL = 9

Indicate an invalid address for a MigratoryData server.

The address of a MigratoryData server is incorrectly specified.

3.2.3.10 int MigratoryDataException.E_INVALID_PROTOCOL = 10

Indicate an internal error during communication with a MigratoryData server.

Internal communication error.

3.2.3.11 int MigratoryDataException.E_ENTITLEMENT_TOKEN = 11

Indicate that the entitlement token was not supplied.

Use the method [MigratoryDataClient.setEntitlementToken\(\)](#) to define an entitlement token.

3.3 MigratoryDataField Class Reference

Represent a message field.

Public Member Functions

- [MigratoryDataField](#) (String name, String value)
Create a [MigratoryDataField](#) object.
- String [getName](#) ()
Get the field name.
- String [getValue](#) ()
Get the field value.

3.3.1 Detailed Description

Represent a message field.

3.3.2 Constructor & Destructor Documentation

3.3.2.1 MigratoryDataField.MigratoryDataField (String name, String value)

Create a [MigratoryDataField](#) object.

Parameters

<i>name</i>	The field name
<i>value</i>	The field value

3.3.3 Member Function Documentation

3.3.3.1 String MigratoryDataField.getName ()

Get the field name.

Returns

A string representing the field name.

3.3.3.2 String MigratoryDataField.getValue ()

Get the field value.

Returns

A string representing the field value.

3.4 MigratoryDataMessage Class Reference

Represent a message.

Public Member Functions

- [MigratoryDataMessage](#) (String subject, String content, List< [MigratoryDataField](#) > fields)
Create a [MigratoryDataMessage](#) object.
- String [getSubject](#) ()
Get the subject of the message.
- String [getContent](#) ()
Get the content of the message.
- List< [MigratoryDataField](#) > [getFields](#) ()
Get the fields of the message.

3.4.1 Detailed Description

Represent a message.

3.4.2 Constructor & Destructor Documentation

3.4.2.1 MigratoryDataMessage.MigratoryDataMessage (String *subject*, String *content*, List< MigratoryDataField > *fields*)

Create a [MigratoryDataMessage](#) object.

Parameters

<i>subject</i>	The subject of the message
<i>content</i>	The content of the message
<i>fields</i>	The fields of the message (Optional)

Exceptions

MigratoryDataException	An exception with the E_INVALID_SUBJECT code
--	--

3.4.3 Member Function Documentation

3.4.3.1 String MigratoryDataMessage.getSubject ()

Get the subject of the message.

Returns

A string representing the subject of the message

3.4.3.2 String MigratoryDataMessage.getContent ()

Get the content of the message.

Returns

A string representing the content of the message

3.4.3.3 List<MigratoryDataField> MigratoryDataMessage.getFields ()

Get the fields of the message.

Returns

The fields of the message as a list of [MigratoryDataField](#) objects

Index

- E_INVALID_PROTOCOL
 - MigratoryDataException, 10
- E_INVALID_SUBJECT
 - MigratoryDataException, 9
- E_INVALID_URL
 - MigratoryDataException, 10
- E_MSG_INVALID
 - MigratoryDataException, 9
- E_MSG_NULL
 - MigratoryDataException, 9
- getCause
 - MigratoryDataException, 8
- getCode
 - MigratoryDataException, 8
- getContent
 - MigratoryDataMessage, 12
- getDetail
 - MigratoryDataException, 9
- getFields
 - MigratoryDataMessage, 12
- getName
 - MigratoryDataField, 11
- getSubject
 - MigratoryDataMessage, 12
- getValue
 - MigratoryDataField, 11
- MigratoryDataClient, 5
 - NOTIFY_PUBLISH_OK, 7
 - publish, 6
 - setEntitlementToken, 6
 - setServers, 6
- MigratoryDataException, 7
 - E_INVALID_SUBJECT, 9
 - E_INVALID_URL, 10
 - E_MSG_INVALID, 9
 - E_MSG_NULL, 9
 - getCause, 8
 - getCode, 8
 - getDetail, 9
- MigratoryDataField, 10
 - getName, 11
 - getValue, 11
 - MigratoryDataField, 11
 - MigratoryDataField, 11
- MigratoryDataMessage, 11
 - getContent, 12
 - getFields, 12
 - getSubject, 12
 - MigratoryDataMessage, 12
 - MigratoryDataMessage, 12
- NOTIFY_PUBLISH_OK
 - MigratoryDataClient, 7
- publish
 - MigratoryDataClient, 6
- setEntitlementToken
 - MigratoryDataClient, 6
- setServers
 - MigratoryDataClient, 6