



Informatica® PowerExchange for MongoDB
ODBC
10.5.9

User Guide for PowerCenter

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Preface

Use the *Informatica® PowerExchange® for MongoDB ODBC User Guide* for PowerCenter® to learn how to read from or write to MongoDB by using PowerCenter client. Learn to create a connection, develop mappings, and run sessions in an Informatica domain.

Informatica Resources

Informatica provides you with a range of product resources through the Informatica Network and other online portals. Use the resources to get the most from your Informatica products and solutions and to learn from other Informatica users and subject matter experts.

Informatica Network

The Informatica Network is the gateway to many resources, including the Informatica Knowledge Base and Informatica Global Customer Support. To enter the Informatica Network, visit <https://network.informatica.com>.

As an Informatica Network member, you have the following options:

- Search the Knowledge Base for product resources.
- View product availability information.
- Create and review your support cases.
- Find your local Informatica User Group Network and collaborate with your peers.

Informatica Knowledge Base

Use the Informatica Knowledge Base to find product resources such as how-to articles, best practices, video tutorials, and answers to frequently asked questions.

To search the Knowledge Base, visit <https://search.informatica.com>. If you have questions, comments, or ideas about the Knowledge Base, contact the Informatica Knowledge Base team at KB_Feedback@informatica.com.

Informatica Documentation

Use the Informatica Documentation Portal to explore an extensive library of documentation for current and recent product releases. To explore the Documentation Portal, visit <https://docs.informatica.com>.

If you have questions, comments, or ideas about the product documentation, contact the Informatica Documentation team at infa_documentation@informatica.com.

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You can find Informatica Velocity resources at <http://velocity.informatica.com>. If you have questions, comments, or ideas about Informatica Velocity, contact Informatica Professional Services at ips@informatica.com.

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Informatica Global Customer Support

You can contact a Global Support Center by telephone or through the Informatica Network.

To find your local Informatica Global Customer Support telephone number, visit the Informatica website at the following link:

<https://www.informatica.com/services-and-training/customer-success-services/contact-us.html>.

To find online support resources on the Informatica Network, visit <https://network.informatica.com> and select the eSupport option.

CHAPTER 1

Introduction to PowerExchange for MongoDB

This chapter includes the following topics:

- [PowerExchange for MongoDB Overview, 8](#)
- [PowerExchange for MongoDB Implementation, 9](#)

PowerExchange for MongoDB Overview

PowerExchange for MongoDB provides connectivity between Informatica and MongoDB. Use PowerExchange for MongoDB to extract and load MongoDB documents through the PowerCenter Integration Service.

You can use PowerExchange for MongoDB to integrate and migrate data from diverse data sources that are incompatible with MongoDB architecture.

You can use PowerExchange for MongoDB for the following data integration scenarios:

- Create a MongoDB data warehouse. You can aggregate data from MongoDB and other source systems, transform the data, and write the data to MongoDB.
- Migrate data from a relational database or other data sources to MongoDB. For example, you want to migrate data from a relational database to MongoDB. You can write data from multiple relational database tables with different schemas to the same MongoDB collection. A MongoDB collection contains the data in a MongoDB database.
- Move data between operational data stores to synchronize data. For example, an online marketplace uses a relational database as the operational data store. You want to use MongoDB instead of the relational database. However, you want to maintain the relational database along with MongoDB for a period of time. You can use PowerExchange for MongoDB to synchronize data between the relational data store and the MongoDB data store.
- Migrate data from MongoDB to a data warehouse for reporting. For example, your organization uses a business intelligence tool that does not support MongoDB. You must migrate the data from MongoDB to a data warehouse so that the business intelligence tool can use the data to generate reports.

PowerExchange for MongoDB Implementation

To extract and load MongoDB data, create MongoDB source and target definitions in the Designer. You can add a source or target definition to a session and run the session to process the data.

PowerExchange for MongoDB includes the Informatica MongoDB driver that connects to the MongoDB server. You can create an ODBC connection to extract data from or load data to a MongoDB database. You can also configure the replica sets for the MongoDB server so that the PowerCenter Integration Service can access the secondary servers if the primary server is not available.

The Designer uses the schema of a collection, or you can define the schema for the collection before you import a source or target definition. The Designer flattens the schema if there is any hierarchical element in the collection and retains the original schema of the collection when you import it.

The Designer imports a document based on the schema that you set for the collection. If a document contains hierarchical elements like arrays or nested documents, the Designer imports them as columns at the same level as other columns.

For example, you need to import the collection `product_details` with the following schema:

```
{
  sku: "sku_name",
  title: "product_name",
  description: "description",

  manufacture_details: {
    model_number: "model_number",
    release_date: new ISODate("date")
  },

  shipping_details: {
    weight: <value>,
    width: <value>,
    height: <value>,
    depth: <value>
  },

  quantity: <value>,

  pricing: [
    {region: "North America",
      cost_price: 1000,
      sale_price: 1200},
    {region: "Europe",
      cost_price: 1200,
      sale_price: 1500}
  ]
}
```

The Designer imports the collection schema into a tabular format. You can identify arrays and nested documents with the naming convention of the column. The naming convention of a nested document is <top level element name>.<nested document name>.<nested document element name>. The naming convention of an array is <array name>.<element number>.

When you run a session, the PowerCenter Integration Service uses the MongoDB ODBC data source name in the machine that runs the PowerCenter Integration Service to extract data from or load data to a MongoDB database.

CHAPTER 2

PowerExchange for MongoDB Configuration

This chapter includes the following topics:

- [PowerExchange for MongoDB Configuration Overview , 10](#)
- [Prerequisites, 10](#)
- [Informatica MongoDB ODBC Driver Configuration, 11](#)
- [Data Source Name Configuration on Windows, 11](#)
- [License, 13](#)

PowerExchange for MongoDB Configuration Overview

You can use PowerExchange for MongoDB on Windows or Linux. You must configure PowerExchange for MongoDB before you can extract data from or load data to MongoDB database.

Prerequisites

You must complete the prerequisites before you can use PowerExchange for MongoDB.

Complete the following prerequisites:

- Install or upgrade PowerCenter.
- Ensure that you have the PowerExchange for MongoDB license to use the PowerExchange for MongoDB though a separate ODBC license is not necessary. For further details about how to procure a license for MongoDB, see the License section.

For more information about product requirements and supported platforms, see the Product Availability Matrix on Informatica Network:

<https://network.informatica.com/community/informatica-network/product-availability-matrices>

PowerExchange for MongoDB JDBC Upgrade

Informatica installer packages 2.x version of the driver for MongoDB database starting with 10.5.5.

If you upgrade from an older 1.8.x version of the driver, ensure to re-import the metadata and create mappings as required.

Informatica MongoDB ODBC Driver Configuration

The Informatica MongoDB ODBC driver is installed on the machines where you install Informatica services and clients. Configure the Informatica MongoDB ODBC driver on those machines.

The Designer uses the Informatica MongoDB ODBC driver to import MongoDB collections as source or target definitions. The PowerCenter Integration Service uses the driver to extract data from or load data to the MongoDB database. Create ODBC data source names to connect to the MongoDB database.

Configuring the Informatica MongoDB ODBC Driver on Linux

You must configure the Informatica MongoDB ODBC driver with details of the MongoDB database and ODBC driver manager before you can run MongoDB sessions and workflows.

Edit the `odbc.ini` file to configure the driver in the following location: `<INFA_HOME>/tools/mongodb/Setup`

1. Enter the correct ODBCInstLib for the ODBC Driver Manager in all the .ini files.
2. Replace `<INSTALL_DIR>` with the path to the Informatica services installation directory in all the .ini files.
3. Add the following directory to the LD_LIBRARY_PATH environment variable:

- `<INFA_HOME>/tools/mongodb/lib`
- 32-bit

4. Add the path of the `odbc.ini` file to the ODBCINI environment variable.
5. Add the Data Source Name (DSN) entries for all the MongoDB data sources in the `odbc.ini` file.

Use the sample DSN available in the following location as a template:

```
$INFA_HOME/tools/mongodb/setup/odbc.ini
```

6. Update the paths in the `informatica.mongodbodbc.ini` file, located in `<INFA_HOME>/tools/mongodb/lib/`

When you create the ODBC connection, you can use the DSN configured.

Data Source Name Configuration on Windows

Configure the connection properties, advanced properties, and schema when you configure a data source name.

You must create a data source name in the ODBC datasource administrator to extract data from and load data to a MongoDB database. The connection properties provide information for the MongoDB server and the database. The advanced properties are read and write operations. You can also define a schema after you create a database.

You can find the ODBC datasource administrator in the Control Panel on Windows. Configure the ODBC data source name in the 32-bit ODBC datasource administrator in the client and the machines where you install the Informatica services. You can access the 32-bit ODBC datasource administrator, `odbcad32.exe`, in 64-bit Windows from the following location: `C:\Windows\SysWOW64`

The following table provides information on the Data Source Name (DSN) configuration for various Informatica components:

Component on Machine	Create DSN	Description
Informatica server	64-bit ODBC DSN	Create and run ODBC connections
Developer Client 64-bit	64-bit ODBC DSN	Creating ODBC connections and importing objects in the Developer tool.
Informatica PowerCenter Client	32-bit ODBC DSN	Importing objects in Designer through the Import from Database option.
Informatica Client	64-bit ODBC DSN	Use within the Schema Editor.

MongoDB ODBC Connection Properties

You must configure a MongoDB ODBC data source before you can import MongoDB data sources.

The following table describes the MongoDB ODBC connection properties:

Property	Description
Data Source Name	Name of the data source name.
Description	Description to identify a data source name.
Host	Host name of the MongoDB server.
Port	Port from which you can access MongoDB.
Database	MongoDB database in the server that you want to access.
Username	Optional. MongoDB user name.
Replica Set Name	Optional. Name of the replica set of the database.
Additional Servers	Optional. Host names of the secondary MongoDB servers.

Advanced Properties

Configure the advanced properties when you create a data source name.

The following table describes the advanced properties in the Informatica MongoDB ODBC driver:

Property	Description
Documents to fetch per block	The maximum number of documents that the PowerCenter Integration Service reads for every call to the MongoDB database. Default is 4096.
String Column Size	The string column length to use for the fields. You can select one of the following string column lengths: <ul style="list-style-type: none">- Standard. The string column length to use for the standard fields. Default is 255.- Container. The string column length to use for the container fields. Default is 511.- DocumentAsJSON. The string column length to use for the documentAsJSON fields. Default is 1023.
Sampling Count(0 for all)	Number of documents to scan. Default is 100.
Expose strings as SQL_WVARCHAR	The PowerCenter Integration Service maps the String datatype to SQL_WVARCHAR ODBC instead of SQL_VARCHAR. Default is disabled.
Enable Json Read/Write Mode	Read or write data as a JSON document. If enabled, the driver reports a special column named documentAsJSON that retrieves or stores whole documents as JSON formatted strings. Default is disabled. Note: For a MongoDB connection, if you toggle between enabling and disabling this option, the metadata cache might lose its integrity. Instead of changing the Enable reading/writing as JSON document property for a MongoDB connection, create separate connections with this property.
Omit explicit NULL columns on insert	The PowerCenter Integration Service does not write columns with NULL value to a MongoDB target. Default is enabled.
Metadata Mechanism	Read metadata changes from the MongoDB database or from a local file. Required if you choose to store the metadata in a local file. Default is database.

For more information about the Advanced properties of Informatica MongoDB ODBC driver, see the *Simba MongoDB ODBC Connector Install and Configuration Guide* in the following location:

```
<INFACLIENT_INSTALL_DIR>\clients\tools\mongodb\docs
```

License

To extract data from or to load data to MongoDB, from Informatica, you need PowerExchange for MongoDB option available in the Administration tool under the License section.

Verify License

To verify the license agreement, complete the following steps:

1. Log in to Administration tool.
2. Select the **License** from the Domain Navigator.
3. Click the **Options** tab.
4. Navigate to the **Connections** section.
5. Confirm that **PowerExchange for MongoDB** is listed as an available license option.
6. If you have not yet purchased the license, contact your Informatica sales representative to procure one.
7. If you have already purchased the license for **PowerExchange for MongoDB** but it is not available under the license options in the Administration tool, open a shipping request with Informatica support to obtain an incremental license key. Include the following detail in your request:

Case type: Product Download & License Request

Add Incremental License Key

To apply an incremental license key, complete the following steps:

1. Log in to the Informatica Administration tool.
2. In the Domain Navigator, select the **License** service.
3. Go to **Actions > Add Incremental License Key**.
4. Click **Browse** to select your incremental license key file, then click **OK**.

Note: After the license key is applied, you must restart the Data Integration Service for the changes to take effect.

CHAPTER 3

Schema Definition

This chapter includes the following topic:

- [Schema Definition Overview, 15](#)

Schema Definition Overview

You can define the schema for a MongoDB collection that you want to import as a source or target definition in the Designer. You can define the schema for multiple collections with the same JDBC data source name.

A collection in MongoDB might contain several fields that you do not want to import. When you define the schema you can limit metadata that you import. The driver dynamically detects the collection schema of a MongoDB database. It flattens the MongoDB schema and displays the keys in the a tabular format with each key as a column in the Schema Editor.

You can export the collection to an external schema definition file and edit the schema definition in the Schema Editor. After you modify the collection properties and column metadata, you can save the modifications in the schema definition file. The driver does not modify the schema of the actual MongoDB collection. You can choose to store the modifications in the MongoDB database or as a file.

If you enable virtual table detection in the Informatica MongoDB JDBC driver, the driver creates virtual tables in the schema if the collection contains arrays. You can import the virtual table as a source or target definition in the Designer.

For more information about the schema definitions and editor, see the Schema Definitions section of *Simba MongoDB ODBC Connector Install and Configuration Guide* and *Schema Editor User Guide* in the following locations:

```
<INFACLIENT_INSTALL_DIR>\clients\tools\mongodb\docs
```

```
$INFA_HOME\tools\mongodb\docs
```

CHAPTER 4

MongoDB Sources

This chapter includes the following topics:

- [MongoDB Sources Overview, 16](#)
- [Importing a MongoDB Source Definition, 16](#)
- [MongoDB Reader Sessions, 16](#)
- [Example: MongoDB Reader Mapping, 17](#)

MongoDB Sources Overview

You can import a MongoDB collection as an ODBC source definition in the Designer. You can configure advanced read options in the ODBC driver configuration such as the number of rows fetched in every read call.

Importing a MongoDB Source Definition

To import a MongoDB source definition, click **Sources > Import from Database** in the Source Analyzer and select a MongoDB ODBC data source. You can select the MongoDB collections and the Designer imports the MongoDB collections that you want to import.

MongoDB Reader Sessions

MongoDB reader sessions contain mappings that read data from MongoDB.

When you run a MongoDB reader session, the PowerCenter Integration Service uses the Informatica MongoDB ODBC data source to extract data from MongoDB. The MongoDB reader sessions may fail or produce incorrect results if you enable pushdown optimization in the session properties. Set pushdown optimization as none if the session fails.

You can configure advanced reader properties for the Informatica MongoDB ODBC driver in the ODBC driver properties.

You can configure the following read options in the ODBC driver properties:

Read Preference

MongoDB server that you prefer to read data from if you configure replica sets.

You can select one of the following MongoDB server options:

- **Primary.** The PowerCenter Integration Service reads data from the primary MongoDB server. If the primary MongoDB server is offline, the session fails.
- **Primary Preferred.** The PowerCenter Integration Service reads data from the primary MongoDB server if the primary MongoDB server is available. If the primary MongoDB server is offline, the PowerCenter Integration Service reads data from the secondary MongoDB server.
- **Secondary.** The PowerCenter Integration Service reads data from the secondary MongoDB server. If the secondary MongoDB server is offline, the session fails.
- **Secondary Preferred.** The PowerCenter Integration Service reads data from the secondary MongoDB server if the secondary MongoDB server is available. If the secondary MongoDB server is offline, the PowerCenter Integration Service reads data from the primary MongoDB server.
- **Nearest.** The PowerCenter Integration Service reads data from the nearest available MongoDB server.

Enable Reading/Writing as JSON

Reads the JSON format of the data from the MongoDB document. If you select the option, a column documentAsJSON appears in the collection when you read data from MongoDB through which you can read data as JSON. Default is disabled.

Documents fetched per block

The maximum number of documents fetched from the MongoDB server for every read request. If more documents are available for a query, the PowerCenter Integration Service makes further read requests to the MongoDB server. Default is 4096.

Example: MongoDB Reader Mapping

A large online music store uses MongoDB as a data warehouse to store business inventory details.

The business analysts use a business intelligence tool that cannot read data from MongoDB. The tool requires the input data to be in a relational database or a flat file.

The data warehouse includes a collection called Music_Contents. The collection Music_Contents contains a catalog of all of the songs in the store. You must move the data in the collection to a flat file to use the data for business analysis. You must also remove those records with zero units to ensure that the data is current.

The following table describes the structure of Music_Contents:

Field	Datatype
Name	String
Type	Array of strings
Artist	Array of strings

Field	Datatype
Units	Int
Price	Nested document

The following table describes the structure of the nested document, Price:

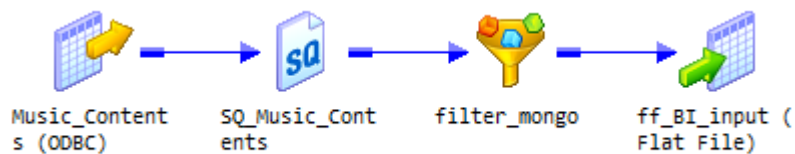
Field	Datatype
Cost_Price	Int
Sale_Price	Int

The following document is a sample from the collection, Music_Contents:

```
{
  "Name" : "Happy Birthday",
  "type" : ["Folk", "Traditional"],
  "Artist" : ["Patty Hill", "Mildred J. Hill", "Derek Underhill"],
  "Units" : 1000,
  "Price" : {
    "Cost_Price" : 1,
    "Sale_Price" : 3
  }
}
```

Create a mapping with a MongoDB source definition to read the records from the collection. Include a flat file target definition in the mapping so that the business intelligence tool can consume the data. Use a Filter transformation to remove the documents that have zero units.

The following figure shows the mapping:

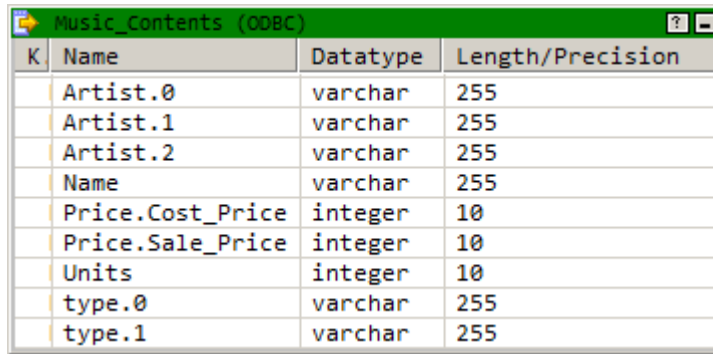


The MongoDB reader mapping contains the following components:

MongoDB ODBC source definition

Import the collection Store_Catalog as an ODBC source definition.

The following figure shows the source definition created from the collection:

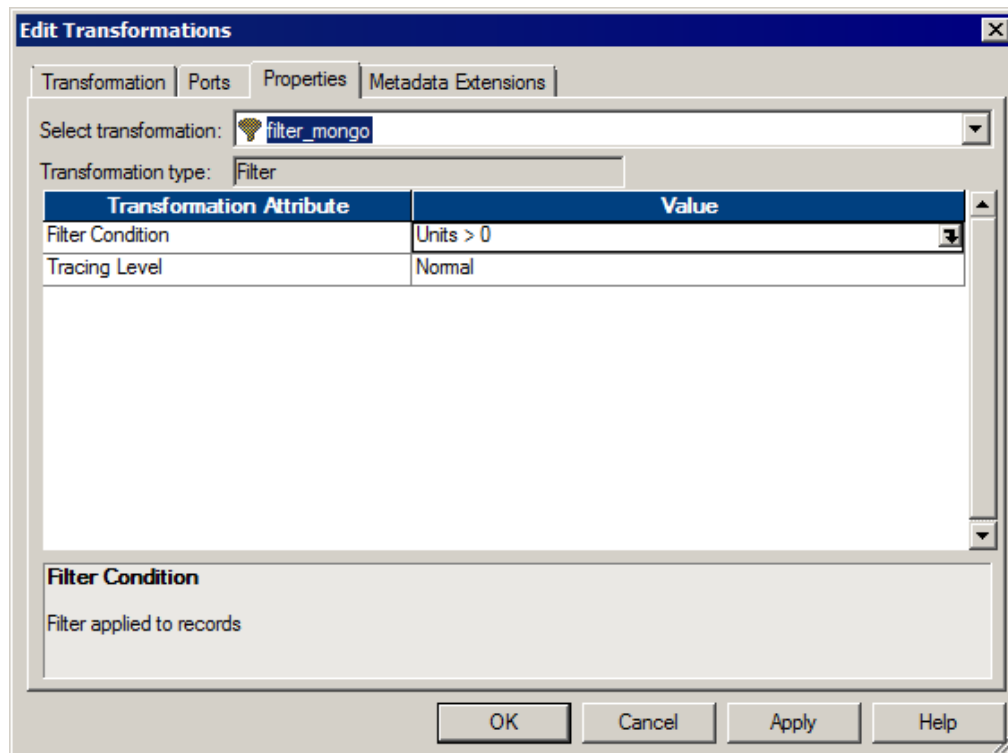


K	Name	Datatype	Length/Precision
	Artist.0	varchar	255
	Artist.1	varchar	255
	Artist.2	varchar	255
	Name	varchar	255
	Price.Cost_Price	integer	10
	Price.Sale_Price	integer	10
	Units	integer	10
	type.0	varchar	255
	type.1	varchar	255

Filter transformation

The filter transformation applies a filter on the Units field and writes those records that have one or more units in the Units field.

The following figure shows the filter transformation:



Flat file target definition

The flat file target definition, ff_BI_input, contains the same columns as in the MongoDB ODBC Source Definition.

CHAPTER 5

MongoDB Targets

This chapter includes the following topics:

- [MongoDB Targets Overview, 20](#)
- [Importing MongoDB Target Definitions, 20](#)
- [MongoDB Writer Sessions, 20](#)
- [Example: MongoDB Target Mapping, 21](#)

MongoDB Targets Overview

You can import a MongoDB collection as an ODBC target definition in the Designer. You must configure the ODBC driver and define the MongoDB schema before you import MongoDB collections. You can configure advanced write options in the ODBC driver configuration such as multiple row updates when you write data to MongoDB.

Importing MongoDB Target Definitions

To import a MongoDB target definition, click **Targets > Import from Database** in the Target Designer and select the MongoDB ODBC data source name that you created. You can select the required MongoDB collections and the Designer imports the MongoDB collections as an ODBC target definition.

MongoDB Writer Sessions

MongoDB writer sessions contain mappings that write data to a MongoDB database.

When you run a MongoDB writer session, the PowerCenter Integration Service uses the Informatica MongoDB ODBC data source to load data to the MongoDB database. The MongoDB writer sessions may fail or produce incorrect results if you enable pushdown optimization in the session properties. Set pushdown optimization as none if the session fails.

You can configure advanced write options for the Informatica MongoDB ODBC Driver in the ODBC driver properties.

You can configure the following write options in the ODBC driver properties:

Omit default null columns on insert

Drops columns with null values. Default is enabled.

Truncate documents larger than 16 MB

Truncates a document if the size is more than 16 MB in a writer session. MongoDB documents have a size restriction of 16 MB. If enabled, the PowerCenter Integration Service truncates the document that exceeds 16 MB when writing to MongoDB. If you disable the option when you run a write session, the PowerCenter Integration Service rejects the document that exceeds 16 MB. Default is disabled.

Enable Reading/Writing as JSON

Writes the JSON format of the data to the MongoDB document. If you select the option, a column with the field documentAsJSON appears in the collection when you write data to MongoDB. You cannot write into individual columns if you select this option. Default is disabled.

Enable updating multiple rows

Updates multiple rows in the MongoDB collection for every write operation. If there are multiple documents to update, the PowerCenter Integration Service updates multiple documents in the MongoDB collection for every write operation. If you clear this option and multiple documents require update, the PowerCenter Integration Service initiates write operation for each document update. Default is disabled.

Check GetLastError on writes

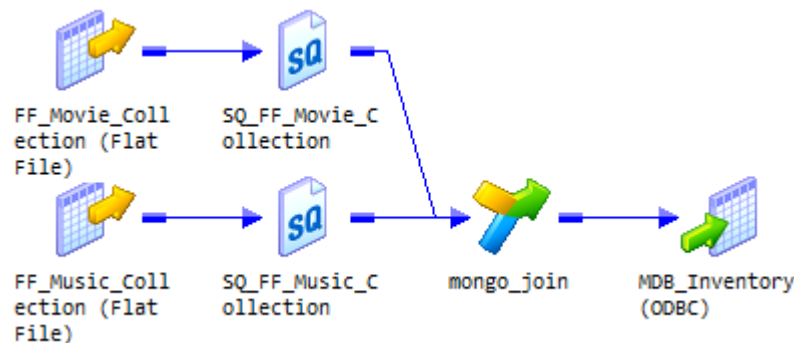
Calls the MongoDB CheckGetLastError() function to check for failures after each insert or update operation. Select this option to include fault tolerance in write operations. Clear this option to speed up the write operation. Default is enabled.

Example: MongoDB Target Mapping

A media store uses flat files with comma-separated values to store details of the store inventory with a unique flat file for each type of media. The file FF_Music_Collection stores the details of audio CDs and FF_Movies_Collection stores the details of movie DVDs and Blu-ray disks.

You want to use a MongoDB database to store all inventory details. Create a mapping with two flat file source definitions to read the records from the flat files. Include the MongoDB target definition to write data from the flat files. Use a Joiner transformation with full outer join on the common fields to combine data in the flat file sources before writing the data to MongoDB.

The following figure shows the mapping:



The mapping contains the following objects:

FF_Music_Data Source Definition

The following table describes the contents of FF_Music_Collection:

Field	Datatype
Name	String
Artist	String
Units	Integer
Cost Price	Integer
Sale Price	Integer

FF_Movies_Data Source Definition

The following table describes the contents of FF_Movies_Collection:

Field	Datatype
Name	String
Director	String
Artist1	String
Artist2	String
Type	String
Units	Integer
Cost Price	Integer
Sale Price	Integer

MDB_Inventory Target Definition

The collection MDB_Inventory stores audio CD information and movie disks information.

The following sample document shows an audio CD document in the collection:

```
{
  "Name" : "Happy Birthday",
  "Artist" : ["Patty Hill", "Mildred J. Hill", "Derek Underhill"],
  "Units" : 1000,
  "Price" : {
    "Cost_Price" : 1,
    "Sale_Price" : 3
  }
}
```

The following sample document shows a movie disk document in the collection:

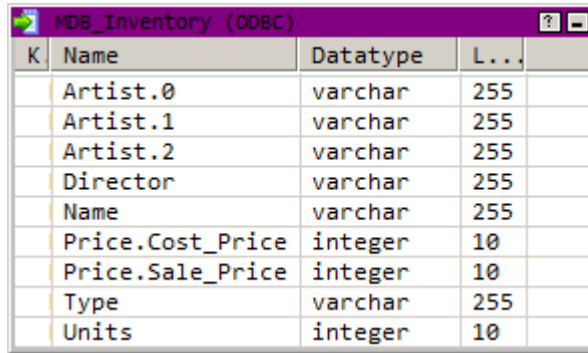
```
{
  "Name" : "City Lights",
  "Type" : "Blu-ray",
  "Director" : "Charlie Chaplin"
}
```

```

    "Artist" : ["Charle Chaplin", "Mildred J. Hill", "Derek Underhill"],
    "Units" : 1000,
    "Price" : {
        "Cost_Price" : 10,
        "Sale_Price" : 15
    }
}

```

The following figure shows the target definition that you import in the Designer:



K	Name	Datatype	L...
	Artist.0	varchar	255
	Artist.1	varchar	255
	Artist.2	varchar	255
	Director	varchar	255
	Name	varchar	255
	Price.Cost_Price	integer	10
	Price.Sale_Price	integer	10
	Type	varchar	255
	Units	integer	10

APPENDIX A

Datatype Reference

This appendix includes the following topic:

- [MongoDB, ODBC, and Transformation Datatypes, 24](#)

MongoDB, ODBC, and Transformation Datatypes

When you define the schema in the Informatica MongoDB ODBC driver, you can view the ODBC datatypes and edit the datatypes. When you import a MongoDB collection as a source or target definition, the transformation datatypes corresponding to the ODBC datatypes appear in the Designer .

The Informatica MongoDB ODBC driver reads MongoDB data and converts the MongoDB datatypes to ODBC datatypes. The PowerCenter Integration Service converts the ODBC datatypes to transformation datatypes.

The following table lists the MongoDB datatypes and the corresponding ODBC and transformation datatypes:

MongoDB Datatypes	ODBC Datatypes	Transformation Datatypes	Range and Description
String	Varchar	String	1 to 104,857,600 characters
Boolean	Bit	String	Precision of 1
NumberLong	BigInt	Decimal	Precision 1 to 28 digits, scale 0 to 28
NumberInt	Int	Integer	Precision 10, scale 0
NumberDouble	Double	Double	Precision 15
BinData	VarBinary	VarBinary	1 to 104,857,600 bytes
Date	Timestamp	Date/Time	Jan 1, 0001 A.D. to Dec 31, 9999 A.D. (precision to second)
jsOID	Varchar	String	1 to 104,857,600 characters

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