



Informatica® Cloud (Version Spring 2017)

DynamoDB Connector Guide

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Preface

The *Informatica Cloud DynamoDB Connector Guide* contains information about how to set up and use DynamoDB Connector. The guide explains how organization administrators and business users can use DynamoDB Connector to read data from and write data to DynamoDB tables.

Informatica Resources

Informatica Documentation

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CHAPTER 1

Introduction to DynamoDB Connector

This chapter includes the following topics:

- [DynamoDB Connector Overview, 7](#)
- [Administration of DynamoDB Connector, 8](#)
- [Rule and Guidelines for DynamoDB Objects, 8](#)

DynamoDB Connector Overview

You can use DynamoDB Connector to connect Informatica Cloud and DynamoDB tables. DynamoDB Connector enables you to read data from and write data to DynamoDB tables.

Amazon DynamoDB is a fully managed NoSQL database service that you can use to create database tables where you can store structured and unstructured data.

When you read data from or write data to DynamoDB tables, you can specify the Informatica Cloud Hosted Agent or the Informatica Cloud Secure Agent. Create a DynamoDB connection to specify the location of DynamoDB sources, lookups, and targets you want to include in a task. You can use the DynamoDB connection in data synchronization and mapping configuration tasks. Create a data synchronization task to synchronize data between a source and target. Create a mapping configuration task to process data based on the data flow logic defined in a mapping or integration template.

Example

You work in a marketing firm and business analysts in your organization need to analyze trends based on tweets on Twitter.

You use DynamoDB Connector to consolidate the tweets from different users and store the unstructured data in DynamoDB tables.

Administration of DynamoDB Connector

As a user, you can use DynamoDB Connector after the organization administrator performs the following tasks:

- Provide user access to the Secure Agent directory that contains the success and error files. This directory path must be the same on each Secure Agent machine in the runtime environment.
- Create an Access Key ID and Secret Access Key in AWS. You can provide these key values when you create a DynamoDB connection.

Create an Access Key ID and Secret Access Key

1. Log in to Amazon Web Services and navigate to the Security Credentials page.
2. Expand the **Access Keys** section, and click **Create New Access Key**.
3. Click the **Show Access Key** link.
4. Click **Download Key File** and save the file on the Secure Agent machine.

Rule and Guidelines for DynamoDB Objects

Consider the following rules and guidelines for DynamoDB objects when you configure source, target, and lookup objects in data synchronization or mapping configuration tasks:

- When you specify the create a DynamoDB target option in Data Synchronization tasks and mappings, ensure that the source object contains only one primary key. While creating the table, the Secure Agent uses the primary key as the hash key in the DynamoDB table.
- DynamoDB Connector parses only the first 100 rows in a DynamoDB table. In the Field Mapping tab, you can view and map the fields available in the first 100 rows with the source and target objects.
- You cannot change the precision or data type for fields in the DynamoDB tables.
- You can change the scale of numeric data type fields in DynamoDB tables.
- You cannot specify multi-valued attributes and document data types as DynamoDB objects.
- When there is more than one data partition in a DynamoDB table, the Secure Agent can read the tables in parallel.

CHAPTER 2

DynamoDB Connections

This chapter includes the following topics:

- [DynamoDB Connections Overview, 9](#)
- [DynamoDB Connection Properties, 9](#)

DynamoDB Connections Overview

DynamoDB connections enable you to read data from or write data to DynamoDB tables. You can use DynamoDB connections to specify sources and targets in data synchronization tasks and mapping configuration tasks.

Create a connection and associate it with a Data Synchronization Task, Mapping, or Mapping Configuration Task. Define the source and target properties to read data from or write data to DynamoDB tables.

You create a DynamoDB connection on the **Connections** page. Use the connection in the Mapping Designer when you create a mapping or in the Data Synchronization Task wizard when you create a task. You can specify the DynamoDB connection as source, target, or lookup in the data synchronization tasks and mappings.

DynamoDB Connection Properties

When you set up a DynamoDB connection, you must configure the connection properties.

The following table describes the DynamoDB connection properties:

Connection Property	Description
Runtime Environment	The name of the runtime environment where you want to run the tasks.
Access Key	The access key ID used to access the Amazon account resources. Note: Ensure that you have valid AWS credentials before you create a connection.

Connection Property	Description
Secret Key	The secret access key used to access the Amazon account resources. This value is associated with the access key and uniquely identifies the account.
Region	The AWS region associated with the account.

CHAPTER 3

Data Synchronization Tasks with DynamoDB Connector

This chapter includes the following topics:

- [DynamoDB Sources in Data Synchronization Tasks, 11](#)
- [DynamoDB Targets in Data Synchronization Tasks, 12](#)
- [DynamoDB Lookups in Data Synchronization Tasks, 13](#)
- [Data Synchronization Example, 14](#)

DynamoDB Sources in Data Synchronization Tasks

When you configure a data synchronization task to use a DynamoDB source, you can configure the source properties.

The source properties appear on the **Source** page of the Data Synchronization Task wizard when you specify a DynamoDB connection.

The following table describes the DynamoDB source properties:

Source Property	Description
Connection Type	Name of the source connection.
Source Type	Source type. Select Single for a single source object.
Source Object	Select the source object for the task.

You can also configure advanced source properties when you schedule the data synchronization task. Advanced source properties appear on the **Schedule** page of the Data Synchronization Task wizard.

The following table describes the DynamoDB advanced source properties:

Advanced Source Property	Description
Row Count	The maximum number of rows to read from the DynamoDB table.
Read Capacity Unit	The percentage increment of the read capacity unit. For DynamoDB Connector, a unit of read capacity represents two eventually consistent reads per second for items as large as 4 KB.

Read Capacity Unit

When you create or update a table, you can configure the provisioned throughput capacity using the read capacity unit for read operations. As your application data and access requirements change, you can increase or decrease your provisioned throughput by updating the read capacity unit.

DynamoDB Connector supports eventually consistent reads and not strongly consistent reads. For DynamoDB Connector, the read capacity unit represents the number of reads per second of items up to 8 KB in size per second. For example, if you specify 10 read capacity units, you are requesting a throughput of 10 eventually consistent reads per second of 8 KB for that table.

To modify the read capacity unit, specify a percentage increment of the read capacity unit when you configure the advanced source properties. For example, if the existing read capacity unit is 100, you can read 100 * 8 KB of data per second from a table. To increase the number of reads by 20%, specify a value of 20 in the Read Capacity Unit field. You can now read 120 * 8 KB of data per second, which is 20% of existing unit of read capacity plus existing unit of read capacity.

DynamoDB Targets in Data Synchronization Tasks

When you configure a data synchronization task to write to a DynamoDB target, you can configure the target properties.

The target properties appear on the Target page of the Data Synchronization Task wizard when you specify a DynamoDB connection.

The following table describes the DynamoDB target properties:

Source Property	Description
Connection Type	Name of the target connection.
Target Object	Specify the target object for the task.
Create Target	<p>Creates a target. Enter a name for the target object and select the source fields that you want to use. Default name is the source object name and by default, all source fields are used.</p> <p>The target name can contain alphanumeric characters and the period and the underscore special characters. It cannot begin with a numeric character.</p> <p>Note: You can create a target table only when the source table contains a single primary key.</p>

You can also configure advanced target properties when you schedule the data synchronization task. Advanced target properties appear on the **Schedule** page of the Data Synchronization Task wizard.

The following table describes the DynamoDB advanced target properties:

Advanced Target Property	Description
Write Capacity Unit	The percentage increment of the write capacity unit. A unit of write capacity represents one write per second for items as large as 1 KB. Note: When you create a table during the Data Synchronization task, the default unit of write capacity is 1.
Success File Directory	Directory for the success file. Specify a directory path that is available on each Secure Agent machine in the runtime environment. By default, Informatica Cloud writes the success file to the following directory: <code><Secure Agent installation directory>/apps/Data_Integration_Server/data/success</code>
Error File Directory	Directory for the error file. Specify a directory path that is available on each Secure Agent machine in the runtime environment. By default, Informatica Cloud writes the error file to the following directory: <code><Secure Agent installation directory>/apps/Data_Integration_Server/data/error</code>

Write Capacity Unit

When you create or update a table, you can specify the provisioned throughput capacity using the write capacity unit for write operations. As your application data and access requirements change, you can increase or decrease your provisioned throughput by updating the write capacity unit.

A unit of write capacity represents one write per second for items as large as 1 KB. For example, if you specify 10 write capacity units, you are requesting a throughput of 10 writes per second of 1 KB size per second for that table.

To modify the write capacity unit, specify a percentage increment of the write capacity unit when you configure the advanced target properties. For example, if the existing write capacity unit is 100, you can write 1 KB of data per second to a table. To increase the number of writes by 20%, specify a value of 20 in the Write Capacity Unit field. You can now write 120 KB of data per second, which is 20% of existing unit of write capacity unit plus existing unit of write capacity.

DynamoDB Lookups in Data Synchronization Tasks

When you configure field mappings in a data synchronization task, you can create a lookup to a DynamoDB object.

When you use a DynamoDB object as a lookup, you do not need to configure specific DynamoDB properties.

Data Synchronization Example

You work in a marketing firm and business analysts in your organization need to analyze trends based on tweets on Twitter.

You use DynamoDB Connector to consolidate the tweets from various users and store the unstructured data in DynamoDB tables.

Configure a data synchronization task to consolidate the tweets based on username and store them in an existing DynamoDB table.

You perform the following data synchronization tasks:

Define the data synchronization task.

Configure a data synchronization task to use the upsert operation.

Create a Twitter source object.

The source for the mapping is a Twitter object that contains the tweet details. The Twitter object is a single source in the data synchronization task. The Twitter object includes the *TweetId*, *UserName*, and *Tweet* source columns. Specify *Tweets* as the resource for the source object.

Create a DynamoDB target object.

The target for the mapping is a DynamoDB table. The DynamoDB object includes the *UserName* and *AllTweets* target columns. Provide a name *test_twitter* for the target object and specify the connection type as DynamoDB.

Specify a data filter for the Twitter source object.

Define a data filter for the Tweets source object. For example, you can filter by `NoneOfTheseWords Equals 'Watch'`.

Configure a field mapping.

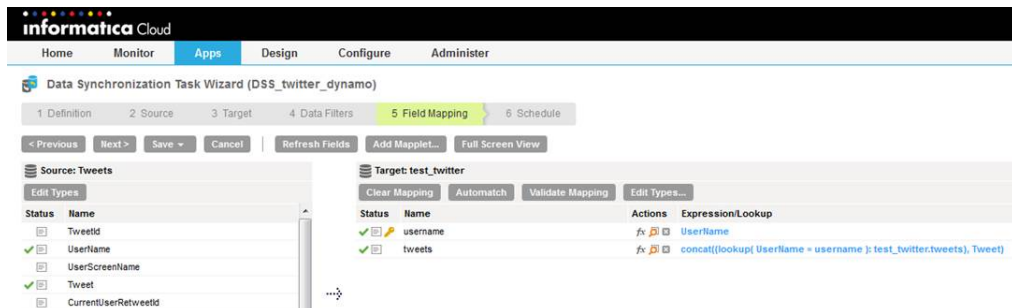
Map the fields under *Tweets* source data to the fields in the *test_twitter* target object.

To consolidate the tweets based on user name, enter the following lookup expression:

```
concat((lookup( UserName=username ):test_twitter.tweets), Tweet
```

When you run the task, the Data Synchronization application writes the mapped source data to the target DynamoDB table.

The following image shows the mapping of the *Tweets* source with the *test_twitter* target:



CHAPTER 4

Mappings and Mapping Configuration Tasks with DynamoDB

This chapter includes the following topics:

- [DynamoDB Sources in Mappings, 15](#)
- [DynamoDB Targets in Mappings, 16](#)
- [DynamoDB Lookups in Mappings, 17](#)

DynamoDB Sources in Mappings

To read data from a DynamoDB table, configure a DynamoDB object as the Source transformation in a mapping.

Specify the name and description of the DynamoDB source. Configure the source and advanced properties for the source object.

The following table describes the source properties that you can configure in a Source transformation:

Property	Description
Connection Name	Name of the source connection.
Source Type	Source type. Select one of the following types: <ul style="list-style-type: none">- Single Object.- Parameter. Select Parameter to define the source type when you configure the mapping configuration task.
Source Object	Source object for the mapping.

The following table describes the advanced source properties that you can configure in a Source transformation:

Advanced Property	Description
Row Count	The maximum number of rows to retrieve from a DynamoDB table.
Read Capacity Unit	The percentage increment of the read capacity unit.
Tracing Level	Sets the amount of detail that appears in the log file. You can choose terse, normal, verbose initialization or verbose data. Default is normal.

DynamoDB Targets in Mappings

To write data to a DynamoDB table, configure a DynamoDB object as the Target transformation in a mapping.

Specify the name and description of the DynamoDB target. Configure the target and advanced properties for the target object.

The following table describes the target properties that you can configure in a Target transformation:

Property	Description
Connection	Name of the target connection.
Target Type	Target type. Select one of the following target types: <ul style="list-style-type: none"> - Single Object. - Parameter. Select Parameter to define the target type when you configure the task.
Object	Name of the target object.
Operation	Target operation. Select one of the following operations: <ul style="list-style-type: none"> - Insert. - Update. - Upsert. - Delete. - Data Driven. Configure an expression to specify an update strategy based on the data. You can use one of the following constants in an expression: <ul style="list-style-type: none"> - DD_INSERT - DD_UPDATE - DD_REJECT - DD_DELETE <p>Note: If you use the Data Driven operation, you cannot upsert.</p>

The following table describes the advanced target properties that you can configure in a Target transformation:

Property	Description
Write Capacity Unit	The percentage increment of the write capacity unit.
Success File Directory	Directory for the success file. Specify a directory path that is available on each Secure Agent machine in the runtime environment. By default, Informatica Cloud writes the success file to the following directory: <Secure Agent installation directory>/apps/Data_Integration_Server/data/success
Error File Directory	Directory for the error file. Specify a directory path that is available on each Secure Agent machine in the runtime environment. By default, Informatica Cloud writes the error file to the following directory: <Secure Agent installation directory>/apps/Data_Integration_Server/data/error
Forward Rejected Rows	Determines whether the transformation passes rejected rows to the next transformation or drops rejected rows. By default, the Mapping Configuration application forwards rejected rows to the next transformation.

DynamoDB Lookups in Mappings

In a mapping, you can configure a Lookup transformation to represent a DynamoDB object.

When you use a DynamoDB object as a lookup, you do not need to configure specific DynamoDB properties.

APPENDIX A

DynamoDB Data Type Reference

This appendix includes the following topics:

- [DynamoDB Data Type Reference Overview, 18](#)
- [DynamoDB and Transformation Data Types, 18](#)

DynamoDB Data Type Reference Overview

Informatica Cloud uses the following data types in mappings, data synchronization tasks, and mapping configuration tasks with DynamoDB:

DynamoDB native data types

DynamoDB data types appear in the Fields tab for Source and Target transformations when you choose to edit metadata for the fields.

Transformation data types

Set of data types that appear in the remaining transformations. They are internal data types based on ANSI SQL-92 generic data types, which Informatica Cloud uses to move data across platforms.

Transformation data types appear in all remaining transformations in a mapping, data synchronization task, or mapping configuration task.

When Informatica Cloud reads source data, it converts the native data types to the comparable transformation data types before transforming the data. When Informatica Cloud writes to a target, it converts the transformation data types to the comparable native data types.

DynamoDB and Transformation Data Types

The following table lists the DynamoDB data types that Informatica Cloud supports and the corresponding transformation data types:

DynamoDB Native Data Type	Transformation Data Type	Description
Number	Decimal	Precision 1 to 28, scale 0 to 28
String	Varchar	1 to 104,857,600 characters

DynamoDB Native Data Type	Transformation Data Type	Description
Boolean	Small Integer	Precision 5, scale 0
Binary	Binary	1 to 104,857,600 bytes

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