



Informatica® Data Integration - Free & PayGo

Salesforce Connector

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Preface

Use *Salesforce Connector* to learn how to read from Salesforce. Learn to create a Salesforce connection, develop and run mappings, mapping tasks, and data transfer tasks in Data Integration.

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CHAPTER 1

Introduction to Salesforce Connector

You can use Salesforce Connector to securely read data from Salesforce.

Salesforce is a cloud-based Customer Relationship Management (CRM) solution for sales teams to manage contacts and sales activities. You can use Salesforce to store and manage contacts and data of the sales activities for your organization.

You can use Salesforce connections in any Data Integration task. You can create a connection to any type of Salesforce account. You can create connections to the following Salesforce editions:

- Professional Edition
- Enterprise Edition
- Unlimited Edition

Salesforce sources represent objects in the Salesforce object model. Salesforce objects are tables that correspond to tabs and other user interface elements on the Salesforce website. For example, the Account object contains the information that appears in fields on the Salesforce Account tab. Salesforce Connector supports big objects for source transformations. Big objects are not supported for lookup and filter transformations.

Use a Salesforce connection in mappings and mapping tasks.

You can create an OAuth type connection to allow access to Salesforce.com through its API. OAuth is a standard protocol that allows for secure API authorization. One of the benefits of OAuth is that users do not need to disclose their Salesforce credentials and the Salesforce administrator can revoke the consumer's access at any time.

Salesforce Connector assets

Create assets in Data Integration to integrate data using Salesforce Connector.

When you use Salesforce Connector, you can include the following Data Integration assets:

- Data transfer task
- Mapping
- Mapping task

*You cannot configure a Lookup transformation in a data transfer task.

For more information about configuring assets and transformations, see *Mappings, Transformations, and Tasks* in the Data Integration documentation.

Salesforce Connector example

Your organization might need to migrate real-time sales opportunity information from a Salesforce system to an external system. You can use Salesforce Connector to extract data from a Salesforce system. The executive management team can use the external system to reconcile and analyze the data, generate report, or make decisions.

Salesforce Connector helps in rapidly synchronizing business critical data including accounts, contacts, prices, products from the applications in your organization with other key applications or databases. Sales, marketing, or any other team can move data from Salesforce to any other database or external systems so as to generate reports for easier decision making.

CHAPTER 2

Administration of Salesforce Connector

Before you create a connection and run assets with Salesforce Connector, complete the prerequisites.

Firewall configuration for Salesforce

If your organization passes data through a firewall, you must configure the firewall to allow access to Salesforce.

If you cannot connect to Salesforce servers, you might receive connection errors when running Salesforce tasks. If you receive a connection error, contact your network administrator to allow access to Salesforce servers.

For more information, see the article, ["Firewall Rule for Informatica Cloud"](#).

Note: IP addresses for Salesforce servers might change. For the latest information about the server IP addresses of Salesforce, see the Salesforce documentation.

License type for Salesforce

Licenses determine the Data Integration subscription level for the organization and provide access to Data Integration tasks, features, connectors, and bundles. You need a feature license for Salesforce connectivity.

As an administrator, you review feature license type set up for your company, monitor job activities to see how usage aligns with feature license subscription, and manage feature license expiration.

CHAPTER 3

Salesforce connections

Use a Salesforce connection to access objects in a Salesforce application.

You can use Salesforce connections in mappings and mapping tasks. Create a connection to preview data, and run tasks. When you create a Salesforce connection, specify the user name, password, and security token for the Salesforce account. You can also append the Salesforce security token to the password to connect to the Salesforce account.

By default, Salesforce connections for the new organizations use version 57.0 of the Salesforce API. You can edit the existing Salesforce connections or create new connections to use any version up to 57.0 of the Salesforce API.

Security tokens and trusted IP ranges

Most Salesforce accounts require authentication to access the account. When you create a Salesforce connection, you can enter the security token or the OAuth access token. If your account requires a security token and you do not have one, you can generate or reset a security token. After you log in on the Salesforce web site, click **Setup > My Personal Information > Reset My Security Token**.

To avoid adding the security token to a Salesforce connection, you can add Data Integration IP addresses to the Trusted IP Ranges in your Salesforce account. On the Salesforce web site, click **Setup > Security Controls > Network Access**, and then add the following IP addresses:

- Data Integration. Add the Data Integration Secure Agent IP address ranges.
For the IP address ranges used by the Secure Agent, see the following article:
["Secure Agent IP Address Ranges"](#).
- Secure Agent machines: Add individual IP addresses or range of all machines that run a Secure Agent.

For more information, see the Salesforce documentation.

Salesforce connection properties

When you set up a Salesforce connection, configure the connection properties.

The following table describes the Salesforce connection properties:

Property	Description
Connection Name	Name of the connection. Each connection name must be unique within the organization. Connection names can contain alphanumeric characters, spaces, and the following special characters: _ . + -, Maximum length is 255 characters.
Description	Description of the connection. Maximum length is 4000 characters.
Type	The Salesforce connection type.
Runtime Environment	The name of the runtime environment where you want to run the tasks. Specify a Secure Agent or a Hosted Agent.
Salesforce Connection Type	The type of Salesforce connection. You can select Standard or OAuth connection. Important: Informatica recommends you to use OAuth authentication to securely connect to Salesforce. When you use OAuth authentication, use OAuth 2.0.

The following table lists the connection properties for a standard connection type:

Property	Description
User Name	User name for the Salesforce account.
Password	Password for the Salesforce account.
Security Token	Security token generated from the Salesforce application.
Service URL	URL of the Salesforce service. For example: <code>https://login.salesforce.com/services/Soap/u/57.0</code> When you edit the service URL for an existing standard connection, you must re-enter the password and security token. Maximum length is 100 characters.
Bypass proxy server settings defined for the Secure Agent	Bypass the proxy server settings defined in the Secure Agent Manager for the Secure Agent. When you bypass the proxy server settings, you use a direct connection to Salesforce.

The following table lists the properties for an OAuth connection type:

Property	Description
OAuth Consumer Key	The consumer key that you get from Salesforce, which is required to generate a valid refresh token.
OAuth Consumer Secret	The consumer secret that you get from Salesforce, which is required to generate a valid refresh token.

Property	Description
OAuth Refresh Token	The refresh token generated in Salesforce using the consumer key and consumer secret.
Service URL	<p>URL of the Salesforce service endpoint.</p> <p>For example: https://login.salesforce.com/services/Soap/u/57.0</p> <p>When you edit the service URL for an existing OAuth connection, you must re-enter the consumer key, consumer secret, and refresh token.</p> <p>Maximum length is 100 characters.</p>

You can configure the following Salesforce-specific properties under the Secure Agent configuration properties:

Property	Type	Description
SalesForceConnectionTimeout	DTM	Number of seconds that the Salesforce web service requests to wait before it times out.

Generating the OAuth refresh token

You can create an OAuth type connection to access Salesforce through the Salesforce API. OAuth is a standard protocol that allows for secure API authorization. The users do not need to disclose their Salesforce credentials and the Salesforce administrator can revoke the consumer's access at any time.

Perform the following steps to generate the OAuth refresh token:

1. Download the utility from the following link to generate the OAuth refresh token:
https://marketplace.informatica.com/listings/cloud/solutions/sfdc_oauth_tool_for_powercenter_10_2_0_hotfix_1.html
2. Once the utility is downloaded, extract the `OAuth.zip` file.
3. Go to `oauth\conf` folder, open the `server.xml` file, and update the `mystore.jks` file path to the one on your system.
Save and close the file.
4. Go to `~\oauth\bin` and run the command `catalina.bat start`.
5. Go to `http://localhost:8090/salesforce` from the browser.
6. Enter your Salesforce username and password to log in.
7. Enter the **Client Id** (OAuth Consumer Key) and **Client Secret Key** (OAuth Consumer Secret) and then click **Submit**.

The OAuth refresh token is generated.

CHAPTER 4

Mappings and mapping tasks with Salesforce

When you configure a mapping, you describe the flow of data from the source to the target.

A mapping defines reusable data flow logic that you can use in mapping tasks. When you create a mapping, you define the Source and Lookup transformations to represent a Salesforce object. Use the Mapping Designer in Data Integration to add the Source or Lookup transformations in the mapping canvas and configure the Salesforce source and lookup properties.

You can define the following objects in the mapping:

- Salesforce data object read operation as the input to read data from Salesforce metadata.
- A flat file, relational, or any supported data object as the output.

Salesforce objects in mappings

When you create a mapping, you can configure a Source transformation to represent a Salesforce object.

Salesforce sources in mappings

In a mapping, you can configure a Source transformation to represent a single Salesforce source or multiple Salesforce sources.

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

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

Property	Description
Connection	Name of the source connection.
Source Type	Type of the source object. Select Single Object, Multiple Objects, or Parameter.
Object	Name of the source object for the mapping. You can specify a custom query for a source object.

Property	Description
Filter	Adds conditions to filter records. Configure a simple or an advanced filter. You cannot use the LIMIT clause in an advanced filter. To limit the number of rows, specify the row limit in the advanced source properties.
Sort	Not applicable for a Salesforce connection.
Include archived and deleted rows in the source	Includes archived and deleted source rows. By default, the agent returns active rows.

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

Advanced Property	Description
Row Limit	The maximum number of rows the agent processes. Select All Rows to process all records, or Specify number of rows to process specific number of rows.
Salesforce API	Salesforce API to read source data. Select one of the following options: <ul style="list-style-type: none"> - Standard API - Bulk API - Bulk API 2.0 You must use an OAuth connection if you select the Bulk API 2.0 option to read data.
Enable PK Chunking	Select to enable the primary key chunking. When you enable primary key chunking, the Bulk API splits the data set into multiple chunks based on the record ID and creates extract queries for each chunk. Doesn't apply to Salesforce Bulk API 2.0.
PK Chunking Size	The size of data in a chunk or batch size. For example, if you want to upload a 10 MB file, you can upload the file in fragments, that is, 1MB at a time. When you mention 1MB as the chunk size, 1 MB of data is transferred at a time until the complete transfer takes place.
PK Chunking startRow ID	The row ID from where the chunking starts.
SOQL Filter Condition	SOQL condition to filter source data. You cannot use the LIMIT clause in the filter condition. To limit the number of rows, specify the row limit in the advanced source properties. If you configure the filter under Salesforce source properties as well as the SOQL Filter Condition, then the SOQL Filter Condition overrides the filter under Salesforce source properties.
Maximum Rows Per Request	The maximum number of records to retrieve per set of results for the query. The request is still subject to the size limits. Default is 0. Applies to Salesforce Bulk API 2.0 only.
Tracing Level	Amount of detail that appears in the log for this transformation. You can choose terse, normal, verbose initialization, or verbose data. Default is normal.

Salesforce lookup objects in mappings

You can retrieve data from a Salesforce lookup object based on the specified lookup condition.

When you configure a lookup in Salesforce, you select the lookup connection and lookup object. You also define the behavior when a lookup condition returns more than one match.

Note: Salesforce lookup works only with the Salesforce Standard API.

For an uncached lookup, you cannot configure logical operators, such as <, >, <=, and >= in the lookup condition.

The following table describes the Salesforce lookup object properties that you can configure in a Lookup transformation:

Lookup Object Properties	Description
Connection	Name of the lookup connection.
Source Type	Type of the source object. Select Single Object or Parameter.
Lookup Object	Name of the lookup object for the mapping.
Multiple Matches	Behavior when the lookup condition returns multiple matches. You can return first row, last row, any row, all rows, or report an error. If you choose all rows and there are multiple matches, the Lookup transformation is an active transformation. If you choose any row, the first row, or the last row and there are multiple matches, the Lookup transformation is a passive transformation.

The Data Integration service uses case sensitive approach when performing lookups. For Salesforce lookups, the case sensitive comparison depends on the Salesforce support.

Salesforce objects in mapping tasks

When you configure a mapping task, you can configure advanced properties for Salesforce sources.

Salesforce lookup objects in mapping tasks

For Salesforce lookup connections used in mapping tasks, you can configure advanced properties in the Other Parameters page of the Mapping Task wizard.

The following table describes the Salesforce lookup object properties that you can configure in a Lookup transformation:

Lookup Object Properties	Description
Connection	Name of the lookup connection.
Lookup Object	Name of the lookup object for the mapping.
Display technical names instead of labels	Displays technical names instead of business names.
Display lookup fields in alphabetical order	Displays lookup fields in alphabetical order instead of the order returned by the source system.

Custom query source type

You can use a custom query as a source object when you use a Salesforce connection.

You can use a custom query as the source when a source object is large. The custom query helps reduce the number of fields that enter the data flow. You can also create a parameter for the source type when you design your mapping so that you can define the query in the Mapping Task wizard.

To use a custom query as a source, select Query as the source type when you configure the Source transformation and then use a valid and supported SOQL to define the query.

Supported SOQL for Custom Queries

Custom queries must be valid and cannot include SOQL statements that Data Integration does not support. Data Integration supports the following SOQL statements and syntax for custom queries:

SOQL Feature	Examples
SELECT ID from Account	<code>SELECT Id from Account</code>
SELECT ID and Name from Account	<code>SELECT Id, Name from Account</code>
Fully qualified names	<code>SELECT Account.Id, Account.Name from Account</code>
Filters	<code>SELECT Account.Name ,Account.NumberOfEmployees, Account.SLAExpirationDate__c ,Account.utf_filter__c, Account.Datetimefld__c FROM Account Where ((utf_filter__c LIKE '%UTFDSS %'))</code>
Complex filters	<code>SELECT Account.Name, Account.NumberOfEmployees, Account.SLAExpirationDate__c, Account.utf_filter__c, Account.Datetimefld__c FROM Account Where (((utf_filter__c LIKE '%UTFDSS %') AND Name IS NOT Null) OR AnnualRevenue > 567)</code>
GROUP BY	<code>SELECT LeadSource FROM Lead GROUP BY LeadSource</code>

SOQL Feature	Examples
Aggregate functions and GROUP BY	SELECT Name, Max(CreatedDate) FROM Account GROUP BY NameLIMIT 5 SELECTCampaignId,AVG(Amount)FROMOpportunityGROUP BY CampaignId SELECT COUNT(Id) FROM Account WHERE Name LIKE 'a%'
HAVING	SELECT LeadSource, COUNT(Name) FROM Lead GROUP BY LeadSource HAVING COUNT(Name) > 100
IN	SELECT Name FROM Account WHERE BillingState IN ('California', 'New York')
NOT IN	SELECT Name FROM Account WHERE BillingState NOT IN ('California', 'NewYork')
ORDER BY	SELECT Name FROM Account ORDER BY Name DESC NULLS LAST SELECT Id, CaseNumber,Account.Id,Account.NameFROMCaseORDER BY Account.Name
OFFSET	SELECT Name FROM Merchandise__c WHERE Price__c > 5.0 ORDER BY Name LIMIT 100 OFFSET 10
ROLLUP	SELECT LeadSource, COUNT(Name) cnt FROMLeadGROUP BY ROLLUP(LeadSource)
TYPEOF	SELECT TYPEOF What WHEN Account THEN Phone ELSE Name END FROM EventWHERECreatedById IN (SELECTCreatedByIdFROMCase)
Aliases	SELECT Name n, MAX(Amount) max FROM Opportunity GROUP BY Name
Date functions	SELECT CALENDAR_YEAR(CreatedDate), SUM(Amount) FROM Opportunity GROUP BY CALENDAR_YEAR(CreatedDate)
Date literals	SELECT Id FROM Account WHERE CreatedDate = YESTERDAY SELECT Id, CaseNumber,Account.Id,Account.NameFROMCaseORDER BY Account.Name
Multi-currency	SELECT Id, convertCurrency(AnnualRevenue) FROM Account SELECT Id, NameFROMOpportunityWHEREAmount > USD5000
Operators	SELECT Id FROMAccountWHERECreatedDate > 2005-10-08T01:02:03Z
Semi-joins	SELECT Id, NameFROMAccountWHERE Id IN (SELECTAccountIdFROM OpportunityWHEREStageName = 'ClosedLost')
Reference fields in semi-joins	SELECT Id FROM Task WHERE WhoId IN (SELECT Id FROM Contact WHERE MailingCity = 'Twin Falls')
Relationship queries in semi-joins	SELECT Id, (SELECT Id fromOpportunityLineItems)FROM Opportunity WHERE Id IN (SELECT OpportunityId FROM OpportunityLineItem WHERE totalPrice > 10000)
Parent-child relationship queries	SELECT Name, (SELECT LastName FROM Contacts) FROM Account SELECT Account.Name, (SELECT Contact.LastName FROM Account.Contacts) FROM Account SELECT Name, (SELECT Name FROM Line_Items__r) FROM Merchandise__c WHERE Name LIKE 'Acme%' SELECT Id, Name,(SELECT Id, NameFROMAlldatatypeDetail__r) FROM AllDatatypes__c

SOQL Feature	Examples
Child-parent relationship queries	<pre>SELECT Id, FirstName__c, Mother_of_Child__r.FirstName__c FROM Daughter__c WHERE Mother_of_Child__r.LastName__c LIKE 'C%' Select Id, IsDeleted, Name, LastViewedDate, LastReferencedDate, AllDatatypes_md__c, AllDatatypes_md__r.Name from AlldatatypeDetail__c</pre>
Relationship queries with aggregate functions	<pre>SELECT Name, (SELECT CreatedBy.Name FROM Notes) FROM Account SELECT Amount, Id, Name, (SELECT Quantity, ListPrice, PricebookEntry.UnitPrice, PricebookEntry.Name FROM OpportunityLineItems) FROM Opportunity</pre>

You cannot use complex relationship queries, for example:

```
SELECT task.account.name, task.who.name, task.activitydate, task.account.annualrevenue FROM
task WHERE task.activitydate <= TODAY AND task.who.type = 'Contact' ORDER BY
task.account.annualrevenue DESC
```

Rules and Guidelines for Salesforce Custom Queries

Use the following rules and guidelines when you use a custom query as a source:

- You can use a custom query as a source when you use the Salesforce Standard API, Salesforce Bulk API, and Bulk API 2.0.
- If you configure the SOQL filter condition under advanced properties, then the custom query overrides the SOQL filter condition.
- You can use custom objects with any data type in a custom query.
- You can use expressions with custom query fields.
- You can configure field data types for a custom query source.
- You can use a custom query as a source in a scheduled task.

Salesforce Bulk API in mappings and mapping tasks

You can use the Salesforce Bulk API and Bulk API 2.0 to read data from Salesforce sources. Use the Bulk job to process large amounts of Salesforce data while generating a minimal number of API calls.

When you use the Salesforce Bulk API, Salesforce restricts the size of each batch to 10 MB of data or 10,000 records in CSV format. For example, if you want to read 10 million records, the records are split into 1000 batches and each batch contains 10000 records. If the size of the 10000 records exceeds 10 MB, the batches are split based on the size instead of the number of records.

For Bulk API 2.0, you can process 100 million rows of data in a 24 hour period. Automatic batching of files occur at the Salesforce end without any customer intervention.

Note: Use API version 50 and above for all the Salesforce Bulk 2.0 operations on the Salesforce connector.

Enable primary key chunking

When you use the Bulk API to extract data from Salesforce, you can enable primary key chunking. By default, the Bulk API does not use primary key chunking.

When you enable primary key chunking in a mapping, the Bulk API splits the data set into multiple chunks based on the record ID and creates extract queries for each chunk. The Bulk API combines the data when all the extract queries are complete.

Salesforce supports primary key chunking for custom objects and certain standard objects. Bulk API 2.0 does not support PK Chunking during a mapping since automatic file batching occurs at the Salesforce end. For more information about objects that support primary key chunking, see the Salesforce documentation.

Note: You can enable primary key chunking when your Salesforce connection uses version 32 or higher of the Salesforce API. The default chunk size is 100000.

CHAPTER 5

Common configuration

You can perform the following configuration procedures that are common to mapping tasks :

- Searching objects
- Displaying business name
- Creating data filter

Object search and selection

In Salesforce connections, you can search for the object or objects that you want to use. You can search for objects in mappings and task wizards.

You can select the following search parameters when you use a Salesforce connection:

- Name
- Label

Display business names

Salesforce connection displays business names for field names in the listed task types. You can configure tasks to display technical names instead of business names with the **Display technical field names instead of labels** option.

Data filters

When you use a Salesforce connection, you can create the following type of data filters for any type of task:

- Simple
Create one or more simple data filters. When you create multiple simple data filters, the associated task creates an AND operator between the filters and loads rows that apply to all simple data filters. For example, you load rows from the Account Salesforce object to a database table. However, you want to

load only accounts that have greater than or equal to \$100,000 in annual revenue and that have more than 500 employees. You configure the following simple data filters:

Field	Operator	Field Value
AnnualRevenue	greater than or equals	100000
NumberOfEmployees	greater than	500

- **Advanced**

Create an advanced data filter to create complex expressions that use AND, OR, or nested conditions. You enter one expression that contains all filters. The expression that you enter becomes the WHERE clause in the query used to retrieve records from the source.

For example, you load rows from the Account Salesforce object to a database table. However, you want to load records where the billing state is California or New York and the annual revenue is greater than or equal to \$100,000. You configure the following advanced filter expression:

```
(BillingState = 'CA' OR BillingState = 'NY') AND (AnnualRevenue >= 100000)
```

When you create a data filter on a Salesforce object, the corresponding task generates a SOQL query with a WHERE clause. The WHERE clause represents the data filter. The SOQL query must be less than 20,000 characters. If the query exceeds the character limit, the following error appears:

```
Salesforce SOQL limit of 5000 characters has been exceeded for the object:
<Salesforce object>.
Please exclude more fields or decrease the filters.
```

Rules and guidelines for data filters

Consider the following rules and guidelines for data filters for Salesforce Connector tasks:

- Salesforce fields of LongTextArea datatype do not show up in the list of fields of a simple data filter.
- When you include a Salesforce field of URL datatype, exclude "http://" from the value. For example, if the value is http://www.informatica.com, enter www.informatica.com.
- When you include a Salesforce field with the Phone datatype, enter a value with the following syntax (XXX) XXX-XXXX. For example, enter (555) 555-1212. If you provide an incorrect syntax, the application ignores the filter.
- When you include a Salesforce ID field in a filter, enter the exact ID value. If you enter a dummy ID value, the SOQL query fails.

CHAPTER 6

Troubleshooting

Use the following sections to troubleshoot errors in Salesforce Connector. For a list of common error messages and possible solutions, see the article, ["Troubleshooting: Common Error Messages"](#).

Troubleshooting a Salesforce connection

The solution to the following situation might help you troubleshoot Salesforce connections:

The connection fails to connect to a Salesforce account.

You may have to enter a Salesforce security token in the Salesforce connection details. If the security token is required and the Security Token field in the Salesforce connection is empty or invalid, the following error message appears when you test or create the connection:

```
The login to Salesforce.com failed with the following message -  
LOGIN_MUST_USE_SECURITY_TOKEN:
```

Go to the Salesforce web site to obtain the security token. To avoid adding the security token to connection details, you can also add Data Integration IP addresses to Trusted IP Ranges in your Salesforce account. For more information, see ["Security tokens and trusted IP ranges" on page 10](#). You can find additional information with in the Informatica How-To Library article: Activating IP Addresses for Salesforce Connections.

Troubleshooting a mapping task

The error file for the mapping task is empty.

When you run a mapping task and if the task fails, the error file that you download from My Jobs page is empty.

You can access the error file from the following directory:

```
Informatica Cloud Secure Agent/apps/Data_Integration_Server/data/error
```

The tasks fail with [ERROR] java.lang.OutOfMemoryError: Java heap space for Salesforce Bulk API 2.0.

Increase the java heap size on the Secure Agent machine and run the tasks again. For more information, see the following knowledge base article: [KB 336913](#)

Troubleshooting a bulk job

If you use Salesforce Bulk API 2.0 to read data, you might experience slower performance than when you read data using Salesforce Bulk API.

To know the behavior of Salesforce Bulk API 2.0, see the Salesforce documentation.

Unfinished batches in a bulk job due to Salesforce session timeout

When you run a task in bulk mode and the Salesforce session times out, there may be unfinished batches in the job.

To resolve this issue, you can enable a rerun for unfinished batches and limit the batch processing time.

Perform the following steps to enable rerun for unfinished batches:

1. Log in to Informatica Cloud and select the **Administrator** service.
2. Click **Runtime Environments**.
3. Select the runtime environment that contains the Secure Agent that you have used to run the task.
4. Click **Edit**.
5. Under **System Configuration Details**, configure the following fields:
 - Service: Data Integration Server
 - Type: DTMThe list of DTM services is displayed.
6. Click **Edit Agent Configuration** for any one of the JVM Options. For Example, JVMOption1.
7. Set the value of the JVM option to `-DSFDCDisableBatchRetry=false`.
 - True - Unfinished batches in the job are not retried.
 - False - Unfinished batches in the job are retried the standard number of times, which is 15 for bulk queries and 10 for bulk uploads.
8. Click **Save**.

After you save the changes, the Secure Agent restarts automatically.

APPENDIX A

Data type reference

Data Integration uses the following data types in mappings and mapping tasks with Salesforce:

- **Salesforce Native Data Types**
Salesforce data types appear in the Source transformations when you choose to edit metadata for the fields.
- **Transformation Data Types**
Transformation data types are the set of data types that appear in the transformations. Transformation data types are internal data types based on ANSI SQL-92 generic data types, which Data Integration uses to move data across platforms. Transformation data types appear in all transformations in Mappings and mapping tasks.

When Data Integration reads source data, Data Integration converts the native data types to the comparable transformation data types before transforming the data.

Salesforce datatypes and transformation datatypes

The following table lists the Salesforce datatypes that Data Integration supports and the corresponding transformation datatypes:

Salesforce Datatype	Transformation Datatype	Description
AnyType	String	Polymorphic data type that returns string, picklist, reference, boolean, currency, integer, double, percent, ID, date, datetime, URL, or email data.
Base64	String	Base64 encoded binary data.
Boolean	Integer	Boolean (true/false) values.
Combobox	String	Enumerated values.
Currency	Decimal	Currency values.
DataCategoryGroupReference	String	Types of category groups and unique category names.
Date	Date/Time	Date values.
DateTime	Date/Time	Date and time values.

Salesforce Datatype	Transformation Datatype	Description
Double	Decimal	Double values.
Email	String	Email addresses.
Encrypted String	String	Encrypted text fields contain any combination of letters, numbers, or symbols stored in encrypted form.
ID	String	Primary key field for a Salesforce object.
Int	Integer	Fields of this type contain numbers with no fraction portion.
JunctionIdList	String	A string array of referenced ID values that represents the many-to-many relationship of an underlying junction entity. Query and manipulate the string array to query and manipulate the underlying junction entities in a single API call. Note: This field type is available from V34.0 API and above.
Location	Decimal	A compound data type that contains latitude and longitude values (Double) for geolocation field.
Master record	String	ID of the merged record.
Multipicklist	String	Multiple-selection picklists, which provide a set of enumerated values that you can select multiple values from.
Percent	Decimal	Percentage values.
Phone	String	Phone numbers.
Picklist	String	Single-selection picklists, which provide a set of enumerated values that you can select one value from.
Reference	String	Cross-references to another Salesforce object.
String	String	Character strings.
Textarea	String	String that appears as a multiple-line text field.
Time	Date/Time	Time values.
URL	String	URL values.

Rules and guidelines for datatypes

Consider the following rules and guidelines for Salesforce Time datatype and Transformation datatypes:

- Data Integration reads the Salesforce Time datatype as Date/Time datatype.
- If you want to read a Time value with precision to the millisecond, you must read the Time datatype as AnyType datatype or String datatype.
- You must create a mapping task to perform a lookup operation on the Time datatype.

- If you want to use a saved query, you must change the Time value to AnyType datatype or String datatype.
- Use advanced filter instead of simple filter for Time datatype.

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