

Bulk Data Manipulation on Salesforce

PURPOSE

The purpose of this document is to share the administration steps to insert or upsert bulk data, export records and perform mass delete from salesforce objects. The intended audiences to review this document are developers and technical leads.

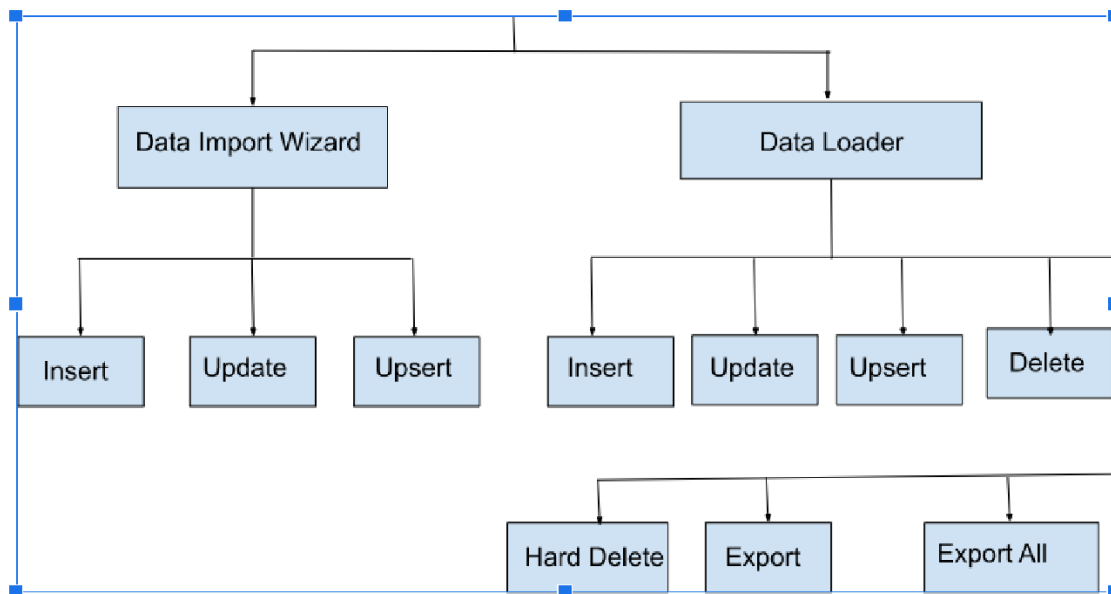
OVERVIEW

Salesforce data can be entered manually or through bulk upload if there is huge data. Bulk data upload can be done on all the custom objects and few standard objects in Salesforce. The Mass Deleting Record option of Salesforce supports mass delete on a few standard objects and can not perform mass delete on Custom objects.

STEPS TO UPLOAD DATA

There are two approaches offered by salesforce when uploading data through Bulk API into salesforce objects .

- Data Import Wizard
- Data Loader
- DataLoader.IO



Data Import Wizard is a salesforce inbuilt tool, it allows upto 50000 records can be uploaded onto salesforce objects.It

The below are the steps to import data and restrictions .

1. Go to SetUp on Salesforce => Data Import Wizard => Click Launch Wizard
2. Select on which object that the data to be uploaded. The Data Import Wizard only supports only 5 standard objects [Accounts, Contacts, Leads, Solution, Campaign Members] and all custom objects .
- 3.Select required operation
 - Add new records:
This option would not allow duplicates. Salesforce will throw an error for duplicate records and insert only new records.
 - Update existing records:
This option would not allow new records, salesforce will throw an error message "Record doesn't exist".
 - Add new and Update existing records

This option will work in any case. It will insert a new record if the record is not available or update if the record is present in the object. Select Match by field, it will match data from that field with the field on salesforce objects when update happens.

4. Drag or upload csv file contains data to be uploaded.

Prepare CSV file to upload data

1. The CSV file must be in UTF-8 format.
2. Create header fields which need to be mapped with fields of Salesforce Object on Data Import Wizard. The below image is the mapping between csv header and fields in candidate__c object in salesforce.

Edit	Mapped Salesforce Object	CSV Header	Example	Example	Example
Change	Contact#	Contact#	8476930697	2242374540	8475682345
Change	Date Of Birth	Date Of Birth	03/12/1962	04/26/1978	03/23/1985
Change	Deletable	Deletable	True	True	False
Change	Email Id	Email Id	test1@gmail.com	test1@gmail.com	test2@gmail.com
Change	Full Name	Full Name	Nithya Jayaganesh	Jayaganesh Damodha	Sara Glade
Change	Salesforce.com ID	Id			

- 3.
4. All the required field must be included when records are inserted .To set a field value to null for non required field, use a field value of #N/A.During update any undefined value for the field would be ignored.
5. The below image is the result status once the Data Import Wizard completed the upload process. The result shows one record is failed to insert. We can check the reason for the failed record on the View Result link.

Batches											
View Request	View Result	Batch ID	Start Time	End Time	Total Processing Time (ms)	API Active Processing Time (ms)	Apex Processing Time (ms)	Records Processed	Records Failed	Retry Count	Status
View Request	View Result	751Dn000007r0pR	5/24/2023, 2:23 PM	5/24/2023, 2:23 PM	513	256	0	3	1	0	Completed

6. The below image is the downloaded csv file of "View Result" link. It shows a duplicate has been detected and salesforce ignored the record.

```
"Id","Success","Created","Error"
","false","true","DUPLICATES DETECTED:Candidate is already registered.--"
"a04Dn000005WSM1IAO","true","true",""
"a04Dn000005WSM2IAO","true","true",""
```

7. Define relationship in the CSV header row:

The format **RelationshipName.IndexedFieldName** has to be followed in a CSV header when processing data for relationship field. For ex: when upload position name on Job Application object, the header should be Position_Name__r.Name.

The following restrictions are applicable when defining the relationship on CSV header.

1. We can only define a child-to-parent relationship, but we can't use a parent-to-child relationship.
2. We can only define a child-to-parent relationship, but we can't extend it to use a child-to-parent-grandparent relationship. However, this is ruled out for Polymorphic fields (-kind of field points to one or more object). A Polymorphic field can refer to more than one type of object as a parent. The CSV header format for Polymorphic field is
objectType:RelationshipName.IndexedFieldName (Candidate:Who.Email)
3. We can only use indexed fields on the parent object.
 - A custom field is indexed if its External ID field is selected.
 - A standard field is indexed if its idLookup property is set to true.

Data Loader is a desktop client for Salesforce. It allows uploading upto 5,00,000 records at a time and it supports 6 below different operations. One of the important features of Data Loader is that we can apply filter criteria and create SOQL query when performing Export/ExportAll operations. However, DataLoader tool doesn't support scheduled operation for Export/ExportAll.

Insert:

Insert new records from excel worksheet or CSV files. Duplicate records doesn't allowed to be inserted. The recorded insertion will be failed for duplicate records and the rest will be inserted successfully.

Update:

Update records by matching field. If the matching fails, the data loader ignores updating that specific record and log file for the transaction will be generated on local directory.

Upsert:

Either insert a new record if the matching records are not found or update the existing record.

Delete:

Data Loader supports bulk delete operation based on records entered in CSV files.

Hard Delete:

Data Loader supports permanently deleting the records.

Export:

Export specific records by defining filter criteria in the where clause of SOQL. Data Loader also supports scheduled export.

Export All:

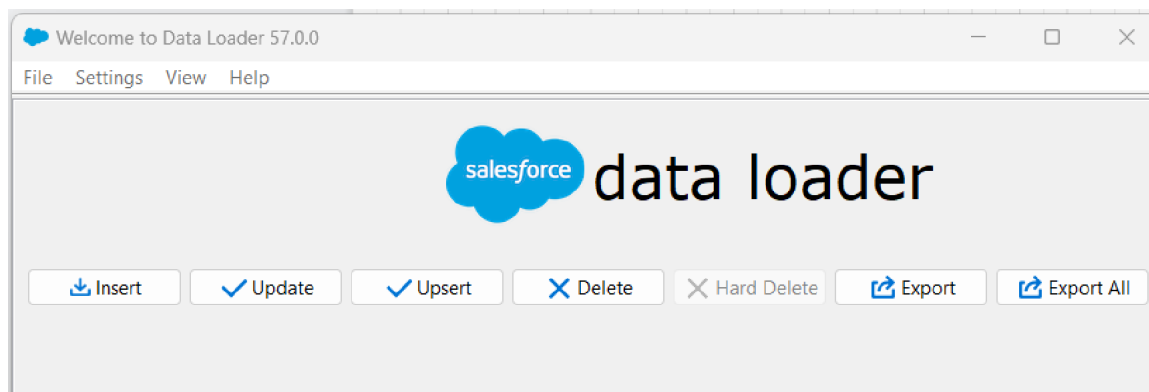
Export All means it exports records including the records in the recycle bin.

Installation steps for Data Loader:

Download and Install Java JRE V11.

Steps To Perform Data Manipulation on Data Loader:

Data Loader screen:



- File:

We can perform Insert, Update, Upsert, Delete, Hard Delete, Export and Export All operations through the File menu also. By default, Hard Delete is disabled on both the command button and File menu. To enable it GoTo Settings Menu=>Settings=>check "Use Bulk API".

- Settings:

We can set up initial configuration like Batch Size (default batch size is 200), allow inserting null values, Query request size etc.,

- View :

We can view the CSV file to be uploaded and check data before uploading. It allows us to set up a number of rows that we can view initially on the CSV file.

Login Options:

We have to login into Salesforce before performing an operation either by OAuth or Password Authentication.

OAuth:

1. Choose Production (Supports Developer edition)/Sandbox.
2. Click Login. It will redirect to the browser. We should enter the given 8 digit code (get it from the popup screen once click login) and click connect.
3. Click Allow Access to Access the identity URL service and Manage user data via APIs by Data Loader. It will redirect to the Salesforce login screen.
4. Once logged into Salesforce click next on the Data Loader screen. Select the Salesforce object to insert data and choose the source file and Click next. The popup screen will be shown indicating that Initialization has been successful. Click OK.
5. Click Create or Edit mapping or we can choose an already saved mapping from our local. Drag fields corresponding to the CSV header. The below image is the sample one. Click Next.

Mapping Dialog

Match the Salesforce object fields to your CSV column headers.

Clear Mapping Auto-Match Fields to Columns

Salesforce Object Field Name	Label	Type
CurrencyIsoCode	Currency ISO Code	picklist
OwnerId	Owner ID	reference

Drag the Salesforce object fields down to the column mapping. To remove a mapping, select a row and click Delete key on the keyboard.

CSV Column Header	Salesforce Object Field Name
Contact#	Contact__c
Date Of Birth	Date_Of_Birth__c
Deletable	Deletable__c
Email Id	Email_Id__c
Full Name	Full_Name__c
Id	

6. Select the local directory to store the log files.


The below message will be displayed once the operation completes.

Operation Finished

The operation has fully completed. There were 0 successful inserts and 3 errors.

View Successes View Errors OK

Progress Information

 Loading: insert

Processed 3 of 3 total records. There are 0 successes and 3 errors.
Rate: 0 recor...per hour. Estimated time to complete: 153,722,867,280,912 minutes and 55 seconds.

Cancel

It shows that no records have been inserted. The below error log shows what happens during insertion. The records are already inserted.

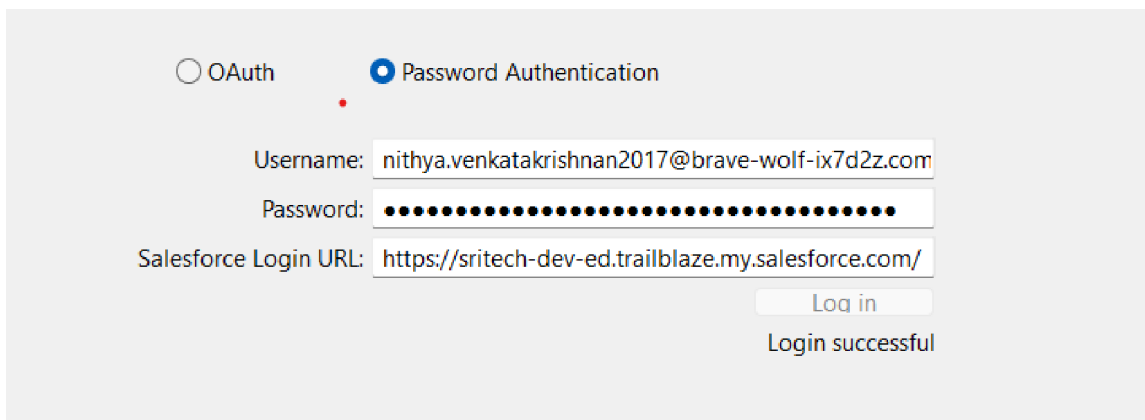
```

"CONTACT#","DATE OF BIRTH","DELETABLE","EMAIL ID"," FULL NAME","ID","ERROR"
"8476930697","03/12/1982","True","test@gmail.com","Nithya Jayaganesh"," ","Candidate is already registered."
"2242374540","04/26/1978","True","test1@gmail.com","Jayaganesh Damodharan"," ","Candidate is already registered."
"8475682345","03/23/1985","False","test2@gmail.com","Sara Glade"," ","Candidate is already registered."

```

Password Authentication:

An end user has to type username and password+security token for salesforce org , Salesforce Login URL has to be the same as "Server host Url" on DataLoader Settings page. Click next after getting "Login Successful" message. All other operations (Insert , Delete, Update, Upsert,Hard Delete, Export, Export All) are the same as done through oAuth authentication.



☐ OAuth
 ☒ Password Authentication

Username:

Password:

Salesforce Login URL:

Login successful

DataLoader.IO

We can perform DataLoader operation on the cloud also. DataLoader.IO is a cloud solution provided by MuleSoft (one of the salesforce partners). There is a free version with limited features available for a single user. The free version allows scheduled export operation only once. The other editions are Enterprise and professional editions allowing multiple scheduled export operations. However, there is a limitation on enterprise editions.

SALESFORCE DATA EXPORT:

Salesforce supports Data Export for a single object or many objects either manually or scheduled operation. Once data is exported and ready to download it we will receive an email notification. The exported data will be created as a zip file and we can download it into our local directory.

However, Salesforce Data Export doesn't support filter or SOQL to query specific fields while DataLoader supports such options.

DataLoader doesn't support scheduled export operation while Salesforce Data Export supports such option as well.

STEPS TO DATA EXPORT:

To perform Data Export on Salesforce

Goto SetUp=>Data=>Data Export

1. Select objects that we want to export with optional choice of attachments and documents.

Each time the export operation will be performed for the entire object from scratch.

SALESFORCE MASS DELETE RECORDS:

Salesforce supports mass delete operation only on specific standard objects and not for custom objects.

STEPS TO MASS DELETE RECORDS:

GoTo SetUp=> Data=>Mass Delete Records => Apply search filter criteria

Records will be displayed to delete. Select the Permanently delete option if we want to delete the records permanently.

