

Coveo Enterprise Search 6.0

Salesforce Connector

Coveo's *Salesforce* connector allows users to crawl *Salesforce* repositories and index their content. As most repositories can differ in their object signatures, a mapping file was enabled in order to define the repository object signatures as well as the objects and fields to index. The indexed content can then be customized by modifying the mapping file. New object types and custom fields can easily be added to fit the repository structure.

Features

The following list details the features available in the *Salesforce* connector:

- **Live indexing:** The live indexing feature refreshes the content of the index based on the modification date of the objects on the *Salesforce* server. If an item is modified, the live indexing feature refreshes the item automatically.
- **Customizable object mapping:** The *Salesforce* connector allows the user to select which *Salesforce* objects to index using a mapping file. The user can decide to index additional custom *Salesforce* objects and fields, or remove existing ones by just modifying the mapping file. For more information concerning the mapping file, refer to the [Customize the Connector Using the Mapping File](#) section.
- **Metadata:** All the fields of the retrieved *Salesforce* objects are indexed as metadata; therefore allowing the user to customize CES based on that metadata via custom fields for example.

Requirements

The *Salesforce* connector requires the following in order to work properly:

- *Coveo Enterprise Search 5.1* or later
- An active *Salesforce* account to a *Salesforce* database. Note that this account requires a read permission on all the types crawled by the connector.

Configuration

▶ How to Create a Salesforce Source

1. From the Administration Tool, access the **Sources and Collections** page (Index > Sources and Collections).
2. Create a new source, either in an existing or new collection.
3. Enter the following information in the appropriate fields:

Field	Description	Example
Name	Any descriptive name	Salesforce site
Source Type	The connector used by this source	Salesforce
Addresses	List of URIs for the connector, one address per line.	http://www.salesforce.com

MappingFile	The full path to the <i>Salesforce</i> mapping file. This parameter is optional.	The default filename provided is <i>Coveo.CES.CustomCrawlers.Salesforce.Generic.config</i> . This file is provided with the CES installation. The mapping file defines additional mappings and changes to apply to the embedded mapping file (defined in the Customize the Connector Using the Mapping File section). If you leave this parameter empty, the embedded mapping file will be used without any modifications.
MappingTypes	<i>Salesforce</i> types to index among the list defined in the mapping file. This parameter is optional	Event;Task;Case If this parameter is left empty, all the mapping types defined in the mapping file are indexed. Each type must be separated by semicolons.
Authentication	The <i>Salesforce</i> connector requires a user identity for authentication.	Salesforce ID An identity must be defined with the <i>Salesforce</i> account information with which <i>Salesforce</i> is crawled. This specified identity requires a read permission on the items in order to index them.

Name ?

Source Type ▼

Addresses ▲ ▼
Depends on the additional connector used.
One entry per line.

Rating ▼ ?

Document Types ▼ ?

Fields ▼ ?

Refresh Schedule ▼ ?

MappingFile ?

MappingTypes ?

Parameters Add Parameter ?

Option

- Index subfolders ?
- Index the document's metadata ?
- Document's addresses are case-sensitive ?
- Generate a cached HTML version of indexed documents
- Open results with cached version ?

Authentication User Identity ▼ ?

4. Click Save and Start .

Note: The *Salesforce* connector uses the open connector framework and can therefore be modified using custom parameters such as *liveindexingdelay*. For a listing of all the possible parameters and their effects, refer to the Open Connector API documentation displayed on our Web site (www.coveo.com).

Customize the Connector Using the Mapping File

The *Salesforce* connector comes with an embedded mapping file which covers most basic *Salesforce* setups. It contains the basic object types as well as the fields of a *Salesforce* database. The mapping file specifies which of these types and fields to index. Furthermore, *Salesforce* is very customizable and allows the user to modify the basic object signatures, add new object types, etc. The mapping file allows the user to modify the behavior of the connector according to his *Salesforce* database signature.

The following displays content of the embedded mapping file:

```
<?xml version="1.0" encoding="Windows-1252" ?>
<SalesForce>
  <CommonMapping>
    <Fields>
      <ContentType>binarydata</ContentType>
      <Uri>https://na1.salesforce.com/%[Id]</Uri>
      <ModifiedDate>%[LastModifiedDate]</ModifiedDate>
      <sysssfcreatedby>%[CreatedBy.Id.Name]</sysssfcreatedby>
      <sysssfcreatedbyid>%[CreatedBy.Id]</sysssfcreatedbyid>
      <sysssfcreateddate>%[CreatedDate]</sysssfcreateddate>
      <sysauthor>%[LastModifiedById.Name]</sysauthor>
      <sysdate>%[SystemModstamp]</sysdate>
      <sysssid>%[Id]</sysssid>
      <sysssfowner>%[OwnerId.Name]</sysssfowner>
      <sysssfownerid>%[OwnerId]</sysssfownerid>
    </Fields>
  </CommonMapping>
  <Mapping type="Account">
    <Fields>
      <Title>%[Name]</Title>
      <Body>%[Name]
Owner: %[OwnerId.Name]
Type: %[Type]
Industry: %[Industry]
Description:
%[Description]
      </Body>
      <sysfiletype>SFAccount</sysfiletype>
      <sysssfbillingstreet>%[BillingStreet]</sysssfbillingstreet>
      <sysssfbillingcity>%[BillingCity]</sysssfbillingcity>
      <sysssfbillingstate>%[BillingState]</sysssfbillingstate>
      <sysssfbillingcountry>%[BillingCountry]</sysssfbillingcountry>
      <sysssfbillingpostalcode>%[BillingPostalCode]</sysssfbillingpostalcode>
      <sysssfshippingstreet>%[ShippingStreet]</sysssfshippingstreet>
      <sysssfshippingcity>%[ShippingCity]</sysssfshippingcity>
      <sysssfshippingstate>%[ShippingState]</sysssfshippingstate>
      <sysssfshippingcountry>%[ShippingCountry]</sysssfshippingcountry>
      <sysssfshippingpostalcode>%[ShippingPostalCode]</sysssfshippingpostalcode>
      <sysworkphone>%[Phone]</sysworkphone>
      <sysssfaffax>%[Fax]</sysssfaffax>
    </Fields>
  </Mapping>
</SalesForce>
```

```

        <sysffwebsite>[%Website]</sysffwebsite>
        <sysffccurrency>[%CurrencyIsoCode]</sysffccurrency>
        <sysffdescription>[%Description]</sysffdescription>
        <sysffccountry>[%BillingCountry]</sysffccountry>
        <sysffindustry>[% Industry]</sysffindustry>
    </Fields>
</Mapping>
<Mapping type="Contact">
    <Fields>
        <Title>[%FirstName] [%LastName] (%[Title])</Title>
        <Body>[%FirstName] [%LastName]
%[AccountId.Name]
Title: [%Title]
Account: [%AccountId.Name]
Email: [%Email]
Phone: [%Phone]
Address:
%[MailingStreet]
%[MailingCity],[%MailingState]
%[MailingCountry]
    </Body>
    <sysffiletype>SFContact</sysffiletype>
    <sysfffirstname>[%FirstName]</sysfffirstname>
    <sysfflastname>[%LastName]</sysfflastname>
    <sysffstreet>[%MailingStreet]</sysffstreet>
    <sysffcity>[%MailingCity]</sysffcity>
    <sysffstate>[%MailingState]</sysffstate>
    <sysffccountry>[%MailingCountry]</sysffccountry>
    <sysffpostalcode>[%MailingPostalCode]</sysffpostalcode>
    <sysworkemail>[%Email]</sysworkemail>
    <sysworkphone>[%Phone]</sysworkphone>
    <syscompany>[%AccountId.Name]</syscompany>
    <sysffaccount>[%AccountId.Name]</sysffaccount>
    <sysffaccountid>[%AccountId]</sysffaccountid>
    </Fields>
</Mapping>
<Mapping type="Lead">
    <Fields>
        <Title>[%Company] (%[FirstName] [%LastName])</Title>
        <Body>[%FirstName] [%LastName]
Title: [%Title]
Company: [%Company]
Email: [%Email]
Phone: [%Phone]
Address:
%[Street]
%[City],[%State]
%[Country]
Status: [%Status]</Body>
    <sysffiletype>SFLead</sysffiletype>
    <sysfffirstname>[%FirstName]</sysfffirstname>
    <sysfflastname>[%LastName]</sysfflastname>
    <syscompany>[%Company]</syscompany>

```

```

<sysffcCity>[%[City]]</sysffcCity>
<sysworkemail>[%[Email]]</sysworkemail>
<sysffindustry>[%[Industry]]</sysffindustry>
<sysffleadsource>[%[LeadSource]]</sysffleadsource>
<sysworkphone>[%[Phone]]</sysworkphone>
<sysffcCountry>[%[Country]]</sysffcCountry>
<sysffstate>[%[State]]</sysffstate>
<sysffcCity>[%[City]]</sysffcCity>
<sysffstreet>[%[Street]]</sysffstreet>
<sysffpostalcode>[%[PostalCode]]</sysffpostalcode>
<sysffleadstatus>[%[Status]]</sysffleadstatus>
</Fields>
</Mapping>
<Mapping type="Opportunity">
  <CacheTables>
    <Table name="OpportunityLineItem">
      <IndexedField name="OpportunityId" />
    </Table>
    <Table name="PricebookEntry" />
    <Table name="Product2" />
  </CacheTables>
  <Fields>
    <Title>[%[AccountId.Name] [%[Name]]]</Title>
    <Body>[%[Name]]</Body>
    <sysffiletype>SFOpportunity</sysffiletype>
    <sysffaccount>[%[AccountId.Name]]</sysffaccount>
    <sysffaccountid>[%[AccountId]]</sysffaccountid>
    <sysffcCountry>[%[AccountId.BillingCountry]]</sysffcCountry>
    <sysffstagename>[%[StageName]]</sysffstagename>
    <sysffamount>[%[Amount]]</sysffamount>
    <sysffcurrency>[%[CurrencyIsoCode]]</sysffcurrency>
    <sysffopportunitytype>[%[Type]]</sysffopportunitytype>
    <sysffclosedate>[%[CloseDate]]</sysffclosedate>
    <sysffclosequarter>[%[FiscalYear]-Q[%[FiscalQuarter]]</sysffclosequarter>
    <sysffleadsource>[%[LeadSource]]</sysffleadsource>
    <sysffname>[%[Name]]</sysffname>
  </Fields>
</Mapping>
<Mapping type="Case">
  <Fields>
    <ContentType>binarydata</ContentType>
    <Title>[%[Subject] (%[CaseNumber])</Title>
    <Body>
      AssetId : [%[AssetId]]
      CaseNumber : [%[CaseNumber]]
      ClosedDate : [%[ClosedDate]]
      Contact : [%[ContactId.Name]]
      CurrencyIsoCode : [%[CurrencyIsoCode]]
      IsClosed : [%[IsClosed]]
      IsEscalated : [%[IsEscalated]]
      Origin : [%[Origin]]
      Priority : [%[Priority]]
      Reason : [%[Reason]]
  </Body>
  </Fields>
</Mapping>

```

```

    Status : %[Status]
    Subject : %[Subject]
    SuppliedCompany : %[SuppliedCompany]
    SuppliedEmail : %[SuppliedEmail]
    SuppliedName : %[SuppliedName]
    SuppliedPhone : %[SuppliedPhone]
    Type : %[Type]
    Description :
    %[Description]
  </Body>
  <sysfiletype>SFCase</sysfiletype>
</Fields>
</Mapping>
<Mapping type="Event">
  <Fields>
    <Title>%[Subject]</Title>
    <Body>%[Description]</Body>
    <sysfiletype>SFEvent</sysfiletype>
    <syssfduration>%[DurationInMinutes]</syssfduration>
    <syssflocation>%[Location]</syssflocation>
  </Fields>
</Mapping>
<Mapping type="Task">
  <Fields>
    <Title>%[Subject]</Title>
    <Body>%[Description]</Body>
    <sysfiletype>SFTask</sysfiletype>
    <syssfstatus>%[Status]</syssfstatus>
    <syssfpriority>%[Priority]</syssfpriority>
  </Fields>
</Mapping>
<Mapping type="Document">
  <Fields>

<clickableuri>https://na4.salesforce.com/servlet/servlet.FileDownload?file=%[Id]</clickable
uri>
  <sysextension>%[Type]</sysextension>
  <filename>%[Name]</filename>
  <contenttype>%[ContentType]</contenttype>
  <body>%[Body]</body>
  <Title>%[Name]</Title>
  </Fields>
</Mapping>
<Mapping type="Attachment">
  <Fields>

<clickableuri>https://na4.salesforce.com/servlet/servlet.FileDownload?file=%[Id]</clickable
uri>
  <sysextension>%[Type]</sysextension>
  <filename>%[Name]</filename>
  <contenttype>%[ContentType]</contenttype>
  <body>%[Body]</body>
  <Title>%[Name]</Title>
  </Fields>

```

```
</Mapping>
</SalesForce>
```

The above mapping file is embedded within our connector assembly and is therefore read-only. To overwrite specific fields in the mapping above or simply add new mappings, the user must add the appropriate modifications in the file specified in the **MappingFile** parameter of the source; these modifications will have priority.

Note: The user will have to specify the security of the mappings in the mapping file as the embedded mapping file does not define any security. If no mapping file is specified, security will have to be specified directly on the source or the documents will not be indexed.

The following is an example of a generic mapping file specifying securities:

```
<?xml version="1.0" encoding="Windows-1252" ?>
<SalesForce>
  <CommonMapping>
    <AllowedUsers>
      <AllowedUser type="Windows" allowed="true">
        <Name>Everyone</Name>
        <Server></Server>
      </AllowedUser>
    </AllowedUsers>
  </CommonMapping>
</SalesForce>
```

▶ Mapping Local Expressions

The *Salesforce* connector uses a specific mapping expression to represent a value on a *Salesforce* object. Every time the expression `%[field]` is used, it can be replaced by the value of the field specified by the name in the brackets for this *Salesforce* object. For example, the expression `<ModifiedDate>%[LastModifiedDate]</ModifiedDate>` replaces the string `[%LastModifiedDate]` by the value of the field `LastModifiedDate` for each *Salesforce* object. The value fetched is then assigned to the system field `ModifiedDate` on each document.

▶ Mapping Foreign Expressions

As some objects can reference to others in *Salesforce*, it is possible to fetch the value of a foreign field in your mappings, as long as the foreign type has the requested field. The expression `<CustomField name="SFOwner">%[OwnerId.FirstName] %[OwnerId.LastName]</CustomField>` retrieves the specific object pointed by `OwnerId` and retrieves the value of the fields `FirstName` and `LastName` on that object. Then the resulting string is a concatenation of both results. An example of the result for this expression could be *John Smith*.

Note: Foreign expressions can dramatically slow down the indexing process, as a remote object has to be queried for every foreign expression. Coveo has a local cache for each field value; however the performance decreases every time it has to fetch field values on a new object. Use them carefully.

▶ Mapping File Structure

The mapping file can be divided into three sections:

- **CommonMapping:** All the settings applied to all the mappings.
- **Mapping:** Individual mappings for each object type to index.
- **ExternalResolvers:** When the user needs to apply a sophisticated mapping, he can specify an external assembly type to call to resolve it.

External resolvers

When declaring an external resolver, the user needs to provide a unique name as well as a fully qualified type name to call. For more information about fully qualified type names, refer to [http://msdn.microsoft.com/en-us/library/yfsftwz6\(VS.71\).aspx](http://msdn.microsoft.com/en-us/library/yfsftwz6(VS.71).aspx).

```
<SalesForce>
  <ExternalResolvers>
    <ExternalResolver name="Resolvername" type="FQType" />
  </ExternalResolvers>
</SalesForce>
```

Once the external resolver has been defined, it can be used in any mapping using the following syntax: @[resolvername]. Parameters can be defined to pass to the external type. In this case, the user needs to specify an additional bracket node with parameters separated by a semicolon (;): @[resolvername][param1;param2]. As the external resolvers are called last, fields to resolve (such as %[field]) can be specified as parameters and will be resolved before the external resolver is called.

External resolver type limitations

For the external type to be used with the external resolver system, it needs to implement the **IMappingResolver** interface defined as follows:

```
<namespace Coveo.CES.CustomCrawlers.SalesForce
{
//*****
/// <summary>
/// the Interface the callback functions in the mapping file must implement.
/// </summary>
//*****
public interface IMappingResolver
{
    string Resolve(string[] p_Parameters,
        Record p_CurrentRecord,
        MappingUtilities p_Uilities);
}
}
```

The parameters are passed as an array of string in p_Parameters. The current record being parsed is passed as well as p_CurrentRecord. Finally, the connector cached records, connection, disk cache, etc. can be accessed using the mapping utilities. The string returned by the resolve function will be used as the mapping value.

All these classes and interfaces are in the *Salesforce* connector assembly, the external assemblies will need to add the *Salesforce* connector assembly as a reference.

▶ Mapping Child Nodes

<Fields>

Fields for this mapping. From this point, the user either defines a system or custom field:

- **System fields:** System fields can be used directly under the <fields> node. They are mapped to an existing system field. For example, the <uri> is mapped directly to the system field URI for this type.
- **Custom Fields:** Custom fields can be mapped to a custom metadata name. The metadata is filled with the string content. For example, the <CustomField name="SFLocation"> %[Location] </CustomField> node maps the field named *Location* on the *Salesforce* object to the metadata SFLocation on the document.

<Allowed Users>

- **Type of users:** Windows, CustomGroup, CustomUser, ExternalGroup, ExternalUser, WindowSid
- **Name:** Name of the user
- **Server:** Usually references to domain

▶ Salesforce Connector Security

Salesforce security can be set by using custom early or late binding. The following describes both methods as well as their impact:

Custom Early Binding (recommended method)

The *Salesforce* connector can be configured to use early binding securities by adding allowed/not allowed groups and users to the mapping file for each object types.

<CommonMapping>

```
<AllowedUsers>
  <AllowedUser type="Windows" allowed="true">
    <Name>Everyone</Name>
    <Server>coveo</Server>
  </AllowedUser>
</AllowedUsers>
</CommonMapping>
```

The above section gives to the *Windows* group *Everyone* from the *Coveo* domain access to all the index types. The *CommonMapping* section is applied to all the indexed mappings. To specify different security permissions for each different mapping type, it is possible to add an *AllowedUsers* child node to every mapping node to set custom security on:


```
<Mapping type="Tasks">
  <AllowedUsers>
    <AllowedUser type="Windows" allowed="true">
      <Name>Everyone</Name>
      <Server>coveo</Server>
    </AllowedUser>
  </AllowedUsers>
  <Fields>
    <Title>%[Subject]</Title>
    <Body>%[Description]</Body>
    <CustomFields>
      <CustomField name="SFOwner">%[OwnerId.FirstName][OwnerId.LastName]</CustomField>
      <CustomField name="SFOwnerID">%[OwnerId]</CustomField>
      <CustomField name="SFStatus">%[Status]</CustomField>
      <CustomField name="SFPriority">%[Priority]</CustomField>
    </CustomFields>
  </Fields>
</Mapping>
```

Using this method rapidly produces query results, as CES does not have to fetch the security permissions on the fly. However, security permissions can only be set for each object type; meaning individual objects of the same type will always have the same security permissions.

Late-Binding Custom Security Provider

The *Salesforce* connector also supports a late-binding security provider. However, note that this setup can dramatically decrease the query performances as the provider has to fetch the document securities on the fly.

▶ **How to Configure a Security Provider**

1. Access the **Security Providers** page (Configuration > Security > Security Providers).
2. Click  to create a new security provider.
3. Enter the following information in the appropriate fields:

Field	Description
Name	Salesforce Security Provider (or something similar)
DLL Path	Coveo.CES.CustomCrawlersSecurityProvider.dll
User Identity	Leave blank
Parameters	AssemblyPath=Coveo.CES.CustomCrawlers.Salesforce.dll




4. Select **Require authorization**.

← Security - Security...

Name

DLL Path

User Identity ?

 Add
 Edit
 Manage user identities

Parameters

- Once the security provider is created, it can be associated to the *Salesforce* source. The security provider is invoked every time a user performs a query. It validates with *Salesforce* if the user performing the query has the right to view the documents in the query results. This process can be slow; however it allows individual security permissions for each document instead of having permissions for each object type. Users are required to enter their account information for *Salesforce* sources in the Search Interface if using this security method.