SAP SuccessFactors Learning: Impact of Implementing SAP SuccessFactors Employee Central
SucessFactors Suite: Impact of Implementing Employee Central for LMS Customers

Objective:
Discuss the impact and best practices to transition from LMS supported by employee profile to being integrated with employee central.

Audience:
SAP SuccessFactors Customers: IT and HR professionals;
SAP SuccessFactors Implementation Partners: Consultants, solution architects and project managers

Change Log

<table>
<thead>
<tr>
<th>Version</th>
<th>Date</th>
<th>Description</th>
</tr>
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<tr>
<td>1.0</td>
<td>20.04.2020</td>
<td>Initial version</td>
</tr>
<tr>
<td>1.1</td>
<td>25.05.2020</td>
<td>Template adjustment and reference updated</td>
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Supported Releases

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<th>Release-Valid till</th>
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<td>2005</td>
<td></td>
</tr>
<tr>
<td>SAP SuccessFactors Learning</td>
<td>2005</td>
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Contribution

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<tr>
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<td>SAP SuccessFactors Product Management</td>
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The recommendations in this document are based on the functionality available up to SAP SuccessFactors release mentioned above. Future functionality can impact the recommendations provided by this document. We strive to keep these recommendations up-to-date, however, in case you find that recent new functionality has not yet been considered in the latest version of this document, please reach out to your Customer Success Manager / Partner Delivery Manager or send an email to SAPSuccessFactorsIDPDoc@sap.com.

Implementation Design Principles (IDPs) for SuccessFactors solutions are delivered by SAP for helping customers and partners on how to choose the most appropriate strategy and solution architecture for SuccessFactors implementations. IDPs are compiled taking into consideration the experience of many implementation projects and addressing frequent business requirements as well as real-life implementation challenges. They are continuously reviewed and updated as product functionality evolves. In addition, the reader is advised to read and familiarize with essential and additional product-related documentation which includes Implementation Guides, SAP Notes, SAP Knowledge Base Articles, and additional assets as referenced in this document, see chapter 7. R
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1. TERMINOLOGY

The following table explains some abbreviations used in this document.

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<thead>
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<th>Abbreviation</th>
<th>Description</th>
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<tr>
<td>LMS</td>
<td>Learning management system</td>
</tr>
<tr>
<td>SFTP</td>
<td>Secure File Transfer Protocol – this is the server licensed with SuccessFactors used for transferring data file between the system</td>
</tr>
<tr>
<td>BizX Suite</td>
<td>Business Execution Software Suite, now renamed “HXM Core”</td>
</tr>
<tr>
<td>SAP CPI</td>
<td>SAP Cloud Platform Integration</td>
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2. ABSTRACT

Common implementation scenarios at customers include implementing LMS and one or more Talent modules of SuccessFactors prior to the implementation of Employee Central. For these customers the introduction of Employee Central within the landscape introduces some changes to integrations of employee and organizational data into LMS and consequently also requires adjustments to LMS components like Assignment Profiles which utilize updated organizational elements to proactively assign learning activities and for use as filters within Learning reports. LMS processes also need to cater to the possibility of multiple student records for employees corresponding to separate employments in Employee Central (Concurrent Employments or Global Assignments).

This Implementation Design Principle document will address the considerations for changes to LMS around integration approach and updates to configurations or business process upon the introduction of Employee Central for customers that are already using the SuccessFactors LMS solution.

3. INTRODUCTION

The Employee Export job scheduled from Provisioning has been the traditional method for extracting user data from the SuccessFactors platform for import into LMS. This job uses Employee Profile as the source for employee and organizational data from a legacy system. Employee Profile is a limited data set of employee information which is not effective dated and captures information as a point in time reference, for a User record.

The introduction of Employee Central as the underlying system of record for Employee and Organizational master data now feeding Employee Profile introduces some changes to the way data is passed on to Employee Profile and consequently downstream systems like LMS which derived user and organizational information via Employee Profile. Hence a change in the way user and organizational information is passed on to LMS is needed.
4. BUSINESS REQUIREMENTS

The traditional method of using the Provisioning Employee Export paired with the User Connector-SF Learning connector is problematic based on the following:

The Provisioning Employee Export job concatenates the ID and Description of reference fields such as Department, Division, Job Codes, Job Locations into one field. This job can’t be modified to split up these fields. Also, this Employee Export job is contained in Provisioning, which customers cannot access (only available to SAP Support and certified implementation partners). Therefore, customers wishing to modify the scheduling of this job will need to submit a support ticket or work with an implementation partner.

The concatenated reference field by default is mapped to the ID field in LMS which is the unique identifier of the record. If the customer chooses to revise the Description of one of these reference fields in Employee Central, this will cause the creation of a new Organization, Region, Job Code, or Job Location in LMS based on a new ID (merge of ID and new Description) appearing in the Provisioning Employee Export job.

Example: An Org with ID=123 with Description=Corp is concatenated into one field Corp(123) – if the description changes to Corporate, then this creates a new reference value of Corporate(123). This causes duplication of existing Org values in LMS.

Additional to this problem, we also need to consider the multiple employment cases that can come from Employee Central to LMS. In Employee Central multiple employments can be:

1. Concurrent Employments: An employee that has multiple job functions, e.g. a nurse practitioner in multiple hospitals;

2. Global Assignment: An employee on a job assignment in a country other than the one he/she was working out of, and that he/she is typically expected to return to once the Global Assignment ends. The original employment is referred to as the “home employment”, the new one as the “host employment”.

This Implementation Design Principles (IDP) document will provide clarification of the best practice on how to handle this scenario and how to move user data from Employee Central into LMS taking into consideration reference values that need to be aligned between the two systems and proper alignment of the PERSON_GUID which is the unique identifier of the person record.

5. SOLUTION OVERVIEW AND CONCEPTS

Any Assignment Profiles using the original concatenated value of an Organization, Region, Job Code, or Job Location will need to be reviewed and updated with the newly created ID resulting from the change in Description.

There are many user data values that must be mapped properly between Employee Central and LMS to maintain the integrity of user data between these two modules. The LMS uses this data for the following purposes:

- Auto-assignment of learning activities
- Auto-assignment of learning catalog access
- Auto-assignment of user roles
- Filtering and data within Learning reports

In order to extract data from Employee Central, the recommended solution is to make use of the Integration Center rather than to use the Employees Export scheduled job in Provisioning.

The Integration Center jobs offer the following advantages over the Employees Export job:

- Allows for granular, field population filters to control which users are transferred from Employee Central;
- Allows for field level transformation to convert individual values;
- Allows for mapping directly into key/value pairs that the LMS supports (e.g. Job Code ID and Job Code Description);
- Allows for the addition of fields to the LMS user feed without having to modify the Employee Profile;
- Allows for customers to make changes to the structure and schedule of the extract job (the Provisioning job must be scheduled by the support or a partner).

Additionally, data for the Organization Structure and Job Structure can be transferred through the Integration Center. There is currently no other recommended method to transfer this information.
Figure 1: User, Organization and Job Classification data flow

6. DETAILED SOLUTION

Recommendations for constructing each of the data feeds to LMS (User Data, Organization Data, and Job Data) are below.

6.1. Integration Center User Data Job

Creating the User Data feed involves the creation and schedule of the Integration Center job and the modification of the CONNECTOR properties file in LMS system configuration.

Integration Center allows you to create an integration from a starting entity that acts as the point of reference for reading the SuccessFactors data, as an example, biographical information from Employee Central. After selecting this main entity, you can combine data from multiple entities like employment information (for all detailed information about Integration Center possibilities, please refer to the SAP Help Integration Center guide.

You will need to build an Integration Center job that will generate a file that is compatible with the format expected by the SF User Connector. This file follows a different format than the default connector format. The default connector format has a single line header, is pipe (|) separated, and each line is terminated with a special character sequence (!##!). The SF User Connector has a two-line header, is comma separated, and each line is terminated only with a newline character (\n). Additionally, each field is contained in double quotes. In order to comply with this format, the Integration Center job should be created as a Stacked/EDI file with three rows. The number of columns is determined by the number of fields that will be used in the LMS (depends on each customer’s requirements). A user file must contain fields for the active status (NOTACTIVE), student ID (STUD_ID), Person Id External (PERSON_ID_EXTERNAL) and Person GUID (PERSON_GUID) at a minimum.

An example of the layout is below. Header Line 1 contains the technical fieldnames. These fieldnames will correspond to the fieldnames in the CONNECTOR properties file (discussed below). The value for each of these fields should be fieldname surrounded by double quotes ("). The second line (Header Line 2) must exist, but the contents are not used by LMS. This line may be used for comments on specific fields. If there is at least one populated field on this line, the rest of these fields may be left blank.
Each data field (Line 3) will be a Paging/Batch Element. Now you must complete the mapping fields between
the template columns and the System data fields. This can be done in the ‘Field Mapping View’. To associate
the data fields to columns, just drag and drop the correspondent data field to each column as showed in the
image below.

SF User Connector expects the data fields to be wrapped in double quotes. This can be accomplished by
using a calculated field for each data element and using the “Prepend Text” and “Concatenate/Append”
funsions to wrap the field, as shown in the figure below. Note that for date fields, Employee Central is not
currently capable of producing dates in the standard LMS format (MMM-dd-yyyy hh:mm:ss). Dates can be
formatted as yyyy-MM-dd and will later be transformed in the CONNECTOR properties file.

The resulting output is shown below:

If there is any need based on customer requirement of applying filters to extract only specific
population (e.g. department, employee class, etc.) or from a specific time based, use the Filter tab to do it as illustrated below:
Also it is possible to define the sort of the data in the export file.

### 6.1.1 Connector Properties File

The CONNECTOR properties file in the LMS will contain the mapping between the Integration Center file and LMS fields. The following updates should be made in order to use the Integration Center file:

- The existing field mappings for the SF User connector should be updated so that the fieldnames on the right side of the equals (=) sign match the Integration Center header fields (Header Line 1 in the section above).

An excerpt of the file is shown below.

```plaintext
# SF User Connector column mapping
sfuser.field.mapping.data.NOTACTIVE=STATU
S sfuser.field.mapping.data.STUD_ID=USER_ID
sfuser.field.mapping.data.FNAME=FNAME
```
Renaming these field headers to more closely match the LMS fieldnames will make the file more readable and will have the added benefit of disabling the Service Event Bus. The Service Event Bus (SEB) automatically pushes data from the Employee Profile to the LMS upon creation of a new user in the BizX Platform (This process is triggered only when an Admin accesses the BizX UI and modifies a single user record. It will not get triggered if it is a file-based bulk import into BizX). The SEB uses the mappings in the SF User Connector file to send this data to the LMS, and includes data for the User ID, Job Code ID, Organization ID, and Job Location ID. The data that the SEB pushes will be inconsistent with the data that is sent through the Integration Center job, as the Employee Profile concatenates codes and descriptions into a single field. At a minimum, the fieldnames for the STUD_ID, JP_ID, ORG_ID and JL_ID should be changed from their default fieldnames (USERID, JOBCODE, DEPARTMENT, LOCATION). This will prevent the Service Event Bus from pushing inconsistent data into the LMS (The following KBA puts together all information about ‘Service Event Bus (SEB) and Real-time user creation/updates in LMS’ for your reference: [https://apps.support.sap.com/sap/support/knowledge/public/en/2800231](https://apps.support.sap.com/sap/support/knowledge/public/en/2800231)).

- Remove field mappings where the description is copied in from the ID, as the Integration Center job will allow for each of these descriptions to be entered as a separate field. Find and remove the line that copies field mappings. If required, explicitly set the value of the SHOPPING_ACCT_TYPE using the Integration Center job:

  `sfuser.connector.copy.field.mappings=SHOPPING_ACCT_TYPE=NOTACTIVE`

  ```
  removeJP_DESC=JP_ID, JL_DESC=JL_ID
  ```

- Additional field mappings can be included, based on the LMS data model. The extended user profile fields are no longer required. Example:

  `sfuser.field.mapping.data.ORG_DESC=ORG_DESC`

- In order to accommodate dates in the format that the Integration Center provides, the code in the line below should be used to transform dates into the LMS format (example below for Hire Date):

  `sfuser.field.transform.date.format.HIRE_DTE.MMM-dd-yyyy\ HH:mm:ss/yyyy-MM-dd`

A sample layout file is provided in the appendix, as a starting reference to create the integration center job for User information:

Employee Central - LMS Integration center job – User data_definition.icd

After importing the sample file, you must set up the SFTP + file and folder name under ‘Destination Settings’, as showed below:
Finally, you need to define the schedule for this job to export the data and send to the SFTP, to be consumed by LMS (image below).

The recommendation is to schedule a daily delta user data export from within Integration Center, with a destination of the customer’s SAP SFTP server. The job will consider only the changed users from the last 24 hours. This job should run after working hours when the number of users on the system is low. Also, a weekly full feed job could be scheduled to import all users into the LMS if needed. This job can be scheduled over the weekend, when the number of users on the system is low and the connector has more time to import larger user numbers.

6.1.2 Integration Center Setup
The Integration Center template will require some specific setup in order to avoid issues as duplicate entries. These setups are:

- Define pagination: Without this adjust, the Integration Center User data export job will generate duplicated records (Detailed information can be found in the KBA: https://apps.support.sap.com/sap/support/knowledge/public/en/2776691)

- File encryption: If required by the customer, the Integration Center outbound template can be encrypted (Detailed information can be found in the KBA: https://launchpad.support.sap.com/#/notes/2673786).
6.1.3 Employee Central Global Assignment / Concurrent Employment in LMS

There are a couple of topics which need to be highlighted when we introduce Global Assignment and/or Concurrent Employment to LMS. A pre analysis is required before implementing the new integration to understand what data will be changed and if any of this data is used in areas such as assignment profiles or reports etc, as these may need to be adjusted/updated within LMS. Changes such as, one user having multiple Student ID’s, thus multiple learning plans. Updates to the Assignment Profiles could be made to exclude the home or host account within the filter criteria to stop duplicate items being assigned to both learning plans. Meaning a user would only need to complete the item once on a single learning plan.

Below are additional topics to keep attention:

- Existing reports may need to be updated to display the Person ID External and not the Student ID where required.
- LMS-BizX User IDs Mapping
  Below is the illustration of how the LMS-BizX User IDs Mapping with Employee Central’s multiple employments should be setup:

  Figure 2: Mutiple Employment Mapping between BizX and LMS

The table mapping between Employee Central and LMS should be as follows:

<table>
<thead>
<tr>
<th>BizX</th>
<th>LMS</th>
</tr>
</thead>
<tbody>
<tr>
<td>USER_ID</td>
<td>STUD_ID*</td>
</tr>
<tr>
<td>PERSON_GUID</td>
<td>PERSON_GUID</td>
</tr>
<tr>
<td>PERSON_IDEXTERNAL</td>
<td>PERSON_ID_EXTERNAL</td>
</tr>
</tbody>
</table>

* Stud_id will be equal to the first Users_id of a person.

This is what each ID represents:

- Person ID External
  - A unique but mutable ID managed by customers
  - Serves as a display ID of the person
- Person GUID
  - A unique immutable ID that is auto generated by SuccessFactors
  - Serves as the common identifier of a person across the SuccessFactors suite
6.2. Integration Center Organization Data Job

The SF User Connector will not update Organizational descriptions or create Organizational structures within the LMS; therefore, a secondary Integration Center job is required to routinely check that the Organization ID, Description and Parent ID match between Employee Central and LMS.

The Employee Central organization structure could/can combine more than one level such as with the following example: (Level 0 (Legal Entity), Level 1 (Business Unit), Level 2 (Division) and Level 3 (Department)), as such this can be then replicated the same in LMS by creating a job in Integration Center. This way LMS will build the organization structure as well as updating the descriptions and respecting the Employee Central hierarchy.

The structure of this Integration Center job differs because it is needed to build the entire organization structure where there is a Parent Org assigned to each child, to reflect the same as in Employee Central. In order to comply with this format, the Integration Center job should be created as a Stacked/EDI file with four rows. The number of columns is determined by the number of fields that will be used in the LMS. An Org file must contain fields for the Organization ID (ORG_ID), Organization Description (ORG_DESC) and the Parent Organization (ORG_ID_PARENT).

An example of the layout is below. The Header Line contains the technical fieldnames. These fieldnames will correspond to the fieldnames in the CONNECTOR properties file.

<table>
<thead>
<tr>
<th>Section Name</th>
<th>1</th>
<th>2</th>
<th>3</th>
</tr>
</thead>
</table>
| Header1      | ORG_ID <- ORG_ID | ORG_DESC <- ORG_DESC | ORG_ID_PARENT <- ORG_ID...
| Department - Paging/Batch... | New Element <- Code (external...) | New Element <- Name (name)... | New Element <- Code (external...)
| Division <- Division (FO... | New Element <- Code (external...) | New Element <- Name (name)... | New Element <- Business Unit...
| Business Unit <- Busin... | New Element <- Business Unit... | New Element <- Business Unit... | New Element

The Starting Entity for this job must be the lowest level. In the example below we are using the Department.

The new template will appear empty, so is necessary to start creating the header line by clicking in the ‘+’ icon (Insert Sibling).
A new line will appear and now it requires to define the name of each column. The Section Name Columns is just for admin view, it means that will not appear in the template when exported. For this column just fill the Label in the right side as showed in the image below:

For the subsequent columns, you need to fill the Label + the Default Value. The Default Value is the technical name that the Org Connector is expecting. In order to add more columns values, you need to click on the previous column and click on the + icon (eg. Define the column 1 labels and after click in the ‘+’ icon, a new element will be created in the next column).

Now the Org connector requires a node to accommodate the company hierarchy and to do it is necessary to click in the first line of the ‘Section Name’ column and click in the ‘+’ icon. A second line will be created, and you can label it as the lowest level, Department in our case. Make sure to create new elements for each column in this line, by clicking in the ‘+’.

Then you need to create the node where you will group the entire hierarchical levels. To do this click in the second line ‘Department’ field and after click on the folder icon.
The node was created and now we need to add the line levels by clicking in the ‘+’ icon ‘Insert Child Segment’.

A new line was created where you change the label to Division, our next level. Now we just need to create the last level, that is the Business Unit. In order to do this, you need to click in the Division label field, ‘+’ icon, ‘Insert Sibling’. A new line will be created, and you just need to follow the previous steps, change label and add new element for each column.

The next step is to complete the mapping fields between the template columns and the System data fields. This can be done in the ‘Field Mapping View’. To associate the data fields to columns, just drag and drop the correspondent data field to each column. You will notice that in the right side there are all fields correspondent to the lowest level of our organization, the Department. For this level, just drag and drop the Department Code and name to the column 1 and 2 of the Department corresponding line.
For the additional levels you need to go node for each level that is inside of the foundation table. Basically, is necessary to drag and drop the entire node to the first column ‘Section Name’ and after navigating inside of this node and select the correspondent fields, as already done for Department level. Repeat the same for the last level and save the template.

A sample layout file is provided in the appendix, as a starting reference to create the integration center job for User information:

Employee Central - LMS Integration center job – Org data_definition.icd

After importing the sample file, you must fill the SFTP + file and folder name under ‘Destination Settings’, as showed below:

Finally, you need to define the schedule for this job to export the data and send to the SFTP, to be consumed by LMS, based on the LMS Org Connector schedule (image below).
The recommendation is to run an initial full Org data load and schedule a daily delta export in Integration Center to import into LMS afterwork hours.

6.3. **Integration Center Job Data Job**

The same situation as above applies to Job Code data transfer between Employee Central and LMS, meaning that the SF User Connector will not update existing Jobs within Learning, therefore a third Integration Center job is required to routinely check that the Job ID and Job match between Employee Central and Learning.

The structure of this Integration Center job differs because this uses a simple header type that is “|” (pipe) delimited and outputs to a TXT file. The screenshot below illustrates how this job differs from the User and Org Data job:

![Integration Center Job Data Job](image)

A sample layout file is provided in the appendix, as a starting reference to create the integration center job for Job information:

**Employee Central - LMS Integration center job – Job data_definition.icd**

After setting up the template or importing the sample file, you must fill the SFTP + file and folder name under ‘Destination Settings’, as showed below:

![Destination Settings](image)

Finally, you need to define the schedule for this job to export the data and send to the SFTP, to be consumed by LMS, based on the LMS Org Connector schedule (image below).
The recommendation is to run an initial full Job data load and schedule a daily delta export in Integration Center to import into LMS afterwork hours.

7. REFERENCES

SAP Help Portal

- Integration Center Guide

SAP Notes/KBA

- 2800231 - FAQ - About Service Event Bus (SEB) and Real-time user creation/updates in LMS
- 2459580 - How BizX SEB & ODATA Web Service syncs user data to SF LMS
- 2318341 - LMS Connectors Knowledge Support and Tips

8. APPENDIX

- Integration Center User data sample File
- Integration Center Org data sample File
- Integration Center Job data sample File
Implementation Design Principle