Source and Target Systems

from
Integrating SuccessFactors™ with SAP®
Source and Target Systems

One of the challenges of integration with a cloud or on-demand application (in which you usually have only one tenant for all employees) arises when multiple SAP ERP HCM systems are in place as the source and/or target systems for transferring data to or from the cloud application. This appendix describes some approaches you might use if you have multiple SAP ERP HCM systems in your landscape and discusses the different options you can consider to transfer data to those SAP ERP HCM systems.

The sections that follow provide information common to all three deployment models and addresses the following scenarios:

- Using SAP ERP HCM on-premise as the source system
- Using SAP ERP HCM on-premise as the target system

This appendix uses a number of different terms throughout. Table 1 provides some definitions and examples for these terms.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>System of record</td>
<td>A system that is the data source for an employee’s data records.</td>
<td>Employee’s FirstName, LastName</td>
</tr>
<tr>
<td>Move data</td>
<td>To shift an employee’s data records from one system of record (original system) to another system of record (new system). After the move, the employee’s data is processed in the new system. The employee’s status is INACTIVE in the original system and ACTIVE in the new system.</td>
<td>You use system 1 for country A and system 2 for country B. An employee moves from country A to country B. Therefore, his or her data is moved from system 1 to system 2, meaning it is processed in system 2 from now on. The employee receives the status INACTIVE in system 1.</td>
</tr>
<tr>
<td>Replicate data</td>
<td>To copy an employees’ data records from a central system to a centralized system.</td>
<td>You use system 1 as a central master data management system for user data and system 2 as a payroll system. Therefore, you replicate all user IDs from system 1 to system 2.</td>
</tr>
</tbody>
</table>

Table 1 Important Terminology
### Source and Target Systems

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Transfer data</td>
<td>To hand over an employees’ data records from an on-premise system to an on-demand system or vice versa.</td>
<td>You use systems 1 and 2 as on-premise SAP ERP HCM systems. You transfer employee data from both systems to SuccessFactors HCM to support talent management processes there.</td>
</tr>
<tr>
<td>User ID</td>
<td>An ID that identifies an employee within SuccessFactors. The user ID is assigned externally and not generated automatically by SuccessFactors. It cannot be changed later.</td>
<td>An employee can be given a UID similar to Consultant001. Typically, customers use a combination of an employee’s first and last name as the UID.</td>
</tr>
<tr>
<td>Personnel number</td>
<td>An ID that identifies the relationship between an employee and an employer in SAP ERP HCM. Usually, an employee has only one personnel number at a certain point in time. In the case of concurrent employment or global employment, an employee can have several personnel numbers at the same time.</td>
<td>A personnel number (PERNR) is generated and maintained in SAP ERP HCM. This number is system generated and is assigned to an employee during the hiring action.</td>
</tr>
<tr>
<td>Central person ID</td>
<td>An ID that links the employee to the business partner. For each employee, a central person is created and linked to the employee. For the central person, a business partner is created. The user data for the business partner is taken from the employee data. Even employees who are assigned several personnel numbers at once have only one central person ID.</td>
<td>This is a CP object in SAP ERP HCM. Typically, every employee will be linked to a central person ID. In a global assignment environment, an employee might potentially have multiple PERNRs assigned to them, but every PERNR will be linked to the same CP, thereby ensuring that the different PERNRs are related to the same employee.</td>
</tr>
<tr>
<td>Source system</td>
<td>The system from which data is transferred.</td>
<td>You transfer compensation data from SAP ERP HCM to SuccessFactors HCM so that it is available for compensation planning there. In this case, SAP ERP HCM is the source system.</td>
</tr>
</tbody>
</table>

*Table 1  Important Terminology (Cont.)*
Using SAP ERP HCM as the Source System

In this section, we will discuss the scenarios in which SAP ERP HCM is the source system to transfer data to SuccessFactors HCM.

The different scenarios are as follows:

- Using multiple SAP ERP HCM systems that each have an equal status
- Using multiple SAP ERP HCM systems in which one system is the central system

Refer to this list as needed throughout this appendix.

<table>
<thead>
<tr>
<th>Term</th>
<th>Definition</th>
<th>Example</th>
</tr>
</thead>
<tbody>
<tr>
<td>Target system</td>
<td>The system to which data is transferred.</td>
<td>When you have completed compensation planning in SuccessFactors HCM, you transfer the planned compensation data from SuccessFactors HCM to an SAP ERP HCM system so that it can be processed in payroll. In this case, SAP ERP HCM is the target system.</td>
</tr>
<tr>
<td>Sender system</td>
<td>The source system from which data is pushed to the target system.</td>
<td>You transfer compensation data from SAP ERP HCM to SuccessFactors HCM so that it is available for compensation planning there. The SAP ERP HCM system pushes the data to the SuccessFactors HCM system. In this case, SAP ERP HCM is the sender system.</td>
</tr>
<tr>
<td>Receiver system</td>
<td>The target system to which the source system pushes data.</td>
<td>You transfer compensation data from SAP ERP HCM to SuccessFactors HCM so that it is available for compensation planning there. The SAP ERP HCM system pushes the data to the SuccessFactors HCM system. In this case, SuccessFactors HCM is the receiver system.</td>
</tr>
</tbody>
</table>

**Table 1** Important Terminology (Cont.)
We will discuss each scenario in detail to better understand how to process the employee records prior to transferring to SuccessFactors HCM.

**Multiple SAP ERP HCM Systems of Equal Status**

In the SAP landscape, at least two separate SAP ERP HCM systems are in place. Employee data is transferred from both systems to SuccessFactors HCM. An employees' data records can be moved from one SAP ERP HCM system to another based on a change in the organizational assignment (such as country or employer). You can move these data records manually or automatically, using intermediate documents (IDocs). These systems are of equal status, meaning that none of the systems are used as a consolidation system, which contains at least a mini-master record for all employees (see Figure 1).

**Recommendation**

We recommend that you use a central SAP ERP HCM system, which stores the employee status and a mini-master record. This increases the consistency of the employee data and helps to avoid problems. You can use a separate SAP ERP HCM system as the central system. Alternatively, you can extend an existing central master data management system (for example, another SAP ERP HCM system that you use as a central master data management system for products or materials) in such a way that it can also store employee data.
Handling of User IDs

Because an employee can have more than one personnel number over time (and in the case of concurrent employment or global employment, also at the same time), as a standard the central person ID is transferred to SuccessFactors HCM as the user ID.

In the case of multiple source systems, the following problems may arise:

- Different persons have the same ID
- The same person has different IDs in different systems

The ideal scenario is that your SAP ERP HCM systems are set up such that the internal number ranges available for the central persons are disjointed; that is, each system has its own block of numbers available for assigning numbers internally, and all other blocks can be used to assign numbers externally. This allows newly hired employees to receive an internal ID that is not assigned to another employee in another system. In contrast, an employee whose data is replicated from one system to another can receive the same ID in the new system that was already assigned to him or her in the source system.

However, this is not always the case. Your SAP ERP HCM systems may not have disjointed number ranges because, for example, your company has acquired another company that has its own SAP ERP HCM system, which was not adapted to your system landscape. To resolve a problem like this, you need to unify the user IDs in another way. You can do this on either the receiver side or the sender side:

- **Receiver side (SuccessFactors HCM)**
  If a unification is on the receiver side, then the receiver needs an additional criterion to distinguish between different employees with the same user ID and the ability to map this information to a user ID created internally (key mapping component). Often, the sender ID (for example, the logical system ID) is used, which is useful if the transferred object is not moved from one sender system to another.

Caution

Once an employee has a user ID assigned in SuccessFactors HCM, this ID can no longer be changed. Take this into account when you define the source field in SAP ERP HCM from which the user ID is extracted and transferred to SuccessFactors HCM.
However, as previously mentioned, this cannot always be assumed for employee data. Furthermore, the SuccessFactors HCM system currently does not have a key mapping function.

**Sender side (SAP ERP HCM system)**

Because the SuccessFactors HCM system does not have a key mapping function, unification has to be on the sender side. This means that you need to find a replacement for the central person ID, which is unique for the same employee across all SAP ERP HCM systems.

You have the following replacement options:

- Use a non-HCM system to manage user IDs.
- Use an alternative personnel number.
- Use a universal unique identifier (UUID).
- Use the employee’s social security number (SSN) or a similar identifier.
- Use the employee’s email address.

Depending on the option you choose, you need to make sure that the corresponding ID is transferred to SuccessFactors HCM as the user ID. In addition, if you use single sign-on, then you need to make sure that the corresponding ID is available in the identity provider (IdP).

**Using a Non-HCM System to Manage User IDs**

You can use an external (non-HCM) system (e.g., a central business warehouse system or a central user administration system) to uniquely identify an employee.

**Recommendation**

We recommend that you use an external system, because when you do, the central system assigns a unique ID to the employees so that you do not have to do so in the SAP ERP HCM system. Central user administration also includes processes to adjust user information if employee data is changed.

If you use a central user administration system, such as SAP Identity Management (SAP IDM), then the process will be as follows:

1. All employee data records are replicated to the central user administration system, regardless of whether they need access to the system landscape.
2. Based on distributed information, a user is created in the central user administration system for each employee. For employees who do not need access to the system landscape, the user is set to Inactive.

3. The users are replicated from the central user administration system back to the SAP ERP HCM systems and stored there in the Infotype Communication (0105), usually in the subtype System User Name (SY-UNAME; 0001). The replication can be performed manually. If you use SAP IDM, then replication can also be performed automatically. For more information, see User Management and Distribution with SAP NetWeaver Identity Management in the SAP Library for SAP ERP, in the "Processes and Tools for Enterprise Applications" section. The SAP Library for SAP ERP is located at http://help.sap.com/eccApplication Help.

**Alternative Personnel Number**

Using an alternative personnel number is similar to using a UUID, but the advantage is that it is easier to read and to memorize. Depending on the system settings and the country versions you have installed, you have different options for storing an alternative personnel number.

The challenge is to find a way to obtain a unique ID. You can use an ID that is generated by the system—for example, a UUID. However, IDs generated by the system are random numbers without any relation to employees.

You can also use employee-specific IDs—for example, SSNs. Employee-specific IDs have a relation to the employees and are therefore easier to memorize. However, it is more difficult to keep them unique across several SAP ERP HCM systems.

You can consider storing the unique ID in any of the following manners:

- **Use the PERID field from the Personal Data infotype (0002)**
  
  You can use the Personnel ID Number field (PERID) in the Personal Data Infotype 0002 to store a unique ID.

**Caution**

Some country versions (e.g., Denmark, Canada, or the United States) use this field in the standard SAP ERP HCM system—for example, to store the employee’s SSN. Therefore, you can only use this option if you have not installed any country versions that use the Personnel ID Number field by default.
Use the PERSONID_EXT field from the Person ID infotype (0709)

You can use the EXTERNAL PERSON ID field (PERSONID_EXT) in the Person ID infotype 0709 to store a unique ID. The Person ID infotype is used for concurrent employment or global employment so that you can store an employee ID that is easy to read. You can use various methods to fill the EXTERNAL PERSON ID field; for example, you can use a Business Add-In (BAdI) implementation. For an initial load, you can use the Generation Report for Infotype 0709 (PERSONID_EXT; HR_CE_GENERATE_PERSONID_EXT). The Person ID infotype is not included in any intermediate document (IDoc). Therefore, it is not possible to use standard features to replicate all employee data between the SAP ERP HCM systems. Consequently, you have to implement an individual solution, as is the case if you use the UUID.

Add a new personnel number field to an existing infotype

You can extend a standard infotype by adding a customer-specific field to store a unique ID.

Caution

If employee data is replicated between systems (e.g., by using IDocs), then you also need to extend the corresponding IDoc.

Universal Unique Identifier

A standard feature exists for generating and managing UUIDs. The assignment of a UUID to an employee is stored in the HR: Global Object ID for HR Objects table (T777GUID1). You can use the function modules of the HR: Interface Global Keys function group (HRBAS00GUID) to edit these assignments.

In the standard SAP ERP HCM system, UUIDs are not generated for employees, and you cannot use a standard maintenance switch to switch on the UUID generation. Instead, you have to create a BAdI implementation, which is called within the infotype database layer.

Because UUIDs are not created by default and are not stored in an infotype, there is currently no way to transport the UUID together with the employee data. Therefore, you have to implement both a mechanism for generating the UUIDs and a procedure for transporting them.

Social Security Number or a Similar Identifier

An SSN or social insurance number or a comparable number, such as the tax file number (TFN) in Australia, identifies an employee uniquely within a country.
Therefore, you can use this type of number as a unique ID, particularly if you have installed only one country version.

### Caution

If you have installed more than one country version, then you should take the following restrictions into account:

- Make sure that the numbers differ in all applicable country versions.
- You have to implement determination logic, because the different country versions store the corresponding numbers in different infotypes.
- Take into account that employees might move from one country to another, which may mean that an employee receives a new ID. In such cases, you have to clean up the IDs. For more information, see the section titled User IDs for the Same Person in Sync in All SAP ERP HCM Systems.
- Take into account that employees might move from one country to another, which may mean that an employee receives a new ID. In such cases, you have to clean up the IDs. For more information, see the section titled User IDs for the Same Person in Sync in All SAP ERP HCM Systems.

### Email Address

Many web applications use an email address as a unique identifier. Due to the following restrictions, we do not recommend that you use email addresses as unique IDs:

- Length restrictions do not always allow enough space for email addresses:
  - The unique identifier must not be longer than the SuccessFactors HCM USE-RID field allows (100 characters). Email addresses can easily exceed 100 characters, depending on the length of the name of the employee or the name of the company.
  - If you use a file download to integrate SAP ERP HCM with SuccessFactors HCM, fields such as MATRIX_MANAGER are limited to 255 characters. This might not be sufficient to store the email addresses of all matrix managers of an employee.
- Each employee whose data is transferred to SuccessFactors HCM needs to have an email address, and such addresses have to be stored in the SAP ERP HCM system.
- When an employee leaves the company, you need to make sure that his or her email address is not reused.
- The unique identifier must not be changed, but email addresses often change—for example, if the employee’s name changes.
User IDs for the Same Person in Sync in All SAP ERP HCM Systems

Say that an employee leaves the company; later, the employee is rehired. However, his or her data is stored in a different SAP ERP HCM system. Because there is no central SAP ERP HCM system, the employee is not identified as rehired. Instead, the hiring action is handled as a new hire. This results in the employee having two different IDs—for example, two different CP IDs. The old user ID will be set to Inactive in SuccessFactors HCM. A new, active user will be created instead, meaning that the change history of the employee’s data is lost.

If this poses a problem, then you need to identify all employees to whom this situation applies and clean up the assignments of user IDs to these employees. Removing multiple IDs assigned to employees can be done either automatically or manually as follows:

- **Automatic cleanup**
  In this scenario, an automatic cleanup of the duplicate IDs in the system is possible only if the following is available in the SAP HCM landscape:
  - A data clean-up component for finding duplicates.
  - A staging area for storing potential duplicates and enabling a user to make a final decision.
  - A key mapping function for storing the assignments of the different IDs to an employee and for removing incorrect assignments.

**Caution**

In the scenario described in the following manual cleanup bullet point, there is no suitable system available for an automatic cleanup for the following reasons:

- There is no central SAP ERP HCM system.
- The SuccessFactors HCM system is not intended to be used to clean up data.

- **Manual cleanup**
  In this scenario, you can only implement a manual cleanup process. This process may be as follows:

1. An employee notices that his or her user ID for SuccessFactors HCM has changed and notifies an administrator.
2. The administrator reassigns the old user ID to the employee.
3. If data was transferred to SuccessFactors HCM for this user ID, then you need to clean up the user IDs in the SAP IDM system and distribute these changes to the other systems in your system landscape.

4. As a result, the Communication Infotype 0105 is changed for the employee.

5. The next time data is transferred for this employee, the delta handling makes sure that the data for the employee’s old user ID is updated and that the new user ID, which is not needed, is set to **Inactive**.

**Active/Inactive Handling**

An employee’s data records are moved from one SAP ERP HCM system (original system) to another SAP ERP HCM system (new system). Both systems are source systems for transferring data to SuccessFactors HCM. The employee keeps his or her user ID in SuccessFactors HCM, because you transfer the central user ID, for example, which remains the same. The employee has the status **Inactive** in the original SAP ERP HCM system and the status **Active** in the new SAP ERP HCM system. The status in the SuccessFactors HCM system should not change. However, by default, the status of the employee in SuccessFactors HCM is randomly either **Active** or **Inactive**. This is because the original SAP ERP HCM system transfers the employee as **Inactive**, and the new SAP ERP HCM system transfers the employee as **Active**. The current status of the employee in SuccessFactors HCM depends on which information was transferred most recently.

**Note**

You cannot solve this issue by sequencing the data transfer, because the data records of employees can be moved freely between the SAP ERP HCM systems.

**Sync All SAP ERP HCM Systems**

You can implement an automatic or a manual process as follows to make sure that employees whose data records are moved from one SAP ERP HCM system to another keep the status **Active** in SuccessFactors HCM:

- **Automatic process**
  
  If you wish to implement an automatic process, take the following factors into account:

  - The original SAP ERP HCM system (in which the employee has the status **Inactive**) has to decide if it has to transfer this employee status to SuccessFactors HCM.

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Source and Target Systems

HCM. To be able to do so, it has to know that the employee has not left the company and that his or her data records were moved to another SAP ERP HCM system.

- Even if employee data is transferred to SuccessFactors HCM in general from the new SAP ERP HCM system (in which the employee has the status Active), the employee may belong to a group for which no data is transferred.
- The original SAP ERP HCM system (in which the employee has the status Inactive) has to be able to ask the new SAP ERP HCM system (in which the employee has the status Active) if the employee’s data will be transferred from there to SuccessFactors HCM.
- Manual corrections must be possible.

**Manual process**

If you do not expect a large number of employees with an incorrect status, then you can implement a manual process.

**Multiple SAP ERP HCM Systems in Which One Is the Central System**

In SAP landscapes in which there are multiple SAP ERP HCM systems, you have might have at least one SAP ERP HCM system as the central system. In such a landscape, the central SAP ERP HCM system may or may not contain all the relevant data. In this section, we discuss this particular scenario and how to process the records prior to transferring them to SuccessFactors HCM.

**Central SAP ERP HCM System Containing Relevant Data**

With a central SAP ERP HCM system in place, all relevant data can be transferred to SuccessFactors HCM. This includes the overall status of an employee as well as manager relationships. The central system keeps track of the overall status of an employee and knows if an employee belongs to a group of employees whose data is transferred to SuccessFactors HCM (see Figure 2).

**Recommendation**

We recommend using this approach, because it solves, for example, the Active/Inactive problem described in the Active/Inactive Handling section.
Central SAP ERP HCM System Containing Part of the Relevant Data

A central SAP ERP HCM system that contains part of the relevant data is worthwhile in the following situations:

- You use a central SAP ERP HCM system that contains only a high-level organizational structure. In addition, there are other SAP ERP HCM systems for subsidiaries, to which the relevant employee data is replicated. Because the subsidiaries are free to set up their own organizational structures, an employee is assigned a manager, an HR administrator, and matrix managers in the SAP ERP HCM system of the corresponding subsidiary (see Figure 3).

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**Figure 2** Using a Central SAP ERP HCM System That Contains All Relevant Data

**Figure 3** Using a Central SAP ERP HCM System That Contains a High-Level Organizational Structure
You use a central SAP ERP HCM system that contains only HR mini-master records without payroll data. Payroll data is maintained in a separate payroll system. Figure 4 illustrates this scenario.

Because the status is a mandatory field for transferring user data to SuccessFactors HCM (for example, an employee’s user ID, manager assignment, and organizational assignment), each system has to send it. Therefore, if employee data records are moved from one SAP ERP HCM system to another, then different statuses can be assigned in the different systems.

Table 2 shows the status of the employee in the corresponding SAP ERP HCM system and the status to be expected in SuccessFactors HCM. “Excluded from data transfer” means that the employee has the status Active, but belongs to a group of employees for whom data is not transferred to SuccessFactors HCM.

<table>
<thead>
<tr>
<th>Central SAP ERP HCM System</th>
<th>SAP ERP HCM System from Which Employee Is Moved</th>
<th>SAP ERP HCM System to Which Employee Is Moved</th>
<th>SuccessFactors HCM System</th>
</tr>
</thead>
<tbody>
<tr>
<td>INACTIVE</td>
<td>INACTIVE</td>
<td>INACTIVE</td>
<td>INACTIVE</td>
</tr>
<tr>
<td>Excluded from data transfer</td>
<td>INACTIVE</td>
<td>Excluded from data transfer</td>
<td>INACTIVE</td>
</tr>
<tr>
<td>ACTIVE</td>
<td>INACTIVE</td>
<td>ACTIVE</td>
<td>ACTIVE</td>
</tr>
</tbody>
</table>

Table 2 Employee Status
A problematic situation arises when each system transfers its own status information. Therefore, the status of the employee in SuccessFactors HCM is randomly either **Active** or **Inactive**.

This approach is not supported in the standard solution. You need to consider a few other things related to this situation (refer to Table 2). You prevent employee data from being transferred if the employee receives the status **Inactive** or is excluded from the data transfer. When dealing with this third situation, consider the following:

- The delta handling implemented as standard does not support this approach.
- You can schedule the data transfer runs such that the data transfer from the central SAP ERP HCM system always comes last.
- It cannot be guaranteed that data transfer runs are always performed in exactly the same sequence. Therefore, you may need to make manual corrections.
- If there are groups of employees whose data is not transferred to SuccessFactors HCM, then you have to keep the extraction variants of the reports triggering the data transfer from the different SAP ERP HCM systems in sync. You need to make sure that all extraction variants in all systems select only employees whose data is to be transferred to SuccessFactors HCM.

### Using SAP ERP HCM as the Target System

In the SAP landscape, there is a central SAP ERP HCM system. This system contains only a mini-master record—for example, the name, organizational assignment, and address of the employees. Payroll data is maintained in a separate payroll system. To support the compensation planning process, compensation data is transferred to SuccessFactors HCM. When you have completed the compensation planning in SuccessFactors HCM, you extract the planned compensation data from SuccessFactors HCM and transfer it back to the payroll systems so that it can be processed in payroll (see Figure 5).

If you transfer data from SuccessFactors HCM to different SAP ERP HCM systems, then you need to decide which target system the data should be transferred. The following points must be kept in mind when making this decision:

- If you use a pull mechanism, you decide this implicitly.
- If you use a push mechanism, you need to decide this explicitly.
The following section looks more closely at the pull and push mechanisms.

**Pulling Data from SAP ERP HCM Systems**

You have the following options for pulling data to SAP ERP HCM systems:

- **A pull triggered by a middleware**
  If you use middleware to pull data, then the transferred data is transformed by the middleware and then pushed to the payroll system. This means that the middleware switches from a pull to a push mechanism.

- **A pull triggered by an SAP ERP HCM system**
  If you use an SAP ERP HCM system to pull data and have middleware in place, then the middleware can convert the request from the SAP ERP HCM system into a request to the SuccessFactors HCM API. You can also convert the SuccessFactors HCM response to the SAP ERP HCM system into a response to the original request via the middleware.

  The following two sections look at these options in closer detail.
Using SAP ERP HCM as the Target System

Using Middleware to Pull Data
If the pull is triggered by middleware, then the challenge is to route the data to the correct SAP ERP HCM system. If the original SAP ERP HCM message content does not contain the necessary information, then you can retrieve it from the source system.

<table>
<thead>
<tr>
<th>Recommendation</th>
</tr>
</thead>
<tbody>
<tr>
<td>We do not recommend that you use this method, because it requires more effort to develop middleware content. It also contains a push into the payroll system, which might be considered a security problem.</td>
</tr>
</tbody>
</table>

Using the SAP ERP HCM System to Pull Data
If the pull is triggered by an SAP ERP HCM system, then the query that is used to extract the data from SuccessFactors HCM must provide sufficient selection criteria to retrieve all relevant data for a specific SAP ERP HCM system. In most cases, this is easy to achieve by using the personnel number or the SuccessFactors HCM user ID. You also need to map the SuccessFactors HCM fields to the target fields in the payroll system. This is the approach implemented as standard, and we recommend that you use this approach.

Pushing Data to SAP ERP HCM Systems
If you have multiple target systems in place and use a push mechanism, then the challenge is locating the correct system to which a message is to be transferred. Usually, it is information about an organizational assignment (e.g., an employee’s employer or country assignment) that determines the target system.

You can use the following systems to route messages and address the correct target system:

- **A source system (SuccessFactors HCM)**
  In this case, all possible information that can be used for the routing decision is available. Sender-based routing requires some features on the sender side:
  - A rule engine that can be used to determine the receiver
  - An outbound capability, ideally with events triggering the outbound
In this case, the middleware has to perform content-based routing, meaning that rules have been defined in the middleware to decide which system is the correct target system for a message based on the data that is transferred.

In summary, consider the following points when looking at content-based routing:

- The content must contain information that is needed to decide the target system.
- Encrypted content has to be decrypted.
- If a message contains data for multiple employees, then the middleware has to split the message, decide the correct target system for each employee, and transfer the data to this target system.

**Caution**

Using a mechanism that determines the receiver by simply sending the data back to the SAP ERP HCM system it was originally transferred from fails if an employee’s data records are moved to another SAP ERP HCM system during the compensation planning process.

**Middleware**

In this case, the middleware has to perform content-based routing, meaning that rules have been defined in the middleware to decide which system is the correct target system for a message based on the data that is transferred.

In summary, consider the following points when looking at content-based routing:

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