SAP S/4HANA Cloud Integration with Workday Configuration Guide

For SAP Cloud Integration Suite

Version 1.0 – June 2021

Contents

1 Introduction

This document provides an overview of the artifacts delivered as part of the SAP S/4HANA Cloud Integration with Workday for the SAP Integration Suite. The document discusses some of the common configuration steps needed before deploying the Integration Flows within the package. Read this guide carefully before configuring the integration content.

1.1 Coding Samples

Any software coding and/or code lines/strings ("Code") included in this documentation are only examples and are not intended to be used in a productive system environment. The Code is only intended to better explain and visualize the syntax and phrasing rules of certain coding. We do not warrant the correctness and completeness of the Code given herein.

1.2 Internet Hyperlinks

The documentation may contain hyperlinks to the Internet. These hyperlinks are intended to serve as a hint about where to find related information. We do not warrant the availability and the correctness of this related information or the ability of this information to serve a particular purpose.

2 Overview

The integration of SAP S/4HANA Cloud and Workday processes can be customized. It is expected that you customize the process as per your business requirements. Adjustments can be made at different components, including:

- Adjustment to the integration flow externalized parameters,

- Adjustment to the mapping step to reflect the possible custom properties in Workday.

In case changes have been made to objects in Workday and custom fields have been added, XSD needs to be generated using the Eclipse Plug-in. These XSDs need to be uploaded to the Integration flow and the mapping adjusted accordingly.

3 Preparing the Systems for Integration

3.1 Prerequisites

To configure the integration content using this guide, you would need to have access and authorizations to the systems listed below.

Access required:

- SAP S/4HANA Cloud Tenant Details
- SAP Integration Suite Tenant Details.
- Workday Tenant Details

Authorization required:

- SAP S/4HANA Cloud Tenant Details
    - Appropriate authorizations for the technical user that will be used to connect to the SAP S/4HANA Cloud Tenant.
    - The technical user should be able to perform CRUD operation on:
        - Employee
        - Cost Centers

- SAP Integration Suite Tenant Details
    - AuthGroup.IntegrationDeveloper

- Workday Tenant
    - Appropriate authorizations for the technical user that will be used to connect to the Workday Tenant.

3.2 Adapter Installation

Installing the Workday adapter is a prerequisite to use this Integration Package. For the adapter installation refer to the *Workday Adapter and Plug-in Installation Guide* that is included as part of the Workday adapter package.

3.3 Plug-in Installation

For the Eclipse plug-in (or Workbench) installation refer to the Workday *Adapter and Plug-in Installation Guide* that is included as part of the Workday adapter package.

4 Configuration

SAP S/4HANA Cloud, Workday, and SAP Integration Suite need to be configured and prepared before the integration content package can be configured and deployed. Follow the steps mentioned in the next sections.

4.1 Configuration in SAP S/4HANA Cloud

This section describes the mandatory configurations which need to be performed in the SAP S/4HANA Cloud. Follow the steps mentioned in the following sub-sections.

4.1.1 Create Technical Communication User

A Technical Communication User is needed to call OData and SOAP services in SAP S/4HANA Cloud from Cloud Platform Integration. Communication Users in SAP S/4HANA Cloud are used for inbound communication and for processing messages in the system. Follow the steps below to create a communication user in SAP S/4HANA Cloud.

Note that the Integration Flow in Cloud Integration exposes a SOAP Service. This SOAP service will need to be called from SAP S/4HANA Cloud.

4.2 Configuration in Workday

This integration package is configured using basic Authentication toward Workday.

A Technical Communication User is needed in Workday to perform all integration calls from the Integration Suite. The created technical user needs to have all the appropriate authorization to perform CRUD operations in Workday.

4.3 Configuration in SAP Integration Suite

In this section, the settings of the Integration Flows are discussed, including the prerequisites, parameters of the Sender and Receiver systems, as well as others specific to each iFlow.

4.3.1 Replicate Exchange Rate from SAP S/4HANA Cloud to Workday

This integration flow enables the replication of Exchange Rates from SAP S/4HANA Cloud. The integration is triggered from SAP S/4HANA Cloud and the Integration Exposes a SOAP endpoint. Figure 4.1 depicts the business process to be implemented.
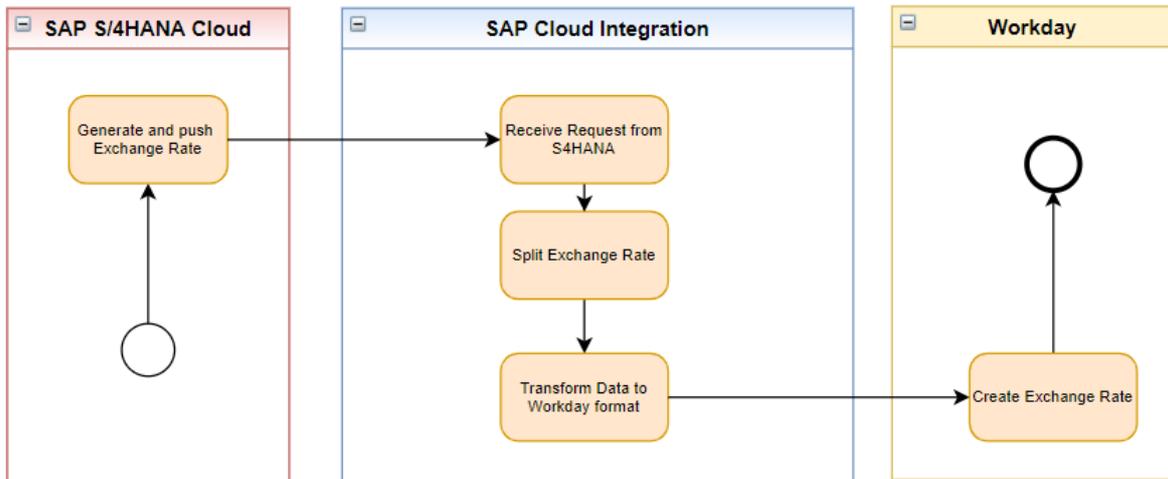
Figure 4.1 Process Diagram

The SAP Cloud Integration implementation of the process in Figure 4.1 is shown in Figure 4.2.
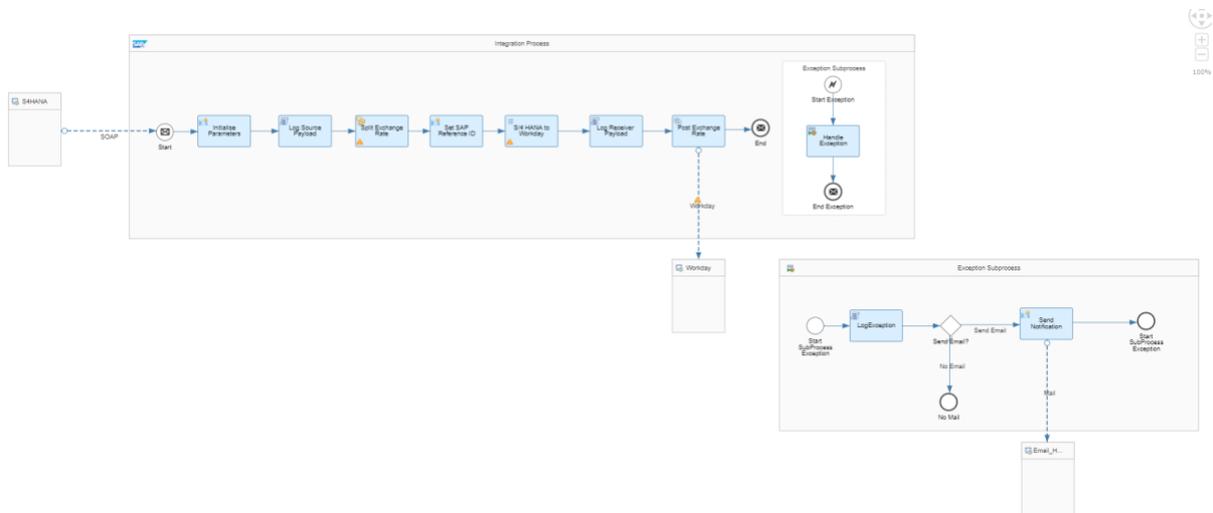

Figure 4.2 Integration Flow

4.3.1.1 Prerequisites

The following actions need to be performed as a prerequisite:

- Deploy the security artifacts that will be required during the configuration of integration content.

- Users need to define the time zone in configuration and the first time run date and hour from when to start replicating.

4.3.1.2 Deploying User Credentials in SAP Cloud Integration

To enable the Integration Flows to run, Credentials for both Workday and SAP S/4HANA Cloud need to be deployed in the Cloud Integration Tenant. These are discussed in the next sections.

4.3.1.2.1 Deploying User Credentials for Workday

This is necessary to connect to Workday using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical Workday User.
6. Click on Deploy.

4.3.1.2.2 Deploying User Credentials for SAP S/4HANA Cloud

This is necessary to connect to SAP S/4HANA Cloud using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical Workday User.
6. Click on Deploy.

4.3.1.3 Configuration

Follow the below steps to configure the integration flow:

1. Open the integration flow "Replicate Exchange Rate from SAP S4HANA Cloud to Workday".
2. Click on Configure.
3. Configure "Sender". Provide an endpoint to the iflow as per the organization's naming standards.

Figure 4.3 Configure Sender

Note: Replace the default values of the parameters in the configurations based on your scenario and landscape.

4. Go to Receiver.
5. Configure the "Receiver" connector named "Workday". See Figure **4.4**.

Figure 4.4 Configure Receiver Workday

The description of each of the fields in Figure 4.4 is presented in the table below.

Parameter	Description
Address	Specify the hostname of your Workday tenant. Example.: https://dev11111.workday.com
Tenant	Specify the ID of your Workday tenant. Example: mytenant
Credential Name	Specify the name of a deployed User Credentials artifact that holds the username and password used to authenticate with Workday. This was discussed in Section 4.2.

API Version	Specify the Workday API version.

Table 1 Configure Receiver Workday

6. Configure the "Receiver" connector named "Email_Handler". See Figure **4.5**.

Figure 4.5 Configure Receiver Mail Server

The description of each of the fields in Figure 4.5 is presented in the table below.

Parameter	Description
Address	Specify a combination of the hostname and port of your email Server. Example.: smtp.gmail.com:587
Basic Credential Name	Specify the name of a deployed User Credentials artifact that holds the Username and Password used to authenticate with the mail server.
From	Specify the email address from which the exception notification should come.

To	Specify the email address where to sent the exception notification.
Subject	Specify the template to be used as a subject of your email.

Table 2 Configure Receiver Mail Server

7. Configure "More" as shown in Figure **4.6**.

Figure 4.6 Configure More options

The description of each of the fields in Figure 4.6 is presented in the table below.

Parameter	Description
LogMessageBody	Possible values "TRUE" / "FALSE". Specify "TRUE" to log the Message Body (Not recommended in a live environment). Use "FALSE" as a default value.
LogMessageHeader	Possible values "TRUE" / "FALSE". Specify "YES" to log Message Headers. Use "FALSE" as a default value.
LogMessageProperty	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message properties (Not recommended in a live environment). Use "FALSE" as a default value.
ExceptionLogging	Possible values "TRUE" / "FALSE". Specify "YES" to log Message Exceptions. Use "FALSE" as a default value.

EnableMailNotification	Possible values "TRUE" / "FALSE". In case the value is set to "TRUE", the integration Flows will send a notification to the email address specified in the To field of the Mail server. See Table 2. The notification is sent in case an exception occurs.

Table 3 Configure More options

8. Save and Deploy.

4.3.1.4 Integration Message Mapping

In case your organization uses custom fields in Workday, you might need to customize the provided integration flow and adapt it to your needs. Users should update the existing solution by creating a new XSD using the Eclipse Workday Workbench Plug-in, change this schema in the message mapping, and add custom connections as needed.

4.3.2 Replicate Cost Centers from SAP S/4HANA Cloud to Workday

This integration flow enables the replication of newly created Cost Centers from SAP S/4HANA Cloud to Workday. The integration needs to be scheduled (if scheduled to recur) and checks for any new Cost Centers data in SAP S/4HANA Cloud. Figure 4.7 depicts the business process to be implemented.

Note: The integration is meant to synchronize Cost centers based upon creation date. It only picks newly created Cost Centers. It is possible to synchronize specific Cost Centers using the "CostCenters" external property in the Integration Flow.
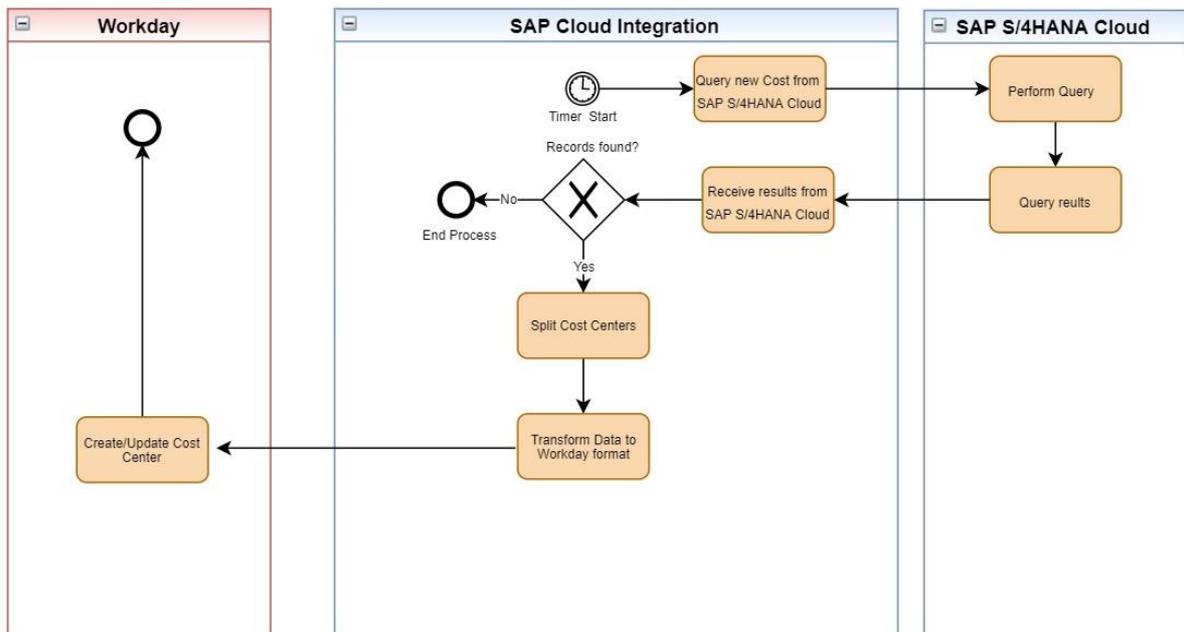
Figure 4.7 Process Diagram

The SAP Cloud Integration implementation of the process in Figure 4.7 is shown in Figure 4.8.
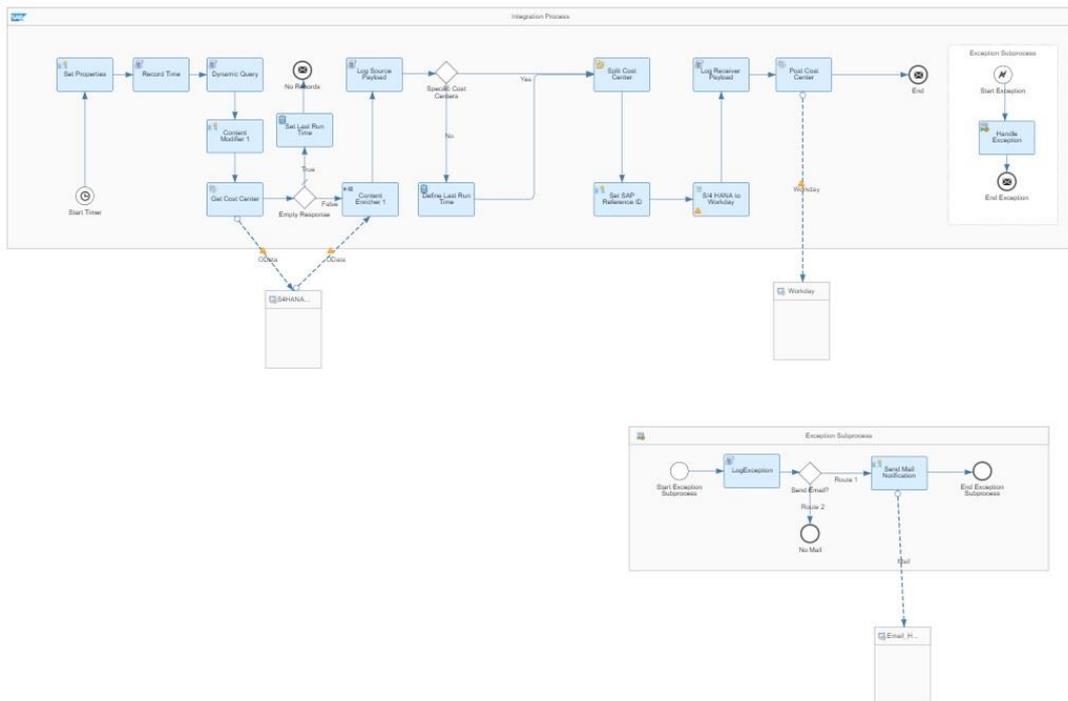

Figure 4.8 Integration Flow

4.3.2.1 Prerequisites

The following actions need to be performed as a prerequisite:

- Deploy the security artifacts that will be required during the configuration of integration content.
- Users need to define the time zone in configuration and the first time run date and hour from when to start replicating.

4.3.2.2 Deploying User Credentials in SAP Cloud Integration

To enable the Integration Flows to run, Credentials for both Workday and SAP S/4HANA Cloud need to be deployed in the Cloud Integration Tenant. These are discussed in the next sections.

4.3.2.2.1 Deploying User Credentials for Workday

This is necessary to connect to Workday using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical Workday User.
6. Click on Deploy.

4.3.2.2.2 Deploying User Credentials for SAP S/4HANA Cloud

This is necessary to connect to SAP S/4HANA Cloud using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical User.
6. Click on Deploy.

4.3.2.3 Configuration

Follow the below steps to configure the integration flow:

1. Open the integration flow.
2. Click on Configure.
3. Configure "Timer". You can choose between:
   Run Once: iFlow will be executed only once, can be used for the initial load.
   Schedule on Day: iFlow will be executed on a specific date/time.
   Schedule to Recur: iFlow will be executed at a regular interval and will replicate the changes from the source system to the target system (suggested mode).

Figure 4.9 Configure Timer

Note: Replace the default values of the parameters in the configurations based on your scenario and landscape.

4. Go to Receiver.
5. Configure the "Receiver" connector named "S4HANA_Cloud" to fit your specific landscape. See Figure **4.10**.

Figure 4.10 Configure Receiver SAP S/4HANA for OData

The description of each of the fields in Figure 4.10 is presented in the table below.

Parameter	Description
S4HANA_Cloud_Host	Specify the API hostname of your SAP S/4HANA Cloud to consume an OData Service. The hostname is part of the Address. Example: myxxxxx.s4hana.ondemand.com
S4HANA_Cloud_Port	SAP S/4HANA Cloud port. Default Value: 443
Proxy Type	Specify the proxy type that suits your scenario. The default value is Internet.
Authentication	Specify the authentication method to be used. Note that Basic authentication is selected by default.
Credential Name	Specify the name of the credential you have deployed for SAP SAP S/4HANA Cloud. This was discussed in Section 4.3.1.2.2.
CSRF Protected	Specify whether or not to activate the "CSRF Protected" option.

Table 4 Configure Receiver SAP S/4HANA for OData

6. Configure the "Receiver" connector named "Workday". See Figure **4.11**.

Figure 4.11 Configure Receiver Workday

The description of each of the fields in Figure 4.11 is presented in the table below.

Parameter	Description
Address	Specify the hostname of your Workday tenant. Example.: https://dev11111.workday.com
Tenant	Specify the ID of your Workday tenant. Example: mytenant
Credential Name	Specify the name of a deployed User Credentials artifact that holds the username and password used to authenticate with Workday. This was discussed in Section 4.3.1.2.1.
API Version	Specify the Workday API version.

Table 5 Configure Receiver Workday

7. Configure the "Receiver" connector named "Email_Handler". See Figure **4.12**.

Figure 4.12 Configure Receiver Mail Server

The description of each of the fields in Figure 4.12. is presented in the table below.

Parameter	Description
Address	Specify a combination of the hostname and port of your email Server. Example.: smtp.gmail.com:587
Basic Credential Name	Specify the name of a deployed User Credentials artifact that holds the Username and Password used to authenticate with the mail server.
From	Specify the email address from which the exception notification should come from.
To	Specify the email address where to sent the exception notification to.
Subject	Specify the template to be used as a subject of your email.

Table 6 Configure Receiver Mail Server

8. Configure "More" as shown in Figure **4.13**.

Figure 4.13 Configure More options

The description of each of the fields in Figure 4.13 is presented in the table below.

Parameter	Description
InitialQueryDate	This date is used as a starting point for the query to retrieve changed users in SAP S/4HANA Cloud. The date is written using the format: YYYY-MM-DD'T'HH:MM:SS. Example: 2021-06-25T13:00:12 In case you use the date in the example, the first time the integration flow runs, all Cost Center data that have been created from "2021-06-25T13:00:12" will be synchronized to Workday. The integration Flow then keeps track of the last time it has run. The subsequent run will query data from the last time the integration flow run.
LogMessageBody	Possible values "TRUE" / "FALSE". Specify "TRUE" to log the Message Body (Not recommended in a live environment). Use "FALSE" as a default value.
LogMessageHeader	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message Headers. Use "FALSE" as a default value.
LogMessageProperty	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message properties (Not recommended in a live environment). Use "FALSE" as a default value.
ExceptionLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Exception Message. Use "FALSE" as a default value.
Timezone	Specify the timezone to be used. The default value is CET.
Cost Centers	Specify a list of Cost Centers in a comma-separated format. Only fill in this field in case you would like to synchronize a specific set of cost centers. In which case the Integration Flow will replicate the specified Cost Center without checking the creation or update dates.
EnableMailNotification	Possible values "TRUE" / "FALSE". In case the value is set to "TRUE", the integration Flows will send a notification to the

	email address specified in the To field of the Mail server. See Table 2. The notification is sent in case an exception occurs.

Table 7 Configure More options

9. Save and deploy.

The table below describes different configurations and steps needed to be performed for various modes of execution.

Run Modes	Configuration	Mandatory Action
Initial Run	Configure all the external parameters as needed. Populate the parameter for InitialQueryDate in YYYY-MM-DD'T'HH:MM:SS format. Example: 2021-06-25T13:00:12. Deploy the Integration flow once all parameters are configured.	Ensure that no values are populated in external parameters for Cost Centers.
Replicating specific Cost Centers	Configure all the external parameters. Populate the external parameter for Cost Centers in a comma-separated format. Example: TEST00003, TEST00004.	Note that in this scenario, the LastRunDateTime will not be updated/override. The old value will not change.
Recurring delta runs	Once the Initial run is complete and successful, the external parameters for both InitialQueryDate and Cost Centers should be set to blank and the flow needs to be re-deployed.	InitialQueryDate and Cost Centers should be left blank.

Table 8 Mode of execution

4.3.2.4   Integration Message Mapping

In case your organization uses custom fields in Workday, you might need to customize the provided integration flow and adapt it to your needs. Users should update the existing solution by creating a new XSD using the Eclipse Workday Workbench Plug-in, change this schema in the message mapping, and add custom connections as needed.

4.3.3 Replicate Employee from Workday to SAP S/4HANA Cloud

This integration flow enables the replication of changed employees from Workday to SAP S/4HANA Cloud. The integration needs to be scheduled (if scheduled to recur) and checks for any employee data has been changed in Workday. Figure 4.14 depicts the business process to be implemented.
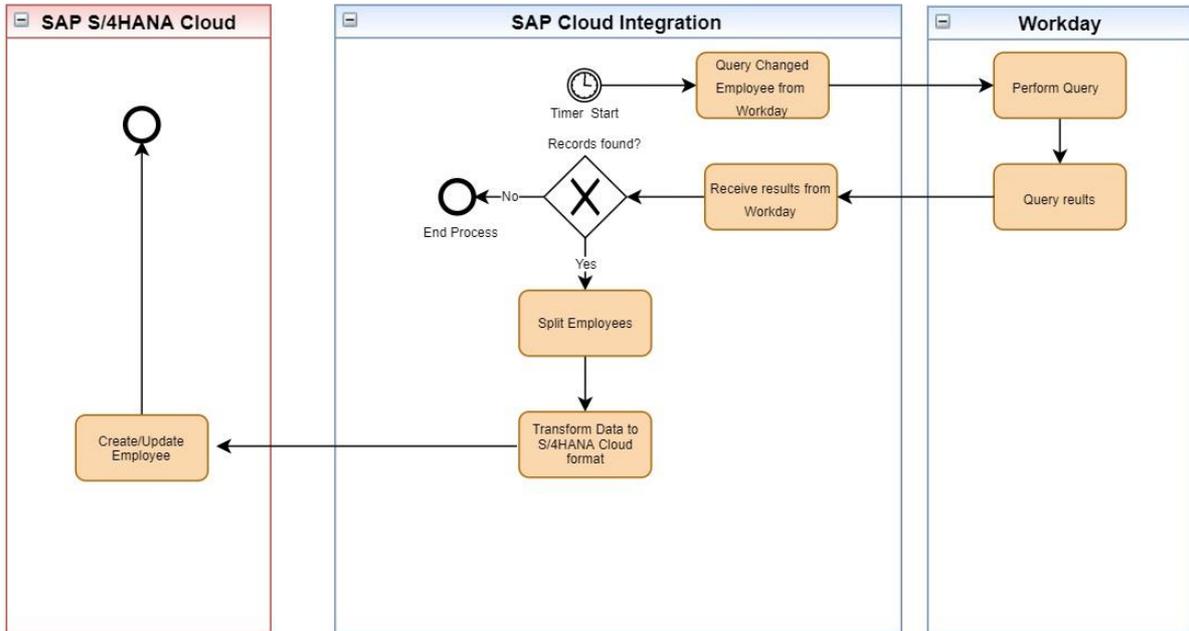

Figure 4.14 Process Diagram

The SAP Cloud Integration implementation of the process in Figure 4.14 is shown in Figure 4.15.
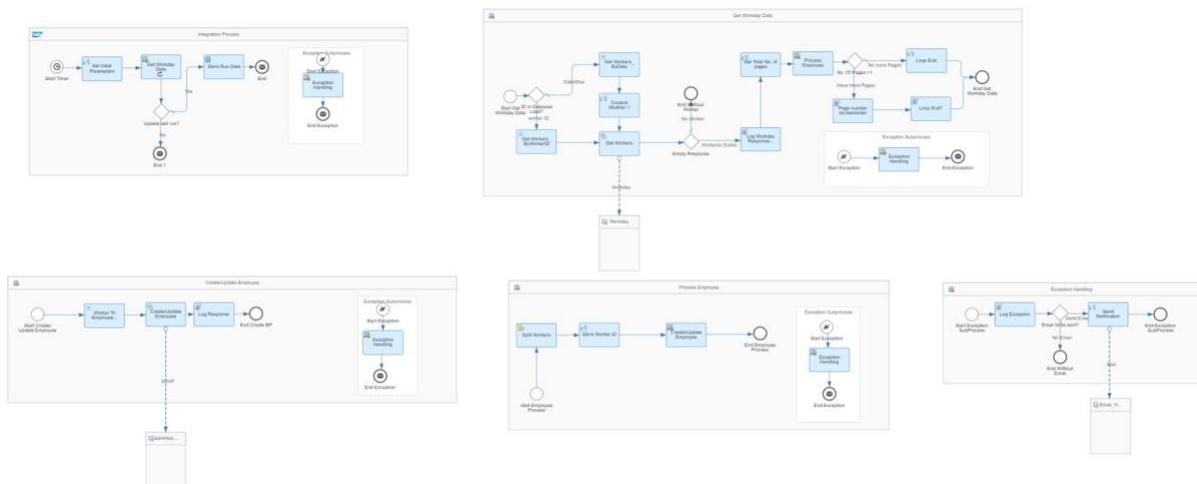

Figure 4.15 Integration Flow

4.3.3.1 Prerequisites

The following action needs to be performed as a prerequisite:

- Deploy the security artifacts that will be required during the configuration of integration content.

4.3.3.2 Deploying User Credentials in SAP Cloud Integration

To enable the Integration Flows to run, Credentials for both Workday and SAP S/4HANA Cloud need to be deployed in the Cloud Integration Tenant. These are discussed in the next sections.

4.3.3.2.1 Deploying User Credentials for Workday

This is necessary to connect to Workday using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical Workday User.
6. Click on Deploy.

4.3.3.2.2 Deploying User Credentials for SAP S/4HANA Cloud

This is necessary to connect to SAP S/4HANA Cloud using basic Authentication (username and password). Follow the steps below:

1. In your SAP Cloud Integration tenant go to Monitor.
2. In Manage Security click on Security Material.
3. Click on the Add dropdown and select User Credentials.
4. Specify the name and description of the User Credential.
5. Fill in the username and password of your technical User.
6. Click on Deploy.

4.3.3.3 Configuration

Follow the below steps to configure the integration flow:

1. Open the integration flow.
2. Click on Configure.

3. Configure "Timer". You can choose between:
   Run Once: iFlow will be executed only once, can be used for the initial load.
   Schedule on Day: iFlow will be executed on a specific date/time.
   Schedule to Recur: iFlow will be executed at a regular interval and will replicate the changes from the source system to the target system (suggested mode).

Figure 4.16 Configure Timer

Note: Replace the default values of the parameters in the configurations based on your scenario and landscape.

4. Go to Receiver.
5. Configure the "Receiver" connector named "S4HANA_Cloud" to fit your specific landscape. See Figure **4.17**.

Figure 4.17 Configure Receiver SAP S/4HANA for SOAP

The description of each of the fields in Figure 4.17 is presented in the table below.

Parameter	Description
S4HANA_Cloud_Host	Specify the API hostname of your SAP S/4HANA Cloud to consume a SOAP Service. The hostname is part of the Address. Example: myxxxxx.s4hana.ondemand.com
S4HANA_Cloud_Path	The path of the SOAP Service
Proxy Type	Specify the proxy type that suits your scenario. The default value is Internet.
Authentication	Specify the authentication method to be used. Note that Basic authentication is selected by default.
Credential Name	Specify the name of the credential you have deployed for SAP SAP S/4HANA Cloud. This was discussed in Section 4.3.1.2.2.

Table 9 Configure Receiver SAP S/4HANA for OData

6. Configure the "Receiver" connector named "Workday". See Figure **4.18**.

Figure 4.18 Configure Receiver Workday

The description of each of the fields in Figure 4.18 is presented in the table below.

Parameter	Description
Address	Specify the hostname of your Workday tenant. Example.: https://dev11111.workday.com
Tenant	Specify the ID of your Workday tenant. Example: mytenant
Credential Name	Specify the name of a deployed User Credentials artifact that holds the username and password used to authenticate with Workday. This was discussed in Section 4.3.1.2.1.
API Version	Specify the Workday API version.

Table 10 Configure Receiver Workday

7. Configure the "Receiver" connector named "Email_Handler". See Figure **4.19**.

Figure 4.19 Configure Receiver Mail Server

The description of each of the fields in Figure 4.19 is presented in the table below.

Parameter	Description
Address	Specify a combination of the hostname and port of your email Server. Example.: smtp.gmail.com:587
Basic Credential Name	Specify the name of a deployed User Credentials artifact that holds the Username and Password used to authenticate with the mail server.
From	Specify the email address from which the exception notification should come.
To	Specify the email address where to sent the exception notification.
Subject	Specify the template to be used as a subject of your email.

Table 11 Configure Receiver Mail Server

8. Configure "More" as shown in Figure **4.20**.

Figure 4.20 Configure More options

The description of each of the fields in Figure 4.20 is presented in the table below.

Parameter	Description
InitialQueryDate	This date is used as a starting point for the query to retrieve changed Workers in Workday. The date is written using the format: YYYY-MM-DD'T'HH:MM:SS. Example: 2021-06-01T00:00:00.000 In case you use the date in the example, the first time the integration flow runs, all Worker data that have been created from "2021-06-01T00:00:00.000" will be synchronized to SAP S4HANA Cloud. The integration Flow then keeps track of the last time it has run. The subsequent run will query data from the last time the integration flow run.
LogMessageBody	Possible values "TRUE" / "FALSE". Specify "TRUE" to log the Message Body (Not recommended in a live environment). Use "FALSE" as a default value.
LogMessageHeader	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message Headers. Use "FALSE" as a default value.
LogMessageProperty	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message properties (Not recommended in a live environment). Use "FALSE" as a default value.
ExceptionLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Exception Message. Use "FALSE" as a default value.
WorkerID	Specify a list of Worker in a semicolon-separated format. Only fill in this field in case you would like to synchronize a specific set of Workers. In which case the Integration Flow will replicate the specified Workers without checking the creation or update dates.
EnableMailNotification	Possible values "TRUE" / "FALSE". In case the value is set to "TRUE", the integration Flows will send a notification to the email address specified in the To field of the Mail server. See Table 2. The notification is sent in case an exception occurs.

WorkdayVersion	The version of the Workday API Default Value: v32.0
UpdatedThrough	This date is used to define the end time of the query to workday before which all the updates should be fetched from Workday. Default Value: ${date:now-24h:yyyy-MM-dd'T'00:00:00.000}

Table 12 Configure More options

9. Save and deploy.

The table below describes different configurations and steps needed to be performed for various modes of execution.

Run Modes	Configuration	Mandatory Action
Initial Run	Configure all the external parameters as needed. Populate the parameter for InitialQueryDate in YYYY-MM-DD'T'HH:MM:SS format. Example: 2021-06-01T00:00:00.000. Deploy the Integration flow once all parameters are configured.	Ensure that no values are populated in external parameters for WorkerId.
Replicating specific Workers	Configure all the external parameters. Populate the external parameter for WorkerId in a semicolon-separated format. Example 1001;1002.	N/A
Recurring delta runs	Once the Initial run is complete and successful, the external parameters for both InitialQueryDate and Workers should be set to blank and the flow needs to be re-deployed.	InitialQueryDate and WorkerId should be left blank.

Table 13 Mode of execution

4.3.3.4 Integration Message Mapping

In case your organization uses custom fields in Workday, you might need to customize the provided integration flow and adapt it to your needs. Users should update the existing solution by creating a new XSD using the Eclipse Workday Workbench Plug-in, change this schema in the message mapping, and add custom connections as needed.

4.3.3.5 Value Mapping

Value mapping facilitates the customization values of attributes like Country Code, Gender Code and Company Code between Workday and SAP S/4HANA Cloud. In the current version of the content package, there are three records – see Figure 4.21.

Note: In case these default values have been changed in your tenant, adjust the value mapping accordingly.

Figure 4.21 Value Mapping for Account Group

5   Appendix

5.1   Generating Schema from Eclipse Plug-in and Replacing Standard Schema Used in Integration Flow

Currently, the integration package uses standard fields and properties provided in Workday. In case other custom fields are needed; a new XSD must be generated with the Workday Eclipse Plug-in, the default XSD on mapping must be replaced by the created one, and these fields should also be mapped.

Steps to create an XSD:

1. Open Eclipse.
2. Go to Windows > Perspective > Open Perspective > Other.
3. Select Workday Adapter and click Open.
4. Go to XSD Generator.
5. Select a Version.
6. Select an Operation. First Create, then Update.

7. Select the Workday "Request Operation Tag".
8. Select Request XSD for both the Create and Update Operations.
9. Click on Save XSD and select a folder.
10. Replace default XSD from mapping in SAP Cloud Integration to the recently created XSD.