SAP S/4HANA Integration with ServiceNow 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 Integration with ServiceNow 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 and ServiceNow 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,
- Adjustments to the ServiceNow setup,
- Adjustment to the mapping step to reflect the possible custom properties in ServiceNow.

In case changes have been made to the sys_user and cmn_cost_center tables in ServiceNow to include custom fields, 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 need to have access and authorizations to the systems listed below.

Access required:

- SAP S/4HANA Tenant Details
- SAP Integration Suite Tenant Details.
- ServiceNow Tenant Details

Authorization required:

- SAP S/4HANA Tenant Details
  - Appropriate authorizations for the technical user that will be used to connect to the SAP S/4HANA Tenant.
  - Access to SAP Gateway
  - Access to create a user and assign roles
  - Access to Exchange Rates
  - Access to Cost Centers

- SAP Integration Suite Tenant Details.
  - AuthGroup.IntegrationDeveloper

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

3.2 Adapter Installation

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

3.3 Plug-in Installation

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

4 Configuration

SAP S/4HANA, ServiceNow, 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

This section describes the mandatory configurations which need to be performed in the SAP S/4HANA system before you can start implementing the configuration for Salesforce or configuring the Integration content in SAP Cloud Platform Integration. 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 services in SAP S/4HANA from Cloud Platform Integration. Communication Users in SAP S/4HANA are used for inbound communication and for processing messages in the system. Follow the steps below to create a communication user in SAPS/4HANA.

Procedure

1. Access the Transaction Code: SU01
2. On the User Maintenance: Initial screen, enter the <User ID>
3. Choose to **Create**.
4. On the Maintain User screen, maintain the following values, and choose **Save**.

   <Last Name>
   Logon data tab page
   User Type: Communication Data
   Password: <password>

Note: Ensure the user is assigned relevant authorizations to execute ODATA API Calls.

5. Click **Save**.

4.1.2 Activating SAP Gateway

Scope: Only applicable for the Cost Center Replication Integration Scenario.

Before you can use the SAP Gateway functionality, it needs to be globally activated in your system.

If SAP Gateway is not activated, OData services will not run, consumer servers cannot communicate with it, and an error message will be sent to any system that calls the services.

You can perform configuration activities via: SAP Reference IMG (transaction SPRO) SAP **NetWeaver** > SAP **Gateway** > **OData Channel** > **Configuration User Settings and Connection Settings**. After you have completed these configuration activities, you must activate SAP Gateway using the steps below:

1. In the transaction SPRO, open the *SAP Reference IMG* and navigate to SAP **NetWeaver** > **SAP Gateway > OData Channel** > **Configuration** > Activate **or Deactivate SAP Gateway** and click on the **Activity** icon. A message will display.
2. Choose **Activate**. A message will inform you of the current status.

4.1.3 Activate OData API in Gateway

Scope: Only applicable for the Cost Center Replication Integration Scenario.

The integration between Salesforce and SAPS/4HANA is based on ODATA APIs of SAPS/4HANA.

Follow the steps below to activate the ODATA APIs used by the Integration Content.

Procedure

1. Access the Transaction Code: "/IWFND/MAINT_SERVICE".
   The entry screen of the transaction displays in the target system all activated Gateway services in the Service Catalog and allows you to add new services.
2. Click the **Add Service** button in the toolbar.
3. Enter the **System Alias** of your front-end server.
4. Enter the External Service Name: "API_COSTCENTER_SRV".
5. Click the Get Services button in the toolbar to request the services available. As a result, the service is displayed for selection.
6. Select the service created as a result of the last procedure and then **choose Add Selected Services** or click the object link for further selection.
7. The Add Service dialog that appears and suggests already the name "ZAPI_BUSINESS_PARTNER" for the Technical Service, and the Technical Model. The dialog that now appears informs you that the model metadata for the Gateway service is going to be created.
8. Specify the package for service activation.
9. Leave the other details on the dialog screen unchanged and choose **Continue**. The dialog that now appears informs you that the model metadata for the Gateway service has been created successfully in the Gateway.
10. In the information dialog, complete the procedure with  .

Repeat the above process for the below APIs:

- API_COSTCENTER_SRV

4.1.4 Enable Data Replication Framework and Configure SOA Manager

Scope: Only applicable for the Exchange Rate Replication Integration Scenario.

Before the replication of Exchange Rate from SAP S/4HANA to ServiceNow, the Data Replication Framework and SOA Manager configuration have to be performed. More details can be found on the below SAP document.

https://help.sap.com/viewer/22ccb1d573f84837a0850bd039543b50/2020.002/en-US/7735bd11998341e18fc2fd28af0b242a.html

Note: The backend SAP S/4HANA application has to ensure that the replication output is pointed to the Logical port created as part of the SOA Manager configuration.

4.2 Configuration in ServiceNow

This integration package is configured using basic Authentication toward ServiceNow. It is however also possible to use OAuth. Details of how to configure OAuth can be found in ServiceNow Adapter guides that can be obtained from within the ServiceNow adapter zip file.

A Technical Communication User is needed in ServiceNow to perform all integration calls from the Integration Suite. The created technical user needs to have all the appropriate authorization to create and update the sys_user table in ServiceNow.

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 to ServiceNow

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

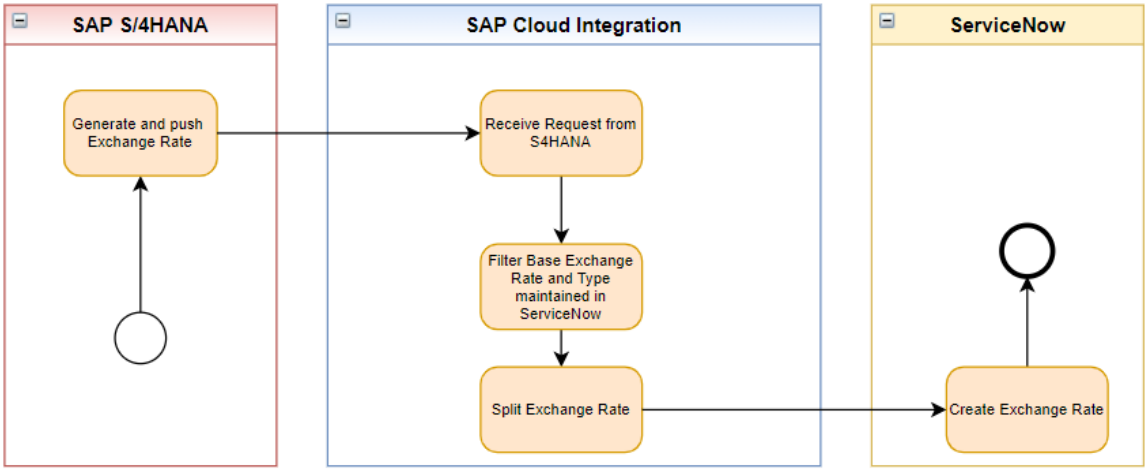

Figure 4.1 Process Diagram

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

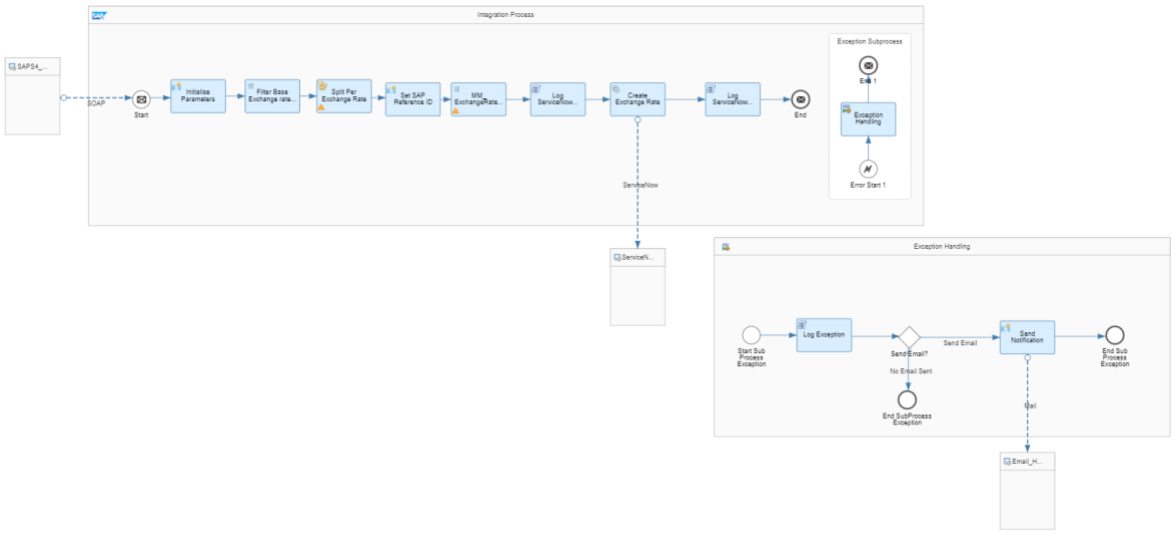

Figure 4.2 Integration Flow

4.3.1.1 Prerequisites

The following actions need to be performed as a prerequisite:

- Deploy the security artifacts that will be required details during the configuration of integration content.
- Configure S/4HANA to push exchange rates to SAP Cloud Integration Endpoint.

4.3.1.2 Deploying User Credentials in SAP Cloud Integration

To enable the Integration Flows to run, Credentials for both ServiceNow and SAP S/4HANA 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 ServiceNow

This is necessary to connect to ServiceNow 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 ServiceNow User.
6. Click on Deploy.

4.3.1.2.2 Deploying User Credentials for SAP S/4HANA

This is necessary to connect to SAP S/4HANA 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 ServiceNow 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 S4HANA to ServiceNow”.
2. Click on Configure.
3. Configure “Sender”. Provide an endpoint to the iflow as per the organization’s naming standards.

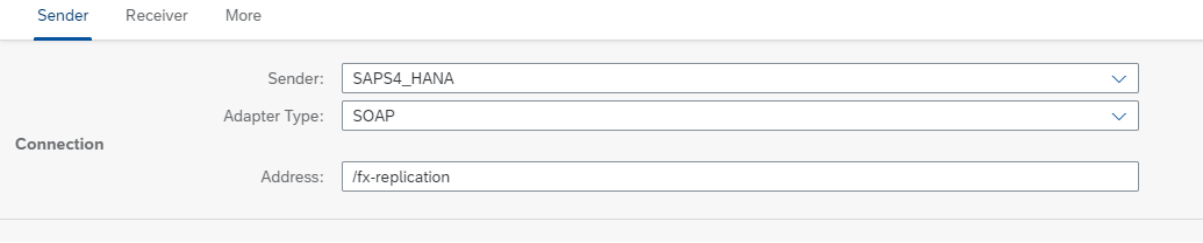

Figure 4.3 Configure Sender

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 "ServiceNow". See Figure **4.4**.

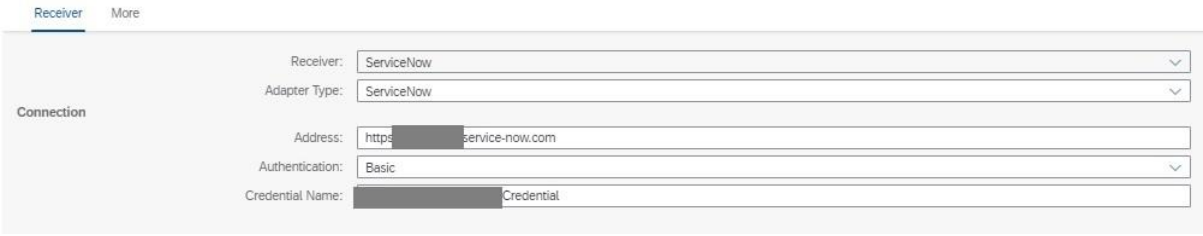

Figure 4.4 Configure Receiver ServiceNow

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 ServiceNow tenant. Example.: https://dev11111.service-now.com
Authentication	Specify the Authentication method to be used. The default value is Basic.
Basic Credential Name	Specify the name of a deployed User Credentials artifact that holds the username and password used to authenticate with ServiceNow.

Table 1 Configure Receiver ServiceNow

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

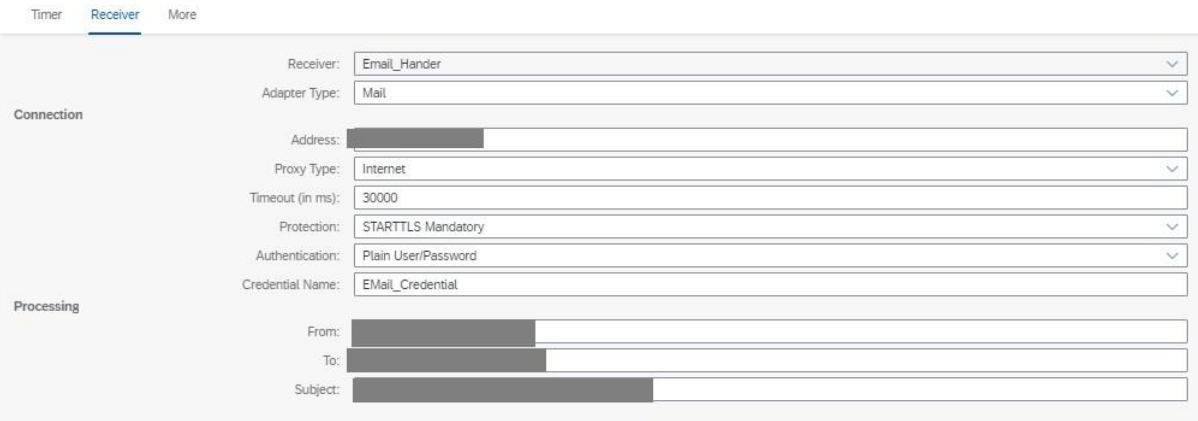

Figure 4.5 Configure Receiver Mail Server

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 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 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
BaseCurrency	The base currency of the ServiceNow tenant. Default Value: EUR
BodyLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log the Message Body (Not recommended in a live environment). Use "FALSE" as a default value.
HeaderLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message Headers. Use "FALSE" as a default value.
PropertyLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log Message properties (Not recommended in a live environment). Use "FALSE" as a default value.
ExchangeRateTypeCode	The type of Exchange rate that is needed to be replicated. Default Value: 1001 (Current Exchange Rate)
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.

Figure 4.7 Configure More options

8. Save and Deploy.

4.3.1.4 Integration Message Mapping

In case your organization uses custom fields in ServiceNow, 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 ServiceNow 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 to ServiceNow

This integration flow enables the replication of newly created Cost Centers from SAP S/4HANA to ServiceNow. The integration needs to be scheduled (if scheduled to recur) and checks for any new Cost Centers data in SAP S/4HANA. Figure 4.8 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 also possible to synchronize specific Cost Centers, using the "CostCenters" external property in the Integration Flow.

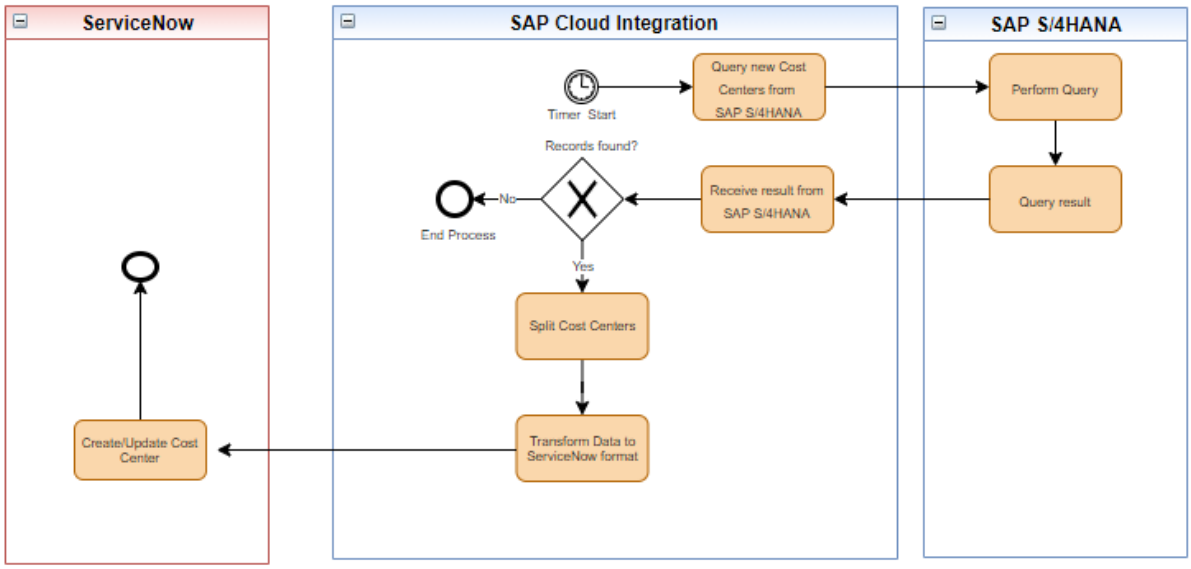

Figure 4.8 Process Diagram

The SAP Cloud Integration implementation of the process in Figure 4.8 is shown in Figure 4.9.

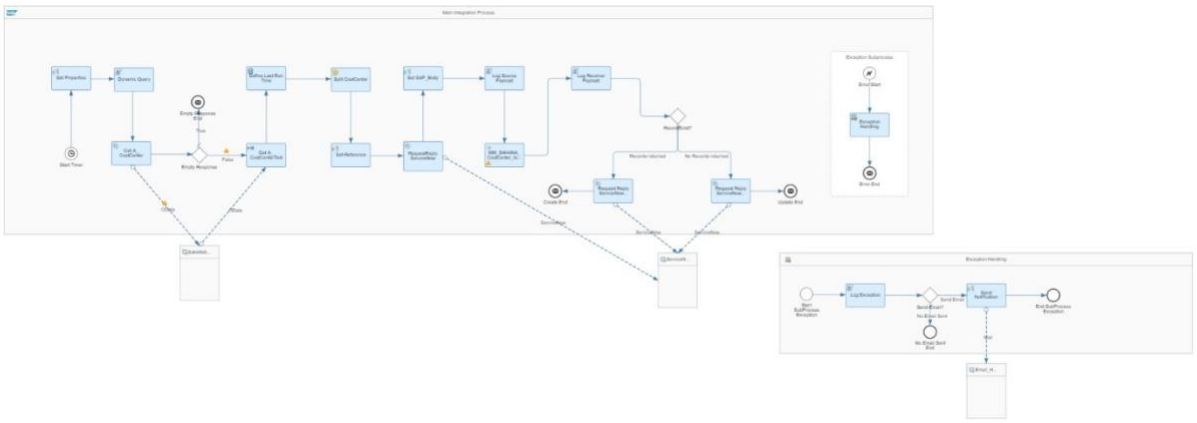

Figure 4.9 Integration Flow

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 initial query date using the external property "InitialQueryDate" 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 ServiceNow and SAP S/4HANA 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 ServiceNow

This is necessary to connect to ServiceNow 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 ServiceNow User.

6. Click on Deploy.

4.3.2.2.2 Deploying User Credentials for SAP S/4HANA

This is necessary to connect to SAP S/4HANA 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 ServiceNow 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).

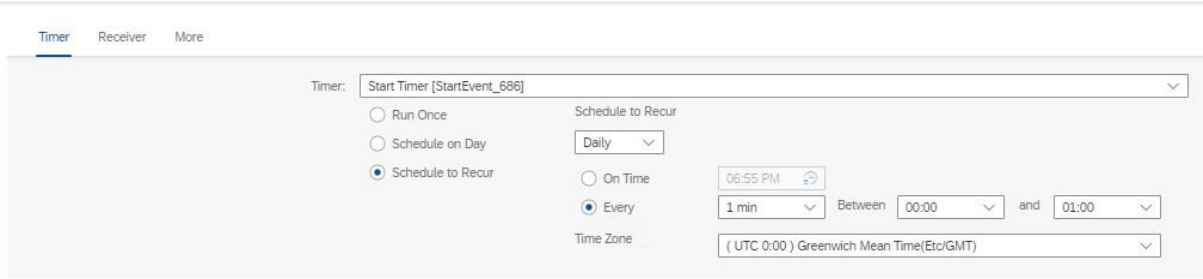

Figure 4.10 Configure Timer

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 **4.11**.

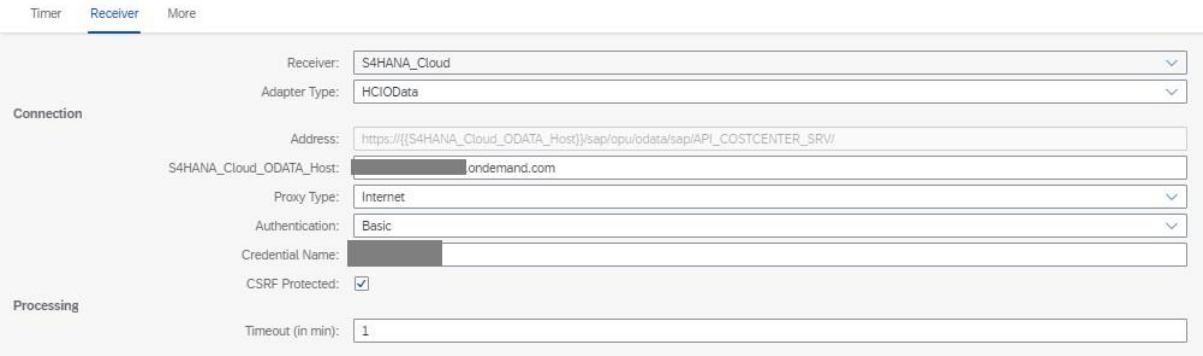

Figure 4.11 Configure Receiver SAP S/4HANA for OData

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

Parameter	Description
S4HANA_ODATA_Host	Specify the API hostname of your SAP S/4HANA to consume an OData Service. The hostname is part of the Address. Example: myxxxxx.s4hana.ondemand.com
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 3 Configure Receiver SAP S/4HANA for OData

6. Configure the "Receiver" connector named "ServiceNow". See Figure **4.12**.

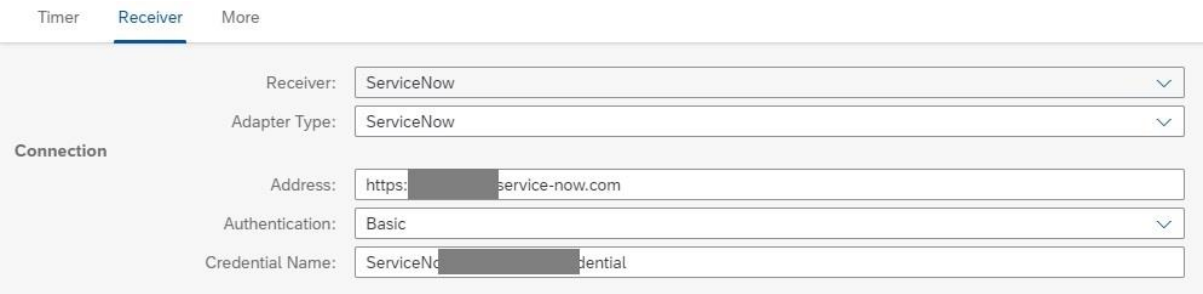

Figure 4.12 Configure Receiver ServiceNow

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

Parameter	Description
Address	Specify the hostname of your ServiceNow tenant. Example.: https://dev11111.service-now.com
Authentication	Specify the authentication method to be used. Note that Basic authentication is selected by default.
Basic Credential Name	Specify the name of a deployed User Credentials artifact that holds the username and password used to authenticate with ServiceNow. This was discussed in section 4.3.1.2.1.

Table 4 Configure Receiver ServiceNow

7. Configure the "Receiver" connector named "Email_Handler". See Figure **4.13**.

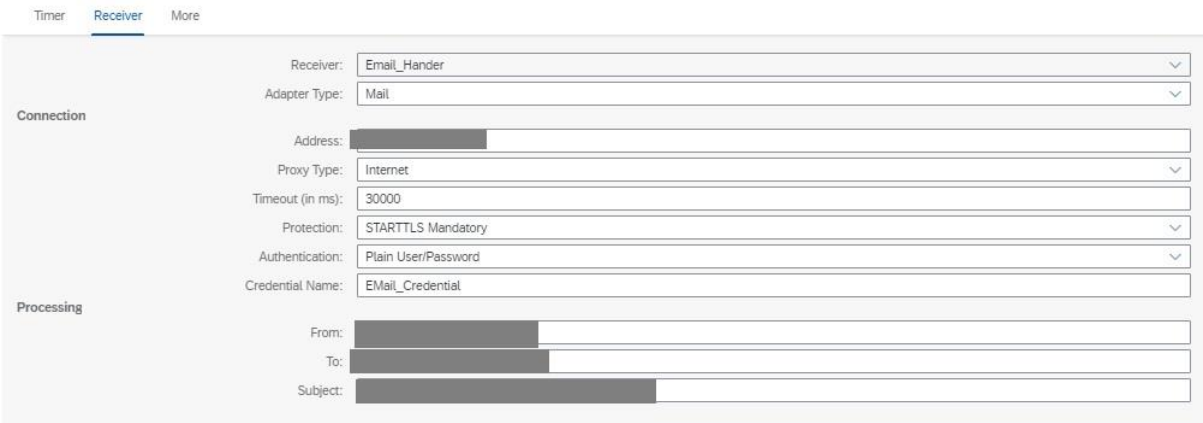

Figure 4.13 Configure Receiver Mail Server

The description of each of the fields in Figure 4.13 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 5 Configure Receiver Mail Server

8. Configure "More" as shown in Figure **4.14**.

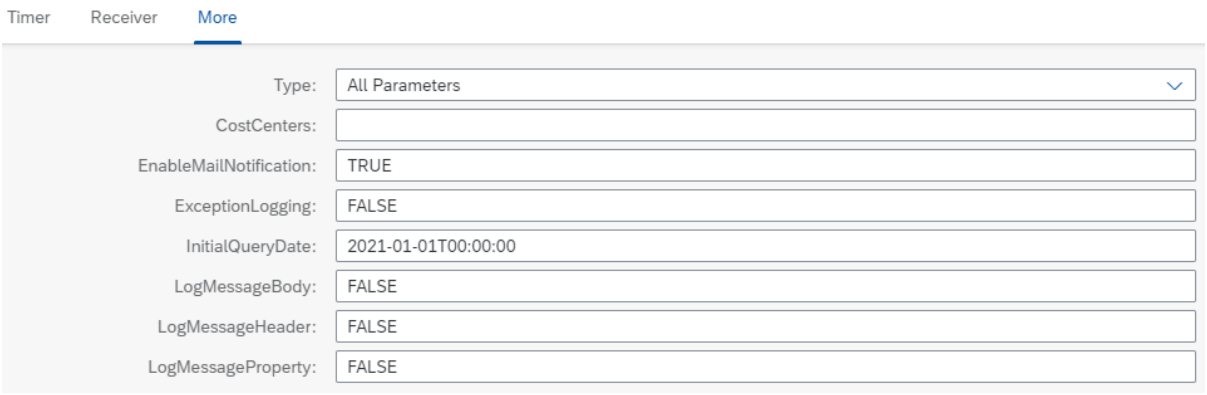

Figure 4.14 Configure More options

The description of each of the fields in Figure 4.14 is presented in the table below.

Parameter	Description
CostCenters	Specify a list of Cost Centers separated by a comma. 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.
ExceptionLogging	Possible values "TRUE" / "FALSE". Specify "TRUE" to log the exception (Not recommended in a live environment). Use "FALSE" as a default value.
InitialQueryDate	This date is used as a starting point for the query to retrieve created cost centers in SAP S/4HANA. The date is written using the format: YYYY-MM-DD'T'hh:mm:ss.ss Example: 2021-01-01T00:00:00. In case you use the date in the example, the first time the integration flow runs, all cost centers' that have been created from "2021-01-01T00:00:00" will be synchronized to ServiceNow. 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 "YES" / "NO". 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.

9. Save and Deploy.

4.3.2.4 Integration Message Mapping

In case your organization uses custom fields in ServiceNow, 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 ServiceNow Workbench Plug-in, change this schema in the message mapping, and add custom connections as needed.

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 ServiceNow. In case other custom fields are needed; a new XSD must be generated with the ServiceNow 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 ServiceNow Adapter and click Open.
4. Go to XSD Generator.
5. Select a Version.
6. Select an Operation. First Create, then Update.
7. Select the ServiceNow Table. Example: cmn_cost_center
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.