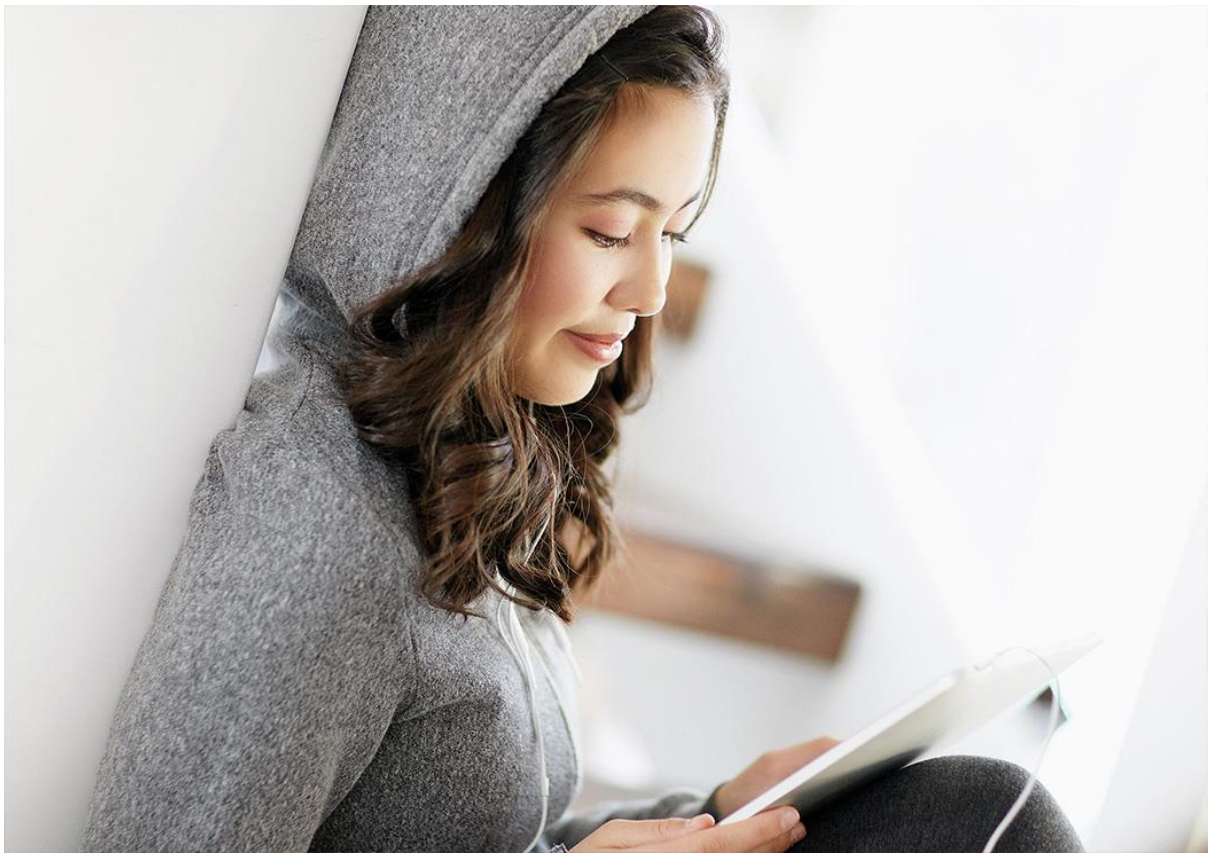

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SAP Master Data Integration with SAP Field Service Management

THE BEST RUN

Date	Version	Description
JUN 2021	1.0	Initial version

Table of Contents

1.0 Introduction

SAP customers can integrate SAP Field Service Management with SAP Master Data Integration to optimize the master data services. This document describes the configuration steps for the integration of SAP Master Data Integration and SAP Field Service Management via SAP Cloud Integration.

1.1 About SAP Master Data Integration

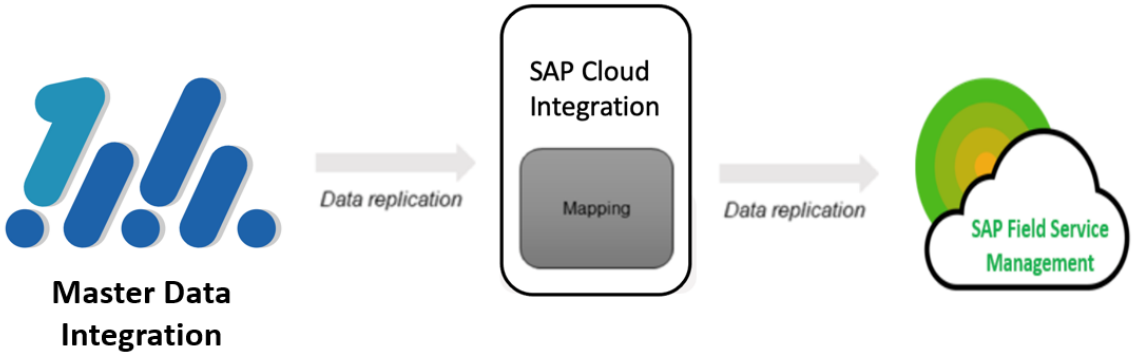
SAP Master Data Integration provides reusable master data services on SAP BTP as a source of access to business partner master data, and it also addresses integration-related requirements. This is a service that can be used as a standalone solution or with any on-premise or cloud system where the on-premise or cloud system can be used as a source of data for business partner.

1.2 About SAP Field Service Management

SAP Field Service Management supports field service technicians with real-time, automated workforce scheduling, planning, and dispatching for employees and provides self-service options for field service needs. With SAP Field Service Management, you can support your technicians with mobile tools and enable them to excel at their work. You can also increase customer satisfaction by providing proactive customer service with machine learning and Internet of Things (IoT) technology.

1.3 Basic Processes

The following figure shows an overview of the basic service processes between SAP Master Data Integration and SAP Field Service Management:



1.4 Prerequisites

SAP Master Data Integration should be connected to a Leading System for source of access to business partner master data.

2.0 Configure SAP Master Data Integration

2.1 Destination Configuration for the Distribution Service

There are two types of destinations that would have to be set in SAP BTP cockpit:

1. Provider
2. Consumer

2.1.1 Provider Destination

Provider destination is an endpoint of a provider application. Provider applications can be all applications delivering data to the consumer applications using the models provided by the distribution service. Provider destination must be configured from a tenant which has subscribed to the distribution service.

Follow the steps below for configuration in SAP BTP:

1. Navigate to the subaccount in SAP BTP cockpit.
2. Navigate to **Connectivity** -> **Destinations**.
3. Choose **New Destination** and enter the details as follows:

a. Name : <Name for the new destination>. For example, MDO_PROVIDER.

b. Type : HTTP

c. URL : https://one-mds.cfapps.<region>.hana.ondemand.com/product/v0/distribution/odata/v2/mdo.orchestrationAdmin

d. Proxy Type : Internet

e. Authentication: OAuth2ClientCredentials

f. Please use the tenant specific client id and client secret, and token service URL.

g. Choose **New Property** from **Additional Properties**. Enter the **MDOProvider** property with value **true**.

2.1.2 Consumer Destination

Consumer destinations are the destinations to which the provider applications distribute data. Example of consumer destination includes SAP Field Service Management.

Following consumer destinations are to be created for Field Service Management

- FSM_BPOUTBOUND (BP Replication)
- FSM_BPRELOUTBOUND (BP Relationship Replication)

- FSM_KMOUTBOUND (Key Mapping)

Follow the steps below for configuration in SAP BTP:

1. Navigate to the subaccount in SAP BTP Cockpit.
2. Navigate to **Connectivity -> Destinations**.
3. Choose **New Destination** and enter the details as follows:

    a) Name: <Name for the Destination> For example, FSM_BPOUTBOUND.
    b) Type: HTTP
    c) URL: <CPI_Runtime_URL>><Service Endpoint in the Iflow for which the destination is created > For example if the destination is created for Business Partner,then the url is https://*.iflmap.hcisbt.{region}.hana.ondemand.com/MDI/FSM/ReplicateBusinessPartner
    d) Proxy Type: Internet
    e) Authentication: <Select Authentication Method>. For example, OAuth2/Basic/Client Certificate Authentication.
    f) Choose **New Property** from **Additional Properties**. In the field enter the **MDOConsumer** property with value true.

2.2 Distribution Model Maintenance

The distribution model specifies the master data to be replicated from provider to consumer. In case not all objects or object-specific data are relevant for a consumer, replication filters on object-instance level and data scope ensure the precise distribution of master data.

The distribution model is configured in the **Manage Distribution Model** app. The main entities of the distribution model are as follows:

- **Schedule Information**

The schedule determines the distribution recurrence and the package size.

- **Providers and Consumers**

The provider is the recipient of the distribution model that specifies which data should be distributed to the consumer, and the consumer is the application/system the data is replicated to based on the distribution model.

- **Object Selection and Data Scope Filters**

These filters determine the business object instances and business object data that are replicated to the consumer systems. If no filter criteria are defined in a distribution model, all business objects instances will be sent out to the destination.

- **Object Selection**

This filter determines to which object instances the distribution model applies. The selection made in this section includes or excludes objects from the distribution. If nothing is specified, all objects of the relevant business object type will be replicated. Following are the object selection filters supported by SAP Master Data Integration:

- BusinessPartner.Category
- BusinessPartner.Status
- BusinessPartner.BusinessPartner
- BusinessPartner/to_Role.Role
- BusinessPartner/to_Customer.Customer
- Customer/to_SalesArea.SalesOrganization
- Customer/to_SalesArea.DistributionChannel
- Customer/to_SalesArea.Division
- BusinessPartner/to_Customer.CustomerAccountGroup
- BusinessPartner/to_Supplier.Supplier
- Supplier/to_SupplierCompany.CompanyCode
- Supplier/to_SupplierPurchasingOrg.PurchasingOrganization
- BusinessPartner/to_Supplier.SupplierAccountGroup
- BusinessPartner.AuthorizationGroup
- Customer/to_SalesArea.SalesOffice
- Address/to_PostalAddress.Country

- **Data Scope**

The data scope determines the data that will be replicated to the receiving systems. This filter specifies which segments will be included in or excluded from the replication with this model. If nothing is specified, all data of the relevant object will be replicated.

The attributes available in the selection depend on the implementation of the distribution service (provider interface). Following are the data scope filters supported by SAP Master Data Integration:

- BusinessPartner/to_Identification.IdentificationType
- BusinessPartner/to_TaxNumber.TaxNumberCategory

- BusinessPartner/to_Role.Role
- Supplier/to_SupplierCompany.CompanyCode
- Supplier/to_SupplierPurchasingOrg.PurchasingOrganization
- Customer/to_SalesArea.DistributionChannel
- Customer/to_SalesArea.Division
- Customer/to_SalesArea.SalesOrganization
- AddressInformation/to_AddressUsage.AddressUsage

- **Key Mapping**

  Key mapping will be sent together with the primary object to the consumer.

  If the **Distribute Key Mapping** checkbox is not set, no key mapping information is sent out.

If the **Distribute Key Mapping** checkbox is selected, the **Key Mapping Filter** is shown. With this filter, you can restrict the key mapping information to be distributed by specifying the **Business System**, **Business Object Type** or **Object Identifier Type**. To make entries, you have to change into **Edit** mode.

- **Value Help**

This feature is available for **Object Selection**, **Data Scope**, and **Key Mapping**. Depending on the selected attribute, a value help is generated from valid values as specified by the provider. The value help only exists for attributes with a given set of possible values predefined by the provider.

- **Creation, Activation, Deactivation, and Editing of the Distribution Model**

  Creation

By clicking on **Create**, you can create a new distribution model. A draft version is created in which the entries are saved automatically. When you click on **Save**, the draft is saved to an active version; this is only possible if all required fields have been filled correctly. Clicking on **Activate** will then activate the newly created distribution model.

Activation

After creation of a distribution model and activation, the status of the model is set to active, and the active model is replicated to the providers. Thereupon, new or changed data will be distributed automatically according to this model. For already existing data, the distribution can be triggered

manually. For doing this, click on the **Replicate** button and select the destinations and determine the replication mode. There are three replication modes available:

- **Initial Replication**: After creation of a new model, all objects will be replicated, regardless of whether they have been replicated before.
- **Delta Replication**: Replication of data delta caused by a change in object selection. All previously replicated data will not be resent.
- **Repeat Replication**: All data which was previously replicated will be sent again, for example in case of errors in the previous replication process or after a change in the data scope.

Deactivation

If a model is deactivated, its status is set to inactive. The deactivation is distributed to the providers, whereupon the distribution of data is stopped, and all change pointers are deleted. Deactivating a model will not delete the information about the previous distribution statuses of data according to this model. This information will be reused when the model is activated again. When you activate the model again, the reactivation will be distributed to the providers. All changes to objects this model applies to which have occurred after deactivation of the model can be manually distributed as delta replication. This process is similar to the creation of a new model.

Editing

Editing a model leads to its central deactivation, but locally the model remains active and the providers continue distribution. Saving and activating the model triggers its replication to the providers. In a model that is active or has already been active once, no providers can be added, but only consumers. A provider that was added during creation of the distribution model and saved can be removed by deletion of the model.

2.2.1 Steps to Create Distribution Model

1. Go to *Manage Distribution Model* App in the MDO UI.
2. Click on *Create*.
3. Specify the Model *name* and *Business Object Type* as Business Partner.
4. Select the *mode* as Push. Give a Package size. Example: 50
5. Select the *Continuous Distribution* checkbox
6. Add a *Description*
7. Select Provider Interface as *API_BUSINESS_PARTNER*
8. Select the *Provider* (destination created for Provider) and *Consumer* (BP Destination created for the consumer).
9. Check Distribute Key Mapping.
10. *Save* and *Activate*.

2.3 Upload Certificates of SAP Master Data Integration to SAP Cloud Integration.

Context

This part describes how to upload certificates of SAP Master Integration to the SAP Cloud Integration system.

Procedure

1. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
2. In the navigation tree, choose *Overview*.
3. Choose the *Connectivity Tests* tile under section *Manage Security*.
4. Choose the *TLS* tab.
5. Set *Host* of the token URL of the SAP Master Data Integration (for example, *.authentication.eu10.hana.ondemand.com) and *Port* to *443*.
6. Deselect *Authenticate with Client Certificate* and *Validate Server Certificate*.
7. Click *Send*.
8. After the connection is set up, click *Download* to save the SAP Master Data Integration certificates to your local computer.
9. In the navigation tree, choose *Overview*.
10. Choose the *KeyStore* tile in section *Manage Security*.
11. Choose *Certificate* in the *Add* dropdown list.
12. Upload the certificates of SAP Master Data Integration one by one.

2.4 Deploy a Credential Artifact by Using SAP Master Data Integration Client Data

1. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
2. In the navigation tree, choose *Overview*.
3. Choose the *Security Material* tile under section *Manage Security*.
4. Choose *Create*.
5. Select *OAuth2 Credentials*.
6. Specify the following fields in the *Add OAuth2 Credentials* dialog box.

Field Name	Description or Value
Name	Credential Name

Grant Type	Client Credentials
Description	This field is optional
Authentication URL	SAP Master Data Integration Authentication URL, for example, https://*.authentication.eu10.hana.ondemand.com/oauth/token
Client ID	MDI Client ID
Client Secret*	MDI Client Secret
Client Authentication	Send as Request Header

7. Choose *Deploy*

2.5 Harmonized and Non-Harmonized Number Scenarios

The harmonized number scenario allows you to maintain a business partner number that is harmonized with the number in the leading system to maintain consistency across different landscapes. In the non-harmonized number scenario, SAP BTP generates a unique number to identify the business partner.

This functionality is dependent on the Generic Configuration **Harmonized Number** value.

Based on the below values of the **Harmonized Number** field in the **Generic Configurations** table the behavior will be different:

1. **True**: In this case, the business partner and customer/supplier is created with a temporary number and the number is expected to be provided by the leading system as part of the confirmation message once the business partner is replicated to the leading system.

Limitation: Non-standard customers and suppliers will not be generated with a temporary number but will be generated with an internal ID based on the number range object configured.

2. **False**: In this case, the business partner and customer/supplier is created based on the values provided by you during creation or an internal number range is used.

2.6 Business Logs

Business logs are intended for the end-to-end business process. This feature enables you to troubleshoot errors and check what went wrong or even review success and see what went right.

The **Monitor Business Logs** app can be used to retrieve business logs. Here you can filter logs by various criteria such as Error Record, Warning Records, Information Records, and Success records. You can also filter records by the Business Object ID and Business Object Item ID. The values depend

on the business logs you want to retrieve. For example, if you are retrieving an error log for business partner edit scenario, the Business Object ID would be the business partner number.

The Distribution Service utilizes the business log functionality to store the distribution-related messages (provided by the business partner) and to reference them in the distribution status log.

In the ***Display Distribution Status*** UI you can display the business logs for a specific business partner distribution run.

3.0 Configure SAP Field Service Management

This part describes the configuration in SAP Field Service Management.

3.1 Configure Account and Company

As an administrator, set up account and company in the SAP Field Service Management system. The account and company that you configure here are used for the integration with SAP Master Data Integration.

3.1.1 Set up an Account

Provision an SAP Field Service Management tenant. For more information, see *https://docs.coresystems.net/*. After you provision a tenant in the SAP Field Service Management system, you get an FSM account, a password, and a **SUPERUSER** role with a password.

3.1.2 Set up a Company

To create a company in the SAP Field Service Management system, follow these steps:

1. Navigate to *Companies* and click *Create*.
2. On the *Create Company* window, enter the required details. Make sure, you select **Standalone** for *Type*.
3. Click *Save*.

3.2 Create the OAuth Client

As an administrator, create an OAuth client so that it can be deployed in the SAP Cloud Integration system.

To create the OAuth client, follow these steps:

1. Navigate to *Clients* and click *Create*.

Note: When you log on to the system as an administrator, make sure that the Sign in with User option is enabled.

2. In the *Create Client* window, enter the required details. Make sure that you select *CLIENT_SECRET* for *Client Authentication Method*.
3. In the *User Groups* section, select *Admin*. This assigns user group to the company that you have created for this integration.
4. Click *Save*.

3.3 Set User Groups of Company Under the Client Which Can Be Accessed

Context

To get SAP Field Service Management token, you need to set which user groups of company can be accessed.

Procedure

1. Enter the URL of the SAP Field Service Management (for example, https://*.coresystems.net/admin/login/auth) in the address bar.
2. Select *Sign In with User* and specify *Account Name*, *User Name*, and *Password*.
3. Select the client under *Clients*.
4. Click the *Edit* button.
5. Set the User Groups of Company which can be accessed. You could set default as User Groups.
6. Click the *Update* button to save the settings.

4.0 Configure SAP Cloud Integration

Before proceeding with the integration flows (iFlows) in this section, copy the integration package to your workspace. Then, you can configure and deploy the iFlows.

Context

Note: Before implementing configuration in SAP BTP, obtain the URL of your SAP Cloud Integration tenant. The URL is provided in the SAP Cloud Integration tenant provisioning email.

This part includes the following tasks:

4.1 Upload Certificates of SAP Field Service Management to SAP Cloud Integration.

Context

This part describes how to upload certificates of SAP Field Service Management to the SAP Cloud Integration system.

Procedure

13. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
14. In the navigation tree, choose *Overview*.
15. Choose the *Connectivity Tests* tile under section *Manage Security*.
16. Choose the *TLS* tab.
17. Set *Host* to the token URL of the SAP Field Service Management (for example, auth.coresuite.com) and *Port* to *443*.
18. Deselect *Authenticate with Client Certificate* and *Validate Server Certificate*.
19. Click *Send*.
20. After the connection is set up, click *Download* to save the SAP Field Service Management certificates to your local computer.
21. In the navigation tree, choose *Overview*.
22. Choose the *KeyStore* tile in section *Manage Security*.
23. Choose *Certificate* in the *Add* dropdown list.
24. Upload the certificates of SAP Field Service Management one by one.

4.2 Deploy a Credential Artifact by Using SAP Field Service Management Client Data

Context

Before performing the following steps, create a client ID in your SAP Field Service Management system, and store the client credential in your SAP Cloud Integration tenant as OAuth2 Credentials.

8. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
9. In the navigation tree, choose *Overview*.
10. Choose the *Security Material* tile under section *Manage Security*.
11. Choose *Create*.
12. Select *OAuth2 Client Credentials*.
13. Specify the following fields in the *Add OAuth2 Credentials* dialog box.

Field Name	Description or Value
Name	Credential Name
Grant Type	Client Credentials
Description	This field is optional
Authentication URL	SAP Field Service Management Authentication URL, for example, https://auth.coresuite.com/api/oauth2/v1/token
Client ID	SAP Field Service Management Client ID
Client Secret*	SAP Field Service Management Client Secret
Client Authentication	Send as Request Header
Include Scope	Checked
Scope	grant_type=password&username=<FSMAccount>/<FSM User>&password=<FSMPassword>
Content Type	Application/x-www-form-urlencoded

14. Choose *Deploy*

4.3 Upload Certificates of Email Server to SAP Cloud Integration

Context

This part describes how to upload certificates of Email Server to the SAP Cloud Integration system.

Procedure

1. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
2. In the navigation tree, choose *Overview*.
3. Choose the *Connectivity Tests* tile under section *Manage Security*.
4. Choose the *SMTP* tab.
5. Set *Host* to the SMTP URL of the email server and *Port* to *587 (SMTP / STARTTLS)*.
6. Set *Protection* to *STARTTLS Optional*.
7. Set *Authentication* to *None*.
8. Deselect *Validate Server Certificate and Check Mail Address*.
9. Click *Send*.
10. After the connection is set up, click *Download* to save the email server certificates to your local computer.
11. In the navigation tree, choose *Overview*.
12. Choose the *KeyStore* tile in section *Manage Security*.
13. Choose *Certificate* from the *Add* dropdown list.
14. Upload the certificates of the email server one by one.

4.4 Deploy a Credential Artifact by Using Email Address Data

Context

Before performing the following steps, create an email address in your email server, and store the email address credential in your SAP Cloud Integration tenant as User Credential.

Procedure

1. Open the Web UI of SAP Cloud Integration (for example, https://<your SAP Cloud Integration tenant URL>/itspaces).
2. In the navigation tree, choose *Overview*.
3. Choose the *Security Material* tile under section *Manage Security*.
4. Choose *Create*.
5. Select *User Credentials*.
6. Specify the following fields in the *Add Users Credential* dialog box.

Field Name	Description or Value
Name	Credential Name
Description	This field is optional
User*	User alias name of the communication user
Password	Password of the communication user

7. Choose *Deploy*

4.5 Configure and Deploy iFlows in the Integration Package

Context

This part describes how to configure and deploy iFlows in the *SAP Master Data Integration with SAP Field Service Management* integration package.

Procedure

1. Open the Web UI of SAP Cloud Integration (for example, https://<URL of your SAP Cloud Integration tenant>/itspaces).
2. In the navigation tree, choose *Design*.
3. Select the SAP Master Data Integration with SAP Field Service Management package.
4. On the Artifacts tab, choose *Configure* under *Actions* for the corresponding artifact

Replicate Business Partner to SAP Field Service Management

1. On the *Sender* Tab, select *MDI* in the *Sender* drop down list and specify the associated fields.

Field Name	Description or Value
Sender	MDI
Adapter Type	SOAP
Address	/MDI/FSM/ReplicateBusinessPartner
User Role	ESBMessaging.send

2. On the *Receiver* Tab, select *FSM_Create_Business_Partner* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	FSM_Create_Business_Partner
Adapter Type	HTTP
Address	{FSM Host Url} /api/data/v4/BusinessPartner/bulk
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=BusinessPartner.20&forceUpdate=true
Account	Account for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
User	User for login to SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data.

3. On the *Receiver* Tab, select *Pre-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Pre-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Pre-exit iflow

4. On the *Receiver* Tab, select *Post-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Post-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Post-exit iflow

5. On the *Receiver* Tab, select *Contact* in the Receiver drop down list and specify associated fields.

Field Name	Description or Value
Receiver	Contact
Adapter Type	ProcessDirect
Address	/Forward_MDI_Business_Partner_for_Contact_Replication

6. On the *Receiver* Tab, select *Address* in the Receiver drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Address
AdapterType	ProcessDirect
Address	/Forward_MDI_Business_Partner_Address_for_Address_Replication

7. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

8. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated field s

Field Name	Description or Value
Type	All Parameters
Enable_Post_Exit	false (set to true to enable PostExit)
Enable_Pre_Exit	false (set to true to enable PreExit)
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow
X_Client_ID	Client ID obtained from SAP Field Service Management
X_Client_Version	Client version obtained from SAP Field Service Management

Replicate Business Partner Contact to SAP Field Service Management.

1. On the *Sender* tab, select *MDI* in the *Sender* dropdown list and specify associated fields.

Field Name	Description or Value
Sender	MDI
Adapter Type	ProcessDirect
Address	/Forward_MDI_Business_Partner_for_Contact_Replication

2. On the *Receiver* tab, select *FSM_Create_Business_Partner_Contact* in the Receiver dr opdown list and specify associated fields.

Field Name	Description or Value
Receiver	FSM_Create_Business_Partner_Contact
Adapter Type	HTTP
Address	https:// <cluster>.coresuite.com/api/data/v4/Contact/bulk
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=Contact.16&forceUpdate=true
account	Account for login to SAP Field Service Management
user	User for login to SAP Field Service Management
company	Company accessible in SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

3. On the *Receiver* Tab, select *Pre-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Pre-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Pre-exit iflow

4. On the *Receiver* Tab, select *Post-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Post-exit-iflow
Adapter Type	ProcessDirect

Address	Address to enable to Post-exit iflow

5. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

6. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated fiel ds

Field Name	Description or Value
Type	All Parameters
Enable_Post_Exit	false (set to true to enable PostExit)
Enable_Pre_Exit	false (set to true to enable PreExit)
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow
X_Client_ID	Client ID obtained from SAP Field Service Management
X_Client_Version	Client version obtained from SAP Field Service Management

***Replicate Business Partner Address to SAP Field Service Management*.**

1. On the *Sender* tab, select *MDI* in the Sender dropdown list and specify associated fields.

Field Name	Description or Value
Sender	MDI
Adapter Type	ProcessDirect
Address	/Forward_MDI_Business_Partner_Address_for_Address_Replication

2. On the *Receiver* tab, select *FSM_Create_Update_Address* in the Receiver dropdown list and specify associated fields.

Field Name	Description or Value
Receiver	FSM_Create_Update_Address
Adapter Type	HTTP
Address	https:// <cluster>.coresuite.com/api/data/v4/ Address/externalId/bulk
Query	account={{Account}}&user={{user}}&company={{company}}&dtos={{dto}}&forceUpdate=true
Account	Account for login to SAP Field Service Management
User	User for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
DTO	Address.18
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

3. On the *Receiver* Tab, select *Pre-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Pre-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Pre-exit iflow

4. On the *Receiver* Tab, select *Post-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Post-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Post-exit iflow

5. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

6. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated fiel ds

Field Name	Description or Value

Type	All Parameters
Enable_Post_Exit	false (set to true to enable PostExit)
Enable_Pre_Exit	false (set to true to enable PreExit)
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow)
X_Client_ID	Client ID obtained from SAP Field Service Management
X_Client_Version	Client version obtained from SAP Field Service Management

Replicate Business Partner Relationship to SAP Field Service Management.

1. On the *Sender* tab, select *MDI* in the Sender dropdown list and specify associated fields.

Field Name	**Description or Value**
Sender	MDI
Adapter Type	SOAP
Address User Role	/MDI/FSM/BusinessPartnerRelationship ESBMessaging.send

2. On the *Receiver* tab, select *FSM_Create_Business_Partner_Relationship* in the Receiver dro pdown list and specify associated fields.

Field Name	**Description or Value**
Receiver	FSM_Create_Business_Partner_Relationship
AdapterType	HTTP
Address	https://<cluster>.coresuite.com/api/data/v4/ Contact/bulk
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=Contact.16&forceUpdate=true
Account	Account for login to SAP Field Service Management
User	User for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

3. On the *Receiver* Tab, select *Pre-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Pre-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Pre-exit iflow

4. On the *Receiver* Tab, select *Post-exit-iflow* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Post-exit-iflow
Adapter Type	ProcessDirect
Address	Address to enable to Post-exit iflow

5. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

6. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated fiel ds

Field Name	Description or Value
Type	All Parameters
Enable_Post_Exit	false (set to true to enable PostExit)
Enable_Pre_Exit	false (set to true to enable PreExit)
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow)
X_Client_ID	Client ID obtained from SAP Field Service Management
X_Client_Version	Client version obtained from SAP Field Service Management

Replicate Key Mapping to SAP Field Service Management.

1. On the *Sender* tab, select *MDI* in the Sender dropdown list and specify associated fields.

Field Name	Description or Value
Sender	MDI
Adapter Type	SOAP

Address	/MDI/FSM/KeyMapping

2. On the *Receiver* tab, select *FSM_Create_Mapping* in the Receiver dropdown list and specify associated fields.

Field Name	Description or Value
Receiver	FSM_Create_KeyMapping
AdapterType	HTTP
Address	https:// <cluster>.coresuite.com/api/data/v4/${property.resource}/bulk
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=${property.dto}&forceUpdate=true
Account	Account for login to SAP Field Service Management
User	User for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

3. On the *Receiver* Tab, select *FSM_BP* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	FSM_BP
AdapterType	HTTP
Address	{{FSM_URL_BP}}${property.MDIBusinessSystemBP_UUID}
FSM_URL_BP	https://<cluster>.coresuite.com/api/data/v4/BusinessPartner/
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=BusinessPartner.22
Account	Account for login to SAP Field Service Management
User	User for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

4. On the *Receiver* Tab, select *FSM_Contact* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	FSM_Contact
AdapterType	HTTP
Address	{{FSM_URL_Contact}}${property.MDIBusinessSystemBP_UUID}

FSM_URL_BP	https://<cluster>.coresuite.com/api/data/v4/Contact/
Query	account={{Account}}&user={{User}}&company={{Company}}&dtos=Contact.16
Account	Account for login to SAP Field Service Management
User	User for login to SAP Field Service Management
Company	Company accessible in SAP Field Service Management
Credential Name	Name created in Deploy a Credential Artifact by Using SAP Field Service Management Client Data

5. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

6. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated fiel ds

Field Name	Description or Value
Type	All Parameters
LeadingBusinessSystemId	Business System ID of Leading System (For Example, S4HANA Cloud System Business System ID)
MDIBusinessSystemId	Business System ID MDI System (Business System Name Configured in BTP Business Partners UI)
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow)
X_Client_ID	Client ID obtained from SAP Field Service Management
X_Client_Version	Client version obtained from SAP Field Service Management

Confirm Business Partner Replication to SAP Master Data Integration

1. On the *Sender* tab, select *FSM* in the Sender dropdown list and specify associated fields.

Field Name	Description or Value
Sender	FSM

Adapter Type	ProcessDirect
Address	/FSM/MDI/ConfirmBusinessPartnerReplication

2. On the *Receiver* tab, select *MDI* in the Receiver dropdown list and specify associated fields.

Field Name	Description or Value
Receiver	MDI
AdapterType	SOAP
Address	{{MDI_Host}}{{MDI_SOAP_Confirmation_Endpoint}}{{Tenant_Id}}
MDI_Host	https://one-mds.cfapps.{region}.hana.ondemand.com
MDI_SOAP_Confirmation_Endpoint	/businesspartner/v0/soap/BusinessPartnerBulkReplicateRequestConfIn?tenantId=
Tenant_Id	MDI Tenant ID
Credential Name	Name created in Deploy a Credential Artifact by Using MDI Client Data
Timeout (in ms)	60000
Allow Chunking	X
Clean-up Request Headers	X

3. On the *Receiver* Tab, select *Send_Email* in the *Receiver* drop down list and specify the associated fields.

Field Name	Description or Value
Receiver	Send_Email
Adapter Type	ProcessDirect
Address	/MDI/FSM/Send_Email_Notification

4. On the *More* tab, select *All Parameters* in the *Type* dropdown list and specify associated fiel ds

Field Name	Description or Value
Type	All Parameters
ErrorEmailNotification	false (set to true to receive email log)
ErrorLogAttachments	true (creates Attachments in the Iflow

Value Mapping between Master Data Integration and SAP FSM

Iflow configured with mapping. (Refer Section 5.0 for further details)

1. On the *Receiver tab*, select *Email_Receiver* in the *Receiver* dropdown list and specify associated fields.

Field Name	Description or Value
Receiver	Email_Receiver
Adapter Type	Mail
Address	smtp.gmail.com:587
Proxy Type	Internet
Timeout (in ms)	30000
Protection	STARTTLS Mandatory
Authentication	Plain User/Password
Credential Name	Name created in Deploy a Credential Artifact by Using Email Address Data
From	fromxyz@gmail.com
To	sender@gmail.com
CC	cc@gmail.com
BCC	Bcc@gmail.com
Subject	Error/Exception Handling
Signature and Encryption Type	None

4.6 Extensibility of IFlows:

4.6.1 What is extensibility of IFlows

Extensibility of iflows is a way to give customers the flexibility to do some enhancements that are needed at the mapping level to pass additional information between systems, which are not part of standard content, but specific to customer implementations. With the help of ProcessDirect adapter, in SAP Cloud Integration, we can provide exit points in our integration flow artifacts which will help customers to do their enhancements on top of our SAP delivered content without modifying the standard iFlow and thus customer will always get notified about all future patches and enhancements for those artifacts. We need to choose the exits points in our IFlows correctly. The basic concept is that a standard integration flow (predefined by SAP) contains one or more customer exits, through which one or more customer integration flows (designed by the customer who is extending the standard content) are called. The standard integration flow and the custom integration flows (called through the customer exit) have to be deployed on the same tenant.

Extension is required in one of these cases: -

1. Only the target structure is enhanced and mapped from existing elements in the source structure.

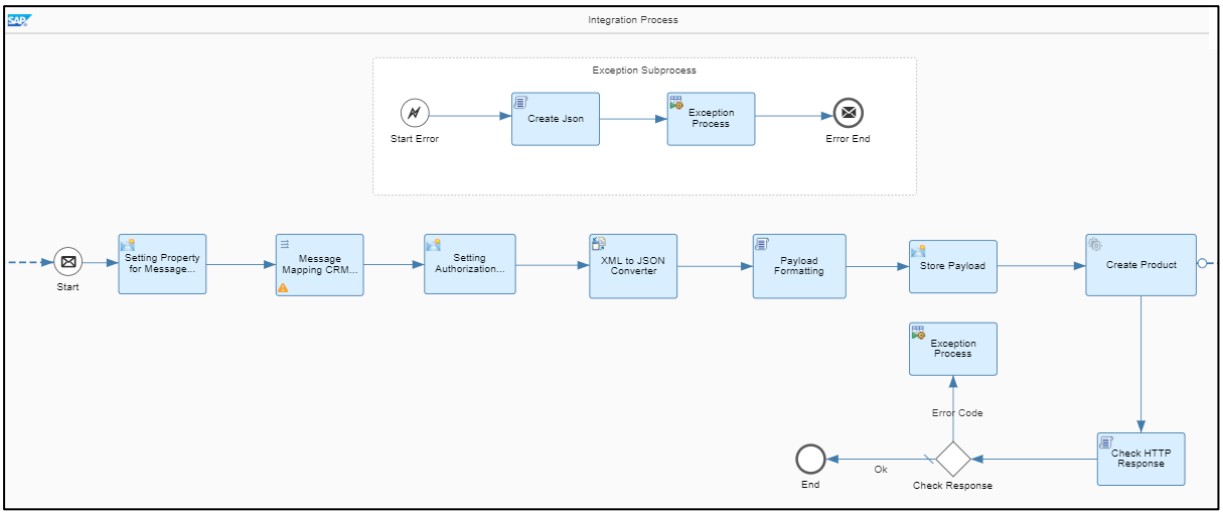
2. Source and target structure both are enhanced.

In the first case we require an exit post mapping but in the second case both (pre and post) the customer exits are required. So, we can assume that a post exit is always a must when either of the structure is enhanced. We can conclude the mappings taking place in the main iflow and customer iflows as:-

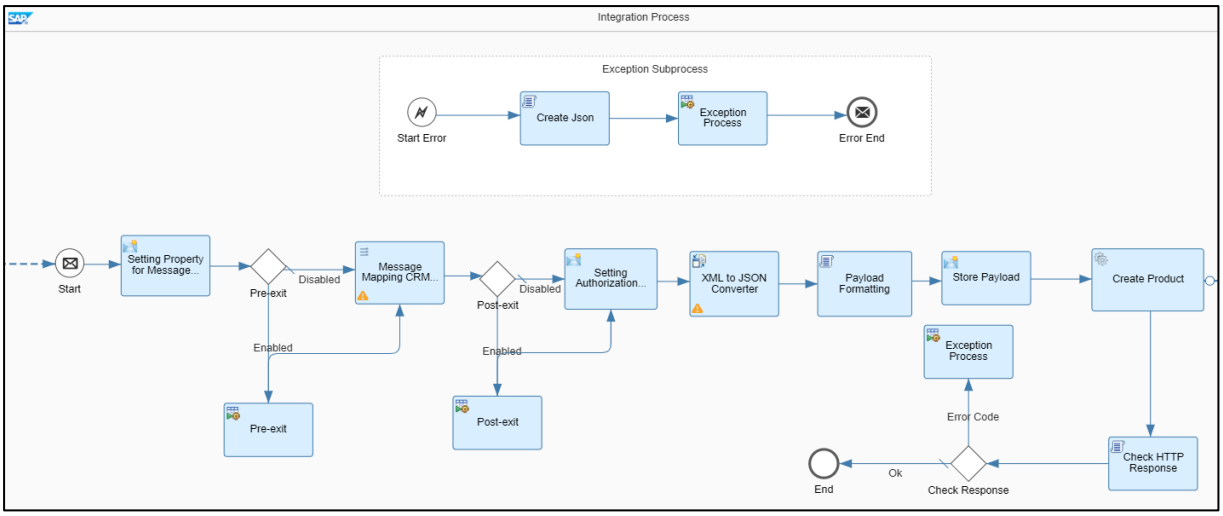
- Extended Source Structure->Standard Source Structure (Pre-Exit Iflow)
- Standard Source Structure->Standard Target Structure (Main iFlow)
- Extended Source Structure + Standard Target Structure -> Extended Target Structure (Post-Exit Iflow)

It is recommended that the pre-exit iflow is only used to transform extended source structure to the standard source structure and only post-exit is used for custom mapping purposes. The post-exit iflow will receive both the extended source structure and the standard target structure and hence will have all the data needed to map to the target structure. This will ensure that custom mapping business logic is not fragmented across multiple iflows.

Iflow without Extension:



IFlow with extension:



4.6.2 Advantages of extensibility

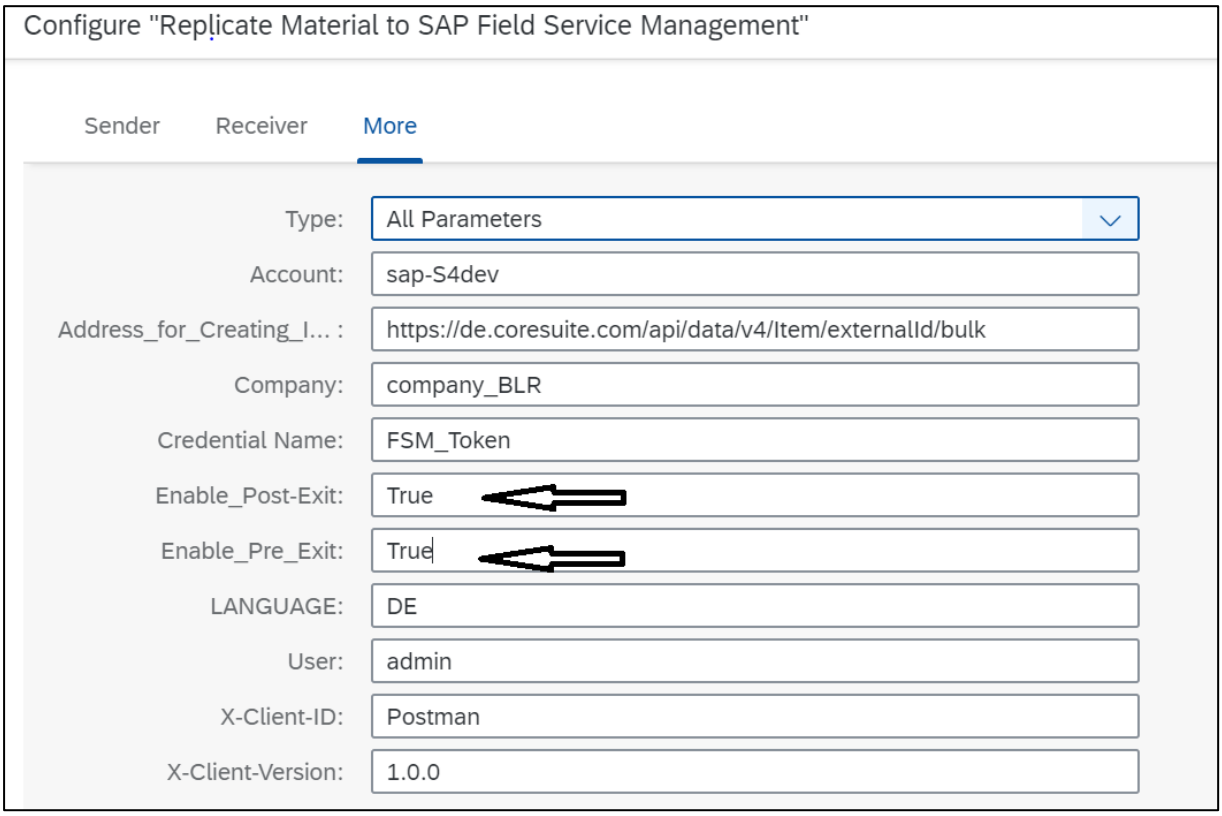
- Provides flexibility to customers to customize their integration flows without editing the iflows.
- Ensures better lifecycle management of prebuilt integration flows. If you make custom changes to a standard integration flow (prebuilt by SAP), this has an impact on lifecycle management, as you will not receive future updates related to modified artifacts on your tenant. Additionally, if you copy the updated standard package from the content catalog to the **Design** workspace of your tenant that contains the modified packages, you will overwrite all changes that have been made to that

package. Therefore, defining all required changes in a dedicated integration flow helps you to better manage the lifecycle of your integration packages.

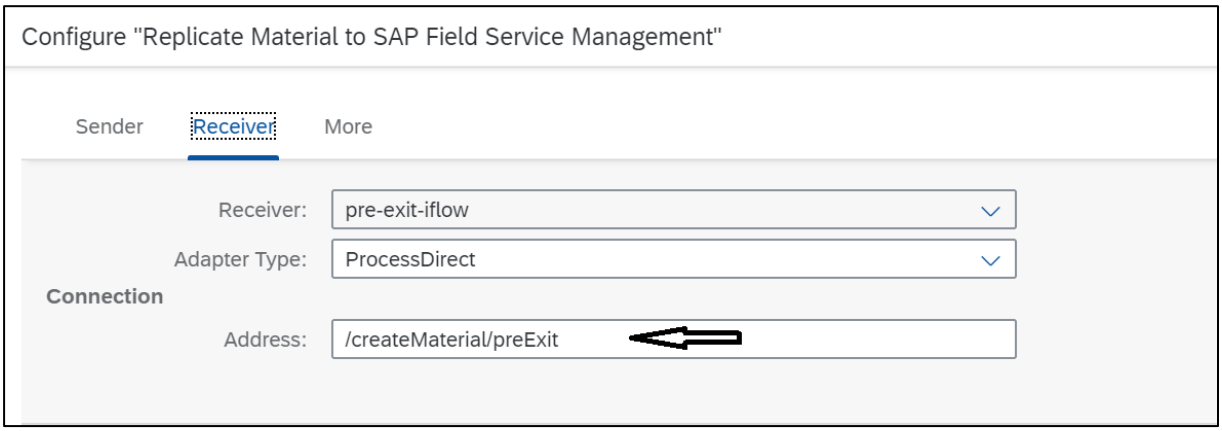
- Enables the reuse of integration flows for mapping across different integration projects.

4.6.3 How to enable pre/post

1. To enable the pre and post customer exits we need to configure externalized parameters related to extensibility as true. E.g._setting Enable_Post_Exit as true.



2.Configure pre-exit and post-exit endpoints in the main iflow and the post and pre exit iflows.



3. Post-exit iflow always receives the standard mapped payloads in XML format even if the target is originally in JSON.

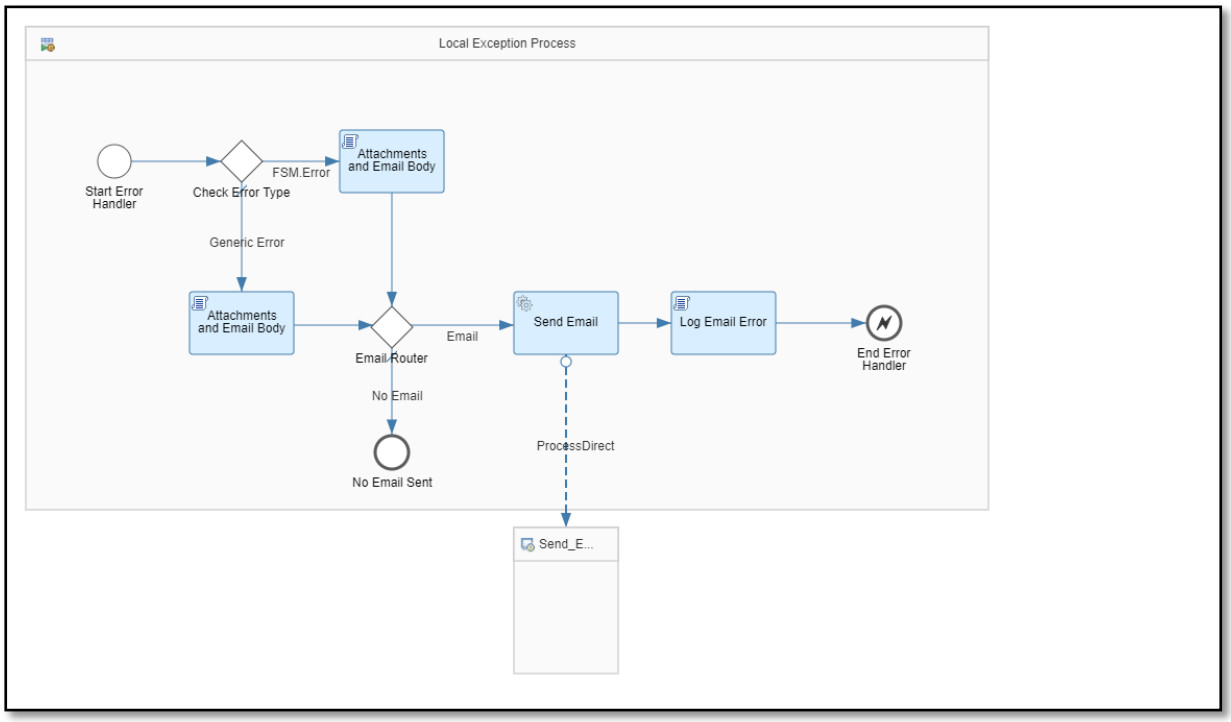
4.6.4 Mapping example for creation of pre/post exit iflows

Please refer to the following link for instructions on creating custom extension iflows with examples: https://help.sap.com/viewer/368c481cd6954bdfa5d0435479fd4eaf/Cloud/en-US/41b238c5331a4b1fbd3a0ccd342b7147.html

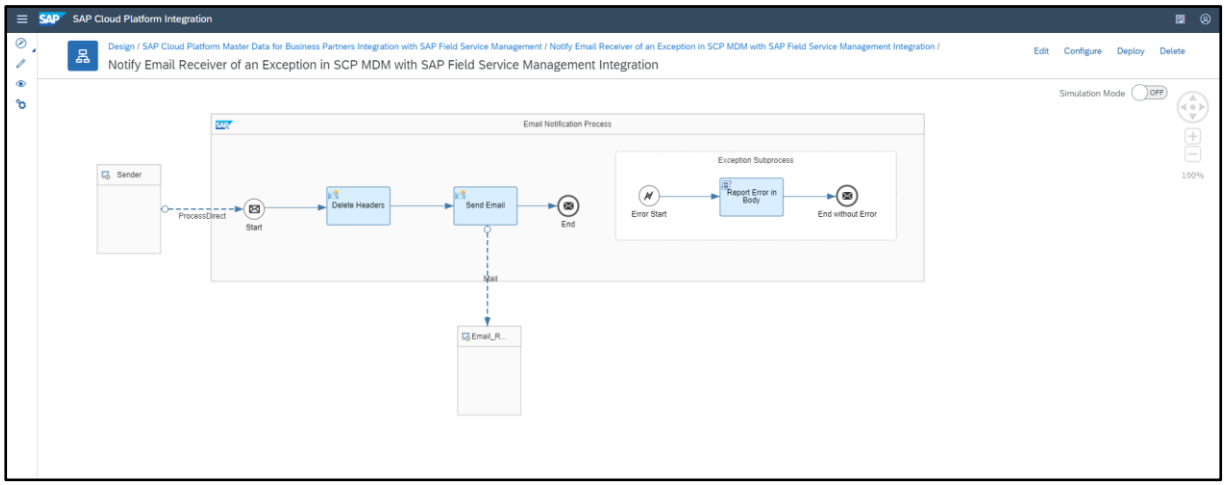
4.7 Exception handling in IFlows

4.7.1 Exception Handling IFlow and Externalized parameter

Exceptions occurring in any of the IFlow are redirected to a local Exception Sub Process (shown below).



Based on the above externalized parameter those exceptions can be sent via email and logged in the CPI Layer. When **ErrorEmailNotification** is set to true, exceptions will be logged in SAP Cloud Integration Layer and redirected to the following Iflow to send the Email Notification.

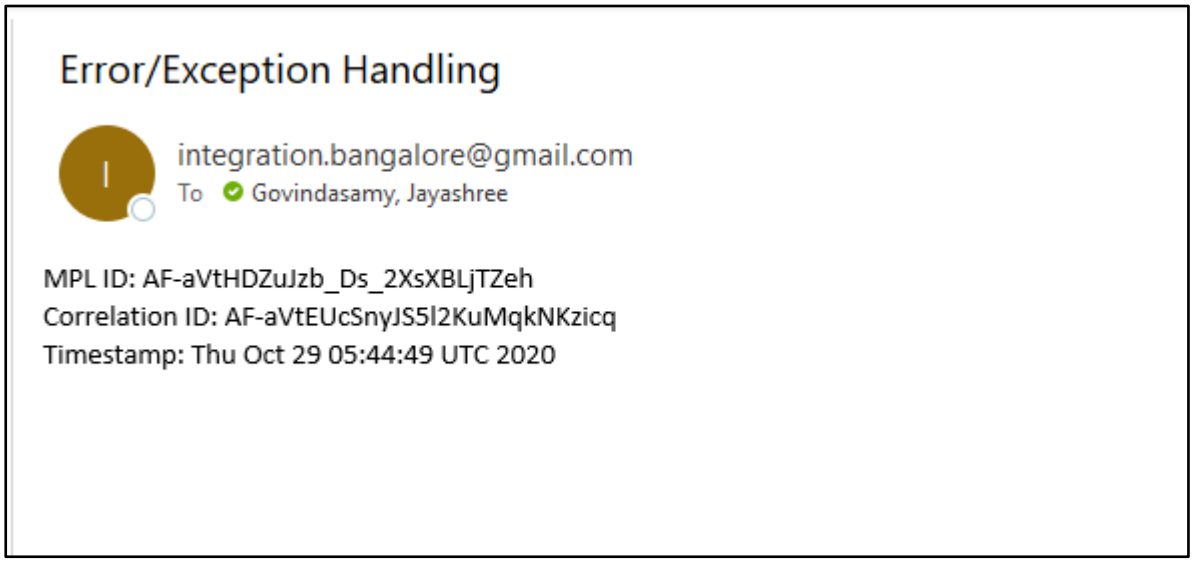


4.7.2 4xx and 5xx and generic exceptions

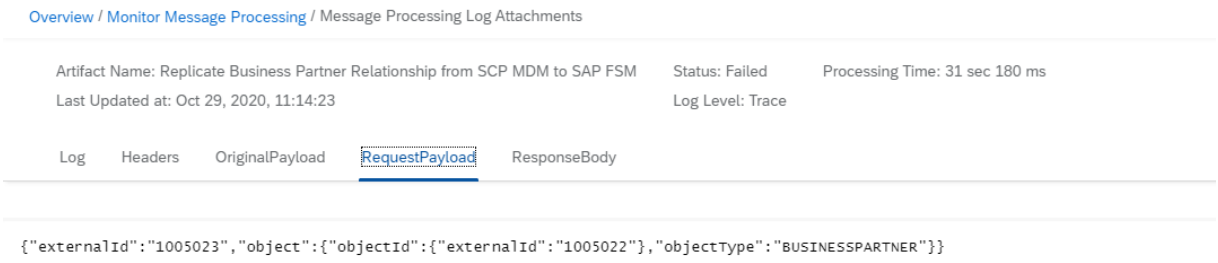
Exception of format 4xx (404, 400) and 5xx (500, 505) are handled via the generic exception handler only, with Original Payload, Request Payload and Response Body in the Attachment.

4.7.3 Exception Email/Cloud integration Log Format

Error Email:



Error Logged in Cloud Integration:



5.0 Value Mapping

The connected systems SAP Master Data Integration and SAP Field Service Management use different values for some of the categories that are transferred between the systems by the SAP Cloud Integration. To adapt the systems, each Cloud Integration package can (besides the iFlows) contain value mappings to map values between both system types. These value mappings are used by the iFlows whenever a contained category is transferred.

Category	Value on SAP Master Data Integration	Value on SAP Field Service Management
Gender mapping between SAP Master Data Integration and SAP Field Service Management	‘ ‘	UNKNOWN
	2	FEMALE
	1	MALE
Role mapping between SAP Master Data Integration and SAP Field Service Management	FLVN01	SUPPLIER
	FLCU00	CUSTOMER
	CRM000	CUSTOMER
	CRM002	CUSTOMER
	FLVN00	SUPPLIER
	BUP002	PROSPECT
	FLCU01	CUSTOMER
	BUP004	COMPANY
Title mapping between SAP Master Data Integration and SAP Field Service Management	0001	Ms.
	0002	Mr.

6.0 More Information

- For more information about SAP Field Service Management, see https://docs.coresystems.net/help- index.html or https://www.sap.com/products/field-service-management.html.
- For more information about SAP Field Service Management, see https://help.sap.com/viewer/246fb358c1c7413289c03b8c72734209/1.6/en-US/3e0b477a09454e68ae2beda7b9654ec6.html
- For more information about Service APIs on SAP Field Service Management, see https:// docs.coresystems.net/api/service-api.html
- For more information about SAP Master Data Integration, see https://help.sap.com/viewer/c7713d6177ad479d9ea00958db9f2f81/CLOUD/en-US