

Documentation
**Automated Synchronization of SAP
LeanIX Factsheets via SAP
Integration Suite for Cloud
Integration Objects
SAP Integration Package**

Version 1.2

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RealCore Group GmbH

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Document History

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1. Overview & Introduction

This integration package enables data synchronization between SAP Cloud Integration Content and SAP LeanIX factsheets by reading specific Cloud Integration objects and transferring them to SAP LeanIX application.

Thanks to the solid SAP Cloud Integration solution significant data will be transmitted seamlessly and secure with the help of a Cloud Integration flow which resorts to newest simulation technology and stable error handling.

By utilizing this solution companies will gain an increased growth of efficiency due to a stable automation process of creating FactSheet resources.

The provided integration flow makes use of a full data load to create SAP LeanIX factsheets for all interfaces simultaneously within a few minutes by calling a GraphQL API which connects to SAP LeanIX.

Additionally, it makes use of filter rules to further inclose to be created sheets if necessary. Already existing FactSheets will be updated with new information while non-existent ones will be created as shell with details as title, system information and a technical description. More detailed FactSheet labels like the name can be maintained individually by filling a predefined Value Mapping. This value mapping is pre-created by a separate optional flow in the package which will be explained in [Chapter 3.7](#).

The following chapters specify on these topics in more detail and guide you through the first initial setup.

IMPORTANT NOTE: Using this content without filters (full load) more than once will cause overwriting existing FactSheets! If you change a FactSheet after the initial load and run a full load again, all changes in the FactSheet will be overwritten by the update.

Verify that only valid data is included in the description and information of the integration flows. Since this this content does not support the archiving of Application or Interface Factsheets in SAP LeanIX. Incorrect entries must be cleaned up manually if necessary.

2. Preparations and what you need

This chapter handles the necessary preliminary steps users need to take care of before using the integration flows.

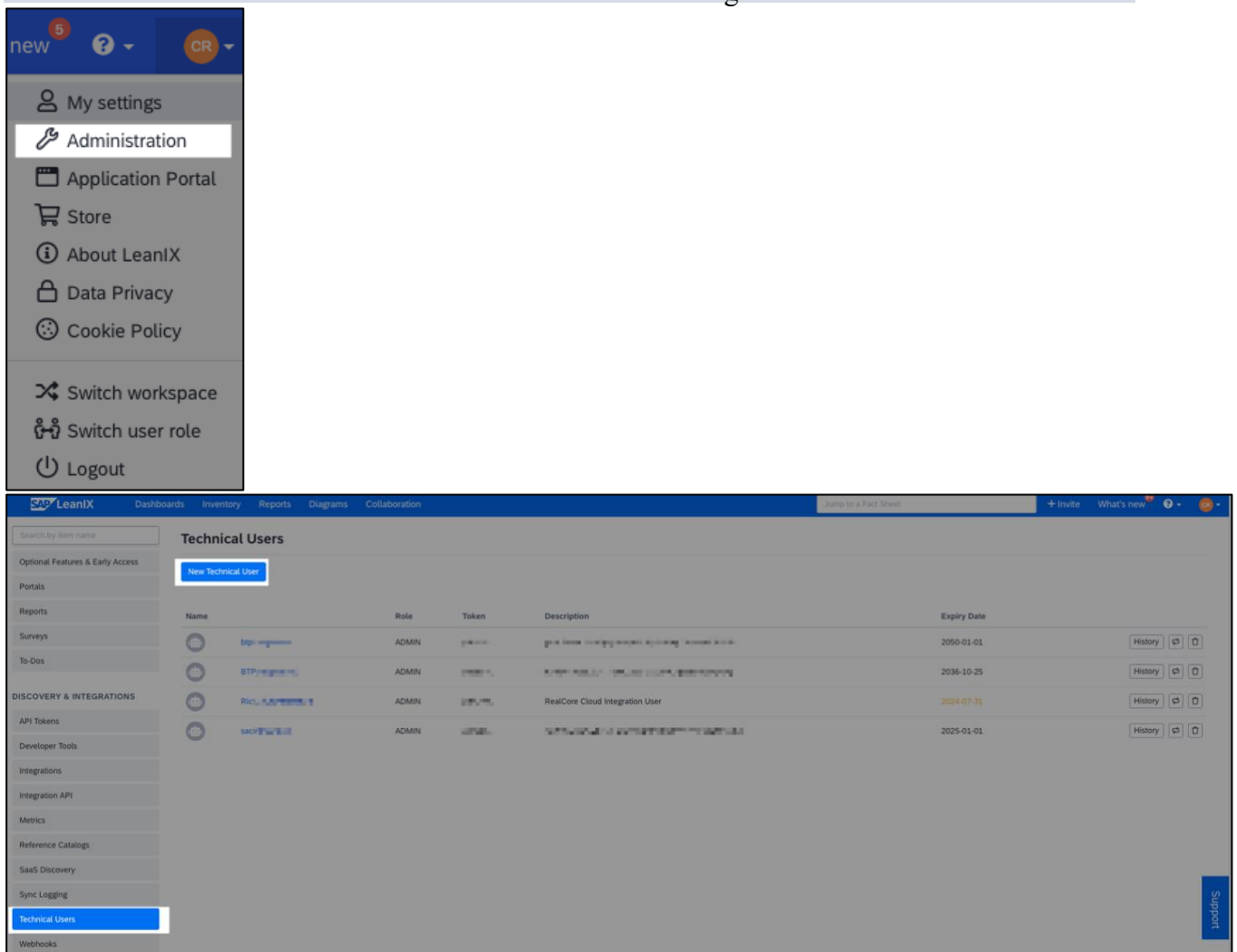
2.1 Preparation Activities in SAP LeanIX

Before running the integration flow, you need to create a technical user in SAP LeanIX for authentication when using SAP LeanIX API calls. Additionally, it is important to double-check your Meta Model configurations in SAP LeanIX to ensure that all field types are enabled in the factsheet types used in the GraphQL requests of the integration flow. This chapter will guide you through the process.

2.1.1 Authentication Cloud Integration to SAP LeanIX

To authenticate against SAP LeanIX you first need to create a user in the SAP LeanIX application. SAP LeanIX admins have to follow these steps to do so:

1. On the top right corner click on your user initials and navigate to “**Administration**”
2. The left bar contains several setup possibilities. To create a new technical user, scroll down and choose the option “**Technical Users**”.
3. In this screen you create a new technical user with “**New Technical Users**” and set the username, role and expiry date. Once the new user is saved you will automatically receive the Token which serves as “**Secret**” in SAP Cloud Integration credentials.



← New Technical User

Username *

Description

Permission Role *

Customer Roles

Access Control Entities

Expiry Date *

2.1.2 Meta Model Configuration in SAP LeanIX

For successful factsheet creation, you need to ensure that all required fields from the GraphQL mutation request are available in the factsheet type interface. In SAP LeanIX, follow these steps:

1. Open the **“Administration”** Interface as mentioned in [chapter 2.1.1](#)
2. Now select the **“Meta Model Configuration”** under **“Basic Settings”** in the left side bar
3. Choose the **“Interface”** from the Fact Sheet Types
4. By default **“Interface-Subtypes”** and all other needed fields are available. If one of the fields is missing you can add them by choosing the **“add Subtypes”** or clicking in the Information Box and choose **“add field”** and adding the values of the subtypes that you need. The following fields are filled by the GraphQL request:

- name
- description
- release
- category
- externalId
- tags

5. Complete the process by choosing **“create”** and **“Review Changes”**

Search by item name

Meta Model Configuration

New Fact Sheet Type Change Order

	Description	Quality Seal
O Objective	Which Objectives are you currently trying to achieve?	90 days
P Platform	Which Digital and Technical Platforms are supporting the business?	90 days
I Initiative	Which Initiatives are currently changing the IT landscape?	90 days
B Business Capability	Which business capabilities are supported by applications?	90 days
C Business Context	Which Business Contexts are affecting the IT landscape?	90 days
O Organization	Which part of the organization is involved?	365 days
A Application	Which applications are provided by IT to support the business?	90 days
I Interface	Which interfaces exist?	90 days
D Data Object	Which data objects are created, modified, or transmitted via interfaces?	90 days
IT IT Component	What are underlying software, hardware, and services used to operate applications?	365 days
P Provider	Who is providing or delivering these IT components?	365 days
T Tech Category	How are the IT components grouped, which skills or technology groups are required?	90 days

Meta Model: Interface

Fields Quality Seal Permissions Conditional Attributes Audit Log

Fact Sheet Name

Interface Add Subtypes English Edit

Information

Name and Description Help text (optional)

Name Release
The name is used to identify this fact sheet in the inventory, reporting, and search.

Alias External ID
Use this field for an alternative name, which is also used in full-text ... Store your External ID here which uniquely identifies this fact sheet.

Description
Please provide a meaningful description to enable other users to understand the main purpose.

+ Add Field

Fact Sheet Subtypes

Create and manage subtypes for Interface. Your workspace's users will be able to choose a subtype when creating a fact sheet.

Key

category

The 'category' field is used to group fact sheets into a specific subtype.

Field type

Single Select

Field Width (Columns)

M (4/12)

Values

Add subtype +

API ✕

LogicalInterface ✕

Create

2.2 Preparation Activities in SAP Cloud Integration

In order to avoid any errors while running the integration flow initially, it is necessary to first create the security material in SAP Cloud Integration and ensure that the SAP LeanIX adapter is installed on the runtime. The following chapter will explain these points separately and in more detail.

2.2.1 Authentication Cloud Integration to SAP LeanIX

Before you can use the new integration flow a new Security Material from type “OAuth2 Client Credentials” is needed to authenticate to SAP LeanIX application.

In SAP Cloud Integration you must follow these steps:

1. Open SAP Cloud Integration and navigate to “**Monitor->Integrations and APIs->Security Material**”.
2. On the top right corner click on “**Create**” and choose “**OAuth 2 Client Credentials**”
3. Now in the dialog box enter the following details and click on **Deploy**:
 - a. Runtimes: **<Your CI runtime environment>**
 - b. Token Service URL: **https://<subdomain>.leanix.net/services/mtm/v1/oauth2/token**
 - c. Client ID: **apitoken**
 - d. Client Secret: **<Your client secret which has been generated as “token” after the technical user creation in LeanIX>**
 - e. Client Authentication: **Send as Request Header**
 - f. Scope: *****
 - g. Content Type: **application/x-www-form-urlencoded**
4. Enter the credential name in the configurable parameter “LeanIX_OAUTH2_Credentials” and the SAP LeanIX subdomain in the parameter “LeanIX_Subdomain” – (more information [chapter 3.1](#))

Edit OAuth2 Client Credentials

Name: *

Description:

Runtimes: *

Token Service URL: *

Client ID: *

Client Secret: *

Client Authentication: *

Scope:

Content Type:

Resource:

Audience:

2.2.2 Authentication to read SAP Integration Flow objects

To read the interface objects from your own SAP Cloud Integration system an OData call is getting performed in the integration flow.

To authenticate against the OData API a new Security Material is needed that can either contain a S-User or OAuth 2 client credentials. OAuth 2 credentials can be created by your SAP BTP administrator.

To create a new Security Material, please follow these steps:

1. Open SAP Cloud Integration and navigate to “**Monitor->Integrations and APIs->Security Material**”.
2. On the top right corner click on “**Create**” and choose the respective Authentication Method (either “**User Credentials**” if you use a S-User or “**OAuth 2 Client Credentials**” for a proper OAuth authentication)
3. Enter the corresponding information for your SAP Cloud Integration authentication in the dialog box
4. Enter the Credential Name in the configurable parameter “**SAPCI_Credentials**” when configuring your Iflow. Also enter the used auth method in your parameter “**SAPCI_Authentication**” (Value: Basic or OAuth2 client credentials). Finally enter the SAP Cloud Integration hostname in your flow parameter “**SAPCI_Hostname**”. – (more information [chapter 3.1](#))

Important Note:

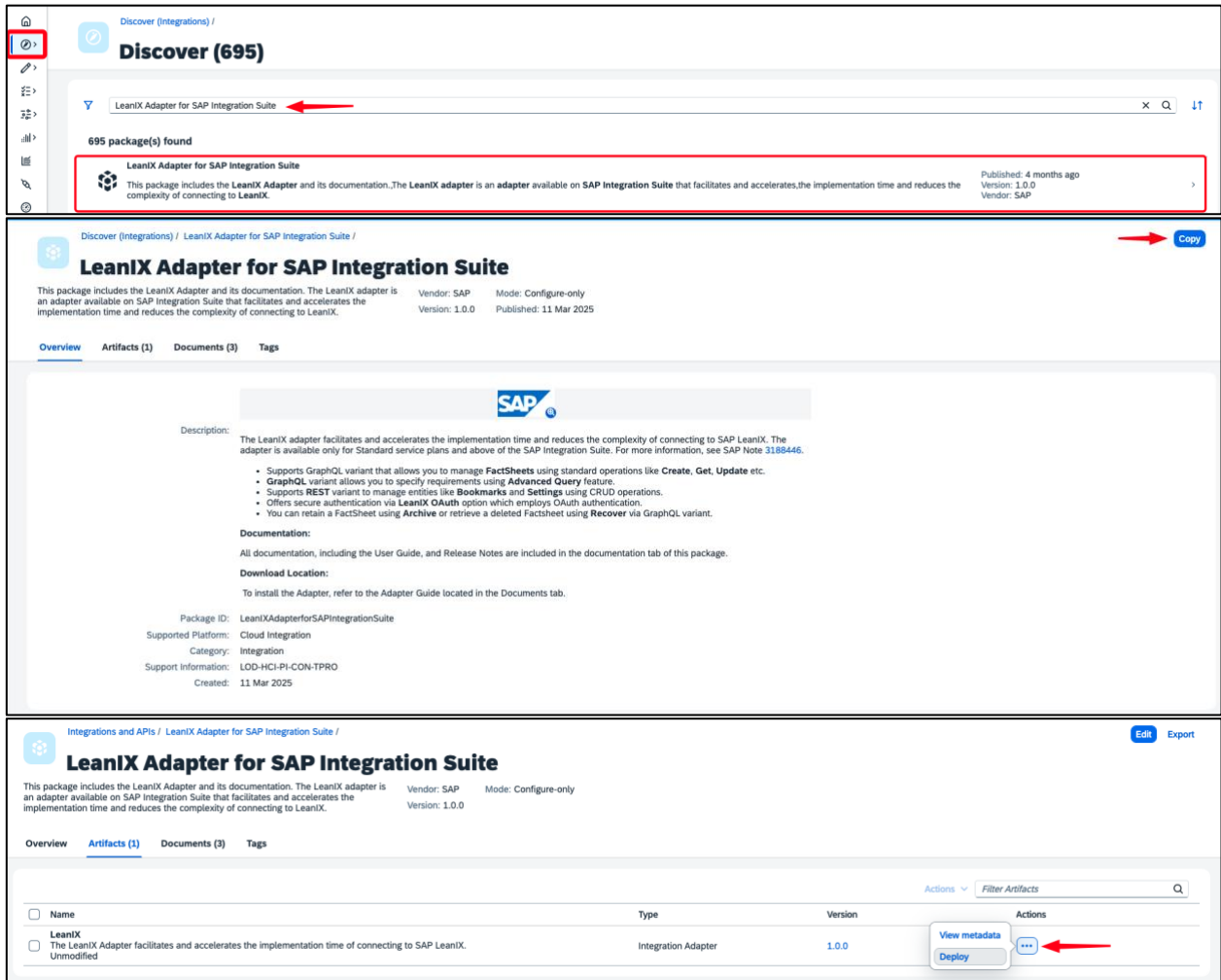
Since HTTP and OData adapters can use different authentication methods, you can create an additional set of security credentials separate from **SAPCI_Credentials**. This allows you, for example, to use Basic Authentication for OData calls and OAuth 2.0 Client Credentials for HTTP calls. However, it is also possible to use the same credentials and authentication method for both adapters if desired. The **OData authentication** and **ODATA_Credentials** must be configured separately from **SAPCI_Credentials**.

2.2.3 Installing the SAP LeanIX Sender Adapter

Along with the HTTPS and OData Sender adapters, this integration package also uses the official SAP LeanIX Sender adapter. In order to use the integration flows, you need to install the SAP LeanIX Sender adapter on the runtime, as downloading the package does not automatically install the adapter. The following steps will explain how to do this in detail:

1. Search for “**LeanIX Adapter for SAP Integration Suite**” in “**Design**” Section in SAP Cloud Integration
2. If you find the Package continue to Step Nr.4, otherwise navigate to “**Discovery**” under the “**Integrations**” Section and search for “**LeanIX Adapter for SAP Integration Suite**” and choose it
3. Once open click on “**Copy**” and install the package in the runtime, then repeat the Step 1.
4. Open the Package and navigate to “**Artifacts**” and click on the three dots under “**Action**” Then choose to “**Deploy**”





3. IFlows and Configuration in Cloud Integration

This packages comes with two integration flows:

1. Main Flow “Synchronize SAP LeanIX Factsheets with SAP Cloud Integration IFlow information”
2. Optional Flow “Preload Value Mapping for SAP LeanIX Label with SAP Cloud Integration Details”

This documentation primarily focuses on the Main Flow as the second one is an optional addition which can be used to simplify designing specific FactSheet Labels like the title in the SAP LeanIX factsheets (more details for the value mapping flow can be found in [chapter 3.7](#)).

Note: Both flows are setup as “Run On Deploy” meaning once the integration content gets deployed and activated, the interface processing starts. Whenever the integration content should run it needs to get redeployed in your Cloud Integration system.

3.1 Configuration Parameters

To fully use this flow the following parameters needs to be configured first before Deployment:

Category	Name	Default	Mandatory parameter (X)	Description
Relation Control	CreateRelations		X	With this parameter you choose whether to create Consumer and

				Provider relation in an Interface-Factsheet in SAP LeanIX.
Controlling	Ctrl_Batch_Size	10	X	With this parameter you control how many FactSheet Create/Update Statements are send via one call to SAP LeanIX. This is necessary because creating/updating over 100 FactSheets in single requests would cause a “Too many request” HTTP Exception.
	Ctrl_FactSheet_Subtype			With this parameter you control if the Interface should be created with a specific SubType so you can differentiate from you other Interface FactSheets. This Subtype must exist in SAP LeanIX otherwise SAP LeanIX will throw an exception.
	Ctrl_Simulation	true	X	With “Ctrl_Simulation” = true the flow will only read data, but will not create or update any FactSheets in SAP LeanIX. In the Message Log you will find a summary what the Flow would have created or updated if it wasn’t running in Simulation Mode Valid values: true false
	Ctrl_TraceLevel	info	X	Controls how much Information the Flow will provide in the Message Log. Defined Parameters are: info - Writes only necessary information into the message log debug - Write all available information in the message log which might be needed in case of unexpected error and behavior’s.
	Filter_Flow			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
	Filter_Package			Regex String which is used to control which information the flow is reading from SAP Cloud Integration

	Filter_Receiver			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
	Filter_Sender			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
	TagName/ TagNameApplication			Use this externalized parameters to set the Tag Name to be added to your Interface and/or Application FactSheet in SAP LeanIX.
LeanIX- http Connecti on	LeanIX_OAUT H2_Credentials (tab receiver: "Credential Name")		X	Name of the Security Material created for SAP LeanIX OAuth2 Authentication. See chapter 2.2.1
	LeanIX_Subdo main		X	Subdomain hostname of your SAP LeanIX application. Example URL/Hostname: <code>https://<LeanIX_Subdomain>.leanix.net/</code>
LeanIX- Adapter	LeanIX_OAUT H2_Credentials (tab receiver: "Credential Name")		X	Name of the Security Material created for SAP LeanIX OAuth2 Authentication. See chapter 2.2.1
	Full-Address		X	Specify the address of SAP LeanIX to be used for the connection.
SAP CI Connecti on	SAPCI_Authent ification (tab receiver: "Authentication ")		X	Choose type of authentication to read SAP Cloud Integration objects. Valid values: Basic OAuth2 client credentials
	SAPCI_Credent ials (tab receiver: "Credential Name")		X	Name of the Security Material created for calling SAP Cloud Integration API. See chapter 2.2.2
	SAPCI_Hostna me		X	Hostname of your SAP Cloud Integration system

3.2 Full Load or Filtered Creation Process

By default, with only setting the mandatory parameters marked with X above you will automatically run a full load. This means all the SAP Cloud Integration interfaces are getting collected and the corresponding FactSheets created in one go when deploying the integration flow for the first time.

However, you can also filter for specific integration flows only by making use of the specific optional parameters:

- Filter_Flow
- Filter_Package
- Filter_Receiver
- Filter_Sender

These parameters are based on Regex and can be individually setup. If the parameters are set before Deployment only the flows that are matching are getting transferred to SAP LeanIX.

3.3 Update Existing FactSheets

The SAP Cloud Integration Flow generates FactSheets using the FlowID as the External ID. Since the FlowID is unique in SAP Cloud Integration, this External ID allows the flow to identify and update existing FactSheets rather than creating new ones. If someone removes the External ID from a FactSheet, the flow will not recognize the existing FactSheet and will attempt to create a new one, leading to an error due to the duplicate FactSheet name.

3.4 Create/Update Application Relations

This functionality enables the creation of Interface provider and consumers relations in SAP LeanIX based on the sender and receiver information maintained within each Integration Flow in SAP Cloud Integration.

The creation of these relations can be controlled using a Boolean flag (CreateRelation = “true” or “false”), in case the generation of relations is not desired.

Important Note: The number of Application Fact Sheets may be limited by your LeanIX workspace quota. If exceeded, creation fails. Please check your subscription or contact SAP LeanIX Support to increase the limit.

The local integration logic compares the current state in SAP LeanIX using the External ID, which is matched against the display names of the sender and receiver in SAP Cloud Integration. Based on this comparison, the process either creates or updates the corresponding Application Factsheets in SAP LeanIX.

Additionally, any custom naming maintained in the Value Mapping of SAP Cloud Integration components is taken into account during this mapping process.

The resulting Applications, whether newly created or updated, are then linked to the respective Integration Flow of a run via a relation in SAP LeanIX.

3.5 Simulation Mode

You can choose if you directly want to create the FactSheets in SAP LeanIX or if you first want to test the process of picking up interface data.

If you want to test the flow you need to set the “Ctrl_Simulation” parameter to “true”. In this case the flow will run without transferring the interface data to SAP LeanIX. After the run is finished you will find a log in the monitoring tab of the corresponding message that will provide you details how many interfaces have been collected, how many entries found in

a value mapping etc. By default, the simulation parameter is set to true to prevent users from inadvertently creating hundreds of FactSheets they may not want.

Example Logfiles “Simulation Output”:

```

=====
Simulation Output Applications
=====
This output shows which Sender and Receiver Applications would be created or updated in LeanIX.
It is based on technical names from SAP CPI and potential ValueMapping replacements.

-----

Application "ExampleSender" (e910fd0e-8a2d-441b-96fa-6cc1191bcd18) had no updates.
Application "ExampleReceiver2" (6b4ba2f4-0246-4a81-bf72-66a42bff66bd) had no updates.
Application "ExampleReceiver" (e0829c2b-2160-4103-a906-871da09156bd) had no updates.

=====
Simulation Output Relation
=====
This output shows which FactSheets would be updated in LeanIX based on interface and application relations from SAP CPI.

-----

FactSheet "964aa148-b0ab-4f09-9e05-3a0f131994af" has no relation updates.

=====
Simulation Output
=====
This output serves to determine how the FactSheets would be created in LeanIX. It checks whether the FactSheets already exist and if
LeanIX descriptions for applications or interfaces have been stored in SAP CI.

-----

*** Technical Details from SAP Cloud Integration ***
Sender: [SAPS4HANA]
Receiver: [SAPCloudforCustomer]
Flow: Replicate Contract from SAP Business Suite
Flow ID: com.sap.scenarios.s42c4c.contract.replicate
Package: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA
Version: 2.2.3
Description: Contract Replication from and to SAP Business Suite

*** Checking if ValueMapping 'Value Mapping LeanIX Label for SAP CI' contains any replacements for technical Names ***
Found no LeanIX Label for SAPS4HANA
Found no LeanIX Label for SAPCloudforCustomer

*** Checking LeanIX if FactSheet already exists or if the Flow needs to create the FactSheet ***
Interface FactSheet doesn't exist and will be created

*** Preview of how the values would be created in LeanIX ***
FactSheet Name:
Replicate Contract from SAP Business Suite to SAPCloudforCustomer

FactSheet Description:
Automatically generated Description by SAP Cloud Integration

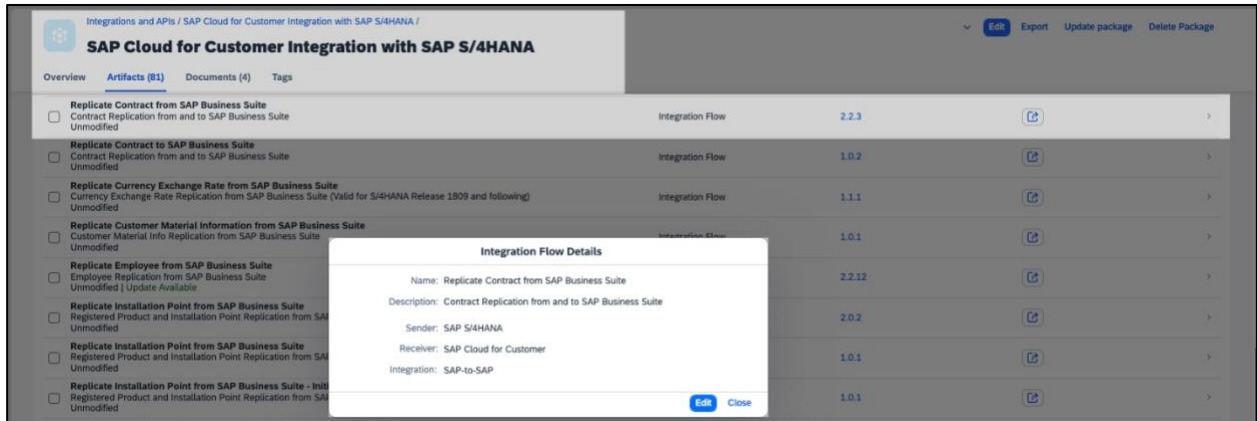
Technical Details from SAP Cloud Integration
Flow Name: Replicate Contract from SAP Business Suite
Flow Id: com.sap.scenarios.s42c4c.contract.replicate
Sender: SAPS4HANA
Receiver: SAPCloudforCustomer
PackageId: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA
Version: 2.2.3
Description: Contract Replication from and to SAP Business Suite

ExternalID:
com.sap.scenarios.s42c4c.contract.replicate
    
```

3.6 Interface Process Visualization

This chapter will show an example of how the interface is creating the SAP LeanIX factsheets visually by default.

In this scenario we want to create a FactSheet only for one single Flow with the name “Replicate Contract from SAP Business Suite” :



By setting the “Filter_Flow” parameter with the specific name of a Flow, such as “Replicate Contract from SAP Business Suite”, this acts as a valid regex formula to process only this specific Flow and create a FactSheet.

You can find the parameter summary in the custom headers of the message, along with some runtime parameters starting with __, which will show you how many flows were found, filtered, and how many FactSheets were created successfully.

Custom Headers (18)	
Name	Value
__Flows after Filter:	1
__Found Flows in filtered Packages:	1991
__Found Packages on SAP CI:	169
__LeanIX Inserted/Updated - Successful	1
__LeanIX not Inserted/Updated - Error	0
__Packages after Filter:	169
Ctrl_Batch_Size	30
Ctrl_FactSheet_Subtype	Not specified
Ctrl_Simulation	false
Ctrl_TraceLevel	info
Filter_Flow	Replicate Contract from SAP Business Suite
Filter_Package	Not specified
Filter_Receiver	Not specified
Filter_Sender	Not specified
LeanIX_OAUTH2_Credentials	LeanIX_Interface
LeanIX_Subdomain	dem#
SAPCI_Credentials	
SAPCI_Hostname	rcg-rc

Attached to the processed message you can find the Flow Log

Attachments				
Name	Type	Modified At	Size	Actions
Flow Log	text/plain	May 27, 2024, 08:42:25	2 KB	Download

Or if you run the Flow with Simulation = true you can find the Simulation Output and all necessary information in the same place for investigating problems:

Attachments				
Name	Type	Modified At	Size	Actions
Simulation Output	text/plain	May 31, 2024, 07:52:42	424 KB	↓

The Flow Log shows which SAP Cloud Integration flows were found and processed, and with which data the FactSheet was created:

```

=====
Flow Log
=====
This output serves to determine how and which FactSheets will be created/updated in LeanIX. It checks whether the FactSheets already exist and if LeanIX descriptions for applications or interfaces have been stored in SAP CI.
=====

*** Technical Details from SAP Cloud Integration ***
Sender: [SAPS4HANA]
Receiver: [SAPCloudforCustomer]
Flow: Replicate Contract from SAP Business Suite
Flow ID: com.sap.scenarios.s42c4c.contract.replicate
Package: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA
Version: 2.2.3
Description: Contract Replication from and to SAP Business Suite

*** Checking if ValueMapping 'Value Mapping LeanIX Label for SAP CI' contains any replacements for technical Names ***
Found no LeanIX Label for SAPS4HANA
Found no LeanIX Label for SAPCloudforCustomer

*** Checking LeanIX if FactSheet already exists or if the Flow needs to create the FactSheet ***
Interface FactSheet doesn't exists and will be created

*** Preview of how the values would be created in LeanIX ***
FactSheet Name:
Replicate Contract from SAP Business Suite to SAPCloudforCustomer

FactSheet Description:
Automatically generated Description by SAP Cloud Integration

Technical Details from SAP Cloud Integration

Flow Name: Replicate Contract from SAP Business Suite
Flow Id: com.sap.scenarios.s42c4c.contract.replicate
Sender: SAPS4HANA
Receiver: SAPCloudforCustomer
PackageId: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA
Version: 2.2.3
Description: Contract Replication from and to SAP Business Suite

ExternalID:
com.sap.scenarios.s42c4c.contract.replicate
=====

FlowLogApplicationRelation
=====
This output shows which FactSheets were updated in LeanIX based on interface and application relations from SAP CPI.

-----

IF001_Example_IntergrationFlow was extended with Sender application "ExampleSender" and Receiver applications "ExampleReceiver2" and "ExampleReceiver".
=====

FlowLogApplications
=====
This output shows which Sender and Receiver Applications were created or updated in LeanIX.
It is based on technical names from SAP CPI and potential ValueMapping replacements.

-----

Application "ExampleSender" (f9ec2af7-fe0f-4a3c-b4af-682c16c72d4b) was created in LeanIX.
Application "ExampleReceiver2" (2d494d14-7ec8-4f9c-a9e7-5b3fa5607818) was created in LeanIX.
Application "ExampleReceiver" (54d7a8e6-93bc-4fc0-8448-c6af2ebdf189) was created in LeanIX.
=====
    
```

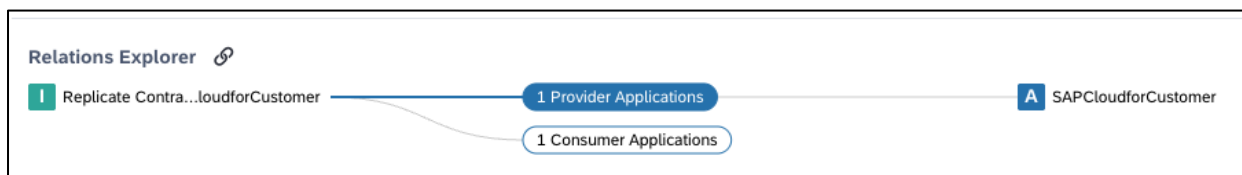
In SAP LeanIX you should find the created Factsheet:

The screenshot shows the SAP LeanIX interface with a navigation bar (Dashboards, Inventory, Reports, Diagrams, Collaboration) and a main header for the Factsheet 'Replicate Contract to SAP Business Suite from SAPCloudforCustomer' with a 4% completion status. Below the header, there are tabs for 'Interface' and 'Edit tags'. A description of the Factsheet is provided, along with a 'Show more' link. A secondary navigation bar includes 'Fact Sheet', 'Subscriptions', 'Comments', 'To-Dos', 'Resources', 'Transformations', 'Metrics', 'Surveys', and 'Last Update (17 days ago)'. A section titled 'Information 14%' contains a table with details:

Name & Description	Name:	Replicate Contract to SAP Business Suite from SAPCloudforCustomer
	External ID:	com.sap.scenarios.c4c2s4.contract.replicate.v2
	Description:	FactSheet Description: Automatically generated Description by SAP Cloud Integration Technical Details from SAP Cloud Integration Flow Name: Replicate Contract to SAP Business Suite Flow Id: com.sap.scenarios.c4c2s4.contract.replicate.v2 Sender: SAPCloudforCustomer Receiver: SAPS4HANA PackageId: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA Version: 1.0.2 Description: Contract Replication from and to SAP Business Suite Show less
	LeanIX v3 ID:	240005131

You need to consider the following technical behavior of the Synchronization Flow:

1. Factsheet Name:
 - The Factsheet Name will be built by the following pattern: {Flow Name} from {Sender} to {Receiver}
 - If the Flow Name already contains the text “ from ”, the sender will not be added to the Factsheet Name
 - If the Flow Name already contains the text “ to “, the receiver will not be added to the Factsheet Name
2. Description:
 - The description will be replaced every time the interface runs. So be aware: When you enter your own description, the next run would overwrite your texts!
3. External ID:
 - The Flow ID will be set as External ID because it's unique on your SAP Cloud Integration. And it's needed for the synchronization to determine if the Factsheet needs to be created or if it is already existing and needs to be updated.
4. Sender and Consumer Relation:
 - The Intergration Flow will create, if configured CreateRelation = 'true', Sender and Consumer Relations in SAP LeanIX, which will be displayed as a flowchart.



▼ Provider and Consumers 100%

Interface Providers (1)
Which application provides this interface?

Fact Sheet

A SAPCloudforCustomer

Interface Consumers (1)
Which applications consume this interface?

Fact Sheet

A SAP Business Suite

3.7 (Optional Feature) Configure SAP LeanIX Labels in Value Mapping

May you are not satisfied with the generated Factsheet Name, because the Flow Name (or Sender and Receiver) is to technical and not understandable for most users and also doesn't represent the interface or the process your company is using it for.

For this occasion, you can control the Factsheet Name creation by configuring the Value Mapping that can be created by running the Optional Feature in [3.8](#). This Chapter is focused on the functionality of the Value Mapping.

The Value Mapping consists of 2 different transformations:

1. For Sender and Receiver:

Agency	Identifier	⇔	Agency	Identifier
SAPCI_Component	Name	⇔	LeanIX_Application	Label

2. For Flow / Interface

Agency	Identifier	⇔	Agency	Identifier
SAPCI_Interface	Name	⇔	LeanIX_Interface	Label

Here an example how this works:

In the current Example the technical names are:

Flow Name: Replicate Contract from SAP Business Suite

Sender: SAPS4HANA

Receiver: SAPCloudforCustomer

In the Value Mapping we define for the Interface the following transformation:

And for the Sender and Receiver we define the following transformation. Notice that these names will be used for the Application Factsheet creation:

Value Mappings for		Search	Q	Add	Delete All
SAPCI_Component, Name	⇌	LeanIX_Application, Label			
SAPS4HANA	⇌	SAP S/4 Hana			
SAPCloudforCustomer	⇌	SAP Customer Cloud			

Now it's important to deploy the changes and we can re-run the Sync. The flow now results in the following Factsheet Name:

Contract Replication from SAP S/4 Hana to SAP Customer Cloud 4%

Interface [Edit tags](#)

FactSheet Description: Automatically generated Description by SAP Cloud Integration Technical Detai... [Show more](#)

Fact Sheet
Subscriptions
Comments
To-Dos
Resources
Transformations
Metrics
Surveys
Last Update (2 minutes ago)

∨ Information 14%

Name & Description	Name: Contract Replication from SAP S/4 Hana to SAP Customer Cloud External ID: com.sap.scenarios.s42c4c.contract.replicate Description: FactSheet Description: Automatically generated Description by SAP Cloud Integration Technical Details from SAP Cloud Integration Flow Name: Replicate Contract from SAP Business Suite Flow Id: com.sap.scenarios.s42c4c.contract.replicate Sender: SAPS4HANA Receiver: SAPCloudforCustomer PackagelId: SAPHybrisCloudforCustomerIntegrationwithSAPS4HANA Version: 2.2.3 Description: Contract Replication from and to SAP Business Suite Show less
LeanIX v3 ID:	240005553

3.8 (Optional Feature) Preload Value Mapping for SAP LeanIX Label

This step will add up to the procedure described above in [3.7](#) and simplifies the process to create the value mapping.

The second flow provided in the package will search or pre-create the Value mapping in SAP Cloud Integration which can be used to store business labels for SAP LeanIX FactSheet titles.

Running the Flow for the first time, consider that if the Value Mapping ID is non existing in your Cloud Integration, the Value Mapping will be created. How to configure Value Mapping and Package creation is described in [3.8.2](#). Always consider using the same Value Mapping ID for multiple runs of the Integration Flow to ensure consistency and avoid duplicate mappings.

Two value mappings will be created by this flow, one for all found applications or systems and another one for all found interface names. Based on both, the new title will be written.

Found interface details will be automatically stored on the left column. The right column will be pre-filled with a placeholder "...". In this case the integration flow realizes that the value is empty and does not change the output title description.

The interface expert can insert detailed names in this placeholder field per interface to transfer this information to the SAP LeanIX application aswell. Afterwards, created FactSheets will contain the new title from the maintained values.

3.8.2 Configuration Parameters of Value Mapping Flow

This Integration Flow uses the same features that the main flow is already using (Simulation mode and debug mode), so it comes with nearly the same parameters which are already used in the first flow. To fully use the value mapping precreate flow the following parameters needs to be configured first before Deployment:

Category	Name	Default	Mandatory parameter (X)	Description
Controlling	Ctrl_Simulation	true	X	With "isSimulationModeActive" the flow will only read data, but will not create or update any FactSheets in SAP LeanIX. In the Message Log you will find a

				summary what the Flow would have created or updated if it wasn't running in Simulation Mode
	Ctrl_TraceLevel	info	X	<p>Controls how much Information the Flow will provide in the Message Log.</p> <p>Defined Parameters are: info - Writes only necessary information into the message log debug - Write all available information in the message log which might be needed in case of unexpected error and behaviours.</p> <p>Careful: running a full load in debug mode will cause a very big logfile. We recommend to switch it to debug only if you want to check/test a small amount of flows.</p>
	Filter_Flow			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
	Filter_Package			Regex String which is used to control from which Packages the flow is reading information in SAP Cloud Integration
	Filter_Receiver			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
	Filter_Sender			Regex String which is used to control which information the flow is reading from SAP Cloud Integration
SAP Cloud Integration Connection	SAPCI_Authentication (tab receiver: "Authentication")		X	Choose type of authentication to read SAP Cloud Integration objects.

				Valid values: Basic OAuth2 client credentials
	SAPCI_Credentials (tab receiver: "Credential Name")		X	Name of the Security Material created for calling SAP Cloud Integration API. See chapter 2.2.2
	SAPCI_Hostname		X	Hostname of your SAP Cloud Integration OData API Url
	ODATA_Authentication (tab receiver: "Authentication")		X	Choose type of authentication to read ODATA Service. Valid values: Basic OAuth2 client credentials
	ODATA_Credentials		X	Name of the Security Material created for calling SAP Cloud Integration API. See chapter 2.2.2 or if needed others Credentials fitting to the Method.
Value Mapping Creation	Value Mapping - Package ID			Integration Package ID fitting the Naming Policies in the Tenant. Only needed for initial Run.
	Value Mapping - Package Name			Integration Package Name fitting the Naming Policies in the Tenant. Only needed for initial Run.
	Value Mapping ID		X	Value Mapping ID fitting the Naming Policies in the Tenant. This ID is used to find the Value Mapping after it has been created. Wrong ID leads to creation of a new Value Mapping in the Tenant.
	Value Mapping Name			Value Mapping Name fitting the Naming Policies in the Tenant.

3.8.3 Value Mapping Process Visualization

This chapter will show an example of how the Value Mapping entries are created by the Flow "Preload Value Mapping for SAP LeanIX Label with SAP Cloud Integration Details".

The Value Mapping before the run for applications (Sender/Receiver):

Value Mapping SAP LeanIX Label for SAP Cloud Integration /

Value Mapping SAP LeanIX Label for SAP Cloud Integration

Bi-Directional Mapping Search

Agency	Identifier	↔	Agency	Identifier
SAPCI_Component	Name	↔	LeanIX_Application	Label
SAPCI_Interface	Name	↔	LeanIX_Interface	Label

Value Mappings: Default Values:

Value Mappings for Search

SAPCI_Component, Name	↔	LeanIX_Application, Label	Usage:
Initial	↔	Initial	ValueMap (Source agency, Source identifier, Target value); Example:

The Value Mapping before the run for interfaces (Flows):

Value Mapping SAP LeanIX Label for SAP Cloud Integration /

Value Mapping SAP LeanIX Label for SAP Cloud Integration

Bi-Directional Mapping Search

Agency	Identifier	↔	Agency	Identifier
SAPCI_Component	Name	↔	LeanIX_Application	Label
SAPCI_Interface	Name	↔	LeanIX_Interface	Label

Value Mappings: Default Values:

Value Mappings for Search

SAPCI_Interface, Name	↔	LeanIX_Interface, Label	Usage:
Initial	↔	Initial	ValueMap (Source agency, Source identifier, Target value); Example:

Be aware that a full run could take several minutes because the SAP Cloud Integration API doesn't allow a parallel processing. In our example for inserting 1998 Flows and 81 applications the run took over 10 minutes:

Messages (20) << < 1 > >> | ↻

Artifact Name	Status
Preload Value Mapping for SAP LeanIX Label with SAP Cloud Integration Details Jun 12, 2024, 10:45:46	Completed 12 min 10 sec

You can find the parameter summary in the custom headers of the message, along with some runtime parameters starting with __, which will show you how many flows were found, filtered, and how many FactSheets were created successfully.

Custom Headers (18)	
Name	Value
__Flows after Filter:	2009
__Found Flows in filtered Packages:	2009
__Found Packages on SAP CI:	169
__Interfaces missing in Value Mapping	1940
__Packages after Filter:	169
__Systems missing in Value Mapping	81
__VM Interface Inserts Errors	0
__VM Interface Inserts Successfull	1940
__VM System Inserts Errors	0
__VM System Inserts Successfull	81
Ctrl_Simulation	false
Ctrl_TraceLevel	info
Filter_Flow	Not specified
Filter_Package	Not specified
Filter_Receiver	Not specified
Filter_Sender	Not specified
SAPCI_Credentials	LeanIX_Application
SAPCI_Hostname	rcg-...

Attached to the processed message you find the Flow Log

Attachments				
Name	Type	Modified At	Size	Actions
Flow Log	text/plain	May 31, 2024, 13:04:51	474 KB	↓

The Flow Log shows which SAP Cloud Integration flows were found and processed, and which data was added to the Value Mapping.

```

=====
Flow Log
=====
This output shows which ValueMappings doesn't exist and will be created during this Flow run. The flow is checking against existing ValueMappings but also against ValueMappings that would be created in current flow run
=====
null
=====
Check Flow:
No Value Mapping Entry found for Step 1 - Sender AS2 MDN Flow V2
Check Systems:
No Value Mapping Entry found for SAPCloudPlatformIntegration
No Value Mapping Entry found for ThirdParty
=====
Check Flow:
No Value Mapping Entry found for Step 3 - Receiver Communication Flow V2
Check Systems:
Value Mapping Entry found for SAPCloudPlatformIntegration: will already be created in this flow run
Value Mapping Entry found for ThirdParty: will already be created in this flow run
=====
Check Flow:
No Value Mapping Entry found for Step 1 - Sender Process Direct Communication Flow V2
Check Systems:
Value Mapping Entry found for ThirdParty: will already be created in this flow run
Value Mapping Entry found for SAPCloudPlatformIntegration: will already be created in this flow run
=====
Check Flow:
No Value Mapping Entry found for Step 2 - Interchange Processing Flow V2
Check Systems:
Value Mapping Entry found for SAPCloudPlatformIntegration: will already be created in this flow run
Value Mapping Entry found for SAPCloudPlatformIntegration: will already be created in this flow run
=====
Check Flow:
No Value Mapping Entry found for Step 1b - Write Message to Message queue
Check Systems:
Value Mapping Entry found for ThirdParty: will already be created in this flow run
Value Mapping Entry found for SAPCloudPlatformIntegration: will already be created in this flow run
=====
    
```

In the Value Mapping you should now find all possible (of the filtered) values for applications and interfaces:

Integrations and APIs / SAP LeanIX Integration with SAP Cloud Integration / Value Mapping SAP LeanIX Label for SAP Cloud Integration /

Value Mapping SAP LeanIX Label for SAP Cloud Integration

Bi-Directional Mapping Search

Agency	Identifier	⇔	Agency	Identifier
SAPCI_Component	Name	⇔	LeanIX_Application	Label
SAPCI_Interface	Name	⇔	LeanIX_Interface	Label

Value Mappings: Default Values:

Value Mappings for Search Q

SAPCI_Component, Name	⇔	LeanIX_Application, Label
Initial	⇔	Initial
SAPERP	⇔	...
SAPS4HANA	⇔	...
ThirdParty	⇔	...
SAPCloudPlatformAlertNotification	⇔	...

Usage:
ValueMap (Source agency, Sou
Example:
ValueMap (SAPCI_Component,
ValueMap (LeanIX_Application,

4 Error Log and Debug Mode files

Both Integration Flows come with an extensive error handling to provide analytical support in case of issues and errors.

If you want to actively monitor a message transfer you can set the parameter “TraceLevel” to “debug”. The next run will contain comprehensive log files and custom headers in the monitoring area:

Custom Headers (18)	
Name	Value
__Flows after Filter:	55
__Found Flows in filtered Packages:	55
__Found Packages on SAP CI:	169
__LeanIX Inserted/Updated - Successful	45
__LeanIX not Inserted/Updated - Error	0
__Packages after Filter:	2
Ctrl_Batch_Size	10
Ctrl_FactSheet_Subtype	Not specified
Ctrl_Simulation	false
Ctrl_TraceLevel	debug
Filter_Flow	Not specified
Filter_Package	.*Stor.*
Filter_Receiver	Not specified
Filter_Sender	Not specified
LeanIX_OAUTH2_Credentials	LeanIX_Interface
LeanIX_Subdomain	demo-de
SAPCI_Credentials	LeanIX_Application
SAPCI_Hostname	rcg-rcc-dev.it-cpi024.cfapps.eu10-002.hana.ondemand.com

Attachments		
Name	Type	Modified At
_Start Properties	text/plain	Jun 12, 2024, 10:56:21
FactSheetMap	text/plain	Jun 12, 2024, 10:56:24
Flow Log	text/plain	Jun 12, 2024, 10:56:30
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:27
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:26
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:29
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:30
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:28
LeanIX Mutation Request	text/plain	Jun 12, 2024, 10:56:25
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:29
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:30
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:26
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:27
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:28
LeanIX Mutation Response	text/plain	Jun 12, 2024, 10:56:28
LeanIX Query Response	text/plain	Jun 12, 2024, 10:56:24
SAP CI Flows after Filter	text/plain	Jun 12, 2024, 10:56:22
SAP CI Flows before Filter	text/plain	Jun 12, 2024, 10:56:22
SAP CI Packages after Filter	text/plain	Jun 12, 2024, 10:56:22

Custom Headers that start with a double underscore “__” indicate a runtime value like how many Flows or Packages were found in the system.

Custom Headers without this naming convention indicate a parameter that has been configured.

4.1 Expected Errors and Solutions

This chapter contains all issues we have faced during testing and development together with its solution.

4.1.1 Entity may not be null

```
CPI Helper - Content Before Step

1 1
Properties Headers Body Log Info Error

com.google.common.util.concurrent.UncheckedExecutionException: java.lang.IllegalArgumentException: Entity may not be null, cause:
java.lang.IllegalArgumentException: Entity may not be null
```

Reason:

3410728 - java.lang.IllegalArgumentException: Entity may not be null

Within your tenant, you have not correctly maintained the scope in your Oauth Client credentials that are being used in this scenario.

Solution:

Enter * in Scope of the OAUTH2 Security Material

4.1.2 HTTP 415 Unsupported Media Type

```
Properties Headers Body Log Info Error

com.google.common.util.concurrent.UncheckedExecutionException: java.lang.IllegalArgumentException: Status code:415; Reason:
{"code":415,"message":"HTTP 415 Unsupported Media Type"}, cause: java.lang.IllegalArgumentException: Status code:415; Reason:
{"code":415,"message":"HTTP 415 Unsupported Media Type"}
```

Reason:

When in the security material Content Type “application/json” is chosen this error occurs. It happens because the SAP LeanIX Server isn’t supporting this Content Type to Request an OAUTH2 Token. You can simulate this via Postman:

```
POST https://demo-de.leanix.net/services/mtm/v1/oauth2/token

{"grant_type": "client_credentials",
"scope": "",
"client_id": "apitoken",
"client_secret": "kd[redacted]"}

{"code": 415,
"message": "HTTP 415 Unsupported Media Type"}
```

Solution:

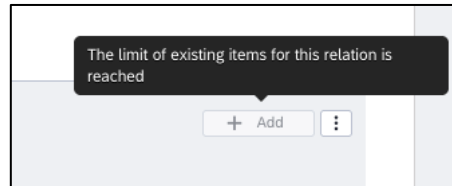
Switch to Content Type: application/x-www-form-urlencoded in the Security Material and the error shouldn’t occur again.

4.1.3 SAP LeanIX Limitation for Provider Relations

Issue:

```
{
  "data": {
    "upd1": null
  },
  "errors": [
    {
      "message": "Incoming relation applicationInterfaceProviderRelation TO Fact Sheet type Interface occurs more than once, but is defined SINGLE",
      "path": [
        "upd1"
      ],
    }
  ],
}
```

Reason:



SAP LeanIX enforces a unique sender relation for each interface. This means only one sender application can be linked to a single interface.

Solution:

To ensure compatibility with SAP LeanIX, make sure that each integration flow in SAP Cloud Integration defines only one sender in its metadata.

Avoid listing multiple senders within the Sender field of the flow metadata. Only the first sender will be considered; additional entries will be ignored due to SAP LeanIX constraints.

4.1.4 SAP LeanIX Limitation for Factsheet types creation

Issue:

```
{
  "data": {
    "createFactSheet": null
  },
  "errors": [
    {
      "message": "Quota for feature factsheet.quota.applications exceeded. Count 203, quota 200.",
      "path": [
        "createFactSheet"
      ],
      "extensions": {
        "quota": 200,
        "count": 203,
        "featureId": "factsheet.quota.applications",
        "errorType": "QUOTA_REACHED"
      }
    }
  ]
}
```

The creation of Application Fact Sheets may be limited by a quota defined for your SAP LeanIX workspace. This limit does not refer to 200 entries per execution, but rather to the overall number of Application Factsheets allowed according to your current subscription and pricing model.

If this quota is exceeded (e.g., 203 of 200 allowed), the system will block further creations and return the following error:

Quota for feature factsheet.quota.applications exceeded. Count 203, quota 200.

Recommended Actions:

- Review your current workspace usage and quota under your LeanIX subscription.
- Contact SAP LeanIX Support or your Account Representative to request a quota extension or discuss a suitable upgrade plan.

- Use filters when triggering Fact Sheet creation to limit the number of applications sent per execution and avoid unnecessary creation attempts.
- Standardize sender and receiver naming in your integration flow metadata:
 - Ensure consistent and case-sensitive identical naming across all flows referring to the same sender or receiver.
 - Consider generalizing system names where appropriate (e.g., use *SAP BTP* instead of *SAP CPI* and *SAP AI* separately) to reduce redundant Fact Sheet entries.

4.1.5 SAP LeanIX missing category

Error: {"data":{"cre1":null},"errors":[{"message":"The path '/category' is invalid in FactSheet schema Interface.,"path":["cre1"],"extensions":{"errorType":"BUSINESS_LOGIC"}}]}

Reason: Missing field in SAP LeanIX meta model configuration

Solution: Please review the chapter [2.1.2](#) to solve this error

5. Final Words and Feedback

Thanks for reading through this documentation and installing the Integration Content in your SAP Integration Suite. Since this content will evolve in its functionality from time to time we would love to hear from you. Please do not hesitate to give us some feedback whether you like the content or not. In case of missing features we are happy to hear your ideas. We will examine if we can integrate it in the future.