External system configuration

Planon Software Suite

Version: L128

Planon
Building Connections

About this Document

Intended Audience

This document is intended for *Planon Software Suite* users.

Contacting us

If you have any comments or questions regarding this document, please send them to: support@planonsoftware.com.

Document Conventions

Bold
Names of menus, options, tabs, fields and buttons are displayed in bold type.

Italic text
Application names are displayed in italics.

CAPITALS
Names of keys are displayed in upper case.

Special symbols

	Text preceded by this symbol references additional information or a tip.
	Text preceded by this symbol is intended to alert users about consequences if they carry out a particular action in Planon.

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Introduction

In a multi-instance environment, two or many environments can share Planon data.

This is only possible if both parties agree to share business object data, thus safe-guarding data integrity and ownership.

This could be two or many Planon environments sharing data, or an external party sharing data with a Planon environment.

In this situation, both parties that share data have a common understanding about the data and its identity.

This situation would be applicable if, for example, one organization serves as a business partner to another organization, to unburden the latter by assuming responsibility for services such as asset or property maintenance, or personnel management.

To support integrations with external applications, Planon offers two TSIs that work together: one that configures how an external system is set up, and one that maintains the links between individual Planon objects and their external counterparts.

External BO links

This TSI works at the **individual object level**. Each record represents a mapping between a specific Planon BO instance and its corresponding object in an external system.

- The link is defined by the **BO definition** and **syscode** of the Planon object.
- The connection to the external object is established through a shared **External ID**.
- Optional **local storage fields** allow you to store additional integration-related data for that specific object.

External system configuration

This TSI operates at the **system and BO-type level**. It defines how an external system is represented and managed within Planon.

- It specifies which **external systems** exist and how they are configured.
- It determines which **BO definitions** and **fields** are controlled by the external system.
- It governs the **direction of data exchange**, such as whether Planon is leading, following, or synchronizing data.

How the two TSIs work together

Both TSIs refer to the same external systems and are used within the same integration landscape, but they serve different roles:

- **External BO links**: stores the **per-record identity mappings** between Planon objects and external objects.
- **External system configuration**: stores the **overall integration setup**, including data ownership and synchronization rules that apply to those mappings.

Concepts

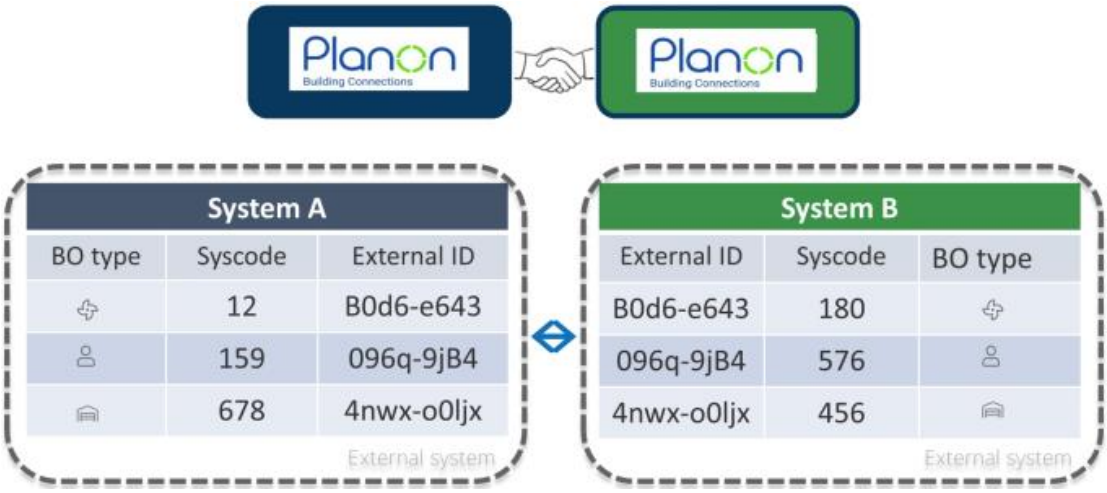
The following topics describe the concepts that are key to understanding the functionality.

External ID

If two or more environments exchange and maintain data, there needs to be a way to uniquely identify data.

In their mutual communication, the data that is passed between interacting systems is given a shared, unique identifier called an *external ID*.

> This could be two (or more) Planon systems, as is shown in the following image, but it could actually be any system.



By combining the system and the external ID, each system can identify the record in their own system and also it's business object type (asset, person, property, etc.).

> It is also possible to link one business object to multiple (different) external systems using different (or the same) external ID.

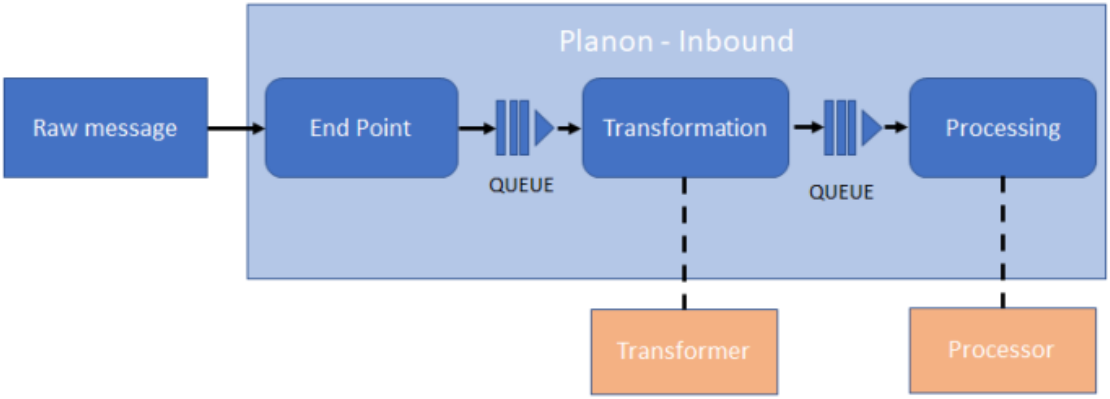
Event connector

Event connector is a gateway between third-party applications and Planon.

It is designed to process *messages* that are sent by another application and which need to be processed in the Planon application, and vice versa. Consequently, there is an inbound stream and an outbound stream.

Inbound

A message can be anything in any format. Consequently, the Planon application needs to be instructed on how to specifically handle messages.



Typically, inbound messages need to be *received*, *transformed* and *processed*. Accordingly, Event connector consists of the following three TSIs (and business objects):

- Inbound raw messages
- Inbound messages
- Business events

Event connector can generically be applied to process all kinds of messages (data), that can subsequently be processed by the Planon application.

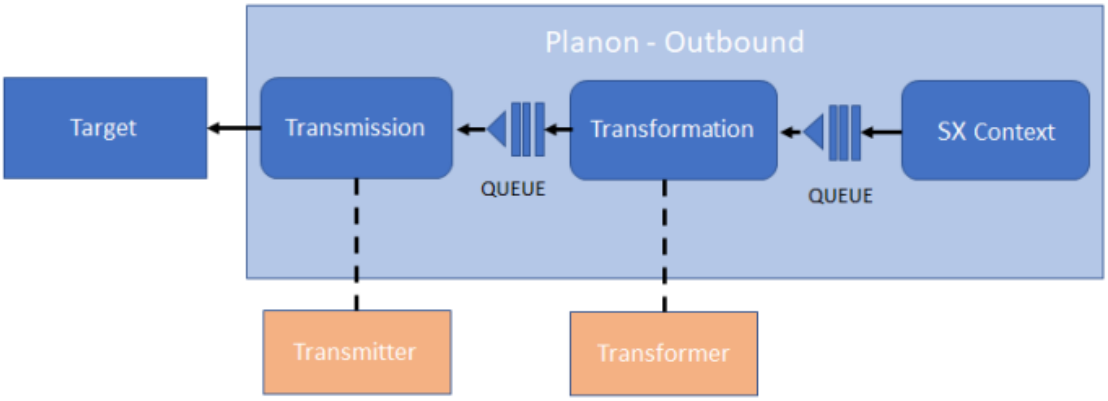
Outbound

Whenever a specific message is received, it will be queued for transformation.

Once transformed into an *outbound message*, it will be queued again for transmission. The result will be an *outbound raw message*.

Accordingly, Event connector consists of the following two TSIs (and business objects):

- Outbound messages
- Outbound raw messages



The outbound raw message will subsequently be sent to the target, which can be anything, such as another application, email, log, REST API, another Planon endpoint...

Working with...

This section describes the various functions available.

Specifying the external system

When deciding on collaborating and exchanging data - the instances must both identify their counterparts (external system).

Each instance must therefore *know* the external system it wants to exchange data with.

Procedure

1. Go to External systems and click Add.
2. Fill out the fields in the data panel.

For more information about these fields, see External system - fields.

- One system is in the lead and will share its access key first.

> This is a manual process and happens outside the system.

- The second system will use that information to specify the external system in their Planon environment. The second system will then be able to access the first.

3. When the configuration of the external system is completed, click Send credentials.

This will generate a new access key for the inbound account and send the information to the external system so that the link can be established (bidirectional). This *opens* your system to the external system, using the credentials of the inbound account to gain access.

The external system can now access your environment (and vice versa), data sharing can now happen.

Sharing business object data

When the connection between the external system is established, the business objects whose data is going to be exchanged must be mapped.

This means that for each individual record in Planon (recognized by its business object type and system code) the External ID for the communication with the external system needs to be registered in the **External systems** business object.

This can be done by an app that uses the `IExternalBOLinkService` service interface to populate the External systems level.

Using an app

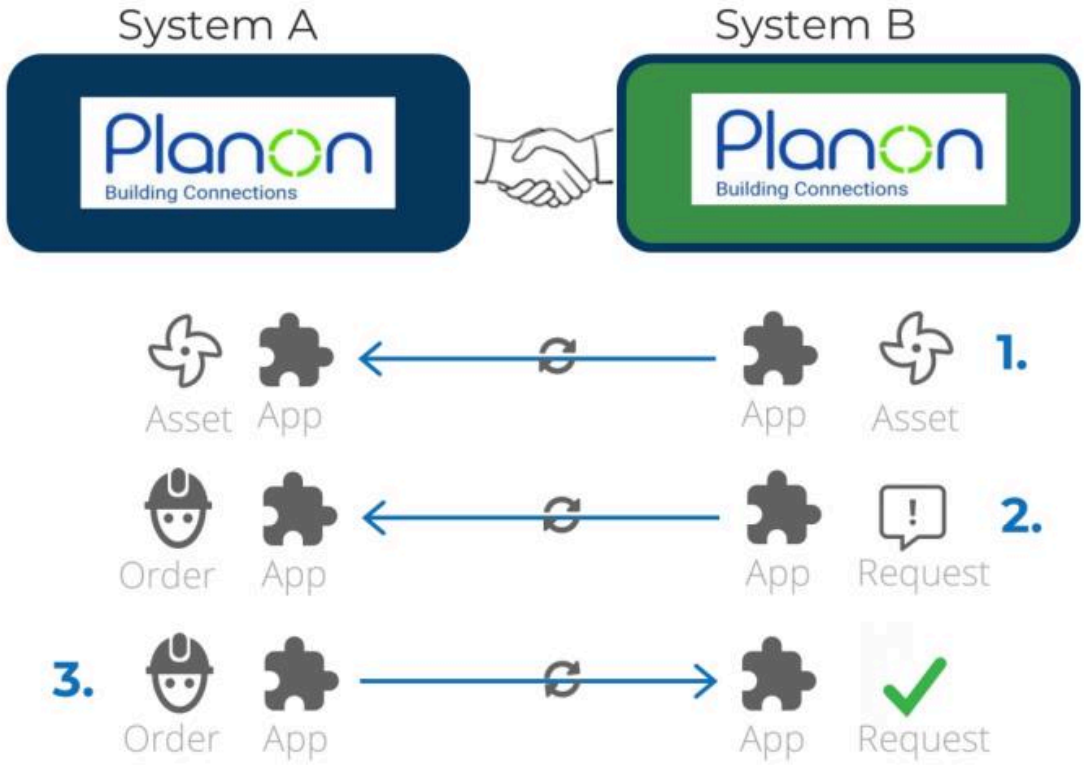
An app is built to monitor and synchronize the BO data for which it is designed to be used. Exactly which information this is, is included in the app. Between the systems that are sharing business object data there now is an understanding about this data.

Example

The following use case describes how an app can be used to share business object data.

> Apps can be implemented by Tailor Made Solutions (TMS) or partners. For more information, see developing platform apps.

System A is responsible for maintaining System B's assets.



1. A new order is created in System B.

   This is detected by the app, which will sync the BO data and share that with System A.

> The exchange takes place using Event Connector. Message sent, must always include the external ID, which is used to identify the BO in the external system.

2. When a request is created in the System B for an asset, an order is created in System A.
3. Once the order is completed by System A, the data is synced with System B.

Field descriptions

The following section(s) describe(s) the fields, their purpose and meaning.

External system - fields

Field	Description
Code	Specify a code to identify the external system. This is an alphanumeric field.
Endpoint URL	The URL of the external system (outbound) that your system will share data with.
Endpoint key	The access key that will allow your system account to access the external system. This must be an access key that belongs to and is generated by the external system! You can generate an access key in System Settings > Security. For more information, see Access keys.
Inbound account	Specify the (internal) account that will be used by the external system to contact the current system. • For additional security, restrict access for this account to Event Connector only. • The external system can also be used without the inbound account (when only messages have to be sent to the external system).
Inbound user group	Select the user group to which the **Inbound account** belongs. To ensure proper access, assign the **Inbound account** to the user group that is authorized for the Event Connector.

External BO links - fields

General

This business object is used to map data based on the shared "External ID" from the external system to the current system's data and vice versa.

Fields

Field	Description
External ID	The unique ID that identifies business objects in both the current system and the external system. The combination of the external system and the external ID is unique.
External system	A reference to the external system for which the data is mapped.
Business object definition	A reference to the linked business object. This identifies the business object in the **current** instance. Any business object is allowed.
BO system code	The business object's system code in the **current** instance.
Description	A text field that can be used for storing information about the external BO link.

Externalized functionality

Some of Planon’s standard business logic should not be applied when functionality is delegated to an external system.

General

This business object can be used to disable, skip or change existing Planon functionality when this is delegated to an external system.

The **Externalized Functionality** will be filled manually or by an app to indicate the functionality that is taken over by the external system.

Fields

In some cases additional business logic should be applied. This part of the TSI can be used to add or disable this business logic for the given external system to the standard Planon business logic with the additional functions. These functions can be activated by selecting **Yes** in the field **Applicable?**

Field	Description
External System	A reference to the external system for which the data is mapped.
Externalizable functionality	Selected function from a drop-down list required to be applied.
Applicable?	**Yes**/**No** selection.

BO definitions (externally managed)

For synchronization of data that is exchanged with the given external system, various business objects might require additional configuration. There are three purposes to creating externally managed business object definitions:

- Consuming BOs (consume data from the external system)
- Providing BOs (provide data to the external system)
- Picklist or referred BOs that are required to create a mapping while consuming or providing

General

- **BO definitions (externally managed)** is changed from a flat structure to a hierarchical tree structure supporting up to three levels.
- All existing **BO definitions (externally managed)** with a version lower than L120 will be upgraded to this hierarchical structure.
- The **Parent level** field on **BO definitions (externally managed)** is read-only across all three levels.
- If a parent **BO definition (externally managed)** has already been added, and you want to create a child **BO definition (externally managed)**, you can only select BOs from the parent-level hierarchy.

Existing **BO definitions (externally managed)** are not visible in the hierarchy view.

- If the BO has already been created, and its child or parent BOs exist in the **BO definitions (externally managed)**, users will receive a warning message when trying to create a new **BO definition (externally managed)** using the same hierarchy. Users can then choose to proceed or cancel.
- Users can now add the same field mappings (*External Code – No Mapping* and *External Code – Code Mapping*) for different directions of the Business Object (BO) without encountering a validation error.

  Previously, when adding **Contracts Inbound** and **Contracts Outbound** with the *No Mapping* type, and then attempting to add them again with the *Code Mapping* type, the system incorrectly displayed a validation error message. The same applied in reverse.

Inbound/Outbound

- **Inbound**

  If the direction is *Inbound*, the system is *consuming* data. This means that:

  - a value in Planon (the **Business object system code** field in **BO code mapping (externally managed)**) can be mapped to multiple values in the external system (the **External code** field).
  - multiple values in Planon cannot be mapped to the same value in the external system.
- **Outbound**

  If the direction is *Outbound*, the system is *posting* data. This means that:

  - multiple values in Planon (the **Business object system code** field) can be mapped to one code in the external system (the **External code** field).
  - multiple external system values cannot be mapped to the same value in Planon.
- **Unspecified**

  When the External BO definition has no direction set, only one Planon code can be mapped to one external code.

Fields

Field	Description
Code	The **Code** field in **BO definitions (externally managed)** is an alphanumeric value that uniquely

Field	Description
	identifies the externally managed business object within the system configuration. Specify a code that represents the external system to which the externally managed BO belongs.
External code	The unique ID that identifies business object types in both the current system and the external system. The combination of the external system and the external code is unique.
Parent level	A reference to the parent. **Example** **Lease contract** has a parent, which is **Base contract**. **Lease contract** has a child, which is UDBO **Lease contract**.
External system	A reference to the external system for which the data is mapped.
BO Definition	A reference to the linked business object definition. This identifies the business object definition in the current instance. Any business object definition is allowed.
Direction	Specifies the data flow between Planon and the external system. • **Inbound**: Data received by Planon from the external system • **Outbound**: Data sent from Planon to the external system The **Direction** field is part of the unique key that identifies each external BO definition, in combination with the **External system** and **Business object definition** fields.

Field	Description
Owner owns all instances?	A **Yes**/**No** field that specifies if there is a single owner for all instances. By default, it is set to **Yes**. If **Yes**, it means this external system should create, update and delete all instances of this business object in Planon. Users can no longer create their own instances. This field is read-only if the **Direction** field is **Outbound**.
Owned by external system?	A **Yes**/**No** field that specifies if the BO is owned or not by external system. If the business object is owned by the external system, by default this business object will be read-only, unless the owner allows updates. This field is read-only if the **Direction** field is **Outbound**.
Owner allows updates?	A **Yes**/**No** field that specifies if the BO owner allows for updates. This field is read-only if the **Direction** field is **Outbound**.
Prevent deletion if externally linked?	A **Yes**/**No** field that will allow or prevent the deletion if an external link is existing.

BO configurations (externally managed)

Partly mandatory and optional configuration for fields on a BO that must be used for mappings or must be able to be editable on a BO that is consumed from an external system.

Field	Description
External Business object definition	A reference to the externally managed BO that will be used for mappings
Base BO field definition	A reference to the field from the External BO that will be used for mapping

Field	Description
Field updates allowed by owner?	A **Yes**/**No** field that will allow or prevent further updates of the selected external field. This field is read-only if the **Direction** field is **Outbound**.
Prefix	A code that will be added to the consumed field value in order to make it unique in Planon.
External code	The unique ID that identifies business objects in both the current system and the external system. The combination of the external system and the external code is unique.

BOM definitions (externally managed)

You can use this business object to register **BOM definitions** including status transitions that are relevant for integration or communication with an external system. Even though the external system owns the BO, it allows you to add certain BOM actions and status transactions in Planon.

Definition

A **BOM definition** (Business Object Method definition) describes a specific action that can be performed on a Business Object (BO). It defines the purpose of the action and how it should behave when it is executed by the Event Connector or other framework components. In essence, the BOM definition is the *blueprint* of the BO method, while the actual execution is handled by the **BOM action**.

General

To enable this functionality:

- Select the BO definition for which you want to configure BOM definitions in **BO definitions (externally managed)**.
- Set **Owner allows update** to **Yes** if you want to control enabling or disabling BOM actions.
- Choose the **BOM definitions (externally managed)** step in the **BO configurations (externally managed)**.

See the following table for the fields and the descriptions to enable/disable BOM actions or status transitions.

Fields

Field	Description
Externally business object definition	A reference to the linked business object definition. This identifies the business object definition in the current instance. Any business object definition is allowed.
Action	Refer to any BOM definition and status transition for selected BO.
Is activated	When this option is set to **Yes** and the business object is owned by an external system, the BOM is enabled and available to all users, irrespective of ownership. When set to **No**, the BOM is disabled and cannot be used. By default, this option is set to **No**.

BO code mapping (externally managed)

This business object can be used to map Planon picklist items and business object instances to a matching value from the external system.

Fields

Field	Description
External business object definition	Reference to the externally managed BO definition.
Business object system code	The Planon item (business object instance) that must be mapped to the external system.

Field	Description
External code	The value from the external system that matches the Planon business object (picklist or reference BO).

BO field mapping (customized)

General

This can be used to configure how certain (user-definable) field values are mapped to and from an external system.

For the external field mapping, the following mapping types are available:

- External code – BO definition (refers to a BO, so typically used to create a certain UdBO)
- External code – Boolean (refers to an External Business object field definition that is (based on the value of the External code) either Yes or No)
- External code – No mapping (External Business object field definition that can be completely consumed or provided to the external system)
- External code – Code mapping (External Business object field definition that can only be consumed if there is a mapping available in the External BO Code mapping)

Behavior

- Navigation: the selected externally managed BO definition will be auto-populated after selecting a business object.
- The **BO definition (externally managed)** reference is not cleared in the popup when the **Mapping type** field is changed.
- The selected field definition BO in the previous step can be auto-populated when navigating to the **BO field mapping (customized)** level and creating the new mapping.
- The **External business object - field definition** popup contains all the field definitions associated with the **Planon external business object definition** field selected at the **BO configurations (externally managed)** level.
- When the **External business object - field definition** field is selected, the **Planon external business object definition** field is read-only.

- When the **External business object - field definition** field is not filled, the **Planon external business object definition** is editable.

Fields

Field	Description
Mapping type	Drop-down list that contains the mapping options available meaning: • BO Definition • Boolean • No mapping • Code mapping
External fields	
External object type	This is the name of the external system entity.
External field name	The field name to refer to, from the external object type.
External code	The unique ID that identifies business objects in both the current system and the external system. The combination of the external system and the external code is unique.
Planon fields	
External business object field definition	A reference to the field from the Externally managed BO that will be used for mapping.
Yes/No value	Determines how the field value is mapped to a Boolean value.
Planon external business object definition	The name of the externally managed business object field to which the data is mapped in Planon.

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