# Location Suggestions

## Overview

This page provides a summary of the key information related to the **Location Suggestion** feature. It includes the settings that influence the **Location Suggestion** functionality.

**Be aware, the following windows contain settings that can affect how the Location Suggestion feature behaves:**

- Item Master Data
- Location Controller
- Reason tab
- Connection between Reason & Location suggestion
- Location controller
- Warehouse settings
- Purchase Delivery Generator
- Organizational Structure

## 1. High level explanation

When the location suggestion is enabled, the system will suggest a location for the stock that is being moved in the following flows:

- Reception *(In case of receiving on location instead of dock)*
- Put away
- Ad hoc moves
- Move orders
- Unpicking for production
- Undo picking
- Consolidated moves

When a destination location needs to be entered these flows will perform the following scenario:

1. Check if location suggestions are enabled
2. Enabled:
    1. Get list of suggested locations
    2. Show first suggested location on the screen
    3. Enter a location or select a location
        1. The list of suggested locations is displayed on the screen after the 'Select location' button is pressed
    4. When the location is not the first suggested location or an empty location:
        1. Enter a reason
3. Not enabled:
    1. Enter a location or select a location
        1. All valid locations are allowed

# 1.3.1. Inventory



### Inventory UoM Name

Inventory UoM is an existing SAP Business One field, with a formatted search on the SAP OUOM table. This table contains all the defined UoMs.

> Set the inventory UoM to the lowest sellable unit (for example pieces, cases) to avoid rounding issues. For further information please visit Inventory UoM site.

### Number of Decimals for uom1

This field indicates the number of decimals for the first UoM. This is used in flows when entering a quantity.

### Uom 2

Uom2 identifies the second UoM for the item.

### 1 uom 2 =

If a second UoM is defined, the conversion rate between the two UoM's is entered in this field.

### Has best before date
If the item has a best before date, this field has to be ticked.

### Has second batch number
Defines whether the item has a second batch number.

### Default quantity on logistic unit
Defines whether the item has a default quantity on a logistic unit.
Is used for:

- Splitting a proposal in full pallets/item picking
- Cycle count flows: When configured to propose default quantity, this field is used
- Bulk receiving
- Bulk shipping
- Production: Splitting produced quantity
- Reception: Default quantity when entering quantity
- Reception: When configured to split quantity into multiple logistic units, this is the quantity of a logistic unit

### Item storage location type
It defines the item storage location type.
The list is retrieved from the Item Storage Location Type (PMX_ISLT) UDT.
This is used in the Location Suggestions functionality and the item location type can be set for bin locations.

### Is logistic carrier
This field has to be ticked if the item in question is a logistic carrier (pallet, europallet, container, …).
An item can be a logistic carrier as well as a returnable item, e.g a europallet.

### Is logistic unit (GS1)
A logistic unit is an individual unit that has been composed for transport and/or storage and have to be manageable throughout the supply chain. These items are identified by means of the Application Identifier 01 in the GS1 standard.

### Has no value
Only applies to logistic carriers. If this is checked, the system will allow to deliver the logistic carrier free of charge to the customer during ad hoc picking – customer collect.

### Report label key
The identification of the label that belongs to a specific item.

### Report label number of copies
The number of labels that have to be printed for a specific item.

### Ask for quantity on item label printing
If checked the system will ask to enter a quantity. This entered quantity is passed to the label. This can be used for instance to put the weight on the label.

### Item label printing by packaging type
If checked the system will print item labels based on packaging types. When item labels need to be printed, the user can enter the number of labels by each packaging type + inventory uom. On the

Produmex Attributes tab it is possible to set a specific report for each packaging type. Also the number of copies can be set there.

If the global option on Company for automatic printing of item labels during goods receipt is set to true, and the option for printing item labels by packaging type is set to true, the system will print the label for the packaging type linked to the purchase order, of purchase uom in case of receiving without PO.

**Seveso class** (Hazmat in North America)
With the setting it is possible to define the seveso class the item belongs to. The configuration is available with the PMX_SEVE UDT.

When a purchase order is created for an item, the system checks the current inventory for that item. If the current inventory exceeds the maximum inventory set on the PMX_SEVE table, a warning is shown. Still, the order can be added and the stock can be received on the Mobile Client without any further warning.

**Use in WA functionality**
Enable this option to use this item for the WA functionality.

**Is returnable item**
This field is checked if the item in question is a "returnable item" ("empties").

**Non-inventory returnable item code**
This field contains the item code of the non-inventory returnable item. This code is used for the delivery and receipt of returnable items ("empties") and is one-to-one coupled with the inventory item code of the same returnable item. (This is configurable on the organizational structure on the 'General' tab of the company)

**Force serial numbers during cycle count?**
When this option enabled for an item with PMX serial numbers and track location enabled, then serial numbers must be entered during cycle counting operations. Otherwise, it's also possible to just enter the counted quantity.
*Note: This option has no effect on SAP serial numbered items.*

**Zone type code**
Apart from indicating a standard location or zone, the user can also specify the zone type code. If such a code is entered, the system verifies upon storing an item whether it can be stored in this zone and prevents the item from being stored in a different zone. This can be used for instance if a product needs to be 'cooled'. If the product has this zone type, it can only be stored on location within a zone that is also 'cooled'.

> **Note:** Items with assigned Zone Types during a duplication action will carry over the defined Zone Type to the duplicated Item as well.



**Default location or zone code**
On this grid a default location or zone can be specified for each warehouse for the item. The default

location/zone is shown as information on the handheld.

Select the warehouse from the drop-down list on the *Pmx Warehouse Code* field. Every warehouse that is managed by Produmex can be selected.
Add the code of the location or the zone on the *Default location or zone code* field. Only locations or zones that belong to the selected warehouse can be added.

To remove a line, select the line and click on the `Delete row` button.

Note: Produmex WMS ignores the option if the Use Location Suggestion? setting is enabled on a warehouse level.

## 2. Location controller - Handle location suggestions

The location suggestion can be enabled and configured on the location controller. When a location needs to be suggested, the list will only show locations that fit the requirements.

### 2.1 Use location suggestions?

The location suggestion can be disabled for a warehouse. If the destination warehouse has the setting '*UseLocationSuggestions*' disabled, no location will be suggested from the warehouse and all valid locations can be selected when the stock is being moved.

### 2.2 Suggest locations

If both settings are enabled, the following logic will be performed:



- Location controller
- Use location suggesions
- Get empty location
- Get base locations
- Get put away zones
- Get location suggestions
- List location suggestions

**Get empty fixed pick location**

A fixed pick location will be suggested first when all the following are verified:

- If the 'Allow to suggest an empty fixed pick location' option is enabled on the Location Controller.
- If there is only one item to be moved.
- If there are empty fixed location(s) or empty location(s) which can be replenished.

- If the batch to move is the oldest batch on a bulk location. (FEFO, Itri)

**Get base locations**

Next the system identifies the base location(s) for the item(s) to move. Base locations are used only for identifying the put away zones and will not be suggested by the system.

Base location(s) can be the following:

- locations that are 'Fixed' and assigned to the item
- locations that are 'Can be replenished' and assigned to the item
- location is defined as the Standard location for the item on the Produmex Inventory tab of the Item Master Data. *Please note: if a standard zone is defined for the item, it's not taken into account.*

When multiple items are moved, all base locations for the items to move will be retrieved.



**Get put away zones**

Base locations can be linked to a put away zone, but should not belong to it. (The *'Location belongs to the Put Away Zone'* option should not be checked). If a location belongs to a put away zone, it will not be considered as a base location.

After the system identifies the base locations, it executes a query to check if there are put away zones linked to the base locations.

When there are put away zone(s) linked to the base location(s), the put away zone(s) are used to identify the locations to be suggested and to define the order of these locations.

To define the order of the locations that can be suggested, the system uses the following logic:

1. First it sorts the linked put away zones based on the sequence of the put away zone.
2. Then starting from the first zone, it sorts the locations belonging to the zone. The locations belonging to the zone are sorted based on the pick sequence defined on the 'General' tab of the location. If the *'Sort Pick Sequence Descending'* option is not enabled for the put away zone, the belonging locations are sorted ascending, otherwise the locations are sorted descending.

> **Example**
> In the example we move the item *'Item A'*. The item has no default storage location. The destination warehouse has the following locations:
>
> | Location Code | P1.1. | P1.2. | A1.1. | A1.2. | A1.3. | A2.1. | A2.2. | A2.3. |
> |---|---|---|---|---|---|---|---|---|
> | **Fixed? (ITEM A)** | Y | N | N | N | N | N | N | N |
> | **Can be replenished? (ITEM A)** | N | N | N | N | N | N | N | N |
> | **Put away zone (linked)** | Z1, Z2 | - | - | - | - | - | - | - |

| Location Code | P1.1. | P1.2. | A1.1. | A1.2. | A1.3. | A2.1. | A2.2. | A2.3. |
|---|---|---|---|---|---|---|---|---|
| Put away zone (belongs to) | - | - | Z1 | Z1 | Z1 | Z2 | Z2 | Z2 |

First the system identifies the base locations. In our example there is one base location:

- **P1.1.**, because it is fixed for Item A.

Next the system finds the put away zones. In our example there are two put away zones:

- **Z1**, because it is linked to P1.1.
- **Z2**, because it is linked to P1.1.

Finally the system will get the list of locations that belong to the identified put away zones. In the example the following locations belong to a zone:

| Location Code | A1.1. | A1.2. | A1.3. | A2.1. | A2.2. | A2.3. |
|---|---|---|---|---|---|---|
| Put away zone (belongs to) | Z1 | Z1 | Z2 | Z2 | Z2 | Z2 |
| Pick sequence(belongs to) | 1 | 2 | 3 | 1 | 2 | 3 |

**Scenario 1**
Base location P1.1. has linked put away zones with the following configuration:

| Put away zone | Z1 | Z2 |
|---|---|---|
| Sort Pick Sequence Descending | N | N |
| Sequence | 1 | 2 |

When the system will get storage locations, it will use this order:
**A1.1, A1.2, A1.3, A2.1, A2.2, A2.3**

**Scenario 2**
Base location P1.1. has linked put away zones with the following configuration:

| Put away zone | Z1 | Z2 |
|---|---|---|
| Sort Pick Sequence Descending | N | Y |
| Sequence | 1 | 2 |

When the system will get storage locations, it will use this order:
**A1.1, A1.2, A1.3, A2.3, A2.2, A2.1**

**Get location suggestions**

When there are put away zone(s) linked to the base location(s), only locations that belong to the put away zone(s) can be suggested.

When the base location(s) have no linked put away zones, all locations can be suggested.

When there are no base location(s), all locations can be suggested.

**List location suggestions**

After the locations that can be suggested are queried, the system filters and sorts the list in order to list location suggestions.

**Filtering**

- A location is not allowed if the item cannot be stored on the location based on the zone type.
- A location is not allowed if the item cannot be stored on the location based on the fixed items of the location.
- A location is not allowed if the maximum number of logistic units will be exceeded.
- A location is not allowed if the *'Block move when location is not empty'* option is enabled for the location and the location is not empty.
- A location is not allowed if the Item Storage Location type of the location is not the same as the Item Storage Location Type of the item. If there are multiple items to move that have different location types, every location with one of the Item Storage Location Types linked to the item are allowed.
- Only bulk locations are allowed if the *'Allow to suggest pick locations during moves/put away'* option is not enabled on the Location Controller
- A location is not allowed if the *'Block move when location is not empty'* option is enabled for the location and the location is not empty.
- If pick locations are allowed, but the *'Can be put on a pick location'* option is disabled for the quality status of the stock to be moved, then no pick locations can be suggested

Please note: The quality status allowed on the location is not taken into account during the filtering of the locations.

**Sorting**

After the list of locations is filtered, the system sorts the remaining locations. The found locations will be sorted by the *Order by* clause defined on the location controller. However there are a few additional rules:

- When enabled, an empty fixed pick location will be suggested first (See *Get fixed pick location* section).
- Next the suggested locations are added
- In case a flow first builds a list of moves, before adding them to the database, a list of already selected locations is kept in memory. When the suggested location is a location that has already been selected, it will be added to the suggested locations after the 'normal' suggested location. This is to avoid always showing the same location as the first suggested location.
- If a suggested location is actually the source location to move from, it will be added to the bottom of the list.

When the *'Force to use first suggested location during moves/put away'* option is enabled on the location controller, the user has to select a reason in order to proceed if the scanned/selected location is not the first suggested location or an empty location. Every reason with the flag '*Use for standard flow deviation*' can be selected. The selected reason and the first suggested location is stored in the

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PMX_MVLI table.

## 2.11. Reasons tab

Define the reasons that can be used in Produmex WMS flows on the Reasons tab. A reason might be required to perform certain actions or to explain why a specific action cannot be completed or a specific item cannot be used.

Add the code, name and sequence number of the reason. The sequence number defines the order the reason is shown on the terminals.

Then specify when the reason can be used by checking the corresponding checkbox.

If extra explanation is needed, check the 'Requires extra reason text' checkbox as well.



## 2.12. Connection between Reason & Location suggestion

For more information about location settings follow this link to the Location controller site.

When the location suggestion is enabled, the system will suggest a location for the stock that is being moved in the following flows:

- Reception *(In case of receiving on location instead of dock)*
- Put away
- Ad hoc moves
- Move orders
- Unpicking for production
- Undo picking
- Consolidated moves



When a destination location needs to be entered these flows will perform the following scenario:
**Check if location suggestions are enabled**
**Enabled:**

1. Get list of suggested locations
2. Show first suggested location on the screen
3. Enter a location or select a location
    1. The list of suggested locations is displayed on the screen after the 'Select location' button is pressed
4. When the location is not the first suggested location or an empty location:
    1. Enter a reason

**Not enabled:**

1. Enter a location or select a location

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1. All valid locations are allowed

**Example - Ad Hoc Movement with default location and location suggestion**

Let's see a simple example for an **Ad Hoc Movement** and how to configurate the settings in **Item Master Data** for in Item that has to be asked for a reason to move to a Zone or out of the the Zone.

1. Make sure you enabled the **"Use Location Suggestion?"** option in your selected Warehouse where the preferred Zone is located for the Ad Hoc Movement. In this case I will use the ×**GeneralWarehouse (01)**.

2. As a next step configure the chosen Bin under the preferred Zone.
×**GeneralWarehouse (01) → Zone for logisticWh01 → B.0009**

3. Select and configure the default location on **Item Master Data → Produmex → Inventory** ×tab for your chosen Item.

4. Open the Mobile Client to process the Ad Hoc Movement.
**Logistics → Move → Ad Hoc Movement → Local Move → Full Logistic Unit**
Now **"Scan an SSCC"**, in the example the Item's SSCC is **"00000000000000000314"**. Clicking on the forward button, as expected the default location is suggested on the bottom of the Mobile Client as we configurated.

×

×

5. **If you are selecting a Bin that is NOT the suggested location, the system will ask for a reason.**Select and write your reason ant the Ad Hoc Movement will be done.

×

×

×                    ×

## 2.3.45. Location controller

> All Extension Parameters : **2.3. Extension Parameters tab**

This controller holds the configuration for suggesting locations on moves.

**Extension: Location Controller - Handle Location Suggestions**

This controller uses put away zones to get a list of possible locations to store the goods.
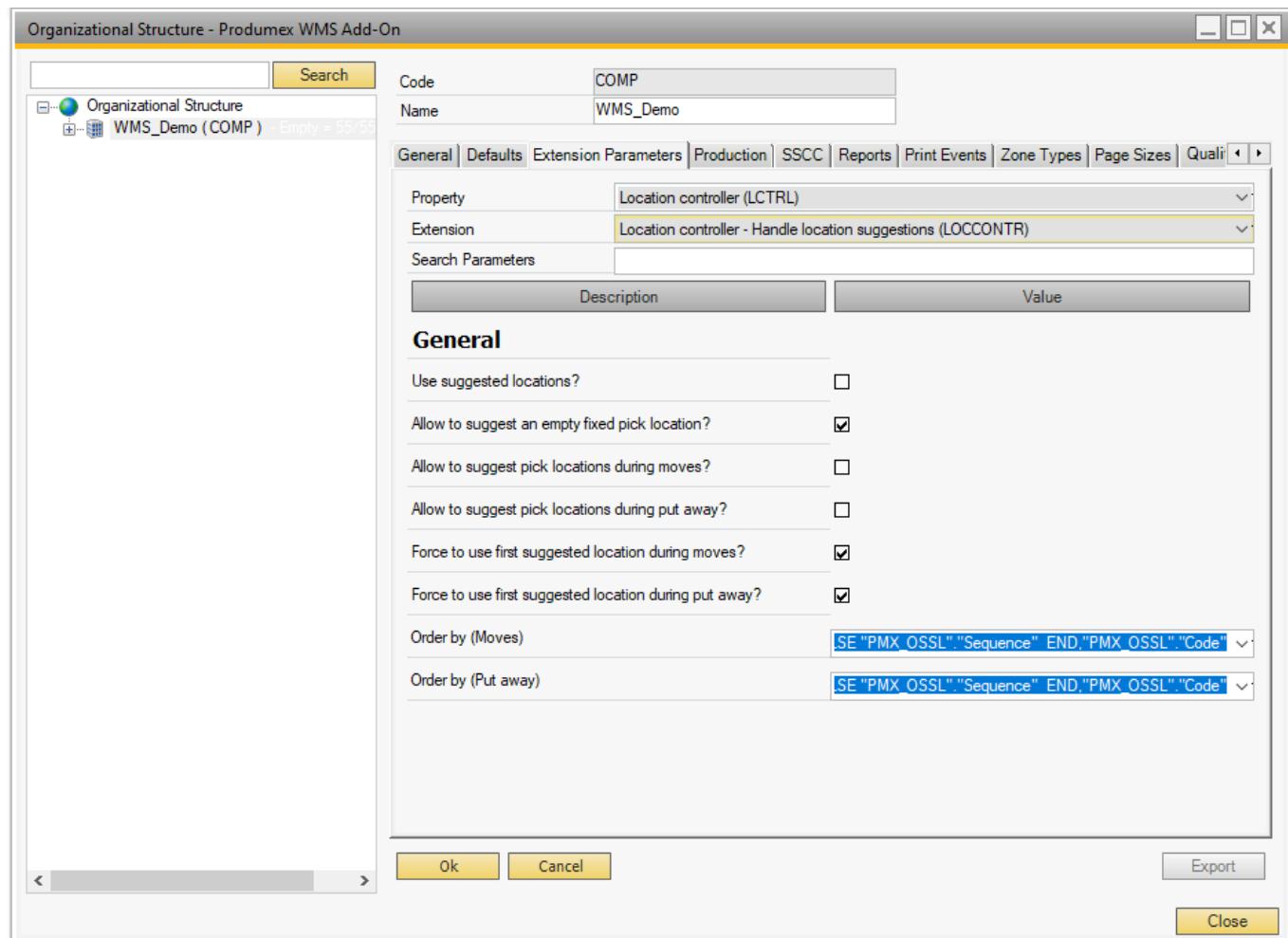


### Use suggested locations?
Enables the location suggestion functionality.

### Allow to suggest an empty fixed pick location?
When getting the list of locations, can an empty fixed pick location be suggested? If an empty fixed pick location is found, this will be the first suggested location.

### Allow to suggest pick locations during moves?
Are pick locations allowed to be suggested?
This is used on the ad hoc move flows.

### Allow to suggest pick locations during put away?
Are pick locations allowed to be suggested?
This is used on the put away or reception flow.

### Force to use first suggested location during moves?
Is the user forced to use the first suggested location?
If he is forced to do this, but he enters another location, he will need to enter a reason.
This is used on the ad hoc move flows.

### Force to use first suggested location during put away?
Is the user forced to use the first suggested location?
If he is forced to do this, but he enters another location, he will need to enter a reason.

This is used on the put away or reception flow.

### Order by (Moves)

The order by clause for the locations that need to be retrieved.
A predefined value can be selected:

- CASE COUNT( "PMX_INVT"."InternalKey" ) WHEN 0 THEN 0 ELSE 1 END,
  ISNULL("PAZ"."Sequence", 999999999),CASE WHEN "PAZ"."SortPickSequenceDescending" =
  'Y' THEN "PMX_OSSL"."Sequence" *-1 ELSE "PMX_OSSL"."Sequence" END,"PMX_OSSL"."Code"

It sorts the location on:

- Empty locations
- Put away zone sequence (Defined on the location)
- Pick sequence of locations that belong to the put away zone
- Location code

The value can be adjusted freely.

The setting applies to the following flows:

- Ad hoc moves
- Move orders
- Unpicking for production
- Undo picking
- Consolidated moves

### Order by (Put away)

The order by clause for the locations that need to be retrieved.
A predefined value can be selected:

- CASE COUNT( "PMX_INVT"."InternalKey" ) WHEN 0 THEN 0 ELSE 1 END,
  ISNULL("PAZ"."Sequence", 999999999),CASE WHEN "PAZ"."SortPickSequenceDescending" =
  'Y' THEN "PMX_OSSL"."Sequence" *-1 ELSE "PMX_OSSL"."Sequence" END,"PMX_OSSL"."Code"

It sorts the location on:

- Empty locations
- Put away zone sequence (Defined on the location)
- Pick sequence of locations that belong to the put away zone
- Location code

The value can be adjusted freely.
This is used on the put away or reception flow.

For more information about the usage see: Location suggestions

## 3.1. Warehouse settings

On the warehouse level the following settings can be defined:
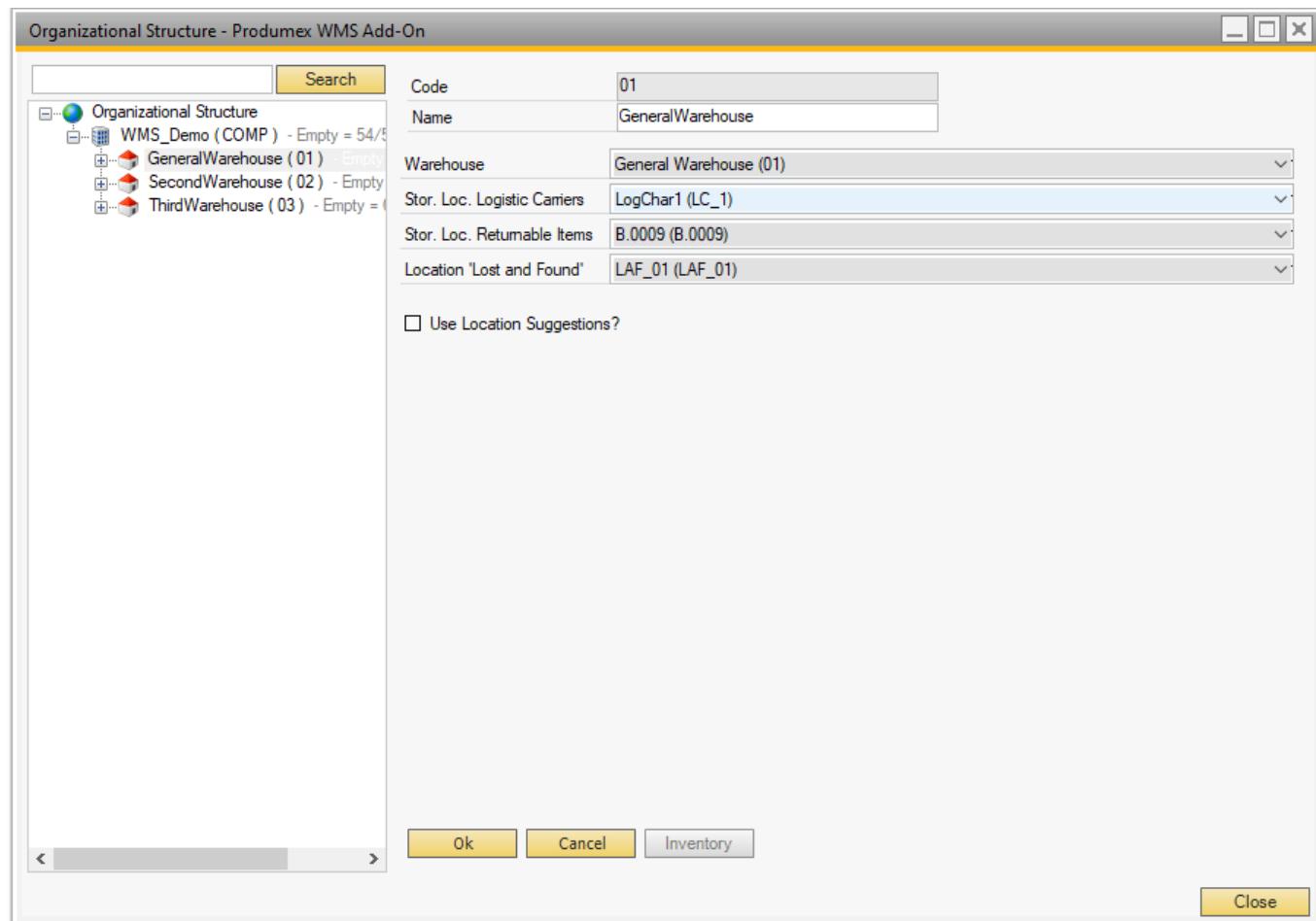
### Warehouse

This is the link between the warehouse defined in Produmex and the warehouse in SAP Business One *(Cfr. Administration → Setup → Inventory → Warehouses.)*
Each SAP warehouse can only be linked once in Produmex warehouses.

### Stor. Loc. logistic carriers

The location in the warehouse where the logistic carriers are located *(in case you have indicated at the company level that logistic carriers have to be stored at one location per warehouse)*.
This location needs to be a pick location!

### Stor. Loc. returnable items

The storage location for the returnable items. This is used when inventory returnable items are used.

### Location 'Lost and Found'

The 'Lost and Found' location for that warehouse. All item differences counted during cycle counting *(indirect cycle counting)* will be moved to the Lost and found location in case this is set up on the CycleCountController.

Stock on storage locations set for Lost and found, logistic carriers, … are not taken in account to create pick list (proposals).

### Use location suggestions?

Set whether location suggestions will be used for move in or to this warehouse. This is used in the Location Suggestions functionality.

# 5. Full logistic unit

## 5.1. Scan an SSCC

Scan the SSCC on the logistic unit to move.

## 5.2. Identify destination location

Scan the destination location or select it from a list after pressing the 'Select other location' button. In case of a warehouse transfer, only locations from the selected warehouse can be scanned or selected.

When the location suggestion is enabled for the warehouse, the *Default location* is the first suggested location calculated based on the logic described in Location suggestions.

**Note:** When we use the suggested location functionality in the reception flow (receiving items to a location instead of a dock) and the system cannot find a suitable location for the item, it automatically receives the item to the dock.

When the location suggestion is not enabled for the warehouse, the *Default location* is the standard location set for the given warehouse on the Produmex Inventory tab of the Item Master Data of the item. If the items to move have different standard location set for the warehouse, no default location is displayed.

When the location suggestion is not enabled, an additional 'Select empty location' button will be displayed. To execute the move to an empty location, press this button and select a location from the list.

In case of a warehouse transfer, the *'Warehouse: move has been added (701)'* print event will be triggered after the destination location had been selected, if the print event is defined.

Note: Assigning a logistic carrier to a Master SSCC is not supported.

When moving Beas reserved stock, confirmation is required. See: Moving stock reserved for Beas
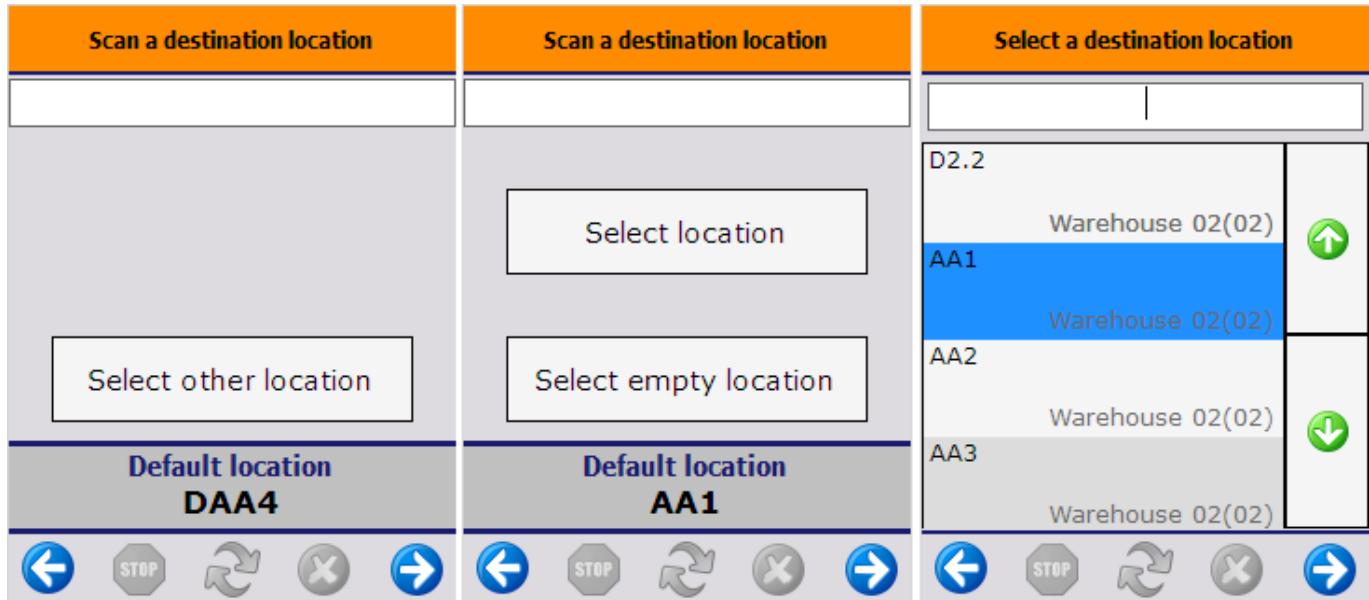
## 5.3. Logistic unit/ items are moved

After scanning or selecting the new destination location, the ad-hoc movement is registered and the system displays the message: Logistic unit/Items are moved. The movement is booked as a 'Move' in case of local moves, or as a 'Warehouse transfer' in case of warehouse transfers.

# 6. Receive on location instead of dock?

**Original documentation:Purchase Delivery Generator**

By default Produmex will receive the goods on the selected dock. But it is possible to let the user identify another location. In this case the items are stored directly on the warehouse location, and no put away is created.

When we use the suggested location functionality in the reception flow (receiving items to a location instead of a dock) and the system cannot find a suitable location for the item, it automatically receives the item to the dock.

**Note:** The setting does not apply to the Bulk Reception Flow.

# 7. Put Away tab

**Original documentation:Organizational Structure**

This is used in the Location Suggestions functionality.
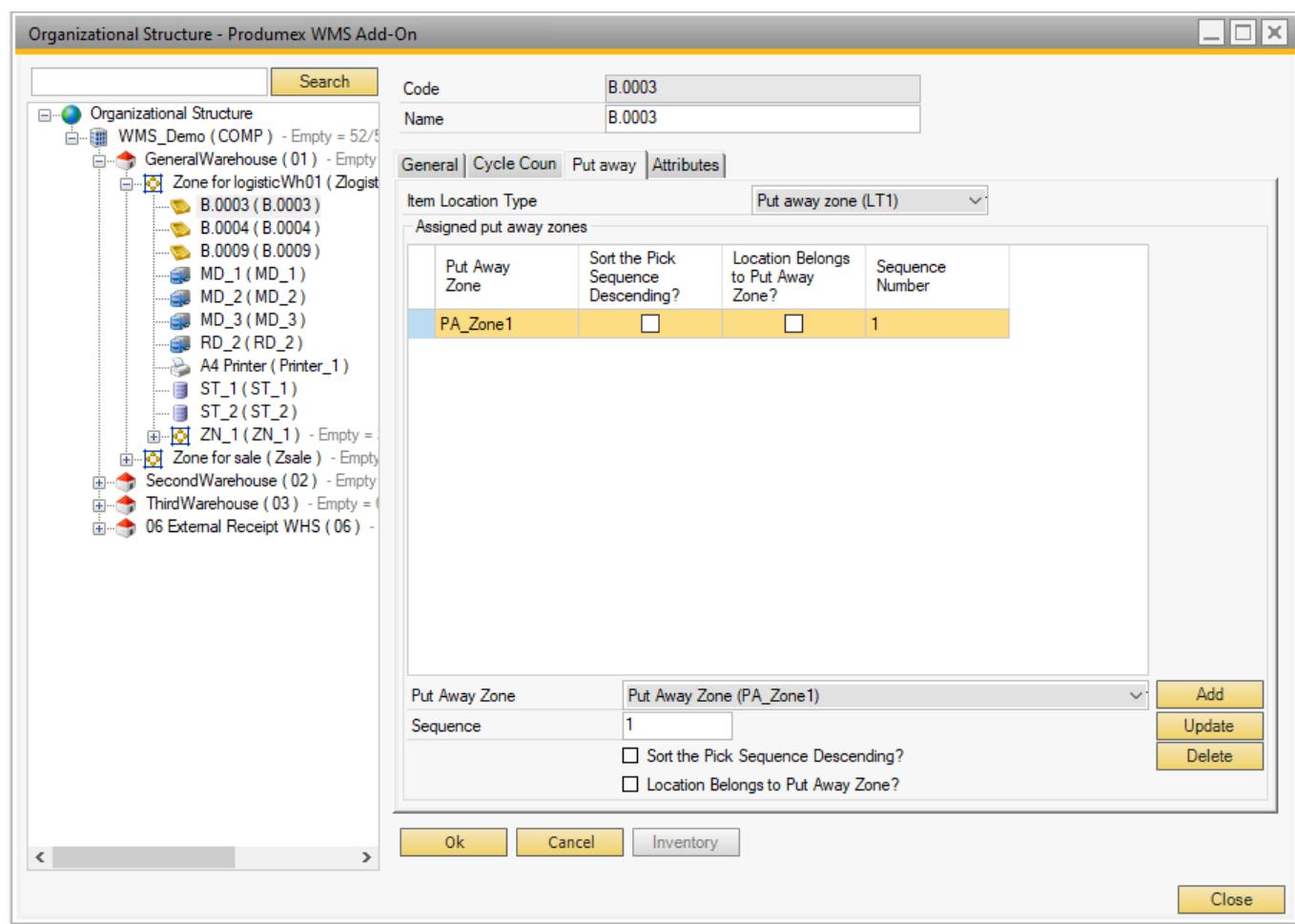
## Item Location Type

This can be used to link a location to an item.

An item can also have an item storage location type.

When locations need to be suggested, and an item has a location item type selected, only locations with the same item location type are allowed. The list of item storage location types is stored in the PMX_ISLT default form.

## Put Away Zone

This stores for a certain storage location:

- What the zones are where the items can be placed
- Or to what put away zone a location belongs to

The list of the Put Away Zone drop-down menu is defined by the Put away zone (PMX_PAZO) default form.

## Sort the Pick Sequence Descending?

Locations belong to a put away zone. How are locations within this zone sorted? Pick sequence descending or ascending?

## Location Belongs to Put Away Zone?

Does this location belong to a put away zone? If it is not checked, it means that when goods need to be put away for the current location, the system should look for locations that belong to this zone. If it is checked, the location belongs to this put away zone.

**Sequence number**

This is the sequence number for the put away zones. It defines the order in which locations in a put away zone needs to be retrieved.

For more information see Location Suggestions.

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