

8. Location suggestions

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

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	-	-	-	-	-	-	-
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 PMX_MVLI table.

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