

Storage Areas

Audience: ERP users who are familiar with Action Target's system but are new to PlanetTogether.

Scope: Phase 1 — storage area management, cell groups, and the item storage coverage

requirement. **Related stories:** US-005 (Inventory and Warehouse Maintenance Matrix), US-006 (Inventory and Warehouse Maintenance Tools).

1. How PlanetTogether Uses Storage Areas

PlanetTogether requires three objects before it will accept an item during import:

1. An **Items** row — the item master record.
2. An **Inventories** row — the item's inventory definition for a warehouse.
3. At least one **ItemStorage** row — a mapping from that item/warehouse pair to a specific storage area.

If any of the three is missing for an exported item, PT will reject the item *and* any sales orders, work orders, shop jobs, or job materials that reference it. Storage areas are therefore not optional configuration — they are a gating requirement for every item that will be scheduled in PT.

The ERP manages storage area data in the `aps` schema. PT reads the data through export views; it does not write back to storage area records in Phase 1.

2. The Three Storage Area Types

Every storage area has an **ERP Type** that describes how it is linked to the ERP:

Type	What it represents	Storage Area ID generated as
Location	Linked to a specific ERP material location (<code>mat_loc_cell</code>). Use when one location's inventory maps cleanly to one PT storage area.	<code>LOC-{location_id}</code>

Type	What it represents	Storage Area ID generated as
Cell Group	Linked to a named set of bank/column/row ranges (<code>aps.cell_groups</code>). Use when physical cells defined by a cell group represent a single logical storage area.	<code>CELLS-{cell_group_slug}</code>
Placeholder	No ERP link. Used for default/unmapped areas such as <code>UNMAPPED</code> or <code>AMS_PLACEHOLDER</code> .	The storage area name itself

“ **Storage area IDs are generated automatically by a database trigger.** You supply a name when creating the area; the system assigns the ID based on the type and linked object. Once created, the ID is frozen — it cannot change even if the name is edited later.

“ **A storage area cannot link to both a location and a cell group at the same time.** The system enforces an either/or (XOR) rule. Selecting a different ERP Type in the create form automatically clears the other field.

The Default / Unmapped Placeholder

Every active warehouse should have at least one **placeholder** storage area that acts as the unmapped default. When an item/warehouse pair does not yet have a business-owned storage area assignment, the export system can assign it to this default row so PT can still import the item. Without a default, those items fail the ItemStorage requirement and block the export.

Use the **Validate / Readiness** check (see Section 5) to confirm each warehouse has a default before exporting.

3. Cell Groups and Mappings

A **Cell Group** is a named, reusable set of physical cell ranges. It exists independently of any single storage area and can be referenced by exactly one active storage area at a time.

Each cell group has:

- A **Name** — a human-readable label (e.g., "Weld Cells").

- A **Slug** — a short uppercase identifier used in the auto-generated storage area ID. Must be uppercase letters, digits, and hyphens only — no spaces. Examples: `WELD-CELLS`, `ASSEMBLY-A`.

Cell Group Mappings define which physical cells the group covers. Each mapping row specifies:

- **Bank** — the racking bank identifier (e.g., `101A`).
- **Col From / Col To** — the column range within that bank.
- **Row From / Row To** — the optional row range within those columns.

One cell group can have many mapping rows — one per bank or contiguous range. The union of all mapping rows describes the full set of cells the group covers.

4. The ERP Data Model

All storage area data that flows to PlanetTogether is owned in the `aps` schema. PT reads from **export views** (`aps.*_v`) that filter and shape the source tables.

Source Tables

Table	What it holds
<code>aps.storage_area_source</code>	Storage area master records. Holds <code>erp_type</code> , <code>erp_inv</code> , <code>mrp_nettable</code> , <code>constrained</code> , <code>erp_location_id</code> , and <code>erp_cell_group_id</code> . The <code>storage_area_id</code> column is trigger-assigned on insert and cannot be changed afterward.
<code>aps.cell_groups</code>	Cell group master records. The <code>slug</code> column drives the <code>CELLS-{slug}</code> storage area ID.
<code>aps.cell_group_mappings</code>	Bank/column/row range rows for each cell group.

Export Views (what PT reads)

View	Feeds PT object	Notes
<code>aps.storage_areas_v</code>	<code>Inventories</code> / <code>ItemStorage</code> reference	Active storage areas only.
<code>aps.item_storage_v</code>	<code>ItemStorage</code>	Active item/storage area pairs only.
<code>aps.item_storage_lots_v</code>	<code>ItemStorageLots</code>	Active lot-level assignments.

The ERP is the authoritative source. Changes made inside PT to storage area data are not written back in Phase 1.

5. Using the Inventory Manager Setup Screen

The **Setup** tab in the **Inventory Manager** app is the central place to maintain storage areas and cell groups.

Access to create, edit, and retire records requires the **Quality Manager** role.

The screen operates in two modes controlled by toolbar toggles. The default mode when you open the tab is **Storage Areas**.

Main Toolbar

Button	What it does
Show / Hide Storage Areas	Toggles the Storage Areas list. Visible by default.
Show / Hide Setup Tools	Toggles the Setup Tools section (cell groups and mappings). Hidden by default.
Validate / Readiness	Runs a live readiness check and opens the results modal.
Preview Ensure Item Storage	Shows which item/warehouse pairs would receive a default storage area assignment if the ensure function were run.
Refresh	Reloads the storage areas list from the database.

Storage Areas List

This grid shows all storage areas from `aps.storage_area_source`.

Columns displayed: Storage Area ID, Name, Warehouse, ERP Type, ERP Inv, Location / Cell Group link target, Default, Default-only Item Count.

Toolbar actions:

Action	Behavior
Create Storage Area	Opens the create modal.

Action	Behavior
Edit	Opens the edit modal for the selected row. Requires exactly one row selected.
Retire	Prompts for confirmation, then marks the storage area inactive. Records are never physically deleted. A default placeholder cannot be retired if it is the only default for its warehouse.

Create / Edit Storage Area Modal

Both create and edit use the same form. In edit mode, the Storage Area ID is shown as read-only — it was assigned at creation and cannot change.

Form fields:

Field	Required	Notes
Storage Area Name	<input type="checkbox"/>	The display label in PT and in the ERP.
Warehouse	<input type="checkbox"/>	Autocomplete from active warehouses.
ERP Type	<input type="checkbox"/>	<input type="text" value="Location"/> , <input type="text" value="Cell Group"/> , or <input type="text" value="Placeholder"/> . Changing type resets the other link field.
Inventory Class	<input type="checkbox"/>	<input type="text" value="INV"/> , <input type="text" value="WIP"/> , or <input type="text" value="AMS"/> . Defaults to <input type="text" value="INV"/> .
ERP Location	Context	Shown when ERP Type is <input type="text" value="Location"/> . Autocomplete from active ERP material locations.
Cell Group	Context	Shown when ERP Type is <input type="text" value="Cell Group"/> . Autocomplete from active cell groups, sorted by slug.
MRP Nettable		Checkbox. Defaults to checked. Controls whether PT includes this area's stock in net requirements.
Constrained		Checkbox. Defaults to unchecked.
Notes		Optional free text. Not sent to PT.

“ **ERP Location and Cell Group are mutually exclusive.** Only one field is visible at a time based on ERP Type. Switching types clears the previously chosen value.

Validate / Readiness Modal

Click **Validate / Readiness** in the main toolbar to open this modal. It displays four counters plus a row-level issue list.

Counter	What it flags
Warehouses Missing Default	Warehouses with no active placeholder storage area marked as default.
Items Missing Storage	Item/warehouse pairs with no <code>ItemStorage</code> row — these will fail PT import.
Inactive Location Links	Storage areas of type <code>Location</code> whose linked <code>mat_loc_cell</code> row is no longer active.
Inactive Cell Group Links	Storage areas of type <code>Cell Group</code> whose linked cell group is no longer active.

The issue list provides row-level detail: the issue code, a plain-language message, and the affected Storage Area ID if applicable.

This modal is read-only. Resolve issues by correcting the underlying storage area, location, or cell group data, then run the check again.

Preview Ensure Item Storage Modal

Click **Preview Ensure Item Storage** to see which item/warehouse pairs currently lack an `ItemStorage` row. The modal shows the row count that would be inserted and a table of the affected item/warehouse/storage area combinations.

“ **This is preview-only.** No data is written when you open this modal. The actual ensure operation requires a separate approval step and is run through a database function before export.

Use this preview as a pre-export check to confirm all items are covered before kicking off a PT import.

Setup Tools — Cell Groups

Click **Show Setup Tools** in the main toolbar, then **Show Cell Groups** to manage cell groups and their mappings.

Cell Groups grid toolbar:

Action	Behavior
Create Cell Group	Opens the cell group form in create mode.
Edit	Opens the form for the selected cell group.
Retire	Marks the cell group inactive. Blocked if an active storage area currently references this cell group.
Show All (incl. Inactive) / Show Active Only	Toggles visibility of inactive cell groups.

Cell group form fields:

Field	Required	Notes
Name	<input type="checkbox"/>	Human-readable label.
Slug	<input type="checkbox"/>	Uppercase letters, digits, and hyphens only. Drives the <code>CELLS-{slug}</code> storage area ID. Must be unique.
Description		Optional.
Notes		Optional internal notes.

Cell Group Mappings grid:

Selecting a cell group row filters the Mappings grid to that group's rows. Each mapping covers one bank/range.

Action	Behavior
Add Mapping	Opens the mapping form. Select a bank and enter column/row ranges.
Retire	Removes the mapping row from the active set.

Mapping form fields: **Bank** (autocomplete from ERP racking banks), **Col From**, **Col To**, **Row From** (optional), **Row To** (optional), **Notes** (optional).

6. Phase 1 Scope: What's Used and What's Not

Feature	Phase 1 Status	Notes
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Storage area create / edit / retire	<input type="checkbox"/> Used	Full CRUD via Inventory Manager Setup tab.
All three ERP Types (Location, Cell Group, Placeholder)	<input type="checkbox"/> Used	All supported.
Cell group create / edit / retire	<input type="checkbox"/> Used	Managed in Setup Tools.
Cell group bank/column/row mappings	<input type="checkbox"/> Used	Add / retire mapping rows per cell group.
Validate / Readiness check	<input type="checkbox"/> Used	Four-counter check plus row-level issue list.
Preview Ensure Item Storage	<input type="checkbox"/> Used	Pre-export coverage check.
ERP location editor (create/edit ERP locations)	<input type="checkbox"/> Deferred	Locations are read-only lookup targets in Phase 1.
Racking cell / cell range preview	<input type="checkbox"/> Deferred	Phase 2 Setup Tools expansion.
Legacy Material setup functions	<input type="checkbox"/> Deferred	Ported from Tcl in a later phase.
PT write-back (PT → ERP storage area changes)	<input type="checkbox"/> Not in scope	ERP is authoritative; PT is a read-only consumer for Phase 1.

7. Summary: The Minimum You Need Before Items Can Export

Before PlanetTogether can successfully import item and inventory data, the following must be true:

- Every active warehouse has at least one **default placeholder** storage area.
- Every active storage area of type `Location` links to a currently active ERP material location.
- Every active storage area of type `Cell Group` links to a currently active cell group with at least one mapping row.
- Every item/warehouse pair that will be exported has at least one `ItemStorage` row — confirm with **Preview Ensure Item Storage** before running the export.
- Validate / Readiness** shows zero issues in all four counters.

Missing any of these will cause PT to reject the affected items and all dependent sales orders, work orders, and job materials during import.

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