Oracle Warehouse Management Cloud

Web Reports Gen2 Report Creation

Release 26D

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Get Help

There are a number of ways to learn more about your product and interact with Oracle and other users.

Get Help in the Applications

Access the online help from the user drop-down menu in the Warehouse Management application.

Get Training

Increase your knowledge of Oracle Cloud by taking courses at *Oracle University*.

Join Our Community

Use *Cloud Customer Connect* to get information from industry experts at Oracle and in the partner community. You can join forums to connect with other customers, post questions, and watch events.

Share Your Feedback

We welcome your feedback about Oracle Warehouse Managment. If you need clarification, or find an error, you can direct your questions via a service request to *My Oracle Support.*

2 Web Report Gen2

Web Report Gen2

Web Report Gen2 has been created to provide more flexibility and better performance by exposing most of the WMS and WFM categories (ie. tables) at a fine-grained level. The earlier Gen1 combined many tables together with inbuilt joins and exposed them as higher level categories at the expense of some flexibility and some performance.

Gen2 avoids prebuilt joins such that the resulting database queries will perform better. In order to help you perform joins, please follow the guidelines provided below.

The capabilities of WebReports itself have remained the same in terms of end user formatting and layout capabilities and the type of reports.

The following are some guidelines you should follow for creating joins.

1. There There is a company parameter that controls the option to create aliases for categories. This is controlled through the parameter **WR2_CATEGORY_ALIAS_MODE.**

   The values are as follows:

   The default empty string mode for **WR2_CATEGORY_ALIAS_MODE:**

   - allows aliases to be used
   - provides join guidance by disabling unjoinable categories
   - but restricts editing of categories after report creation

   NON_ALIAS_MODE:

   - prevents aliases from being used
   - provides join guidance by disabling unjoinable categories
   - allows editing of categories after report creation

   ALIAS_MODE:

   - allows aliases to be used
   - does not provide any join guidance
   - allows editing of categories after report creation
2. Every category in the table, see the complete list in *Appendix 1* that exposes contains an identity key (id) that uniquely identifies a row in the table. This is not visible when seeing the columns on that table while building the report.
3. Some of the categories will hold foreign keys to other tables. Foreign keys are just columns with names ending in _id per our convention.

   For example: The category Container, has the following:
   - Id – identity column for Entity Container
   - FACILITY_ID – Foreign key to entity Facility's id

- COMPANY_ID – Foreign key to entity Company's id

Refer to *Appendix 2* for a list of entities and foreign keys these entities refer to.

4. Some of these keys will not show up during the report layout creation. But all them will show up when one is defining the joins.
5. The user doesn't have to know which category can be joined to which other categories and how. WebReports handles that complexity and only allows you to join categories that are "joinable".

6. Some of the categories are “look up” tables that define a list of predefined values. For example: status. Most of the categories that track status will have corresponding status lookup table named as <category_name>_status. Following are the status categories:
    - allocation_status
    - appointment_status
    - asset_status
    - audit_status
    - bridge_status
    - carrier_status
    - container_status
    - container_vas_status
    - dock_status
    - ib_shipment_status
    - inventory_status
    - invoice_status
    - load_status
    - order_dtl_status
    - order_status
    - pallet_status
    - parcel_manifest_status
    - purchase_order_status
    - qc_status
    - record_status
    - route_hdr_status
    - run_status
    - stage_status
    - stop_status
    - task_status
    - vas_execution_status
    - wave_mhe_status
    - wave_template_status
    - wms_activity_status
    - wms_activity_track_status

7. Among the categories exposed, the following relationships are important to keep in mind while performing joins. The following entities will typically get used very often in reports:
    - Inventory
    - Container
    - Location
    - Item
    - Facility
    - Company
    - Allocation
    - Task
    - Load
    - Stop
    - StopDtl

Downloading Reports

Note: When you want to download a report in Web Reports Gen2:

1. From Web Reports **Report Options -> General Options,** specify the export type you want from **Allowed Export Types**, and click **Okay**.
2. Once the report is generated, from the top left, (underneath the report name) click the **Export CSV** button to download the report.

Web Reports Best Practices

Inventory

Inventory is a record representing actual inventory stored in a location, either in part or in full. It has an Item with quantity and attributes and comes into existence when inventory is received or created. Inventory points to an item.

Inventory is always inside a container or a location (active). A container or Location can hold multiple inventory records. Inventory can be inbound (received, QC, etc.), on-hand (located) or outbound (allocated, packed, in packing, loaded etc.) Inventory holds the address of where it is, a container (Inbound or Outbound) or a location.

Container

Container can be of type Inbound (I) or Outbound (O).

A Container has a field cur_location_id that holds the address of where it is i.e. the location, unless it's on a pallet, in which case the pallet will have the location.

Allocation

Allocation(s) – are reservation(s) of Inventory (inbound or on-hand) for a need specified by an Order(s). Allocations get created when Wave (Picking or Replenishment) is run. When Allocations are created by wave. they usually have the reference to the Wave Number on them.

Allocations also get created when one does cross docking or distribution while receiving.

Allocations can also get created when Orders are allocated directly using Direct Allocation or Pick and Allocate transactions.

Allocations can be grouped together to form a task.

An allocation record associates an order detail (order line) record with specific inbound inventory (from_inventory_id) which is used to fulfill a portion of the order detail and also has a reference to the outbound inventory (to_inventory_id) into which it is (or will be) packed.

There are certain entities which come from outside the WMS like PO, Inbound Shipment and Order. These entities have header/Detail type of structure.

For example:

One Order can have many details which is basically a set of items that the Order is for with ordered or requested quantity and other attributes if any:

1. When creating a report in Web Reports choose the categories and then subsequently define the sorting and filtering. Form the basic layout. Then finish the report. This is when the Web Reports joins are automatically created. These joins are usually created automatically based on the categories chosen and the foreign keys present on them. Please navigate to the Advanced Join section and review the joins to make sure they are the desired joins created. Otherwise you can redo the joins or modify them appropriately to suit your needs.
2. In Web Report Gen2 you do have option to create aliases for the categories. So there could be sometimes need to use the same category twice in joins with different aliases. Such joins can be performed as well. You might run into this with the allocation entity which refers to the inventory table via two separate foreign keys from_inventory_id and to_inventory_id. To make this easier to user we have exposed the inventory table, not just as the inventory category but also as from_inventory and to_inventory. The allocation category is joinable only with from_inventory and to_inventory and not with the regular inventory category (which exists for joining with other categories).
3. Always recommended to filter the main driving categories by facility and company appropriately for which the report is being built. Note that regardless of this WebReports will automatically filter by the user's eligible facilities and companies.

3 Changes in Gen2 Web Reports

Changes in Gen2 Web Reports

Chained Reports: Chained reports are not available in Gen2 reports. Chained reports combine multiple reports into a single page document. As an alternative, you can embed the individual reports in a dashboard and execute the dashboard from the web reports tab, however this cannot be linked to a WMS action button, such as BOL or Packing slip etc.

"Missing" categories: As noted earlier in this document, the category design has been revamped completely to provide a more granular, table level view of the data. As such, categories cannot be compared one to one with Gen1 categories. Almost all the data accessible via Gen1 is accessible in Gen2. A handful of entities have been left out of Gen2 and are planned to be added in future updates.

Company Parameter Changes

The company parm "**WR2_FILTER_DATETIME_IN_FACILITY_TZ**" allows the DateTime clauses in the web report gen2 to be interpreted based on the your current facility timezone instead of interpreting the DateTime based on the server time. However, the data returned by the report will still display the output based on the server time, by default. As before that can be converted to facility time using the available conversion function.

Another company parameter WR2_EVAL_FORMULAS_IN_DB provides better performance for some functions.

When the company parameter "**WR2_EVAL_FORMULAS_IN_DB**" default value is set to **Yes**:

- If the Company ID is set to 0, then the value is updated to Yes.
- - If no value is set, the default value for the parameter is updated to Yes.

Note: Some functions used in reports can be evaluated either at the database level or at the Web Reports application level. In all cases, it is faster to evaluate it in the database. The default behavior has been changed to perform this for all customers except for those that have explicitly updated the WR2_EVAL_FORMULAS_IN_DB to no.

Note: There are some innate differences between how Web Reports and databases evaluate formulas. Equivalent formulas may return inconsistent data in some situations. Mathematical equations may have differing levels of precision, which can alter the result. Date functions are known to have some divergent behavior as well.

Improvements for Joins in Reports

The default joins in Gen2 have been improved so that in most common reports, you will not need to edit the joins. New categories have also been added to **Web Reports Gen 2** to improve the user experience and eliminate the use of aliases for most common reports. With these new categories, you no longer need to create aliases and complex joins for the most common reports:

- ib_container as clone of container with filter type = 'I'
  - from_inventory.container_id to be joinable to ib_container
- iblpn_location as clone of location

    - iblpn_container.location_id to be joinable to ib_location.id
- pallet_location as clone of location
    - pallet.location_id to be joinable to pallet_location
- ob_container as clone of container with filter type = 'O'
    - to_inventory.container_id to be joinable to ob_container
- ob_location as clone of location
    - ob_container.location_id to be joinable to ib_location.id
- destination_company as clone of company
    - order_hdr.destination_company_id to be joinable to destination_company
- dest_facility as a clone of facility
    - order_hdr.dest_facility_id to be joinable to dest_facility
- shipto_facility as a clone of facility
    - order_hdr.shipto_facility_id to be joinable to shipto_facility

Flattened View for Item Hierarchy Definition

To allow easier report creation, **Web Reports Gen2** has been updated to include a flattened view for item hierarchy definition, so item hierarchy codes 1 through 5 and group code can be more easily included in reports without the need for aliases and complex joins.

4 Best Practices

Best Practices

Interactive Dashboard

Note: Please Do Not use Data Visualization Report. Instead, we encourage you to explore the Normal Tiled Dashboard". This feature might be advisable for small entrepreneurs; however, we strongly DO NOT recommend using this feature for Enterprise Applications with high transactional volume. Before you begin using visualization reports, please assess the following keys points:

- The process of opening and running the reports may take considerable time as system would try to retrieve large amount of data.
- Accumulating few data sources and data types may cause non-deterministic results.
- Error reporting can be difficult.
- "Limit Reports and Visualizations to One Category" option is set to true, to restrict reports and visualizations to one category.
- Use pre filters, duplicate suppression, or advanced join logic to limit the number of rows displayed, with more filter into "Visualization Report" you may not be able to determine the expected outcome. Without filters opening of tiles may take long time for high transactional volume like WMS.
- Alternatively, review the dashboard options with fixed tiles with definite set of filters to retrieve precise data.
- ExpressView provides you a quick insight into data records and individual categories, get insight into data records, and individual categories.

5 Web Reports Gen1 to Gen2 Conversion Guidelines

Web Reports Gen1 to Gen2 Conversion Guidelines

1. Web Reports Gen1 provides categories which are more like views. One or more tables with predefined joins and columns from these tables may be provided as a view.
2. Web Reports Gen2 provides categories which more directly expose the tables themselves with all the relevant columns exposed. There are no predefined joins in these categories. This provides a better performance advantage as it avoids predefined joins. This also provides better flexibility so you can join with categories that are relevant for the report.
   a. This also means that Gen2 categories cannot be directly mapped to Gen1 categories and Gen1 reports cannot be automatically converted to Gen2 and have to be handled manually
   b. A table has been provided later in this document listing all Gen1 categories and what Gen2 categories they are made up of
3. The following guidelines will help in the conversion of Gen 1 reports to Gen2:
   a. First, assess what the report is about and how many users are using the reports. Sometimes a lot of reports can get built with different names and the same content displayed in a different manner. It is important to come up with a consolidated list of unique reports which are frequently used.
   b. Identify the relevant categories used in Web Report Gen1 and make sure to identify the unique set of categories that need to be used in Web Reports Gen2
   c. Identify the join conditions required for Web Report Gen2 between the categories in Web Reports Gen2.
   d. Identify the equivalent filter conditions and sorting category/column in Web Reports Gen2.
   e. Identify the grouping category/column user at the Group/Report Header/Footer level in case there are aggregations being done. Identify the equivalent category/column in Web Report Gen2
   f. In the main content of the report, identify the categories/columns that are used in Web Reports Gen1 and the equivalent in Web Reports Gen2.
4. Before formatting the report in Web Report Gen2, run the report to make sure the data obtained matches what is seen in Web Report Gen1. Make sure to run it for a larger data set and also for multiple pages if required.
5. Once step-4 is consistent and correct, then do the formatting part of the report in Web Reports Gen2 to match the formatting in Web Report Gen1.

Gen1 and Gen2 Categories

This section contains Web Reports Gen1 Categories and the equivalent Web Reports Gen2 categories. It is important to note the following:

- While converting the reports, DO NOT take the categories directly from Web Reports Gen1 and convert to equivalent categories in Web Reports Gen2 from the following table.
- The following table is provided as a reference to illustrate that Web Report Gen1 categories were more abstracted and encapsulated at a higher level, whereas Web Report Gen2 categories are not.
- Look at the mapping below and identify the Web Report Gen1 categories from the left and identify the Web Report Gen2 categories from the right (unique set) and then identify the join condition required to join them

appropriately as per the report requirements. Also choose the bare minimum number of categories that are required for the report.

- In some cases, you may need to create multiple aliases of the same table in order to join with foreign keys for different logical entities.

For example: Allocation category has from_inventory_id and to_inventory_id as foreign keys but are pointing to the inventory table but they two represent two different logical entities i.e. (from Inventory - is inbound inventory) and (to inventory - is outbound inventory).

- In many cases, all the joins may not be required if you are not using data from the joined tables, so be aware of this, as this could provide better performance.
- **Important:** Web Reports Gen2 does create some of the obvious joins automatically. But you must go check the joins created and see if there are any other additional joins to be added or any redundant joins to be removed. Also avoid all duplicate joins.
- Also, anytime there is a change in a category or any options in a category (for example, one suppresses duplicates using the check box) then Web Reports will try to regenerate the joins again. It may seem frustrating, but this behavior is expected as some settings have changed and the application is recreating joins to suit those settings. It is important to double check again to see if joins have adjusted again correctly. To avoid regeneration of joins, it is good practice to decide upfront what categories and columns are required to minimize this.

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
Allocation	o allocation o allocation_type (inner) o allocation_status (inner) o allocation_run_hdr (left outer) o uom (use alias to create two uom categories if you have to see alloc_uom and cartonize_uom) (left outer) o lpn_type (left outer) o task_creation (left outer)
AllocationFromContainer	o container o container_status (inner) o facility (inner) o company (inner) o lpn_type (inner) o pallet (left outer) o pallet_status (left outer) o audit_status (left outer)
AllocationFromContainerLocation	o location o company (for dedicated company) (at location level) (inner) o company (destination company on location) (left outer) o Facility (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o Item_assignment_type (inner) o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for item dedicated in a location) (left outer)
AllocationFromContainerShipment	o ib_shipment o company (inner) o facility (inner) o ib_shipment_status (inner) o ib_shipment_type (left outer) o inventory_lock (left outer)
AllocationFromInventory	o inventory o inventory_attribute (left outer) o facility (inner) o inventory_status (inner) o batch_number (left outer)
AllocationFromInventoryLocation	o location o Company (for dedicated company at location level) (inner) o Facility (inner) o Item_assignment_type (inner) o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for item dedicated at location) (left outer) o task_zone (left outer) o replenishment_zone (left outer)
AllocationMheSystem	o mhe_system o mhe_type (inner) o facility (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
AllocationToContainer	o container o facility (inner) o company (inner) o lpn_type (left outer) o pallet (left outer) o pallet_status (left outer) o audit_status (left outer)
AllocationToContainerLocation	o location o company (for dedicated company at location level) (left outer) o facility (inner) o Item_assignment_type (inner) o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for item dedicated at location level) (left outer)
AllocationToInventory	o Inventory o inventory_attribute (left outer) o facility (inner) o inventory_status (inner) o batch_number (left outer)
AllocationToInventoryLocation	o location o company (for dedicated company at location level) (left outer) o facility (inner) o Item_assignment_type (inner) o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for item dedicated at location level) (left outer) o task_zone (left outer) o replenishment_zone (left outer)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
Appointment	o appointment o dock_type (inner) o facility (inner) o appointment_status (inner) o value_type (matching value type) (left outer) o dock (left outer)
Batch Number	o batch_number o facility (inner) o company (inner) o inventory_lock (left outer)
BillingItem	o billing_item o company (inner) o history_activity (left outer) o column_name (activity group) (left outer)
Carrier	o carrier o company (inner) o carrier_status (inner) o std_carrier (left outer) o carrier_type (left outer)
CarrierFacility	o carrier_facility o facility (inner) o carrier_integration_type (left outer)
CarrierLpn	o carrier_lpn o container (inner) o facility (inner) o company (inner)
CCAdjustment Header Detail	o cc_adjustment_hdr o cc_adjustment_dtl (inner) o inventory_attribute (left outer) o cc_adjustment_status (inner) o company (inner) o facility (inner) o cc_adjustment_warning (left outer)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o cc_warning (left outer)
Company	o Company
Container	o Container o container_status (inner) o facility (inner) o company (inner) o lpn_type (left outer) o pallet (left outer) o pallet_status (left outer) o audit_status (left outer)
ContainerCurrLocation	o Location o Facility (inner) o item_assignment_type (inner) o location_type (inner) o company (dedicated company on location) (left outer) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (on dedicated item at location) (left outer)
ContainerLocks	o container_lock_xref o inventory_lock (inner) o Container (inner) o Inventory (inner) o inventory_status (inner) o inventory_attribute (left outer) o item (inner join with inventory) o facility (inner) o company (inner) o putaway_type (left outer with item)
ContainerPrevLocation	o Location o Facility (inner) o item_assignment_type (inner) o location_type (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o company (dedicated company on location) (left outer) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (on dedicated item at location) (left outer)
ContainerRcvdLoad	o load o company (inner) o facility (inner) o load_status (inner) o carrier (left outer) o carrier_type (left outer) o trailer (left outer)
ContainerRcvdShipment	o ib_shipment o company (inner) o facility (inner) o ib_shipment_type (left outer) o inventory_lock (left outer)
Dock	o dock o facility (inner) o dock_type (inner) o dock_status (inner) o location (inner)
IBShipmentPrepackItemResidual	o ib_shipment_item_residual o facility (inner) o company (inner)
IBShipmentSerialNbr	o ib_shipment_srl_nbr o company (inner) o facility (inner)
InboundShipmentItem	o item o company (inner) o putaway_type (left outer) o item_characterstics (left outer)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o lpn_type (left outer) o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer) o item_group_defn (left Outer) o property_prompt_mode (left outer) o harmonized_tariff (left outer) o uom (left outer)
InboundShipmentLoad	o load o company (inner) o facility (inner) o load_status (inner) o carrier (left outer) o carrier_type (left outer) o trailer (left outer)
InboundShipmentVendorPerf	o ib_shipment_vendor_perf o vendor_perf_code (inner) o ib_shipment (inner) o company (for vendor) (inner) o uom (left outer)
Inventory	o inventory o facility (inner) o inventory_status (inner) o inventory_attribute (left outer) o batch_number (left outer) o allocation (left outer)
InventoryItem	o item o company (inner) o putaway_type (left outer) o item_characterstics (left outer) o lpn_type (left outer) o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o item_group_defn (left Outer) o property_prompt_mode (left outer) o harmonized_tariff (left outer) o uom (left outer)
InventoryItemLocation	o inventory o facility (inner) o item (inner) o putaway_type o inventory_attribute (left outer) o item_characterstics (inner) o putaway_type (left outer) o item_metrics (inner) o item_struct (inner) o item_hierarchy_defn (this will be one alias per hierarchy level) (left outer) o item_group_defn (left outer) o inventory_status (inner) o batch_number (left outer) o allocation (left outer) o company (for item ,dedicated company on location and destination company on location) (left outer) o location (full join) o facility (inner) o item_assignment_type (inner) o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for dedicated item on location) (left outer) o task_zone (left outer) o replenishment_zone (left outer) o property_prompt_mode (left outer)
InventoryLocation	o location o company (more aliases may be required) (left outer) o facility (inner) o item_assignment_type (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o location_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for dedicated item on location) (left outer) o task_zone (left outer) o replenishment_zone (left outer)
Invoice	o invoice o invoice_dtl (inner) o facility (inner) o company (inner) o invoice_status (inner) o history_activity (left outer)
Item	o item o company (inner) o putaway_type (left outer) o item_characterstics (left outer) o lpn_type (left outer) o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer) o item_group_defn (left Outer) o property_prompt_mode (multiple aliases may be required) (left outer) o harmonized_tariff (left outer) o uom (left outer)
ItemFacilityMaterialHazardType	o item_facility_material_hazard_type o item_facility (inner) o item (inner) o facility (inner) o material_hazard_type (inner)
ItemImage	o item_image o item (left outer)
ItemMaterialHazardType	o item_material_hazard_type

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o item (inner) o material_hazard_type (inner)
ItemPrepack	o item_pre_pack o item (inner)
Location	o location o company (for dedicated_company and destination company) (left outer) o facility (inner) o location_type (inner) o item_assignment_type (inner) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o item (for item dedication) (left outer) o replenishment_zone (left outer) o task_zone (left outer)
Order	o order_dtl o order_hdr (inner) o inventory_attribute (left outer) o company (for destination company and company on Order itself) (inner) o order_status (inner) o order_type (inner) o facility (for destination facility, shipto facility and facility on the Order itself) (inner for facility and for destionation and shipto it is left outer) o lpn_type (left outer) o ship_via (left outer) o batch_number (left outer)
OrderCompany	o Company
OrderDestinationCompany	o Company
OrderFacility	o Facility
OrderInstructionsDetail	o order_instructions o order_dtl (left outer) o order_hdr (inner) o order_instruction_type (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o facility (inner) o company (inner)
OrderInstructionsHeader	o order_instructions o order_hdr (left outer) o order_instruction_type (inner) o facility (inner) o company (inner)
OrderItem	o Item o company (inner) o putaway_type (left outer) o item_characterstics (left outer) o lpn_type (left outer) o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer) o item_group_defn (left Outer) o property_prompt_mode (left outer) o harmonized_tariff (left outer) o uom (left outer)
OrdersOnLoad	o allocation o order_dtl (inner) o order_hdr (inner) o order_status (inner) o inventory (from and to require different aliases and must be left outer joins) o container (left outer) o container_status (inner) o ob_stop_dtl (left outer) o ob_Stop (left outer) o load (left outer) o load_status (left outer) o item (inner) o inventory_attribute (for to inventory) (left outer) o batch_number (for both from and to inventory) (left outer o facility (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
OrdersOnLoadExtended	o allocation o order_dtl (inner) o order_hdr (inner) o order_status (inner) o inventory (from and to) (left outer) o container (left outer) o container_status (left outer) o ob_stop_dtl (left outer) o ob_Stop (left outer) o load (left outer) o load_status (left outer) o item (inner) o inventory_attribute (for to inventory) (left outer) o batch_number (left outer) o facility (inner) o order_type (inner) o ship_via (left outer) o facility (shipto) (left outer) o srl_nbr_inventory (on to_inventory) (left outer) o serial_nbr (left outer) o item_characterstics (inner)
OrderStageLocation	o location o company (for dedicated company) (left outer) o facility (inner) o item_assignment_type (inner) o location_type (inner) o company (for destination company) (left outer) o inventory_lock (left outer) o location_size_type (left outer) o mhe_system (left outer) o mhe_type (left outer) o item (for item dedication) (left outer)
OutboundLoad	o load o company o facility

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o carrier o carrier_type o trailer
OutboundLoadCompany	o company
OutboundLoadFacility	o facility
OutboundStop	o ob_stop_dtl o ob_stop_hdr o stop_status o container o facility
Pallet	o pallet o company o facility
PalletHistory	o pallet_history o facility o company
Parcel	o parcel_manifest o facility o parcel_manifest_status o parcel_shipment
ParcelLpn	o parcel_shipment_dtl o parcel_shipment o parcel_manifest o carrier_lpn
PurchaseOrder	o purchase_order_dtl o purchase_order_hdr o facility o company o inventory_lock o purchase_order_type
PurchaseOrderItem	o item o company (inner)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o putaway_type (left outer) o item_characterstics (left outer) o lpn_type (left outer) o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer) o item_group_defn (left Outer) o property_prompt_mode (left outer) o harmonized_tariff (left outer) o uom (left outer)
PutAwayPriority	o putaway_priority o facility (inner) o location_type (inner) o putaway_method o putaway_search_mode o location_size_type o putaway_type
QCVerificationHistory	o verification_result_dtl o verification_result_hdr o qc_status o facility o company
ReplenishmentZone	o replenishment_zone o facility
Route	o route_dtl o route_hdr o facility o company
SerialNbrRepository	o serial_nbr o Item o company o facility
SerialNbrInvetnory	o serial_nbr_inventory

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o serial_nbr o inventory
ShipVia	o ship_via o company (inner) o std_carrier_service (left Outer)
ShipViaDetail	o ship_via_dtl o ship_via (inner) o std_carrier_accessorial (inner)
SimpleInventory	o inventory o facility (inner) o inventory_status (inner) o inventory_attribute (left outer) o batch_number (left Outer Join)
Task	o Task o facility (inner) o task_status (inner) o task_type (inner)
TaskCurrLocation	o location o company (for dedication company) (inner join) o facility (inner) o item_assignment_tpye (inner) o location_type (inner) o company (destination company) (left outer join) o inventory_lock (left outer join) o location_size_type (left outer join) o mhe_type (left outer join) o item (for item dedication) (left outer join)
TaskNextLocation	o location o company (for dedication company) (inner join) o facility (inner) o item_assignment_tpye (inner) o location_type (inner) o company (destination company) (left outer join)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o inventory_lock (left outer join) o location_size_type (left outer join) o mhe_type (left outer join) o item (for item dedication) (left outer join)
Trailer	o tailer o location (left Outer join)
WMSActivityDtl	o wms_activity_dtl o wms_activity (inner) o wms_activity_code (inner) o facility (inner) o company (inner)
WMSACtivityHdr	o wms_activity o wms_activity_status (inner) o facility (inner) o company (inner)
WorkOrder	o work_order_hdr o work_order_status (inner) o work_order_type (inner) o facility (inner) o company (inner) o work_order_kit (inner) o item (for work Order Kit) (inner) o item (for work Order Component) o batch_number (for work Order)(left outer) o inventory_attribute (for work Order Component) (left Outer) o inventory_attribute (for work Order Kit) (left Outer) o work_order_component (inner) o uom (inner) o location (for work order kit) (left Outer)
WorkOrderComponentItem	o item o company (inner) o putaway_type (left outer) o item_characterstics (left outer) o lpn_type (left outer)

Web Report Gen1 Category	Equivalent Web Report Gen2 Categories and Related Joins
	o item_metrics (left outer) o item_struct (left outer) o item_hierarchy_defn (one for each hierarchy level) (left outer) o item_group_defn (left Outer) o property_prompt_mode (left outer) o harmonized_tariff (left outer) o uom (left outer)

Example Gen1 to Gen2 Report

Now, keeping the above points in mind, let's take an example report from Web Report Gen1 and convert it to Web Report Gen2:

Let's say we generate a summary of Inventory in the warehouse by item. Then we show the breakup based on where the inventory is located and show the appropriate status. We'll also show an aggregation of the total inventory quantity by inventory status.

Let's call this report Inventory Report (Gen1)

Categories

We'll choose the following categories:

SimpleInventory (This category contains the basic inventory columns required)

Along with it we need to print the item information so let's choose category

Inventoryitem

Also we need to print the container information if inventory is present in a container and the location where the container is, so let's choose the following categories:

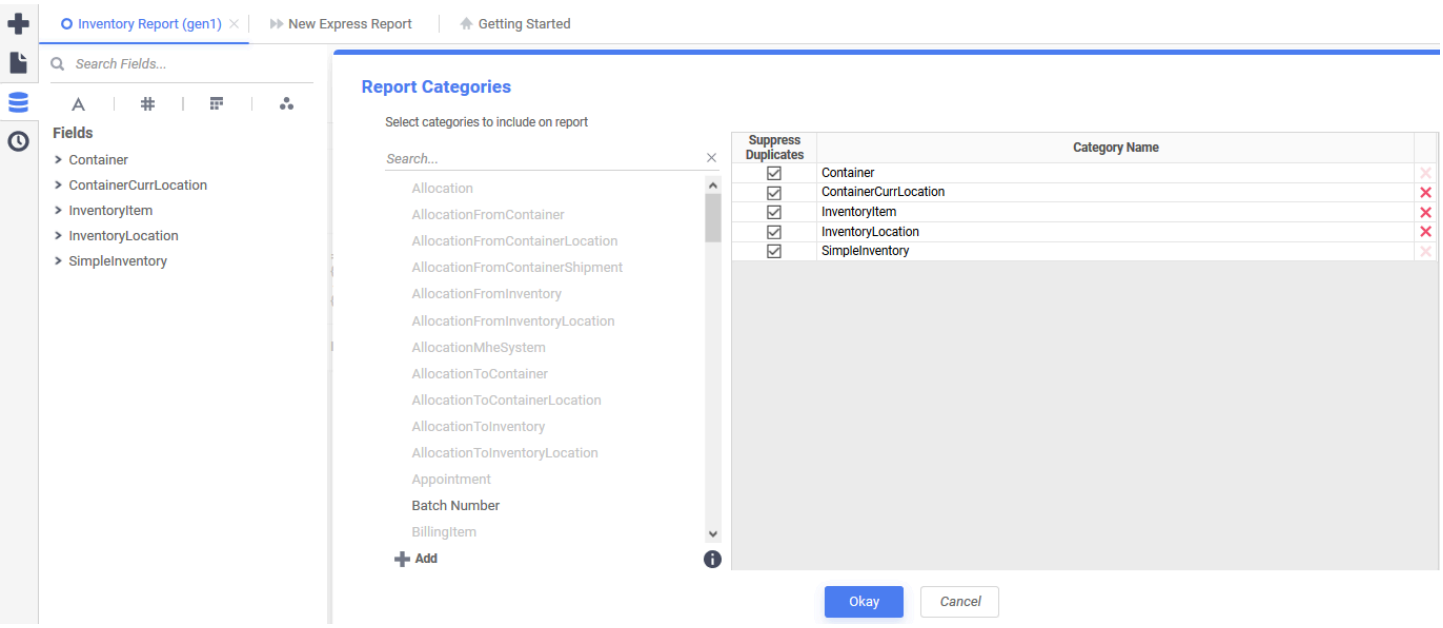
Container

ContainerCurrLocation

Now the inventory we choose can be present in either a container or directly in a location which WMS allows only on active locations. So let's choose the category.

InventoryLocation

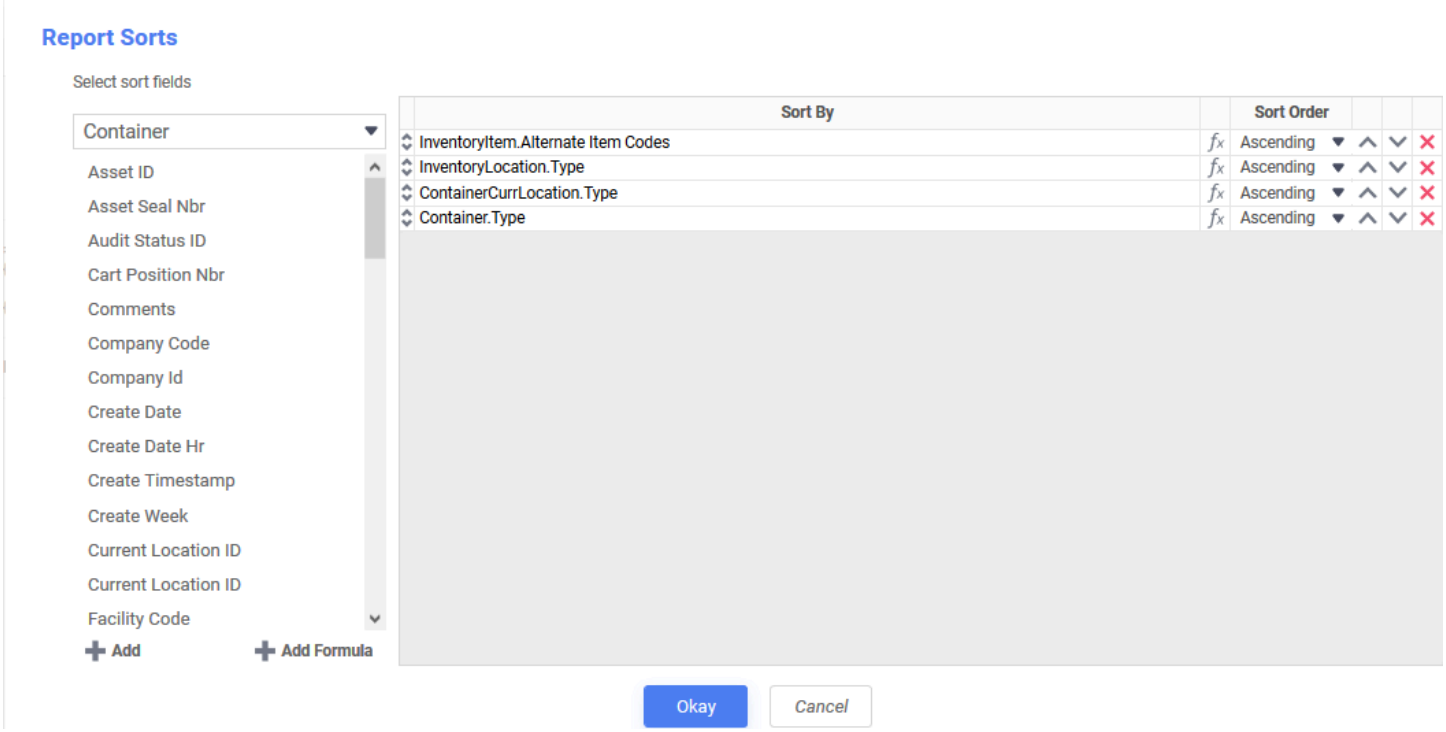
With these categories we should be able to get all the inventory in the warehouse and show the inventory information like SKU, quantity, its location etc. We can also show some aggregations by SKU.



Sorts

The following are the sorts that we are choosing:

- Item Alternate Code (first by Item)
- Inventory Location Type which is typically Active location
- Container Location Type which can be any of the other locations or Container may not be located at all
- Container Type which helps distinguish between inbound and outbound containers.



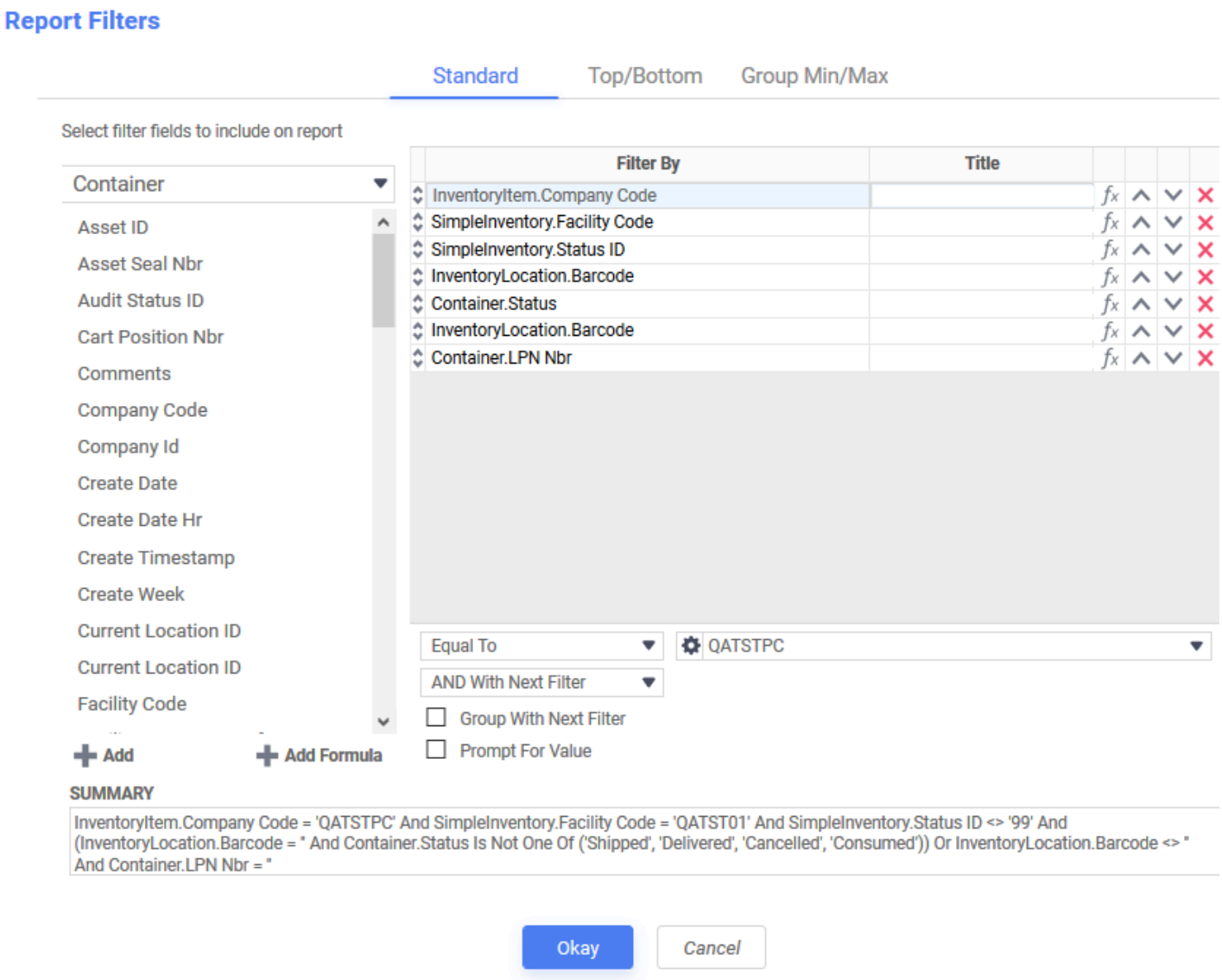
Filters

Next let's add a filter condition:

- Filter for specific Company and facility codes
- Exclude inventory that are in cancelled status
- Choose all inventory that are in a container and exclude all containers that are in 'Delivered', 'Consumed', 'Cancelled' and 'Shipped' status
- Choose all inventory that is in active locations

Layout the report with all required columns in the details section. Add two more group footer sections which do the following:

- Group footer 1 – aggregates the inventory current quantity based on item and the location type where it is located. For this the group footer condition chosen is:
- Concatenate({InventoryLocation.Type},{ContainerCurrLocation.Type},{Container.Type},{InventoryItem.Alternate Item Codes})
- Group footer 2- aggregates the inventory quantity by item
- The two group footers are color formatted to make the breakup on the report easily visible.



Inventory Report (gen1)

When you execute the report, the output shows up as follows:

Inventory Report (gen1)

Company	Facility	Alternate Item Codes	Current Qty	Pack Qty	Case Qty	LPN Nbr	Container Type (I/O)	Container Status	Active Location Barcode	Container Location Barcode
	QATST01		1.00	0	0	CNTST0100033320	I	Received		
		Received/Not Located	13.00							
		Total Current Qty	13.00							
QATSTPC	QATST01	270-0606-001	1.00	2	2	LP1239	I	Received		
	QATST01		3.00	2	2	LPNB001	I	Received		
	QATST01		2.00	2	2	LPN1239	I	Received		
	QATST01		2.00	2	2	LPNPS1001	I	Received		
	QATST01		2.00	2	2	LPN8918	I	Received		
	QATST01		12.00	2	2	LPN88784	I	Received		
	QATST01		1.00	2	2	LPN09003	I	Received		
		Received/Not Located	23.00							
		Total Current Qty	23.00							
QATSTPC	QATST01	AB-CAM-001	1.00	0	0	CSTST0100011302	I	Located		DDCS0112009C01
	QATST01		2.00	0	0	CSTST0100011303	I	Located		DDCS0112009C03
	QATST01		1.00	0	0	LPN-APR-14-001	I	Located		DDCS0112009B01
	QATST01		1.00	0	0	CSTST0100011301	I	Located		DDCS0112009C02
	QATST01		1.00	0	0	LPN-APR-14-002	I	Located		DDCS0112009B01
	QATST01		1.00	0	0	LPN-APR-14-003	I	Located		
	QATST01		1.00	0	0	LPN-APR-14-001	I	Located		
		Inbound/Located	8.00							
	QATST01		1.00	0	0	CSTST0100011305	I	Received		
	QATST01		1.00	0	0	CSTST0100011304	I	Lost		
		Received/Not Located	2.00							
		Total Current Qty	10.00							

In this case, the joins are automatically created by the application. But the joins are inbuilt and a little bit more expensive in terms of performance as they bring out a lot of data.

Convert Report to Gen2

Now let's convert the above report to WebReport Gen2.

If we pick up the Web Report Gen1 Categories and map them to Web Report Gen2, the following is what we will get:

Note about Importing Gen1 WebReports into Gen2

Note: It is possible to download a Gen1 webreport to get a .wr report definition file downloaded and then to attempt uploading it into Gen2. However, you will not get a working report via this process. Many reports will simply not import and will fail with a "500 Error". A few simple reports might import without such an error; however, the categories and filters will be empty and will not execute. At best, you might get the field layouts. Even in this scenario, you will have to change all the fields to use the appropriate Gen2 categories and fields. So, in short, this mechanism may at best give you a basic starting point for just the field layout, and in most cases will not work at all.

Gen1 Categories	Gen1 Categories Mapped to Gen2
SimpleInventory	• inventory • facility (inner) • inventory_status (inner) • inventory_attribute (left outer)

Gen1 Categories	Gen1 Categories Mapped to Gen2
	• batch_number (left Outer Join)
Inventoryitem	• item • company (inner) • putaway_type (left outer) • item_characterstics (left outer) • lpn_type (left outer) • item_metrics (left outer) • item_struct (left outer) • item_hierarchy_defn (one for each hierarchy level) (left outer) • item_group_defn (left Outer) • property_prompt_mode (left outer) • harmonized_tariff (left outer) • uom (left outer)
Container	• Container • container_status (inner) • facility (inner) • company (inner) • lpn_type (left outer) • pallet (left outer) • pallet_status (left outer) • audit_status (left outer)
ContainerCurrLocation	• Location • Facility (inner) • item_assignment_type (inner) • location_type (inner) • company (dedicated company on location) (inner) • inventory_lock (left outer) • location_size_type (left outer) • mhe_system (left outer) • mhe_type (left outer) • item (on dedicated item at location) (left outer)
InventoryLocation	• location • company (for dedicated company on location) (left outer join) • company (for destrination company on location) (left outer join) • facility (inner join) • item_assignment_type (inner join) • location_type (inner join)

Gen1 Categories	Gen1 Categories Mapped to Gen2
	• inventory_lock (left outer join) • location_size_type (left outer join) • mhe_system (left outer join) • mhe_type (left outer join) • item (for dedicated item on location) (left outer join) • task_zone (left outer join) • replenishment_zone (left outer join)

Create Report Categories

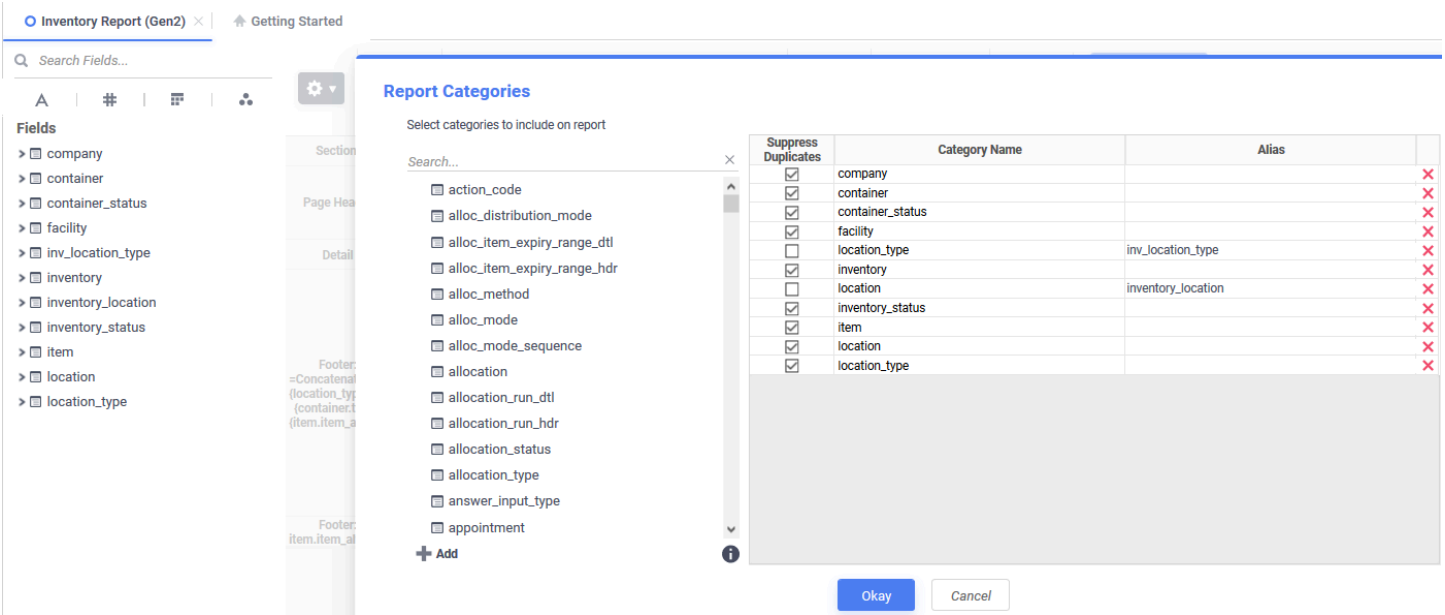
From the above table, let's quickly consolidate and create a unique set of categories that are the bare minimum required for our report:

- inventory
- Facility
- company
- item
- container
- location (for inventory which is present in active) -alias it as inventory_location
- location (container's location)
- Inventory_status
- container_status
- location_type for active location let us call it inventory_location_type
- location_type for container's location

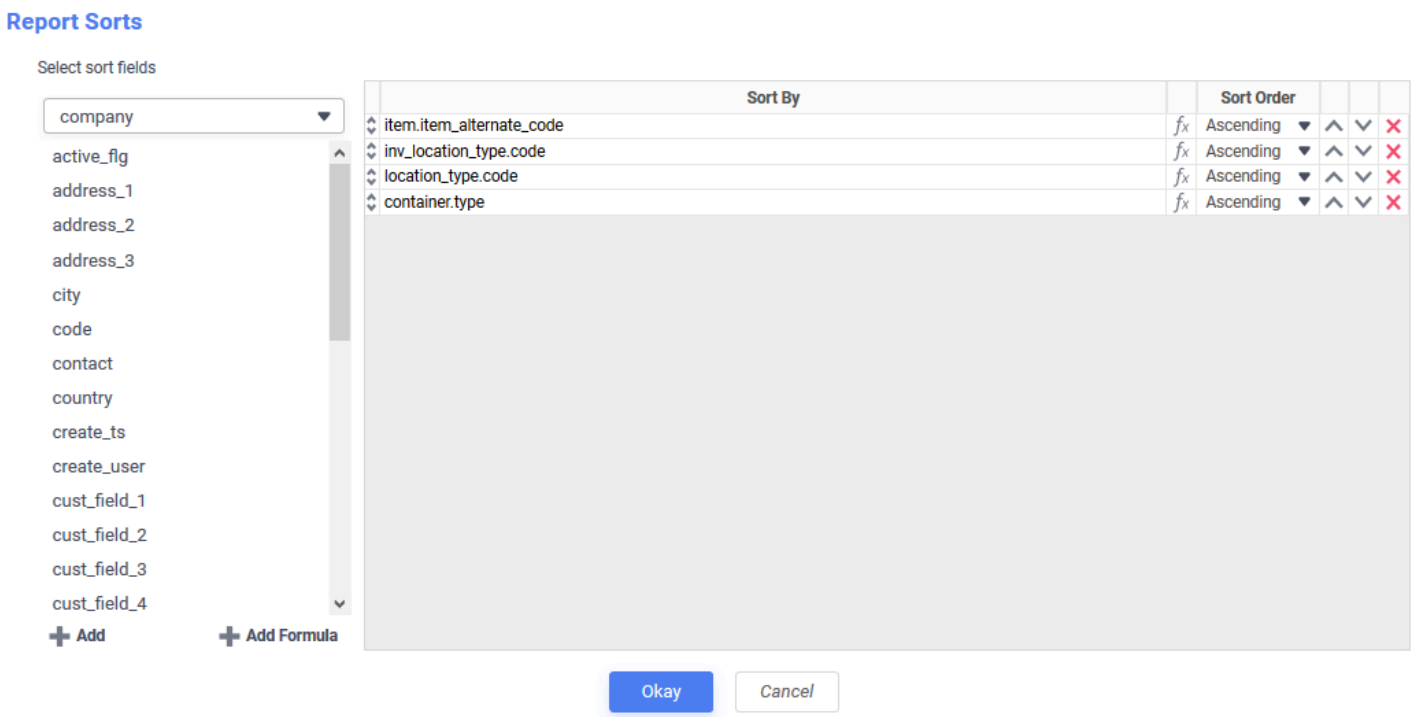
The report should be much faster because we are avoiding joining other categories as we are not going to use any of the columns. If we have to put in more columns, then the need to join with other categories would be necessary.

For sorting and filtering we will retain the same as in Web Report Gen1 except change the category names to suit the Web Report Gen2 category and column names.

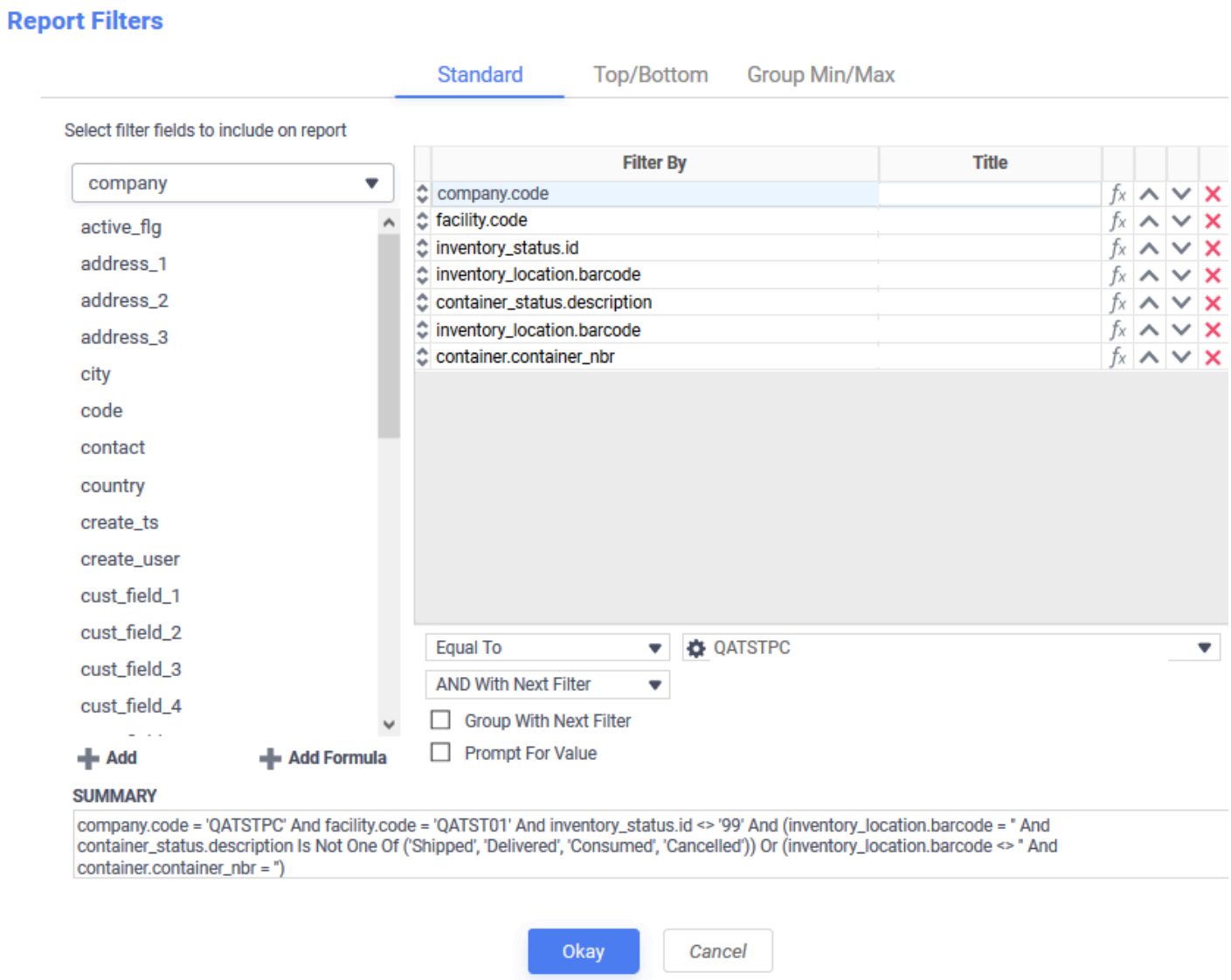
We will also retain the same report layout columns and formatting. Similarly, keep the same two group footers and the group footer conditions except change the category and column names appropriately.



Report Sorts



Report Filters



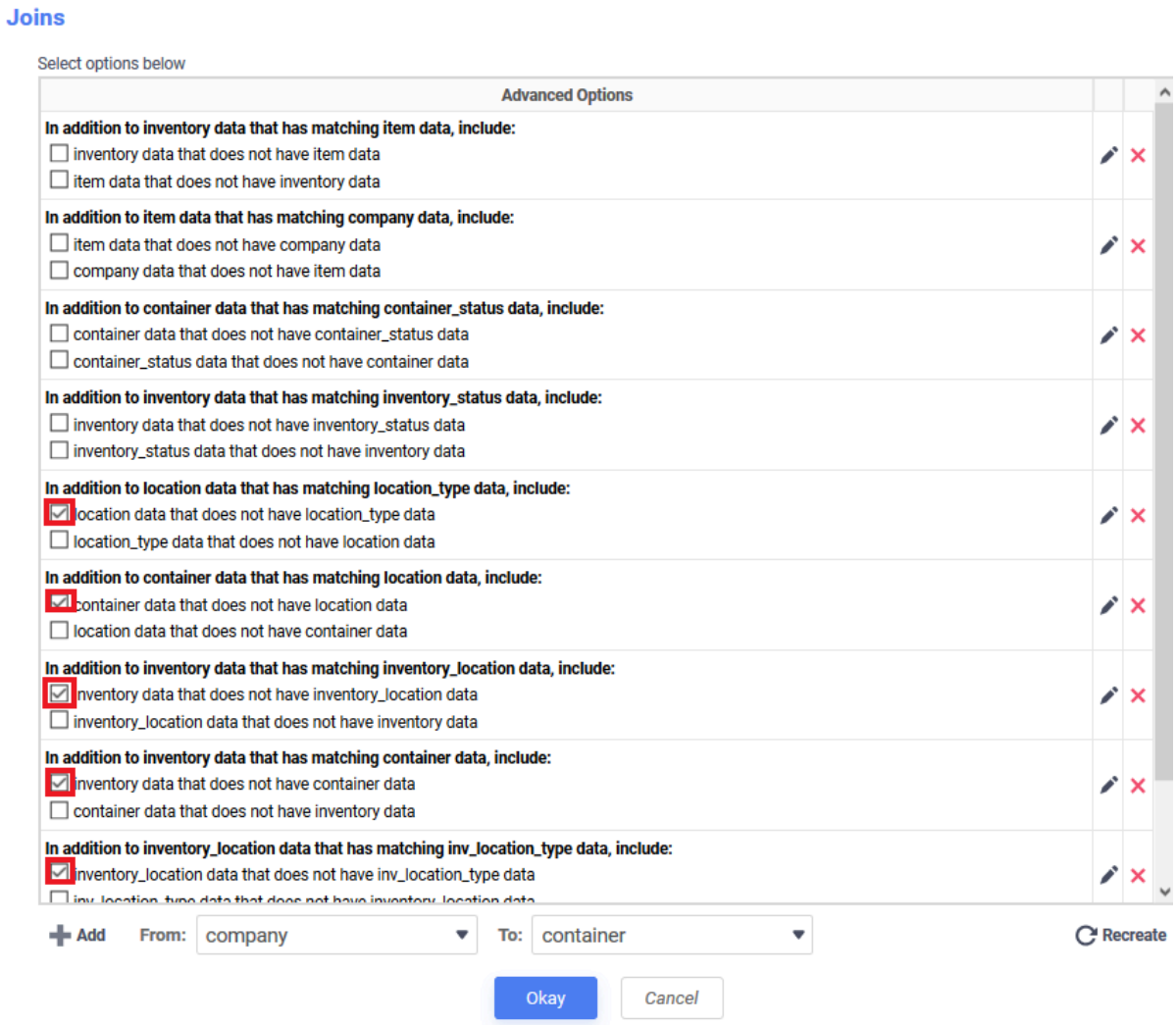
Joins

Now in this case, the system will also create some joins by default but not all of them so let's create all the joins required. We need to do the following inner joins:

- Inventory with item (the reason being inventory will always have an item)
- Item with company (item always belongs to a company)
- Inventory with facility (Inventory is always in a given facility)
- Inventory with inventory_status (inventory always has a status)
- Container with container_status (container always has a status)

The following left outer joins:

- Inventory with inventory_location (as inventory may or may not be in an active location)
- Inventory with container (as inventory may or may not be in a container)
- Container with location (container may or may not be located)
- Inventory_location with inventory_location_type (all inventory locations may not be active so its location type also may not be required if it is not in active)
- Location with location_type (this is for container's location. All container's may not be located and hence may not have a location type)



Now if you execute this report, the following is the output which is the very same as the one we created with Web Reports Gen1 and it is much faster in execution as well.

Inventory Report (gen1)

Company	Facility	Alternate Item Codes	Current Qty	Pack Qty	Case Qty	LPN Nbr	Container Type (I/O)	Container Status	Active Location Barcode	Container Location Barcode
	QATST01		1.00	0	0	CNTST0100033320	I	Received		
		Received/Not Located	13.00							
		Total Current Qty	13.00							
QATSTPC	QATST01	270-0606-001	1.00	2	2	LP1239	I	Received		
	QATST01		3.00	2	2	LPNB001	I	Received		
	QATST01		2.00	2	2	LPN1239	I	Received		
	QATST01		2.00	2	2	LPNPS1001	I	Received		
	QATST01		2.00	2	2	LPN8918	I	Received		
	QATST01		12.00	2	2	LPN88784	I	Received		
	QATST01		1.00	2	2	LPN09003	I	Received		
		Received/Not Located	23.00							
		Total Current Qty	23.00							
QATSTPC	QATST01	AB-CAM-001	1.00	0	0	CSTST0100011302	I	Located		DDCS0112009C01
	QATST01		2.00	0	0	CSTST0100011303	I	Located		DDCS0112009C03
	QATST01		1.00	0	0	LPN-APR-14-001	I	Located		DDCS0112009B01
	QATST01		1.00	0	0	CSTST0100011301	I	Located		DDCS0112009C02
	QATST01		1.00	0	0	LPN-APR-14-002	I	Located		DDCS0112009B01
	QATST01		1.00	0	0	LPN-APR-14-003	I	Located		
	QATST01		1.00	0	0	LPN-APR-14-001	I	Located		
		Inbound/Located	8.00							
	QATST01		1.00	0	0	CSTST0100011305	I	Received		
	QATST01		1.00	0	0	CSTST0100011304	I	Lost		
		Received/Not Located	2.00							
		Total Current Qty	10.00							

6 Appendix 1

Appendix 1

See the *WebReportsGen2_categories* excel document for a list of categories and fields exposed in Web Reports Gen2.

Note: Foreign keys are indicated as "join entity" in the excel document.

7 Appendix 2

Appendix 2

This section contains entity diagrams for some of the key categories in web reports Gen2.

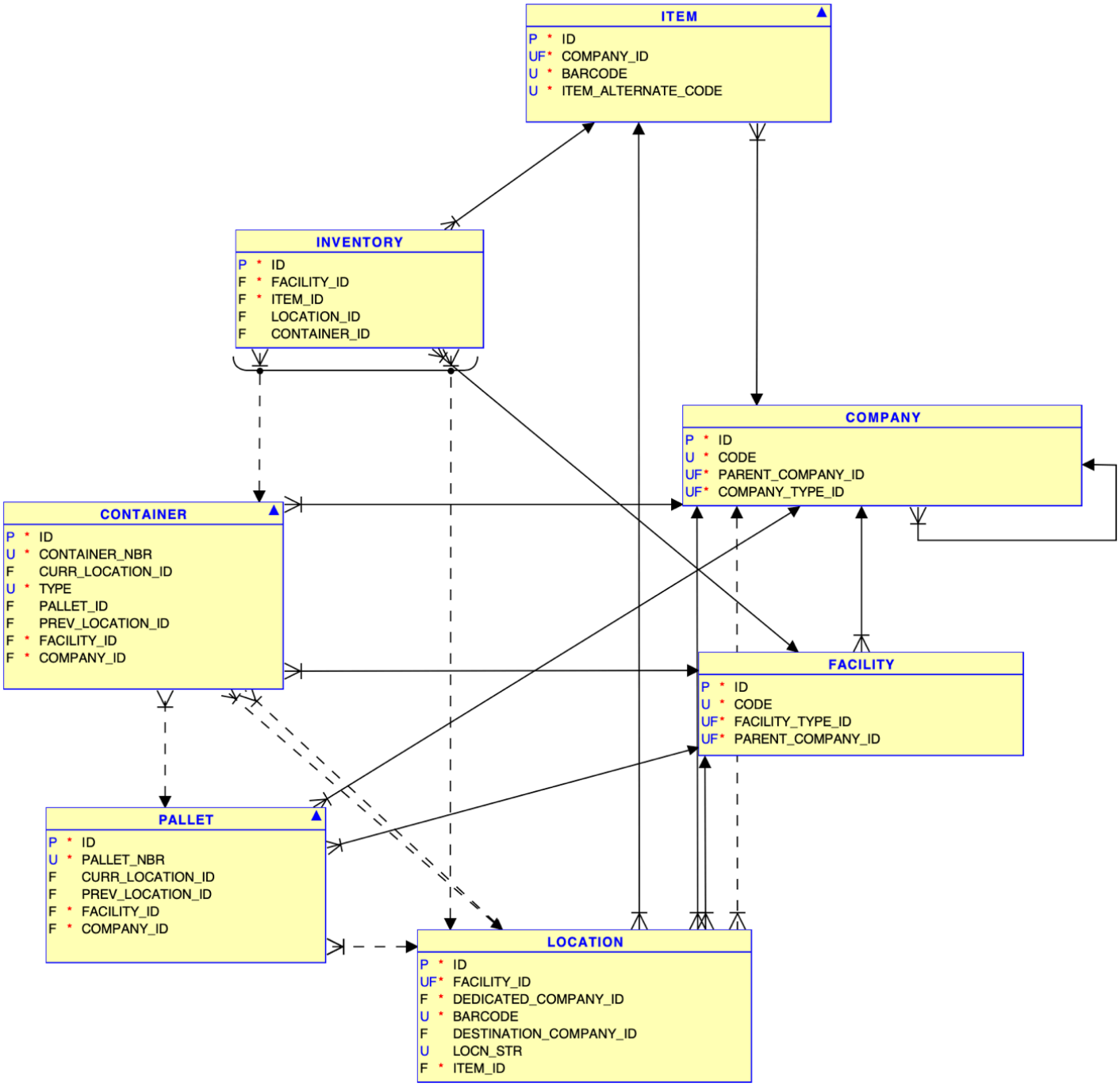
- Inventory
- Order
- Allocation

The diagrams only show the key attributes of the entities and the key relationships. The intention is to help users understand these important relationships.

Inventory

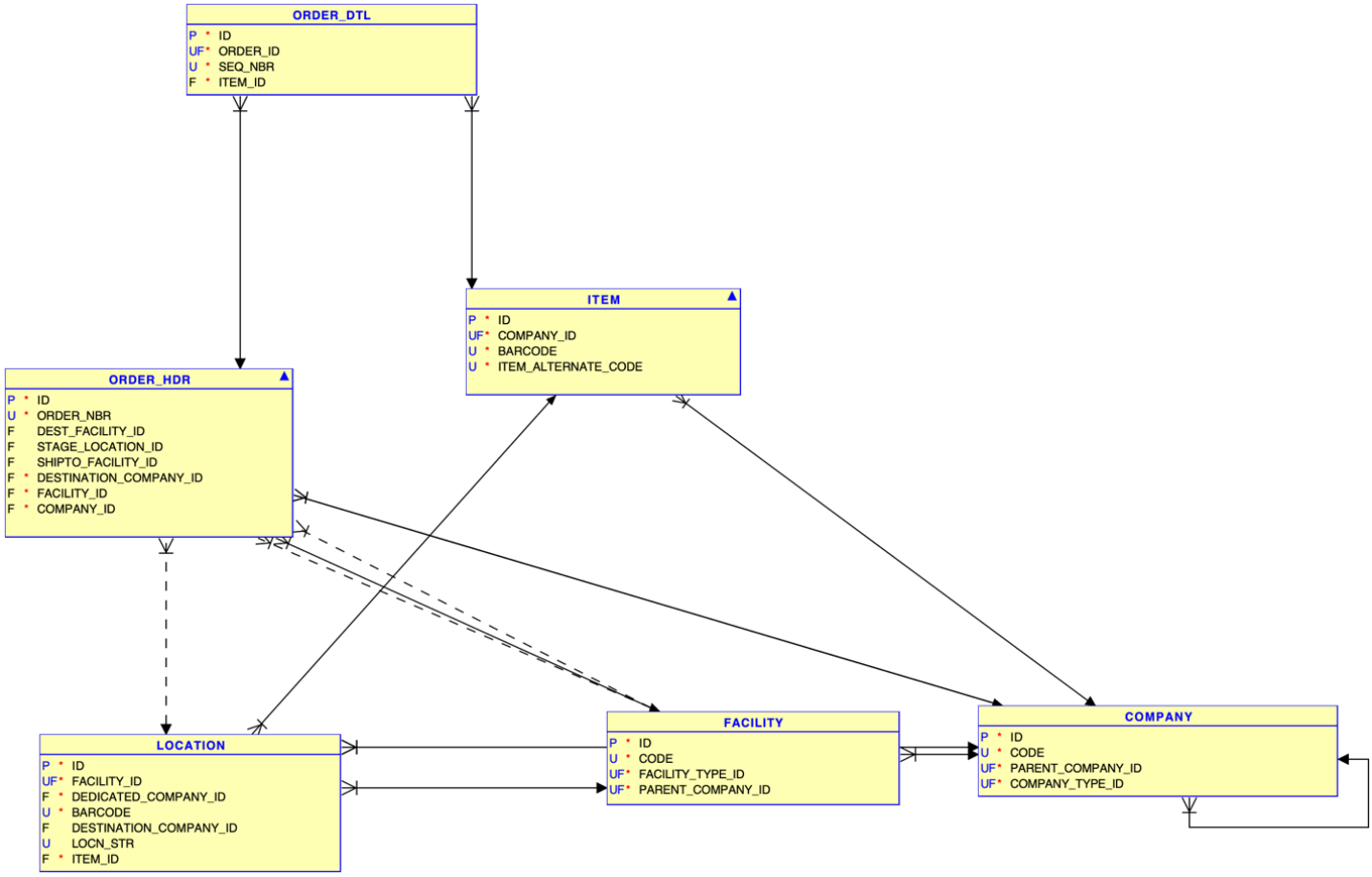
Inventory is the category that tracks all inventory in the warehouse, whether its in active, reserve or any other form. Inventory that is in LPNs whether inbound or outbound is related to the container category.

- Container has one record per LPN. An inbound lpn will have type = I and outound lpn will have type = O.
  - As an example, a single SKU IBLPN is represented by one Inventory record that is related to a Container record via the container_id column
- Containers that are on a Pallet are related to the Pallet category.
- Inventory belongs to a facility.
- Items belong to a company.
- Containers are related to a specific facility and company combination.
- Facilities also belong to a specific company.
- Location is a category that models active, reserve, consolidation and all other location types.



Order

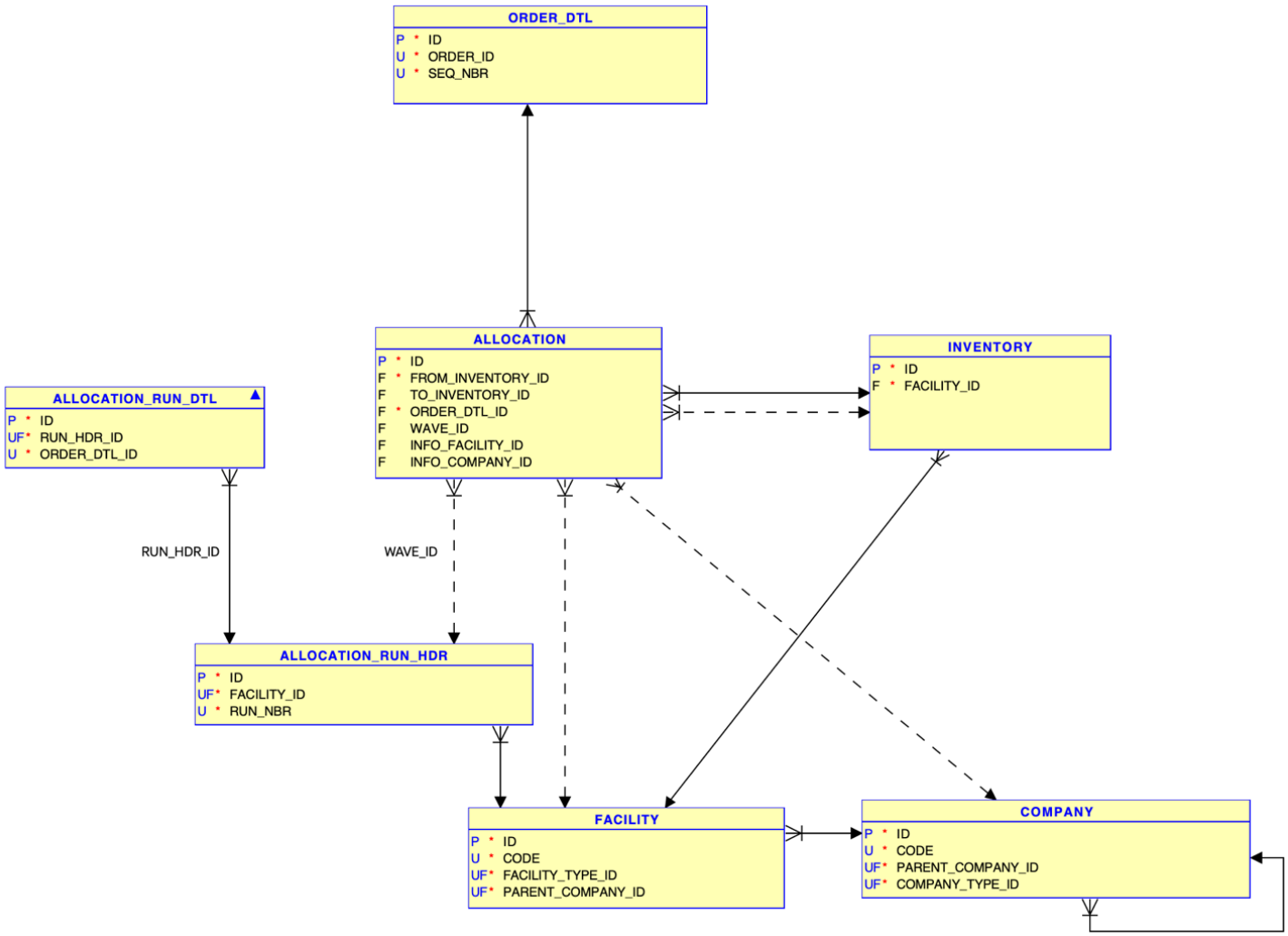
Sales orders are represented in the Order-Hdr and the Order-Dtl categories (Purchase orders are completely separate). A WMS Order has one Order header that is related to one ore more order details. Each order detail specifies the SKU and quantity, along with other attributes. Orders are specific to a facility and company combination



Allocation

The allocation category represents the relationship between sales orders and inventory. Allocation mechanisms such as the Wave will create these relationships. Allocations also connect inbound inventory to outbound. So for example, when a single SKU IBLPN is allocated in full, one allocation record will refer to the inbound inventory via the from_inventory_id column and to the corresponding outbound inventory record via the to_inventory_id column. In this kind of relationship the quantity on the inbound inventory record is maintained until the point of picking/packing, at which time it is reduced to zero and transferred to the outbound inventory.

The Container statuses also reflect this. When an IBLPN is allocated, the corresponding OBLPN is in “Outbound created” status with zero quantity, and when picking/packing is complete the IBLPN goes to Consumed status with zero quantity and the OBLPN goes to Packed status with the quantity transferred over. An allocation record also relates to the order via the order_dtl_id reference to the order_dtl category.


ORDER_DTL
P * ID
U * ORDER_ID
U * SEQ_NBR
ALLOCATION
P * ID
F * FROM_INVENTORY_ID
F TO_INVENTORY_ID
F * ORDER_DTL_ID
F WAVE_ID
F INFO_FACILITY_ID
F INFO_COMPANY_ID
INVENTORY
P * ID
F * FACILITY_ID
ALLOCATION_RUN_DTL
P * ID
UF * RUN_HDR_ID
U * ORDER_DTL_ID
RUN_HDR_ID
WAVE_ID
ALLOCATION_RUN_HDR
P * ID
UF * FACILITY_ID
U * RUN_NBR
FACILITY
P * ID
U * CODE
UF * FACILITY_TYPE_ID
UF * PARENT_COMPANY_ID
COMPANY
P * ID
U * CODE
UF * PARENT_COMPANY_ID
UF * COMPANY_TYPE_ID