Configuring Batch Determination:

Applies to:
ECC 6.0 Batch Management Functionality

Summary
Purpose: Simplify Batch Management Concepts
This paper focuses on why batch management is important to each of the application areas such as Production Execution, Quality Management, and Inventory Management. If customer requests product with unique specifications than batch determination is also carried during sales order and delivery.

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Batch Management Overview

What is a Batch?
A batch is a sub-unit of a quantity of material that has been produced according to the same recipe, and represents one homogenous, non-reproducible unit with unique specifications. A batch is identified by a unique batch number.

Where is Batch Numbers used?
Batch numbers are used in many places in SAP for various reasons. Here are some examples:
- In Sales: For selecting specific batches that meet customer specifications
- In Goods Receipt/Quality inspection, or to move a quantity of materials received from the vendor in an inspection lot to unrestricted stock. If a few pieces in a lot are bad, then the whole lot may have to be returned/restricted.
- Warehouse Management: For identifying a stock of material posted to a bin
- Production: A batch of materials that has been produced that have the same specifications; they usually maintain a link to the batch of raw materials used to produce this material.

Why do we use batch numbers?
If we need to recall a batch of bad products that has been sold to customers, batch number is one way of identifying them. If we need to send back a batch of bad raw materials to vendor, we also trace them by batch numbers.

Batch Number Creation:
You can create a batch number manually or configure the system to assign an internal batch number. For automatic batch number creation, this can happen during goods receipt for a PO, or when a process order is created or released (for finished goods). In configuration you can specify if a batch is unique at material level, or plant level. If it is unique at plant level two different plants could have same batch number, pointing to a quantity of material at different locations. Normally if you have batches moving from one plant to another, you set the batch number to be unique at client level.

Batch Specifications:
Batch specification can be inherited from material specifications. You can create several classes for each of the applications that require specific characteristic values in a batch. These class groupings could be for finished goods specifications, for inspection of products, for process order results recording, for inspection results recording, for storage conditions in a warehouse. You could also create production resource groupings for classifying resources for the purpose of resource selection in production, or plant maintenance. You can configure class type for each. You can assign these classes to the material master. First try to use the existing characteristic in the system as far as possible unless the unit of measure or something is not suitable. Do not define any values when you create characteristics.
A Sample Exercise

We will walk through an example in beer manufacturing how classes and characteristics can be used in batch management. Here is an example for some characteristics created for Material class grouping called ZPPI_MAT; first we will create materials characteristics in the classification system such as PH, Alcohol percentage, color, body, density etc. that we want to use in a finished product specification:

Here are some characteristics that were created for Inspection grouping ZPPI_INS:
We created a Material class MATL_SPEC and assigned characteristics from both ZPPI_MAT and ZPPI_INS to this class:
Configuring Batch Determination:

Then you can assign this class to material master of the finished product. Notice the value ranges for percentage of alcohol, CO2 etc. You can create a batch class that inherits the characteristics from material master and you can further limit the value ranges. Here the Premium Corona product has lesser range for CO2, Alcohol percentage etc:
Individual batches will have single values:
Once you assign a batch to material, batch management is checked in several views of the material master (if it exists for that material), purchasing, sales general plant data, MRP2, Work Scheduling View, etc. Here are some views where batch info is required for batch management.
Configuring Batch Determination:

In MRP 2 view, you also specify how the batch is determined automatically or manually.

In work Scheduling:

...
The check "Batch rec. req." means that the batch has to be approved before final product received to storage.

In Plant/ Storage Data:
Here the "Appr. batch rec" indicates that the batch has to be approved before being issued to orders. You will have to implement appropriate workflow for approvals.
**Batch Selection Strategy**

You do not want to select batches by every characteristic in the batch class; you want to select by one or two important characteristics. So you create a batch selection class.

Suppose you create a batch selection class follows for selecting batches of premium beer:

Here you want to use only two criteria, Color_purity and Grade.

SAP already has default standard search strategy for process orders, inventory etc. They have standard condition tables, access sequence etc. These can be used as is.

You also specify the sort sequence in which you want to display results after batch selection.
Configuring Batch Determination:

You would then create a batch Strategy condition record COB1) for each type of batch search you want for each type of process control key where batch determination should happen:

You have to associate process control key that triggers the batch determination. This determines at which process stage batch determination happens. You do this COR4:
Then you link a batch search procedure to the process control key:
You can create your own search procedure by copying standard search procedure.

You modify the production scheduling profile for your order type to allow batch determination (CORY) as follows:
Assign this Schedule profile to the material master of the finished goods:
Configuring Batch Determination:

You can create your own batch determination procedure (OPLG) or use standard procedure in SAP. If you use standard procedure assign your selection class and sort sequence to the procedure. Set defaults for strategy type, both for both condition type CO01 and CO02 in configuration (OPLE). Assign the selection class and sort sequence you created:
### Change View "Strategy types (&1 &2)" Details

<table>
<thead>
<tr>
<th><strong>Selection</strong></th>
<th><strong>Batch split</strong></th>
<th><strong>Quantity/proposal</strong></th>
<th><strong>Presentation</strong></th>
</tr>
</thead>
<tbody>
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<td><strong>No. of splits</strong></td>
<td><strong>Display UoM</strong></td>
<td><strong>Screen number</strong></td>
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<td>2</td>
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<td><strong>Class</strong></td>
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<td><strong>Sort Sequence for premium selection</strong></td>
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<td><strong>Change allowed</strong></td>
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<tr>
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<td>CU00</td>
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</table>

**Application**: C00
**Condition type**: C001
**Access seq.**: C001
Create several batches that meet your selection criteria and do not meet your selection criteria.

We had two batches in the system for material 687, 00007, 00008 one met the criteria for premium beer, having color pale yellow, and other did not meet the criteria, was dark yellow.
Configuring Batch Determination:

**Display Batch**

- **Material**: 587
- **Batch**: 0600000008
- **Plant**: 0001

### Classification of Batch
- **Class**: PREMIUM
- **Class Type**: 023

### Values for Class PREMIUM - Object 687 0000000008

<table>
<thead>
<tr>
<th>Characteristic Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Percentage of Alcohol</td>
<td>3.50 % (V)</td>
</tr>
<tr>
<td>Beer Grade</td>
<td></td>
</tr>
<tr>
<td>Air Content</td>
<td>1.1 % (V)</td>
</tr>
<tr>
<td>Color Purity</td>
<td>Dark Yellow</td>
</tr>
<tr>
<td>Content of CO2</td>
<td>7.50 % (V)</td>
</tr>
<tr>
<td>Density</td>
<td>1.75 kg/m³</td>
</tr>
</tbody>
</table>

Inconsistant
But when we did batch determination for the process order it selected the correct batch:
Configuring Batch Determination:

This is just batch determination for process order. We have can have similar selection classes, search strategies, condition tables etc, for batch determination for goods issue to process order, inspection, sales order delivery, resource selection before process order release etc.
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