**Automatic Batch Determination Based on Shelf Life**

**Applies to:**
SAP ECC 6.0. For more information, visit the [Enterprise Resource Planning homepage](http).

**Summary**
This article illustrates how a batch is automatically determined while creating a delivery based on the shelf life of the material in the batch. This concept of batch determination is primarily useful in Pharmaceutical, Chemical and Food industries, where you want a batch closer to its expiration date to be delivered first. Besides you may also want to deliver only those products which have a remaining shelf life of a certain number of days after it is being delivered.

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Introduction

There are various materials that may no longer be used or sold after a certain time period. These products are normally assigned a shelf life expiration date (SLED). Now, if the product is to be delivered in batches, the system should automatically determine the batches appropriately during the delivery. This concept of batch determination is primarily used in industries involved in the manufacture of Pharmaceutical, Chemical and Food products. The following example clearly illustrates the business scenario where we can apply this concept of automatic batch determination.

Consider a Pharmaceutical Company which manufactures a product named as "Medicare". The business requirement is that the batches should be determined based on the following conditions.

(a) The batch delivered must have a shelf life of at least 50 days from the date of delivery.

(b) The batch which has an expiration date that is nearer should be delivered first and the batch which has already crossed its expiration date should not be picked up.

(c) If the quantity required by the customer exceeds the quantity of a batch, then the next batch should also be picked up in the similar manner, that is, it should have its expiration date nearer than the remaining batches.
Configuration in SAP

1. Import Standard SAP Characteristics

First and foremost you need to import all the important standard SAP characteristics, that is you need to copy them from the client 000. These characteristics are hard coded in the ABAP functions.

Transaction – BMSM

Maintain Standard Features

Copy Standard Characteristics LOBM_VFDAT from Client 000

Standard characteristics successfully copied from client 000

Maintaining Standard Characteristics with Object Dependencies

Variant function ‘SL.UTC_COMPUTE’ was generated - status: ‘Released’
Object dependency ‘SL.UTC_COMPUTE’ has been updated - Status: ‘Released’
Assignment char. ‘LOBM_VFDAT’ <> obj. depend. ‘SL.UTC_COMPUTE’ successful

2. Creation of a Class

Then, create a class named as “CLASS_EXPIRYDATE” of Class type “Batch (023)” and assign a standard SAP Characteristics “LOBM_VFDAT – Expiration date, shelf life” to this class.

This characteristic enables SAP to ask for the production date whenever a goods receipt for a material is done. Then the system automatically calculates the expiration date of the batch based on the shelf life of the product entered in the material master.

Transaction – CL01
3. **Material Master Settings**

The next step is to maintain the class created under the ‘Classification’ tab in the material master. 
Transaction – MM01

The next step is to maintain the class created under the ‘Classification’ tab in the material master. 
Transaction – MM01

### Classification

<table>
<thead>
<tr>
<th>Material</th>
<th>Medicare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Class Type</td>
<td>Batch</td>
</tr>
</tbody>
</table>

### Assignments

<table>
<thead>
<tr>
<th>Class</th>
<th>Description</th>
<th>Sta</th>
<th>1</th>
<th>10</th>
</tr>
</thead>
<tbody>
<tr>
<td>CLASS_EXPIRDATE1</td>
<td>Class for expiration date of “Medicare”</td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

### Values for Class CLASS_EXPIRDATE1 - Object 0000000000000005

<table>
<thead>
<tr>
<th>Characteristic Description</th>
<th>Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>Expiration date, shelf life</td>
<td></td>
</tr>
</tbody>
</table>

Besides to enable the material to be maintained in batches, you also need to check “Batch Management” under the “Sales/General Plant’ tab in the material master. 
Transaction – MM01

### Create Material 00000000000000005 (Finished Product)

<table>
<thead>
<tr>
<th>Material</th>
<th>Medicare</th>
</tr>
</thead>
<tbody>
<tr>
<td>Plant</td>
<td>Werk 0001</td>
</tr>
</tbody>
</table>

You also need to maintain two most important fields under the tab ‘Plant data/storage. 1’.
a. Total Shelf Life - Period for which the material will keep in total, that is, from the date of production to the shelf life expiration date.

b. Min. Rem. Shelf Life - Minimum amount of time for which the material must be kept upon goods receipt for the goods receipt to be accepted by the system.
4. **Goods Receipt**

The next step is to do Good Receipt for the material in different batches each with a different production date. An example for Batch ‘0000000015’ is shown below.

**Transaction – MB1C**

![Image of MB1C transaction](image)

**Enter Other Goods Receipts: Details 0002 / 0002**

- **Movement Type**: 591 Receipt w/o PO
- **Material**: 0000000015
- **Plant**: 0661
- **Stor. Loc.**: 0091
- **Batch**: 0000000015
- **Account Assignment**
  - **G/L Account**: 893010
  - **Goods recipient**: [Redacted]
  - **Manuf. Date/BBD**: 15.11.2009
  - **SLED (Populated automatically by SAP)**
  - **Manufacturing Date**: 23.02.2016

As soon as the date of manufacture is entered, the system automatically calculates the Shelf Life Exp. Date.

**SLED = Production Date + Total Shelf Life**  (= 100 from Material Master)
The value of the characteristics “LOBM_VFDAT – Expiration date, shelf life” under the ‘Classification’ tab of the batch also gets updated automatically with the SLED. 

**Transaction – MSC3N**

**5. Creation of multiple Batches**

Similarly, create five other batches for the same material with different production dates as per the requirement. All the batches that were created in SAP with their production date and SLED are tabulated below.

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Date of Manufacture</th>
<th>Self Life Exp. Date (calculated automatically by SAP)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000000015</td>
<td>15.11.2009</td>
<td>23.02.2010</td>
</tr>
<tr>
<td>0000000016</td>
<td>15.12.2009</td>
<td>25.03.2010</td>
</tr>
<tr>
<td>0000000017</td>
<td>20.12.2009</td>
<td>30.03.2010</td>
</tr>
<tr>
<td>0000000018</td>
<td>01.01.2010</td>
<td>11.04.2010</td>
</tr>
<tr>
<td>0000000019</td>
<td>05.01.2010</td>
<td>15.04.2010</td>
</tr>
</tbody>
</table>
6. **Creation of a Search Class**

Now a second class (‘CLASS_SEARCH’) needs to be created which will be used to search and find applicable batches during batch determination. This class is not assigned directly to the product but to the batch search strategy of the product. You primarily need to assign three characteristics to this class.

(a) **LOBM-VFDAT**: The expiration date of the batch which is automatically updated by SAP as stated above.

(b) **LOBM-LFDAT**: The delivery date which is automatically updated by SAP from delivery during batch determination.

(c) **LOBM_RLZ**: Remaining Shelf Life for Batch. You use this characteristic to enter the required remaining shelf life in days that a batch must be usable after delivery to your customer.

For example, if you want that your product’s expiration date should be at least 50 days away from the delivery date, then the value of the characteristics LOBM_RLZ should be greater than or equal to 50.

**Transaction – CL01**
7. **Creation of a Sort Rule**

The next step is to create a sort rule which tells the system to sort the batches based on the expiration date in ascending order (the batches with the date closest to the present should be the first to go).

**Transaction – CU70**

<table>
<thead>
<tr>
<th>Sort sequence</th>
<th>Edit</th>
<th>Goto</th>
<th>Extras</th>
<th>Environment</th>
<th>System</th>
<th>Help</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

**Create Sort sequence: Basic Data**

**Characteristics**

<table>
<thead>
<tr>
<th>Sort sequence</th>
<th>Sort by date of expiration</th>
</tr>
</thead>
<tbody>
<tr>
<td>SORT_EXPIRATION</td>
<td></td>
</tr>
</tbody>
</table>

**Basic data**

<table>
<thead>
<tr>
<th>Status</th>
<th>Group</th>
<th>Valid from</th>
</tr>
</thead>
<tbody>
<tr>
<td>Released</td>
<td></td>
<td>20.01.2010</td>
</tr>
</tbody>
</table>

**Authorizations**

Maintain sort seq. [ ]

Click on the characteristics button and assign the characteristic LOBM-VFDAT to it. Also select the Ascending Check box to sort in ascending order.

**Create Sort sequence: Characteristics**

<table>
<thead>
<tr>
<th>Characteristic</th>
<th>Description</th>
<th>Ascending</th>
<th>Descend</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOBM_VFDAT</td>
<td>Expiration date, shelf life</td>
<td>[ ]</td>
<td>[ ]</td>
</tr>
</tbody>
</table>
8. **Creation of a Batch Search Strategy**

Next you have to create a batch search strategy which will be called during delivery processing. A strategy type based on Customer/Material is used here.

Transaction – VCH1

![Image of Create Batch Search Strategy: Initial Screen]

- **Strategy type**: SD01, **Customer/Material**

![Image of Create Customer/Material (SD01) : Fast Entry]

- **Customer**: 3
- **Valid From**: 25.01.2010
- **Valid To**: 31.12.9999

**Customer/Material**

- **Material**: 000000000000000001, **Description**: Dicare
- **Ch, Dial, Di, C, Ove, Se, So, D**: [Blank]

![Image of Create Customer/Material (SD01) : Fast Entry with additional details]
Then, click on the “Selection Criteria” button to assign the search class previously created. In our case “CLASS_SEARCH” was assigned.

All the three characteristics assigned to the class also get copied although the characteristic LOBM_LFDAT is hidden. These characteristics can be seen by clicking on the icon of hidden characteristics.

Here you also assign the value of the characteristic LOBM_RLZ ( “Remaining Shelf Life for Batch” ). Since we want the system to select only those batches for which the expiration date is at least 50 days away from the delivery date, the value of this characteristics is assigned as >=50.
Now you assign the sort rule we created in the previous step by clicking the SORT button on the previous screen.

The batch strategy is then saved. All the settings required for batch determination are now complete.
Testing

1. **Sales Order**

   Now we create a Sales Order in order to see how it works.

   Total Quantity of Material entered in the Sales Order – 250.

   Required Delivery Date – 21.01.2010.

   Transaction – VA01
2. Delivery

Before creating the delivery let us predict which batches should be picked up according to the configuration done.

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Available Quantity</th>
<th>Shelf Life Exp. Date (SLED)</th>
<th>Delivery Date</th>
<th>Remaining Shelf Life (SLED – Delivery Date)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000000014</td>
<td>100</td>
<td>24.12.2009</td>
<td>21.01.2010</td>
<td>- 27 (expired)</td>
</tr>
<tr>
<td>0000000015</td>
<td>100</td>
<td>23.02.2010</td>
<td>21.01.2010</td>
<td>+ 32 days</td>
</tr>
<tr>
<td>0000000016</td>
<td>100</td>
<td>25.03.2010</td>
<td>21.01.2010</td>
<td>+62 days</td>
</tr>
<tr>
<td>0000000017</td>
<td>100</td>
<td>30.03.2010</td>
<td>21.01.2010</td>
<td>+ 67 days</td>
</tr>
<tr>
<td>0000000018</td>
<td>100</td>
<td>11.04.2010</td>
<td>21.01.2010</td>
<td>+79 days</td>
</tr>
<tr>
<td>0000000019</td>
<td>100</td>
<td>15.04.2010</td>
<td>21.01.2010</td>
<td>+ 83 days</td>
</tr>
</tbody>
</table>

a. According to our requirement which says that only those batches which have a Remaining Shelf Life greater than 50 days should be picked up, only batch numbers 16, 17, 18 and 19 are relevant.

b. Besides, the quantity we need to deliver is only 250. Therefore we want that the batches with closer expiration date but satisfying the above criteria should be the first to go.

Hence, following should be the ideal selection.

<table>
<thead>
<tr>
<th>Batch Number</th>
<th>Delivered Quantity</th>
<th>Shelf Life Exp. Date (SLED)</th>
</tr>
</thead>
<tbody>
<tr>
<td>0000000016</td>
<td>100</td>
<td>25.03.2010</td>
</tr>
<tr>
<td>0000000017</td>
<td>100</td>
<td>30.03.2010</td>
</tr>
<tr>
<td>0000000018</td>
<td>50</td>
<td>11.04.2010</td>
</tr>
</tbody>
</table>
Now let us how is the batch determination done by SAP during delivery.

Transaction – VL01

Hence, we find that the batch determination is carried out exactly as per our requirement.

Only batches 16, 17 and 18 are picked up with quantities 100, 100 and 50 respectively.

Click on the batch determination button at the bottom to see the selection criteria used by SAP to determine the batches.
Click on the button ‘Selection Criteria’ to see the selection criteria used by SAP.

Click on the button ‘Strategy Info…’
3. **Billing**

Batch Split from the delivery is carried forward to billing.

The pricing is carried out at the batch level as shown below.
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