Welcome to the course on the Serial/Batch Valuation Method. This functionality is available in all localizations beginning in 9.1.
Objectives

At the end of this topic, you will be able to:

- Define the settings for serial/batch valuation
- Track costs using the serial/batch valuation method

After completing this topic, you will be able to:

- Define the settings for serial/batch valuation
- Track costs using the serial/batch valuation method
In this course we introduce the serial/batch valuation method.

Previously we had three valuation methods in SAP Business One: average cost, FIFO (first in, first out) and standard costs. Now we have a new valuation method available for managing costs for serial numbered and batch-managed items. This method allows us to manage the cost of an item at the serial or batch number level.

There are two main benefits to this valuation method. The cost used for an item in outbound transactions is the actual inbound cost of that specific serial number or batch. This means that profitability can be calculated for a specific serial number or an individual item in a particular batch.

We will look at two business examples that show the advantages of using this new valuation method.
Business Example #1 Manufactured Batches

OC Chocolates produces several lines of chocolate treats.

Managing costs for batches is important in their business because the cost of ingredients and labor in producing the chocolates can vary altering the profit for each chocolate batch.

The first business example shows how the serial/batch valuation method improves costing and reporting on profitability for manufactured branches.

In this example, we look at the company OC Chocolates that produces several lines of chocolate treats.

Managing costs for batches is important in their business because the cost of ingredients and labor in producing the chocolates can vary altering the profit for each chocolate batch.
OC Chocolates manages the process of manufacturing chocolate truffles in-house with production orders. Each item is listed with a quantity to produce. Ingredients for the chocolate are received from inventory into the production order and the costs are tracked in the production order. Additionally, they track labor costs in the production order as well.

When the chocolate truffles are received from production into inventory, they are received as a batch. Because of the valuation method, the actual costs are tracked for that batch. The total cost of the batch is equal to the costs of production. The value of each individual chocolate truffle is the total cost of the batch divided by the number of items in the batch.

The chocolate truffles are sold to the retail outlets. When the delivery occurs, the actual cost from the receipt from production is used as the cost of sale. This allows OC Chocolates to track the profitability of each batch based on the actual cost of producing the item.
The second business example shows how the serial/batch valuation method helps manage costs and track profitability for a business that buys and resells serial numbered items.

OEC Computers makes and resells electronics. Many of their products are serialized.

When they buy the products, they immediately begin tracking them by serial number.

The cost of each piece of equipment is tracked from the moment it enters the warehouse, through the sale to the customer and any after-sales support. Therefore, OEC can easily track the gross profit for each piece of equipment they sell.
OEC Computers begins the process by purchasing electronics on purchase orders. The items are assigned serial numbers when they are received on a goods receipt PO and the individual cost is tracked for each serial number by using the serial/batch valuation method. Each serial number is automatically assigned the cost from the goods receipt PO.

Since OEC Computers buys some of their serial numbered items from foreign suppliers, a landed costs document is used to track additional costs for customs and freight charges. The landed costs document is based on the goods receipt PO which contains the serial numbered items. The landed costs are automatically added onto the cost of each individual serial number.

When the items are shipped to customers, the cost used on the delivery document is the actual inbound cost of the specific serial numbers sold. Therefore profitability can be calculated for a specific serial number.
There are two required settings at the company level.

Just as with all other valuation methods, you must be using perpetual inventory to use the serial/batch valuation method.

In addition to the required settings, you also have the option of setting the Serial/Batch Valuation Method as the default for all batch-managed and serial numbered items. This is not required, but if you are planning on using this valuation method for all your serial and batch items, it will make the creation of these items simpler because you will not have to choose a valuation method at that point.

All these settings are found on the Basic Initialization tab of the Company Details window. The menu path is shown on the graphic.
To use the Serial/Batch Valuation Method, the item master needs the following settings:

- Set the item to be managed by serial numbers or batches
- The management method *On Every Transaction* is set for the item
- Choose the *Serial/Batch* valuation method on the *Inventory* tab.

As always, you need set an item as serial number or batch managed at the item level. This is done on the *General* tab.

If you have selected the *Serial/Batch Valuation* Method as the default for managing serial and batch cost at the company level, then the management method will automatically be set to *On Every Transaction*. This cannot be changed to *On Release Only* when the valuation method is set to Serial/Batch.

If you have not selected the Serial/Batch Valuation Method as the default at the company level, then you will need to choose the Serial/Batch valuation method on each individual item. This is done on the *Inventory* tab of the item master.

Remember that it is always possible to change the valuation method for an item as long as the item has no quantity in stock and is not linked to any open document.
Once you choose to manage costs and profitability for individual serial numbers or batches, you need to decide whether to set the Serial/Batch valuation method as the default at the company level or make the setting on each individual item.

Here are some considerations:
In your system, do all serial and batch items need to be managed by this method? If there are no exceptions, then the logical choice is the Company level.
Perhaps most but not all your serial or batch items will use this method. If you prefer to set the SN/Batch valuation method as the default and manage exceptions at the item level, then the Company Level is still the preferred choice.
However, if you have fewer serial or batch items managed by this method than other valuation methods, then it is best to make the setting on each individual item.

Unlike other valuation methods, you cannot set this method as the default at the item group level because item groups could contain items that are neither serial numbered or batch-managed.
Special Setting for Batches

To ensure that each batch has only one price and not various prices from multiple receipts, you can select the checkbox:

* Block Multiple Receipts for Same Batch

This setting can be made at the company level or item level.

If the same batch is received multiple times, calculating the price for the batch then becomes much more complicated. To ensure that each batch has only one price, you can select the checkbox to block multiple receipts for the same batch. Then the system will require you use a different batch number for each receipt.

This setting can be made both at the company level and the item level. At the company level, the checkbox is found under the Inventory tab in the General Settings. On the item master, the checkbox will appear if you have chosen the item to be batch-managed.

You can make this setting on the item regardless of whether multiple receipts are blocked at the company level. Additionally, you can change the setting at any time, even if a batch item had already had multiple receipts.
Let us look at the effect of allowing multiple receipts of the same batch. If you decide to allow multiple receipts for a batch, then the cost basis for the batch will be revaluated automatically if more items are received for the same batch with a different price.

Here we see an example of what happens when you receive two shipments with the same batch number. The first shipment is on GRPO 1 and has a quantity of 10. The total value of the GRPO is 100, so the cost per item is 10.

Later a shipment is received on GRPO 2 with another 10, but this time the total value of the GRPO is 300, so the cost per item is 30.

As expected when the batch is created with the first GRPO, we see a batch quantity of 10 with a cost per unit of 10 and the total cost for the batch is 100.

When the second GRPO is received, the quantity of the batch is increased from 10 to 20. Since the second 10 are received as another shipment of the same batch with a different per unit cost, this triggers a cost recalculation. The total receipt value of the first shipment (100) is added together with the total receipt value of the second shipment (300) for a total receipt value of 400. This sum is divided by the total quantity of the two shipments. In this case the first quantity 10 is added to the second quantity 10 for a total of 20. 400 divided by 20 gives us a cost per unit basis of 20.
This type of calculation is done only if you allow receipt of multiple receipts for the same batch. Serial numbers are never handled this way because the assumption is that a serial number is unique. Therefore if a serial number is received a second time, the serial number takes the cost price of the second receipt.
New Costing Report for SN/Batch

The Batches and Serials Inventory Audit Report shows the batches or serial numbers for an item along with the current cost for each.

<table>
<thead>
<tr>
<th>Item No</th>
<th>Batch</th>
<th>Current Cost</th>
<th>Date</th>
<th>Doc.</th>
<th>Quantity</th>
<th>Trans Cost</th>
<th>Trans Value</th>
</tr>
</thead>
<tbody>
<tr>
<td>▼ A111</td>
<td>▼ 101</td>
<td>2.50</td>
<td>5.5.14</td>
<td>SI 1</td>
<td>100</td>
<td>2.50</td>
<td>250</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>6.5.14</td>
<td>DN 1</td>
<td>50</td>
<td>2.50</td>
<td>-125</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>8.5.14</td>
<td>RE1</td>
<td>20</td>
<td>2.50</td>
<td>50</td>
</tr>
<tr>
<td>▼ 102</td>
<td>2.60</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>▼ 103</td>
<td>3.00</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

There is a new costing report for serial numbers and batches: the Batches and Serials Inventory Audit Report.

You can view the batches and serial numbers in a list view or in a hierarchical view (as shown in the graphic).

The report shows the batches or serial numbers for an item along with the current cost for each. The report shows each transaction that contained the batch or item along with the date of the transaction, the cost of the item on the transaction and the total value for each item or batch on the transaction.

Here we see a report with two batch-managed items in the hierarchical view. The first item has been opened to show the three existing batches for that item and the current cost of items within each batch. The first batch (101) has been opened further to see the transactions that included that batch. The first transaction was a receipt from production for a batch of 100. The next date a delivery was made for a quantity of 50 from this batch. A few days later 20 were returned.

Several other fields are also available in this report, including but not limited to: item description, warehouse, attributes for the batch/serial number, expiration date, posting dates, document row, currency, G/L account.
A Costs field has been included on all Serial/Batch windows, including the Details window for both serial numbers and batches and the Management – Update windows for both serial numbers and batches.
Revaluation

*Inventory > Inventory Transactions*  
* > *Inventory Revaluation*

- Process is similar to revaluating FIFO items
- Two revaluation types: *Price Change* and *Inventory Debit/Credit*
- Options to filter based on admission date range, expiration date range, batch or SN.
- Additionally SNs can be filtered by lot no., system no., and mfr. SN.
- Choose to display issued SNs or batches.

It is now possible to reevaluate items using the serial/batch valuation method in the inventory revaluation transaction. The process is similar to that used for FIFO items.

You can revaluate the items by both revaluation types: *Price Change* and *Inventory Debit/Credit*.

You choose the item, then you can add filters to narrow the selection for that item. You can filter batches and serial numbers by admission date and expiration date. For serialized items, you can filter by serial number, lot number, system number and manufacturer serial number. You can choose whether to display serial numbers and batches that are issued.

Once the serial numbers and batches are chosen you can enter the new cost or a debit or credit, depending on the revaluation type you have chosen.
We will take a look at an example of how costs are calculated with the SN/Batch Valuation Method.
Five tablets (Item # T100) are received from the vendor on a Goods Receipt PO totaling 500.

Each tablet receives a serial number and the cost for each is recorded.

<table>
<thead>
<tr>
<th>SN#</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10001</td>
<td>100</td>
</tr>
<tr>
<td>10002</td>
<td>100</td>
</tr>
<tr>
<td>10003</td>
<td>100</td>
</tr>
<tr>
<td>10004</td>
<td>100</td>
</tr>
<tr>
<td>10005</td>
<td>100</td>
</tr>
</tbody>
</table>

The total for the goods receipt PO is 500. The journal entry shows a debit of 500 to inventory and a credit of 500 to an allocation account.

The cost of 100 is assigned to each serial number.
The vendor is located overseas so we create a landed costs document to track the customs, freight and insurance costs.

Total landed costs are 50 and costs are divided equally.

Therefore the cost of each SN increases by 10 to 110.

<table>
<thead>
<tr>
<th>SN#</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10001</td>
<td>110</td>
</tr>
<tr>
<td>10002</td>
<td>110</td>
</tr>
<tr>
<td>10003</td>
<td>110</td>
</tr>
<tr>
<td>10004</td>
<td>110</td>
</tr>
<tr>
<td>10005</td>
<td>110</td>
</tr>
</tbody>
</table>

The journal entry shows a debit of 50 to the inventory and a credit of 50 to an allocation account.

A cost difference of 10 is added for a total cost of 110 for each serial number.
A customer purchases two of the tablets in stock.

We ship SN 10001 and SN 10002.

Both have a cost of 110. The price charged to the customer is irrelevant.

<table>
<thead>
<tr>
<th>SN#</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10001</td>
<td>110</td>
</tr>
<tr>
<td>10002</td>
<td>110</td>
</tr>
</tbody>
</table>

The journal entry for the delivery document shows a debit of 220 to the cost of goods sold and a credit to inventory of 220.

Each tablet is priced at 250. However, the price of the item charged to the customer is not relevant to the cost.
We have sold and shipped 2 tablets.

Three of the tablets remain in stock. Each has a cost of 110.

The total value of the inventory in stock is now 330.
A/R Return

One tablet is damaged in transit. The customer returns it. SN 10001 is returned to stock.

### Journal Entry Details

<table>
<thead>
<tr>
<th>JE Debit</th>
<th>JE Credit</th>
</tr>
</thead>
<tbody>
<tr>
<td>Inventory 110</td>
<td>COGS 110</td>
</tr>
</tbody>
</table>

One tablet is damaged in transit, so the customer returns it.

SN 10001 is returned to stock when it is received.

The journal entry for the A/R return shows a debit to inventory of 110 for the item and credits the cost of goods sold account for 110.
An A/R Invoice is created for the one tablet the customer kept. Choose the Gross Profit icon to view the percentage of profit. The cost of the item is subtracted from the sales price to determine the gross profit. Then the percentage of the gross profit to the cost is calculated.

### Gross Profit of Outgoing Invoice

<table>
<thead>
<tr>
<th>Item</th>
<th>Base Price</th>
<th>Base Total</th>
<th>Sales Price</th>
<th>Qty</th>
<th>Gross Profit</th>
<th>Gross Profit %</th>
</tr>
</thead>
<tbody>
<tr>
<td>1</td>
<td>T100</td>
<td>110</td>
<td>275</td>
<td>1</td>
<td>165</td>
<td>150</td>
</tr>
</tbody>
</table>

An A/R Invoice is created for the one tablet the customer kept. Choose the Gross Profit icon to view the percentage of profit. The cost of the item is subtracted from the sales price to determine the gross profit. Then the percentage of the gross profit to the cost is calculated.
Revaluation

The serial number that was returned with damage is not worth its original value. After inspecting the item, the value of the item is judged to be reduced by 35 from its previous value of 110.

Therefore, we perform revaluation to have the serial number’s cost reflect this loss.

We reduce the cost of SN 10001 from 110 to 75.

The journal entry details from the revaluation record a debit to the Stock Variance account for 35 and a credit to the Inventory account value of 35.
Inventory Total Value

Inventory for Item T100

<table>
<thead>
<tr>
<th>SN#</th>
<th>Cost</th>
</tr>
</thead>
<tbody>
<tr>
<td>10001</td>
<td>75</td>
</tr>
<tr>
<td>10003</td>
<td>110</td>
</tr>
<tr>
<td>10004</td>
<td>110</td>
</tr>
<tr>
<td>10005</td>
<td>110</td>
</tr>
</tbody>
</table>

Total 405  

We can see each serial number’s value on the Batches and Serial Inventory Audit Report.

The total value of the items in inventory for tablet item is based on the cost value from each of the 4 serial numbers in stock. Here we see that the total value is now 405.

The individual serial number’s costs can be viewed in a number of reports. The Batches and Serial Inventory Audit report is excellent for viewing these cost details by serial number or batch.

If you would like to see the total value of the inventory for the item (at the item level rather than the value at the batch or SN level) then run the Inventory Audit report.

The Inventory Aging Report can also show you the individual value of each of the serial numbers in stock, along with a total value for the total quantity of the item. This report will also show a breakout of value by batch for batch-managed items. You can set this report to show all the current stock broken out by how long the items have been in stock.
When using perpetual inventory you can choose among 4 valuation methods: Moving Average, FIFO (first in first out), standard costs and the Serial/Batch Valuation Method as of release 9.1.

The Serial/Batch valuation method tracks the cost of an item at the serial or batch number level.

Using this method, the cost recorded in outbound transactions is for that specific serial number or batch. Therefore, profitability can be calculated for a specific serial number or individual item in a batch.

The method can be set as a default at the company level. The method can be set at the item if none of this item is in stock or on open documents.

Items using this valuation method are tracked on every transaction.

To ensure that each batch has only one price, you can select the checkbox to block multiple receipts for the same batch.

The Batches and Serial Inventory Audit report is excellent for viewing cost details by serial number or batch.
For more information on topics discussed in this lesson, see the following references:

- 9.0 How-To Guide: How to Set up and Use Serial/Batch Valuation Method

For more information on topics discussed in this lesson, see the How-To Guide on how to set up and use the serial/batch valuation method. This how-to guide was originally issued in English for release 9.0 for the Russian localization.
Thank you

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