

Microsoft Dynamics® AX 2009

Cost Management in Microsoft Dynamics AX 2009

White Paper

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Introduction

Microsoft Dynamics AX 2009 allows a very flexible configuration of the Inventory management, Production, Accounts payable, Accounts receivable, and Master planning modules, which all indirectly affect cost management. Partners and customers can configure the parameters in these modules to suit their specific requirements, using the flexibility of Microsoft Dynamics AX 2009 to adjust the application to the specific business, customer or organization needs. This flexibility does come at a certain cost with regards to complexity, however, as the various parameter settings may result in many potentially complex cost management scenarios.

The purpose of this white paper is to provide insight to cost management in Microsoft Dynamics AX 2009 and to provide a better understanding of the consequences of some of the choices that have been made in the implementation and set up of Microsoft Dynamics AX 2009 for cost management.

This white paper is not intended to be a setup or configuration guide for Microsoft Dynamics AX 2009.

Inventory evaluation methods

Microsoft Dynamics AX 2009 supports the following inventory evaluation methods:

- Standard costing
- Normal costing

The main inventory recording principle in Microsoft Dynamics AX 2009 is periodic when costing by the Normal costing. This means that a periodic calculation of the inventory value must be conducted in order to assess actual costs.

In Microsoft Dynamics AX 2009, the periodic calculation of the inventory value, often referred to as the "inventory close job", is run from the **Close Inventory** form, found in **Inventory management > Periodic > Closing and adjustment**.

For a given inventory period, Microsoft Dynamics AX 2009 will use an estimated cost when posting inventory outflow (issues). The estimated cost is updated per single transaction (record) to the **InventTrans** table and can best be described as a running average cost.

The estimated cost can include or exclude physical transactions in the **InventTrans** table based on the parameter **Include physical value** that you can access by clicking **Inventory management > Setup > Inventory > Inventory model groups**.

The estimated cost will be adjusted by settlement transactions to the actual of the cost flow assumption by the inventory close job at end of the period.

Microsoft Dynamics AX 2009 supports the following evaluation methods of inventory:

- Standard cost
- Normal costing
 - Inventory recording principle
 - Periodic
 - Cost flow assumption
 - Weighted average
 - Weighted average, date
 - FIFO (Perpetual)
 - LIFO (Perpetual)

- LIFO, date

Full absorption costing was introduced in Microsoft Dynamics AX 2009. Full absorption costing allows you to specify a cost rate or surcharge rate at which manufacturing overhead should be absorbed during the production of finish goods.

Note: Standard cost and all cost flow assumptions under Normal costing supports full absorption costing. Only Standard cost supports the capability of reporting the inventory balance divided into material, labor, and overhead.

Standard cost

The standard cost evaluation method is not detailed in this white paper.

Weighted average

The weighted average cost flow assumption is an inventory model based on the weighted average principle, where issues from inventory are valued at the average cost of the quantities received into inventory during the inventory closing period, plus any on-hand inventory from the previous period.

When you run an inventory close, all receipts are settled against a virtual issue, which holds the total received quantity and value. This virtual issue has a corresponding virtual receipt from which the issues are settled. In this way, all issues get the same average cost. The virtual issue and receipt can be seen as a virtual transfer, called the weighted average inventory closing transfer.

If there is only one receipt, all issues can be settled from it, and the virtual transfer will not be created.

We recommend running a monthly inventory close is when costing by cost flow assumption weighted average.

In Microsoft Dynamics AX 2009, the cost flow assumption weighted average is calculated by the following formula:

$$\text{Weighted average} = (Q_1 * P_1 + Q_2 * P_2 + Q_n * P_n) / (Q_1 + Q_2 + Q_n)$$

Where Q_1 denotes the quantity of item transaction 1, and P_1 denotes the price of item transaction 1, Q_2 denotes the quantity of item transaction 2, and P_2 denotes the price of item transaction 2, up to the n^{th} transaction for the same item.

Inventory transactions leaving the inventory (issues) including sales orders, inventory journals, purchase credit notes, and production orders, will take place at an estimated cost price on the date of posting. This estimated cost price is also referred to as running average.

At the time of inventory close, Microsoft Dynamics AX 2009 will analyze the inventory transactions for previous and current periods and determine which of the following two closing principles should be used:

- Direct settlement
- Summarized settlement

Settlements are inventory close postings that adjust the issues to the correct weighted average as of the closing date.

The Include physical value parameter

In Microsoft Dynamics AX 2009, the parameter **Include physical value** works differently with the weighted average inventory model than in earlier versions of Dynamics AX.

If the **Include physical value** check box is selected for an item in the **Inventory model group** form, the application will use physically updated receipts when calculating the estimated cost price (the running average). Issues will be posted based on this estimated cost price during the period. During the inventory close, only financially updated receipts will be considered in the weighted average calculation.

If the **Include physical value** check box is cleared for an item in the **Inventory model group** form, the application will not consider physically updated receipts when calculating the estimated cost price (the running average).

The following examples illustrate the impact of using weighted average with two different closing principles:

- Weighted average and the direct settlement closing principle
- Weighted average and the summarized settlement closing principle

For both the examples, the **Include physical value** check box is cleared.

Example 1: Weighted average, direct settlement closing principle

The direct settlement principle that is used in Microsoft Dynamics AX 2009 is the same direct settlement principle that is used for weighted average in earlier versions of Microsoft Dynamics AX. The application will settle directly between receipts and issues. Microsoft Dynamics AX 2009 uses this direct settlement principle in specific situations:

- One receipt and one or several issues have been posted in the period
- Only issues have been posted in the period, and the inventory contains on-hand items from a previous closing

In the following scenario, a financially updated receipt and issue have been posted. During inventory close, Microsoft Dynamics AX 2009 will settle the receipt directly against the issue, and no adjustment to the cost price is needed on the issue.

The following transactions are illustrated in Diagram 1:

- 1a. Inventory physical receipt updated for a quantity of 5 at USD 10.00 each
- 1b. Inventory financial receipt updated for a quantity of 5 at USD 10.00 each
- 2a. Inventory physical issue updated for a quantity of 2 at USD 10.00 each
- 2b. Inventory financial issue updated for a quantity of 2 at USD 10.00 each
- 3 Inventory close is performed by using the direct settlement method to settle the inventory financial receipt to the inventory financial issue.

The following diagram illustrates this series of transactions with the effects of choosing the Weighted average inventory model and the direct settlement principle without the **Include physical value** option.

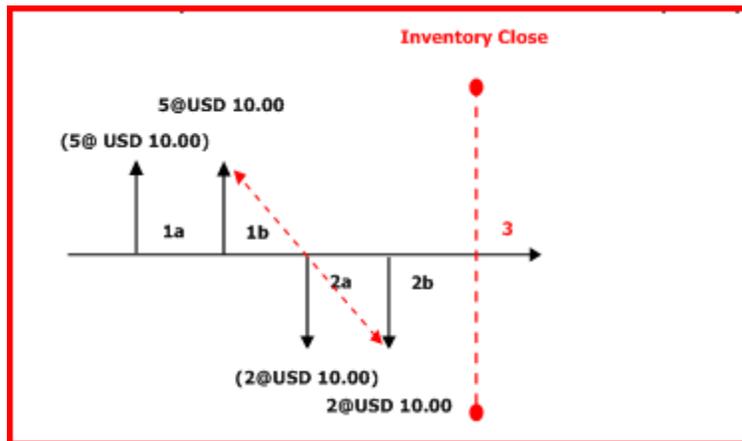


Diagram 1 Weighted average, direct settlement without the Include physical value parameter

Key to Diagram 1

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Example 2: Weighted average, summarized settlement closing principle

In Microsoft Dynamics AX 2009, a new settlement principle was introduced for weighted average based on the principle that all receipts within a closing period are summarized into a new inventory transfer transaction called weighted average inventory closing.

All of the receipts for the period will be settled against the issue of the newly created inventory transfer transaction. All of the issues for the period will be settled against the receipt of the new inventory transfer transaction.

If the on-hand inventory is positive after the inventory close, that on-hand inventory and value of the inventory are summarized on the new inventory transfer transaction (receipt).

If the inventory on-hand is negative after the inventory close, the on-hand inventory and value of the inventory is the sum of individual issues that have not been fully settled.

In the following scenario, several financially updated receipts and one issue have been posted.

During inventory close, Microsoft Dynamics AX 2009 will generate and post the summarized inventory transfer transaction in order to settle all of the receipts for the period against the summarized inventory transfer issue transaction. All of the issues posted for the period will be settled against the summarized inventory transfer receipt transaction. The weighted average is calculated to be USD 15.00.

Because the issue was originally posted with an estimated cost price of USD 14.67, an adjustment of negative USD 0.33 will be created and posted on the issue. As of the inventory closing date, the on-hand inventory is 3 pieces with a value of USD 45.00.

The following transactions are illustrated in Diagram 2:

- 1a. Inventory physical receipt updated for a quantity of 2 at a cost of USD 11.00 each.
- 1b. Inventory financial receipt updated for a quantity of 2 at a cost of USD 14.00 each.
- 2a. Inventory physical receipt updated for a quantity of 1 at a cost of USD 12.00 each.
- 2b. Inventory financial receipt updated for a quantity of 1 at a cost of USD 16.00 each.
- 3a. Inventory physical issue updated for a quantity of 1 at a cost of USD 14.67 each (running average).
- 3b. Inventory financial issue updated for a quantity of 1 at a cost of USD 14.67 each (running average).
- 4a. Inventory physical receipt updated for a quantity of 1 at a cost of USD 14.00 each.
- 4b. Inventory financial receipt updated for a quantity of 1 at a cost of USD 16.00 each.
- 5. Inventory close is performed.
- 6a. "Weighted average inventory close transaction" financial issue is created to sum the settlements of all the inventory financial receipts.
- 6b. "Weighted average inventory close transaction" financial receipt is created as the offset to 5a.

The following diagram illustrates this series of transactions with the effects of choosing the Weighted average inventory model and the summarized settlement principle without the **Include physical value** option.

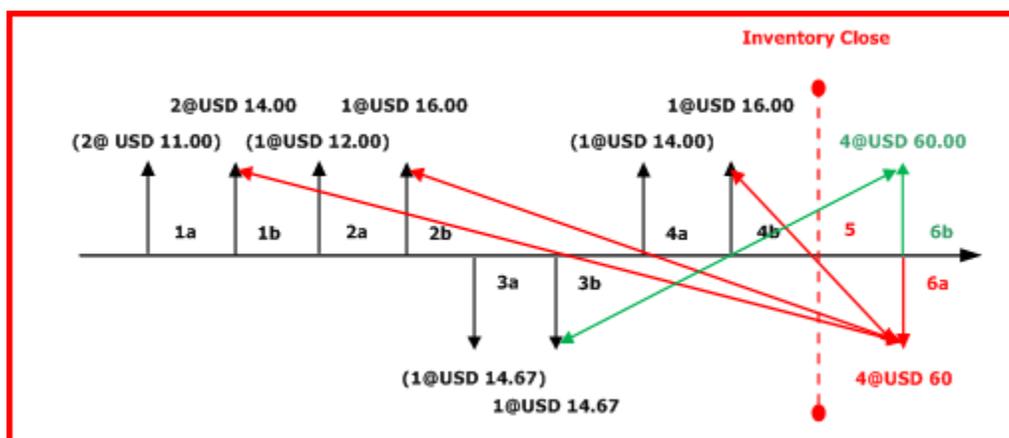


Diagram 2 Weighted average, summarized settlement without the Include physical value parameter

Key to Diagram 2

- Inventory transactions are represented by vertical arrows.

- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.
- Red arrows illustrate the receipt transactions being settled to the issue transaction created by the application.
- The green arrow represents the offsetting system-generated receipt transaction to which the originally posted issue transaction is settled.

Weighted average, date

The weighted average, date cost flow assumption is based on the weighted average principle, where issues from inventory are valued at the average value of the items that are received into inventory for each separate day in the inventory closing period.

When you run an inventory close with weighted average date, all receipts for a day are settled against a virtual issue, which holds the total received quantity and value for that day. This virtual issue has a corresponding virtual receipt from which the issues will be settled. In this way, all issues get the same average cost. The virtual issue and receipt can be seen as a virtual transfer, called the weighted average inventory closing transfer.

If only one receipt has occurred on or before the date, it is not necessary to value the average, because all issues are settled from it, and the virtual transfer will not be created. Likewise, if only issues occur on the date, there are no receipts from which to value the average, and the virtual transfer will not be created in this case either.

When using weighted average date, you can choose to mark inventory transactions so that a specific item receipt is settled against a specific issue, instead of using the weighted average date rule.

We recommend that you run a monthly inventory close when you use the weighted average date inventory model.

In Microsoft Dynamics AX 2009, weighted average date, the inventory costing method is calculated by the following formula:

$$\text{Weighted average} = (Q_1 * P_1 + Q_2 * P_2 + Q_n * P_n) / (Q_1 + Q_2 + Q_n)$$

Where Q_1 denotes the quantity of item transaction 1, and P_1 denotes the price of item transaction 1, Q_2 denotes the quantity of item transaction 2, and P_2 denotes the price of item transaction 2, up to the n^{th} transaction for the same item.

During inventory close, the calculation will be run on a daily basis through the closing period as illustrated in Diagram 3.

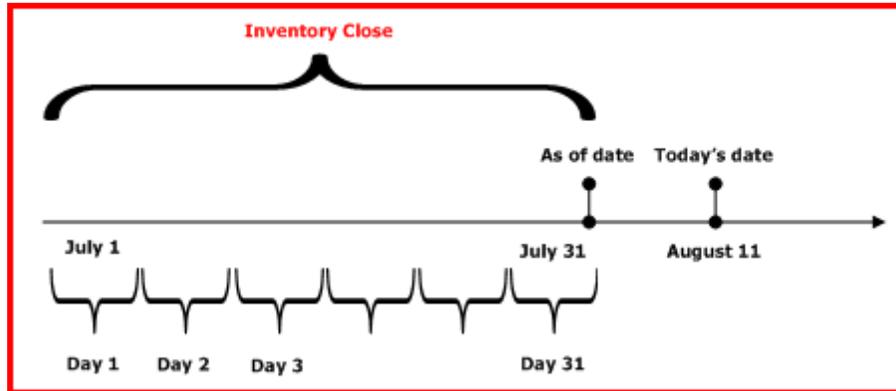


Diagram 3 Weighted average, date

Inventory transactions leaving the inventory, including sales orders, inventory journals, purchase credit notes, and production orders, will take place at an estimated cost price on the date of posting. This estimated cost price is also referred to as the running average cost price.

On the date of inventory close, Microsoft Dynamics AX 2009 will analyze the inventory transactions for previous periods, previous days, and the current day to determine which of the following closing principles should be used:

- Direct settlement
- Summarized settlement

Settlements are inventory close postings that adjust the issues to the correct weighted average as of the closing date.

The following examples illustrate the impact of using weighted average with two different configurations:

- Weighted average date, direct settlement, **Include physical value** check box cleared
- Weighted average date, summarized settlement, **Include physical value** check box cleared

Example 3: Weighted average date, direct settlement, Include physical value check box cleared

The direct settlement principle that is used in Microsoft Dynamics AX 2009 is the same direct settlement principle that is used for weighted average in earlier versions of Microsoft Dynamics AX. The application will settle directly between receipts and issues. Microsoft Dynamics AX 2009 uses this direct settlement principle in specific situations:

- One receipt and one or several issues have been posted in the period
- Only issues have been posted in the period, and the inventory contains on-hand items from a previous closing

In the following example, a financially updated receipt and issue have been posted. During inventory close, Microsoft Dynamics AX 2009 will settle the receipt directly against the issue, and no adjustment to the cost price is needed on issue.

The following transactions are illustrated in the Diagram 4:

Day 1

- 1a. Inventory physical receipt updated for a quantity of 5 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt updated for a quantity of 5 at a cost of USD 10.00 each.
- 2a. Inventory physical issue updated for a quantity of 2 at a cost of USD 10.00 each.
- 2b. Inventory financial issue updated for a quantity of 2 at a cost of USD 10.00 each.
- Inventory close was performed using the direct settlement method to settle the inventory financial receipt to the inventory financial issue.

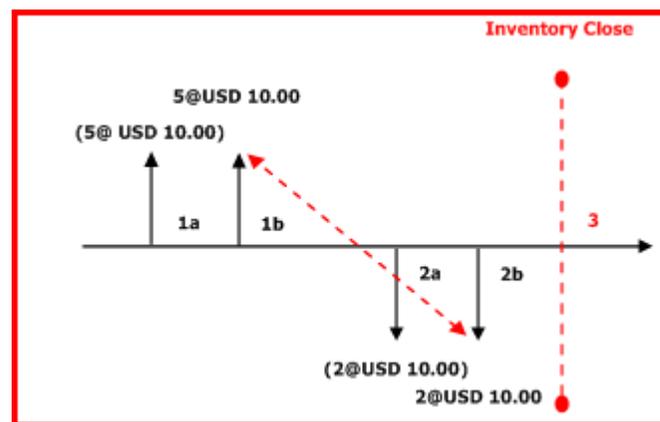


Diagram 4 Weighted average date, direct settlement, Include physical value check box cleared

Key to Diagram 4

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Example 4: Weighted average date, summarized settlement, Include physical value check box cleared

In Microsoft Dynamics AX 2009, a new settlement principle was introduced for weighted average based on the principle that all receipts within in a closing period are summarized into a new inventory transfer transaction called weighted average inventory closing.

All of the receipts for the day will be settled against the issue of the newly created inventory transfer transaction. All of the issues for the day will be settled against the receipt of the new inventory transfer transaction.

If the on-hand inventory is positive after the inventory close, that on-hand inventory and value of the inventory are summarized on the new inventory transfer transaction (receipt).

If the inventory on-hand is negative after the inventory close, the on-hand inventory and value of the inventory is the sum of individual issues that have not been fully settled.

In the following scenario, several financially updated receipts and issues have been posted during the period. During inventory close, Microsoft Dynamics AX 2009 will evaluate every day to determine how each posting should be treated by closing.

The following are illustrated in Diagram 5:

Day 1:

- 1a. Inventory physical receipt updated for a quantity of 3 at USD 15.00 each.
- 1b. Inventory financial receipt updated for a quantity of 3 at USD 15.00 each.
- 2a. Inventory physical issue for a quantity of 1 at a running average cost of USD 15.00.
- 2b. Inventory financial issue for a quantity of 1 at a running average cost of USD 15.00.

The application will use the direct settlement approach for Day 1.

Day 2:

- 3a. Inventory physical issue for a quantity of 1 at a running average cost of USD 15.00.
- 3b. Inventory financial issue for a quantity of 1 at a running average cost of USD 15.00.

The application will use the direct settlement approach for Day 2.

Day 3:

- 4a. Inventory physical issue for a quantity of 1 at a running average cost of USD 15.00.
- 4b. Inventory financial issue for a quantity of 1 at a running average cost of USD 15.00.
- 5a. Inventory physical receipt for a quantity of 1 at USD 17.00 each.
- 5b. Inventory financial receipt for a quantity of 1 at USD 17.00 each.

Inventory close is performed. The summarized settlement will be used because there are multiple receipts crossing multiple days.

- 7a. A weighted average inventory close transaction financial issue is created at for a quantity of 2 at USD 32.00 to summarize the settlements of all inventory financial receipts to date that have not been closed.
- 7b. A weighted average inventory close transaction financial receipt is created as the offset to 7a.

Microsoft Dynamics AX 2009 will generate and post the summarized inventory transfer transaction and settle all of the receipts for the day and on-hand inventory for previous days against the summarized inventory transfer issue transaction. All of the issues for the day will be settled against the summarized inventory transfer receipt transaction. The weighted average cost price is calculated to be USD 16.00.

The issue will have an adjustment of USD 1.00 to adjust to the weighted average cost. The new running average cost price is USD 16.00. Diagram 5 illustrates this series of transactions with the

effects of choosing the weighted average inventory model and the summarized settlement principle without the **Include physical value** option.

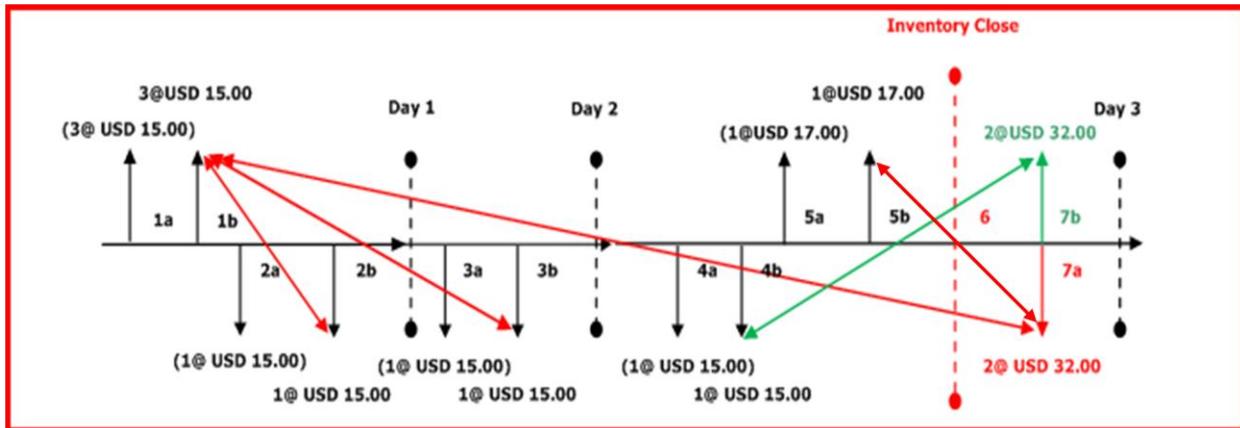


Diagram 5 Weighted average date, summarized settlement, Include physical value check box cleared

Key to Diagram 5

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.
- Red diagonal arrows illustrate the receipt transactions being settled to the issue transaction created by the application.
- The green diagonal arrow represents the offsetting application-generated receipt transaction to which the originally posted issue transaction is settled.

The Include physical value parameter

In Microsoft Dynamics AX 2009, the parameter **Include physical value** works differently with the weighted average date inventory model than in earlier versions of the product.

If the **Include physical value** check box is selected for an item in the **Inventory model group** form, the application will use physically updated receipts when calculating the estimated cost price (the running average). Issues will be posted based on this estimated cost price during the period.

During the inventory close, only financially updated receipts will be considered in the weighted average calculation.

FIFO

The first in, first out (FIFO) is a cost flow assumption in which the first acquired receipts are issued first. Financially updated issues from inventory are settled against the first financially updated receipts into inventory based on the financial date of the inventory transaction.

When using FIFO, you can choose to mark inventory transactions so that a specific receipt is settled against a specific issue instead of following the FIFO rule.

We recommend using periodic inventory close when you use the FIFO inventory model.

The following examples illustrate the impact of using FIFO with two different configurations:

- FIFO, **Include physical value** check box cleared
- FIFO, **Include physical value** check box selected

Example 5: FIFO, Include physical value check box cleared

In this FIFO example, the inventory model group is not marked to include physical value.

The following transactions are illustrated in Diagram 6:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 2 at a cost of USD 10.00 each.
- 2b. Inventory financial receipt for a quantity of 2 at a cost of USD 10.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 4b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5a. Inventory physical issue for a quantity of 1 at cost price of USD 15.00 each (running average of financially updated transactions).
- 5b. Inventory financial issue for a quantity of 1 at cost price of USD 15.00 each (running average of financially updated transactions).
- 6. Inventory close is performed. Based on the FIFO method, the first financially updated issue will be settled to the first financially updated receipt. An adjustment of USD 5.00 will be made on the issue transaction.

The new running average cost price reflects the average of the financially updated transactions.

Diagram 6 illustrates this series of transactions with the effects of choosing the FIFO inventory model without the **Include physical value** option.

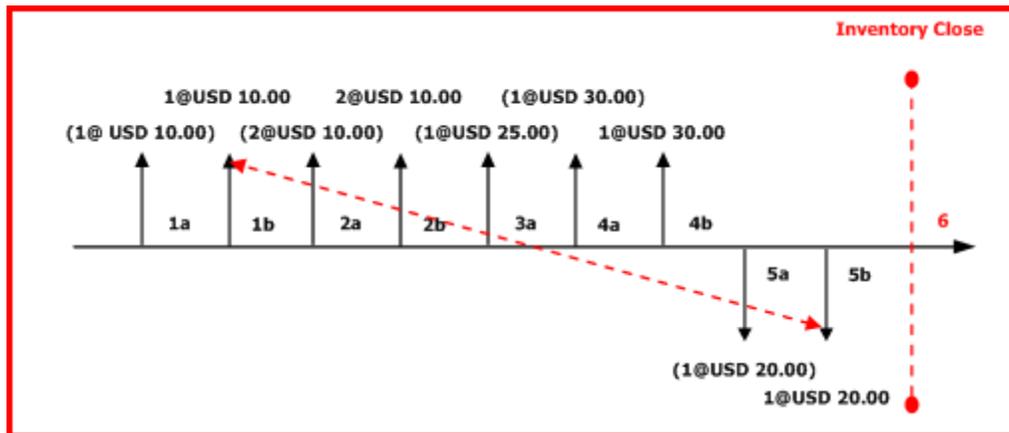
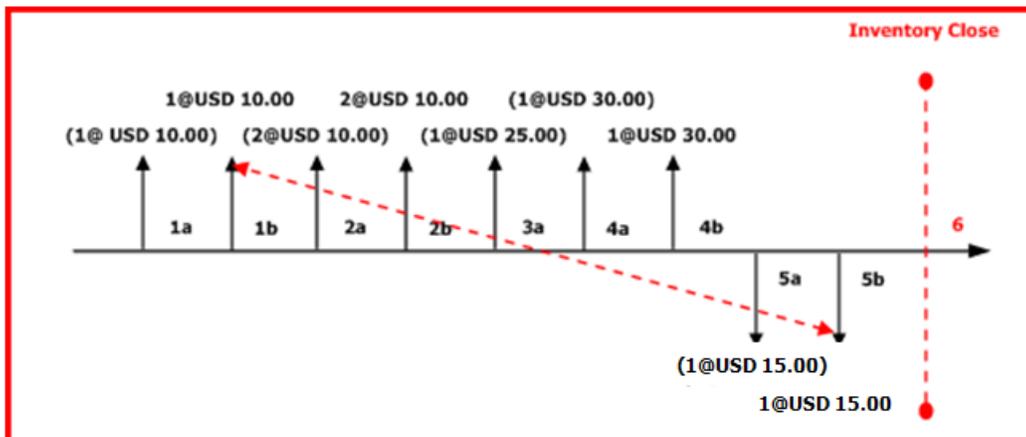


Diagram 6 : FIFO, Include physical value check box cleared



Key to Diagram 6

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings 6 are represented by a red vertical dashed line and the label Inventory Close.

- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Example 6: FIFO, Include physical value check box selected

If the Include physical value box is selected for an item in the Inventory model group form, Microsoft Dynamics AX will use both physical and financial receipt transactions to calculate the running average cost price. Where applicable, the system will also make adjustments to the physically updated issue transaction. When the Include physical value box is cleared, inventory close with the inventory model will make settlements only to transactions that are financially updated.

The following transactions are illustrated in the graphic below:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 1 at a cost of USD 20.00 each.
- 2b. Inventory financial receipt for a quantity of 1 at a cost of USD 20.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 4b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5a. Inventory physical issue for a quantity of 1 at a cost price of USD 21.25 each (running average of financial and physical updated transactions).
- 5b. Inventory financial issue for a quantity of 1 at a cost price of USD 21.25 each (running average of financial and physical updated transactions).
- 6a. Inventory physical issue for a quantity of 1 at a cost price of USD 21.25 each.
- 7. Inventory close is performed. Based on the FIFO method, the first financial issue transaction will be adjusted or settled to the first updated receipt, either financial or physical.

Transaction 5b will be settled to the receipt transaction 1b. There will be an adjustment of negative USD 11.25 to this issue transaction.

The new running average cost price reflects the average of the financially and physically updated transactions at USD 27.50.

The following diagram illustrates this series of transactions with the effects of choosing the FIFO inventory model with the Include physical value option.

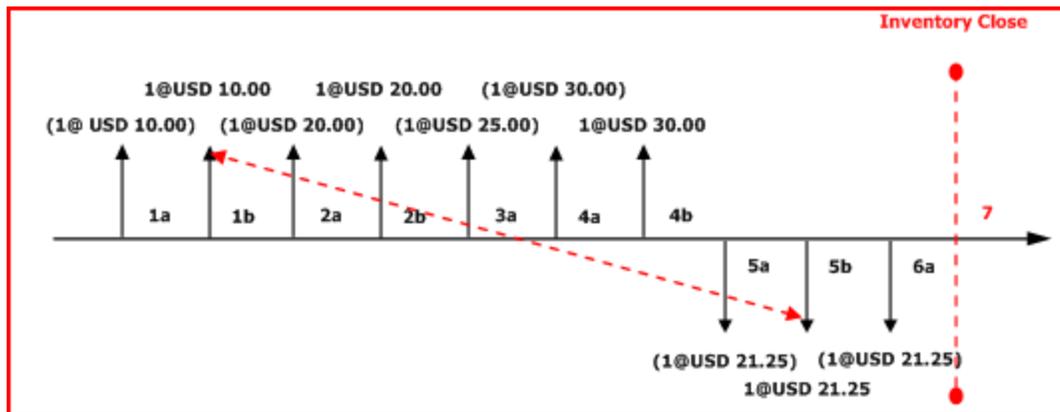


Diagram 7 FIFO, Include physical value check box selected

Key to diagram

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as *1a*. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

LIFO

The last in, first out (LIFO) cost flow assumption in which the last (newest) receipts are issued first. Issues from inventory are settled against the last receipts into inventory based on the date of the inventory transaction.

When using LIFO, you can choose to mark inventory transactions so that a specific item issue is settled against a specific receipt instead of using the LIFO rule.

We recommend using periodic inventory close when you use the LIFO inventory model.

The following examples illustrate the impact of using LIFO with two different configurations:

- LIFO, **Include physical value** check box cleared
- LIFO, **Include physical value** check box selected

Example 7: LIFO, Include physical value option check box cleared

In this LIFO example, the inventory model group is not marked to include physical value.

The following transactions are illustrated in Diagram 8:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 1 at a cost of USD 20.00 each.
- 2b. Inventory financial receipt for a quantity of 1 at a cost of USD 20.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 4b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5a. Inventory physical issue for a quantity of 1 at a cost price of USD 20.00 each (running average of financially updated transactions).
- 5b. Inventory financial issue for a quantity of 1 at a cost price of USD 20.00 each (running average of financially updated transactions).
- 6. Inventory close is performed. Based on the LIFO method, the last financially updated issue will be settled to the last financially updated receipt. An adjustment of USD 10.00 will be made on the issue transaction.

The new running average cost price reflects the average of the financially updated transactions at USD 15.00.

Diagram 8 illustrates this series of transactions with the effects of choosing the LIFO inventory model without the **Include physical value** option.

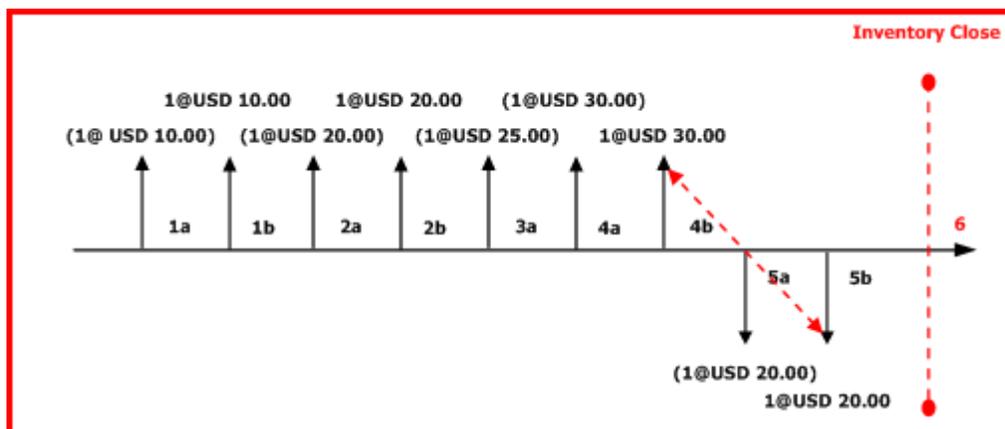


Diagram 8 LIFO, Include physical value check box cleared

Key to Diagram 8

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.

- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Example 8: LIFO, Include physical value check box selected

If the **Include physical value** check box is selected for an item in the **Inventory model groups** form, Microsoft Dynamics AX 2009 will use both physical and financial receipt transactions to calculate the running average cost price.

Where applicable, the application will also make adjustments to the physically updated issue transaction. When the **Include physical value** check box is cleared, inventory close with the LIFO inventory model will make settlements only to transactions that are financially updated.

The following transactions are illustrated in Diagram 9:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 1 at a cost of USD 20.00 each.
- 2b. Inventory financial receipt for a quantity of 1 at a cost of USD 20.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 4b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5a. Inventory physical issue for a quantity of 1 at a cost price of USD 21.25 each (running average of financial and physical updated transactions).
- 5b. Inventory financial issue for a quantity of 1 at a cost price of USD 21.25 each (running average of financial and physical updated transactions).
- 6a. Inventory physical issue for a quantity of 1 at a cost price of USD 21.25 each.
- 7. Inventory close is performed. Based on the LIFO method, the last issue transaction will be adjusted or settled to the last updated receipt.

Transaction 6a will be adjusted to the receipt transaction 4b. The application will not settle these transactions because the receipt is updated only physically and not financially. An adjustment of USD 8.75 will be posted to the physical issue transaction.

Transaction 5b will be adjusted to the physical receipt transaction 3a. The application will not settle these transactions because they are not both financially updated. An adjustment of negative USD 3.75 will be made to this issue transaction.

The new running average cost price reflects the average of the financially and physically updated transactions at USD 20.00.

Diagram 9 illustrates this series of transactions with the effects of choosing the LIFO inventory model with the **Include physical value** option.

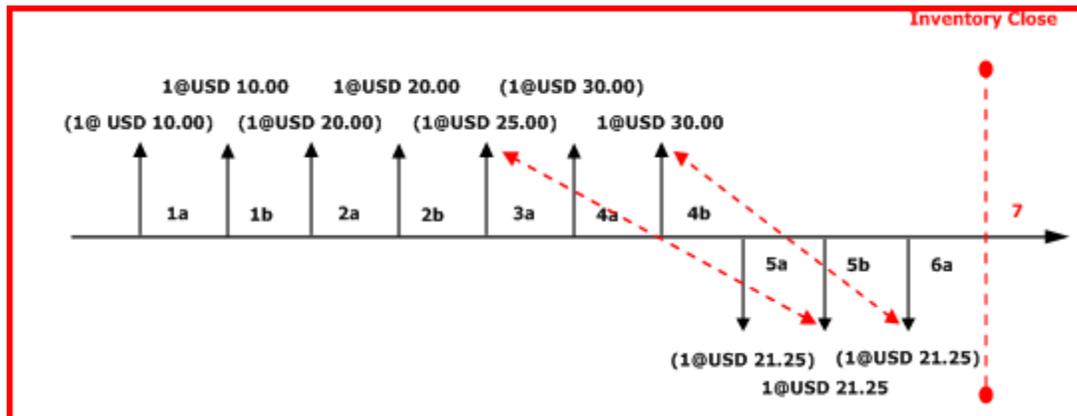


Diagram 9 LIFO, Include physical value check box selected

Key to Diagram 9

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

LIFO, date

Last in, first out Date (LIFO Date) is an inventory model based on the LIFO principle that issues from inventory are settled against the last receipts into inventory based on the date of the inventory transaction.

With LIFO Date, if there is no receipt before the issue, the issue is settled against any receipts that occur after the date of the issue. Several issues on the same date may be settled in the order of last issue, last receipt.

When using LIFO Date, you can choose to mark inventory transactions so that a specific item receipt is settled against a specific issue instead of using the LIFO Date rule.

We recommend using a periodic inventory close when you use the LIFO Date inventory model.

The following examples illustrate the impact of using LIFO Date with two different configurations:

- LIFO Date, **Include physical value** check box cleared

- LIFO Date, **Include physical value** check box selected

Example 9: LIFO Date, Include physical value check box cleared

In the LIFO Date Diagram 10, the inventory model group is not marked to include physical value.

The following transactions are illustrated in Diagram 10:

Day 1:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 1 at a cost of USD 20.00 each.
- 2b. Inventory financial receipt for a quantity of 1 at a cost of USD 20.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical issue for a quantity of 1 at a cost price of USD 15.00 (running average of financially updated transactions).
- 4b. Inventory financial issue for a quantity of 1 at a cost price of USD 15.00 (running average of financially updated transactions).

Day 2:

- 5a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 6. Inventory close is performed. Based on the LIFO Date method, the last financially updated issue will be settled to the last financially updated receipt by date. An adjustment of USD 5.00 will be made on the issue transaction. These transactions will be settled to each other.

The new running average cost price reflects the average of the financially updated transactions at USD 15.00.

Diagram 10 illustrates this series of transactions with the effects of choosing the LIFO Date inventory model without the **Include physical value** option.

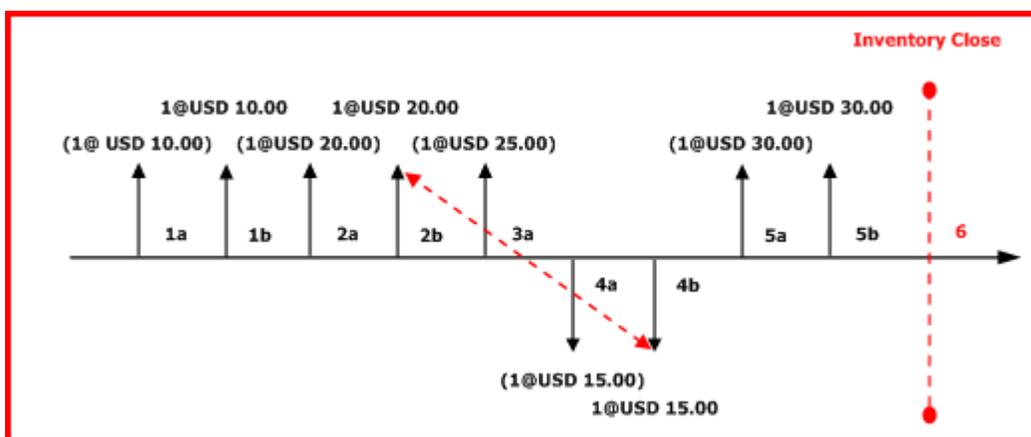


Diagram 10 LIFO Date, Include physical value check box cleared

Key to Diagram10

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.

- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Example 10: LIFO Date, Include physical value check box selected

If the **Include physical value** check box is selected for an item in the **Inventory model groups** form, Microsoft Dynamics AX 2009 will use both physical and financial receipt transactions to calculate the running average cost price.

Where applicable, the application will also make adjustments to the physically updated issue transaction. When the **Include physical value** check box is cleared, inventory close with the LIFO Date inventory model will make settlements only to transactions that are financially updated.

In the LIFO Date Diagram 11, the inventory model group is marked to include physical value.

The following transactions are illustrated in Diagram 11:

Day 1:

- 1a. Inventory physical receipt for a quantity of 1 at a cost of USD 10.00 each.
- 1b. Inventory financial receipt for a quantity of 1 at a cost of USD 10.00 each.
- 2a. Inventory physical receipt for a quantity of 1 at a cost of USD 20.00 each.
- 2b. Inventory financial receipt for a quantity of 1 at a cost of USD 20.00 each.
- 3a. Inventory physical receipt for a quantity of 1 at a cost of USD 25.00 each.
- 4a. Inventory physical issue for a quantity of 1 at a cost price of USD 18.33 each (running average of financially updated transactions).
- 4b. Inventory financial issue for a quantity of 1 at a cost price USD 18.33 each (running average of financially updated transactions).

Day 2:

- 5a. Inventory physical receipt for a quantity of 1 at a cost of USD 30.00 each.
- 5b. Inventory financial receipt for a quantity of 1 at a cost of USD 30.00 each.
- 6. Inventory close is performed. Based on the LIFO Date method, the last updated issue will be adjusted or settled to the last updated receipt by date. These transactions will not be settled to each other because the financial receipt transaction is adjusted to a physical update transaction. Instead only an adjustment of USD 6.67 will be made on the issue transaction.

The new running average cost price reflects the average of the financially updated transactions at USD 20.00.

Diagram 11 illustrates this series of transactions with the effects of choosing the LIFO inventory model with the Include physical value option.

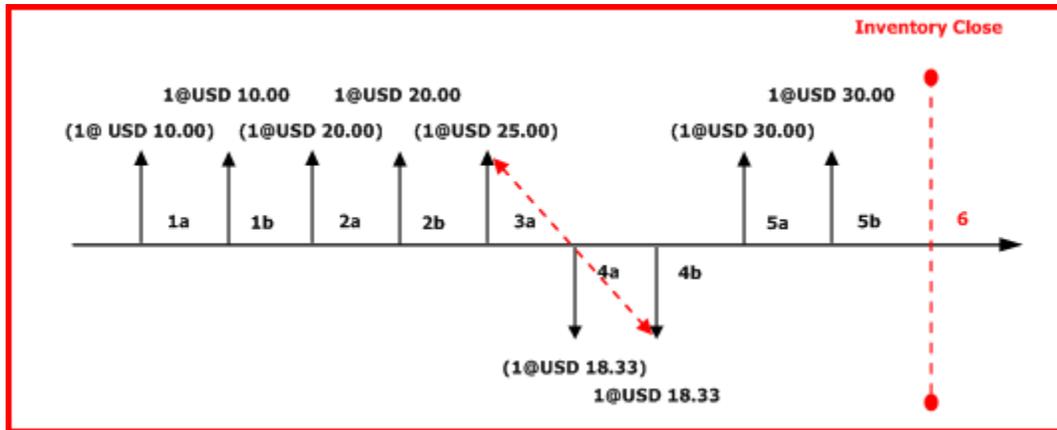


Diagram 11 LIFO Date, Include physical value check box selected

Key to Diagram 11

- Inventory transactions are represented by vertical arrows.
- Receipts into inventory are represented by vertical arrows above the timeline.
- Issues out of inventory are represented by vertical arrows below the timeline.
- Above (or below) each vertical arrow, the value of the inventory transaction is specified in the format *Quantity@Unit price*.
- An inventory transaction value surrounded by brackets indicates that the inventory transaction is physically posted into inventory.
- An inventory transaction value without brackets indicates that the inventory transaction is financially posted into inventory.
- Each new receipt or issue transaction is designated with a new label.
- Each vertical arrow is labeled with a sequential identifier, such as 1a. The identifiers indicate the sequence of inventory transaction postings in the timeline.
- Inventory closings are represented by a red vertical dashed line and the label Inventory Close.
- Settlements that are performed by inventory close are represented by dotted red arrows going diagonally from a receipt to an issue.

Inventory calculation

In Microsoft Dynamics AX 2009, the Inventory close and Inventory cancellation job have been changed significantly. The changes can be divided into two subgroups:

- Evaluation method
- Batch framework dependant

Note: An inventory close job can be paused and resumed. If a job by any means is stopped during an execution and it cannot be resumed, a new job can be run. The new job will start up from the point where the previous job stopped. When the new job reaches completion, both jobs will be updated as completed.

Inventory close

A total of four fields were removed from the **Close Inventory** form in Microsoft Dynamics AX 2009.

The two fields in the following list were removed because of the new settlement principle that was introduced for cost flow assumption weighted average.

- Minimum settle quantity percent
- Minimum settle amount

The two fields in the following list were removed from the **Close Inventory** form and pre-marked as active.

- Update Production
- Update ledger

The **Update Production** field is set as Active by default in order to ensure the possibility to reconcile production variances on a specific production order when evaluating inventory by standard cost.

The **Update ledger** field is set as Active by default in order to ensure that both inventory and the general ledger are updated with the cost adjustments so that the modules can be reconciled.

In Microsoft Dynamics AX 2009, the inventory calculation job can be run in two modes:

- Client
- Batch

Client

When running the inventory close job on the client, the application will only use the client's session on the server. The application will perform inventory value calculation item by item and adjust cost. Only the item that is being calculated will be locked by the application. The general ledger will be updated after the last item has been processed.

Note: We do not recommend a client execution on a live installation because the performance will not be optimal.

Using helpers

Microsoft Dynamics AX 2009 enables the user to utilize helpers. A true client execution will only take place if the number-of-extra-helpers field in the inventory parameters is set to 0. In all other cases, the application will run in a mixed mode, where the specified extra helpers execute in the specified batch group (also in the inventory parameters), and the client works as a helper too.

Batch

In Microsoft Dynamics AX 2009, a new batch framework was introduced. The Inventory close job and helpers were aligned to this new batch framework.

Note: An inventory close helper matches one thread in the batch framework.

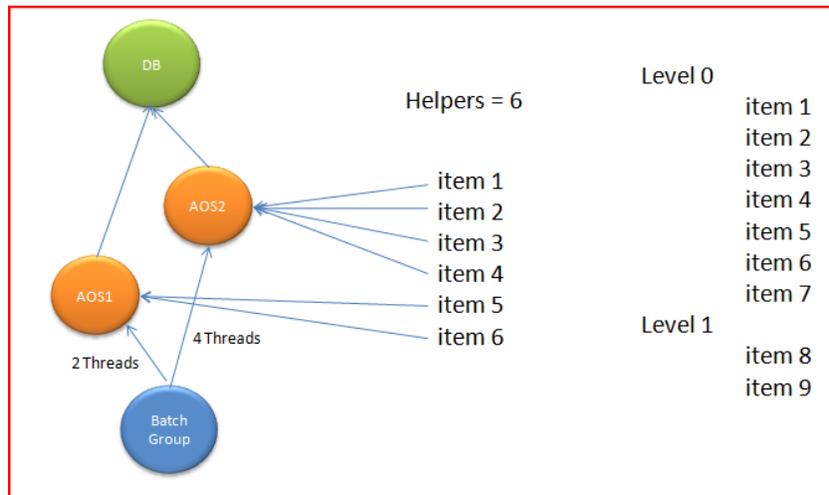


Diagram 12 Helpers and batch jobs

Running multiple inventory closing threads per AOS can be used to help performance, because multiple threads are better at using multiple processor cores. (Even for a single processor core, multiple threads can increase performance, because whenever one thread waits for a reply from the database, another can run.)

However, running multiple threads also increases the memory usage of the AOS, and if the number of threads is so high that the AOS runs out of memory, the AOS will start swapping, and performance will suffer. It is critically important that all threads fit in memory without swapping.

The optimum number of threads for an installation depends on the hardware, the data composition, and the other application load while the inventory close job is running. Therefore, if performance of inventory close is of paramount importance, it will be necessary to try out different values to find the best one.

As a guideline, we recommend two threads per processor core to start with.

When optimizing the inventory close job in a batch mode, consider the following performance considerations.

1. Ensure that the number of helpers is equal to or greater than the number of threads that are available on the batch group.
2. Ensure that the hardware can perform well while supporting the large number of threads that you might want the batch to run on the AOS.
3. Ensure that the database server is sized properly towards the AOS servers.

Inventory cancellation

The fundamental purpose of the Inventory cancellation job is to cancel an inventory close job and to reverse all of the cost adjustments.

Like inventory close, the inventory cancellation can be run in two modes:

- Client
- Batch

There is no significant difference in how the Inventory close job and the Inventory cancellation job behave, other than Inventory cancellations do not have to consider low level code (dependencies).

Recommended parameter settings

This section discusses a set of parameter recommendations by Microsoft Business Solutions. These recommendations are offered as guidance, and they should not be considered as the only option for configuring the Cost management-related modules.

In Microsoft Dynamics AX 2009, three different item types exist:

- Item (Raw material, purchase to sell)
- BOM (Manufactured item)
- Service (Expensed item, subcontracting)

In general, these three different item types can be grouped into two main groups from a costing perspective:

- Inventory item
 - Item
 - BOM
- Non-inventory item
 - Service
 -

Inventory item

The cost of inventory items is treated as an asset to the company or organization, so the cost is capitalized into the balance sheet at the time of posting.

Module	Application path	Recommended settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> • Post physical inventory = Yes • Post financial inventory = Yes
Production	Production > Setup > Parameters	<ul style="list-style-type: none"> • Posting picking list in ledger = Yes • Post report as finished in ledger = Yes • Use estimated cost price = No • Post excl. transaction type = No
Accounts payable	Accounts payable > Setup > Parameters	<ul style="list-style-type: none"> • Post packing slip in ledger = Yes
Accounts receivable	Accounts receivable > Setup > Parameters	<ul style="list-style-type: none"> • Post packing slip in ledger = Yes

Note: In Microsoft Dynamics AX 2009, you can set production parameters per site. This feature also allows you to set the cost related parameters in the table above per site. However, we do not recommend making these parameters site-specific as this can lead to imbalances when reconciling inventory and the general ledger.

Module	Application path	Optional settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> • Post physical revenue = Yes¹ • Post physical purchase = Yes²

Inventory management Inventory management > Setup > Parameters • Post physical sales tax = Yes³

¹ This parameter determines if you accrue revenue at the posting of the packing slip.

² This parameter determines if you accrue purchase at the posting of the packing slip.

³ This parameter determines if you accrue sales tax at the posting of the packing slip.

Non-inventory item – Expensed item

The cost of non-inventory items is treated as a cost to the company or organization, so the cost is expensed in the profit & loss section of your charts of accounts at the time of posting. Depending of the type of item/cost, the cost can be absorbed as manufacturing overhead.

Module	Application path	Recommended settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> Post physical inventory = No Post financial inventory = No

Module	Application path	Optional settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> Post physical revenue = Yes¹ Post physical purchase = Yes²
Inventory management	Inventory management > Setup > Parameters	<ul style="list-style-type: none"> Post physical sales tax = Yes³

¹ This parameter determines if you accrue revenue at the posting of the packing slip.

³ This parameter determines if you accrue purchase at the posting of the packing slip.

³ This parameter determines if you accrue sales tax at the posting of the packing slip.

Non-inventory item – Subcontracting

The cost of non-inventory items (service) is treated as a cost to the company or organization, so the cost is expensed in the Profit & Loss section of your charts of accounts. The expense is capitalized into inventory/WIP at the time of consumption.

Module	Application path	Recommended settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> Post physical inventory = Yes Post financial inventory = Yes

Module	Application path	Optional settings
Inventory management	Inventory management > Setup > Inventory > Inventory model groups	<ul style="list-style-type: none"> Post physical revenue = Yes¹ Post physical purchase = Yes²
Inventory management	Inventory management > Setup > Parameters	<ul style="list-style-type: none"> Post physical sales tax = Yes³

¹ This parameter determines if you accrue revenue at the posting of the packing slip.

² This parameter determines if you accrue purchase at the posting of the packing slip.

³ This parameter determines if you accrue sales tax at the posting of the packing slip.

Note: If a service item has an inventory model group attached to it that has the **Post physical inventory** check box selected, and the **Post financial inventory** check box selected, the service item will appear to behave as an inventory item, even if it is not an inventory item.

In purchase orders, the posting type "Purchase receipt" will be used, which normally corresponds to a balance account in the general ledger that contains the inventory value. The posting type should be set to post to an expense account.

The service item has no on-hand quantity and will not exist in the physical inventory reports. If the item is not set to post to an expense account, it will generate imbalances at the time of reconciliation of inventory and the general ledger.

The **Inventory value of posted service items** report displays the value of posted service items to inventory and helps you perform reconciliation.

Change inventory dimension group for an item

In Microsoft Dynamics AX 2009, a cost object, also known as a cost collector, is represented in the data model by the ItemID + inventory dimension that is marked as financial inventory.

The relation between ItemID and inventory dimensions is obtained by assigning a dimension group to the item record.

In Microsoft Dynamics AX 2009, multiple inventory dimensions are available, and these dimensions can be marked as physical or financial inventory, depending on the specific requirement by the customer. For every new combination of inventory dimensions entered into the application, a unique InventDim ID is created.

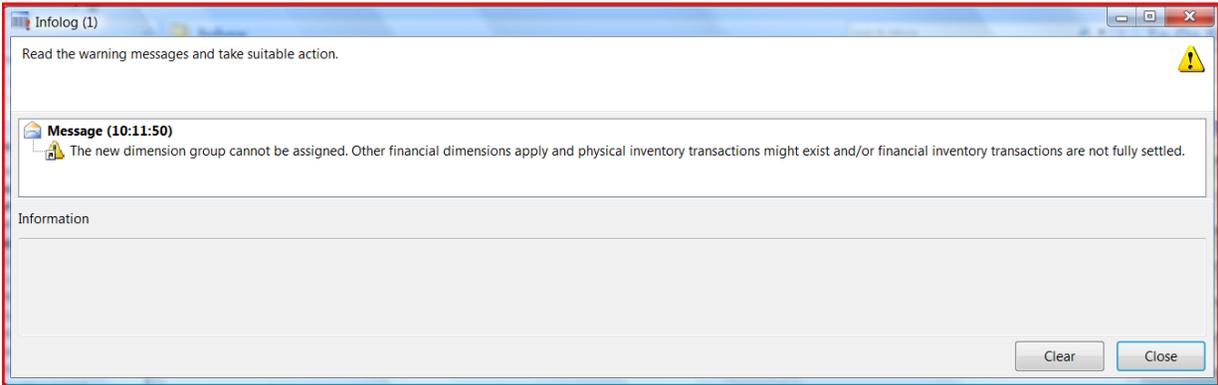
In Microsoft Dynamics AX 2009, the **InventSum** table keeps track of the current on-hand inventory for any combination of Item and InventDimID. The **InventSum** table is used as a data source in many reports within the inventory/costing domain areas.

A record in **InventSum** table is marked as closed when both financial and physical quantity and values have reached 0 (zero).

ItemId	PostedQty	PostedValue	Deducted	Received	InventDimId	Closed	Registered	Picked	AvailOrdered	AvailPhysical	PhysicalValue	Arrived	PhysicalInvent	ClosedQty	LastUpdDatePhysical	LastUpdDateExpected
B7					00001_060	<input checked="" type="checkbox"/>			-1,00					<input checked="" type="checkbox"/>	04-01-2008	11-11-2008
B7	1,00	12,00			247	<input type="checkbox"/>			1,00	1,00			1,00	<input type="checkbox"/>	11-02-2008	11-11-2008

When an item + InventDim has the status of Closed, the item will be ready for a change in financial inventory dimension.

In Microsoft Dynamics AX 2009, a new error message was introduced that validates the status of the current item to prevent customers from changing the dimension group if the status of the item is not fulfilling the system requirements.



The ideal situation would be to change the financial dimension when entering a new fiscal period or fiscal year. However, it is not possible to change the financial dimension when entering a new fiscal period or fiscal year in Microsoft Dynamics AX 2009, because the application requires the current settings to perform a correct closing of the previous fiscal period or fiscal year.

In general, a closing of the previous period will take place sometime in the next fiscal period or fiscal year.

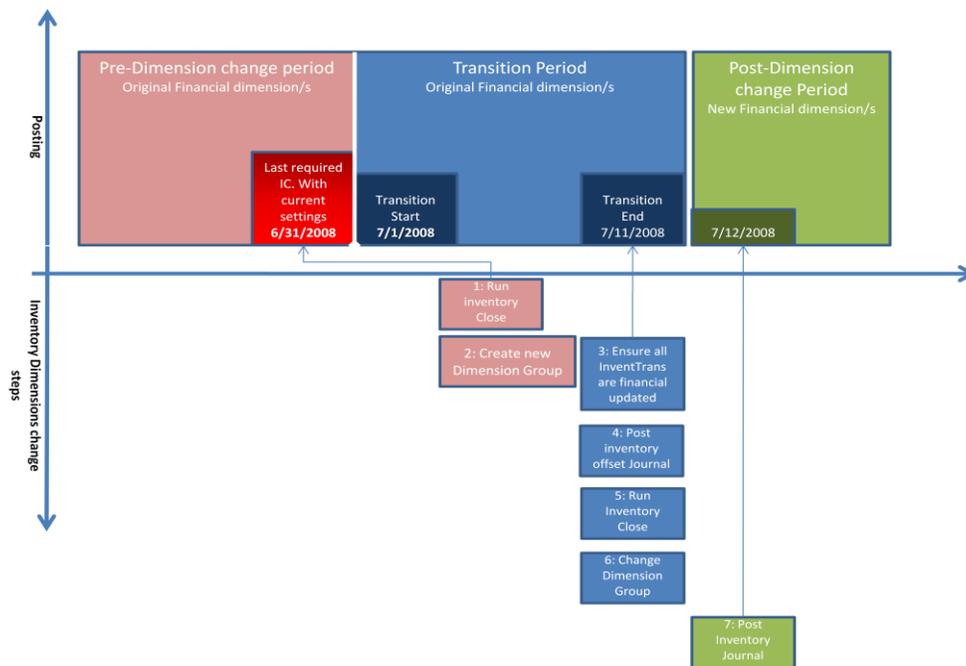


Diagram 13 Change Financial Dimension

Example: Convert a warehouse to a physical inventory dimension

This example converts a warehouse to a physical inventory dimension and only uses "site" as a financial inventory dimension.

The following inventory transactions are posted on item A1

- Pre-dimension change period
 - Purchase order 1 (P1) is posted with a quantity of 2 and unit price of USD 10.00 on site S1, warehouse W1
- Transition period
 - Sales order 1 (S1) is posted with a quantity of 1 and unit price of USD 10.00 on site S1, warehouse W1
 - Purchase order 2 (P2) is posted with a quantity of 1 and unit price of USD 13.00 on site: S1, warehouse: W2

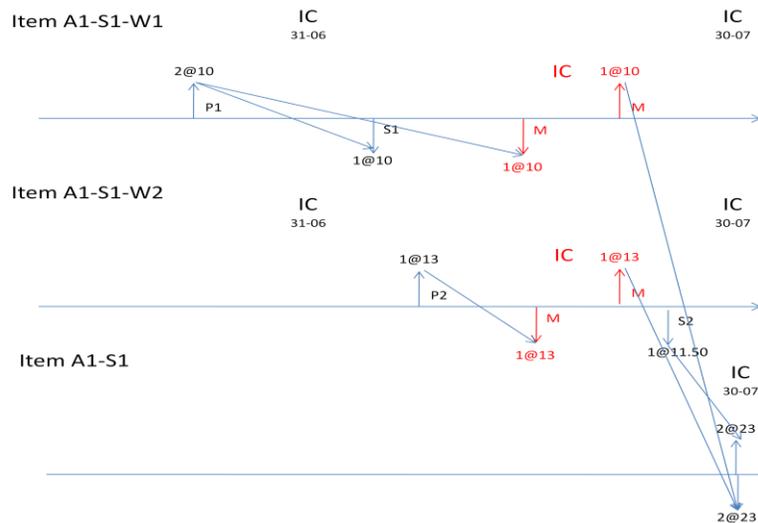


Diagram 14 Posting sequence

Transactions (1 - dat) - Reference: Purchase order, 00034_049

File Edit Tools Command Help

Inventory

Ledger

Functions

Item number	Warehouse	Site	Quantity	Physical cost amount	Financial cost amount	Adjustment
Raw1	W1	S1	2.00	20.00	20.00	
Raw1	W1	S1	-1.00	-10.00	-10.00	
Raw1	W2	S1	1.00	13.00	13.00	

Show related transactions. EUR dat usr 7/1/2008

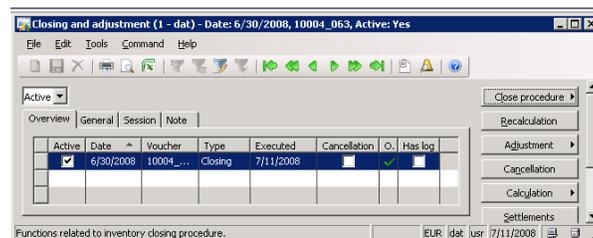
Transactions that are posted in the application are noted in the following transactions list.

The Light Company

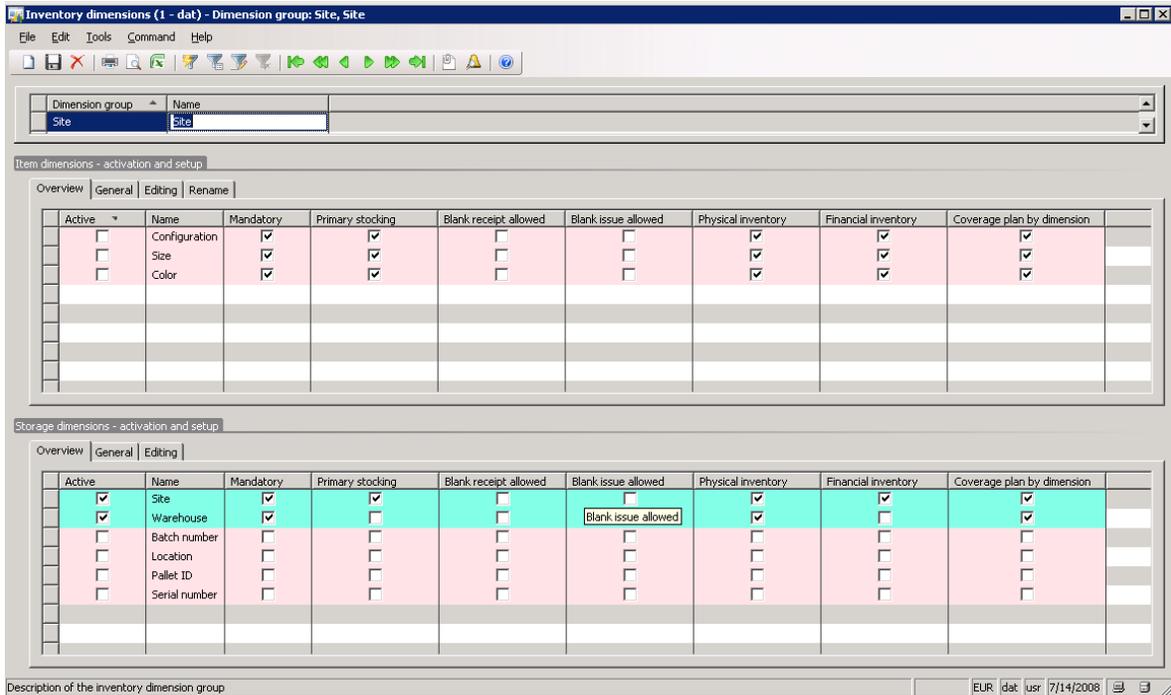
Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	23
02	Finish Goods	0
	Total Inven: Total Inventory	23
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
	Total WIP	0
08	Customer debt	10
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-33
P/L		
023	Revenue	-20
020	COGS	10
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

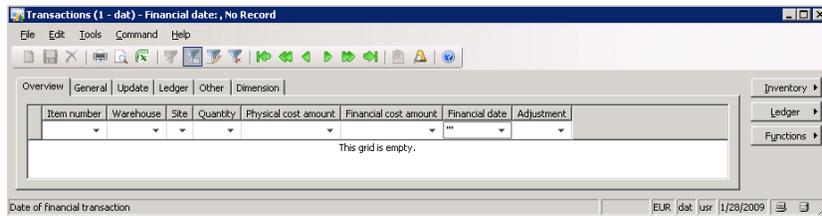
By July 11, 2008, the company or organization is ready to close inventory for the fiscal year ending June 30, 2008.



1. Create a new dimension group, where only site is set as a financial inventory dimension.



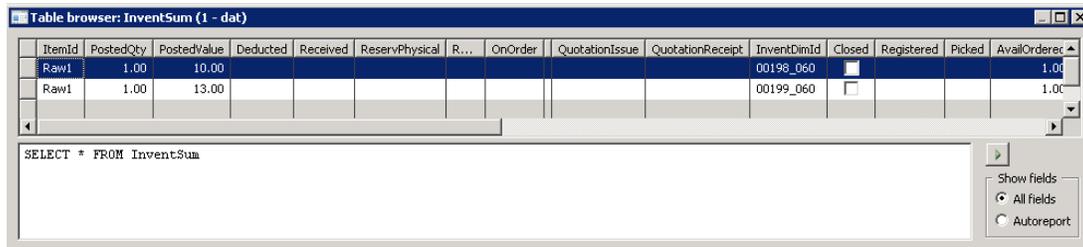
2. Ensure that all transactions are financially updated.



Tip: Review the **Financial Date** field, and search for blank dates.

3. Post the Inventory offset journal.

The following screen shots and financial statement show the **InventSum** table before the offset journal is posted:



Journal lines, Inventory (1 - dat) - Journal: 000004_061, 1,0000000000, Journal: 000004_061

File Edit Tools Command Help

Overview General Dimension

Date	Item number	Site	Warehouse	Quantity	Cost price	Cost amount	Offset account	L...
7/11/2008	Raw1	S1	W1	-1.00	10.00	-10.00	031	

Post the journal. EUR dat usr 1/28/2009

Journal lines, Inventory (1 - dat) - Journal: 000006_061, 1,0000000000, Journal: 000006_061

File Edit Tools Command Help

Overview General Dimension

Date	Item number	Site	Warehouse	Quantity	Cost price	Cost amount	Offset account	L...
7/11/2008	Raw1	S1	W2	-1.00	13.00	-13.00	031	

Post the journal. EUR dat usr 1/28/2009

Table browser: InventSum (1 - dat)

ItemId	PostedQty	PostedValue	Deducted	Received	ReservPhysical	ReservOrdered	OnOrder	Ordered	QuotationIssue	QuotationReceipt	InventDimId	Closed	Registered	Picked
Raw1											00198_060	<input checked="" type="checkbox"/>		
Raw1											00199_060	<input checked="" type="checkbox"/>		

SELECT * FROM InventSum

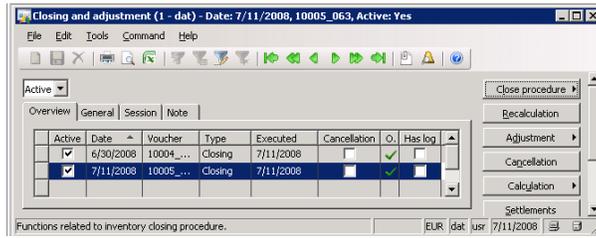
Show fields
 All fields
 Autoreport

The Light Company

Financial statement

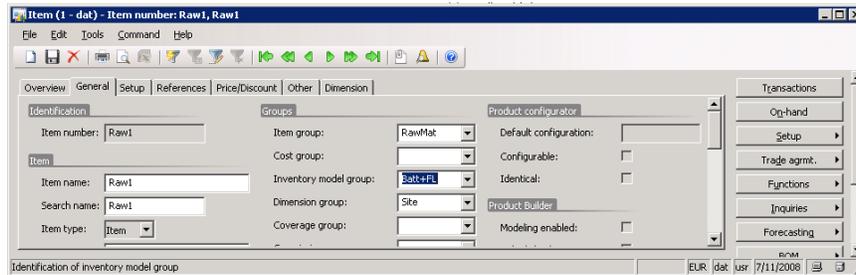
Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	0
02	Finish Goods	0
Total Inven	Total Inventory	0
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	10
09	Deferred Customer	0
Liabilities		
110	Accrued Purchase	0
111	Vendor debt	-33
Revenue		
223	Revenue	-20
220	COGS	10
221	Absorb Labor	0
222	Absorb Overhead	0
224	Expense Manufacturing	0
225	Expense Outsource	0
231	Inventory loss	23
232	Inventory Profit	0

4. Run inventory close as of July 11, 2008.



Note: It is important that all transactions in the **InventTrans** table are fully settled.

5. Change the dimension group for the item.



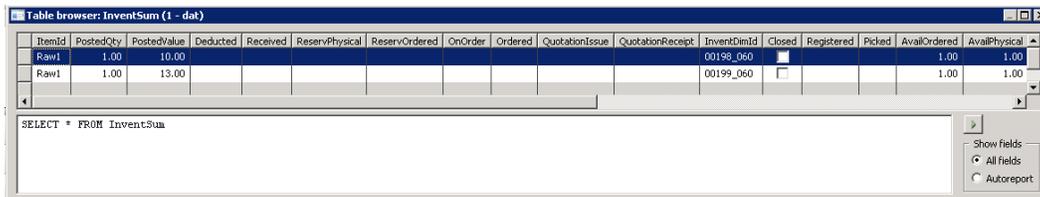
6. Post the Inventory journal.

The Light Company

Physical inventory by item group

As on : 7/12/2008

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
RawMat	Raw1	Raw1	2,00			2,00	23,00			23,00
Item group : RawMat			2,00			2,00	23,00			23,00
Total account (099) ..			23,00	Total posted inventory ..		23,00				



The Light Company
Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	23
02	Finish Goods	0
Total Inven	Total Inventory	23
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	10
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-33
P/L		
023	Revenue	-20
020	COGS	10
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	23
032	Inventory Profit	-23

Note: It is important that the inventory close job that has been run before changing the dimension group on the item, is not cancelled. If the inventory close job is cancelled, imbalances and incorrect cost could potentially occur.

Create ledger accounts to represent inventory in chart of accounts

Microsoft Dynamics AX 2009 consists of multiple modules, including the general ledger. In general, the modules (sub-ledgers) store information at a detailed level and the general ledger stores the information at a summarized level. The individual modules and the general ledger have to be integrated in order to make the transaction records flow correctly through the application.

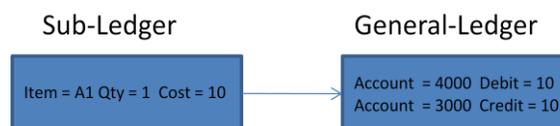


Diagram 15 Ledger integration

In Microsoft Dynamics AX 2009, this integration takes place in posting profiles. Posting profiles are placed in each module and other places where general ledger integration is required. For each posting type, the user can select a ledger account as the integrator to the general ledger.

Based on module and posting type, the integration to the general ledger can be set up based on different rules.

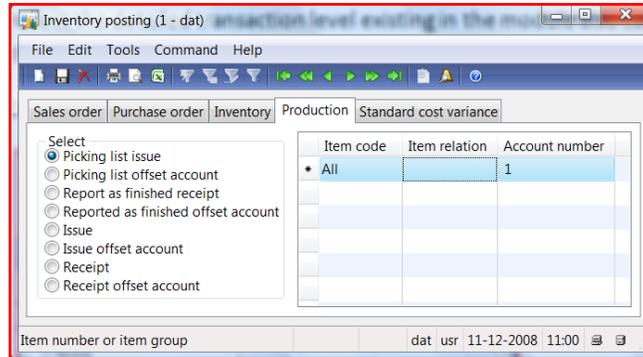
Example: Posting type – Picking list issue

For the posting type "Picking list Issue", the item ID can be used as rule to create integration to the general ledger.

The application offers three aggregated levels:

- Item ID – The integration to the general ledger is set per specific item ID.

- Item Group – The integration to the general ledger is set for an item group.
- All – The integration to the general ledger is set for all items.



Before you map modules to the general ledger, consider the following:

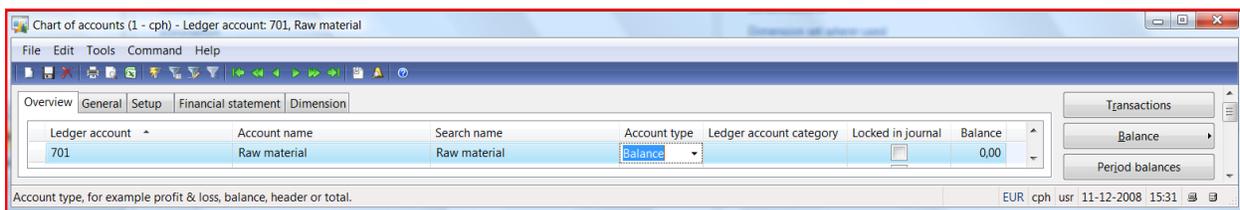
- A posting type may require a different mapping to the general ledger based on the following:
 - Item type
 - Inventory model group/parameters
- At which aggregated level do I expect to report financial results from the general ledger?
- At which aggregated level do I expect to reconcile inventory and the general ledger?

Note: We recommend that you divide WIP into three separate ledger accounts: Material, Labor, and Overhead. In Microsoft Dynamics AX 2009, the physical inventory reports display only resources from the **ItemTable** table. To facilitate reconciliation between the inventory and the general ledger, we recommend that you use a special ledger account that reflects each resource type.

Note: A ledger account can be set up to accept multiple posting types.

Example: How to set up and map the Raw material ledger account

1. Create a ledger account in chart of accounts.



2. Assigned the accepted posting types.

The mapping of posting types to specific ledger accounts will vary by company or organization and the item categorizations.

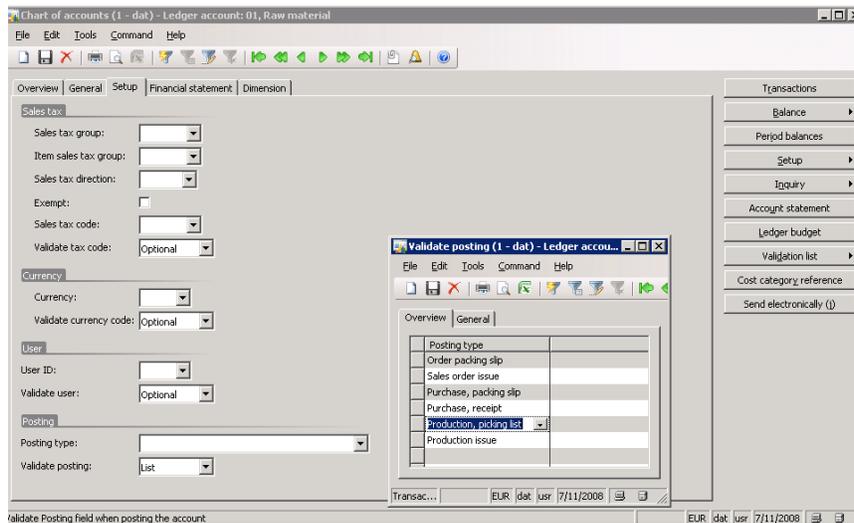
In this example, raw materials are purchased for use in production as the primary purpose, but raw materials can also be sold as spare parts to customers. The possibility to purchase

and sell raw materials has a direct effect on which posting types must be mapped to the ledger account.

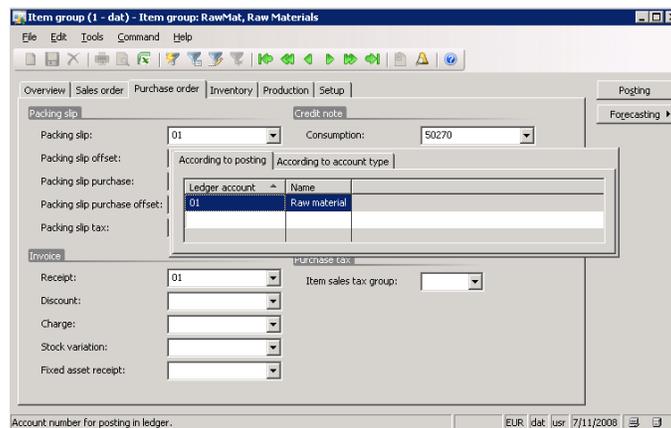
On the **Setup** tab, under the **Posting** field group, there are the following fields:

- **Posting type** field
 - All posting types in the application
- **Validate posting** field
 - Optional
 - To be filled in
 - Table (The user can select a specific posting type)
 - List (The user can select multiple posting types)

Note: The user must select either "Table" or "List" in the **Validate posting** field in order to ensure that the posting type is validated at the time of posting.

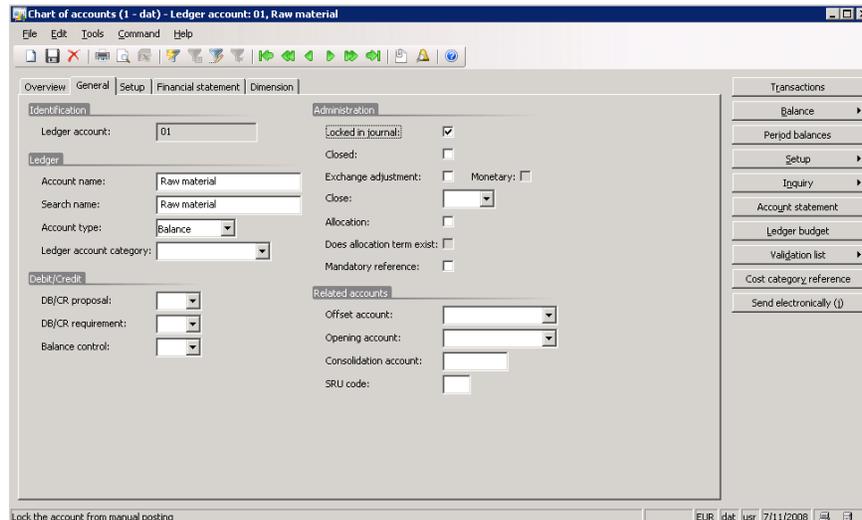


A filter is run when the ledger account is mapped to a posting type in the posting profile. The filter helps to avoid incorrect mappings that will be discovered when the reconciliation of inventory and the general ledger displays imbalances.



Note: In Microsoft Dynamics AX 2009, you can select any ledger account by clicking the **Accounting to account type** tab. The ledger account will be validated again at time of posting if **Validate posting** is set to either "Table" or "List".

A ledger account can also be locked from postings that are generated by ledger journals. Select the **Locked in journal** check box to lock a ledger account.



Note: It might be necessary to post directly on a ledger account that represents inventory in the general ledger.

- If the posting type validation is activated on the ledger account posting type, the posting type Ledger posting must be selected as the valid posting type. Otherwise, the journal posting process will end, and an error message will appear.
- If the ledger account has been locked, the ledger account must be unlocked by clearing the **Locked in journal** check box on the **Setup** tab in the **Chart of accounts** form before you can post the journal.

Changing an item type

In Microsoft Dynamic AX 2009, an ItemID is associated with an item type. Item types can be grouped into two main groups: inventory and non-inventory.

Changing the item type might seem to be a straightforward task, but the consequences can be significant to the application. Additionally, the inventory and the general ledger reconciliation could become cumbersome.

Changing the item type on an ItemID from Item to BOM, or from BOM to Item, will not directly affect the application because the application will not perform any events or updates as consequence of this change.

There could, however, be indirect consequences that require manual action. The indirect consequences would be customer-specific, and would be based on the customer's setup in inventory and the general ledger. Two possible indirect consequences might be:

- Incorrect or missing ledger accounts on posting types in the posting profile.
- Move the current inventory balance in the general ledger to a different ledger account based on the level of aggregation in the chart of accounts.

Example: A component that was purchased from a supplier will be manufactured in-house, and it will be sold as a spare part.

1. The application requires an item type change to BOM in order to allow the creation of production orders.
 - a. Based on the current detailed level of settings in the posting profile (The setup is based on three item groups: Service, Raw material, and Finish good.)
 - i. Ledger accounts on production-related posting types have to be mapped for the current item group.
 - ii. The item group could be changed from Raw material to Finish good to satisfy the preceding requirement. (For information about changing an item group, see the section Changing item type.)
2. The controller requires that the balance be moved from the Raw material ledger account to the Finish good ledger account. The controller requirement originates from the requirement that the controller wants to reconcile the inventory and the general ledger based on the aggregated level for the Raw material and Finish good.
 - a. A General journal is created, and the Raw material and Finish good ledger accounts are selected. The amount entered in the Raw materials and Finish good ledger account is equal to the inventory balance that should be moved.
 - i. Ensure that both ledger accounts allow direct postings from financial journals, and ensure that the **Locked in journal** check box is clear. We recommend that you select the **Locked in journal** check box after completing the procedure described here..
 - ii. Ensure that the Ledger journal posting type is valid for posting on both ledger accounts.

Note: In Microsoft Dynamics AX 2009, the posting of an inventory transaction and subsequent postings in the general ledger are stored in the **InventTransPosting** table. When an inventory transaction status changes from physical (Packing slip) to financial (Invoice updated), the application reverses the ledger transactions posted at the physical stage. This action is performed by looking the actual record in the **InventTransPosting** table and not by looking at the current posting profile settings. As a direct consequence of this behavior, we do not recommend changing the item type when inventory transactions in a physical stage exist on the item.

Changing the item type on an ItemID from Item or BOM to Service or from Service to Item or BOM will directly affect the application. The change can have significant effects on the inventory and the general ledger value, such as incorrect cost and inventory on-hand value.

In general, we do not recommend changing the item type on an ItemID from Item or BOM to Service or from Service to Item or BOM because the consequences on the inventory and the general ledger cost and inventory values can be significant.

Instead, we recommend creating a new item with the new item type and then posting an opening balance on this item.

A service item which has been set up to be expensed, would not have an on-hand quantity (that is, no record exists in the **InventSum** table) because the cost is expensed in the profit and loss at the time of purchase. When issuing a quantity of the item in an event, such as a sales order, no cost of goods sold (COGS) will be posted because the item is expensed, and only sales revenue will be recognized.

Inventory events such as purchase and sales orders involving a service item will generate records in the **InventTrans** table.

Example: A raw material is expensed at the time of purchase and capitalized through indirect cost. Based on new machinery with better processing techniques, the consumption of the raw material can now be quantified per manufactured piece.

- Purchase order 1 (Po1) is posted with a quantity of 1 and unit price of USD 10.00 on site S1, warehouse A
- Purchase order 2 (Po2) is posted with a quantity of 1 and unit price of USD 12.00 on site S1, warehouse A
- Sales order 1 (So1) is posted with a quantity of 1 and unit price of USD 55.00 on site S1, warehouse A

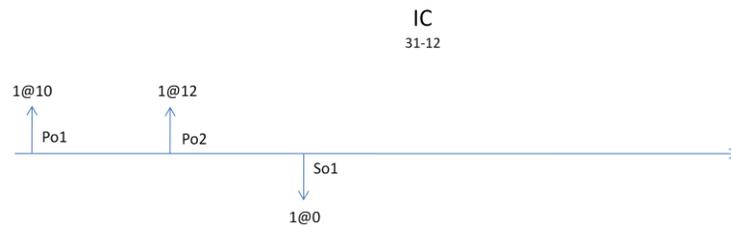


Diagram 16 Posting Sequence

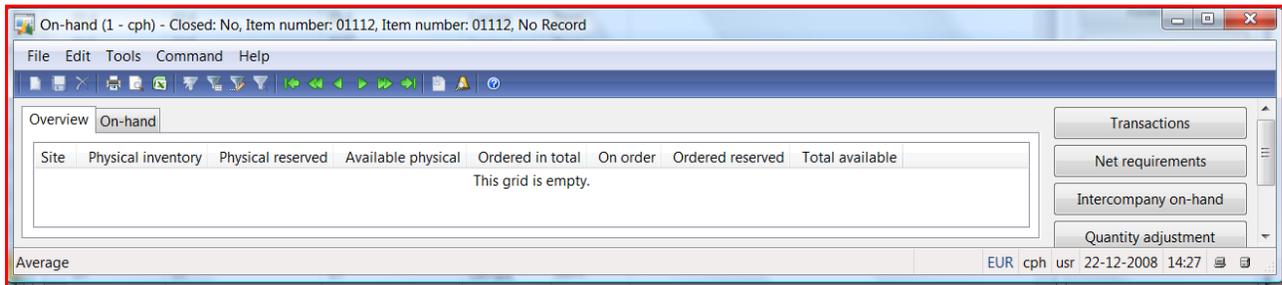
Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	A	22-12-2008	22-12-2008	Purchase order	00070_049	Purchased		1,00	10,00
S1	A	22-12-2008	22-12-2008	Sales order	00045_036		Sold	-1,00	
S1	A	22-12-2008	22-12-2008	Purchase order	00071_049	Purchased		1,00	12,00

Because the service item is set up as recommended in this white paper, no record in the **InventSum** table exists.

ItemId	PostedQty	PostedValue	Deducted	Received	ReservPhysical	ReservOrdered	OnOrder	Ordered	QuotationIssue	QuotationReceipt
01112										

This grid is empty.

SELECT * FROM InventSum



The chart of accounts holds the current balances.

The Light Company		
Financial statement		
Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	0
02	Finish Goods	0
Total Inven:	Total Inventory	0
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	55
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-22
P/L		
023	Revenue	-55
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	22
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

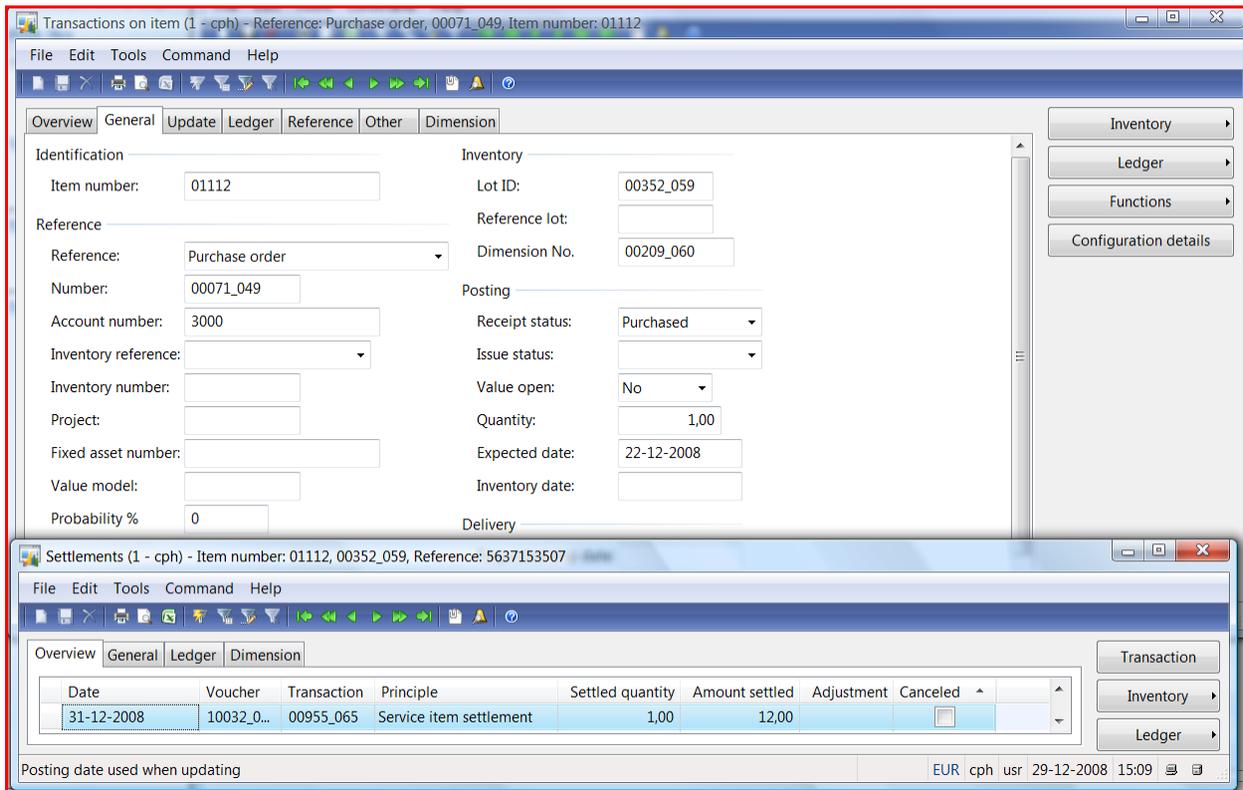
Scenario 1: Inventory close prior to changing the item type

The user runs an inventory close prior to change the item type.

This scenario is included in order to show the consequences of changing the item type in an inappropriate sequence. The workflow that is described in this scenario is not a recommended practice.

In this scenario, only one fiscal period is considered. The results would be the same if multiple fiscal periods have been closed previously.

- The result of the inventory close is that all relevant records in the **InventTrans** table will be settling against themselves.



Changing the item type to Item will result in a system update.

A record in the **InventSum** table is created. The balance is created by looping over all records in the **InventTrans** table and by calculating the sum. In the example, this results in an on-hand quantity of 1.00 with a cost equal to USD 22.00.

Remember that the issue holds a cost equal to USD 0.00.

The screenshot shows the 'Table browser: InventSum' with the following data:

ItemId	PostedQty	PostedValue	Deducted	Received	ReservPhysical	ReservOrdered	OnOrder	Ordered	QuotationIssue	QuotationReceipt	InventDimId	Closed	Registered	Picked	AvailOrdered	AvailPhysical	Phys
01112	1,00	22,00									00209_060				1,00	1,00	

The item now has an InventSum and is considered part of the inventory value. For example, the item and its balance will be included in the physical inventory reports.

The screenshot shows a 'Physical inventory by item group' report for 'The Light Company' as of 31-12-2008. The report includes the following data:

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value	Known financial difference
Lassa	01112	Service set to post Libr	1,00			1,00	22,00			22,00	
Item group	Lassa		1,00			1,00	22,00			22,00	

In this example, the general ledger and ledger accounts representing the inventory value have not been updated, which will lead to reconciliation issues between Inventory management and the general ledger.

A correction of the balances on involved ledger accounts in the chart of account could be posted in a General journal.

Note: We do not recommend posting adjustments directly on ledger accounts that relate to the Inventory management module, because these will lead to imbalances between inventory and the general ledger.

Balance sheet				
<u>Asset</u>				
	Account Name	Account type	Amount	Correction
	Raw material	Balance		22
	Finish Goods	Balance		
	Total inventory	Total		
	WIP material	Balance		
	WIP Labor	Balance		
	WIP Overhead	Balance		
	Total WIP	Total		
	Customer debt	Balance	55	
	Deferred Customer	Balance		
	Inter Sales	Balance		
	<u>Liabilities</u>			
	Accrued Purchase	Balance		
	Vendor debt	Balance	-22	
	Inter Purchase	Balance		
Profit & Loss				
	COGS	P/L		
	Purchase price variance	P/L		
	Production variances	P/L		
	Cost change variance	P/L		
	Revaluation of STD	P/L		
	Rounding variance	P/L		
	Absorb Labor	P/L		
	Absorb Overhead	P/L		
	Inventory profit	P/L		
	Inventory Loss	P/L		
	Expensed items (Service)	P/L	22	-22
	Revenue	P/L	-55	

The application is stocked in an inappropriate state. The InventSum has a record that holds a quantity of 1.00 and a value of USD 22.00, but all related InventTrans records are closed. The InventSum balance that relates to the item type change will never be included in cost calculation because the Inventory Close job cannot find any open InventTrans records.

Scenario 2: The on-hand quantity is reduced to 0 (zero)

We recommend the workflow process that is described in this scenario for changing the item type.

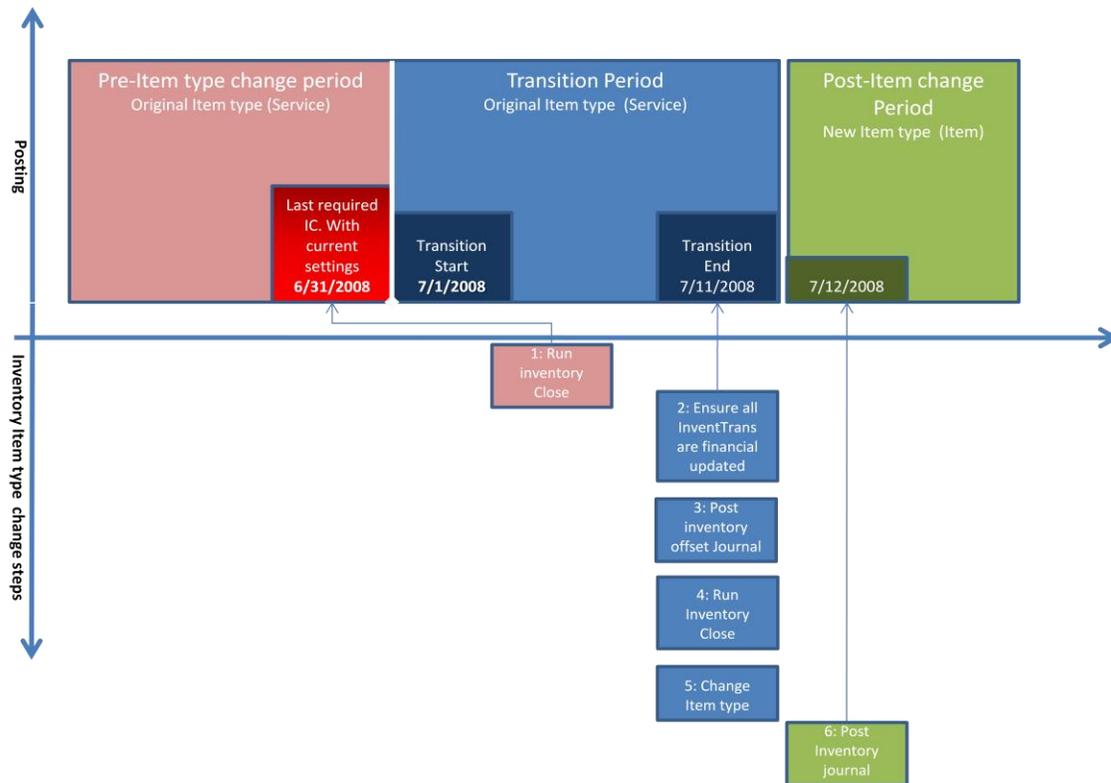
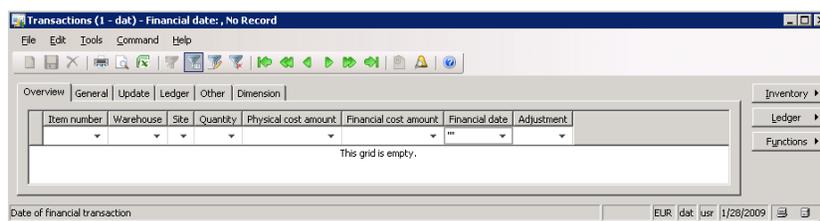


Diagram 17 Change Item Type

Key to Diagram17

Step 1: The previous fiscal period or fiscal year is closed with the current item type. This action ensures a consistent accounting principle for the previous fiscal period or fiscal year.

Step 2: Ensure that all transactions are financially updated.



Tip: Review the **Financial Date** field, and search for blank dates.

Step 3: Post a journal that offset the quantity on-hand.

An inventory journal is posted to ensure that the on-hand quantity and inventory value reach 0 (zero). The Inventory journal could be of the type movement.

Note: It is important that the Inventory journal brings both the on-hand quantity and inventory value to 0 (zero). If either quantity or value exists, an open InventSum record will be created when changing the item type. If an open InventSum record is created during the process of changing the item type, an imbalance between inventory and the general ledger will occur.

Microsoft Dynamics AX 2009 does not keep track of the inventory on-hand quantity on a service item (that is, quantity is not registered for a service item in the **InventSum** table).

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	A	30-12-2008	30-12-2008	Purchase order	00073_049	Purchased		1,00	10,00
S1	A	30-12-2008	30-12-2008	Sales order	00047_036		Sold	-1,00	
S1	A	30-12-2008	30-12-2008	Purchase order	00074_049	Purchased		1,00	12,00

A suggestion to check the on-hand quantity of a service item could be to copy the InventTrans records to Microsoft Office Excel and to create a sum on field quantity and cost amount. Service items will be settled against themselves, so you do not have to manually perform these settlements.

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount	Item number
S1	A	30-12-2008	30-12-2008	Purchase order	00073_049	Purchased		1	10	1113
S1	A	30-12-2008	30-12-2008	Sales order	00047_036		Sold	-1		1113
S1	A	30-12-2008	30-12-2008	Purchase order	00074_049	Purchased		1	12	1113
Total								1	22	

Date	Item number	Configuration	Size	Color	Site	Warehouse	Batch number	Location	Pallet ID	Serial number	Quantity	Cost price	Cost amount	Offset account	L
30-12-2008	01113				S1	A					-1,00	22,00	-22,00	80320	

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	A	30-12-2008	30-12-2008	Purchase order	00073_049	Purchased		1,00	10,00
S1	A	30-12-2008	30-12-2008	Sales order	00047_036		Sold	-1,00	
S1	A	30-12-2008	30-12-2008	Purchase order	00074_049	Purchased		1,00	12,00
S1	A	30-12-2008	30-12-2008	Transaction	000005_061		Sold	-1,00	-22,00

The Light Company

Financial statement

Current value 1/1/2008 - 12/31/2008

Account	Name	
Balance		
01	Raw material	0
02	Finish Goods	0
Total Inven	Total Inventory	0
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	55
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-22
P/L		
023	Revenue	-55
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	22
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

Step 4: An inventory close is run to ensure that all InventTrans records are closed.

The screenshot displays two overlapping windows from Microsoft Dynamics AX. The top window, titled 'Transactions on item (1 - cph) - Reference: Transaction, 000005_061, Item number: 01113', shows a table of transactions. The bottom window, titled 'Settlements (1 - cph) - Item number: 01113, 00363_059, Reference: 5637153762', shows a table of settlements.

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount	Value open
S1	A	30-12-2008	30-12-2008	Purchase order	00073_049	Purchased		1,00	10,00	No
S1	A	30-12-2008	30-12-2008	Sales order	00047_036		Sold	-1,00		No
S1	A	30-12-2008	30-12-2008	Purchase order	00074_049	Purchased		1,00	12,00	No
S1	A	30-12-2008	30-12-2008	Transaction	000005_061		Sold	-1,00	-22,00	No

Date	Voucher	Transaction	Principle	Settled quantity	Amount settled	Adjustment	Canceled
31-12-2008	10036_0...	01009_065	Service item settle...	-1,00	-22,00		<input type="checkbox"/>

Step 5: The item type is changed to Item.

Note: When changing the item type, you will often have to change the inventory model group so that the item will behave as an inventory item. The ledger integration settings might also have to be changed on the current item group, or the item will have to change item group.

An InventSum record with status Closed is created. This means the item holds no value in either quantity or cost.

Table browser: InventSum (1 - cph)

ItemId	PostedQty	PostedValue	Deducted	Received	ReservPhysical	ReservOrdered	OnOrder	Ordered	QuotationIssue	QuotationReceipt	InventDimId	Closed	Registered	Picked	AvailOrdered	AvailPhy
0111																
01113											00209_060	<input checked="" type="checkbox"/>				

SELECT * FROM InventSum

Show fields
 All fields
 Autoreport

Step 6: The inventory is currently holding on-hand and cost equal to 0 (zero). This should be corrected by posting an inventory journal so that the quantity can be capitalized into the inventory.

Journal lines, Inventory (1 - cph) - Journal: 000019_061, New Record

File Edit Tools Command Help

Overview General Dimension

Date	Item number	Configuration	Size	Color	Site	Warehouse	Batch number	Location	Pallet ID	Serial number	Quantity	Cost price	Cost amount	Offset account	L
30-12-20...	01113				S1	A					1,00	12,00	12,00	80320	

Ledger offset account to be used in connection with movements

EUR cph usr 30-12-2008 12:57

Validate
Post
Log
Inventory
Functions

The InventSum record shows a correct balance for quantity and cost, and the record is open.

Table browser: InventSum (1 - cph)

ItemId	PostedQty	PostedValue	Deducted	Received	ReservPhysical	ReservOrdered	OnOrder	Ordered	QuotationIssue	QuotationReceipt	InventDimId	Closed	Registered	Picked	AvailOrdered	AvailPhy
01113	1,00	12,00									00209_060	<input type="checkbox"/>			1,00	

SELECT * FROM InventSum

Show fields
 All fields
 Autoreport

The inventory physical reports will print the correct result, and the InventTrans records will also be correctly considered by future executions of the Inventory close process.

The Light Company

Physical inventory by item group

As on : 01-01-2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
Lamps	01113	Service item	1,00			1,00	12,00			12,00
Item group : Lamps			1,00			1,00	12,00			12,00

The Light Company		
Financial statement		
Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	12
02	Finish Goods	0
Total Inven	Total Inventory	12
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	55
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-22
P/L		
023	Revenue	-55
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	10
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

Note: You should not delete the Inventory close job run as part of the item type change because deleting this job will have a negative result on the postings that were made in the general ledger. If the Inventory close job is deleted, the inventory on-hand quantity will, in some cases, still provide correct results, but the ledger accounts that represent inventory in the chart of accounts will contain incorrect values, and future reconciliations of the inventory and the general ledger will become very difficult, if not outright impossible.

Change an item group

Microsoft Dynamics AX 2009 enables you to change the item group on a cost object at any given time. Depending on the configuration of the application, changing an item group may result in no consequences or many consequences. The characteristics of the consequences will all relate to specifics about the reconciliation of inventory and the general ledger.

When posting a cost event in Microsoft Dynamics AX 2009, the specific ledger accounts that represent the cost event in the ledger will be saved in the **InventTransPosting** table. This record is saved for multiple reasons; for instance, if adjustments have to be posted on the **InventTrans** table by the Inventory Close job, or when reversing physical postings when financially updating the inventory.



Diagram 18 Posting sequence

Changing the item group will not trigger the application to update the records in the **InventTransPosting** table that are associated with open records in the **InventTrans** table. As a consequence, changing the item group should only take place in cases where all **InventTrans** records are financially updated and closed.

Example: Changing an item group

An item is moved from its current item group into a new item group. In the future, this item is expected to become a portfolio of items and a new business segment for the company or organization. The new item group will have its own representation in the general ledger enabling review and tracking of the new item group's development.

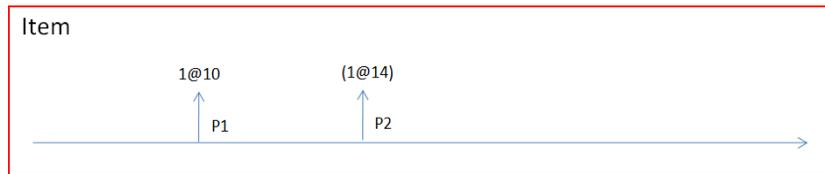


Diagram 19 Posting sequence

The item has two purchase orders posted against it.

- Purchase order 1 (P1) is posted with a quantity of 1 and unit price of USD 10.00 on site: S1, warehouse: GW
- Purchase order 2 (P2) is posted with a quantity of 1 and estimated unit price of USD 14.00 on site: S1, warehouse: GW

Transactions on item (1 - dat) - Reference: Purchase order, 00043_049, Item number: A

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	GW	7/11/2008	7/11/2008	Purchase order	00042_049	Purchased		1.00	10.00
S1	GW	7/11/2008		Purchase order	00043_049	Received		1.00	

The Light Company
Physical inventory by item group
As on: 7/11/2008

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
RawMat			1.00		1.00	2.00	10.00	14.00		24.00
		Item group : RawMat	1.00		1.00	2.00	10.00	14.00		24.00
Total account (099) ...			24.00	Total posted inventory ...:		24.00				

The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	24
02	Finish Goods	0
Total Inven	Total Inventory	24
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilites		
010	Accrued Purchase	-14
011	Vendor debt	-10
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

The new item group is created with all of the specific ledger accounts, and the item is placed in the new item group.

The Light Company

Physical inventory by item group

As on: 7/11/2008

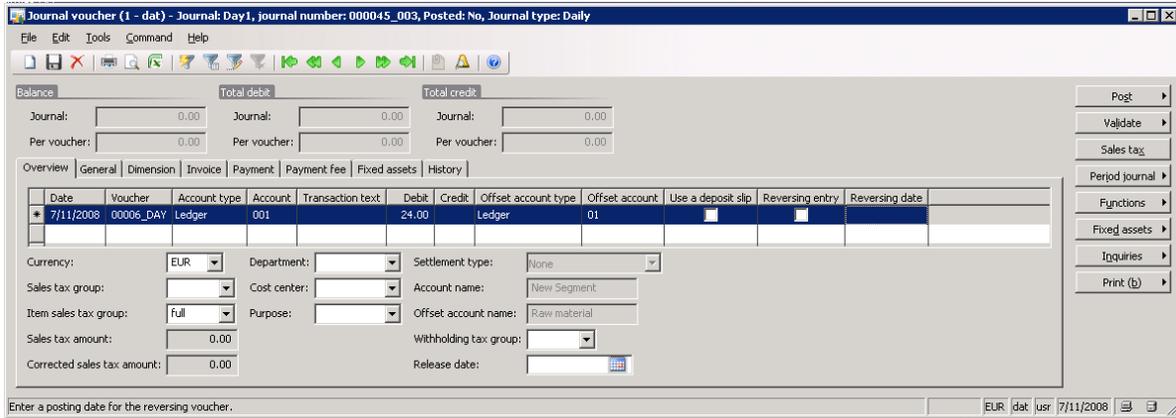
Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
NewSeg	Δ	Δ	1.00		1.00	2.00	10.00	14.00		24.00
Item group :	NewSeg		1.00		1.00	2.00	10.00	14.00		24.00
Total account (099) ...:		24.00 Total posted inventory ...:				24.00				

The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	24
001	New Segment	0
02	Finish Goods	0
Total Inven	Total Inventory	24
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilites		
010	Accrued Purchase	-14
011	Vendor debt	-10
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

The new ledger account "New segment" is added to the financial statement, but the inventory value was not transferred to the ledger account as a result of the item group change. In order to transfer the inventory value, a journal must be posted manually in the general ledger.



The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	0
001	New Segment	24
02	Finish Goods	0
Total Inven		Total Inventory
		24
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		
		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	-14
011	Vendor debt	-10
PL		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

The inventory and the general ledger appear to be balancing, but this is only until the purchase order P2 is invoice-updated. The P2 purchase order is invoice-updated with a cost of USD 12.00.

The Light Company

Physical inventory by item group

as on: 7/11/2008

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
Item group	A	A	2.00			2.00	22.00			22.00
Item group	NewSaa		2.00			2.00	22.00			22.00
Total account (099) ...:		22.00 Total posted inventory ...:				22.00				

The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	-14
001	New Segment	36
02	Finish Goods	0
Total Inven	Total Inventory	22
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilites		
010	Accrued Purchase	0
011	Vendor debt	-22
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	0
032	Inventory Profit	0

The general ledger is not in balance with the inventory. This situation will continue until all transactions on the item are financially updated.

Recommended solution

Note: The recommended solution described in this section does not apply to situations where there are miscellaneous charges posted that affect the inventory item after the item group has been changed successfully. These miscellaneous charges will still be posted based on the record in the **InventTransPostings** table that was originally recorded in relation to the record in the **InventTrans** table.

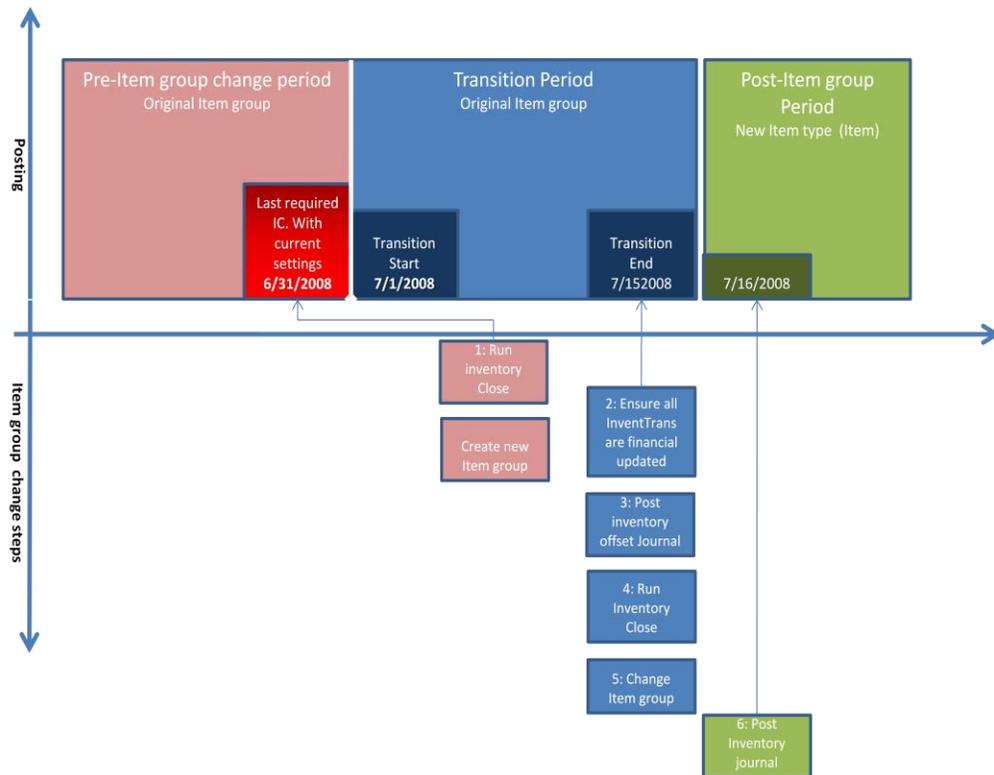


Diagram 20 Change item group

Note: Steps 3, 4, and 6, which are listed in the following paragraphs, are used to move the inventory balance in the general ledger. If there are positive inventory on-hand quantities and value, steps 3, 4, and 6 can be skipped, and you would then have to manually post the movement of the balance in a finance journal.

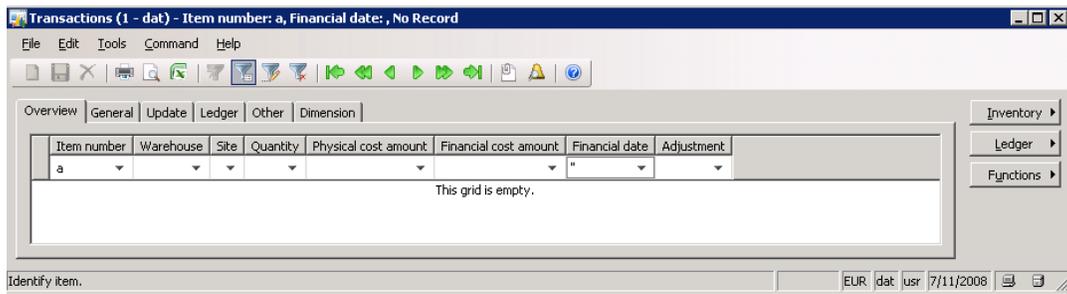
Transactions (1 - dat) - Reference: Purchase order, 00049_049, Item number: a, Financial cost amount: 0,00

Item number	Warehouse	Site	Quantity	Physical cost amount	Financial cost amount	Financial date	Adjustment
a							
A	GW	S1	1.00	14.00			

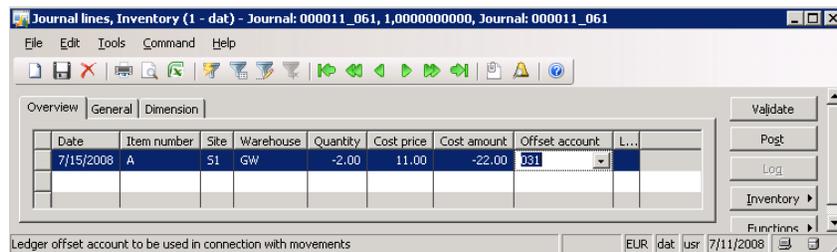
Identify item. EUR dat usr 7/11/2008

In this example, the purchase order P2 is only physical updated as of July 11, 2008, which directly implies that the item is not in a stage where the item group can be changed

On July 15, 2008, the invoice of USD 12.00 is received and posted for purchase order P2.



Step 3: Post the offset journal.



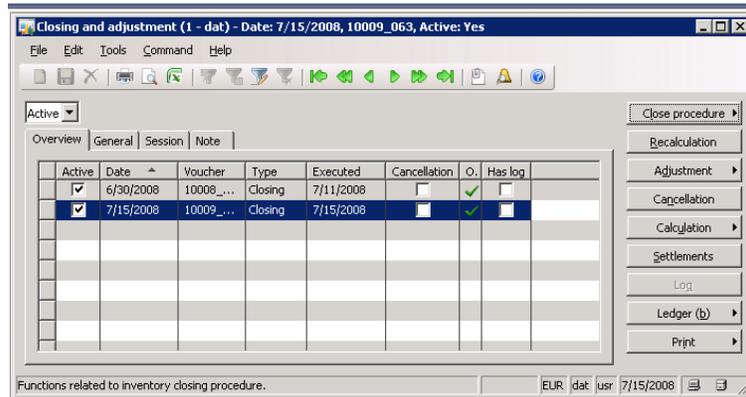
The physical inventory by item group will report as being empty.

The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	0
001	New Segment	0
02	Finish Goods	0
Total Inven	Total Inventory	0
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-22
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0
031	Inventory loss	22
032	Inventory Profit	0

Step 4: Run the inventory close job.



Step 5: Change the item group of the item.

Step 6: Re-post the inventory on-hand.



The Light Company

Physical inventory by item group

As on: 7/16/2008

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
New Seg			2.00			2.00	22.00			22.00
Item group: New Seg			2.00			2.00	22.00			22.00
Total account (099) :		22.00 Total posted inventory :	22.00							

The Light Company

Financial statement

Account	Name	Current value 1/1/2008 - 12/31/2008
Balance		
01	Raw material	0
001	New Segment	22
02	Finish Goods	0
Total Inven:		Total Inventory
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
110	Accrued Purchase	0
111	Vendor debt	-22
Profit		
123	Revenue	0
120	COGS	0
121	Absorb Labor	0
122	Absorb Overhead	0
124	Expense Manufacturing	0
125	Expense Outsource	0
131	Inventory loss	22
132	Inventory Profit	-22

Note: The information in this white paper also applies if a ledger account is changed within an existing posting profile.

Note: When reporting back in time, the item will be reported under the new item group and ledger balances will be shown on the old ledger accounts. This situation occurs because **Item group** is not a date-controlled field.

Marking

In Microsoft Dynamics AX 2009, marking behaves as a cost marker, ensuring that the cost of a specific receipt is brought forward to a specific issue. Marking will set aside any cost flow assumption (weighted average, FIFO, LIFO) that is set up on the cost object. This behavior is obtained by the Inventory close job that closes and adjusts marked records in the **InventTrans** table as its first task. The second task is to query and to find all unmarked transactions in the **InventTrans** table and to settle those according to the cost flow assumption.

Note: Marking has no effect on cost objects valued by the cost method "Standard cost". Issues will always take place at the current active cost.

Example: How marking affects cost accounting

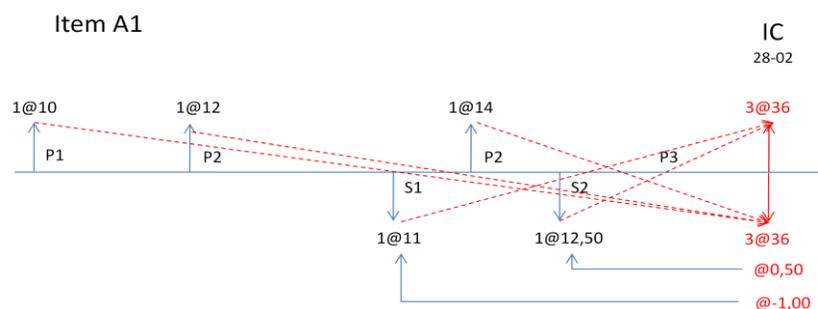
- Purchase order 1 (P1) is posted with a quantity of 1 and unit price of USD 10.00.
- Purchase order 2 (P2) is posted with a quantity of 1 and unit price of USD 12.00.
- Sales order 1 (S1) is posted with a quantity of 1 and an estimated unit price of USD 11.00.
- Purchase order 3 (P3) is posted with a quantity of 1 and unit price of USD 14.00.
- Sales order 1 (S1) is posted with a quantity of 1 and an estimated unit price of USD 12.50.

The cost flow assumption that is used in the following example is weighted average.

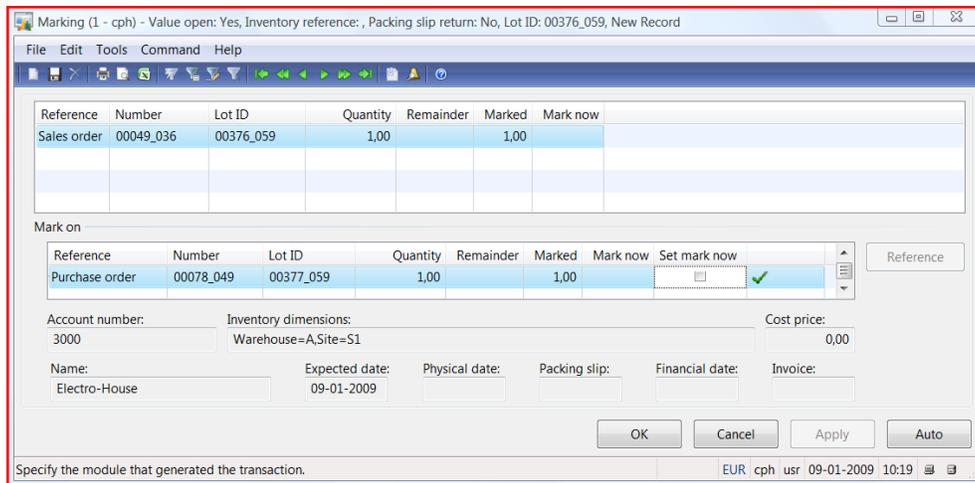
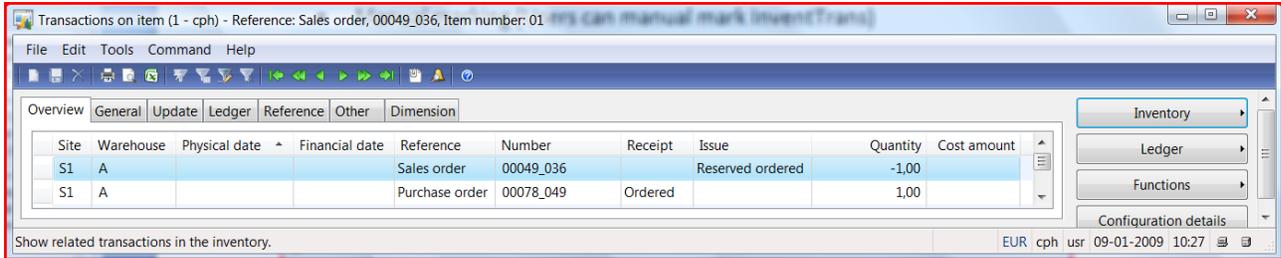
Without marking:

The inventory close job that is run by the end of February will generate settlements/cost adjustments for both sales orders.

- Sales order 1 (S1) is posted with a quantity of 1 and unit price of USD 12.00.
- Sales order 1 (S1) is posted with a quantity of 1 and unit price of USD 12.00.



purchase order.) The application will automatically mark the two created records in the **InventTrans** table against each other.



Note: System-generated markings can be deleted, but the consequence is that the relation between the **InventTrans** records will be severed, and the cost flow assumption that is set on the cost object will be used to value the issue transaction.

Master scheduling

Master scheduling in Microsoft Dynamics AX 2009 allows you to use marking when firming planned orders. You can set the inventory marking policies when firming planned orders in the **Update marking** field (**Master planning > Setup > Parameters > Standard Update Tab**).

There are three inventory marking policies when firming planned orders:

Value	Description
No	No inventory marking is performed.
Standard	Inventory marking is updated according to the pegging. A requirement order is marked against a fulfillment order. If some quantity remains on the fulfillment order, it is not marked.
Extended	Both the requirement order and the fulfillment order are marked, regardless of whether any quantity remains on the fulfillment order.

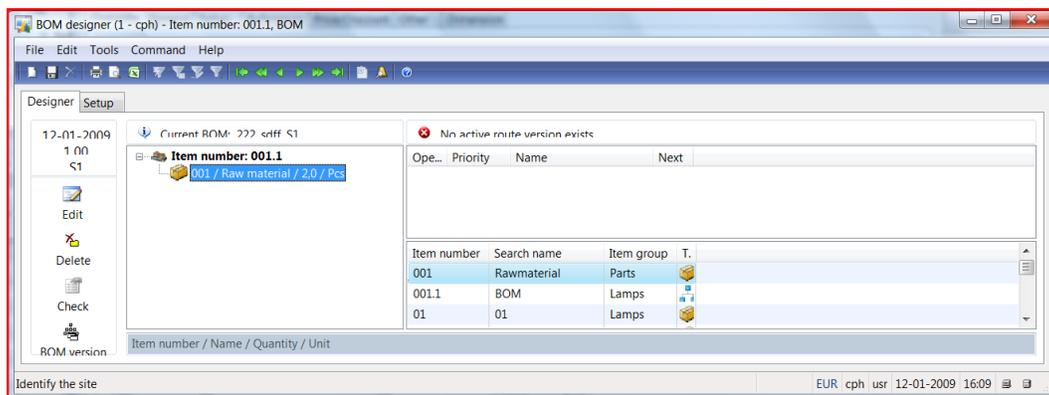
Recommended settings, based on company or organization type

Company/Organization type	Recommended setting
MTS (Make To Stock)	No
MTO (Make To Order)	No*/Standard/Extended
ETO (Engineer To Order)	No*/Standard/Extended
ATO (Assembly To Order)	No*/Standard/Extended

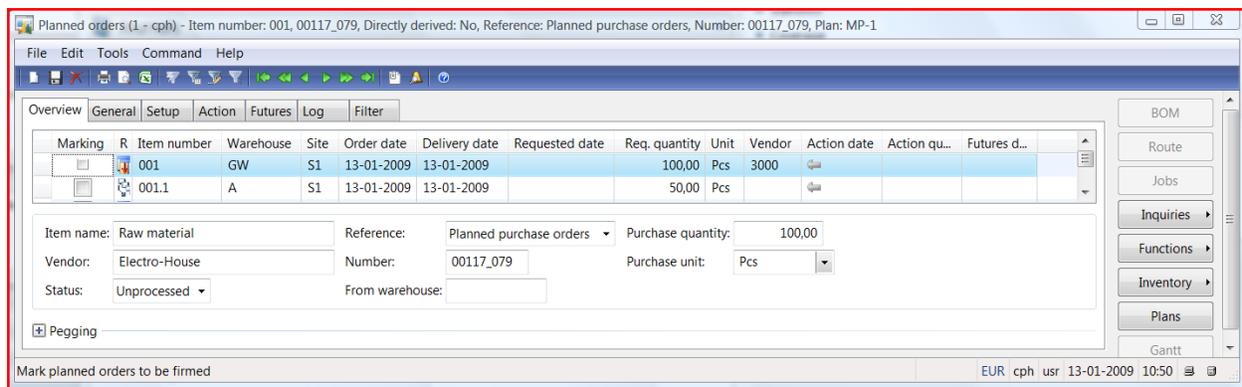
* Specific cost tracking per order could be obtained by enabling the batch or serial number as a financial active inventory dimension.

Example: Run master scheduling, Update marking field set to Standard

This example is based on a simple BOM item that consists only of raw materials. Two quantities of raw material are consumed to produce one finished item.



A sales order of 50 items is recorded by the sales department, and a master scheduling job is run to cover future requirements.



Master scheduling generates two planned orders. Firming the planned orders will generate the actual purchase and production orders and also create markings according to the parameter setting in the **Update marking** field.

On the BOM item:

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1				Sales order	00052_036		Reserved ordered	-50,00	
S1				Production	0018_074	Ordered		50,00	

Reference	Number	Lot ID	Quantity	Remainder	Marked	Mark now
Sales order	00052_036	00398_059	50,00		50,00	
Production	0018_074	00399_059	50,00		50,00	

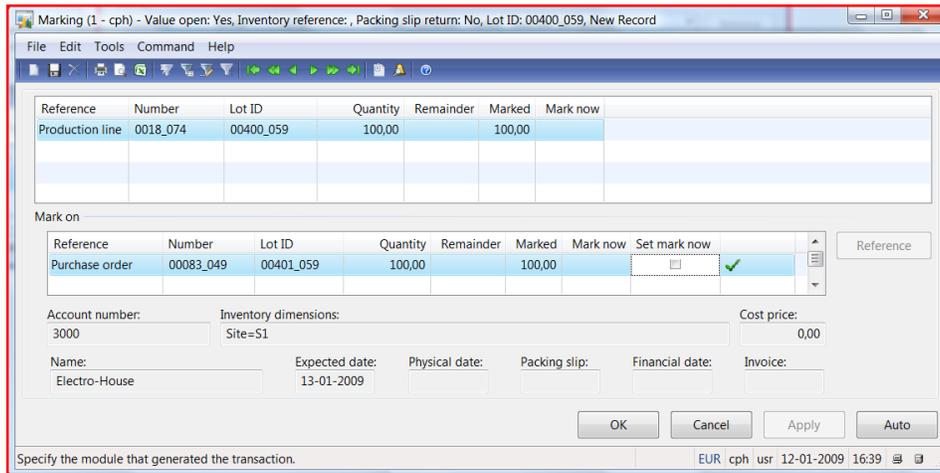
Mark on

Reference	Number	Lot ID	Quantity	Remainder	Marked	Mark now	Set mark now
Production	0018_074	00399_059	50,00		50,00		<input checked="" type="checkbox"/>

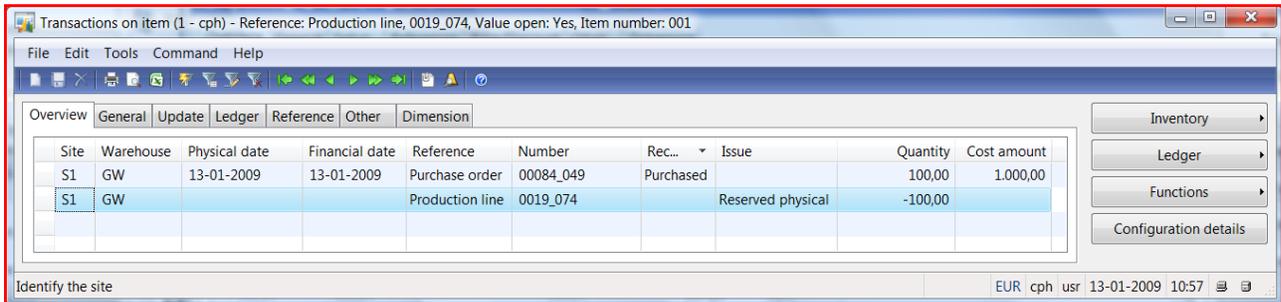
Account number: _____ Inventory dimensions: Site=S1 Cost price: 0,00
 Name: _____ Expected date: 13-01-2009 Physical date: _____ Packing slip: _____ Financial date: _____ Invoice: _____

On the raw materials:

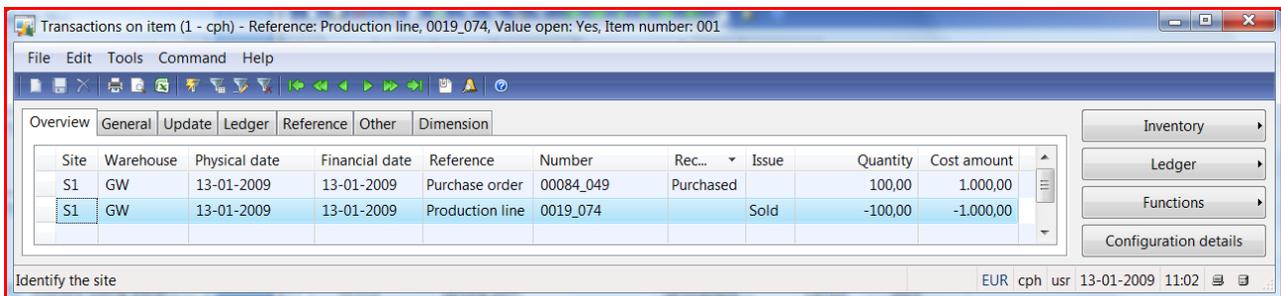
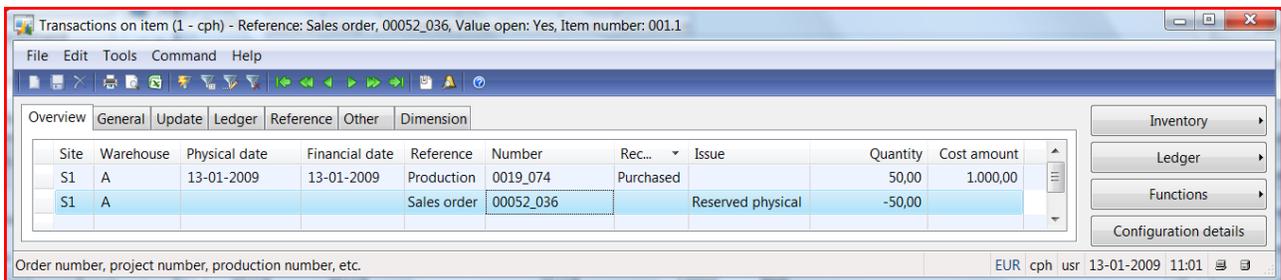
Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1				Production line	0018_074		Reserved ordered	-100,00	
S1				Purchase order	00083_049	Ordered		100,00	



The purchase order is invoice-updated with a cost of USD 10.00 per item.



The production order is ended.



The sales order is invoice-updated.

Transactions on item (1 - cph) - Reference: Sales order, 00052_036, Value open: Yes, Item number: 001.1

Site	Warehouse	Physical date	Financial date	Reference	Number	Rec...	Issue	Quantity	Cost amount
S1	A	13-01-2009	13-01-2009	Production	0019_074	Purchased		50,00	1.000,00
S1	A	13-01-2009	13-01-2009	Sales order	00052_036		Sold	-50,00	-1.000,00

Identify the site: EUR cph usr 13-01-2009 11:04

A second purchase order on item 001 with quantity 100 is invoice-updated with a cost of USD 12.00 per item.

Transactions on item (1 - cph) - Reference: Production line, 0019_074, Value open: Yes, Item number: 001

Site	Warehouse	Physical date	Financial date	Reference	Number	Rec...	Issue	Quantity	Cost amount
S1	GW	13-01-2009	13-01-2009	Purchase order	00084_049	Purchased		100,00	1.000,00
S1	GW	13-01-2009	13-01-2009	Purchase order	00085_049	Purchased		100,00	1.200,00
S1	GW	13-01-2009	13-01-2009	Production line	0019_074		Sold	-100,00	-1.000,00

Identify the site: EUR cph usr 13-01-2009 11:08

The inventory is closed as of January 31, 2009.

Transactions on item (1 - cph) - Reference: Production line, 0019_074, Physical date: 13-01-2009, Item number: 001

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	GW	13-01-2009	13-01-2009	Purchase order	00085_049	Purchased		100,00	1.200,00
S1	GW	13-01-2009	13-01-2009	Purchase order	00084_049	Purchased		100,00	1.000,00
S1	GW	13-01-2009	13-01-2009	Production line	0019_074		Sold	-100,00	-1.000,00

Date of physical transaction: EUR cph usr 13-01-2009 11:11

Transactions on item (1 - cph) - Reference: Production, 0019_074, Financial date: 13-01-2009, Item number: 001.1

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	A	13-01-2009	13-01-2009	Sales order	00052_036		Sold	-50,00	-1.000,00
S1	A	13-01-2009	13-01-2009	Production	0019_074	Purchased		50,00	1.000,00

Date of financial transaction: EUR cph usr 13-01-2009 11:18

The outflow transaction in the **InventTrans** table that is related to the production order is not getting adjusted by the Inventory close job to reflect the cost flow assumption that is set in the item through the Inventory model group. In this case, the raw material was set to use the weighted average cost flow assumption.

The direct consequences are that the inventory value on the raw materials is not valued by the cost flow assumption. This has a direct effect on the cost of the produced item, which again has a direct effect on the COGS and thereby also on the margin that is posted in Profit and Loss section of the general ledger.

If the value in the **Update marking** field is set to “No”, this same example will lead to a very different result.

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	GW	13-01-2009	13-01-2009	Production line	0019_074		Sold	-100,00	-1.100,00
S1	GW	13-01-2009	13-01-2009	Purchase order	00084_049	Purchased		100,00	1.000,00
S1	GW	13-01-2009	13-01-2009	Purchase order	00085_049	Purchased		100,00	1.200,00
S1	GW	31-01-2009	31-01-2009	Weighted average inventory closing			Purchased	200,00	2.200,00
S1	GW	31-01-2009	31-01-2009	Weighted average inventory closing			Sold	-200,00	-2.200,00

Site	Warehouse	Physical date	Financial date	Reference	Number	Receipt	Issue	Quantity	Cost amount
S1	A	13-01-2009	13-01-2009	Production	0019_074	Purchased		50,00	1.100,00
S1	A	13-01-2009	13-01-2009	Sales order	00052_036		Sold	-50,00	-1.100,00

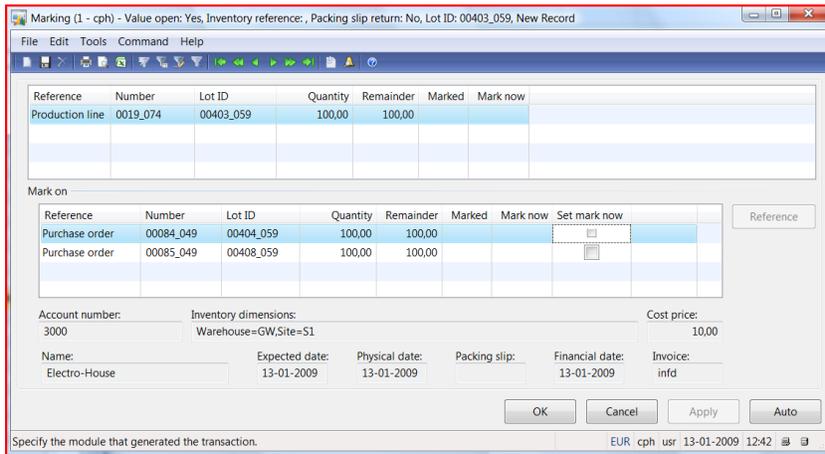
On the raw material, all records in the **InventTrans** table will be considered by the inventory close job, and the result is that the inventory value then follows the weighted average cost flow assumption. The cost on the issue transaction that is related to the production order is adjusted as of the inventory closing date to the weighted average cost for the period.

The direct effect is that the cost adjustment is transferred to the produced item and the COGS of the sales order.

Note: In the perspective of cost management, and based on the behavior and consequences by using marking, we recommend that the value in the **Update marking** field in Master planning be set to “No”.

Manual marking

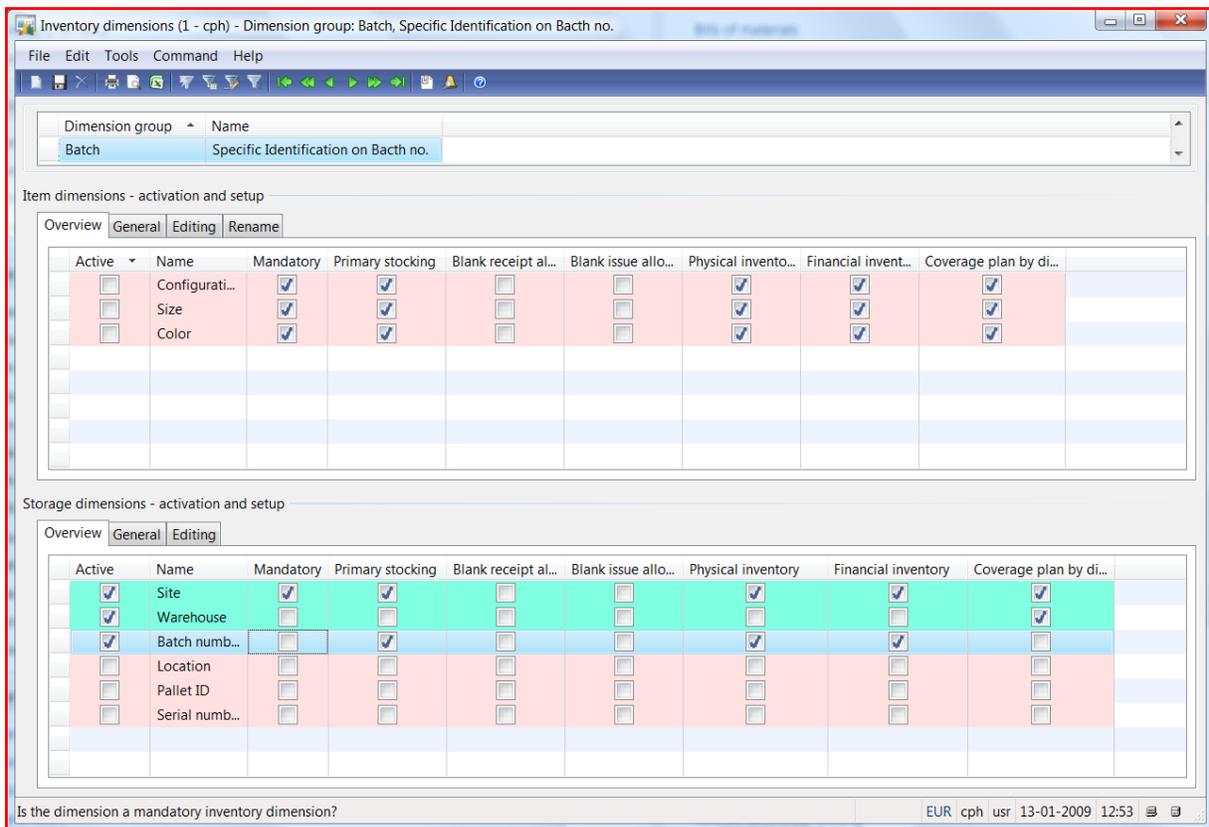
Microsoft Dynamics AX 2009 allows you to use manual markings, enabling you to cost-mark records in the **InventTrans** table as required. The Marking form is found in **Inventory management > Common Forms > Item Details > Transactions > Inventory > Marking**.



Note: You can also clear application markings in the **Marking** form. Application markings are markings that are generated by the application during the execution of events.

Note: Items that are valued by the standard cost method do not allow manual markings. Application markings can occur, but they have no effect because all issues will occur at the current active cost.

Microsoft Dynamics AX 2009 allows specific costing without using marking. Inventory dimension groups (**Inventory management > Setup > Dimensions > Dimension Groups**) enable you to select an inventory dimension as a financial inventory.



The inventory dimension batch number is the recommended alternative if specific costing is the objective. The consequence is that the batch number has to be assigned on all records in the **InventTrans** table.

Ledger reconciliation

Microsoft Dynamics AX 2009 is module-based, and each module contains a subledger where transactions are stored at a much aggregated level, which allows you to conduct detailed inquires and reports.

The general ledger is linked to the subledger by posting profiles, which allows you to define the integration level. The general ledger postings are performed at a summarized level. This logic serves two purposes:

- All detail information can be extracted from the source, which is the subledger.
- It saves space in the database.

Note: The class that conducts the summation is found under **AOT > Classes > LedgerVoucherObject**. By default, summation is performed based on a combination of Date, Voucher, PostingType, and LedgerDimensions.

Note: The summation based on Date, Voucher, PostingType and LedgerDimension implies that Microsoft Dynamics AX 2009 does not enable you to reconcile inventory and the general ledger per item.

In Microsoft Dynamics AX 2009, a new layout and some new capabilities were implemented in the Inventory reports. These include:

- Physical inventory by item group
- Physical inventory by inventory dimension

All changes to the reports were made in order to facilitate reconciliation of inventory values to the general ledger .

The Light Company												Page 1
Physical inventory by item group												15-01-2009
As on: 15-01-2009												15:36:57
Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value	Known financial difference	Estimated inventory value
Enclosed	Enclosed	Enclosed	1,00		1,00	1,00	18,00			18,00		18,00
Item group - Enclosed			1,00		1,00	1,00	18,00			18,00		18,00
Total account (03) ...		18,00 Total posted inventory ...	18,00									

Note: The report is designed based on the assumption that financial inventory is posted to the general ledger.

In general reconciliation of inventory and the general ledger can be divided into two phases.

- High level
- Detailed level

High-level reconciliation of inventory value and the general ledger

The purpose of high-level reconciliation is to see if there is any difference between the inventory value that is reported by the Inventory management module and the value that is posted on the ledger accounts that reflects inventory in the general ledger.

Note: High-level reconciliations can show discrepancies that originate from incorrect setup or actions, for instance, if the item group or dimension group was changed incorrectly.

The following list of reports is suitable for use in high-level reconciliation:

- **Physical inventory by item group (Inventory Management > Reports > Status > Physical Inventory)**
- **In process production costing (Production > Reports > Balance)**
- **Finished items in process (Production > Reports > Balance)**
- **Financial statement (General Ledger > Reports > Transaction > Periodic)**

In case WIP should be reconciled at Material, Labor and Overhead level, the following reports can be used:

- Raw materials in process (**Production > Reports > Balance**)
- Work in process (**Production > Reports > Balance**)
- Indirect cost in process (**Production > Reports > Balance**)

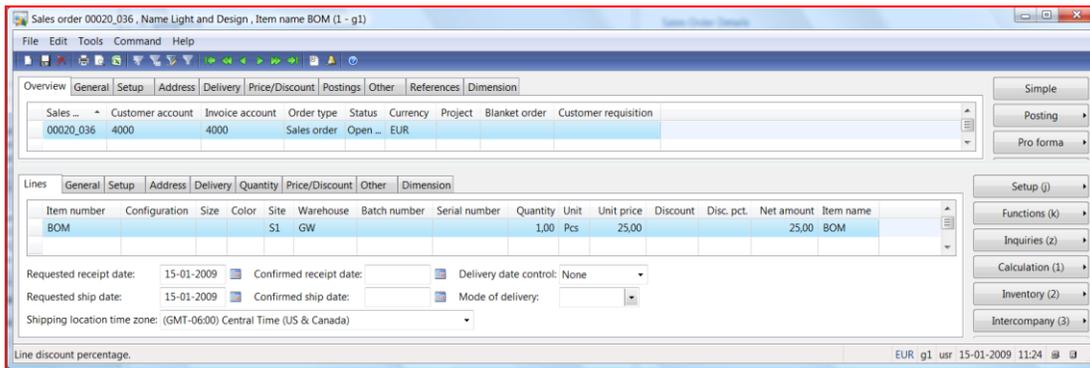
Note: The result of the finished item in process report should then be subtracted from the result of the Raw materials in process

Example: Reconciliation through a Purchase – Production – Sale – Inventory close scenario

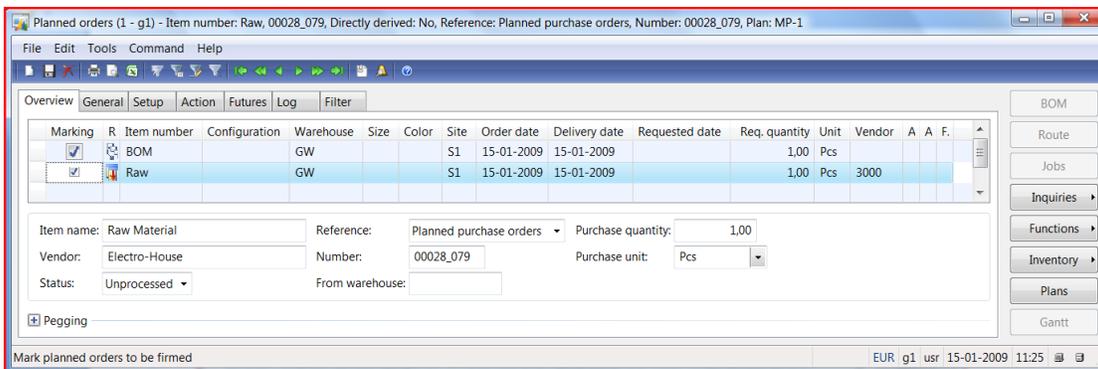
The following example is based on a simple BOM structure that consists of an item that is produced.

T	Item/Work center	Operation	Level	Cost group	Consumption	Unit	Total cost price per unit
	BOM		0	Mat1	1,00	Pcs	16,00
	Raw		1	Mat1	1,00	Pcs	10,00
	AEG	Packing	1	WCC	0,50	Hou...	5,00
	Prod		1	OVH1	1,00		1,00

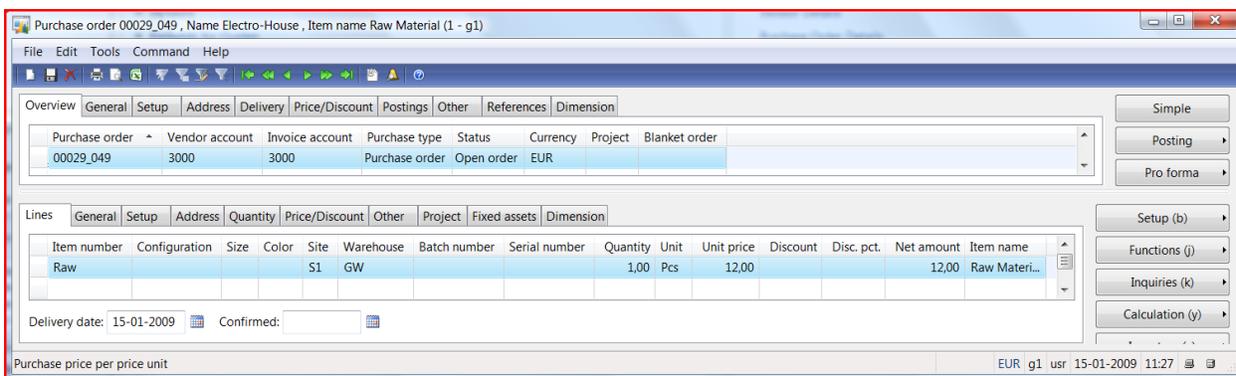
A sales order with quantity 1 and sales price USD 25.00 is entered into the application.



A master scheduling job is run to cover future requirements.



The supplier charges USD 12.00 and not the estimated USD 10.00.



Step 1: The purchase order is packing-slip updated.

Reconciliation can occur.

The reports that relate to WIP will report as empty because no transactions exist yet. These reports are:

- In process production costing
- Finished items in process

The Light Company

Physical inventory by item group

As on: 15-01-2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
* RawMat	Raw	Raw Material			1,00	1,00		12,00		12,00
Item group : RawMat					1,00	1,00		12,00		12,00
Total account (03) ::		12,00 Total posted inventory ...:					12,00			

The Light Company

Physical inventory by item group

As on: 15-01-2009

Ledger account	Account name	Balance
01	Raw material	12,00
02	Finish Goods	0,00
Total		12,00

The amounts are reconciled with the financial statement from the general ledger.

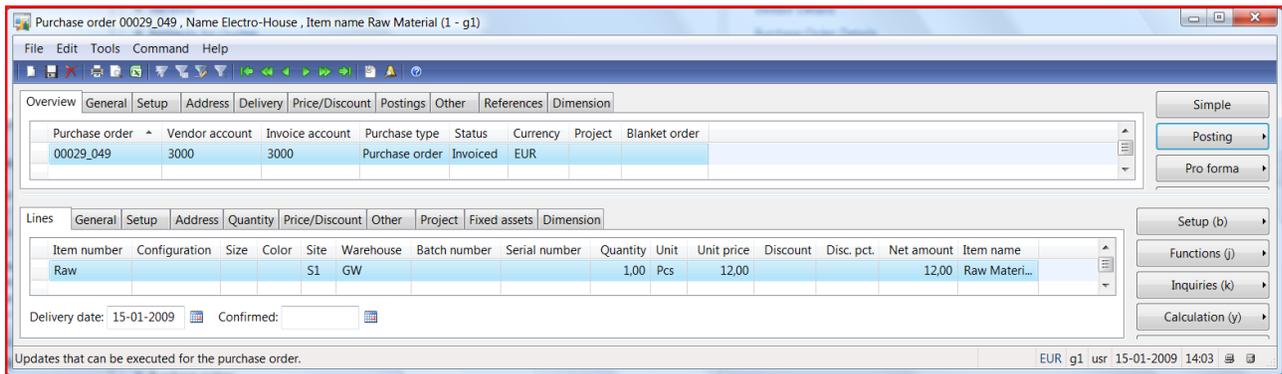
The Light Company

Financial statement

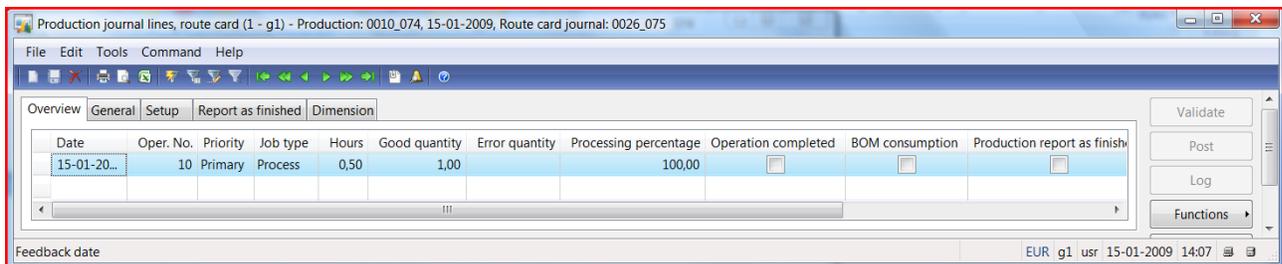
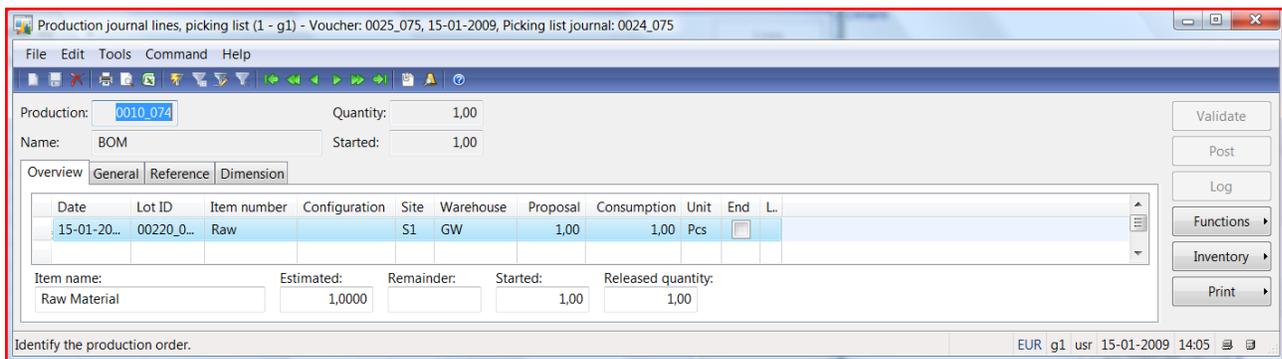
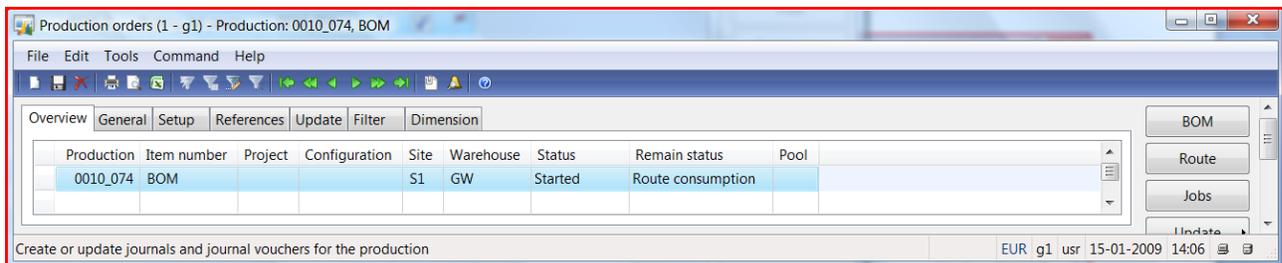
Account No.	Account Name	Current value -
Balance		
Asset		
01	Raw material	12
02	Finish Goods	0
Total Invent		12
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Custon	0
Liabilities		
011	Vendor debt	0
010	Accrued Purcha:	-12
P/L		
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhea	0
023	Revenue	0

Step 2: The purchase order is invoice-updated, and the production order is started with resources posted.

The purchase order is invoice-updated at USD 12.00.



The production order status changes to Started, and resources are consumed.



Reconciliation can occur.

The **Finished items in process** report will be empty because no transactions exist yet.

The Light Company								Page 1
In process production costing								15-01-2009
								14:10:22
Cutoff date : 15-01-2009								
Production	Date	Type	Item / Operation / Indirect cost code	Quantity/Time	Materials amount	Labor amount	Indirect cost amount	Total production amount
0010_074	15-01-2009	Material	Raw	1,00	12,00			12,00
0010_074	15-01-2009	Labor	10	0,50		5,00		5,00
0010_074	15-01-2009	Indirect cost	Prod				1,00	1,00
Production : 0010_074					12,00	5,00	1,00	18,00
Grand Total					12,00	5,00	1,00	18,00

The Light Company											
Physical inventory by item group											
As on: 15-01-2009											
Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value	
* RawMat	Raw	Raw Material	1,00	1,00			12,00	-12,00			
Item group : RawMat			1,00	1,00			12,00	-12,00			
Total account (03) :		Total posted inventory ...									

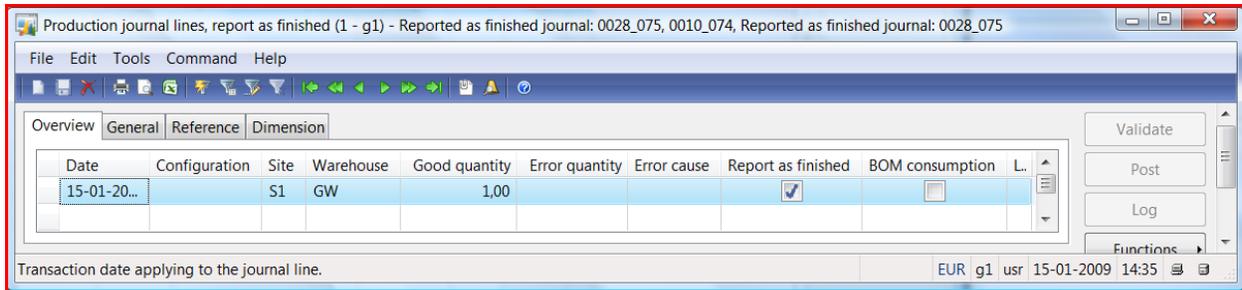
The Light Company		
Physical inventory by item group		
As on: 15-01-2009		
Ledger account	Account name	Balance
01	Raw material	0,00
02	Finish Goods	0,00
Total		0,00

The amounts are reconciled with the financial statement from the general ledger.

The Light Company		
Financial statement		
Account No.	Account Name	Current value -
Balance		
Asset		
01	Raw material	0
02	Finish Goods	0
Total Invent		0
04	WIP Material	12
05	WIP Labor	5
06	WIP Overhead	1
Total WIP		18
08	Customer debt	0
09	Deferred Custon	0
Liabilities		
011	Vendor debt	-12
010	Accrued Purcha:	0
P/L		
020	COGS	0
021	Absorb Labor	-5
022	Absorb Overhea	-1
023	Revenue	0

Step 3: The production order is reported as finished.

The active cost on item BOM is currently USD 15.00, because the BOM calculation that was conducted before starting the production, order was not activated.



Note: Microsoft Dynamics AX 2009 uses the active cost or the cost on the item table of the produced item when posting Report as finish journals. If the cost is not updated on a regular basis, and the cost of some components fluctuates significantly, incorrect cost values could occur temporarily until the production order is financially updated.

The Light Company								Page 1	
Finished items in process								15-01-2009	
As on: 15-01-2009								14:45:11	
Production	Item number	Item name	Physical date	Financial date	Quantity	Unit	Physical cost amount	Posted physical value	
0010_074	BOM	BOM	15-01-2009		1,00	Pcs	15,00	15,00	
Grand Total							15,00	15,00	

Note: You have to manually add the **Grand Total** field to this report in the report dialog box.

The Light Company								Page 1	
In process production costing								15-01-2009	
Cutoff date: 15-01-2009								14:47:12	
Production	Date	Type	Item / Operation / Indirect cost code	Quantity/Time	Materials amount	Labor amount	Indirect cost amount	Total production amount	
0010_074	15-01-2009	Material	Raw	1,00	12,00			12,00	
0010_074	15-01-2009	Labor	10	0,50		5,00		5,00	
0010_074	15-01-2009	Indirect cost	Prod				1,00	1,00	
Production: 0010_074					12,00	5,00	1,00	18,00	
Grand Total					12,00	5,00	1,00	18,00	

The Light Company										
Physical inventory by item group										
As on: 15-01-2009										
Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
* FinGood	BOM	BOM			1,00	1,00		15,00		15,00
Item group: FinGood					1,00	1,00		15,00		15,00
* RawMat	Raw	Raw Material	1,00	1,00			12,00	-12,00		
Item group: RawMat			1,00	1,00			12,00	-12,00		
Total account (03) :			15,00							
Total posted inventory ...:			15,00							

The Light Company

Physical inventory by item group

As on : 15-01-2009

Ledger account	Account name	Balance
01	Raw material	0,00
02	Finish Goods	15,00
Total		15,00

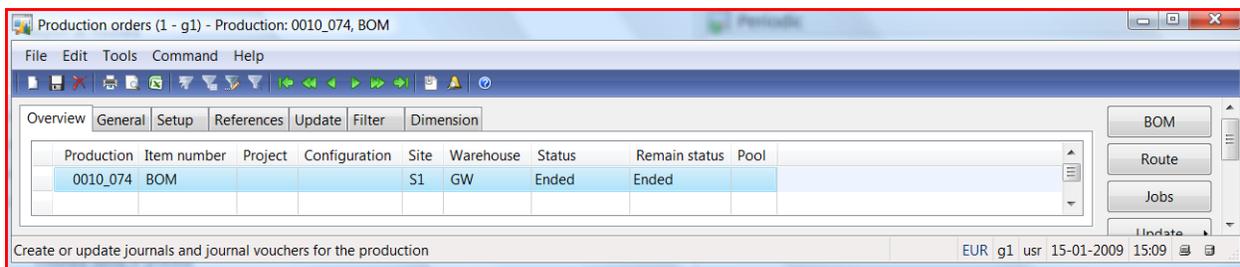
The Light Company

Financial statement

Account No.	Account Name	Current value -
Balance		
Asset		
01	Raw material	0
02	Finish Goods	15
Total Invent		15
04	WIP Material	-3
05	WIP Labor	5
06	WIP Overhead	1
Total WIP		3
08	Customer debt	0
09	Deferred Custon	0
Liabilities		
011	Vendor debt	-12
010	Accrued Purchas	0
P/L		
020	COGS	0
021	Absob Labor	-5
022	Absorb Overhea	-1
023	Revenue	0

The value for **Total WIP** no longer matches the value in the **In process production costing** report. This is because, when posting the Report as finished journal, Microsoft Dynamics AX 2009 posts an accumulative offset of WIP. In order to reconcile inventory and the general ledger properly, take grand total in the **In process production costing** report and subtract the grand total from the **Finished items in process** report

Step 4: End the production order.



The reports that relate to WIP will report as empty because no transactions exist any longer. These reports are:

- **In process production costing**
- **Finished items in process**

The Light Company
Physical inventory by item group
 As on: 15-01-2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
* FinGood	BOM	BOM	1,00			1,00	18,00			18,00
Item group : FinGood			1,00			1,00	18,00			18,00
Total account (03) ::		18,00	Total posted inventory ...:			18,00				

The Light Company
Physical inventory by item group
 As on: 15-01-2009

Ledger account	Account name	Balance
01	Raw material	0,00
02	Finish Goods	18,00
Total		18,00

The Light Company
Financial statement

Account No.	Account Name	Current value -
Balance		
Asset		
01	Raw material	0
02	Finish Goods	18
Total Invent		18
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Custon	0
Liabilities		
011	Vendor debt	-12
010	Accrued Purcha:	0
P/L		
020	COGS	0
021	Absorb Labor	-5
022	Absorb Overhea	-1
023	Revenue	0

Step 5: Packing slip update the customer's sales order.

Sales order 00020_036, Name Light and Design, Item name BOM (1 - g1)

File Edit Tools Command Help

Overview General Setup Address Delivery Price/Discount Postings Other References Dimension

Sales order	Customer account	Invoice account	Order type	Status	Currency	Project	Blanket order	Customer requisition
00020_036	4000	4000	Sales order	Delivered	EUR			

Lines General Setup Address Delivery Quantity Price/Discount Other Dimension

Item number	Configuration	Size	Color	Site	Warehouse	Batch number	Serial number	Quantity	Unit	Unit price	Discount	Disc. pct.	Net amount	Item name
BOM				S1	GW			1,00	Pcs	25,00			25,00	BOM

Requested receipt date: 15-01-2009 Confirmed receipt date: Delivery date control: None
 Requested ship date: 15-01-2009 Confirmed ship date: Mode of delivery:
 Shipping location time zone: (GMT-06:00) Central Time (US & Canada)

Updates that can be executed for the sales order. EUR g1 usr 15-01-2009 15:19

The Light Company

Physical inventory by item group

As on: 15-01-2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
FinGood	BOM	BOM	1,00	1,00			18,00	-18,00		
Item group: FinGood			1,00	1,00			18,00	-18,00		
Total account (03) ..			Total posted inventory ...							

Step 6: The sales order is invoice-updated.

Sales order 00020_036, Name Light and Design, Item name BOM (1 - g1)

File Edit Tools Command Help

Overview General Setup Address Delivery Price/Discount Postings Other References Dimension

Sales order	Customer account	Invoice account	Order type	Status	Currency	Project	Blanket order	Customer requisition
00020_036	4000	4000	Sales order	Invoiced	EUR			

Lines General Setup Address Delivery Quantity Price/Discount Other Dimension

Item number	Configuration	Size	Color	Site	Warehouse	Batch number	Serial number	Quantity	Unit	Unit price	Discount	Disc. pct.	Net amount	Item name
BOM				S1	GW			1,00	Pcs	25,00			25,00	BOM

Requested receipt date: 15-01-2009 Confirmed receipt date: Delivery date control: None
 Requested ship date: 15-01-2009 Confirmed ship date: Mode of delivery:
 Shipping location time zone: (GMT-06:00) Central Time (US & Canada)

Updates that can be executed for the sales order. EUR g1 usr 15-01-2009 16:09

The **Physical inventory by item group** report is empty because no items on-hand exist.

The Light Company		
Financial statement		
Account No.	Account Name	Current value -
Balance		
Asset		
01	Raw material	0
02	Finish Goods	0
Total Invent		0
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	25
09	Deferred Custon	0
Liabilities		
011	Vendor debt	-12
010	Accrued Purchas	0
P/L		
020	COGS	18
021	Absorb Labor	-5
022	Absorb Overhea	-1
023	Revenue	-25

The **physical inventory by item group** report is empty as expected, and the ledger accounts that represent inventory in the general ledger are also 0 (zero).

Detailed-level reconciliation of inventory value and the general ledger

Microsoft Dynamics AX 2009 provides reconciliation reports where separate modules can be reconciled against the general ledger. The reconciliation reports are based on specific posting types that are related to the subledger. In general, the reports are designed on the foundation that all posting types have a specific ledger account attached.

The reconciliation reports are found in **General ledger > Reports > Reconciliation > Inventory > Inventory**.

Note: In configurations where one or more posting types share the same ledger accounts, some discrepancies can occur in the reconciliation reports.

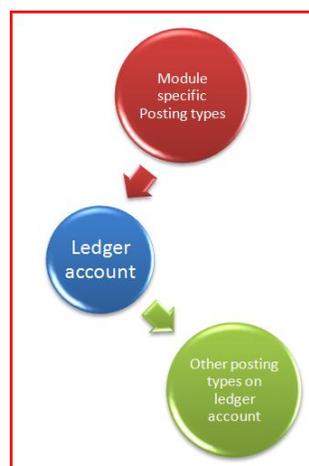


Diagram 23 Reconciliation query

Diagram 23 displays how the query for reconciliation reports in Microsoft Dynamics AX 2009 works.

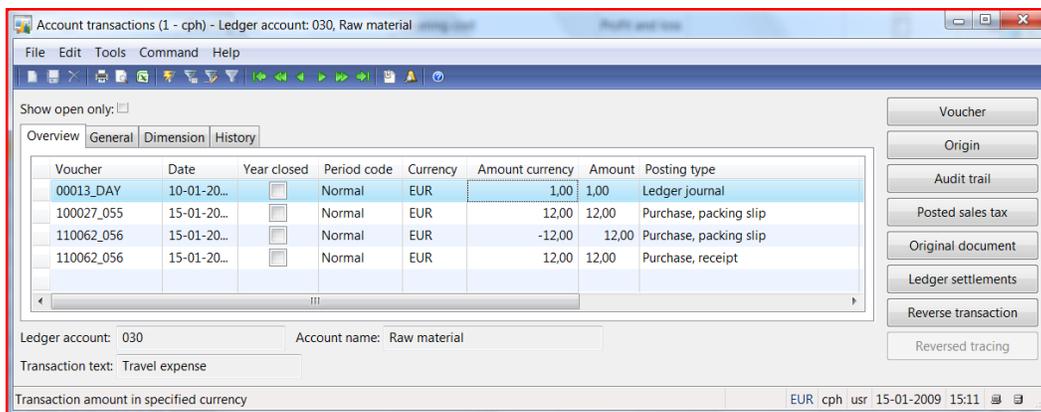
The report query will find transactions based on the following search rankings:

1. Transactions within a date interval
2. All transactions containing module-specific posting types
3. The ledger account on which the transactions are posted
4. All other transactions/posting types posted on these ledger accounts

Transactions posted with a posting type not considered as module-specific will only occur if one or more transactions with module-specific posting types occur within the date range.

Example: Ledger posting directly on a ledger account that represents inventory

By mistake, an accountant has posted a travel expense on the ledger account that represents raw material inventory.



Running the **Reconciliation of inventory/ledger** report with a date range 01-01-2009 to 14-01-2009 will result in an empty Infolog report.

Running the the **Reconciliation of inventory/ledger** report with a date range 01-01-2009 to 15-01-2009 will result in the following report:

The Light Company							Page 1	
Reconciliation of inventory/ledger							15-01-2009	
From date : 01-01-2009 To date : 15-01-2009							10:55:54	
Account	Account name	Posting	Voucher	Date	Balance - inventory	Ledger balance	Difference	
030	Raw material	Ledger journal	00013_DAY	10-01-2009		1,00	1,00	
030	Raw material	Purchase, packing slip	100027_055	15-01-2009	12,00	12,00		
030	Raw material	Purchase, packing slip	110062_056	15-01-2009	-12,00	-12,00		
030	Raw material	Purchase, receipt	110062_056	15-01-2009	12,00	12,00		
Account : 030					12,00	13,00	1,00	

Note: If all posting types have a specific ledger account attached, the report can be used to validate if incorrect ledger integration has been made in posting profiles.

Note: If the Production module is installed and used, you must run the **Reconciliation of Productoin/Ledger** report in order to conduct a complete detailed reconciliation

Note: inventory and production reconciliation reports will only create coherent results if the parameter **Post excl. transaction type (Production > Setup > Parameters)** is set to cleared. We recommend that you use this setting if you plan to use the inventory and production reconciliation reports.

The Light Company							Page 1
Reconciliation of inventory/ledger							15-01-2009
From date : 15-01-2009 To date : 21-01-2009							10:55:54
Account	Account name	Posting	Voucher	Date	Balance - inventory	Ledger balance	Difference
01	Raw material	Purchase, packing slip	100010_055	15-01-2009	12,00	12,00	
01	Raw material	Purchase, packing slip	110016_056	15-01-2009	-12,00	-12,00	
01	Raw material	Purchase, receipt	110016_056	15-01-2009	12,00	12,00	
01	Raw material	Production issue	14004_078	15-01-2009	-12,00	-12,00	
01	Raw material	Production, picking list	0031_075	15-01-2009	-12,00	-12,00	
01	Raw material	Production, picking list	14004_078	15-01-2009	12,00	12,00	
Account : 01							
010	Accrued Purchase	Purchase, packing slip offset	100010_055	15-01-2009	-12,00	-12,00	
010	Accrued Purchase	Purchase, packing slip offset	110016_056	15-01-2009	12,00	12,00	
Account : 010							
02	Finish Goods	Production - indirect absorption offset	14004_078	15-01-2009		1,00	1,00
02	Finish Goods	Order packing slip	00007_041	15-01-2009	-18,00	-18,00	
02	Finish Goods	Order packing slip	00010_042	15-01-2009	18,00	18,00	
02	Finish Goods	Sales order issue	00010_042	15-01-2009	-18,00	-18,00	
02	Finish Goods	Production, report as finished	0036_075	15-01-2009	15,00	15,00	
02	Finish Goods	Production, report as finished	14004_078	15-01-2009	-15,00	-15,00	
02	Finish Goods	Production offset account issue	14004_078	15-01-2009	12,00	12,00	
02	Finish Goods	Production receipt	14004_078	15-01-2009	18,00	18,00	
02	Finish Goods	Production offset account receipt	14004_078	15-01-2009	-18,00	-18,00	
02	Finish Goods	Production offset account, work center issue	14004_078	15-01-2009		5,00	5,00
Account : 02					-6,00		6,00
020	COGS	Sales order consumption	00010_042	15-01-2009	18,00	18,00	
Account : 020					18,00	18,00	
04	WIP Material	Production offset-account, report as finished	0036_075	15-01-2009	-15,00	-15,00	
04	WIP Material	Production offset-account, report as finished	14004_078	15-01-2009	15,00	15,00	
04	WIP Material	Production offset account picking list	0031_075	15-01-2009	12,00	12,00	
04	WIP Material	Production offset account picking list	14004_078	15-01-2009	-12,00	-12,00	
Account : 04							
09	Deferred Customer	Order offset account packing slip	00007_041	15-01-2009	18,00	18,00	
09	Deferred Customer	Order offset account packing slip	00010_042	15-01-2009	-18,00	-18,00	
Account : 09							

The posting types in the following list are not considered as inventory posting types, and they are only included in the report because they are posted on ledger account 02.

- Production – indirect absorption offset
- Production – offset account work center issue

Transactions with the two posting types in the preceding list will appear with the ledger balance because these transactions exist in ledger account 02. No inventory balance will appear. These transactions will cause an imbalance in the report.

If the Production module is part of the configuration, the **Reconciliation by production/ledger** report has to be run in order to conduct a full detailed reconciliation.

The Light Company							Page 1
Reconciliation of production/ledger							15-01-2009
From date : 15-01-2009 To date : 15-01-2009							10:55:54
Account	Account name	Posting	Voucher	Date	Balance - production	Ledger balance	Difference
Account :							
			14004_078	15-01-2009			
02	Finish Goods	Production - indirect absorption offset	14004_078	15-01-2009		1,00	1,00
02	Finish Goods	Order packing slip	00007_041	15-01-2009	-18,00	-18,00	
02	Finish Goods	Order packing slip	00010_042	15-01-2009	18,00	18,00	
02	Finish Goods	Sales order issue	00010_042	15-01-2009	-18,00	-18,00	
02	Finish Goods	Production, report as finished	0036_075	15-01-2009	15,00	15,00	
02	Finish Goods	Production, report as finished	14004_078	15-01-2009	-15,00	-15,00	
02	Finish Goods	Production offset account issue	14004_078	15-01-2009	12,00	12,00	
02	Finish Goods	Production receipt	14004_078	15-01-2009	18,00	18,00	
02	Finish Goods	Production offset account receipt	14004_078	15-01-2009	-18,00	-18,00	
02	Finish Goods	Production offset account, work center issue	14004_078	15-01-2009	5,00	5,00	
Account : 02					5,00		-5,00
021	Absob Labor	Production WIP issue	0033_075	15-01-2009	-5,00	-5,00	
021	Absob Labor	Production WIP issue	14004_078	15-01-2009	5,00	5,00	
021	Absob Labor	Production - Work center issue	14004_078	15-01-2009	-5,00	-5,00	
Account : 021					-5,00	-5,00	
05	WIP Labor	Production - WIP	0033_075	15-01-2009	5,00	5,00	
05	WIP Labor	Production - WIP	14004_078	15-01-2009	-5,00	-5,00	
Account : 05							

The same discrepancies occur, but now they are reversed.

The posting types in the following list are not considered as production posting types, and they will only be included because they are posted on ledger account 02.

- Order packing slip
- Sales order issues
- Production report as finish
- Production offset account issue
- Production receipt
- Production offset account receipt

The posting types will appear with the ledger balance because they exist in ledger account 02. No inventory balance will appear, and these will cause an imbalance.

The two reports (Reconciliation by production/ledger and Reconciliation by inventory/ledger) each detail a discrepancy in reconciliation but with the opposite sign. In fact, the discrepancy does not exist, but it is caused by the current design of the reconciliation reports.

Note: Overhead is incorrectly reported in the Reconciliation by production/ledger report, which will cause an imbalance of USD 1.00, even after comparing inventory and production reconciliation reports.

Database logging cost parameters

Changing parameter settings in Microsoft Dynamics AX 2009 can have significant effects on the behavior and the results that are generated by the application.

In Cost management, some changes to parameter settings can bring the application into a noncompliant state with regards to local Generally Accepted Accounting Principles (GAAP) or International Accounting Standards 2(IAS2)/International Financial Reporting Standards (IFRS).

The Cost management parameters in Microsoft Dynamics AX 2009 are placed in different modules because Microsoft Dynamics AX 2009 does not maintain a central Cost management module. This dispersion of parameters may increase the risk that a user might change a parameter within the areas and modules of his responsibility without being aware of all of the consequences with regards to cost management that such a change will result in.

The consequences can be significant and may include:

- Generation of noncompliant Cost management and cost reports
- Generation of incorrect inventory values
- Generation of irreconcilable inventory and general ledger postings

In many cases, the symptoms will be discovered first, and the greater challenge will be to discover the cause of the symptoms.

Microsoft Dynamics AX 2009 enables you to perform database logging. Database logging can be helpful when investigating the causes of incorrect application behavior, especially if incorrect parameter changes are the root of the aberrant behavior.

Note: As a rule, enabling database logging will negatively affect the overall performance of the application, especially if database logging is enabled on transaction tables. Although the setup tables listed in this whitepaper are not transaction tables, negative performance may result from enabling database logging on these setup tables.

The database logging tool is found in **Administration > Setup > Database log**, and it is activated by following the **Logging database changes** wizard.

Example: Database logging

The company has a policy that all physical posting has to be posted to the general ledger.

Domain ID	Name of table	Field name	Type of change	Audit trail
Admin	Purchase parameters	Post packing slip in ledger	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Inventory model group	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Financial negative inventory	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Physical negative inventory	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Fixed receipt price	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Post physical inventory	Update	<input type="checkbox"/>
Admin	Inventory model grou...	Post financial inventory	Update	<input type="checkbox"/>

ID for the domain: usr 16-01-2009 14:59

At a period reconciliation, the controller sees that an item has a value in the **Physical value (Not posted)** column. The controller knows that imbalances will occur because the company policy is to post all physical cost events to the general ledger. He needs to find the cause so that he can bring the application back in balance.

The Light Company

Physical inventory by item group

As on : 16-01-2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
* Parts	099	Items 1			2,00	2,00		10,00	14,00	24,00
Item group :	Parts				2,00	2,00		10,00	14,00	24,00

The controller knows that all cost management parameters are database-logged in order to allow the investigation of any potential problems that may be caused by parameter changes. The controller opens the **Database log** form (**Administration > Inquiries > Database log**).

Type of change	Created date and time	User	Field name	Value	Previous value
Update	16-01-2009 15:02:11	Adm...	PostPackingSlip	No	Yes
			PromptTransfer		
			PurchaseType		
			AccessLevelInvoiced		
			ReturnActionDefault		

The controller can now see that the value in the cost management parameter **PostPackingslip** field has been changed from Yes to No, when it was changed, and by whom it was changed.

Appendices

Appendix A: Postings based on recommended settings

Packing slip – Updated purchase order for an inventory item (Non-standard cost):

Purchase packing slip	Y
Purchase packing slip offset	-Y

Where "y" is the physical cost.

Packing slip – Updated purchase order for an inventory item (Standard cost):

Purchase packing slip	Y-(X-Y)
Purchase packing slip offset	-Y
Rounding variance	X-Y
Rounding variance	-(X-Y)
Purchase price variance	X-Y

Where "X" is the standard cost and "Y" the physical cost.

Packing slip – Updated purchase order for a non-inventory item (Service with no posting):

No transactions

Packing slip – Updated purchase order for a non-inventory item (Service with posting):

Purchase packing slip	Y
Purchase packing slip offset	-Y

Where "Y" is the physical cost.

Invoice updated purchase order on inventory item (None Standard cost):

Purchase packing slip	-Y
Purchase packing slip offset	Y
Purchase receipt	Z
Purchase consumption	-Z
Purchase consumption	Z
Vendor balance	-Z

Where "Y" is the physical cost and "Z" is the financial cost.

Invoice updated purchase order on inventory Item (Standard cost):

Purchase packing slip	-Y+(X-Y)
Purchase packing slip offset	Y
Rounding variance	X-Y

Rounding variance	-(X-Y)
Purchase price variance	X-Y
Purchase receipt	Z-(X-Y)-(Y-Z)
Purchase consumption	-Z
Purchase consumption	Z
Vendor balance	-Z
Rounding variance	Y-Z
Rounding variance	-(Y-Z)
Purchase price variance	Y-Z

Where "X" is the standard cost, "Y" is the physical cost and "Z" is the financial cost.

Invoice updated purchase order on non-inventory item (Service with no posting):

Purchase consumption	Z
Vendor balance	-Z

Where "Z" is the financial cost.

Invoice updated purchase order on non-inventory item (Service with posting):

Purchase packing slip	-Y
Purchase packing slip offset	Y
Purchase receipt	Z
Purchase consumption	-z
Purchase consumption	Z
Vendor balance	-Z

Where "Y" is the physical cost and "Z" is the financial cost.

Resources picked to a production order of an inventory item:

Material	
Production picking list	-X
Production offset account picking list	X
Labor	
Production WIP issue	-Y
Production – WIP	Y
Indirect cost (Overhead)	
Production indirect WIP issue	-Z
Production indirect WIP offset	Z

Where X,Y,Z are the physical cost of material, labor and overhead.

Physical update a production order of an inventory item:

Production report as finish	Q
-----------------------------	---

Production offset-account, report as finished	-Q
---	----

Where "Q" is the physical cost of the produced item

Financial update a production order of an inventory item:

Material	
Production picking list	X
Production offset account picking list	-X
Production issue	-F
Production offset account issue	F
Production offset-account, report as finished	Q
Production, report as finished	-Q
Production receipt	P
Production offset account receipt	-P
Labor	
Production WIP issue	Y
Production - WIP	-Y
Production offset account, work center issue	G
Production - Work center issue	-G
Indirect cost (Overhead)	
Production indirect WIP issue	Z
Production indirect WIP offset	-Z
Production - indirect absorption	-H
Production - indirect absorption offset	H

Where

"X,Y,Z" are the physical cost of material, labor and overhead.

"Q" is the physical cost of the produced item

"F, G, H and P" are the financial cost of material, labor, overhead and Produced item

Packing slip updated Sales order on inventory item:

Order packing slip	-Y
Order offset account packing slip	Y

Where "Y" is the physical cost which can be Standard cost.

Packing slip updated Sales order on none inventory item (Service with no posting):

No transactions

Packing slip updated Sales order on non-inventory item (Service with posting):

Order packing slip	-Y
Order offset account packing slip	Y

Where "Y" is the physical cost.

Invoice updated Sales order on inventory Item

Order packing slip	Y
Order offset account packing slip	-Y
Sales order issue	-C
Customer balance	Z
Sales order revenue	-Z
Sales order consumption	C

Where "Y" is the physical cost which can be Standard cost, "Z" is the sales price and "C" is the financial cost which can be Standard cost

Invoice updated Sales order on non-inventory item (Service with no posting):

Sales order revenue	-Z
Customer balance	Z

Where "Z" is the sales price

Invoice updated Sales order on inventory item (Service with posting):

Order packing slip	Y
Order offset account packing slip	-Y
Sales order issue	-C
Customer balance	Z
Sales order revenue	-Z
Sales order consumption	C

Where "Y" is the physical cost, "Z" is the sales price and "C" is the financial cost

Appendix B: Posting based on recommended and optional settings

Packing slip – Updated purchase order for an inventory item (Non-standard cost):

Purchase packing slip	Y
Purchase packing slip offset	-Y
Purchase, packing slip purchase offset	-Z
Purchase, packing slip purchase	Y
Purchase, packing slip tax	Z-Y

Where "Y" is the physical cost, "Z" is physical cost incl. sales tax

Packing slip – Updated purchase order for an inventory item (Standard cost):

Purchase packing slip	Y-(X-Y)
Purchase packing slip offset	-Y
Purchase, packing slip purchase offset	-Z
Purchase, packing slip purchase	Y
Purchase, packing slip tax	Z-Y
Rounding variance	X-Y
Rounding variance	-(X-Y)
Purchase price variance	X-Y

Where "X" is the standard cost and "Y" the physical cost. "Z" is physical cost incl. sales tax

Packing slip – Updated purchase order for a non-inventory item (Service with no posting):

Purchase, packing slip purchase offset	-Z
Purchase, packing slip purchase	Y
Purchase, packing slip tax	Z-Y

Where "y" is the physical cost, "z" is physical cost incl. sales tax

Packing slip – Updated purchase order for an inventory item (Service with posting):

Purchase packing slip	Y
Purchase packing slip offset	-Y
Purchase, packing slip purchase offset	-Z
Purchase, packing slip purchase	Y
Purchase, packing slip tax	Z-Y

Where "Y" is the physical cost, "Z" is physical cost incl. sales tax

Packing slip updated Sales order on inventory Item:

Order packing slip	-Y
Order offset account packing slip	Y
Sales - packing slip revenue offset	X
Sales - packing slip revenue	-X
Sales, packing slip tax	Z-X

Where "Y" is the physical cost which can be Standard cost, "Z" is estimated sales price incl. sales tax and "X" is estimated sales price

Packing slip updated Sales order on non-inventory item (Service with no posting):

Sales - packing slip revenue offset	Z
Sales - packing slip revenue	-X

Sales, packing slip tax	Z-X
-------------------------	-----

Where "Z" is estimated sales price, including sales tax and "X" is estimated sales price

Packing slip updated Sales order on inventory item: (Service with posting):

Order packing slip	-Y
Order offset account packing slip	Y
Sales - packing slip revenue offset	Z
Sales - packing slip revenue	-X
Sales, packing slip tax	Z-X

Where "Y" is the physical cost which can be Standard cost, "Z" is estimated sales price incl. sales tax and "X" is estimated sales price

Appendix C: Chart of accounts

The following example displays a simple chart of accounts. This example shows how you might map specific posting types to ledger accounts in the general ledger.

Note: A chart of accounts will vary for a company or organization based on management and/or legal requirements.

<u>Balance sheet</u>		
Asset	Account Name	Account type
	Raw material	Balance
	Finish Goods	Balance
	Total inventory	Total
	WIP material	Balance
	WIP Labor	Balance
	WIP Overhead	Balance
	Total WIP	Total
	Customer debt	Balance
	Deferred Customer	Balance
Liabilities		
	Accrued Purchase	Balance
	Vendor debt	Balance
	Inter Purchase	Balance
<u>Profit & Loss</u>		
	COGS	P/L
	Absorb Labor	P/L
	Absorb Overhead	P/L

Inventory profit	P/L
Inventory Loss	P/L
Expensed items (Service)	P/L
Expensed items (Outsource)	P/L
Revenue	P/L

Appendix D: Definition of an item group

Item groups serve a two-way purpose in Microsoft Dynamics AX 2009.

- Item groups allow aggregated general ledger integration in posting profiles.
- Item groups are used as an aggregation key in many inventory-related reports.

In the demonstration company used in this whitepaper, four following 4 item groups are listed:

- RawMat (Raw Materials)
- FinGood (Finish Goods)
- ServItems (Service items)
- ServOut (Service Outsource)



Appendix E: Posting profile settings

Item group: RawMat

Item group (1 - g1) - Item group: RawMat, Raw Materials

File Edit Tools Command Help

Overview Sales order Purchase order **Inventory** Production Setup

Packing slip

Packing slip: 01 Consumption:

Packing slip offset: 01Q Fixed receipt price:

Packing slip purchase: Fixed receipt price profit:

Packing slip purchase offset: Fixed receipt price loss:

Packing slip tax: Fixed receipt price offset:

Invoice

Receipt: 01 Item sales tax group:

Discount:

Charge:

Stock variation:

Fixed asset receipt:

Posting

Forecasting

Offset account for posting physical receipt EUR g1 usr 15-01-2009 10:29

Item group (1 - g1) - Item group: RawMat, Raw Materials

File Edit Tools Command Help

Overview Sales order Purchase order **Inventory** Production Setup

Items in process

Picking list: 01 Issue: 01

Report as finished: Issue offset account: 02

Picking list offset account: 04 Receipt:

Reported as finished offset account: Receipt offset account:

Costing

Posting

Forecasting

Ledger account for item receipt EUR g1 usr 15-01-2009 10:32

Item group: FinGood

Item group (1 - g1) - Item group: FinGood, Finish Goods

File Edit Tools Command Help

Overview Sales order Purchase order **Inventory** Production Setup

Packing slip

Packing slip: 02 Issue: 02

Packing slip offset: 09 Consumption: 020

Packing slip revenue: Revenue: 023

Packing slip revenue - offset: Discount:

Packing slip tax: Commission

Commission:

Commission offset:

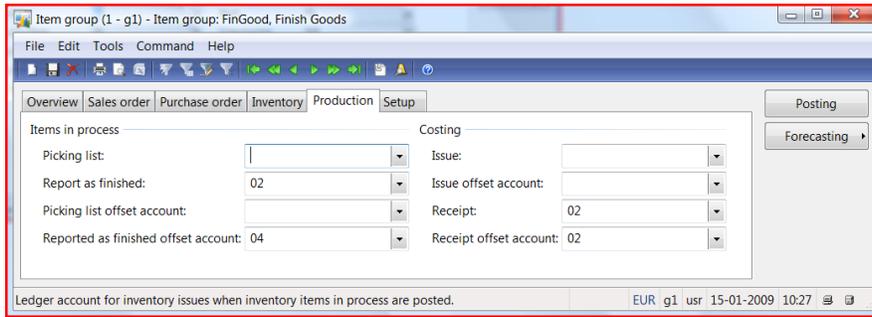
Sales tax

Item sales tax group:

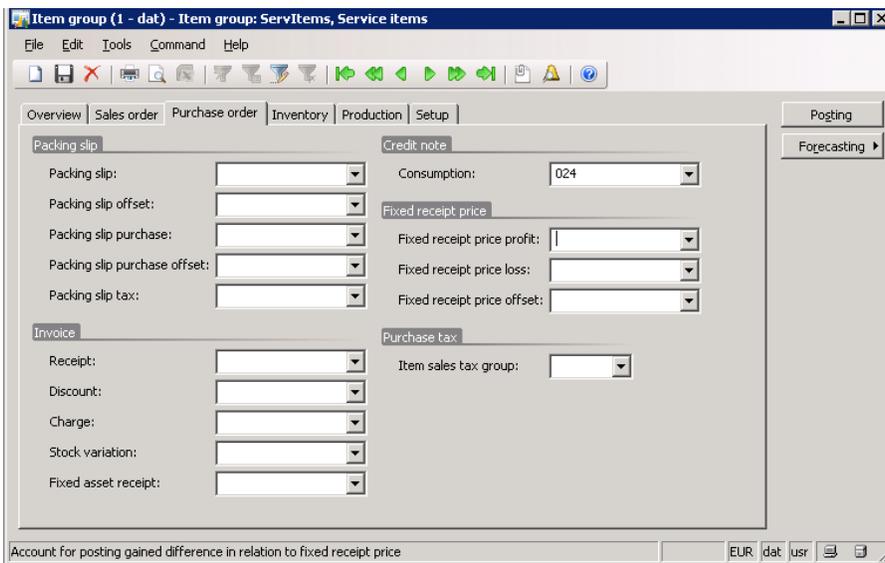
Posting

Forecasting

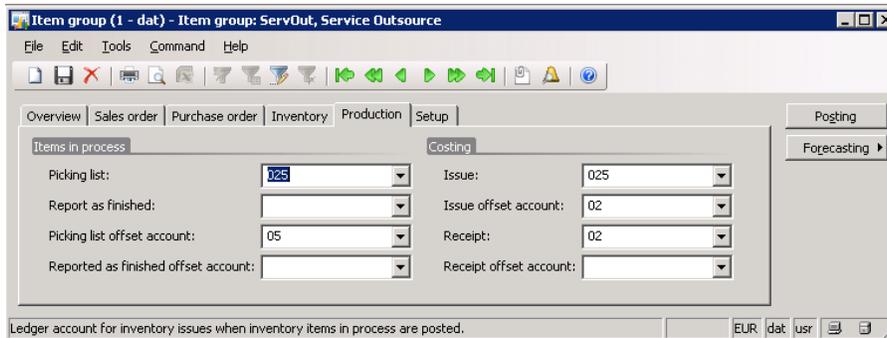
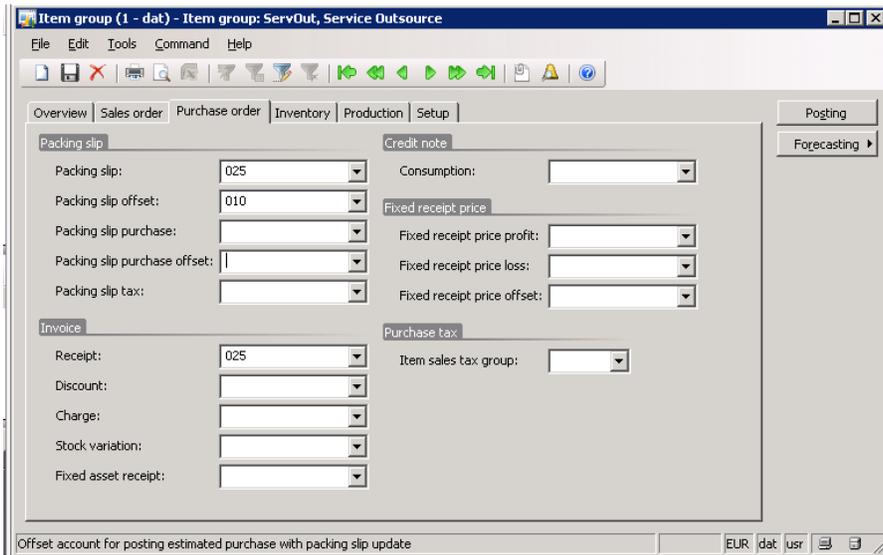
Account for posting item issue EUR g1 usr 15-01-2009 16:08



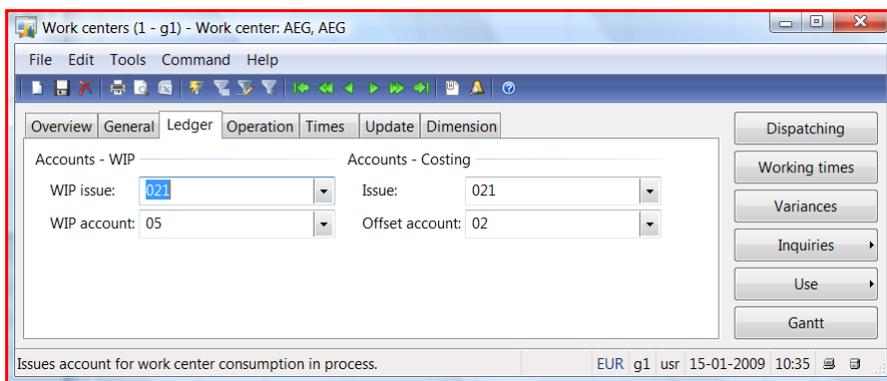
Item group: ServItems



Item group: ServOut



Work center



Overhead

General	Calculation	Posting	Dimension
Accounts - WIP			
WIP issue:	022		
WIP account:	06		
Accounts - Costing			
Indirect absorption:	022		
Indirect absorption offset:	02		

Appendix F: Example of simple subcontracting costing

The following diagram is a very simple example of subcontracting costing. This diagram does not include lead time or transportation to and from the vendor.

Note: In the case that lead time at the subcontractor is important for scheduling; an external work center with a cost of USD 0.00 can be created and added to the BOM.

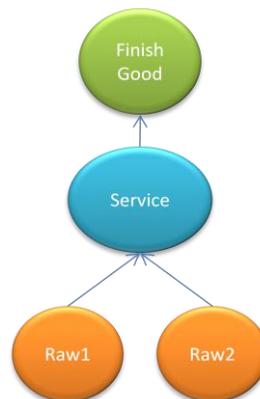


Diagram 24 BOM structure

Two raw materials are shipped to a vendor for assembly. Shipment, return, and cost are controlled by a service item. In this example, a fixed cost per assembled piece has been agreed upon with the vendor. The agreed cost is entered as the purchase price and cost price on the service item.

Note: The cost that is charged by the vendor can vary for each production order that is sent to the vendor. In Microsoft Dynamics AX 2009, the purchase order and production are linked to each other by a cost marker (marking), which ensures that the correct cost is applied. If the invoice from the vendor is received after the production order is ended, the inventory close will ensure that the production order is updated with the actual cost.

Complete BOM calculation (1 - dat) - Item number: BOM, test, Item number: BOM

File Edit Tools Command Help

Overview General Prices Tree structure Costing sheet Trade agrmt. Log

T...	Item/Work center	Operation	Level	Cost group	Consumption	Unit	Total cost price per unit
	BOM		0		1.00	Pcs	21.00
	ServOut		1		1.00	Pcs	10.00
	Raw1		1		1.00	Pcs	4.00
	Raw2		1		1.00	Pcs	7.00

Identification of the used item or work center. EUR dat usr

Note: On the BOM, the service item is set with a line type of Vendor. This ensures that the application will automatically create a purchase order when the production order is estimated, and it ensures that the application will create a link between the purchase order and the production order.

A sales order for one item is created and a master planning is run.

Planned orders (1 - dat) - Item number: Raw2, 00035_079, Directly derived: No, Reference: Planned purchase orders, Number: 00035_079, Plan: MP-1

File Edit Tools Command Help

Overview General Setup Action Futures Log Filter BOM Route Jobs Inquiries Functions Inventory Plans Split

Marking	R.	Item number	Configuration	Size	Color	Order date	Delivery date	Requested date	Req. quantity	Unit	Vendor	A.	A.	F.
		BOM				1/28/2009	1/28/2009		1.00	Pcs				
		Raw1				1/28/2009	1/28/2009		1.00	Pcs	3002			
		Raw2				1/28/2009	1/28/2009		1.00	Pcs	3002			

Item name: Raw2 Reference: Planned purchase orders Purchase quantity: 1.00
 Vendor: Machine Co. Inc. Number: 00035_079 Purchase unit: Pcs
 Status: Unprocessed From warehouse:

Unit identification. EUR dat usr

The three lines are firm, and the following orders are generated.

Purchase orders

The following purchase order is created by the application for purchasing the raw materials.

Purchase order 00029_049, Name Machine Co. Inc., Item name Raw1 (1 - dat)

File Edit Tools Command Help

Overview General Setup Address Delivery Price/Discount Postings Other References Dimension Simple Posting Pro forma Setup

Purchase order	Vendor account	Invoice account	Purchase type	Status	Currency	Project	Blanket order
00028_049	3000	3000	Purchase order	Open order	EUR		
00029_049	3002	3002	Purchase order	Open order	EUR		

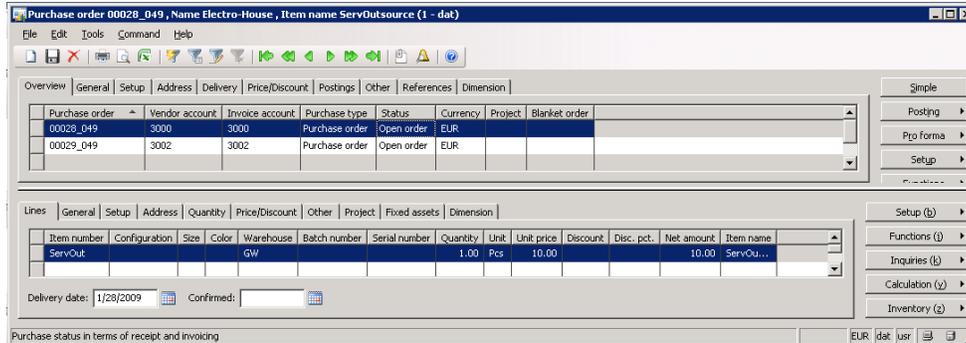
Lines General Setup Address Quantity Price/Discount Other Project Fixed assets Dimension Setup (t) Functions (f) Inquiries (i) Calculation (c) Inventory (v)

Item number	Configuration	Size	Color	Warehouse	Batch number	Serial number	Quantity	Unit	Unit price	Discount	Disc. pct.	Net amount	Item name
Raw1							1.00	Pcs				0.00	Raw1
Raw2							1.00	Pcs				0.00	Raw2

Delivery date: 1/28/2009 Confirmed:

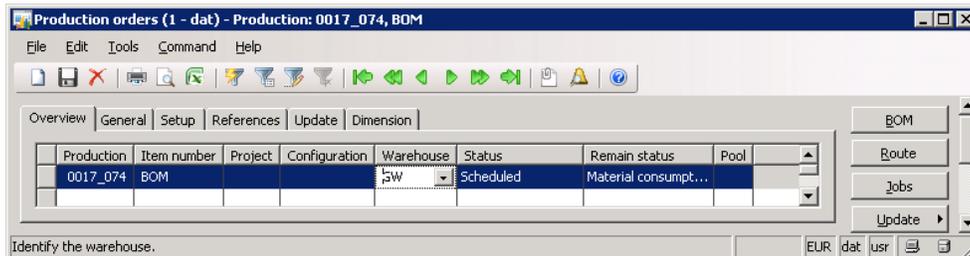
Type of the current purchase EUR dat usr

The following purchase order is automatically created by the application to carry the cost of the subcontracted assembly. The purchase order is created automatically when the production order has a status equal to or greater than Estimated.



Production order

The following production order is generated to cover the demand from the sales order.



The purchase order for the raw materials is invoice updated directly.

Purchase order 1 (P1)

- Item Raw 1 with quantity 1 and unit price USD 4.00
- Item Raw 2 with quantity 1 and unit price USD 7.00

The Light Company

Physical inventory by item group

Avon : 1/28/2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
RawMat	Raw1	Raw1	1.00			1.00	4.00			4.00
RawMat	Raw2	Raw2	1.00			1.00	7.00			7.00
Item group : RawMat			2.00			2.00	11.00			11.00
Total account (B99) :			11.00	Total posted inventory :		11.00				

The Light Company
Financial statement

Account	Name	Current value 1/1/2009 - 12/31/2009
Balance		
01	Raw material	11
02	Finish Goods	0
Total Inven: Total Inventory		11
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
-011	Vendor debt	-11
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0

The production order is started, and the raw materials are picked and shipped to the vendor for assembly.

Production journal lines, picking list (1 - dat) - Voucher: 1/28/2009, Picking list journal: 0019_075

File Edit Tools Command Help

Production: 0018_074 Quantity: 1.00 Validate

Name: BOM Started: 1.00 Post

Overview General Reference Dimension Log

Date	Lot ID	Item number	Configuration	Warehouse	Proposal	Consumption	Unit	End	L...
1/28/2009	00245_059	Raw1		GW	1.00	1.00	Pcs		
1/28/2009	00246_059	Raw2		GW	1.00	1.00	Pcs		

Item name: Raw1 Estimated: 1.0000 Remainder: 1.00 Started: 1.00 Released quantity:

Post the journal. EUR dat usr

The Light Company

Physical inventory by item group

As on: 1/28/2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
RawMat	Raw1	Raw1	1.00	1.00			4.00	-4.00		
RawMat	Raw2	Raw2	1.00	1.00			7.00	-7.00		
Item group: RawMat			2.00	2.00			11.00	-11.00		

Total account (039) ..

Total posted inventory ..

The Light Company

In process production costing

Page 1
1/28/2009
01:24:14 pm

Cutoff date: 1/28/2009

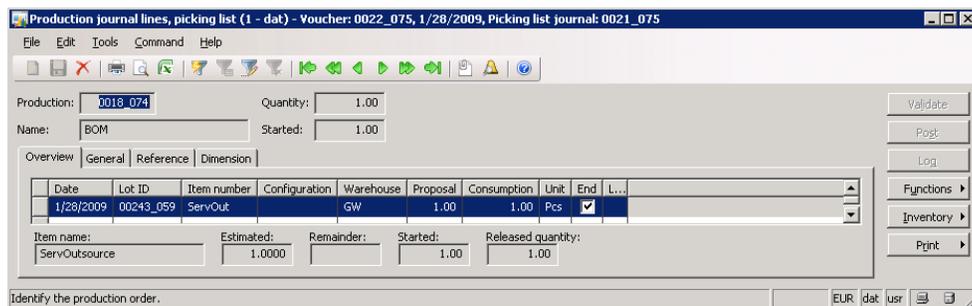
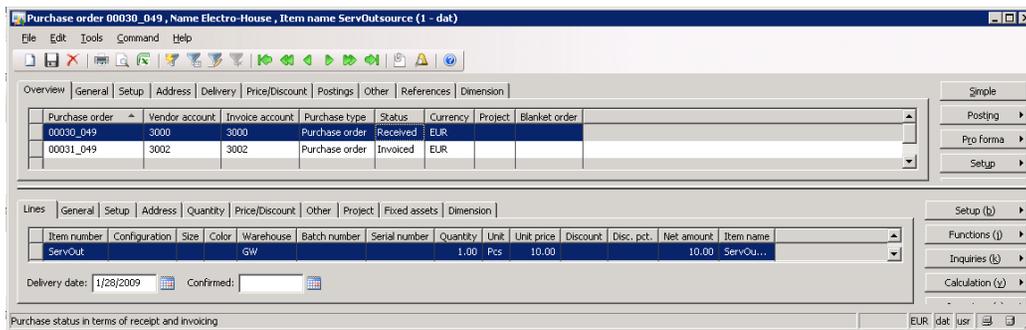
Production	Date	Type	Item / Operation / Indirect cost code	Quantity/Time	Materials amount	Labor amount	Indirect cost amount	Total production amount
0018_074	1/28/2009	Material	Raw1	1.00	4.00			4.00
0018_074	1/28/2009	Material	Raw2	1.00	7.00			7.00
Production ... 0018_074					11.00	0.00	0.00	11.00
Grand Total					11.00	0.00	0.00	11.00

The Light Company
Financial statement

Account	Name	Current value 1/1/2009 - 12/31/2009
Balance		
01	Raw material	0
02	Finish Goods	0
Total Inven	Total Inventory	0
04	WIP Material	11
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		11
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-11
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0

The vendor returns the assembly item and sends a packing slip along with the goods. The action is to packing slip-update the purchase order that is related to the service item.

Note: Microsoft Dynamics AX 2009 can be set to automatically update the picking list when updating the purchase order. If the picking list is automatically updated, the subcontractor cost is immediately posted to WIP.



The Light Company

Physical inventory by item group

As on: 1/28/2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
RawMat	Raw1	Raw1	1.00	1.00			4.00	-4.00		
RawMat	Raw2	Raw2	1.00	1.00			7.00	-7.00		
Item group	RawMat		2.00	2.00			11.00	-11.00		
Total account (099) ..			Total posted Inventory ..							

The Light Company Page 1
1/28/2009
01:42:32 pm

In process production costing

Cutoff date : 1/28/2009

Production	Date	Type	Item / Operation / Indirect cost code	Quantity/Time	Materials amount	Labor amount	Indirect cost amount	Total production amount
0018_074	1/28/2009	Material	Raw1	1.00	4.00			4.00
0018_074	1/28/2009	Material	Raw2	1.00	7.00			7.00
0018_074	1/28/2009	Material	ServOut	1.00	10.00			10.00
Production ...		0018_074			21.00	0.00	0.00	21.00
Grand Total					21.00	0.00	0.00	21.00

The Light Company

Financial statement

Account	Name	Current value 1/1/2009 - 12/31/2009
Balance		
01	Raw material	0
02	Finish Goods	0
Total Inven Total Inventory		0
04	WIP Material	21
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		21
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	-10
011	Vendor debt	-11
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0

Note: In this example, the estimated cost is equal to the packing slip cost, so a balance of 0 (zero) occurs on the expense outsource account.

The production order is reported as finished.

The Light Company

Physical inventory by item group

As on : 1/28/2009

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
FinGood	BOM	BOM			1.00	1.00		21.00		21.00
Item group :	FinGood				1.00	1.00		21.00		21.00
RawMat	Raw1	Raw1	1.00	1.00			4.00	-4.00		
RawMat	Raw2	Raw2	1.00	1.00			7.00	-7.00		
Item group :	RawMat		2.00	2.00			11.00	-11.00		
Total account (099) :		21.00 Total posted Inventory :			21.00					

The Light Company Page 1
1/28/2009
01:42:32 pm

In process production costing

Cutoff date : 1/28/2009

Production	Date	Type	Item / Operation / Indirect cost code	Quantity/Time	Materials amount	Labor amount	Indirect cost amount	Total production amount
0018_074	1/28/2009	Material	Raw1	1.00	4.00			4.00
0018_074	1/28/2009	Material	Raw2	1.00	7.00			7.00
0018_074	1/28/2009	Material	ServOut	1.00	10.00			10.00
Production ...		0018_074			21.00	0.00	0.00	21.00
Grand Total					21.00	0.00	0.00	21.00

The Light Company Page 1
1/28/2009
02:07:56 pm

Finished items in process

As on : 1/28/2009

Production	Item number	Item name	Physical date	Financial date	Quantity	Unit	Physical cost amount	Posted physical value
0018_074	BOM	BOM	1/28/2009		1.00	Pcs	21.00	21.00

Financial statement

Account	Name	Current value 1/1/2009 - 12/31/2009
Balance		
01	Raw material	0
02	Finish Goods	21
Total Inven	Total Inventory	21
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	-10
011	Vendor debt	-11
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0

The purchase order from the subcontractor is invoice updated, and the production order status is updated to "End".

The Light Company

Physical inventory by item group

As on : 12/29/09

Group	Item number	Item name	Financial quantity	Deducted	Received	On-hand	Financial value	Physical value (posted)	Physical value (not posted)	Inventory value
FinGood	85M	85M	1.00			1.00	21.00			21.00
Item group :	FinGood		1.00			1.00	21.00			21.00
Total account (099) :		21.00 Total posted inventory :				21.00				

The Light Company

Financial statement

Account	Name	Current value 1/1/2009 - 12/31/2009
Balance		
01	Raw material	0
02	Finish Goods	21
Total Inven	Total Inventory	21
04	WIP Material	0
05	WIP Labor	0
06	WIP Overhead	0
Total WIP		0
08	Customer debt	0
09	Deferred Customer	0
Liabilities		
010	Accrued Purchase	0
011	Vendor debt	-21
P/L		
023	Revenue	0
020	COGS	0
021	Absorb Labor	0
022	Absorb Overhead	0
024	Expense Manufacturing	0
025	Expense Outsource	0

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