MANAGE

Microsoft Dynamics™ NAV 5.0

Inventory Costing

Technical White Paper

This paper is intended for people who are involved in the implementation of costing functionality at a customer site and for those who need to advise customers or make modifications within the area. It gives an overview of the principles used within the costing area of Microsoft Dynamics NAV 5.0. Several in-depth examples are provided.

Important
Microsoft Dynamics NAV is still under development. Any of the features and functionality described in this document could be subject to change at any time and may not appear in the final product as they are described here.

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Introduction

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Inventory Posting

Inventory transactions result in two kinds of postings—quantity and value. Quantity posting describes the change in quantity on inventory. The program stores this information in item ledger entries. Value posting describes the change in inventory value. This information is stored in value entries. One or more value entries can exist per item ledger entry.

For WIP inventory, there is a special kind of quantity posting that accounts for capacity, which is measured in either time or units. This information is stored in capacity ledger entries. The related value entries describe the added value of the conversion cost. One or more value entries can exist per capacity ledger entry.

Item ledger entries are applied against each other. To apply means to link an inventory increase with an inventory decrease so that it is possible to say exactly which increase was used for which decrease and vice versa. The program stores this information in item application entries.
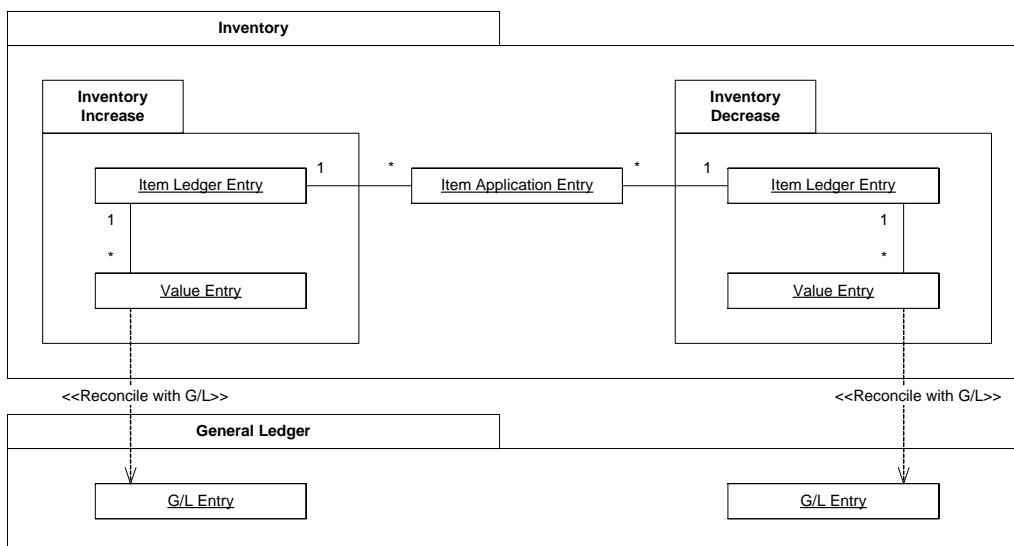
Item ledger, capacity ledger, value, and item application entries are created when you post an item journal line. The item journal line can either be posted directly, for example, from the item journal, or it can be posted indirectly, for example, from a purchase line. When a purchase line is posted, it is first transferred to an item journal line, and then the journal line is posted as if the transaction had been entered directly.

Note that the entry type indicates which G/L account to post to—not whether it is an inventory increase or decrease. That is determined either by the sign of the quantity on the item ledger entry or the valued quantity on the value entry (as they always have the same sign). For example, a sales entry with a positive quantity describes an inventory decrease caused by a sale, and a sales entry with a negative quantity describes an inventory increase caused by a sales return.

Example

You post a purchase order as received and invoiced, for 10 items with a direct unit cost of LCY 7 and an overhead rate of LCY 1. The posting date is 01-01-07. The program creates the following entries:

Item Ledger Entries

Posting Date	Entry Type	Quantity	Entry No.
01-01-07	Purchase	10	1

Value Entries

Posting Date	Entry Type	Cost Amount (Actual)	Cost Posted to G/L	Item Ledger Entry No.	Entry No.
01-01-07	Direct Cost	70	0	1	1
01-01-07	Indirect Cost	10	0	1	2

Item Application Entries

Entry No.	Item Ledger Entry No.	Inbound Item Entry No.	Outbound Item Entry No.	Quantity
1	1	1	0	10

You then post a sale of 10 units of the item with a posting date of 01-15-07.

Item Ledger Entries

Posting Date	Entry Type	Quantity	Entry No.
01-15-07	Sale	-10	2

Value Entries

Posting Date	Entry Type	Cost Amount (Actual)	Cost Posted to G/L	Item Ledger Entry No.	Entry No.
01-15-07	Direct Cost	-80	0	2	3

Item Application Entries

Entry No.	Item Ledger Entry No.	Inbound Item Entry No.	Outbound Item Entry No.	Quantity
2	2	1	2	-10

At the end of the month, you reconcile these straightforward inventory transactions—which do not need cost adjustment—with the general ledger, by running the Post Inventory Cost to G/L batch job. The posting date of the general ledger entries is that of the value entries. The program updates the Cost Posted to G/L and creates the following G/L entries:

Value Entries

Posting Date	Entry Type	Cost Amount (Actual)	Cost Posted to G/L	Item Ledger Entry No.	Entry No.
01-01-07	Direct Cost	70	70	1	1
01-01-07	Indirect Cost	10	10	1	2
01-15-07	Direct Cost	-80	-80	2	3

G/L Entries

Posting Date	G/L Account No.	Amount	Entry No.
01-01-07	<Inventory Account>	70	1
01-01-07	<Direct Cost Applied Account>	-70	2
01-01-07	<Inventory Account>	10	3
01-01-07	<Overhead Applied Account>	-10	4
01-15-07	<Inventory Account>	-80	5
01-15-07	<COGS Account>	80	6

Beginning in Microsoft Dynamics NAV 5.0, the program uses a relation table, G/L – Item Ledger Relation, to store the relation between value entries and general ledger entries. In the example above, the G/L – Item Ledger relation entries would appear as follows:

G/L - Item Ledger Relation

G/L Entry No.	Value Entry No.	G/L Register No.
1	1	1
2	1	1
3	2	1
4	2	1
5	3	1
6	3	1

Inventory Periods

Backdated transactions or cost adjustments often affect balances and stock valuations for accounting periods that may be closed, which can have adverse effects on accurate reporting, especially within global corporations. Beginning in Microsoft Dynamics NAV 5.0, the program implements inventory periods to avoid such problems. The inventory periods can be opened or closed to limit posting within a defined period of time.

An inventory period is a period of time, defined with an ending date, in which you post inventory transactions. When you close an inventory period, no value changes can be posted within the closed period. This includes new value postings, expected or invoiced postings, changes to existing values, and cost adjustments. You can, however, still apply to an open item ledger entry that falls within the closed period. See Item Applications for more information on applications.

When you close an inventory period, the program creates an inventory period entry with the number of the last item register that falls within the inventory period, along with the time, date, and user code of the user closing the period. Using this information with the last item register for the preceding period, you can see what inventory transactions were posted within the inventory period. It is also possible to re-open inventory periods if posting within a closed period becomes necessary. The program creates an inventory period entry when you re-open a period.

Inventory Adjustment and Reconciliation with General Ledger

The values of inventory transactions must be periodically reconciled with the general ledger. Before doing so, you must be sure that the costs for the outbound transactions match the costs of the inbound transactions to which they are applied. An item can, for example, be sales invoiced before it has been purchase invoiced, so that the recorded inventory value of the sale may not match the actual purchase cost. In order to make a correct inventory valuation while allowing this flexibility, you must make a cost adjustment some time later. Once these costs are adjusted, you can post them to the general ledger.

Cost Adjustment

The main purpose of the cost adjustment is to update COGS for sales entries, as this is not always possible to calculate at the time of posting a sale. Another key purpose is to update the unit cost on the item card.

From SP1 for Microsoft Dynamics NAV 4.0, the program offers two ways to perform a cost adjustment:
- **Manually,** by running the Adjust Cost – Item Entries batch job. You can run this batch job either for all items, or for only certain items or item categories. This batch job runs a cost adjustment for the items in inventory for which an inbound transaction, such as a purchase, has been made. For items that use the average costing method, the batch job also makes an adjustment if any outbound transactions have been made.
- **Automatically,** by running a cost adjustment every time you post an inventory transaction, including the finishing of a production order. Here, the program runs the cost adjustment just for the specific item or items affected by the posting.

Running the cost adjustment automatically on posting provides an advantage because unit costs are more frequently updated, and therefore more accurate. The disadvantage is that the performance of the database can be affected by running the cost adjustment so often.

Because of the importance of keeping the unit cost of an item up to date, we recommend that, if you do not use the automatic cost adjustment, you run the Adjust Cost – Item Entries batch job as often as possible, during nonworking hours. This ensures that the unit cost is updated for items on a daily basis.

Regardless of whether you choose to run the cost adjustment manually or automatically, the adjustment process and its consequences are the same. The program calculates the value of the inbound transaction and forwards that cost to any outbound transactions, such as sales or consumptions, which have been applied to the inbound transaction. The cost adjustment creates value entries that contain adjustment amounts and amounts that compensate for rounding.

The new adjustment and rounding value entries have the posting dates of the original value entries, unless they fall within a closed accounting or inventory period, or if the posting date is earlier than the date in the Allow Posting From field in the general ledger setup. When this happens, the batch job assigns the posting date as the first date of the next open period.

Running the Manual Cost Adjustment

When you run the Adjust Cost – Item Entries batch job manually, you have the option of running the batch job for all items or for only certain items or categories. We recommend always running the batch job for all items and only using the filtering option to reduce the runtime of the batch job, or to fix the cost of a certain item. If the Automatic Cost Posting option is selected in the inventory setup, you can

also choose whether to post the adjustment value entries to the general ledger automatically during the cost adjustment batch job.

Example
You post a purchased item as received and invoiced on 01-01-07. You later post the sold item as shipped and invoiced on 01-15-07. You run the Adjust Cost – Item Entries and Post Inventory to G/L batch jobs. The following entries are created:

Value Entries

Posting Date	Item Ledger Entry Type	Cost Amount (Actual)	Cost Posted to G/L	Invoiced Quantity	Entry No.
01-01-07	Purchase	10.00	10.00	1	1
01-15-07	Sale	-10.00	-10.00	-1	2

G/L - Item Ledger Relation

G/L Entry No.	Value Entry No.	G/L Register No.
1	1	1
2	1	1
3	2	1
4	2	1

G/L Entries

Posting Date	G/L Account No.	Description	Amount	Entry No.
01-01-07	2130	Inventory Account	10.00	1
01.01-07	7291	Direct Cost Applied Account	-10.00	2
01-15-07	2130	Inventory Account	-10.00	3
01-15-07	7290	COGS Account	10.00	4

Later, you post a related purchase item charge for 2.00 LCY as invoiced on 02-10-07. You run the Adjust Cost – Item Entries batch job and then run the Post Inventory Cost to G/L batch job. The cost adjustment batch job adjusts the cost of the sale by -2.00 LCY accordingly, and the Post Inventory Cost to G/L batch job posts the new value entries to the general ledger. The final result is as follows.

Value Entries

Posting Date	Item Ledger Entry Type	Cost Amount (Actual)	Cost Posted to G/L	Invoiced Quantity	Adjustment	Entry No.
02-10-07	Purchase	2.00	2.00	0	No	3
01-15-07	Sale	-2.00	-2.00	0	Yes	4

G/L - Item Ledger Relation

G/L Entry No.	Value Entry No.	G/L Register No.
5	3	2
6	3	2
7	4	2
8	4	2

G/L Entries

Posting Date	G/L Account No.	Description	Amount	Entry No.
02-10-07	2130	Inventory Account	2.00	5
02-10-07	7791	Direct Cost Applied Account	-2.00	6
01-15-07	2130	Inventory Account	-2.00	7
01-15-07	7290	COGS Account	2.00	8

Setting up for running automatic cost adjustment
To set up cost adjustment to run automatically when posting an inventory transaction, you set the Automatic Cost Adjustment field in the Inventory Setup window. In this field you select how far back in

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time from the current work date you will allow the program to perform an automatic cost adjustment. The options are:

- **Never: Costs are not adjusted when posting.**
- **Day: Costs are adjusted when posting if the affected transaction occurred within one day of the current work date.**
- **Week: Costs are adjusted when posting if the affected transaction occurred within one week of the current work date.**
- **Month: Costs are adjusted when posting if the affected transaction occurred within one month of the current work date.**
- **Quarter: Costs are adjusted when posting if the affected transaction occurred within one quarter of the current work date.**
- **Always: Costs are always adjusted when posting regardless of the posting date of the affected transaction.**

The selection you make in this field is critical to how your system will perform and how accurate your costs will be. The shorter time periods such as Day or Week provide you with better system performance, because they provide the more stringent requirement that only costs posted within the last day or week can be automatically adjusted. This means that the automatic cost adjustment will not run as frequently, thus avoiding a slowing of system performance. However, it also means that unit costs will not be as accurate, since any costs posted over a day or week ago will not be forwarded until you run the Adjust Cost – Item Entries batch job.

Consider the following example:

Example
On January 10, you post a purchased item as received and invoiced.

On January 15, you post a sales order for the item as shipped and invoiced.

On February 5, you receive an invoice for a freight charge on the original purchase. You post this freight charge, applying it to the original purchase invoice, thereby increasing the cost of the original purchase.

If you have set up the automatic cost adjustment to run if a posting affects a cost within a Day or Week of the current work date, the automatic cost adjustment will not run in this case, and the costs of the purchase will not be forwarded to the sale until you run the Adjust Cost – Item Entries batch job.

If, however, you have set up the automatic cost adjustment to run if a posting affects a cost within a Month or Quarter of the current work date, the program will run the cost adjustment in this case.

Expected Cost Posting

When only the quantity part of an inventory increase has been posted, the inventory value does not change unless you have activated the expected cost posting to general ledger option in the inventory setup. In this case, the expected cost is posted to interim accounts at the time of receipt. Once the receipt has been completely invoiced, the interim accounts are then balanced and the actual cost is posted to the inventory account.

Starting in Microsoft Dynamics NAV 4.0, for reconciliation and traceability purposes, the invoiced value entry shows the expected cost amount that has been posted to balance the interim accounts.

Example
You activate automatic cost posting and expected cost posting to general ledger.

You post a purchase order as received. The expected cost is LCY 95.

Value Entries

Posting Date	Entry Type	Cost Amount (Expected)	Expected Cost Posted to G/L	Expected Cost	Item Ledger Entry No.	Entry No.
01-01-07	Direct Cost	95	95	Yes	1	1

G/L - Item Ledger Relation

G/L Entry No.	Value Entry No.	G/L Register No.
1	1	1
2	1	1

G/L Entries

Posting Date	G/L Account No.	Amount	Entry No.
01-01-07	<Invt. Accrual Acc. (Interim)>	-95	2
01-01-07	<Inventory Account (Interim)>	95	1

At a later date, you post the purchase order as invoiced. The invoiced cost is LCY 100.

Value Entries

Posting Date	Cost Amount (Actual)	Cost Amount (Expected)	Cost Posted to G/L	Expected Cost	Item Ledger Entry No.	Entry No.
01-15-07	100	-95	100	No	1	2

The invoice posting clears the interim account and posts the invoiced amount to the inventory account.

G/L - Item Ledger Relation

G/L Entry No.	Value Entry No.	G/L Register No.
3	2	2
4	2	2
5	2	2
6	2	2

G/L Entries

Posting Date	G/L Account No.	Amount	Entry No.
01-15-07	<Invt. Accrual Acc. (Interim)>	95	4
01-15-07	<Inventory Account (Interim)>	-95	3
01-15-07	<Direct Cost Applied Account>	-100	6
01-15-07	<Inventory Account>	100	5

Reconciling Inventory with the General Ledger

There are two ways to reconcile the inventory ledger with the general ledger:
- **Activate the automatic cost posting option.**
- **Use the Post Inventory Cost to G/L batch job.**

Automatic Cost Posting
When you have activated this option in the inventory setup, the program automatically posts to the general ledger every time you post to the inventory ledger. The posting date of the G/L entry is the same as the posting date of the item journal line.

Post Inventory Cost to G/L
When you run this batch job, the program creates G/L entries on the basis of value entries. You have the option of creating G/L entries per value entry, or creating G/L entries per combination of posting date, location code, inventory posting group, general business posting group, and general product posting group.

The program sets the posting dates of the G/L entries to the posting date of the corresponding value entry, except when the value entry falls within a closed accounting period. In this case, the program skips posting the value entry, and you must change either the G/L setup or the user setup to allow posting within the date range.

If the batch job encounters errors in setup or dimensions, the program skips processing these entries and lists the skipped entries in a section at the end of the report. If the batch job encounters any errors in the dimension setup, the program will override these errors and continue posting the entry to the general ledger, using the dimensions of the value entry.

To check beforehand whether the program will encounter any errors when posting inventory costs to the general ledger, you can run the Post Inventory Cost to G/L – Test Report. This report lists all the errors that might be encountered, so that the errors can be fixed before running the actual posting.

Account Types

During reconciliation, inventory values are posted to the inventory account in the balance sheet. The same amount, but with the reverse sign, is posted to the relevant balancing account. The balancing account is, in most cases, an income statement account. However, when posting direct cost related to consumption or output, it is a balance sheet account. The type of the item ledger entry and value entry determines which G/L account to post to.

Example

This example, which describes a chain that is manufactured from purchased links, gives an overview of the various account types that are used in a typical scenario. The user has activated the expected cost posting option. The details are as follows:

Link: Costing method = Standard
                        Standard cost = LCY 1
                        Overhead rate = LCY 0.02

Chain: Costing method = Standard
                        Standard cost = LCY 150
                        Overhead rate = LCY 25

Work center: Direct cost per minute = LCY 2
                        Indirect cost % = 10%

Purchase

1. The user purchases 150 links and posts the purchase order as received.

2. The user posts the purchase order as invoiced. This results in an overhead amount of LCY 3 to be allocated and a variance amount of LCY 18.
    2a.   The interim accounts are cleared.
    2b.   The direct cost is posted.
    2c.   The indirect cost is calculated and posted.
    2d.   The purchase variance is calculated and posted (only for standard-cost items).

	Inventory (Interim)		Inventory Accrual (Interim)	
1.	150			150
2a.		150	150	

	Inventory		Direct Cost		Indirect Cost		Purchase Variance	
2b.	165		165					
2c.	3					3		
2d.		18						18

Sale

3. The user sells 1 chain and posts the sales order as shipped.
4. The user posts the sales order as invoiced.
    4a.   The interim accounts are cleared.
    4b.   COGS is posted.

	Inventory (Interim)		COGS (Interim)		Inventory		COGS	
3.		150	150					
4a.	150			150				
4b.						150	150	

Consumption

5. The user posts consumption of 150 links used to produce 1 chain.

Material:

	Inventory		WIP	
5.		150	150	

6. The work center used 60 minutes to produce the chain. The user posts conversion cost.
   6a.   The direct costs are posted.
   6b.   The indirect costs are calculated and posted.

Capacity:

	Direct Cost		WIP		Indirect Cost	
6a.		120	120			
6b.			12			12

Output

7. The user posts expected cost of 1 chain.

8. The user finishes the production order and runs the Adjust Cost – Item Entries batch job.

   8a.   The interim accounts are cleared.
   8b.   The direct cost is transferred from the WIP account to the inventory account.
   8c.   The indirect cost (overhead) is transferred from the indirect cost account to the inventory account.
   8d.   This results in a variance amount of LCY 157 (variances are only calculated for standard-cost items).

	WIP		Inventory (Interim)	
7.		150	150	
8a.	150			150

	WIP		Inventory		Indirect Cost		Variance	
8b.		282	282					
8c.			25			25		
8d.				157				157

For the sake of simplicity, only one variance account is shown. In reality, five different accounts exist: Material, Capacity, Capacity Overhead, Subcontracting, and Manufacturing Overhead variance.

Adjustment/Revaluation/Rounding/Transfer

9. The user revalues the chain from LCY 150 to LCY 140.

	Inventory		Inventory Adjustment	
9.		10	10	

The exact relationship between the above-mentioned account types and the different types of value entries is shown in Appendix 1 – Controlling Accounts Posted to in General Ledger.

Cost Components

Cost components are different types of costs that comprise the value of an inventory increase or decrease. They can be grouped into the following general types:

- Direct cost—cost that can be traced directly to a cost object
- Indirect cost—cost that is allocated without direct traceability to a cost object
- Variance—the difference between actual and standard costs, which is only posted for items using the standard costing method
- Revaluation—a depreciation or appreciation of the current inventory value
- Rounding—residuals caused by the way in which valuation of inventory decreases are calculated

Some of these costs can be broken down further. The direct cost of an item, for example, can consist of the following cost components:

- Item cost (= direct purchase price)
- Freight cost
- Insurance cost

Freight and insurance costs are item charges that can be added to an item's cost at any time. When you run the Adjust Cost – Item Entries batch job, the program updates the value of any related inventory decreases accordingly.

The different types of variance are listed below. These are described more thoroughly in the section on Variance Calculation.

- Purchase
- Material
- Capacity
- Subcontracted
- Capacity Overhead
- Manufacturing Overhead

Costing Method

Microsoft Dynamics NAV supports the following costing methods:

- **FIFO (First In First Out)**
- **LIFO (Last In First Out)**
- **Average**
- **Specific**
- **Standard**

They all have one thing in common—when the quantity on inventory is zero, the inventory value must also be zero. However, the costing methods differ in the way that they value inventory decreases and whether they use actual cost or standard cost as the valuation base.

Example

The following sequence of inventory increases and decreases is used below to show the effects of different costing methods. Note that the resulting quantity on inventory is zero, and consequently the inventory value must also be zero, regardless of the costing method.

Posting Date	Quantity	Entry No.
01-01-07	1	1
01-01-07	1	2
01-01-07	1	3
02-01-07	-1	4
03-01-07	-1	5
04-01-07	-1	6

The Effect of Costing Method on Valuing Inventory Increases

If the costing method uses actual cost (FIFO, LIFO, Average, or Specific costing method) as the valuation base, then the inventory increases are valued as shown below.

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	1	12	1
01-01-07	1	14	2
01-01-07	1	16	3

If the costing method uses standard cost as the valuation base, then the inventory increases are valued as shown below.

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	1	15	1
01-01-07	1	15	2
01-01-07	1	15	3

The Effect of Costing Method When Assigning Value to Inventory Decreases

FIFO

The FIFO costing method first assigns the value of the increases with the earliest posting dates on inventory (entry no. 1, 2, 3). COGS is calculated using the value of the first inventory acquisitions.

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
02-01-07	-1	-12	4
03-01-07	-1	-14	5
04-01-07	-1	-16	6

LIFO

The LIFO costing method first assigns the value of the increases with the most recent posting dates on inventory (entry no. 3, 2, 1). COGS is calculated using the value of the most recent inventory acquisitions.

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
02-01-07	-1	-16	4
03-01-07	-1	-14	5
04-01-07	-1	-12	6

Average

The Average costing method calculates a weighted average of the remaining inventory on the last date of the average cost period in which the inventory decrease was posted. (This calculation is described in detail in the section Average Cost Calculation.)

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
02-01-07	-1	-14	4
03-01-07	-1	-14	5
04-01-07	-1	-14	6

Standard

The Standard costing method works similarly to FIFO. The difference is that the inventory increases are valued at standard cost (rather than actual cost), which affects the value of the inventory decreases.

Posting Date	Quantity	Cost Amount (Actual)	Entry No.
02-01-07	-1	-15	4
03-01-07	-1	-15	5
04-01-07	-1	-15	6

Specific

The costing method makes an assumption about how cost flows from inventory increase to inventory decrease. However, if more accurate information about the cost flow exists, you can override this assumption by creating a fixed application between entries. A fixed application creates a link between an inventory decrease and a specific inventory increase and directs the cost flow accordingly. In Microsoft Dynamics NAV, a fixed application has the same effect as using the specific costing method.

The following entries show how a fixed application affects the valuation of the inventory decreases.

Posting Date	Quantity	Cost Amount (Actual)	Applies-to Entry	Entry No.
02-01-07	-1	-14	2	4
03-01-07	-1	-12	1	5
04-01-07	-1	-16	3	6

Average Cost Calculation

Beginning in Microsoft Dynamics NAV 5.0, the program calculates the average cost of an item with a periodic weighted average, using an average cost period that is set up by you. The program sets the valuation date automatically.

Setting up for Average Cost

There are two setup options in the Inventory Setup window that are necessary for calculating average cost:

- **Average Cost Period:** The program calculates the average cost per average cost period. This can be per day, per week, per month, or per accounting period. All inventory decreases that were posted within the average cost period will receive the average cost calculated for that period.
- **Average Cost Calc. Type:** The average cost can either be calculated per item, or per item, variant, and location.

The program can only use one average cost period and one average cost calculation type in a fiscal year. To allow you to more easily track how the program calculates average cost, the program shows for each accounting period which average cost period and which average cost calculation type is in effect during that period.

Calculating Average Cost

When you post a transaction for an item that uses the Average costing method, the program creates an entry in the Avg. Cost Adjmt. Entry Point table. This entry contains the transaction's item number, variant code, and location code. In addition, the entry contains the valuation date, which in this table is the last date of the average cost period in which the transaction was posted. This should not be confused with the valuation date that appears in the Value Entry table, which shows the actual date that the entry's value takes effect. The program uses the valuation date in the Value Entry table to determine in which average cost period the value entry belongs.

The program actually calculates the average cost of the transaction when you run the Cost Adjustment batch job. If you have set up automatic cost adjustment in the inventory setup, this happens automatically when you post the transaction; otherwise, you must run the batch job manually.
To identify the items (or items, locations, and variants) for which the batch job should calculate average costs, the program uses the entries in the Avg. Cost Adjmt. Entry Point table. For each entry whose cost has not yet been adjusted, the program does the following to determine the average cost:

1. Determines the cost of the item at the beginning of the average cost period.
2. Adds the sum of the receipt costs that were posted during the average cost period. These include purchases, positive adjustments, outputs, and revaluations.
3. Subtracts the sum of the costs of outbound transactions that were fixed applied to receipts in the average cost period. These might include purchase returns and negative outputs.
4. Divides by the total inventory quantity as of the end of the average cost period, not including those inventory decreases that are being valued.

The program then applies this average cost to the inventory decreases for the item (or item, location, and variant) with posting dates in the average cost period. If there are any inventory increases that

were fixed applied to inventory decreases in the period, the program forwards this average cost to these entries as well.

Example

This example shows the effect of calculating the average cost with different average cost periods. In this illustration, the average cost calculation type is set to calculate per item.

The entries below are the item ledger entries for an item that uses the Average Costing Method. The Cost Adjustment batch job has not yet been run for these entries, so the values in the Cost Amount (Actual) field of the inventory decreases are just initial values, corresponding to the inventory increases they are applied to.

Item Ledger Entries

Posting Date	Item Ledger Entry Type	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	Purchase	1	20	1
01-01-07	Purchase	1	40	2
01-01-07	Sale	-1	-20	3
02-01-07	Sale	-1	-40	4
02-02-07	Purchase	1	100	5
02-03-07	Sale	-1	-100	6

Using an Average Cost Period of "Day"

If the average cost period is set to "Day", the entries in the Avg. Cost Adjmt. Entry Point table that apply to the value entries appear as shown below:

Avg. Cost Admt. Entry Point

Item No.	Variant Code	Location Code	Valuation Date	Cost is Adjusted
ITEM1		BLUE	01-01-07	No
ITEM1		BLUE	02-01-07	No
ITEM1		BLUE	02-02-07	No
ITEM1		BLUE	02-03-07	No

When the Cost Adjustment batch job is run, the program calculates the average cost per day and applies it to the inventory decreases as shown below:

Item Ledger Entries

Posting Date	Item Ledger Entry Type	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	Purchase	1	20	1
01-01-07	Purchase	1	40	2
01-01-07	Sale	-1	-30	3
02-01-07	Sale	-1	-30	4
02-02-07	Purchase	1	100	5
02-03-07	Sale	-1	-100	6

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Using an Average Cost Period of "Month"

If the average cost period is set to "Month", the entries in the Avg. Cost Adjmt. Entry Point table that apply to the value entries appear as shown below. Note that for each combination of item number, variant code, location code, and valuation date, the program creates only one entry. Note also that the valuation date is set to the last day in the average cost period, which in this case is the last day of the month.

Avg. Cost Admt. Entry Point

Item No.	Variant Code	Location Code	Valuation Date	Cost is Adjusted
ITEM1		BLUE	01-31-07	No
ITEM1		BLUE	02-28-07	No

When the Cost Adjustment batch job is run, the program calculates the average cost per month and applies it to the inventory decreases as shown below:

Item Ledger Entries

Posting Date	Item Ledger Entry Type	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	Purchase	1	20	1
01-01-07	Purchase	1	40	2
01-01-07	Sale	-1	-30	3
02-01-07	Sale	-1	-65	4
02-02-07	Purchase	1	100	5
02-03-07	Sale	-1	-65	6

The average cost of entry 3 is calculated in the average cost period for January, and the average cost for entries 4 and 6 is calculated in the average cost period for February.

To get the average cost for February, the program adds the average cost of the piece received into the inventory (100) to the average cost at the beginning of the period (30), and divides the result (130) by the total quantity in inventory (2). This gives the resulting average cost of the item in the February period (65). The program then assigns that average cost to the inventory decreases in the period (entries 4 and 6).

Setting the Valuation Date

The program uses the valuation date in the Value Entry table as a guideline for which average cost period an entry falls into. Beginning with Microsoft Dynamics NAV 4.0, the program sets the valuation dates of WIP inventory using the same criteria that it uses to set the valuation dates of other non-WIP inventory decreases. The program uses the following criteria to set the valuation date:

Scenario	Posting Date	Valued Quantity	Revaluation	Valuation Date
I	-	Positive	No	Posting date of item ledger entry
II	Later than latest valuation date of applied value entries	Negative	No	Posting date of item ledger entry
III	Earlier than latest valuation date of applied value entries	Negative	No	Latest valuation date of the applied value entries
IV	-	Positive	Yes	Posting date of the revaluation value entry

Example

The following entries illustrate the different scenarios.

Value Entries

Scenario	Posting Date	Item Ledger Entry Type	Valuation Date	Valued Quantity	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
I	01-01-07	Purchase	01-01-07	2	20	1	1
II	01-15-07	(Item Charge)	01-01-07	2	8	1	2
III	02-01-07	Sale	02-01-07	-1	-14	2	3
IV	03-01-07	(Revaluation)	03-01-07	1	-4	1	4
V	02-01-07	Sale	03-01-07	-1	-10	3	5

- **The first four entries are straightforward.**
- **In Entry no. 5, the user has entered a sales order with a posting date (02-01-07) that precedes the latest valuation date of applied value entries (03-01-07).**
- **If the corresponding value in the Cost Amount (Actual) field for this date (02-01-07) were used for this entry, it would be 14. This would give a situation where the quantity on inventory is zero, but the inventory value is –4.**
- **The program responds by setting the valuation date equal to the latest valuation date of the applied value entries (03-01-07). The value in the Cost Amount (Actual) field becomes 10 (after revaluation). In this way, the quantity on inventory is zero, and the inventory value is also zero.**

If the quantity on inventory is less than zero after posting the inventory decrease, then the valuation date is initially set to the posting date of the inventory decrease. This date may be changed later – according to the rules described above – when the inventory increase is applied.

Adjusting the Average Cost

Valuing inventory decreases at a weighted average would be straightforward if purchases were always invoiced before sales are invoiced, postings were never backdated, and you never made mistakes. However, the reality is somewhat different from this ideal.

The way the average costing method is implemented in Microsoft Dynamics NAV allows the following:

- **You can invoice the sale of an item before the purchase of the item has been invoiced.**
- **You can backdate a posting.**
- **You can recover from an incorrect posting.**

The secret behind this flexibility is the use of the valuation date and fixed application (see the Fixed ApplicationFixed Application section for a detailed description). The valuation date is defined as the date from which the value entry is included in the average cost calculation.

It may be necessary to recalculate the average cost at a later date if, for example, you post an inventory increase or decrease with a valuation date that precedes one or more inventory decreases. You can do this by running a cost adjustment, either through the Adjust Cost – Item Entries batch job or with the automatic cost adjustment.

Example

Initially, the following entries exist for the item. In this example, the average cost period is "Day."

Valuation Date	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	1	10	1
01-02-07	1	20	2
02-15-07	-1	-15	3
02-16-07	-1	-15	4

The user posts an inventory increase (entry no. 5) with a valuation date (01-03-07) that precedes one or more inventory decreases. In order to balance the inventory, the average cost must be recalculated and adjusted to 17.

Valuation Date	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	1	10	1
01-02-07	1	20	2
01-03-07	1	21	5
02-15-07	-1	-17	3
02-16-07	-1	-17	4

Item Applications

Entries are usually applied according to the cost flow assumption that is defined by the costing method. However, if more accurate information about the cost flow exists, you can overrule the general cost flow assumption by using a fixed application, which creates a link between an inventory decrease and a specific inventory increase and vice versa.

Fixed Application

In the case of average-cost items, a fixed application can help avoid errors in the average cost calculation. Creating a fixed application can be useful, for example, when correcting an erroneous posting. Item ledger entries that are applied to each other are not valued by average. The two relevant entries serve to cancel each other, and the sum value of the Cost Amount (Actual) field for the transaction becomes zero. Thus, the program excludes it from the normal average cost calculation.

Example

The entries below illustrate the following scenario for an item that uses the Average costing method:
- **Entry no. 1 and 2: The user posts two purchase invoices – the latter with the incorrect direct unit cost of LCY 1000.**
- **Entry no. 3: The user posts a purchase credit memo, with a fixed application applied to the purchase entry with the wrong direct unit cost. The sum value of the Cost Amount (Actual) field for the two fixed applied value entries becomes 0.**
- **Entry no. 4: The user posts another purchase invoice with the correct direct unit cost LCY 100.**
- **Entry no. 5: The user posts a sales invoice.**
- **The inventory quantity is 0, and the inventory value is also 0.**

Value Entries

Posting Date	Item Ledger Entry Type	Valued Quantity	Cost Amount (Actual)	Applied-to Entry	Valued by Average	Item Ledger Entry No.	Entry No.
01-01-07	Purchase	1	200		No	1	1
01-01-07	Purchase	1	1000		No	2	2
01-01-07	Purchase	-1	-1000	2	No	3	3
01-01-07	Purchase	1	100		No	4	4
01-01-07	Sale	-2	-300		Yes	5	5

If the user had not made a fixed application between the purchase credit memo and the purchase entry with the incorrect direct unit cost, the adjustment would have looked like this:

Value Entries

Posting Date	Item Ledger Entry Type	Valued Quantity	Cost Amount (Actual)	Applied-to Entry	Valued by Average	Item Ledger Entry No.	Entry No.
01-01-07	Purchase	1	200		No	1	1
01-01-07	Purchase	1	1000		No	2	2
01-01-07	Purchase	-1	-433,33		Yes	3	3
01-01-07	Purchase	1	100		No	4	4
01-01-07	Sale	-2	-866,67		Yes	5	5

- **Entry no. 3: The value in the Cost Amount (Actual) field is valued by average, and therefore includes the erroneous posting of 1000. It becomes -433,33 (1300 / 3 = 433,33) and is over-inflated.**
- **Entry no. 5: The value of the Cost Amount (Actual) field for this entry is also inaccurate.**

Fixed applications are also a very good means of reversing cost exactly—in connection with a sales return, for example.

Example

The entries below illustrate the following scenario:
- **The user posts a purchase invoice.**
- **The user posts a sales invoice.**
- **The user posts a sales credit memo for the returned item (which applies to the sales entry) in order to correctly reverse the cost.**

Value Entries

Posting Date	Item Ledger Entry Type	Valued Quantity	Cost Amount (Actual)	Applied-from Entry	Item Ledger Entry No.	Entry No.
01-01-07	Purchase	1	1000		1	1
02-01-07	Sale	-1	-1000		2	2
03-01-07	Sale	1	1000	2	3	3

- **A freight cost, related to the purchase order that was posted earlier, arrives. The user posts it as an item charge.**

Value Entries

Posting Date	Item Ledger Entry Type	Valued Quantity	Cost Amount (Actual)	Applied-from Entry	Item Ledger Entry No.	Entry No.
04-01-07	(Item Charge)	1	100		1	4

When you run the Adjust Cost – Item Entries batch job, the increased cost for the purchase entry is forwarded to the sales entry. The sales entry then forwards this increased cost to the sales credit entry. The result is that the program ensures that the cost is correctly reversed at all times.

Value Entries

Posting Date	Item Ledger Entry Type	Valued Quantity	Cost Amount (Actual)	Applied-from Entry	Item Ledger Entry No.	Entry No.
01-01-07	Purchase	1	1000		1	1
02-01-07	Sale	-1	-1100		2	2
03-01-07	Sale	1	1100	2	3	3
04-01-07	(Item Charge)	1	100		1	4

Transfer Application

When an item is transferred from one location to another, the program makes a transfer application. Valuing a transfer entry depends on the costing method. For items using the Average costing method, valuation is made using the average cost in the average cost period in which the valuation date of the transfer occurs. For items using other costing methods, valuation is made by tracing back to the cost of the original inventory increase.

Example

- The first example shows a transfer from location BLUE to location RED for an item using the Average costing method. An average cost period of "Day." is being used.
- As the average cost on the valuation date of the transfer is LCY 15, the transfer is also valued accordingly.

Value Entries

Posting Date	Item Ledger Entry Type	Location	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	Purchase	BLUE	1	10	1
01-01-07	Purchase	BLUE	1	20	2
02-01-07	Transfer	BLUE	-1	-15	3
02-01-07	Transfer	RED	1	15	4

- The second example shows a transfer from location BLUE to location RED for an item using the Standard costing method.
- The item was originally purchased at location BLUE with the standard cost set to LCY 10, and was then transferred to location RED with the standard cost set to LCY 12.
- Since the value of the original inventory increase is LCY 10, the transfer is valued at that—and not LCY 12.

Value Entries

Posting Date	Item Ledger Entry Type	Location	Quantity	Cost Amount (Actual)	Entry No.
01-01-07	Purchase	BLUE	1	10	1
02-01-07	Transfer	BLUE	-1	10	2
02-01-07	Transfer	RED	1	10	3

Re-Application of Item Entries

It is possible that an item application might at some point be incorrectly posted for one of a variety of reasons. You might forget to make a fixed application or make it incorrectly. Because of the way the unit cost is calculated, an incorrect item application can lead to a skewed average cost and skewed unit cost. To correct an item application, you can use the Application Worksheet to re-apply an item ledger entry.

When you remove an item application, the program moves the old entry from the Item Application Entry table to the Item Application Entry History table, which serves as an audit trail of the applications that have been removed. The program then adds the un-applied quantity to the Remaining Quantity fields of the item ledger entries that have been un-applied and, if necessary, updates the Open fields as well.

When you manually create a new application using the Application Worksheet, the program creates a new item application entry and updates the Remaining Quantity and Open fields of the associated item ledger entries accordingly.

If an item ledger entry is associated with a transfer application as described in the previous section, the program cannot undo the item application. A transfer application involves dependencies between several item application entries and item ledger entries, and a re-application would change these relationships so that the cost flow would be lost.

Revaluation

You can revalue the inventory using any valuation base that reflects the inventory value most accurately. It is also possible for you to backdate a revaluation, and the program updates COGS correctly for those items that have already been sold. Beginning with SP1 of Microsoft Dynamics NAV 4.0, the program can also revalue quantities of standard-cost items that have not been completely invoiced.

In order to allow the flexibility in revaluation, the program can:
- **Calculate the revaluable quantity at any date.**
- **Include expected cost entries in a revaluation.**
- **Determine whether an inventory decrease has been affected by a revaluation.**

## Calculating Revaluable Quantity

Revaluable quantity is the remaining quantity on inventory that is available for revaluation at a given date.

The program calculates the revaluable quantity as the sum total of the quantities of completely invoiced item ledger entries that have a posting date equal to or earlier than the revaluation posting date.

Starting with SP1 for Microsoft Dynamics NAV 4.0, the program treats standard-cost items differently when calculating revaluable quantity per item, location, and variant. The program includes the quantities and values of item ledger entries that are not completely invoiced in the revaluable quantity of a standard-cost item.

After a revaluation has been calculated, you can post an inventory increase or decrease that has a posting date that precedes the revaluation posting date. However, this quantity will not be affected by the revaluation. The program, in order to balance the inventory, considers only the original revaluable quantity.

As revaluation can be made on any date, it is necessary to have conventions for when an item is considered part of inventory (non-WIP and WIP) from a financial point of view. The figure and example below illustrate when the transition occurs.
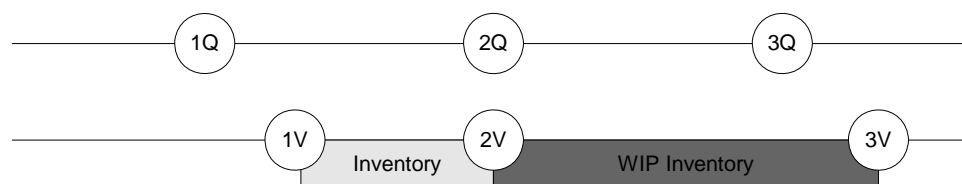
1Q	Receipt of purchased item
1V	Invoicing of purchased item
2Q + 2V	Consumption of purchased item
3Q	Output of manufactured item
3V	Invoicing of manufactured item

Example

This example uses the production of an iron chain that consists of 150 links.

1Q The user posts the purchased links as received:

Item Ledger Entries

Posting Date	Item No.	Entry Type	Quantity	Entry No.
01-01-07	LINK	Purchase	150	1

With SP1 for Microsoft Dynamics NAV 4.0, this is the point where a standard-cost item is available for revaluation.

1V The user posts the purchased links as invoiced and, from a financial point of view, they are now part of inventory:

Value Entries

Posting Date	Entry Type	Valuation Date	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
01-15-07	Direct Cost	01-01-07	150	1	1

2Q + 2V The user posts the purchased links as consumed for the production of the iron chain. From a financial point of view, they are now part of the WIP inventory. Starting with Microsoft Dynamics NAV 4.0, the program sets the valuation date using the same criteria as in a normal inventory decrease, rather than setting it to 12-31-9999 as in past versions.

Item Ledger Entries

Posting Date	Item No.	Entry Type	Quantity	Entry No.
02-01-07	LINK	Consumption	-150	2

Value Entries

Posting Date	Entry Type	Valuation Date	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
02-01-07	Direct Cost	02-01-07	-150	2	2

3Q The user posts the chain as output and finishes the production order:

Item Ledger Entries

Posting Date	Item No.	Entry Type	Quantity	Entry No.
02-15-07	CHAIN	Output	1	3

3V The user runs the Adjust Cost – Item Entries batch job, which posts the iron chain as invoiced—indicating all material consumption has been completely invoiced. From a financial point of view, the links are no longer part of WIP inventory when the output is completely invoiced by the Adjust Cost batch job.

Value Entries

Posting Date	Entry Type	Valuation Date	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
01-15-07	Direct Cost	01-01-07	150	1	1
02-01-03	Direct Cost	02-01-07	-150	2	2
02-15-07	Direct Cost	02-15-07	150	3	3

Including Expected Cost Entries in a Revaluation

Beginning with SP1 for Microsoft Dynamics NAV 4.0, when calculating revaluable quantity for standard-cost items, the program includes item ledger entries that have not been completely invoiced. These entries are then revalued when you post the revaluation. When you eventually invoice the revalued entry, the program creates the following value entries:

- **The usual invoiced value entry with an entry type of Direct Cost. The cost amount on this entry is the direct cost from the source line.**
- **A value entry with an entry type of Variance. This entry records the difference between the invoiced cost and the revalued standard cost.**
- **A value entry with an entry type of Revaluation. This entry records the reversal of the revaluation of the expected cost.**

The example below illustrates how the program creates these entries.

Example

This example uses the purchase of links to be used in the production of a chain.
I. The user posts the purchased links as received with a unit cost of LCY 2.
II. The user then posts a revaluation of the links with a new unit cost of LCY 3, updating the standard cost to LCY 3 as well.
III. The user posts the original purchase of the links as invoiced, which results in:
   A. An invoiced value entry with an entry type of Direct Cost.
   B. A value entry with an entry type of Revaluation to record the reversal of the revaluation of the expected cost.
   C. A value entry with an entry type of Variance, recording the difference between the invoiced cost and the revalued standard cost.

Value Entries

	Posting Date	Entry Type	Valuation Date	Cost Amount (Expected)	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
I.	01-15-07	Direct Cost	01-15-07	300	0	1	1
II.	01-20-07	Revaluation	01-20-07	150	0	1	2
III. A.	01-15-07	Direct Cost	01-15-07	-300	0	1	3
III. B.	01-15-07	Revaluation	01-20-07	-150	0	1	4
III. C.	01-15-07	Variance	01-15-07	0	450	1	5

Determining Whether an Inventory Decrease Is Affected by a Revaluation

Starting in Microsoft Dynamics NAV 4.0, the program no longer uses different criteria for WIP inventory decreases and non-WIP inventory decreases, when determining whether the decrease is affected by a revaluation.

When calculating the cost adjustment for an item that does not use the Average costing method, the program uses the following criteria to determine whether an inventory decrease is affected by a revaluation:

Scenario	Entry No.	The later of either the Posting Date or the Valuation Date	Affected by Revaluation
I	Earlier than revaluation entry no.	Earlier than revaluation posting date	No
II	Earlier than revaluation entry no.	Equal to revaluation posting date	No
III	Earlier than revaluation entry no.	Later than revaluation posting date	Yes
IV	Later than revaluation entry no.	Earlier than revaluation posting date	Yes
V	Later than revaluation entry no.	Equal to revaluation posting date	Yes
VI	Later than revaluation entry no.	Later than revaluation posting date	Yes

Example

The first example shows a scenario for inventory decreases:
- The user posts a purchase of 6 units of an item that uses the FIFO costing method.
- The user posts a sale of 1 item, posting date = 02-01-07.
- The user posts a sale of 1 item, posting date = 03-01-07.
- The user posts a sale of 1 item, posting date = 04-01-07.
- The user calculates the inventory value for the item from the revaluation journal, posting date = 03-01-07, and posts the revaluation of the item from a unit cost of LCY 10 to LCY 8.
- The user posts a sale of 1 item, posting date = 02-01-07.
- The user posts a sale of 1 item, posting date = 03-01-07.
- The user posts a sale of 1 item, posting date = 04-01-07.
- The user runs the Adjust Cost – Item Entries batch job.

Value Entries

Scenario	Posting Date	Item Ledger Entry Type	Valuation Date	Valued Quantity	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
	01-01-07	Purchase	01-01-07	6	60	1	1
	03-01-07	(Revaluation)	03-01-07	4	-8	1	5
I	02-01-07	Sale	02-01-07	-1	-10	2	2
II	03-01-07	Sale	03-01-07	-1	-10	3	3
III	04-01-07	Sale	04-01-07	-1	-10	4	4
	04-01-07	Sale	04-01-07	-1	2	4	9
IV	02-01-07	Sale	03-01-07	-1	-10	5	6
	02-01-07	Sale	03-01-07	-1	2	5	10
V	03-01-07	Sale	03-01-07	-1	-10	6	7
	03-01-07	Sale	03-01-07	-1	2	6	11
VI	04-01-07	Sale	04-01-07	-1	-10	7	8
	04-01-07	Sale	04-01-07	-1	2	7	12

Variance Calculation

Variance is defined as the difference between the actual cost and the standard cost. In this equation, the actual cost can change (if you post an item charge at a later date, for example), but the standard cost is a fixed, capitalized cost. Therefore, when the actual cost changes, the program must update the variance accordingly.

Note that a revaluation will have no effect on the variance calculation, as this only changes the inventory value.

Example
The following scenario and postings illustrate how the variance calculation works. The program uses the equation: Actual Cost – Standard Cost = Purchase Variance.

- **An item is purchased at LCY 90, but the standard cost is LCY 100. Thus, the purchase variance is LCY –10. The program credits LCY 10 to the purchase variance account.**
- **Later, the user posts an item charge of LCY 20. This increases the actual cost to LCY 110 and the value of the purchase variance becomes LCY 10. The program debits LCY 20 to the purchase variance account (therefore making the net purchase variance equal to LCY 10).**
- **Finally, the item is revalued from LCY 100 to LCY 70. This doesn't affect the variance calculation—only the inventory value.**

	Inventory		Direct Cost		Purchase Variance		Inventory Adjustment	
Purchase	100		90		10			
Item Charge			20	20				
Total before revaluation	100		110	10				
Revaluation		30					30	
Total after revaluation	70		110	10			30	

Determining Standard Cost

The standard cost is used when calculating variance and the amount to capitalize. Since the standard cost can change over time, it is necessary to have a convention for when it is considered fixed for the purpose of calculations.

The standard cost is determined at the time of invoicing. For manufactured items, this occurs during cost adjustment. Beginning with SP1 for Microsoft Dynamics NAV 4.0, the production order is invoiced by the cost adjustment regardless of whether the material and capacity consumption have been completely invoiced. In addition, determining both the indirect cost percentage and the overhead rate follows the same conventions that apply when determining the standard cost. The calculation of standard cost and variance for a manufactured item is shown in Appendix 2 – Variance Calculation for Manufactured Items.

Rounding

Rounding residuals can occur when valuing the cost of an inventory decrease that is measured in a different quantity than the corresponding inventory increase. The program calculates rounding residuals for all costing methods when you run the Adjust Cost – Item Entries batch job.

When using the Average costing method, the rounding residual is calculated and recorded on a cumulative, entry-by-entry basis.

When using a costing method other than Average, the rounding residual is calculated when the inventory increase has been fully applied (when the remaining quantity for the inventory increase is equal to zero). The program then creates a separate entry for the rounding residual. The posting date on the rounding entry is the posting date of the last invoiced value entry of the inventory increase.

Example

This example uses the following sequence of inventory increases and decreases to show how the program handles the rounding issue. In both cases, the Adjust Cost – Item Entries batch job has been run.

Item Ledger Entries

Posting Date	Quantity	Entry No.
01-01-07	3	1
02-01-07	-1	2
03-01-07	-1	3
04-01-07	-1	4

For an item using the Average costing method, the rounding residual (1/300) is calculated with the first decrease (entry no. 2) and carried forward to entry no. 3. Therefore, entry no. 3 is valued as –3.34:

Value Entries

Posting Date	Quantity	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
01-01-07	3	10	1	1
02-01-07	-1	-3.33	2	2
03-01-07	-1	-3.34	3	3
04-01-07	-1	-3.33	4	4

For an item using a costing method other than Average, the rounding residual (0.01) is calculated when the remaining quantity for the inventory increase is zero. The rounding residual has a separate entry (number 5):

Value Entries

Posting Date	Quantity	Cost Amount (Actual)	Item Ledger Entry No.	Entry No.
01-01-07	3	10	1	1
02-01-07	-1	-3.33	2	2
03-01-07	-1	-3.33	3	3
04-01-07	-1	-3.33	4	4
01-01-07	0	-0.01	1	5

Glossary

acquisition cost   An item's purchase price plus any related costs.

actual cost   The cost of an item when you accumulate all incurred costs, including costs of production and item charges.

average cost period   The period of time, that you define in the inventory setup, that the program uses for calculating the average cost of items.

conversion cost   All manufacturing costs other than direct materials costs. These costs are for transforming direct materials into finished goods.

cost object   Anything for which a separate measurement of cost is desired. This could be a product, customer, or project, for example.

exact cost reversing   A link established between two entries: an inventory increase and an inventory decrease and vice versa. The link ensures that the cost of both entries is equal but with different signs.

expected cost   A preliminary cost that you expect to appear on an invoice from a vendor. If you choose to post expected cost to the general ledger, you must set up interim accounts that parallel the account to which the final cost will be posted. You post the expected cost when you have received the items but not the invoice from the vendor.

fixed application   A designation that you make that a specific inventory decrease should be taken from a specific inventory increase. This means that the cost from the inventory increase is used as the cost for the inventory decrease. A fixed application can also be made by designating that a specific inventory increase should be applied to a specific inventory decrease, so that the cost from the inventory decrease is carried over to the inventory increase.

interim account   A G/L account to which you post expected costs.

inventory period   A period of time, defined with an ending date, in which you can post inventory transactions. You can close an inventory period to prevent posting during that period of time.

item application   A link between an inventory increase and an inventory decrease that makes it possible to specify exactly which increase was used for which decrease (and vice versa). The program stores this information in item application entries.

item charge	A cost your company incurs in connection with the purchase or sale of a particular item, or an amount your company debits a customer or vendor for services related to the sale or delivery of particular items.
reconciliation	Recording inventory valuation information in the general ledger. The program calculates the amount to be posted to the general ledger from value entries and creates G/L entries.
revaluable quantity	The quantity available for revaluation at a given date.
standard cost	A carefully predetermined cost.
valuation base	The cost basis that a company uses to determine the value of its inventory.
valuation date	The date from which the value entry is included in the average cost calculation.
variance	The difference between the actual cost and the standard cost.
WIP inventory	Work-in-process inventory is comprised of produced goods in various stages of completion. From a financial point of view, an item is included in WIP inventory once it has been posted as consumed and until the manufactured item is completely invoiced.

Appendix 1 – Controlling Accounts Posted to in General Ledger

The following table shows the relationship between different types of value entries and the accounts and balancing accounts that are posted to in the general ledger.

Item Ledger Entry Type	Value Entry Type	Variance Type	Expected Cost	Account	Balancing Account
Purchase	Direct Cost	-	Yes	Inventory Account (Interim)	Invt. Accrual Acc. (Interim)
	Direct Cost	-	No	Inventory Account	Direct Cost Applied Account
	Indirect Cost	-	No	Inventory Account	Overhead Applied Account
	Variance	Purchase	No	Inventory Account	Purchase Variance Account
	Revaluation	-	No	Inventory Account	Inventory Adjmt. Account
	Rounding	-	No	Inventory Account	Inventory Adjmt. Account
Sale	Direct Cost	-	Yes	Inventory Account (Interim)	COGS Account (Interim)
	Direct Cost	-	No	Inventory Account	COGS Account
	Revaluation	-	No	Inventory Account	Inventory Adjmt. Account
	Rounding	-	No	Inventory Account	Inventory Adjmt. Account
Positive Adjmt., Negative Adjmt., Transfer	Direct Cost	-	No	Inventory Account	Inventory Adjmt. Account
	Revaluation	-	No	Inventory Account	Inventory Adjmt. Account
	Rounding	-	No	Inventory Account	Inventory Adjmt. Account
Consumption	Direct Cost	-	No	Inventory Account	WIP Account
	Revaluation	-	No	Inventory Account	Inventory Adjmt. Account
	Rounding	-	No	Inventory Account	Inventory Adjmt. Account
Output	Direct Cost	-	Yes	Inventory Account (Interim)	WIP Account
	Direct Cost	-	No	Inventory Account	WIP Account
	Indirect Cost	-	No	Inventory Account	Overhead Applied Account
	Variance	Material	No	Inventory Account	Material Variance Account
	Variance	Capacity	No	Inventory Account	Capacity Variance Account
	Variance	Subcontracted	No	Inventory Account	Subcontracted Variance Account
	Variance	Capacity Overhead	No	Inventory Account	Cap. Overhead Variance Account
	Variance	Manufacturing Overhead	No	Inventory Account	Mfg. Overhead Variance Account
	Revaluation	-	No	Inventory Account	Inventory Adjmt. Account
	Rounding	-	No	Inventory Account	Inventory Adjmt. Account
	Direct Cost	-	No	WIP Account	Direct Cost Applied Account
	Indirect Cost	-	No	WIP Account	Overhead Applied Account

Calculating the Amount to Post to General Ledger

Starting in Microsoft Dynamics NAV 4.0, the program uses the new expected cost fields on the Value Entry table to calculate the amount of expected cost to post to the general ledger.
Expected Cost: Cost Amount (Expected) – Expected Cost Posted to G/L
Actual Cost: Cost Amount (Actual) – Cost Posted to G/L
Note that 'Cost Amount (Expected)', 'Expected Cost Posted to G/L', 'Cost Amount (Actual)' and 'Cost Posted to G/L' are fields on the Value Entry table.

Appendix 2 – Variance Calculation for Manufactured Items

The following table shows how the cost shares are calculated for an item when using the Calculate Standard Cost function.

	Purchased Item	Manufactured Item
Standard Cost		Single-Level Material Cost + Single-Level Capacity Cost + Single-Level Subcontrd. Cost + Single-Level Cap. Ovhd Cost + Single-Level Mfg. Ovhd Cost
Single-Level Material Cost	Unit Cost	$\sum\limits_{Components} \text{Standard Cost}$
Single-Level Capacity Cost	0	$\sum\limits_{Operations\,(not\,subcontrd.)} \text{Direct Unit Cost}$
Single-Level Subcontrd. Cost	0	$\sum\limits_{Operations\,(subcontrd.)} \text{Direct Unit Cost}$
Single-Level Cap. Ovhd Cost	0	$\sum\limits_{Operations} \text{Direct Uni t Cost} * \text{Indirect Cost} \% / 100 + \text{Overhead Rate}$
Single-Level Mfg. Ovhd Cost	0	(Single-Level Material Cost + Single-Level Capacity Cost + Single-Level Subcontrd. Cost) * Indirect Cost % / 100 + Overhead Rate
Rolled-up Material Cost	Unit Cost	$\sum\limits_{Components} \text{Rolled - up Material Cost}$
Rolled-up Capacity Cost	0	$\sum\limits_{Components} \text{Rolled - up Capacity Cost} + \text{Single - Level Capacity Cost}$
Rolled-up Subcontracted Cost	0	$\sum\limits_{Components} \text{Rolled - up Subcontracted Cost} + \text{Single - Level Subcontrd. Cost}$
Rolled-up Cap. Overhead Cost	0	$\sum\limits_{Components} \text{Rolled - up Cap. Overhead Cost} + \text{Single - Level Ovhd Cost}$
Rolled-up Mfg. Ovhd Cost	0	$\sum\limits_{Components} \text{Rolled - up Mfg. Ovhd Cost} + \text{Single - Level Mfg. Ovhd Cost}$

Appendix 3 – Capacity Ledger Entry Diagram
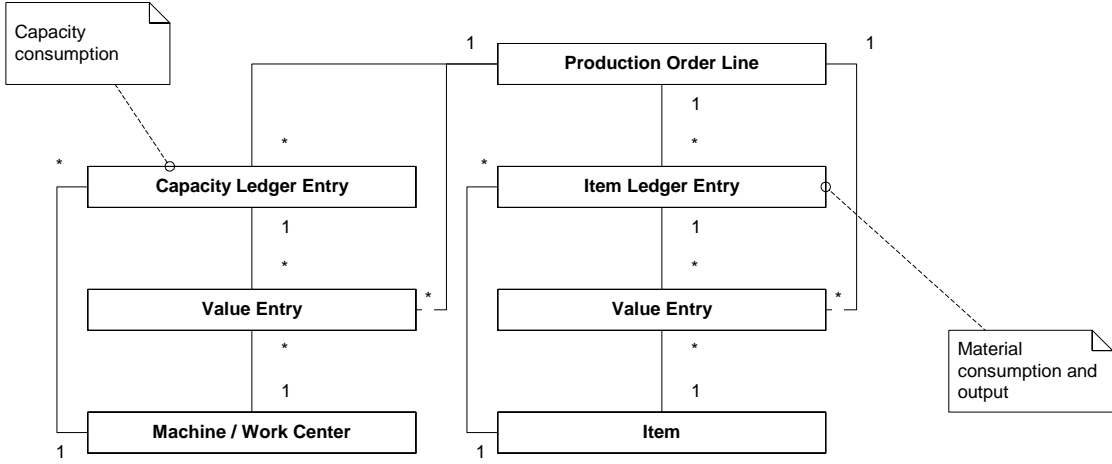
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