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On Distribution/Inventory

Weighted Average Cost in JDE®: What You Should Know

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E1W Editor's Note: *There are a number of ways to calculate the overall costs associated with your company's inventory. One of those ways is to determine the average cost, for which you need to know the Weighted Average Cost (WAC). In this article, Rishi Kanegaonkar and Ajay Agarwal review how WAC is calculated in JDE, including setup, various functionalities available, and the considerations you'll want to take into account, along with the best practices and lessons they've learned along the way*

Abstract

The average cost system uses a weighted average to recalculate an item's per unit average cost. The weighted average cost (WAC) can be recalculated automatically online every time a transaction is completed; alternately, the average cost update may be run in batch mode. There are certain considerations that clients need to keep in mind when using WAC. The purpose of this document is to provide a quick guide to those considerations and some parameters that should be considered if WAC is to be implemented.

Screenshots used in this article have been taken from JD Edwards® EnterpriseOne® 8.12. The article applies to all versions of World®, OneWorld® and EnterpriseOne.

There are certain considerations that clients need to keep in mind when using WAC.

Introduction

Organizations understand very well that the overall costs associated with inventory is the single biggest opportunity for cost savings and cash flow control available, as it accounts for a huge portion of spending in most businesses. Failure to monitor and control those costs can create serious cash flow problems. Managing inventory costs is critical to most businesses; hence it becomes an absolute necessity to know how the system is set up in terms of inventory cost.

Inventory accounting involves the following two aspects in the life cycle of inventory management in terms of inventory costing:

- The cost of the manufactured or procured inventory is to be determined.
- This cost is then maintained in the inventory accounting until products are sold.

Organizations that know the cost of each and every individual item sold use a "Specific Identification" method. Each article manufactured or procured and each item sold are individually identified. Such companies determine the value of their inventory by figuring out what it cost to acquire that inventory. When an inventory item is sold, the inventory account is reduced (credited) and cost of goods sold is increased (debited) for the amount paid for each inventory



Weighted Average Cost in JDE

item. This method works well when each item is relatively unique and the amount of inventory that a company has is limited. Companies that use this method might include car dealers, art galleries, etc.

The advantage is that this method is the most precise way of determining inventory costing/pricing. However, problems arise when a company has a large inventory and each specific inventory item is relatively identical to other items. This method is far too cumbersome for companies with large and even medium-sized inventories. As a result, other inventory valuation methods like FIFO, LIFO, and WAC have been developed.

The following methods are most commonly used for inventory valuation methods in JDE.

1. First-in First-Out (FIFO):

The first goods to be sold (cost of sales) are the first goods that were manufactured or purchased. Under FIFO, it is assumed that the oldest inventory—i.e., the inventory first purchased—is always sold first. Therefore, the inventory that remains would logically be from only the most recent purchases.

In this example, a retailer buys 10 bikes from a manufacturer on Monday for \$1,000 (\$100 per bike) and 20 bikes on the next Monday at \$3,000 (\$150 per bike). The first 10 bikes that are sold will reduce inventory and increase cost of goods sold at a rate of \$100 per bike. The next 20 sold will have an inventory price of \$150 per bike. It is irrelevant whether a customer actually buys the older bike first. Under FIFO, a company always assumes that it sells its oldest inventory first and that ending inventories include more recently purchased merchandise. Companies selling perishable goods such as food and drugs tend to use this method, because cash flow closely resembles goods flow with this method.

2. Last-in First-out (LIFO):

The first goods to be sold (cost of sales) are the last goods that were manufactured or purchased. Under LIFO, it is assumed that the most recent purchase is always sold first. Therefore, the inventory that remains is always the oldest inventory. So for the given example above, the first 20 bikes that are sold will reduce inventory and increase cost of goods sold at a rate of \$150 per bike. Again, it does not matter if customers actually buy the newer bikes first. Under LIFO, a company always assumes that it sells its newest inventory first. This method represents the true flow of goods for very few companies.

3. Average Cost:

This method requires that companies should calculate the average unit cost of the goods in the beginning inventory for that period plus the purchases made in the period. Average cost is determined by dividing total costs on hand by total units on hand. However, Weighted Average Cost (WAC) is timing sensitive – it recalculates the WAC after every transaction.

In the example above, the weighted average cost would be \$4,000/30 bikes, which equals to \$133.33 per bike. Therefore, every bike would have the inventory price of \$133.33, regardless of whether they were actually bought in the \$100 purchase or the \$150 purchase. This weighted average would remain unchanged until the next purchase occurs, which would result in a new weighted average cost to be calculated. So, the WAC will thus be calculated during each transaction affecting perpetual inventory. This inventory accounting method is used primarily by companies that maintain a large supply of undifferentiated inventory items such as fuels and grains.

The advantage of weighted average is that it is hard to manipulate and easy to calculate.



Weighted Average Cost in JDE

Dividing the total cost of goods available for sale by the total number available for sale tends to level out the effects of cost increases and decreases. This is most relevant to organizations that use such a method of inventory valuation.

4. Advanced Stock Valuation:

The Advanced Stock Valuation module of JDE is a useful and powerful alternative for any company wanting to value its on-hand inventory and also know its cost of sales on a FIFO, LIFO, or Average Cost basis. Advantages of using this system are as follows:

- With this system, one primary method of stock valuation can be set up per company to update the General Ledger for standardized accounting and reporting. However, any number of secondary methods can be used for comparison or other reporting purposes. So it has the flexibility needed to accommodate the many stock valuation methods throughout distribution industries, allowing you to compile inventory reports and assess inventory value at the desired level and detail.
- It precisely calculates any kind of inventory, including stock in transit; loans, borrows, and exchanges; exclusion of commingled inventory; and gains and losses associated with bulk stock.
- This method provides an opportunity to review and analyze results before updating the General Ledger. And, with dual currency, stock valuation can be based on a stable currency in addition to the domestic currency.
- It uses period beginning and ending inventory, so it removes the timing effect of transactions. This is particularly important when inventory goes negative as it does not recalculate after every transaction—it uses period beginning and ending balances, so if both those numbers are positive, there would be no problem with negative inventory during the period. We will revisit this advantage a little later in this document when we look at the disadvantage of inventory going negative when using the WAC method.

The focus of this document will be on the WAC system in JDE. We have often heard that if the costing is set up using the Weighted Average Costing method, then issues multiply; the perception is that keeping track of the true WAC is a pain point because this cost in the system is always a moving target. In this article, our intent is to provide you with enough firepower to combat this “devil”. In this article, we will:

1. Identify the essential setup required for WAC in JDE
2. Identify the different WAC Functionality available in JDE
3. Discuss the considerations and recommendations for setting up WAC to effectively work with your set of business rules
4. Present best practices

WAC Definition

Let us start with a definition of Weighted Average Costing (WAC):

Simply put, weighted average measures the total cost of items in inventory that are available for sale divided by the total number of units available for sale.



Weighted Average Cost in JDE

For example: Let's suppose you purchased five bikes at \$100 apiece and five at \$200 apiece.

The weighted average is calculated as follows:

- Five Bikes at \$100 each = \$500
- Five Bikes at \$200 each = \$1000
- Total number of Bikes = 10
- Weighted Average = Total Cost / Total # of units

So, \$150 is the WAC of these 10 Bikes ($\$1500 / 10 = \150)

However, if you had only two \$100 bikes and eight \$200 bikes, the calculation would be:

- Two Bikes at \$100 each = $2 \times \$100 = 200$
- Eight Bikes at \$200 each = $8 \times \$200 = 1600$
- $200 + 1600 = \$1800$
- Weighted Average = Total Cost / Total # of units = $1800/10 = \$180$

Although the average of 100 and 200 is 150, the weighted average in this case is 180.

These examples are just to highlight how different factors affect the WAC calculation.

WAC Setup in JDE

Before we actually dive deep into what considerations you'll want to take for mapping business rules, let us take a look at these important setups for WAC:

Inventory Cost Level Setup

The Item Master stores the setup of Inventory Cost Level, Sales Price Level, and Purchase Price Level. Inventory Cost Level is the level at which overall inventory cost is maintained (see Figure 1). There are three levels at which this can be maintained:

- 1 – Item Level
- 2 – Item Branch Level
- 3 – Item Branch Location Level

The screenshot shows the 'Item Master Revisions' window with the 'Basic Item Data' tab selected. The 'Inventory Cost Level' is set to 2, 'Item/Branch Only', which is circled in red. Other settings include: Stocking Type: P (Purchased Item Stock), G/L Class: IN10 (Stock Inventory), Unit of Measure: EA (Each), Line Type: S (Stock Inventory Item), Bulk/Packed Flag: P (Packaged Item), Planner Number: (empty), Buyer Number: (empty), Sales Price Level: 2 (Item/Branch Only), Purchase Price Level: 3 (Inventory Cost Level), Kit/Configurator Pricing Method: (empty) (Non-kit Item), Configurator Costing Method: (empty) (Non Configured Item), Commitment Method: 1 (Location With Most Quantity), Print Message: (empty), and Item Flash Message: GN (NONE CHECK X-REF #).

Figure 1: Inventory Cost Level Setup



Weighted Average Cost in JDE

UDC 40 | CM

In JDE, WAC is called 02 Cost and is defined in UDC 40 | CM. The system calculates and updates this amount by adding transaction quantities together, adding transaction costs together, and dividing the total cost by the total quantity.

Below is the formula that is used to calculate WAC for every transaction that affects inventory cost:

$$\text{WAC} = \frac{[(\text{Qty On Hand} \times \text{Current WAC}) + (\text{Trans Qty} \times \text{Trans Unit Cost})]}{(\text{Qty On Hand} + \text{Trans Qty})}$$

Setting up WAC costing method for Sales/Inventory is done in “Cost Revisions” (P4105) on menu G4112. Set the Sales/Inventory cost method to “02” (see Figure 2). All costs are stored in the Item Cost (F4105) file in the primary unit of measure

Please note that the system will calculate WAC whether or not the WAC is used as the current Sales/Inventory cost method. In other words, even if Sales/Inventory cost method is 07 (standard), 02 cost (WAC) will still be calculated and tracked in the Item Cost file (F4105).

Cost Method	Description	Unit Cost
02	Weighted Average	15.0000
08	Purchasing-Base Cost No Adds	12.0000

Figure 2: Setting 02 Cost Method

Setup for WAC On-Line

To have your WAC recalculated automatically after each transaction, check the “Update Average Cost On-Line” button on the System Constants screen shown in Figure 3 (form exit from branch plant constants P41001).

Unit of Measure Conversion by Branch

Update Average Cost On-Line

ECS Control

Internet Enable PPAT Messages

Scientific Rounding

Use Customer Set

Ship Ascending Date Rule

Allow Duplicate Lots: 3

Sales Price Retrieval UOM: []

Purchase Price Retrieval UOM: []

Sales Price Based On Date: 5

Purchase Rebate Category Code: []

Preference Schedule: []

Pref Retrieval UOM: []

Accelerated Pricing Resolution Engine: []

Figure 3: System Constants Setting for Online WAC Update



Weighted Average Cost in JDE

The average cost system uses the weighted average to recalculate an item's per unit average cost. Once this is activated, the WAC can be recalculated automatically on-line every time a transaction is completed.

In addition to checking the “Update Average Cost On-Line” box, the programs that impact WAC are to be selected on UDC 40 | AV. More on UDC 40 | AV is explained a little later in the Considerations section.

WAC Can Be Run in Batch Mode

Similarly, the average cost update may be run in batch mode; the Update Average Cost (R41811) is the batch program for updating WAC. It has no processing options and is based on the Average Cost Work File (F41051). The data selection can be used to select which Items or Branch Plants to update.

If you did not check the “Update Average Cost On-Line” box as discussed above, then each time a transaction is completed whose program is listed in the 40/AV UDC table, a record is created in the Average Cost Work File (F41051). Those records are created regardless of whether WAC is the current sales/inventory cost method. When the Update Average Cost (R41811) is run, it will purge the Average Cost Work File (F41051) records that it processed.

Factors That Impact WAC Change

The WAC that results from several transactions will be the same, regardless of whether you're recalculating WAC on-line or in batch. This is an important design parameter from the system point of view that ensures that the net result of WAC takes all transactions impacted into consideration. The order of the transactions is important because system recalculates WAC after every transaction.

The recalculation of WAC, either online or in batch, will neither create an IB transaction (inventory re-evaluation adjustment), nor will it create any journal entries. This is because the system has now averaged the per-unit cost of the existing inventory together with the per-unit cost of the transaction now added into the calculation.

However, please note that if the WAC is changed in the Cost Revisions (P4105) program, an IB transaction will be created that will show in the Item Ledger (F4111). This is because the value of the inventory has now changed.

Considerations for WAC

The following section will provide an insight into the “must consider” features of WAC and the breadth of the functionality that is available in JDE.

Consideration #1: Stocking Types Not Allowed in WAC

Configured items are costed at lot/location and have a configured ID that identifies one configuration of the same item from another. Consequently, weighted average and/or FIFO is not an appropriate costing method for configured items.

The 02 cost method cannot be used as the Sales/Inventory cost method for items defined with stocking type **C** (Configured Item) or **R** (Process Item). See Figure 4.



Weighted Average Cost in JDE

Work With User Defined Codes

Select Find Add Delete Close Row Form Report Tools

Product Code: 41 Inventory Management
User Defined Codes: I Stocking Type Code

Records 1 - 7

Codes	Description 01	Description 02	Special Handling	Hard Coded
<input type="checkbox"/>	0	Phantom	M - Hard Coded	Y
<input type="checkbox"/>	C	Configured Item	M - Hard Coded	Y
<input type="checkbox"/>	E	Emergency/Corrective Maint.	M - Hard Coded	Y
<input type="checkbox"/>	K	Kit or Parent Item	M - Hard Coded (Kit)	Y
<input type="checkbox"/>	M	Mfg. Assembly or Sub-Assembly	M	Y
<input type="checkbox"/>	R	Process	M R	Y
<input type="checkbox"/>	S	Stock End-Item	M	N

Figure 4: Stocking Types Not Allowed in WAC

Consideration #2: UDC 40 | AV in WAC Calculation

The system checks the UDC 40/AV UDC table to decide what program affects WAC. To prevent a program from affecting WAC, set the value in the Description 02 column as shown in Figure 5 to "N". To allow a program to affect WAC, set the value in the Description 02 column to "Y". Adding programs to the 40/AV that were not included in the UDC table when it shipped will have no impact. These setup values are purely a business decision as to what transactions should affect WAC.

Figure 5 shows only a few records of the 40/AV UDC table.

Work With User Defined Codes

Select Find Add Delete Close Row Form Report Tools

Product Code: 40 Inventory/OP Base
User Defined Codes: AV Average Cost Calculation

Records 1 - 39

Codes	Description 01	Description 02	Special Handling	Hard Coded
<input type="checkbox"/>	P41014	Speed Item Setup	Y	
<input type="checkbox"/>	P4112	Inventory Issues	Y	
<input type="checkbox"/>	P4113	Inventory Transfers	Y	
<input type="checkbox"/>	P4114	Inventory Adjustments	Y	
<input type="checkbox"/>	P4116	Item Reclassifications	Y	N
<input type="checkbox"/>	P41810	Recompute Average Cost	Y	N
<input type="checkbox"/>	P41811	Average Cost Update	Y	N
<input type="checkbox"/>	P4205	Shipment Confirmation	Y	
<input type="checkbox"/>	P42800	Sales Update	Y	
<input type="checkbox"/>	P4312	Purchase Order Receipts	Y	
<input type="checkbox"/>	P4314	Purchase Order Match	Y	
<input type="checkbox"/>	P43214	Reverse Purchase Order Receipt	Y	N
<input type="checkbox"/>	P43250	Receipt Routing Movement	Y	N
<input type="checkbox"/>	P43253	Receipt Routing Disposition	Y	Y
<input type="checkbox"/>	P43291	Landed Cost Selection	Y	

Figure 5: UDC 40 | AV



Weighted Average Cost in JDE

Here are guidelines to help you understand the ramifications of different settings:

1. **Check accuracy of programs that update WAC:** If it is decided that only sales and purchasing transactions affect WAC, but not inventory transactions, then for P4112 (Issues), P4113 (Transfers), P4114 (Adjustments), and P4116 (Reclassifications), you would set the Description 02 field equal to N in the 40/AV UDC table.
2. **Update through UDC 40 | IU:** For sales, the criterion is that if the order type is set up in UDC 40/IU, the WAC is calculated at Shipment Confirmation (P4205), and not at Sales Update (R42800). If the Order Type does not exist in the 40/IU, then the WAC is calculated at Sales Update (R42800). In other words, the WAC will only be updated in sales for the transaction that is relieving inventory, assuming that program (ship confirm or sales update) is set to Y in the 40/AV. Because inventory can only be relieved once for a given sales detail line, even though both the Shipment Confirmation (P4205) and Sales Update (R42800) are set to Y in the 40/AV, the WAC calculation will only be done once.
3. **WAC calculation at voucher match:** In purchasing, if both the PO Receipt (P4312) and Voucher Match (P0411/P4314) are set to Y in the 40/AV, the WAC recalculation will only be done at receipt unless a different cost is used at Voucher Match than on the Receipt. If Voucher Match uses a different cost than the Receipt, the calculation of WAC done at receipt will be ignored and the calculation will be done based on the cost at voucher match.

Example: Quantity on hand = 50 and WAC = \$10.

Receive a PO for qty of 50 at a cost of \$20

The WAC is recalculated to \$15 $[(50 \times \$10 + 50 \times \$20) / (50 + 50)]$

Voucher match the same PO at a cost of \$25

The WAC is recalculated to \$17.50 $[(50 \times \$10 + 50 \times \$25) / (50 + 50)]$

4. **Transfer orders:** If you are using different costs in different branch plants, the price in the sales order becomes the cost in the purchase order and will affect the WAC in the receiving branch plant unless both the PO Receipt (P4312) and Voucher Match (P0411/ P4314) are set to N in the 40/AV. However, if the 40/AV UDC is set so that neither the PO Receipt (P4312) nor the Voucher Match (P0411/ P4314) affects WAC, no purchasing receipts or voucher matches will affect WAC, regardless of whether the purchase order was created through the transfer order program, through purchase order entry, or released from a blanket or quote.
5. **Checks and measures on program setup on 40 | AV:**
 - Vide KG-document 'ODS-02-0028' on Average costing, Oracle suggests that if one application in the module is set to "N", then all related programs must be set to "N". (For example, if no update is set from P4112 & P4113, then P4114 & P4116 are suggested to be set off as well.) The principle followed is that if an inventory transaction, like an adjustment, affects WAC, then all such inventory movement related transactions like transfers, reclassifications, and issues will also affect WAC.

Example – Assume that an adjustment (P4114) is set as Y on 40 | AV, but reclassification (P4116) is set as N. Now a reclassification is somewhat similar to an adjustment such that it has a "From" and a "To", but individually these can be assumed to be two distinct adjustments. Such a disconnect in WAC calculation will create an issue with inventory valuation, as some transactions may be accounted for, but not all transactions,



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- Another check. Make sure that all programs that need to be considered in updating WAC are turned “on”. Do the due diligence while setting up new functionality. For example, if EDI functionality is activated, then ensure that EDI batch reports/UBEs that affect WAC are turned on in UDC table 40/AV.

Consideration #3: Use of Alternative Language

If the user is in an alternative language and you have done the setup but the system is not updating the WAC, then check to see if the alternative language version of UDC 40/AV is turned on, as shown in Figure 6.

- Type UDC on the fast path UDC. Enter 40/AV and click Find.
- Highlight a program, and take the Language Row exit.

L	Language	Description	Description 2
PO	Polish		

Figure 6: UDC 40 | AV – Alternative Language

Consideration #4: Only a Few Inventory Programs Are Set Up to Update WAC

As discussed earlier, having just one or very few inventory transaction programs, like P4112 (Issues), affecting WAC calculations but not all programs viz. P4113 (Transfers), P4114 (Adjustments), and P4116 (Reclassifications) affecting calculations may cause issues.

Consideration #5: Setups to Be Used with Third-Party Tools / Applications such as Bar-coding

Special care must be taken when using third-party software, like bar-coding, that affects inventory to ensure that respective program IDs either affect or do not affect WAC calculations. If regular applications such as P4113 are set to update cost and if bar coding software like DSI is used, then remember to set the DSI programs to update WAC.

ND3N4114, ND3N4113, and ND3N4205 are used only by third-party software (e.g., Bar-coding), and are not required by standard OneWorld applications. Therefore, when you set up new functionality or a third-party application, ensure that these applications are also enabled in UDC 40 | AV (see Figure 7).



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Work With User Defined Codes

Select Find Add Delete Close Row Form Report Tools

Product Code 40 Inventory/OP Base

User Defined Codes AV Average Cost Calculation

Records 1 - 39 Customize Grid

	Codes	Description 01	Description 02	Special Handling	Hard Coded
<input type="checkbox"/>	D3N4113	DSI Inventory Transfer	Y		N
<input type="checkbox"/>	D3N4114	DSI Inventory Issue/Adj	Y		N
<input type="checkbox"/>	D3N4205	DSI Ship Confirmation	Y		N
<input type="checkbox"/>	D3N4309	DSI Receipt Routing	Y		N
<input type="checkbox"/>	D3N4312	DSI PO Receipts	Y		Y
<input type="checkbox"/>	ND3N4113	DSI Inventory Transfers	Y		N
<input type="checkbox"/>	ND3N4114	DSI Inventory Issues/Adj.	Y		N
<input type="checkbox"/>	ND3N4205	DSI Ship Confirmation	Y		N
<input type="checkbox"/>	ND3N4309	DSI Receipt Routing	Y		N
<input type="checkbox"/>	ND3N4312	DSI PO Receipts	Y		Y

Figure 7: UDC 40 | AV – Third-Party Applications / New Functionality

Consideration #6: Payment Is Done Before Moving the Quantity to Stock in Receipt Routing

When payment is made prior to moving quantity to stock, a variance is always written based on the previous quantity on hand, not including the current receipt that is in routing. Hence the average cost is updated incorrectly. So, generally, finance (AP) should be accountable for these transactions and should carefully monitor such special cases. A custom report for exceptions would help in identifying receipts not paid, comparing to check if they are in routing, which would flag the AP user in ensuring that integrity is maintained.

Consideration #7: ST | OT Scenarios with New WAC at Shipment Confirmation

Bug # 6955393 records that in an ST-OT scenario, if the ST cost is updated to a new WAC at shipment confirmation, it does not update the OT. This is because on the ST, the price never gets updated. This causes severe integrity issues in the ST-OT reconciliation.

Let's reexamine the steps above to understand how the WA logic should work:

1. Enter ST (Stock transfer). It will default the current WA cost.
2. Enter IA (Inventory Adjustment) at a different cost; this will update the WA cost in F4105;
3. Ship-confirm the goods on the ST; the system should use the current WA cost, which is now different from the one we had at ST entry. This is normal behavior because this is how the WA gets updated after each transaction, and it should always use the current WA cost. For example, a sales order could be entered today and the goods could be shipped two weeks from now; meanwhile there are a lot of inventory transactions updating the WA cost. The goods need to be shipped at the WA cost from two weeks from now, which will most probably differ from the WA cost from today.

So, there is an Integrity issue between (Sales Order Detail file) F4211 and (Purchase Order Detail file) F4311 after shipment confirmation, if the WA cost has changed after ST entry and before ship confirm.

There are two ways to resolve this issue.



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1. The movement of product in ST-OT normally is done with a physical document. So, if the new transaction cost of ST gets printed on the document, the person receiving the OT should change the cost while receiving the OT.
2. Create a nightly scheduler version of the ST-OT re-price/re-cost UBE (R42950) which will pick up all open STs and re-price and re-cost both the ST and OT. This will resolve the issue of open unshipped STs, as they will be re-costed every night with the current WAC.

Consideration #8: Impact of Landed Cost

Cost Methods 01 (Last In), 02 (Weighted Average), 06 (Lot), and 08 (Purchasing - Base Cost No Adds) are updated by the P.O. Receipts (P4312) program. Cost Methods 02 (Weighted Average) and 08 (Purchasing - Base Cost No Adds) are also updated by the Voucher Match (P0411/P4314) program.

Landed Cost Rules can be set up to be included or excluded from WAC calculations depending on business rules. The setup must be done in two places:

- In the 40/AV UDC, the P43291 has to be flagged with a Y in the Description 02 field. If it is not set to a Y, the following bullet point will have no effect.
- In the Landed Cost Revisions (P41291) off menu G43A41, make sure the "Include in Unit Cost Y/N" field is populated with a Y; the landed cost will then be included in the transaction cost and will affect the WAC. If that field is populated with an N, the landed cost will not affect the WAC.

Consideration #9: Sales Order Line Is Not Re-Costed During Shipment Confirmation

Whenever an order is entered, it picks up the current WAC.

SAR # 8921729 documents scenarios in which a sales order line will not be re-costed. When the CSTO flag on F4211 is updated to 1, the line will not be re-costed (see Figure 8).

The CSTO flag on F4211 is turned on in three scenarios:

- The cost was manually entered.
- The order was copied from another quote or order.
- On credit orders, the Credit memo was accessed and the original SO selected to create this CO.

U/M Ext	Unit List Price	Unit Cost	Extended Cost	Cost Over
EA	6,549.0000	4,408.0000	4,408.00	1
	.0000	.0000		0
	.0000	.0000		0
	.0000	.0000		0
	.0000	.0000		0

Figure 8: Cost Override (CSTO) Flag Update



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Consideration #10: Effect on WAC If Inventory Is Allowed to Go Negative

This one is a huge consideration: WAC will not work if inventory is allowed to go negative!! Below is an indicative transaction to depict this issue. Consider a stock item with WAC as \$15. There is one unit on-hand, as shown in Figure 9.

Work With Item Ledger												
Select	Find	Close	Row	Tools								
Item Number	TEST		TEST ITEM		Supplier							
Branch/Plant	5		Transaction Date		Supplier Lot FROM							
Location	*		Document Type		Supplier Lot THRU							
Lot/Serial	*		Value									
Quantity On Hand	1		EA		15.00							
Secondary On Hand			EA									
Records 1 - 1											Customize Grid	WESTAR
Document Number	Doc Type	Location	Lot/Serial	Transaction Date	Quantity	Unit Cost	Document Number	Doc Ty	Branch/Plant	Lot Status Code	Trans UoM	
19021	IA	001		02/04/2010	1	15.0000			5	EA		

Figure 9: Item Ledger – WAC = \$15

Two units are ship confirmed, leading to negative on-hand quantity. Observe in Figure 10 that WAC is still unchanged.

Work With Item Ledger												
Select	Find	Close	Row	Tools								
Item Number	TEST		TEST ITEM		Supplier							
Branch/Plant	5		Transaction Date		Supplier Lot FROM							
Location	*		Document Type		Supplier Lot THRU							
Lot/Serial	*		Value									
Quantity On Hand	1-		EA		15.00-							
Secondary On Hand			EA									
Records 1 - 2											Customize Grid	WESTAR
Document Number	Doc Type	Location	Lot/Serial	Transaction Date	Quantity	Unit Cost	Document Number	Doc Ty	Branch/Plant	Lot Status Code	Trans UoM	
19021	IA	001		02/04/2010	1	15.0000			5	EA		
241566	SO	001		02/04/2010	-2	15.0000	241566	SO	5	EA		

Figure 10: Quantity Goes Negative!

Now if I receive two new units with a different purchase cost (assume \$12 in this case), the system will calculate as follows (see Figure 11):

$$WAC = \frac{(2 \times 12) + \{(-1) \times 15\}}{2 + (-1)}$$

So, WAC becomes \$9...this calculation is erratic.

Logically, since there were no units in stock, and we just received those 2 units at \$12 each, the WAC should be \$12.



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Whenever inventory goes negative and there are transactions done that affect WAC, the system may not calculate the WAC correctly. Hence, if you are using WAC, the system should be set up to disallow inventory from going negative.

This is where Advanced Stock Valuation is worth considering for Average Cost—it does not recalculate after every transaction—it uses period beginning and ending balances, so if both those numbers are positive, there's no problem with negative inventory during the period.

Work With Item Ledger

Select Find Close Row Tools

Item Number: TEST TEST ITEM
 Branch/Plant: 5
 Location: * Transaction Date: * - *
 Lot/Serial: * Document Type: *
 Quantity On Hand: 1 EA Value: 9.00
 Secondary On Hand: EA

Supplier: *
 Supplier Lot FROM: *
 Supplier Lot THRU: *

Records 1 - 3 Customize Grid WESTAR

Document Number	Doc Type	Location	Lot/Serial	Transaction Date	Quantity	Unit Cost	Document Number	Doc Ty	Branch/Plant	Lot Status Code	Trans UoM
19021	IA	001		02/04/2010	1	15.0000			5		EA
241566	SO	001		02/04/2010	-2	15.0000	241566	SO	5		EA
213429	OV	001		02/04/2010	2	12.0000	88084	OP	5		EA

Figure 11: WAC Does Not Work on Negative Quantities

Consideration #11: Only Tax Code S or U Will be Calculated in the WAC at Purchase Receipt Time (program P4312).

It follows logically that these tax codes S (Simple sales tax) and U (Use tax) applied for inventory during purchase receipts update WAX.

Note: Other Tax Codes do not affect WAC calculations, making this an important consideration.

Best Practices

The decisions for how WAC rules are to be set up should revolve around complete validation of the solution and its integration with finance and other business systems. The following practices are vital to implementing a successful solution.

Know How the Costing Methods Affect Your System

Assume that you are using WAC (02) and Standard Cost (07) in different branch plants; the WAC within the branch plant (using standard cost) is still calculated if the system constants are set to update WAC interactively.

If the WAC (cost method 02) is not populated with a value when the Item Cost (F4105) is created for the Standard Cost, WAC could potentially go negative; this can possibly cause commit failure errors when processing transactions.

One scenario in which this will occur is when On Hand quantities are converted in and no 02 cost record exists for the item. If the first transaction is either an inventory issue, negative adjustment, ship confirm, or any first transaction that reduces inventory, the 02 cost will be created as a negative amount. *Again, WAC does not work in negative amount, so beware.*

If the WAC (cost method 02) is not populated with a value when the Item Cost (F4105) is created for the Standard Cost, WAC could potentially go negative.



Weighted Average Cost in JDE

In the above scenario, when adding items in a Branch Plant using standard cost, it is always a good practice to add cost method 02 at the same time with the same cost as the standard. This will eliminate the possibility of the WAC going negative in this branch plant.

Here is a simple resolution:

In this example, if WAC (in the branch using Standard Cost) was not created at the time the Standard Cost was added and the WAC has gone negative causing commit fail errors, you can simply update the WAC in the F4105 (making it the same as Standard) directly in the Item Cost (P4105) application. Since the inventory costing method in this Branch Plant is 07 (Standard Cost), no financial impact will occur.

Watch for Those Issues Diligently

It is recommended that you run the Unit Cost Warning Report (R41580) at frequent intervals. This UBE is used to analyze transaction costs and identify those that differ from the current average cost that you specify in the processing options. The Unit Cost Warnings report retrieves records from the F4111 and F4105 tables.

This report will flag transactions that vary significantly in costs from the average cost per item and notify the user.

For example:

Prior to generating the cost warnings, note the current average cost of the item.

Then run the cost report. Enter the variance percentage under the variance tab in the processing option. For example, if you enter 5 in this processing option, the system will select any transaction in which transaction cost was 5 percent greater or 5 percent less than the current average cost for the item specified in the processing options and an item may be specified in the Data Selection. Figures 12 and 13 illustrate.

	Operator	Left Operand	Comparison	Right Operand
<input type="checkbox"/>	Where	Business Unit (F4111) (MCU) [BC]	is equal to	" 5"
<input type="checkbox"/>	And	Date - For GL (and Voucher) (F4111) (DGL) [BC]	is equal to	"01/01/2010-01/31/2010"
<input type="checkbox"/>	And			

Figure 12: R41580 Data Selection

Variance

1. Enter the variance percent (i.e. '5' will select any transaction where transaction cost was 5% greater or 5% less than the current average cost for the item.) 5.000

Figure 13: R41580 Processing Options

Conclusion

Ensuring a successful solution to WAC implementation can be possible by establishing processes and guidelines, then driving those requirements by mapping them based on how WAC works in JDE. This article hopefully provided you with some insight on how WAC works and the framework for maintaining a trouble-free WAC solution.



Weighted Average Cost in JDE

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