

CHAPTER 6: SERIAL/LOT NUMBERS

Objectives

The objectives are:

- Set up item tracking.
- Distinguish when and how to use serial/lot numbers.
- Handle inbound serial lot numbers.
- Handle serial/lot numbers on inventory.
- Handle outbound serial/lot numbers.
- Trace posted serial/lot numbers throughout the supply chain.
- Navigate with serial/lot numbers.
- Print serial/lot number documents and reports.
- Reserve items with serial/lot numbers.

Introduction

As the flow of goods in the modern supply chain becomes more complex, the ability to keep track of items increases in importance to the companies in the supply chain. While monitoring an item's transaction flow can be obligatory in certain businesses (for instance, those dealing with hazardous products), other businesses may find it advantageous to monitor products that are associated with warranties or have expiration dates.

Item Tracking in Microsoft Dynamics® NAV provides a company with an easy-to-use tracking system, which can take into account information about each unique piece of merchandise, such as:

- When it is received.
- Where it is placed.
- When it expires.
- Which customer bought it and when.

The functionality is based on using serial and lot numbers and allows the user to receive and ship multiple quantities with serial and lot numbers from a single order line entry. Item tracking entries, which represent the transaction history of each individual item with serial and/or lot numbers, are the records used to trace an item along its movement through the supply chain.

Item Tracking Setup

The item tracking setup consists of three elements:

- **Item Tracking Codes setup.** An item tracking code defines which item parameters (serial number, lot number, or both) are used to track the items and in which operational areas they are handled.
- **Serial and Lot Number setup.** When a company wants to assign serial and lot numbers to items automatically, they must set up a number series. The process of setting up these number series is similar to that of other number series and is part of the application setup.
- **Item setup.** To track a specific item, a company must first set it up for item tracking by applying a particular item tracking code. The setup may also include a serial/lot number series and expiration formula.

Item Tracking Codes

Item tracking codes reflect the different considerations that a company has in respect to the item tracking parameters and areas where the tracking is applied.

Based on careful planning, the CRONUS International Ltd. demonstration company is set up with a number of item tracking codes that are applied to certain items.

Follow these steps to review the item tracking codes set up at CRONUS.

1. On the navigation pane, click **Warehouse**.
2. On the **Warehouse** page, click **Administration** and then click **Item Tracking Codes**.

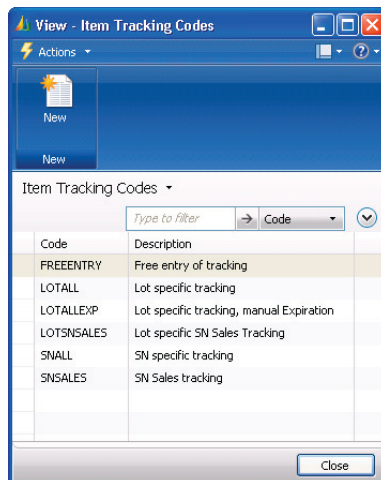


FIGURE 6.1 ITEM TRACKING CODES SET UP IN CRONUS

The **Item Tracking Codes** page contains a list of six item tracking codes created at CRONUS. The details of each tracking code are specified on the item tracking code card.

3. Double-click the LOTALL line to open the related **Item Tracking Code Card**.

The screenshot shows a software window titled "Edit - Item Tracking Code Card - LOTALL - Lot specific tracking". The window has a standard Windows-style title bar with minimize, maximize, and close buttons. Below the title bar is a menu bar with "Actions". The main content area is divided into several sections:

- General**: Contains two text input fields. The first is labeled "Code:" and contains the text "LOTALL". The second is labeled "Description:" and contains the text "Lot specific tracking".
- Serial No.**: This section contains a grid of tracking options, each with a checkbox.

General		SN Warehouse Tracking:	
SN Specific Tracking:	<input type="checkbox"/>	SN Warehouse Tracking:	<input type="checkbox"/>
		SN Transfer Tracking:	<input type="checkbox"/>
Inbound		Outbound	
SN No. Info. Must Exist:	<input type="checkbox"/>	SN No. Info. Must Exist:	<input type="checkbox"/>
SN Purchase Tracking:	<input type="checkbox"/>	SN Purchase Tracking:	<input type="checkbox"/>
SN Sales Tracking:	<input type="checkbox"/>	SN Sales Tracking:	<input type="checkbox"/>
SN Positive Adjmt. Tracking:	<input type="checkbox"/>	SN Positive Adjmt. Tracking:	<input type="checkbox"/>
SN Negative Adjmt. Tracking:	<input type="checkbox"/>	SN Negative Adjmt. Tracking:	<input type="checkbox"/>
SN Manufacturing Tracking:	<input type="checkbox"/>	SN Manufacturing Tracking:	<input type="checkbox"/>
- Lot No.**: A dropdown menu currently showing "Lot No.".
- Misc.**: A dropdown menu currently showing "Misc.".

An "OK" button is located at the bottom right of the window.

FIGURE 6.2 SETUP CARD FOR THE LOTALL ITEM TRACKING CODE

The fields on the **General** FastTab specify the code name and the description for the item tracking code. As the contents of these fields indicate, items to which this code is applied are tracked by a lot number.

Since this tracking code is applied only to items with lot numbers, the **Serial No.** FastTab is not set up for this code.

In some of the following demonstrations, item tracking is used for warehousing. Therefore, it is necessary to set this up in the item tracking codes being used.

4. Expand the **Lot No.** FastTab and select the **Lot Warehouse Tracking** check box.

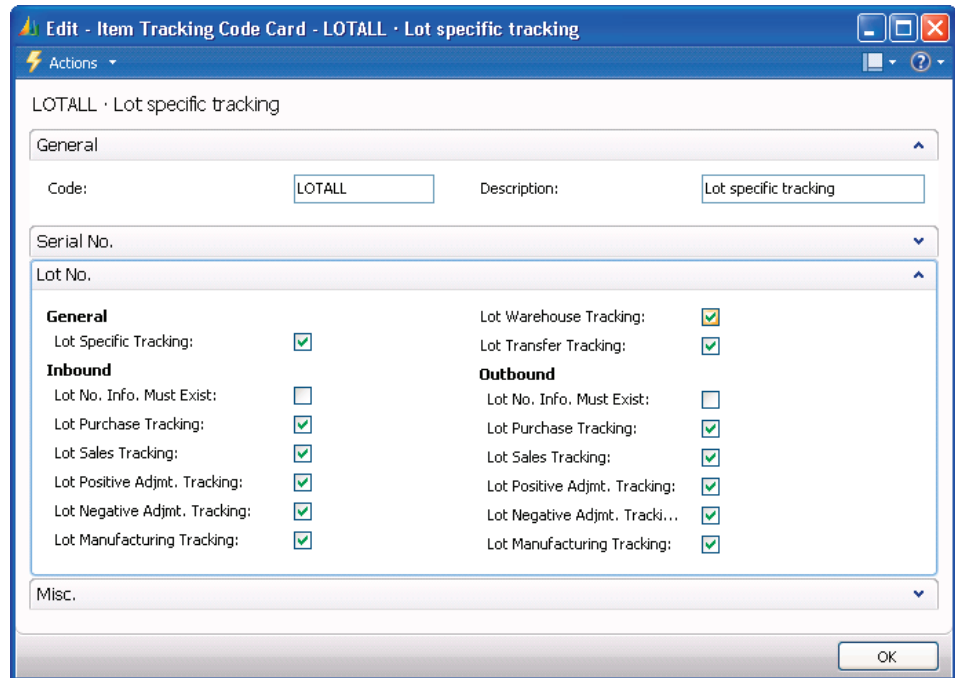


FIGURE 6.3 LOTALL SET UP TO REQUIRE LOT TRACKING IN WAREHOUSE ACTIVITIES

The check boxes on the **Lot No.** FastTab specify the details of the item tracking by lot number as well as the operational area where the tracking is applied.

Selecting the **Lot Specific Tracking** check box indicates that when handling an outbound unit of the item in question, it is necessary to always specify which existing lot number to handle. This means that when selling a unit of the item, it must be applied against a specific pool of lot numbers in inventory. In other words, a lot number assigned to the item when it is entered into inventory must follow that item type out of inventory.

NOTE: The **Lot Specific Tracking** check box cannot be cleared if item tracking entries exist for items to which this tracking code is applied.

In the remaining check boxes, define in which operational area(s) and on what stage of the item flow (inbound, outbound, or both) that the program must apply lot tracking.

For instance, for item tracking code LOTALL, CRONUS has decided to require lot tracking on inbound and outbound documents in all areas. This means that the user must enter a lot number on the item tracking line before posting any purchase, sale, and positive or negative adjustment entries for items with this item tracking code setting. This decision is reflected in the setup, where the corresponding check boxes are selected.

Selecting the **Lot No. Info. Must Exist** check box (inbound or outbound) indicates that documents with positive entry for items that require lot numbers cannot be posted before lot number information is created.

Selecting the **Lot Warehouse Tracking** check box indicates that a lot number is required for every warehouse activity.

Selecting the **Lot Transfer Tracking** check box indicates that a lot number is required on the item tracking line before item transfer lines can be posted. The check mark in this field cannot be deleted once a check mark is placed in the **Lot Specific Tracking** field.

5. Expand the **Misc.** FastTab.

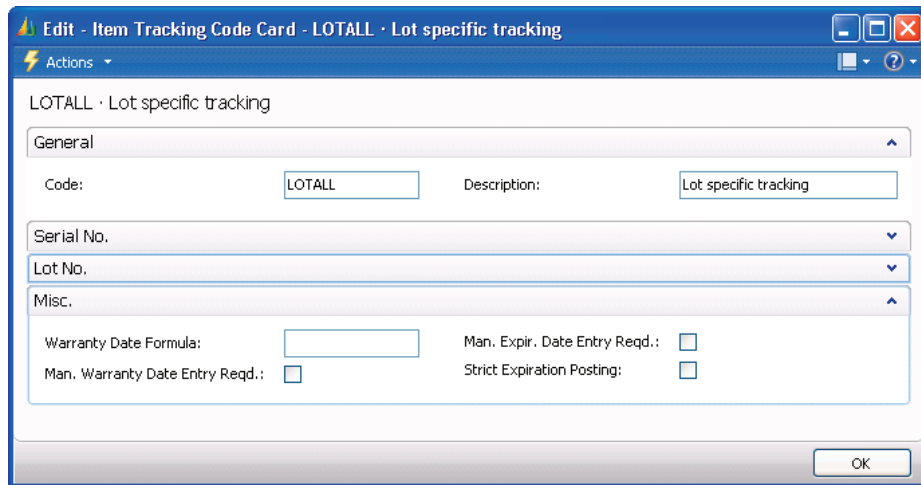


FIGURE 6.4 SETUP OPTIONS ON THE MISC. FASTTAB

The fields on this FastTab define two additional parameters related to a specific item tracking code: warranty date and expiration date.

Field	Description
Warranty Date Formula	Identifies a formula that is used to calculate the warranty date on the item tracking line entries for items that require a serial or lot number.
Man. Warranty Date Entry Req.	If selected, indicates that a warranty date on the item tracking line for items with serial or lot numbers must be entered manually before a document with entries for these items can be posted.

Field	Description
Man. Expir. Date Entry Reqd.	If selected, indicates that an expiration date on the item tracking line for items with serial or lot numbers must be entered manually before a document with entries for these items can be posted.
Strict Expiration Posting	<p>If selected, indicates that an expiration date assigned to the item tracking number as it entered inventory must be respected when it exits inventory. This option is mostly used for items that cannot be used after they expire.</p> <p>This field relates to the Expiration Calculation field on the Item Tracking FastTab of an Item Card. A document with entries for the items cannot be posted if the posting occurs after the expiration date.</p>

Because warranties and expiration dates are irrelevant to the items to which the LOTALL item tracking code is applied, the fields on the **Misc.** FastTab are not activated.

Although the setup of the item tracking code LOTALL is reviewed in this section, it is recommended to review the setup of the other item tracking codes created at CRONUS since these codes are applied to some existing items used in examples in the following lessons.

Set Up Items for Item Tracking

Item tracking code, serial/lot numbers, and expiration calculation are item properties that are a part of every posting record for that item. Therefore, these properties must be set up before the item is involved in any transaction. In other words, a company must set up item tracking information when they create their items.

If a company wants to start tracking an item for which posting records already exist, they must create a new item card and on that new card set up the relevant item tracking information.

Demonstration: Set Up Items for Item Tracking

Scenario: CRONUS has a number of items on their inventory file that are set up for item tracking. Depending on the type of each specific item, the company has chosen to apply different tracking methods. For example, some items are to be tracked only by serial numbers, others only by lot numbers, and still others by both numbers. Similarly, for some items, serial/lot numbers are required at each stage of their handling throughout the company, while for others, only at the point of sale.

Among the items that are set up for item tracking are items 80102-T and 80218-T.

NOTE: To complete the demonstrations, load a clean CRONUS demonstration database without changes to the data.

Follow these steps to review the setup details for these items:

1. On the navigation pane, click **Warehouse**.
2. On the **Warehouse** page, click **Planning & Execution** and then click **Items**.
3. Open the item card for item 80102-T.
4. Expand the **Item Tracking** FastTab.

The screenshot shows the 'Edit - Item Card - 80102-T - 17" M780 Monitor' window. The 'Item Tracking' section is expanded, showing the following settings:

- Item Tracking Code:** SNALL
- Serial Nos.:** SN1
- Lot Nos.:** (empty dropdown)
- Expiration Calculation:** (empty dropdown)

Other visible fields include:

- General:** No.: 80102-T, Description: 17" M780 Monitor, Base Unit of Measure: PCS, Shelf No.: B1-T, Search Description: 17" M780 MONITOR, Inventory: 0, Qty. on Purch. Order: 0, Qty. on Prod. Order: 0, Qty. on Component Lines: 0, Qty. on Sales Order: 0, Qty. on Service Order: 0, Last Date Modified: 11/5/2008.
- Invoicing:** FIFO | 11.20 | RETAIL | RESALE
- Replenishment:** Purchase
- Planning:** Optional
- Foreign Trade:** (empty dropdown)

FIGURE 6.5 ITEM TRACKING SETUP OF ITEM 80102-T

The SNALL item tracking code is selected for this item. This means that the program requires the user to apply serial numbers to this item at all stages of item handling, except warehousing, before the posting of the corresponding entries is allowed. The number series for the serial numbers when assigned to this item is SN1. The item is not tracked by lot number.

5. In the **Item Tracking Code** field, click the drop-down arrow and then click **Advanced** to open the **Item Tracking Codes** page.
6. On the **Actions** menu, click **Edit** to open and edit the item tracking code card for SNALL.
7. On the **Serial No.** FastTab, select the **SN Warehouse Tracking** check box.
8. Close the open pages and return to the **Items** list page.
9. Open the item card for item 80218-T.

The screenshot displays the 'Edit - Item Card - 80218-T · Hard disk Drive' window in Microsoft Dynamics NAV 2009. The window title bar includes the application name and standard window controls. Below the title bar is a menu bar with 'Actions' and 'Related Information'. A ribbon contains buttons for 'Apply Template', 'Item Reclassification Journal', 'Requisition Worksheet', 'Item Tracing', 'Item Journal', and 'Statistics'. The main area is divided into several tabs: 'General', 'Invoicing', 'Replenishment', 'Planning', 'Foreign Trade', and 'Item Tracking'. The 'Item Tracking' tab is active and expanded, showing the 'Item Tracking Code' field set to 'LOTSNSALES' and the 'Lot Nos.' field set to 'LOT'. The 'Serial Nos.' field is empty. The 'Expiration Calculation' field is also empty. The 'General' tab shows 'No.: 80218-T', 'Description: Hard disk Drive', and 'Search Description: HARD DISK DRIVE'. The 'Invoicing' section shows 'FIFO | 22.90 | RETAIL | RESALE'. The 'Replenishment' section shows 'Purchase'. The 'Planning' section shows 'Optional'. The 'Foreign Trade' section is expanded. The 'OK' button is visible at the bottom right.

FIGURE 6.6 ITEM TRACKING SETUP OF ITEM 80218-T

On the **Item Tracking** FastTab, the selection of LOTSNSALES in the **Item Tracking Code** field indicates that serial numbers are required for this item when posting sales entries and that lot numbers are required when posting all entries (except warehouse documents). The number series for the lot numbers assigned to this item is LOT. There is no number series for serial numbers set for this item.

10. In the **Item Tracking Code** field, click the drop-down arrow and then click **Advanced**.
11. On the **Actions** menu, click **Edit** to open and edit the item tracking code card for LOTSNSALES.
12. Expand the **Lot No.** FastTab and then select the **Lot Warehouse Tracking** check box.

When to Use Serial/Lot Numbers

Depending on the business relationships with vendors and customers, including the types of items handled, companies may have different internal processes for handling and tracking serial and lot numbers. For instance, some companies may want to start the tracking process from the moment items arrive at the company's warehouse. In that case, depending on whether or not items already have serial/lot numbers assigned, they can choose to:

- Manually record the vendor's original item serial/lot numbers.
- Manually or automatically assign new serial/lot numbers.
- Define and automatically assign customized serial/lot numbers.

The following table summarizes the alternatives provided in Microsoft Dynamics NAV for how to handle the receipt of items that require item tracking at the point of purchase. The alternatives depend on whether the purchased items already have the vendor's serial numbers (SN) and lot numbers (LN).

	Items with vendors' SN	Items with vendors' LN	Items with no SN/LN
Enter numbers manually:			
Vendors' numbers	X	X	
New numbers	X	X	X
Enter numbers automatically:			
Assign new numbers	X	X	X
Define and assign customized numbers	X		X

Other companies may want item tracking applied to items only when they are sold to customers, rather than from the moment they arrive at a warehouse. Still others may choose to track items from the moment they are purchased up to the moment they are sold. The method for handling the shipment of items with item tracking required at the point of sale depends on a company's decision concerning item tracking on the purchase side.

The following table summarizes the alternatives provided in Microsoft Dynamics NAV for how to handle the shipment of items that require item tracking at the point of sale. The alternatives depend on whether the items are already assigned serial/lot numbers.

	Items with assigned SN	Items with assigned LN	Items with no SN/LN
Enter numbers automatically:			
Assign own numbers			X
Create and assign customized numbers			X
Select from already existing numbers	X	X	
Enter numbers manually:			
Enter numbers manually			X

Barcode Registration of Item Tracking Information

Company processes often require the use of automatic registration of goods information, including item tracking information. This is often handled with barcode readers/scanners placed physically where registration takes place.

Automatic registration is typically used in warehouse pick and put-away processes, where it is important that warehouse workers can register the movement of the goods quickly and easily. At this point in the process, assignment of serial/lot numbers has already taken place, and the system is therefore designed so that new numbers cannot be assigned automatically.

Manage Inbound Serial/Lot Numbers

As with the general warehouse activities, companies have different procedures when receiving serial/lot tracked items on purchase orders. The way to assign serial/lot numbers is almost the same in the program, no matter what procedure the company chooses.

Another situation where inbound serial/lot numbers require handling is the output of produced items with serial/lot numbers.

Demonstration: Assign Serial/Lot Numbers to a Purchase Order

Scenario: Alicia, the purchasing agent at CRONUS, places an order with vendor 50000 for five units of item 80103-T, five units of item 80218-T and seven units of item 80208-T. The vendor usually ships item 80103-T with serial numbers, item 80218-T with lot number(s), and item 80208-T without serial or lot numbers. The order is shipped to the BLUE location.

John, the warehouse worker, enters the serial/lot numbers for the arrived items in Microsoft Dynamics NAV.

Follow these steps to create the purchase order and enter serial numbers for item 80103-T:

1. Create a purchase order to vendor 50000 for five units of item 80103-T, five units of item 80218-T, and seven units of item 80208-T, all to be received at the BLUE location.

Because of item tracking codes (SNALL and LOTSNSALES) that are applied to the first two items, the program requires the entry of serial numbers on the item tracking lines for the first item and the entry of lot numbers for the second item before the receipt can be posted. If a user attempts to post the receipt without entering the serial numbers, the program gives a message that the serial number is required.

NOTE: *Negative quantities cannot be used in sales and purchases when item tracking is being used.*

2. Select the first line and then on the **Lines** FastTab, click **Actions**, point to **Line** and then click **Item Tracking Lines**.

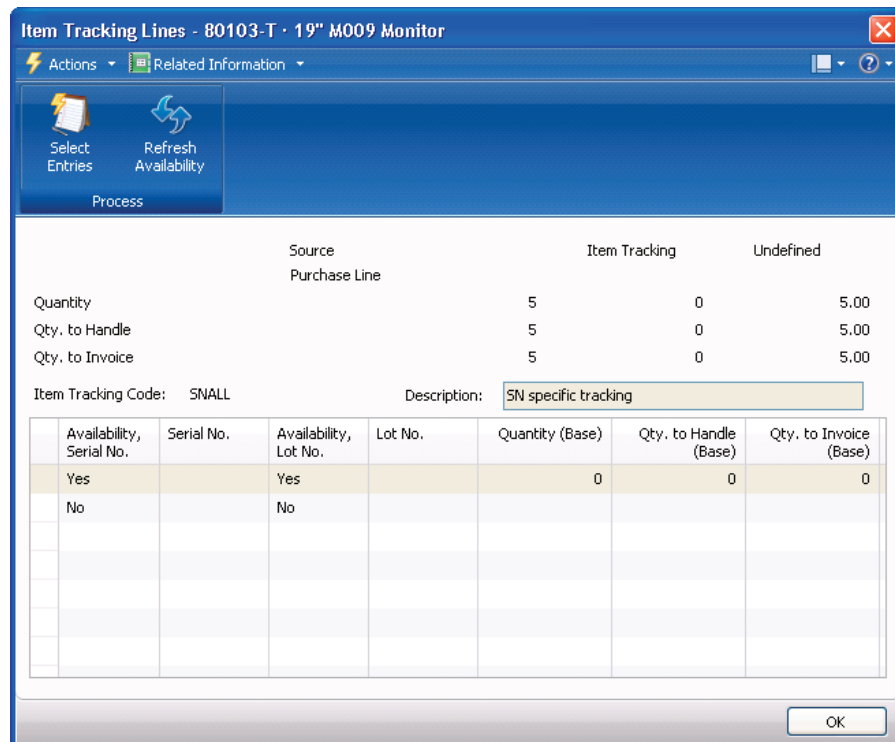


FIGURE 6.7 EMPTY ITEM TRACKING LINES FOR THE FIRST PURCHASE ORDER LINE

The **Item Tracking Lines** page is used to record detailed information for an item concerning serial/lot numbers. The top panel contains a summary of the information on the lines, including the name and description of the item tracking code applied to a particular item.

Enter serial numbers for the item in the following ways:

- Automatically, by running the **Assign Serial No.** function, so that the program assigns serial numbers to the items based on the number series specified for a specific item.
- Automatically, by running the **Create Customized SN** function, so that the program assigns serial numbers to the items based on the parameters defined by the user specifically for the arrived items.
- Manually, by entering a specific serial number for each item unit.

To efficiently assign the serial numbers at the receipt of the purchase order, John chooses to run the Create Customized SN function.

3. On the **Actions** menu, point to **Functions** and then click **Create Customized SN**.

In the **Enter Customized SN** page, specify the parameters that define a certain pattern in the serial numbers of the arrived items.

4. In the **Customized SN** field, type SN-85C31. This is the starting number in the number series assigned to the items by vendor 50000.

Entering a number in the **Increment** field defines the increase between values of two sequential numbers in the number series.

5. In the **Increment** field, type 1. This number reflects that the serial numbers assigned by vendor 50000 to five units of item 80103-T increase by one.

The **Quantity to Create** field contains the quantity on the line by default. Modify it, if necessary.

6. Click **OK**.

The program creates five individual serial numbers starting from SN-85C31 and ending at SN-85C35 and creates corresponding item tracking lines.

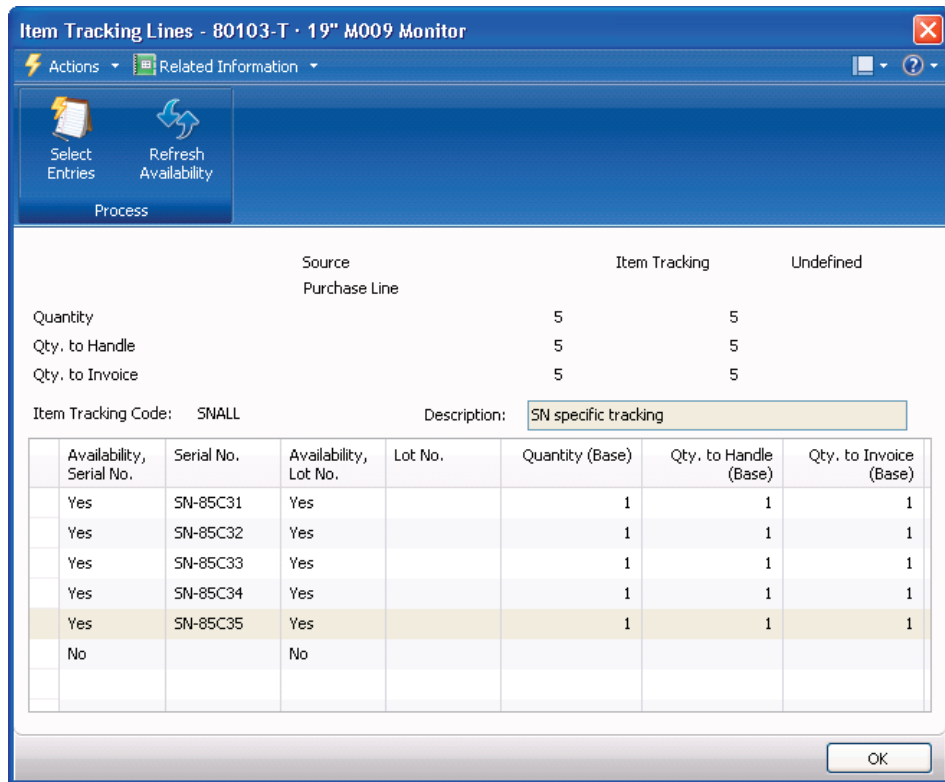


FIGURE 6.8 SERIAL NUMBERS ASSIGNED TO THE FIRST PURCHASE LINE

The **Undefined** fields on the top panel are blank. This is because all individual items on the purchase line are assigned an item tracking line. If the user created item tracking lines with less quantity than the quantity in the **Qty. to Receive** field on the purchase line, then there will be an undefined quantity, and the purchase order will not be posted until the full quantity is assigned.

7. Click **OK** to close the **Item Tracking Lines** page.

Follow these steps to assign a lot number to the purchase line for item 80218-T:

1. Select the second line on the purchase order and then on the **Lines** FastTab, click **Actions**, point to **Line** and then click **Item Tracking Lines**.
2. In the **Lot No.** field, type LOT-TD5. This is the lot number assigned to the items by the vendor. All five units of item 80218-T are part of the same lot.
3. In the **Quantity (Base)** field, type 5.

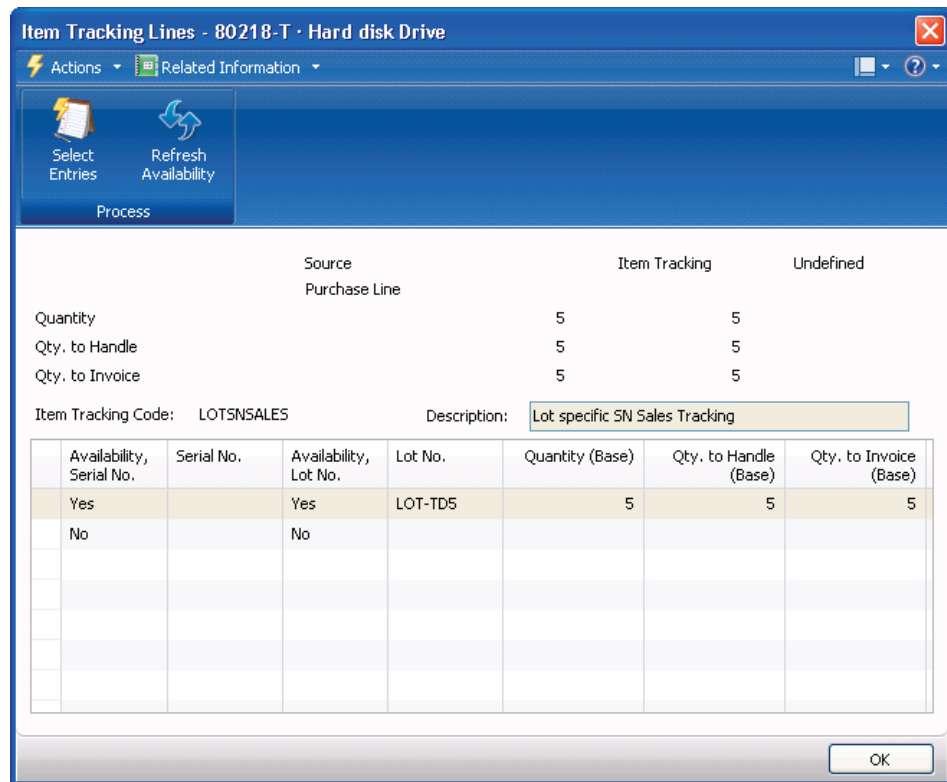


FIGURE 6.9 LOT NUMBER ASSIGNED TO THE SECOND PURCHASE LINE

4. Click **OK** to close the **Item Tracking Lines** page.

Follow these steps to post the purchase order:

1. On the Action Pane, click **Post**.
2. Click **Receive** and then click **OK**.

***NOTE:** For purchase orders with more than one line, if item tracking lines are not created for at least one line, the purchase order is not posted. To post the order, the quantity in the **Qty. to Receive** field for the line(s) with missing item tracking lines must be zero.*

The information about the serial/lot numbers recorded for the items in the posted purchase order are posted to the Item Ledger Entry table.

Assign Serial/Lot Numbers to Partial Receipts

Companies often have to receive order quantities in separate portions. If such partial receipts require item tracking, then serial/lot numbers can be assigned to the received quantities only.

The following demonstration shows how to assign serial/lot numbers partially during the receipt/put-away process using an inventory put-away document.

***NOTE:** Partial handling of item tracking numbers is possible from any type of order or warehouse document.*

Demonstration: Assign Serial/Lot Numbers to a Partial Receipt and Put-Away

Scenario: Alicia places an order with vendor 10000 for three units of item 80102-T. The vendor ships this item with serial numbers and always delivers one unit per day. John does not have access to the purchase order and therefore handles the receipt and put-away using an inventory put-away document.

The units must be placed at the SILVER location, in bin number S-02-0001. The purchase order must not be invoiced until it is completely received.

***NOTE:** To perform this demonstration, ensure that the SILVER location is set up to require Put-away and not Receive. Also, the Administrator login must be set up as a Warehouse Employee at the SILVER location.*

Follow these steps to set up the location and warehouse employee:

1. Open the location card for the SILVER location.
2. Expand the **Warehouse** FastTab and then select the **Require Put-away** check box. Ensure that the **Require Receive** check box is cleared.

3. Click **OK** to close the Location Card and then close the **Location List** page.
4. On the **Warehouse, Administration** page, click **Warehouse Employees**.
5. On the Action Pane, click **New**.
6. In the **User ID** field, enter ADMINISTRATOR.
7. In the **Location Code** field, enter SILVER.
8. Select the **Default** check box.
9. Click **OK** to close the **Warehouse Employees** page.

Follow these steps to process the purchase order and create the put away:

1. Create the purchase order to vendor 10000 for three units of item 80102-T to be sent to the SILVER location.
2. On the Action Pane, click **Release**.
3. On the Action Pane, click **Create Inventory Put-away / Pick**.
4. Leave the default options and then click **OK**.
5. Click **OK** to close the message.

The put-away is created.

Follow these steps to handle the items in the warehouse:

1. On the **Related Information** menu, point to **Order** and then click **Inv. Put-away/Pick Lines**.
2. On the **Related Information** menu, point to **Line** and then click **Card**.
3. Use the Choose Columns function on the **Lines** FastTab to add the **Serial No.** field.

4. In the first inventory put-away line, type 334 in the **Serial No.** field, and S-02-0001 in the **Bin Code** field.
5. In the **Qty. to Handle** field, type 1.

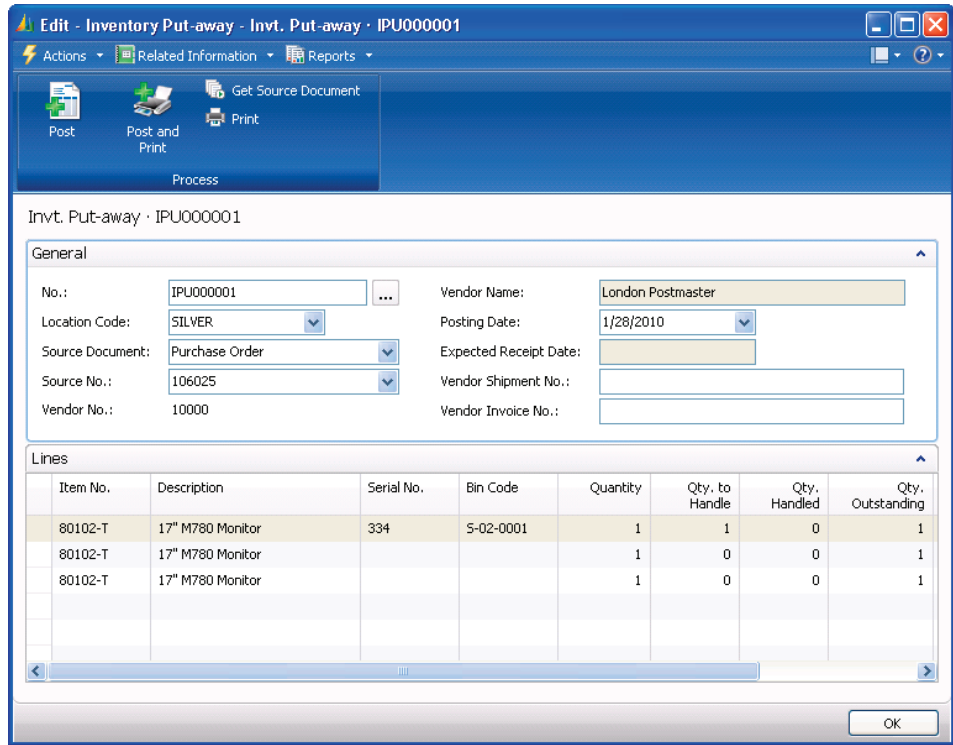


FIGURE 6.10 PUT-AWAY DOCUMENT READY TO BE POSTED - PARTIALLY

6. On the Action Pane, click **Post**.
7. Click **Receive** and then click **OK**.

When the next receipt is to be handled, the warehouse worker repeats steps 3-6 with the remaining two lines. For the purpose of this demonstration, do not process this Inventory Put-away document any further.

Demonstration: Receive Items with Expiration Dates

If expiration dates are assigned to serial/lot numbers when inbound, then the items with the earliest expiration date are picked first when outbound. This principle is called First-Expire-First-Out (FEFO).

***NOTE:** This demonstration sets up the data that is used in the "Change Expiration Date and Group in Lot" demonstration.*

Scenario: John is about to receive four used 17" monitors and must assign different expiration dates to each monitor.

Follow these steps to process items on a purchase order with serial numbers and expiration dates:

1. Create a purchase order to vendor 30000 on 01/28/10 for four units of item 80102-T to be shipped to the BLUE location.
2. On the **Lines** FastTab, click **Actions**, point to **Line**, and then click **Item Tracking Lines**.
3. Use the Choose Columns function to add the **Expiration Date** field. Reopen the **Item Tracking Lines** page to activate the changes.
4. Enter the following item tracking lines:

Serial No.	Expiration Date	Quantity (Base)
SN00021	01/28/10	1
SN00022	01/28/09	1
SN00023	01/28/08	1
SN00024	01/28/11	1

***NOTE:** Ensure that the expiration dates are created as shown for each serial number; it will make it easier to illustrate later how the item ledger entries are sorted when outbound.*

5. Click **OK** to close the **Item Tracking Lines** page.
6. On the Action Pane, click **Post**.
7. Click **Receive** and then click **OK**.

Assign Serial/Lot Numbers to Drop Shipments

Companies selling goods that are delivered directly from the vendor to the customer may need to assign serial/lot numbers to the delivered goods. Depending on the process, the serial/lot numbers can be assigned either to the purchase order line or to the sales order line.

The program ensures that serial/lot numbers are synchronized between the sale and the purchase. Information in the **Item Tracking Lines** page is locked for editing during the drop shipment process. For more information, refer to the "Transfer Items with Serial and Lot Numbers" lesson which is governed by similar principles.

Assign Serial/Lot Numbers to Production Output

Serial/lot numbers can be assigned to items on production order lines in the same manner as on a purchase order, using the **Item Tracking Lines** page.

When the produced item is entered on an output journal line, after manufacturing, the assigned serial/lot numbers are still attached. Thereby, the posted output provides item tracking entries for future tracing of the produced item.

Refer to the "Trace Serial/Lot Numbers" lesson for demonstrations involving produced output.

Manage Serial/Lot Numbers on Inventory

Items with serial/lot numbers may be handled in different internal warehouse activities, including:

- Transfers between locations.
- Reclassification/movement.
- Counting.

Transfer Items with Serial and Lot Numbers

Procedures for handling and tracing items with serial and lot numbers that are being transferred between different locations are similar to those applied when items are purchased and sold.

However, certain principles of handling transfer orders that distinguish transfer functionality from other application areas mean that tracking items in transfer has some distinct features. One of those principles defines that shipment and receipt is done from the same transfer line. Therefore, the two transactions share the same **Item Tracking Lines** page.

***NOTE:** The detailed procedures for how to transfer items between locations are described in "Location Transfers" in this training material.*

Demonstration: Transfer Five Serialized Monitors to the Red Warehouse

Scenario: Ellen, the warehouse manager at CRONUS, creates a transfer order for five units of item 80103-T from the Blue to the Red Warehouse. The item tracking code applied to this item specifies that the item must be transferred with serial numbers.

Although shipped complete from the Blue Warehouse, the order arrives at the Red Warehouse in two shipments of two and three units.

Warehouse workers shipping the order from the BLUE location and receiving it at the RED location must ensure that the information concerning serial numbers is recorded correctly.

Follow these steps to create the transfer order and enter the serial numbers of the individual items to be shipped:

1. Create a transfer order for five units of item 80103-T from the BLUE to the RED location.
2. On the **Lines** FastTab, click **Actions**, point to **Line**, then to **Item Tracking Lines**, and then click **Shipment**.
3. On the Action Pane, click **Select Entries**.

Lot No.	Serial No.	Total Quantity	Total Requested Quantity	Current Pending Quantity	Total Available Quantity	Selected Quantity
	SN-85C31	1	0	0	1	1
	SN-85C32	1	0	0	1	1
	SN-85C33	1	0	0	1	1
	SN-85C34	1	0	0	1	1
	SN-85C35	1	0	0	1	1

Selectable 5 Selected 5 Undefined

FIGURE 6.11 DEFAULT ITEM TRACKING LINES FOR SELECTION

4. In the **Item Tracking - Select Entries** page, click **OK** to select the entries for the item tracking lines.
5. Click **OK** to close the **Item Tracking Lines** page.
6. On the Action Pane, click **Post**.
7. Click **OK** to ship the order.

Five units of item 80103-T are currently in transit. Suppose now that the first two units arrive at the RED location. When the items are received, the warehouse worker must enter the serial numbers of the arrived items.

Follow these steps to receive the items:

1. In the **Qty. to Receive** field, type 2.
2. On the **Lines** FastTab, click **Actions**, point to **Line**, then to **Item Tracking Lines**, and then click **Receipt**.

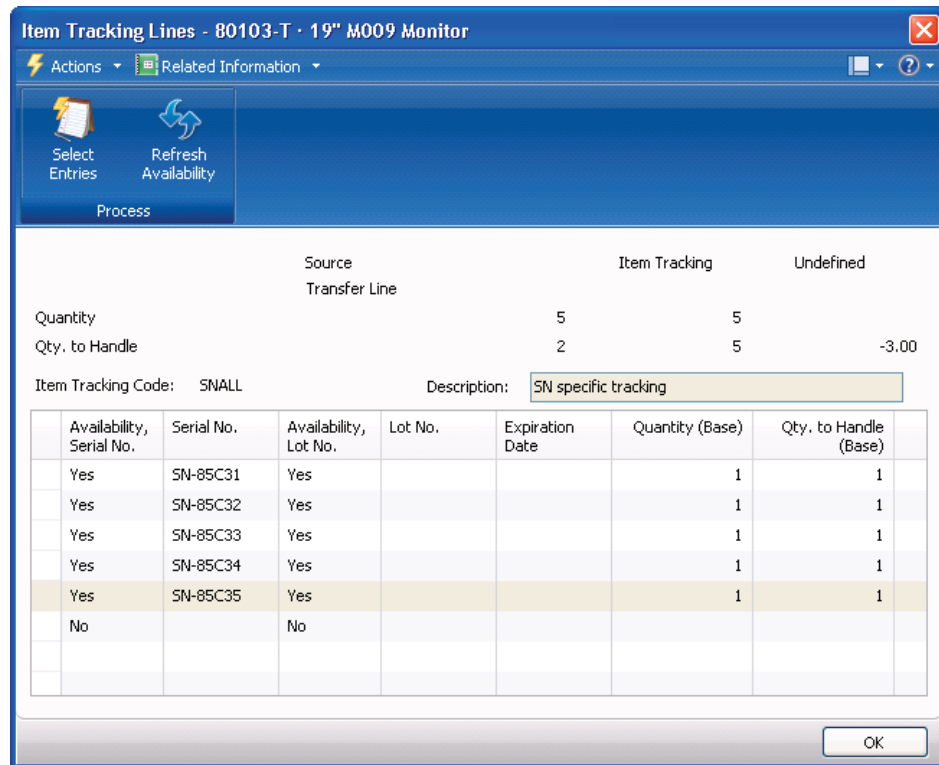


FIGURE 6.12 UNDEFINED FIELD IN THE TOP PANE SHOWS THAT THREE ARE NOT RECEIVED

The fields in the top of the **Item Tracking Lines** page specify order quantity and quantity to receive on both the transfer order and the associated item tracking lines. The lines specify the individual serial numbers and the quantities entered when the order shipped.

The warehouse worker can enter the serial numbers of the arrived items by changing the quantities in the **Qty. to Handle (Base)** field to zero for those item serial numbers that did not yet arrive. Additionally, he or she must ensure that the serial numbers on the lines correspond to the serial numbers of the arrived items.

Suppose that items with serial numbers from SN-85C33 to SN-85C35 are not among the two units that arrived at the Red Warehouse.

3. In the **Qty. to Handle (Base)** field for lines with serial numbers SN-85C33, SN-85C34, and SN-85C35, type 0.

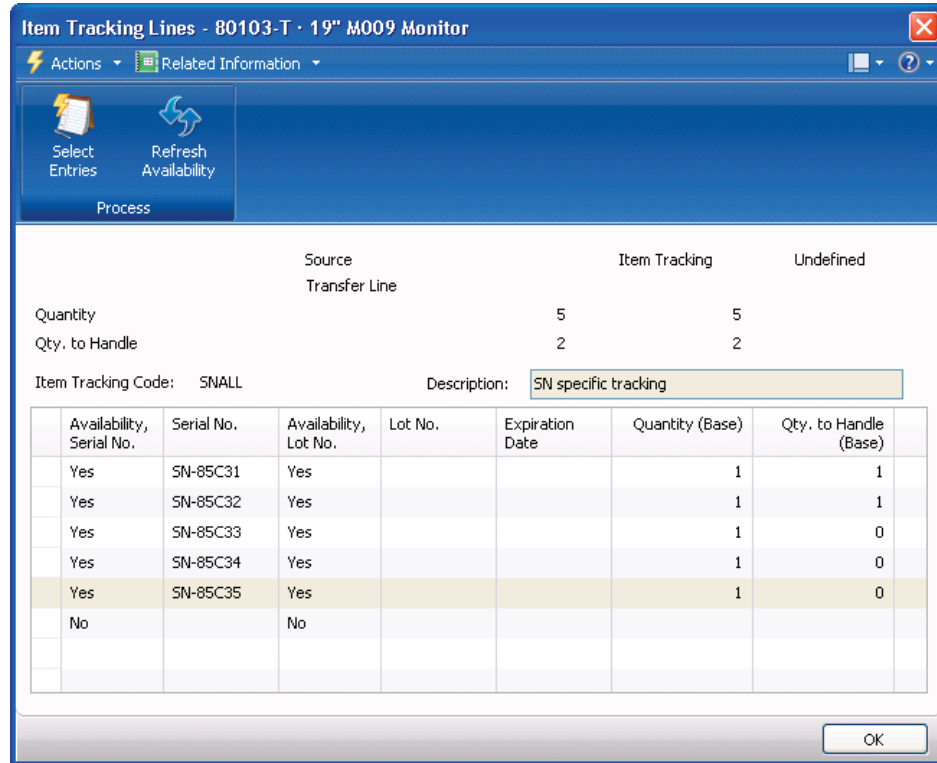


FIGURE 6.13 UNDEFINED FIELD IS NOW IN BALANCE

4. Click **OK** to close the **Item Tracking Lines** page.
5. On the Action Pane, click **Post**.
6. Click **OK** to receive the order.

As in the case of all other inbound and outbound item transactions with serial/lot numbers, the posting of the transfer order results in the program posting records containing serial or lot numbers to the item tracking entries table, where they can be used to trace items.

Follow these steps to review the item tracking entries for this receipt:

1. Open the item card for item 80103-T and on the **Related Information** menu, point to **Item**, then to **Entries**, and then click **Item Tracking Entries**.

The records in the **Item Tracking Entries** page reflect the transaction history of each individual unit of the item.

Three items with serial numbers from SN-85C33 to SN-85C35 are still in transit, as indicated by the corresponding quantities in the **Remaining Quantity** field at the in-transit location OUT. LOG.

***NOTE:** When receiving a transfer, all the other fields of the **Item Tracking Lines** page are locked for writing. This is to ensure that item tracking numbers remain unchanged.*

Positive	Document No.	Item No.	Serial No.	Lot No.	Location Code	Quantity	Remaining Quantity	Warranty Date	Expiration Date
<input checked="" type="checkbox"/>	107029	80103-T	SN-85C31		BLUE	1	0		
<input checked="" type="checkbox"/>	107029	80103-T	SN-85C32		BLUE	1	0		
<input checked="" type="checkbox"/>	107029	80103-T	SN-85C33		BLUE	1	0		
<input checked="" type="checkbox"/>	107029	80103-T	SN-85C34		BLUE	1	0		
<input checked="" type="checkbox"/>	107029	80103-T	SN-85C35		BLUE	1	0		
<input type="checkbox"/>	108006	80103-T	SN-85C31		BLUE	-1	0		
<input checked="" type="checkbox"/>	108006	80103-T	SN-85C31		OUT. LOG.	1	0		
<input type="checkbox"/>	108006	80103-T	SN-85C32		BLUE	-1	0		
<input checked="" type="checkbox"/>	108006	80103-T	SN-85C32		OUT. LOG.	1	0		
<input type="checkbox"/>	108006	80103-T	SN-85C33		BLUE	-1	0		
<input checked="" type="checkbox"/>	108006	80103-T	SN-85C33		OUT. LOG.	1	1		
<input type="checkbox"/>	108006	80103-T	SN-85C34		BLUE	-1	0		
<input checked="" type="checkbox"/>	108006	80103-T	SN-85C34		OUT. LOG.	1	1		
<input type="checkbox"/>	108006	80103-T	SN-85C35		BLUE	-1	0		
<input checked="" type="checkbox"/>	108006	80103-T	SN-85C35		OUT. LOG.	1	1		
<input type="checkbox"/>	109003	80103-T	SN-85C31		OUT. LOG.	-1	0		
<input checked="" type="checkbox"/>	109003	80103-T	SN-85C31		RED	1	1		
<input type="checkbox"/>	109003	80103-T	SN-85C32		OUT. LOG.	-1	0		
<input checked="" type="checkbox"/>	109003	80103-T	SN-85C32		RED	1	1		

FIGURE 6.14 ITEM TRACKING ENTRIES RESULTING FROM THE PURCHASE AND TRANSFER OF ITEM 80103-T

2. Close the **Item Tracking Entries** page and the item card.

Suppose that the remaining three units of item 80103-T arrive at the Red Warehouse. The warehouse person must enter the serial numbers of the arrived items.

Follow these steps to receive the remaining three units of item 80103-T:

1. Return to the transfer order and on the **Lines** FastTab, click **Actions**, point to **Line**, then to **Item Tracking Lines**, and then click **Receipt**.
2. Confirm that the remaining serial numbers, SN-85C33 to SN-85C35, are recorded.

***NOTE:** If the user tries to change the quantity in the **Qty. to Handle (Base)** field for lines with serial numbers that are already received, the program generates a warning message that states "You cannot handle more than X units."*

3. Click **OK** to close the **Item Tracking Lines** page.
4. On the Action Pane, click **Post**.
5. Click **OK** to receive the order.

The fully handled transfer order is deleted.

Reclassify Serial/Lot Numbers

When the **Item Tracking Lines** page is opened from a reclassification journal, the **New Lot No.** and **New Serial No.** fields are located directly on the item tracking line. This design aligns with that of general data reclassification in reclassification journal lines.

Serial/lot number information records, including any attached comments, are automatically carried to the new serial/lot number during reclassification.

When the serial/lot number information cards create a new serial/lot number information card, users can copy from existing serial number or lot number information cards by selecting from the **Serial No. Information List** page.

Serial/lot information cards hold information about how many of the serial/lot numbers are expired, in the **Expired Inventory** field.

These features are illustrated in the following demonstration.

Demonstration: Change Expiration Date and Group in Lot

This demonstration shows that the reclassification of serial/lot numbers aligns with the standard design of entering data into "New..." fields next to the original. It also shows how to manage serial/lot number information cards.

Scenario: John, the warehouse worker, must change the expiration date of a particular serial number on the 17" M780 monitor. It is entered incorrectly as 01/28/11 and must be changed to 01/28/08. He must also record the change in a serial number information card with an attached comment, and then group all expired monitors into a new lot called EXLOT.

Follow these steps to reclassify SN00024:

1. On the **Warehouse** page, click **Inventory** and then click **Item Reclass. Journals**.
2. Use the Choose Columns function to add the **Location Code** field. Reopen the journal to activate changes.
3. On 01/28/10, enter a line for one unit of item 80102-T to the BLUE location.
4. On the **Related Information** menu, point to **Line** and then click **Item Tracking Lines**.
5. In the **Serial No.** field, click the **Edit** button, select SN00024 (latest expiration date) and then click **OK**.

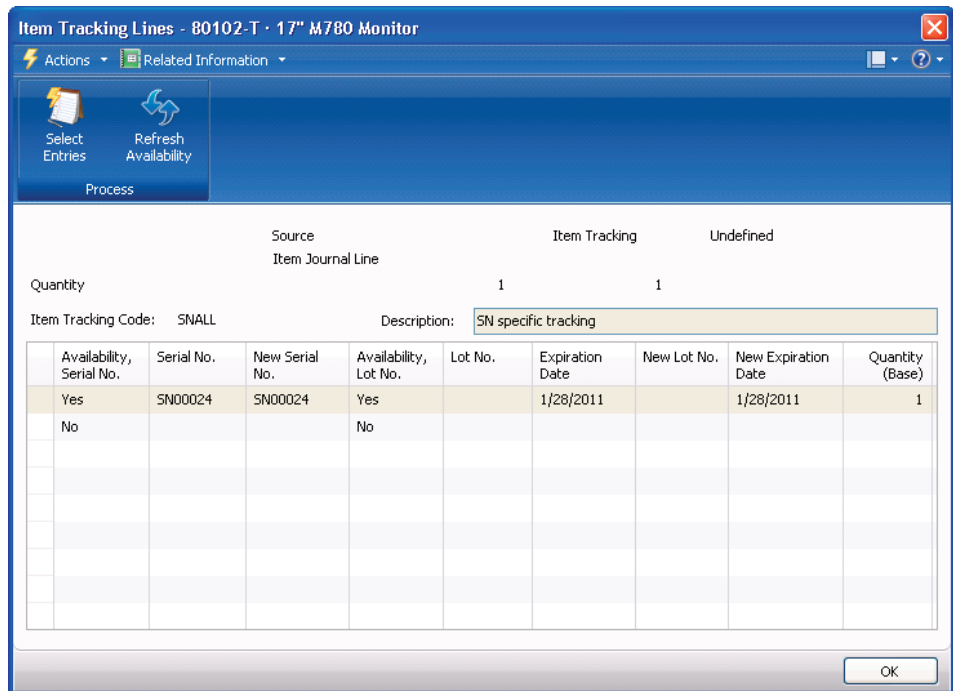


FIGURE 6.15 SN00024 ABOUT TO BE RECLASSIFIED

The expiration date assigned when the monitor entered inventory cannot be edited on the item tracking line.

Follow these steps to create and review the serial number information card and then change the expiration date:

1. On the Related Information menu, point to Line and then click New Serial No. Information.
2. On the **Actions** menu, click **New** and then review the **Inventory** FastTab.

The **Expired Inventory** field enables users to review availability in relation to the expiration date. Notice that the quantity is zero. This indicates that SN00024 is not expired.

***NOTE:** You may need to refresh the page to see the changes on the **Inventory FastTab**.*

3. Click **OK** to close the **Serial No. Information** pages.
4. On the item tracking line, change the date in the **New Expiration Date** field to 01/28/08 (two years before work date).

Because this item expired, John enters a comment on the information card instructing order processors to sell this monitor at a 20 percent discount.

Follow these steps to add the comment to the Serial Number Information Card:

1. On the **Related Information** menu, point to **Line** and then click **Serial No. Information Card**.
2. Double-click the line for serial number SN00024 and then in the **Description** field, type Expired.
3. On the **Related Information** menu, point to **Serial No.** and then click **Comment**.
4. In the **Date** field, enter 01/28/10 (the current work date) and in the **Comment** field, type Sell at 20% discount.
5. Close the open pages to return to the reclassification journal.

Follow these steps to post the reclassification journal:

1. On the Action Pane, click **Post**.
2. Click **Yes** to post the journal.

SN00024 now has the correct expiration date and John can group all expired monitors under a new lot number.

Follow these steps to group expired serial numbers in a new lot and review the result of the first reclassification of SN00024:

1. Create an item reclassification journal line on work date (01/28/10) for two units of item 80102-T to the BLUE location.
2. Open the **Item Tracking Lines** page and use the **Select Entries** function to select the two oldest available monitors. Use the Choose Columns function to show the **Expiration Date** field.

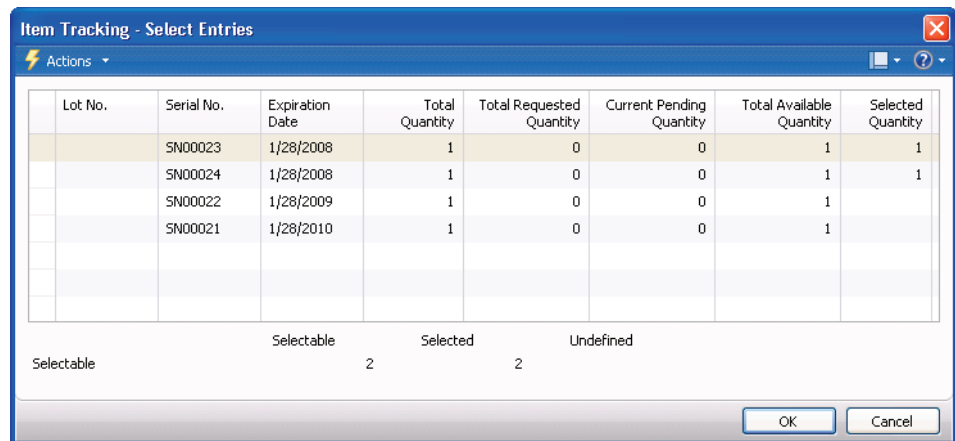


FIGURE 6.16 ITEMS WITH EARLIEST EXPIRATION DATES ARE PRE-SELECTED

Because all four items carry expiration dates, the system suggests SN00023 and SN00024 (earliest expiration dates). Refer to the "Receive Items with Expiration Dates" demonstration.

3. Click **OK** to carry the suggested lines to the **Item Tracking Lines** page.
4. Select the item tracking line of SN00024 (now expires 01/28/08) and open its **Serial No. Information Card**.
5. Review the **Inventory** FastTab to confirm that SN00024 is expired: **Expired Inventory** field = 1.
6. Close the **Serial No. Information Card** and **Serial No. Information List** pages.

Follow these steps to create the new lot and document the same discount policy for SN00023:

1. On each item tracking line, type EXLOT in the **New Lot No.** field.
2. Click the line for SN00023 and then on the **Related Information** menu, point to **Line** and then click **New Serial No. Information**.
3. On the **Actions** menu, point to **Functions** and then click **Copy Info**.

A list of all existing serial number information records is provided from which users can open detailed information and copy to the new information card.

BEST PRACTICES: *In ordinary circumstances, this page lists several serial number information records, usually created upon receiving the item.*

4. Click **OK** to create the same information and comment for SN00023 as for SN00024.
5. Close the open pages and return to the reclassification journal.
6. On the Action Pane, click **Post** and then click **Yes** to post the journal.

The two expired monitors are now reentered into inventory with complete serial number information cards and grouped in one lot.

Count Inventory of Serial/Lot Numbers

If the **Show Serial/Lot Number** check box in the **Phys. Inventory List** report request form is selected, then the Physical Inventory List report will also list serial/lot numbers for counting, each serial number on its own line.

This also applies to the corresponding counting documents within Warehouse Management Systems (WMS): The Warehouse Physical Inventory List report and the Warehouse Physical Inventory journal. However, the following rules will govern the display of serial/lot numbers, in the basic and advanced reports respectively, according to the warehousing complexity as defined by location setup:

- In locations without Bin Mandatory and without Directed Put-away and Pick, the report lists serial/lot numbers by item and location.
- In locations with Bin Mandatory and without Directed Put-away and Pick, and with SN and/or Lot Warehouse Tracking, the report lists serial/lot numbers by item, location, and bin.
- In locations with Bin Mandatory and without Directed Put-away and Pick, and without SN Warehouse Tracking and Lot Warehouse Tracking, the report lists serial/lot numbers as a summary by item.
- In locations with Directed Put-away and Pick, the (whse.) report lists serial/lot numbers item, zone, and bin.

NOTE: *After registering warehouse physical inventory (with WMS documents), the same count must be entered and posted in the Physical Inventory journal to synchronize warehouse entries with item ledger entries. Refer to the "Warehouse Management in Microsoft Dynamics NAV 2009" training material.*

Demonstration: Count Serial/Lot Numbers in the Blue Warehouse

Scenario: John is in charge of the Blue Warehouse and he must perform the annual count of inventory items carrying serial/lot numbers. He initiates the process by filling the physical inventory journal with calculated inventory quantities, prints the Physical Inventory List report, and continues to do the physical counting. In the process, he records that one M780 monitor is missing and that a forgotten lot of ten hard disks are found.

This demonstration focuses on how to count serial/lot numbers, and therefore only serial/lot-numbered items are shown.

Follow these steps to prepare the physical inventory journal and calculate inventory:

1. On the **Warehouse** page, click **Inventory** and then click **Phys. Inventory Journals**.
2. On the Action Pane, click **Calculate Inventory**.
3. On the **Item** FastTab, set a Location Filter for BLUE and then click **OK** to run the calculation.

Posting Date	Entry Type	Document No.	Item No.	Description	Location Code	Qty. (Calculated)	Qty. (Phys. Inventory)	Quantity
1/28/2010	Positive Adjmt.	T02001	80102-T	17" M780 Monitor	BLUE	4	4	0
1/28/2010	Positive Adjmt.	T02001	80208-T	Microsoft Intellimouse	BLUE	7	7	0
1/28/2010	Positive Adjmt.	T02001	80218-T	Hard disk Drive	BLUE	5	5	0
1/28/2010	Positive Adjmt.	T02001	8908-W	Computer - Highline Package	BLUE	-6	-6	0
1/28/2010	Positive Adjmt.	T02001	8916-W	Computer - TURBO Package	BLUE	-3	-3	0
1/28/2010	Positive Adjmt.	T02001	8924-W	Server - Enterprise Package	BLUE	-3	-3	0

Item Description
ANTWERP Conference Table

FIGURE 6.17 SHOWING SERIAL/LOT NUMBERED ITEMS IN THE PHYS. INVENTORY JOURNAL AFTER RUNNING THE CALCULATE INVENTORY FUNCTION

4. On the Action Pane, click **Print**.
5. On the **Options** FastTab, select the **Show Qty. (Calculated)** check box and the **Show Serial/Lot Number** check box.
6. Click **Preview** and then scroll to the bottom of the page.

Date	Location	Item Code	Description	Color	Quantity (Base)
01/28/10	TD2001	70000	Side Panel	BLUE	2,202
01/28/10	TD2001	70001	Base	BLUE	2,310
01/28/10	TD2001	70002	Top Panel	BLUE	2,608
01/28/10	TD2001	70003	Rear Panel	BLUE	2,084
01/28/10	TD2001	70010	Wooden Door	BLUE	2,270
01/28/10	TD2001	70011	Glass Door	BLUE	2,212
01/28/10	TD2001	70040	Drawer	BLUE	2,221
01/28/10	TD2001	70041	Shelf	BLUE	2,024
01/28/10	TD2001	70060	Mounting	BLUE	683
01/28/10	TD2001	70100	Paint, black	BLUE	3,841
01/28/10	TD2001	70101	Paint, yellow	BLUE	3,718
01/28/10	TD2001	70102	Paint, blue	BLUE	3,231
01/28/10	TD2001	70103	Paint, red	BLUE	3,026
01/28/10	TD2001	70104	Paint, green	BLUE	3,788
01/28/10	TD2001	70200	Hinge	BLUE	1,831
01/28/10	TD2001	70201	Doorknob	BLUE	1,260
01/28/10	TD2001	786BC-B	CONTOSO Office System	BLUE	3
01/28/10	TD2001	786BC-C	CONTOSO Storage System	BLUE	2
01/28/10	TD2001	80102-T	17" M780 Monitor	BLUE	4
		Lot No.	Serial No.	Quantity (Base)	
			EXLOT SN00023	1	
			EXLOT SN00024	1	
			SN00021	1	
			SN00022	1	
01/28/10	TD2001	80208-T	Microsoft Intellimouse	BLUE	7
01/28/10	TD2001	80218-T	Hard disk Drive	BLUE	5
		Lot No.	Serial No.	Quantity (Base)	
			LOT-TD5	5	
01/28/10	TD2001	8908-W	Computer - Highline Package	BLUE	-6
01/28/10	TD2001	8916-W	Computer - TURBO Package	BLUE	-3
01/28/10	TD2001	8924-W	Server - Enterprise Package	BLUE	-3

FIGURE 6.18 PHYS. INVENTORY LIST REPORT FOR SERIAL/LOT NO. COUNTING

Serial/lot numbers are listed in extra information columns under the item in question. The quantity of each (here, all the items are serialized) is shown in the **Quantity (Base)** field and each serial/lot number has a separate line in which to enter the counted quantity.

With the printout in hand, John now goes into the Blue Warehouse to perform a detailed physical inventory, down to serial numbers.

In the process of counting inventory in the Blue Warehouse, John discovers that one monitor M780 (SN00021) is missing, and that a forgotten lot of ten hard disks with serial numbers SN01 to SN10 have reappeared. He writes the counted quantities of each item or serial/lot number on the empty lines in the **Qty. (Phys. Inventory)** column of the printed sheet.

On the empty line for item 80102-T, John enters 3, and then he enters 1 for each counted serial/lot number, to indicate which one is missing. Regarding the ten found hard disks, he entered this count at the bottom of the sheet and reminded himself that they must be recorded under a new lot number.

***NOTE:** The three computer packages are not counted because they are currently requested on open sales orders, therefore, the negative figures.*

Follow these steps to enter the count in the physical inventory journal:

1. In the physical inventory journal that contains the calculated BLUE inventory, locate the line for item 80102-T, M780 monitor.
2. In the **Qty. (Phys. Inventory)** field, type 3. The **Entry Type** and **Quantity** fields are updated.
3. On the Action Pane, click **Item Tracking Lines**.
4. In the **Serial No.** field, click the **Edit** button, select SN00021, and then click **OK**.
5. Close the **Item Tracking Lines** page to return to the physical inventory journal.
6. Locate the line for item 80218-T, Hard disk Drive.
7. Change the **Qty. (Phys. Inventory)** field to 15 (existing five plus the ten found) and then open the **Item Tracking Lines** page.
8. On the **Actions** menu, point to **Functions** and then click **Create Customized SN**.
9. In the **Customized SN** field, type SN01.
10. In the **Increment** field, type 1.
11. Select the **Create New Lot No.** check box and then click **OK**.
12. Click **OK** to close the **Item Tracking Lines** page and return to the physical inventory journal.
13. On the Action Pane, click **Post** and then click **Yes** to post the journal with counted serial/lot numbers at the Blue Warehouse.

Manage Outbound Serial/Lot Numbers

Companies assign serial/lot numbers to the items they sell to customers so they can track individual items for returns and service contracts.

Depending on the established internal policies and business relationships with customers, companies may have different processes for tracking sold items. Examples of these processes are:

- Buying items from vendors without serial/lot numbers and then assigning the company's own numbers when selling the items.
- Buying items from vendors with the serial/lot numbers already assigned and using the same numbers when selling the items.

When a company chooses to assign their own serial and lot numbers, it is important to emphasize that the more consistently they set up their number series for serial and lot numbers, the more efficient the process.

Availability of Serial/Lot Numbers

Outbound order processors get detailed information about availability problems or conflicting use of serial/lot numbers when they select serial/lot numbers for outbound documents. Also, warning symbols appear on the item tracking line as soon as a conflicting serial/lot number or quantity is entered on an item tracking line of an outbound document.

The availability calculation used for serial/lot numbers is based on a simple formula. For any given serial and/or lot number, the calculation is:

Available = quantity in inventory - (all demands + quantity in the current Item Tracking Line (ITL) page not yet written to database)

***NOTE:** This formula implies that the serial/lot number availability calculation only considers inventory and ignores projected receipts.*

The availability overview is provided within one central page. This is dynamically named and adapted depending on which of these it is opened by:

- Using the **Select Entries** function – to select all needed serial/lot numbers in one action.
- Clicking the drop-down arrow in the **Serial No.** field or the **Lot No.** field – to select one serial/lot number.

Both selection methods open the **Item Tracking Summary** page (dynamically named depending on where it is opened from). This page displays availability information for each serial/lot number, including:

- How many are in inventory (**Total Quantity**).
- How many are selected for the item tracking line being handled, but not yet committed to the database (**Current Pending Quantity**).
- How many are assigned to all unposted document lines. This includes the one being handled (**Total Requested Quantity**).
- How many are reserved on the document line being handled.
- How many are reserved on all unposted document lines.
- When it expires (if carrying an expiration date).
- When its warranty expires (if carrying a warranty date).

Refer to the "Sell from a Specific Lot" demonstration for detailed descriptions of the user tasks involved in guaranteeing that a customer receives items from a specific requested lot, without making reservations.

Demonstration: Assign Serial/Lot Numbers to a Sales Order

Scenario: CRONUS customer 20000 places an order for five units of item 80208-T. The order is to be shipped from the Blue Warehouse and must be assigned serial numbers for future item tracing.

Susan, the order processor at CRONUS, creates the sales order. After John, the warehouse worker, has picked the items from inventory, he assigns the serial numbers in question to the item tracking lines of the sales line.

Follow these steps to process the sales order with serial/lot numbers:

1. Create the sales order to customer 20000 for five units of item 80208-T to be shipped from the BLUE location.

Because of the item tracking code applied to the item, SNSALES, the program requires that John assign serial numbers on the item tracking lines for item 80208-T before the order can be posted.

2. On the **Lines** FastTab, click **Actions**, point to **Line** and then click **Item Tracking Lines**.

This item is usually purchased without serial/lot numbers but it is required (by the item tracking code applied to this item) to be sold with serial numbers. Therefore, before shipping, John must enter the serial numbers for this item. Because there is a number series for serial numbers set up for this item, entry of the serial numbers can be done automatically.

3. On the **Actions** menu, point to **Functions** and then click **Assign Serial No.** The **Enter Quantity to Create** request form appears.

By default, the **Quantity to Create** field contains the quantity copied from the sales line. If necessary, modify this quantity.

4. Click **OK**.

Serial numbers are automatically assigned to each individual unit of the item. The serial numbers used are based on the number series setup for serial numbers.

Notice that the **Availability, Serial No.** field indicates that there is no availability. In this scenario, where new serial numbers are only assigned, not selected from inventory, the warnings do not make much sense, except they indicate that the serial numbers in question are not in inventory. Refer to "Sell from a Specific Lot" for a demonstration relevant for this warning.

5. Click **OK** to close the **Item Tracking Lines** page and then click **Yes** to accept the availability warning.

The sales order is ready for shipment to the customer.

6. On the Action Pane, click **Post**.
7. Click **Ship** and then click **OK**.

Demonstration: Sell from a Specific Lot

The preceding demonstration dealt with assigning new serial numbers. The following demonstrates the more common situations where serial/lot numbers are selected from inventory. For this purpose, the program provides an overview of serial/lot number availability as decision support to order processors at the time of selecting the serial/lot numbers. This instills confidence that the serial/lot-numbered supply they are promising to customers in unposted sales orders can be fulfilled at posting time.

Scenario: Susan is about to create a sales order for ten Ethernet cables, item 80216-T.

***NOTE:** Item 80216-T is set up with lot-specific tracking. This means that outbound transactions with this item must be assigned a lot number selected from inventory (fully applied). It can be any lot number. However, it must exist in inventory.*

The customer, Cannon Group PLC, is skeptical of the quality of the cables, and has requested that the ten cables be from the same batch as their last delivery, LOT0002, which are all working well.

Before this sales negotiation, another order processor has already randomly selected some of the available Ethernet cables from LOT0002 for another customer who is not concerned with the lot number.

Susan can communicate the exact availability of LOT0002 and agree on a compromise offer when the customer is on the telephone.

***NOTE:** Similar scenarios can apply to other situations of outbound order handling, such as, a production planner requesting warehouse workers to pick components from a specific inventory lot.*

Follow these steps to create inventory for LOT0002, LOT0003, and LOT0004:

1. On the **Warehouse** page, click **Inventory** and then click **Item Journals**.
2. On 01/28/10, create three positive inventory adjustments lines for ten units of item 80216-T to the BLUE location.
3. Click the first line and open the **Item Tracking Lines** page and use the **Assign Lot No.** function to assign lot number LOT0002.
4. Close the **Item Tracking Lines** page.
5. Click the second line and then assign lot number LOT0003.

6. Close the **Item Tracking Lines** page.
7. Click the third line and then assign lot number LOT0004.
8. On the Action Pane, click **Post**.
9. Click **Yes** to post the journal.
10. Open the item ledger entries for item 80216-T.
11. Use the Choose Columns function to add the **Lot No.** field.

The screenshot shows a window titled "View - Item Ledger Entries - Item 80216-T Ethernet Cable". The window contains a table with the following data:

Posting Date	Entry Type	D... T...	Document No.	Item No.	Description	Location Code	Lot No.	Quantity
1/28/2010	Positive Adjmt.		T00001	80216-T		BLUE	LOT0002	10
1/28/2010	Positive Adjmt.		T00001	80216-T		BLUE	LOT0003	10
1/28/2010	Positive Adjmt.		T00001	80216-T		BLUE	LOT0004	10

FIGURE 6.19 ITEM LEDGER ENTRIES AFTER POSTING A POSITIVE ADJUSTMENT

Data is now created and ready to start the sales order process.

Follow these steps of the other order processor, who auto-selects twelve pieces from any lot:

1. Create a sales order to customer 20000 for 12 units of item 80216-T to be shipped from the BLUE location.
2. Open the **Item Tracking Lines** page, and on the Action Pane, click **Select Entries**.

The screenshot shows a dialog box titled "Item Tracking - Select Entries". It contains a table with the following data:

Lot No.	Serial No.	Expiration Date	Total Quantity	Total Requested Quantity	Current Pending Quantity	Total Available Quantity	Selected Quantity
LOT0002			10	0	0	10	10
LOT0003			10	0	0	10	2
LOT0004			10	0	0	10	0

Below the table, there are labels for "Selectable", "Selected", and "Undefined" with corresponding counts: Selectable 12, Selected 12, Undefined.

FIGURE 6.20 REQUIRED QUANTITY PRE-SELECTED BY THE PROGRAM

The **Item Tracking - Select Entries** page (an adapted display of the **Item Tracking Summary** page) provides an overview of the serial/lot number availability for item 80216-T.

The **Selected Quantity** field is preset with a suggested selection of the needed quantity, ordered by lot and serial number sequence. Users can edit the suggested quantities as they like, if there is only one of each serial number, before they copy the selected quantities to the item tracking lines.

3. Click **OK** to carry the default selection to the **Item Tracking Lines** page.
4. Click **OK** to close the **Item Tracking Lines** page.

CAUTION: Do not process this sales order any further.

Now that the unspecified sales order is created by using ten pieces from LOT0002 and two pieces from LOT0003 that are committed and awaiting posting, create the specified sales order for ten pieces from LOT0003.

Follow these steps to attempt to select the ten pieces from LOT0003:

1. Create a sales order to customer 10000, Cannon Group PLC, for ten units of item 80216-T to be shipped from the BLUE location.
2. Open the **Item Tracking Lines** page and type LOT0003 in the **Lot No.** field and 10 in the **Quantity (Base)** field.

The **Availability, Lot No.** field displays No. This is an availability warning to indicate that one or more values entered on the item tracking line is not feasible according to the availability of LOT0003. (This warning acts on values in the **Serial No.**, **Lot No.** and **Quantity (Base)** fields.)

3. Click the **Availability, Lot No.** field to view the details.

Lot No.	Serial No.	Expiration Date	Total Quantity	Total Requested Quantity	Current Pending Quantity	Total Available Quantity
LOT0003			10	2	10	-2

Selectable Selected Undefined

OK

FIGURE 6.21 AVAILABILITY DETAILS FOR LOT0003

The **Availability** page is an adapted display of the **Item Tracking Summary** page that contains the current availability picture for LOT0003 only:

- **Total Quantity** of 10 is required on the current sales line.
- **Total Requested Quantity** of 2 is selected for another sales line.
- **Current Pending Quantity** of 10 is entered in the current **Item Tracking Line** page but not yet committed to the database.
- **Total Available Quantity** of -2 is (un)available to select.

Susan is now aware that only eight Ethernet cables with LOT0003 are available, and that the last two must be selected from another lot.

4. Close the availability details for LOT0003 and change the value in the **Quantity (Base)** from 10 to 8.

The **Availability, Lot No.** field now indicates that those eight are available and can be committed to the sales order. However, as indicated in the **Undefined** column in the header of the **Item Tracking Lines** page, two must still be selected from inventory for this sales order.

5. Click the next item tracking line, and in the **Lot No.** field, click the **Edit** button to select from the current availability of lot numbers for the Ethernet cable at the BLUE location.

Lot No.	Serial No.	Expiration Date	Total Quantity	Total Requested Quantity	Current Pending Quantity	Total Available Quantity
LOT0002			10	10	0	0
LOT0003			10	2	8	0
LOT0004			10	0	0	10

Selectable
Selected
Undefined

FIGURE 6.22 UPDATED LOT NUMBER AVAILABILITY FOR ITEM 80216-T

The second line shows that the current pending quantity is eight. This indicates that the entry performed in step 4 is not yet committed to the database because the **Item Tracking Lines** page is not closed. (The first line represents the ten pieces selected by the other order processor earlier in this demonstration.)

Susan informs customer 10000 that only eight Ethernet cables from LOT0003 are available, and that the last two will be from LOT0004. The customer agrees to the terms.

6. Click the line for LOT0004 and then click **OK**.

The program has selected the needed quantity of two from LOT0004.

To ensure that no other users are trying to select these serial/lot numbers when they are not committed to the database, Susan uses a function that updates availability calculations across all concurrent writing of serial/lot numbers in the database.

7. On the Action Pane, click **Refresh Availability**.

A following message appears: "The data used for availability calculation has been updated. There are no availability warnings."

In this case, no other users have selected from the involved lot numbers and therefore there are no availability conflicts.

However, if, for example, another order processor had selected more pieces of LOT0002, the following warning appears upon running the refresh function: "The data used for availability calculation has been updated. There are availability warnings on one or more lines."

Also, the affected item tracking lines will indicate that there is no availability to both users in each of their instance of the page.

***NOTE:** The availability refresh function is automatically performed when the **Item Tracking Lines** page is closed.*

8. Close the **Item Tracking Lines** page.

Susan has now secured the requested lot numbers and can move on to the next customer, reassured that the order for customer 10000 can be posted successfully at any time.

***WARNING:** Do not process or post the two sales orders created in this demonstration.*

Demonstration: Select Serial/Lot Numbers from a Bin

If an item is handled at a location that requires a bin, the **Item Tracking Summary** page displays availability information for that particular bin. This makes it easier to pick in bin-controlled environments.

The following demonstrates how outbound order handlers can use the extra level of availability control offered with the handling of serial/lot numbers across multiple bins. It also shows how to easily select multiple serial/lot numbers in one action.

Scenario: Ellen, the warehouse manager at CRONUS, is optimizing inventory at the SILVER location that is set up for bin control. She must transfer 14 serial/lot-numbered 19" monitors from bin S-04-0001 to the BLUE location in no specific bin.

Follow these steps to adjust the item tracking to use a default number series for serial and lot numbers:

1. Open the item card for item 80103-T, 19" M009 monitor.
2. On the **Item Tracking** FastTab, enter SN1 in the **Serial Nos.** field and LOT in the **Lot Nos.** field.
3. Click **OK** to close the item card.

Follow these steps to enter item-tracked inventory to a particular bin in the SILVER location:

1. Open the **Item Journal** and use the Choose Columns function to add the **Bin Code** field. Re-open the journal to activate the changes.
2. On 01/28/10, enter serial/lot numbers into different bins by creating the following positive inventory adjustment lines:

Item	Location	Bin	Serial No.	Lot No.	Qty.
80103-T	SILVER	S-04-0001	SN00001-SN00010	LOT0005	10
80103-T	SILVER	S-04-0002	SN00011-SN00020	LOT0006	10

HINT: To auto-assign the serial/lot numbers from number series, in the **Item Tracking Lines** page, click the **Actions** menu, point to **Functions**, click **Assign Serial No.**, and then select the **Create New Lot No.** check box.

3. On the Action Pane, click **Post**.
4. Click **Yes** to post the journal.

The setup and data is now ready to start the transfer order processing.

Ellen creates the transfer order for 14 pieces, but upon selecting serial/lot numbers from bin S-04-0001, notices that only ten are available and decides to supplement with four pieces from another bin.

Follow these step to select available serial/lot numbers from bins on a transfer order:

1. Open the **Transfer Order** page and use the Choose Columns function to add the **Transfer-from Bin Code** field to the lines.
2. In the **Transfer-from Code** field, enter SILVER.
3. In the **Transfer-to Code** field, enter BLUE.
4. In the **In-Transit Code** field, enter OWN LOG.
5. On the **Lines** FastTab, in the **Item No.** field, enter 80103-T.
6. In the **Transfer-from Bin Code** field, enter S-04-0001.
7. In the **Quantity** field, type 14.

8. On the **Lines** FastTab, click **Actions**, point to **Line**, then to **Item Tracking Lines**, and then click **Shipment**.
9. On the Action Pane, click **Select Entries**.

Lot No.	Serial No.	Expiration Date	Total Quantity	Total Requested Quantity	Current Pending Quantity	Total Available Quantity	Bin Content	Selected Quantity
LOT0005	SN00001		1	0	0	1	1	1
LOT0005	SN00002		1	0	0	1	1	1
LOT0005	SN00003		1	0	0	1	1	1
LOT0005	SN00004		1	0	0	1	1	1
LOT0005	SN00005		1	0	0	1	1	1
LOT0005	SN00006		1	0	0	1	1	1
LOT0005	SN00007		1	0	0	1	1	1
LOT0005	SN00008		1	0	0	1	1	1
LOT0005	SN00009		1	0	0	1	1	1
LOT0005	SN00010		1	0	0	1	1	1
LOT0006	SN00011		1	0	0	1	0	
LOT0006	SN00012		1	0	0	1	0	
LOT0006	SN00013		1	0	0	1	0	
LOT0006	SN00014		1	0	0	1	0	
LOT0006	SN00015		1	0	0	1	0	
LOT0006	SN00016		1	0	0	1	0	
LOT0006	SN00017		1	0	0	1	0	
LOT0006	SN00018		1	0	0	1	0	
LOT0006	SN00019		1	0	0	1	0	
LOT0006	SN00020		1	0	0	1	0	

Selectable 14 Selected 10 Undefined 4.00

FIGURE 6.23 SELECTED QUANTITY IS PRE-SELECTED BASED ON WHAT IS AVAILABLE IN THE BIN

Although the transfer line quantity is 14, the **Select Entries** function only pre-selects what is available in the specified bin, namely ten pieces.

Ellen sees that the bin only contains ten pieces and decides to look into supplying the last four from another bin.

10. Click **OK** to carry the selected serial/lot numbers to the **Item Tracking Lines** page and then close it.
11. In the transfer order line, change the **Quantity** to 10.

12. Create a second transfer order line for the same item and in the **Transfer-from Bin Code** field, click the drop-down arrow, and then click **Advanced**.

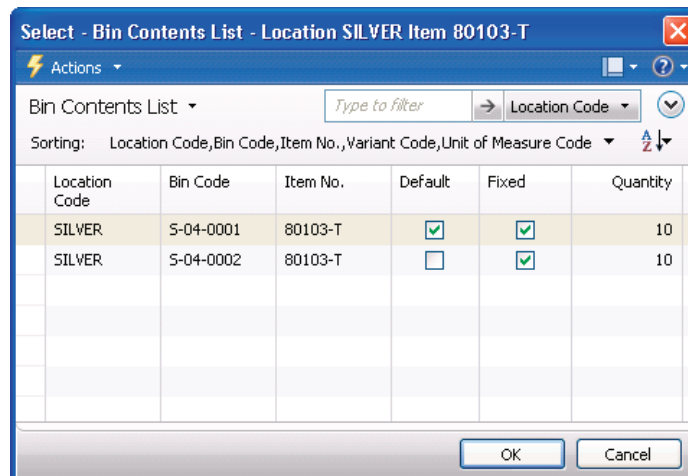


FIGURE 6.24 OVERVIEW OF BIN AVAILABILITY

Ellen sees that the 19" M009 monitor is also available in bin S-04-0002. She selects it to determine which and how many serial/lot numbers the bin holds.

13. Select the second bin content line, and then click **OK**.
14. In the **Quantity** field, type 4.
15. Reopen the **Item Tracking Lines** page and use the **Select Entries** function.

Because the new transfer order line specifies bin S-04-0002, the **Select Entries** page now shows availability details for that bin only and has pre-selected the requested quantity.

16. Click **OK** to select the four serial/lot numbers for the second transfer line.

Ellen can now have the items picked for the transfer shipment, reassured that bin S-04-0001 is emptied and that the requested quantity of 14 will be transferred to the BLUE location.

Demonstration: Select the First Serial Number to Expire

If an expiration date is defined for the serial/lot number when it entered inventory, that expiration date cannot be edited in the **Item Tracking Lines** page when that serial/lot number is outbound. Such serial/lot numbers are sorted by earliest expiration date so that outbound order handlers can easily select items by first-expire-first-out (FEFO). This sorting functionality also applies when the Select Entries function is used to select serial/lot numbers.

The following demonstrates how to store and handle serial/lot numbers according to their expiration date. This functionality is required in certain industries (those under the U.S. Food and Drug Administration (FDA), for example) and is useful for perishable goods. Therefore, the following scenario may seem unrealistic because it uses computer hardware from the CRONUS demonstration data.

Scenario: Susan is about to sell one 17" M780 monitor. This particular model shows bigger repair frequency the longer it is stored in inventory before sale. Expiration date control functions within the system help her pick the monitor with the earliest expiration date.

Follow these steps to process items on a sales order with expiration dates:

1. Create a sales order for any customer on the work date for one unit of item 80102-T to be shipped from the BLUE location.
2. Open the **Item Tracking Lines** page and use the **Select Entries** function.

The available items are sorted by expiration date, and that the program has pre-selected the monitor that expires first.

NOTE: *Serial/lot numbers without an expiration date will be listed last.*

3. Select the serial number by clicking **OK**.

The existing expiration date field cannot be edited. This indicates that the date is recorded as it enters inventory and cannot be changed, except by reclassification. Refer to the "Change Expiration Date and Group in Lot" demonstration.

The demonstrated functionality of sorting serial/lot numbers by expiration date applies to all outbound handling of serial/lot numbers carrying expiration dates. In inventory picks, warehouse picks, warehouse movements, and the related worksheets, the program will auto-select serial/lot numbers by expiration date in locations set up for Pick according to FEFO (a setup field located on the **Bin Policies** FastTab of location cards).

Lab 6.1 - Buy and Sell Items with Serial/Lot Numbers

Scenario

The purchasing agent at CRONUS places an order with vendor 10000 for 20 units of item 80216-T. The vendor usually ships this item with lot numbers. This time they shipped the order with two lots: eight units in lot LN-HW301 and 12 units in lot LN-HW320. The order must be shipped to the BLUE location. Use vendor invoice number 111 when posting the invoice.

CRONUS customer 10000 places an order for 15 units of item 80216-T from the above-mentioned lot numbers (eight units from LN-HW301 and seven units in lot LN-HW320). The order is to be shipped from the Blue Warehouse.

Perform the tasks of the purchasing agent (process and receive/invoice the purchase order) and the order processor (process and ship/invoice the sales order).

Challenge Yourself!

1. Create a purchase order for 20 units of item 80216-T for vendor 10000 to the BLUE location and register the vendor's lot numbers for the arrived items.
2. Receive and invoice the order.
3. Create a sales order for 15 units of item 80216-T for customer 10000 and select the available lot numbers.
4. Ship and invoice the order.

Need a Little Help?

1. Create a purchase order for 20 units of item 80216-T for vendor 10000 to the BLUE location.
2. In the **Item Tracking Lines** page, register the vendor's lot numbers for the arrived items.
3. Post the order and select the Receive and Invoice option.
4. Create a sales order for 15 units of item 80216-T for customer 10000.
5. In the **Item Tracking Lines** page, use the **Select Entries** function to select eight units from LN-HW301 and seven units in lot LN-HW320.
6. Post the order and select the Ship and Invoice option.

Step by Step

Follow these steps to process the purchase order with lot number requirements:

1. On the **Purchase** page, click **Order Processing** and then click **Purchase Orders**.
2. Click **New** and then press ENTER or TAB.
3. In the **Buy-from Vendor No.** field, enter 10000.
4. Enter a purchase line for 20 units of item 80216-T to be shipped from the BLUE location.
5. On the **Lines** FastTab, click **Actions**, point to **Line**, and then click **Item Tracking Lines**.
6. Enter the following item tracking lines:
 - a. **Lot No.** = LN-HW301, **Quantity (Base)** = 8
 - b. **Lot No.** = LN-HW301, **Quantity (Base)** = 12
7. Click **OK** to close the **Item Tracking Lines** page.
8. In the **Vendor Invoice No.** field, type 111.
9. On the Action Pane, click **Post**.
10. Click **OK** to receive and invoice the order.

Follow these steps to process the sales order with lot number requirements:

1. On the **Sales & Marketing** page, click **Order Processing** and then click **Sales Orders**.
2. Click **New** and then press ENTER or TAB.
3. In the **Sell-to Customer No.** field, enter 10000.
4. Enter a sales line for 15 units of item 80216-T to be shipped from the BLUE location.
5. On the **Lines** FastTab, click **Actions**, point to **Line**, and then click **Item Tracking Lines**.
6. On the Action Pane, click **Select Entries**.
7. Confirm the following selections are made (if not, change the recommended settings to ensure that these are the selections):
 - a. Eight appears in the **Selected Quantity** field on the line for lot LN-HW301.
 - b. Seven appears in the **Selected Quantity** field on the line for lot LN-HW320.
8. Click **OK** to close the **Item Tracking** page.
9. Click **OK** to close the **Item Tracking Lines** page.
10. On the Action Pane, click **Post**.
11. Click **OK** to ship and invoice the order.

Lab 6.2 - Auto-Pick Monitors by FEFO

Scenario

The order processor at CRONUS creates a sales order to customer 30000 for five 19" M008 monitors from the SILVER location and does not define item tracking lines before releasing the order to the warehouse for picking.

The warehouse worker must pick the five 19" M009 monitors from expiration date-controlled inventory at the SILVER location. No serial/lot numbers were specified on the sales order and he or she must therefore rely on the program to auto-pick the items with the earliest expiration dates.

Perform the tasks of the order processor (process the sales order) and the warehouse worker (create picks).

***NOTE:** First set up the SILVER location to require pick and pick according to FEFO, and the SNALL item tracking code to require manual expiration date entry. Use the Item Journal to enter ten units of item 80103-T to bin S-04-0001 in the SILVER location with an expiration date of 01/28/10 (work date).*

Challenge Yourself!

1. Set the SILVER location up to require pick and pick according to FEFO and the SNALL item tracking code to require manual expiration date entry.
2. Post the positive inventory adjustment of ten pieces of item 80103-T to bin S-04-0001 in the SILVER location with an expiration date of 01/28/10.
3. Create and release the sales order to customer 30000 for five 19" M009 monitors.
4. Create an inventory pick for the SILVER location and get the sales order as a source document.
5. Confirm that the serial numbers with expiration dates are auto-picked.

Need a Little Help?

1. Open the location card for the Silver Warehouse and select the **Require Pick** check box and the **Pick According to FEFO** check box.
2. Open the Item Tracking Code Card for SNALL and select the **Man. Expir. Date Entry Req'd.** check box.
3. Open the **Item Journal** and create a positive adjustment of ten pieces of item 80103-T to bin S-04-0001 in the SILVER location, assign automatic serial numbers, and then assign each with an expiration date of 01/28/10 (work date). Post the journal.

4. Create and release a sales order to customer 30000 for five pieces of item 80103-T from the SILVER location.
5. Create an inventory pick for the SILVER location and use the Get Source Document function to pick from the sales order.
6. Show the **Serial No.** and **Lot No.** fields in the inventory pick document and confirm that the serial numbers with expiration dates are auto-picked.

Step by Step

Follow these steps to set up the SILVER location and SNALL lot tracking code:

1. On the **Warehouse** page, click **Administration** and then click **Locations**.
2. Open the card for the SILVER location.
3. Expand the **Warehouse** FastTab and then select the **Require Pick** check box.
4. Expand the **Bin Policies** FastTab and then select the **Pick According to FEFO** check box.
5. Click **OK** to close the Location Card and then close the **Location List** page.
6. On the **Warehouse, Administration** page, click **Item Tracking Codes**.
7. Open the Item Tracking Code Card for SNALL.
8. Expand the **Misc.** FastTab.
9. Select the **Man. Expir. Date Entry Req'd.** check box.
10. Click **OK** to close the **Item Tracking Code Card** page and **Item Tracking Codes** page.

Follow these steps to create inventory for item 80103-T:

1. On the navigation pane, under Warehouse, click **Inventory** and then click **Item Journals**.
2. Create a positive inventory adjustment for ten units of item 80103-T to the SILVER location in bin S-04-0001.
3. On the Action Pane, click **Item Tracking Lines**.
4. On the **Action** menu, point to **Functions**, and then click **Assign Serial No.**
5. Click **OK** to the default options to create ten new serial numbers from the number series.
6. On each item tracking line, press the W key to enter the work date (01/28/10) in the **Expiration Date** field.
7. Click **OK** to close the **Item Tracking Lines** page.
8. On the Action Pane, click **Post** and then click **Yes** to post the journal.

Follow these steps to process the sales order:

1. On the **Sales & Marketing** page, click **Order Processing** and then click **Sales Orders**.
2. Click **New** to create a new sales order and then press ENTER or TAB.
3. In the **Sell-to Customer No.** field, enter 30000.
4. Accept the credit limit warning.
5. Enter a sales line for five units of item 80103-T to be shipped from the SILVER location.
6. On the Action Pane, click **Release**.
7. Click **OK** to close the sales order.

Follow these steps to process the pick and confirm the auto-picking of expiration date-controlled items:

1. On the **Warehouse** page, click **Goods Handling Order By Order** and then click **Inventory Picks**.
2. Click **New** to create a new pick and then press ENTER or TAB.
3. In the **Location Code** field, enter SILVER.
4. On the Action Pane, click **Get Source Document**.
5. Select the sales order just created and click **OK**. Five pick lines are created.
6. Use the Choose Columns function to add the **Serial No.** and **Lot No.** fields to the inventory pick lines.
7. In any of the **Serial No.** fields, click the drop-down arrow and verify that among all the available inventory of item 80103-T in bin S-04-0001 in the SILVER location, the serial numbers with expiration dates are auto-picked first.

Trace Serial/Lot Numbers

There is a growing demand for the ability to track items from the vendor to the customer. This is due in part to new directives from the European Union (EU) toward businesses dealing in perishable goods. Also, requirements from the FDA and consumer requests are pushing the need for traceability.

Moreover, when errors occur during item flow, the errors must be identified and affected items must be prevented from leaving the company. If defective items are already shipped, it is important to trace who received them and, if it is required, to recall them.

The first aspect of defects management is to investigate where the defective items are used. This investigation is based on historic data and is facilitated in Microsoft Dynamics NAV by searching through item tracking entries using the **Item Tracing** page.

The second aspect of defects management is to determine if the tracked items are planned for in open documents, such as unposted sales orders or consumption journals. This work can be done in the **Navigate** page. Refer to the "Navigate with Serial/Lot Numbers" lesson.

Design Concepts

The item tracing feature is designed with three basic limitations:

- It uses posted documents only (not open documents).
- It tracks items with serial/lot numbers only.
- Items must be set up for specific tracking.

Accordingly, it tracks through the history of item ledger entries carrying serial/lot numbers and answers questions such as:

- Where did the defective component come from?
- In which products and sales is the defective component used?

The answers are presented in the **Item Tracing** page as a chain of all the posted documents the item flowed through, sorted either backward or forward in the chain depending on the trace method.

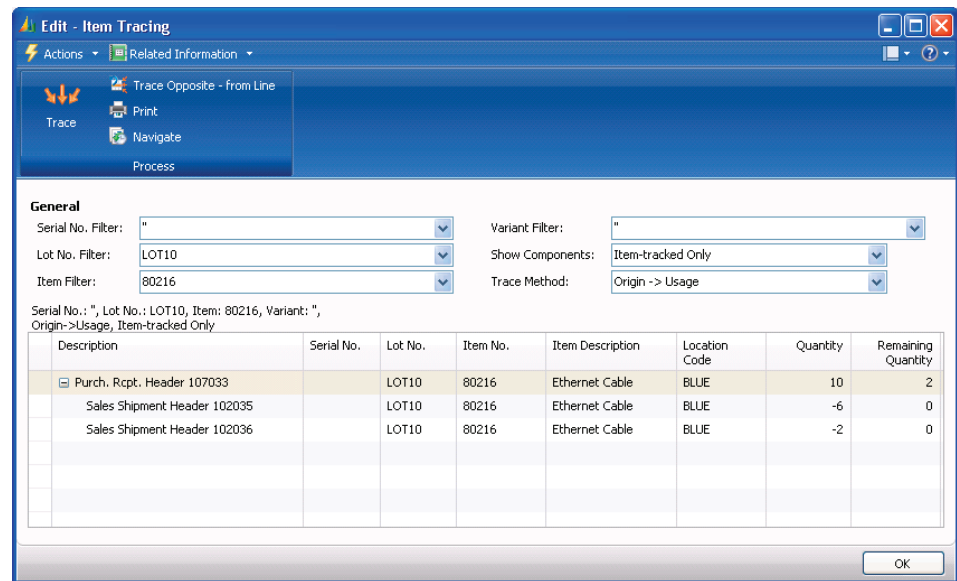


FIGURE 6.25 ITEM TRACING PAGE WITH EXPANDED TRACING LINES

Traceability Features

The most important user requirement in item tracking is to present data in a transparent way where the user controls the view. A search in item tracking entries can result in many records, and if all records are presented at one time they can be difficult to use. It is also important for a search engine to have effective search filters and functions and also the ability to keep track of the search history.

The **Item Tracing** page fulfills these requirements with the following features.

Traceability Feature: Expandable/Collapsible Lines

To reduce complexity of search results, the **Item Tracing** page is designed to only show the highest level of the item ledger entry chain first. From this initial overview, the user can then investigate lower levels by expanding the lines.

Expanded lines are indented under their preceding trace line to provide additional transparency of the item's flow through a supply chain.

The different views are selected from the **Functions** menu item, or by clicking the plus or minus icons on each line.

Traceability Feature: Search Filters

Four main filters can be used to delimit the search:

- Serial No.
- Lot No.
- Item
- Variant

All four filter fields have drop-down arrows for selecting data from master data records. Accordingly, only serial/lot numbers with information card records can be selected from the **Serial No. Filter** and **Lot No. Filter** fields. However, any serial/lot number can be entered directly in the fields.

***NOTE:** The drop-down arrows in the **Serial No. Filter** and **Lot No. Filter** fields open the **Serial No. Information List** and **Lot No. Information List** pages, respectively.*

In addition to the basic filters, users can define to what extent production components must be included by selecting one of these trace settings in the **Show Components** field:

- No - To not include components in the trace result.
- Item-tracked Only - To only include components that have serial/lot numbers (this is set as default).
- All - To include all components.

***BEST PRACTICES:** Because items without serial/lot numbers cannot be used for additional tracking, the All setting is mainly used to obtain an overview of the whole component list of a particular production order being traced.*

Traceability Feature: Two Search Directions

Business flows vary from company to company and the Item Tracing feature is therefore designed to search either forward or backward in the supply chain. To support, for example, the quality control tasks of first determining where a defect is introduced, and then, where the defect is used, two trace methods exist.

Usage - Origin

The Usage-Origin method traces the item starting from where it is first used and backward to where it came from. For example, if a manufactured item is sold to a customer, the trace result shows the sales shipment line first. This can then be expanded to show from which production order it came.

Origin - Usage

The Origin-Usage method traces the item starting from where it came and forward to where it is used. For example, if a manufactured item is sold to a customer, the trace result shows the finished production order first. This can then be expanded to show in which sales shipment lines it is used.

Traceability Feature: Search History

Between the header and the lines on the **Item Tracing** page is a narrow band that shows at all times which filters and settings are used to generate the trace result. This ever-changing string of settings works as a kind of search history to provide an overview as users browse through trace results.

Traceability Feature: Functions

The following functions are available from the **Actions** menu by pointing to **Functions**.

Set Filters with Line Values

The Set Filters with Line Values function inserts the values of the selected line in the respective filter fields in the header and executes a trace. This function is useful, for example, when the origin of the defective item is found and that particular trace line must form the basis of additional tracking with the same trace method.

Trace Opposite - from Line

The Trace Opposite - from Line function resembles the Set Filters with Line Values function, except it executes the trace in the opposite direction. This function is useful, for example, when the source of a defect is found and the usage of that defect must be found - by tracing in the opposite direction. Refer to the "Trace from Origin to Usage" demonstration.

Next/Previous Trace Result

The Next/Previous Trace Result functions move through the history of trace results, as shown in the search string under the header, and change the display of the trace result accordingly.

Traceability Feature: Integration to Navigate

The Item Tracing feature searches through historic data only. Therefore, most item tracking processes incorporate the Navigate feature for a listing of all records and documents where a particular serial/lot number occurs. For this purpose, the **Navigate** page includes an **Item Tracking** FastTab. Refer to the "Navigate With Serial/Lot Numbers" lesson.

The **Navigate** page can be opened directly from the **Item Tracing** page and will then be preset with Navigate results based on the serial/lot numbers that are used as filters in the **Item Tracing** page.

Traceability Feature: Item Tracing Specification Report

The trace result (lines in the **Item Tracing** page) can be printed directly from the page. The report is a one-to-one reproduction of the trace result. This means that collapsed lines are only included if they are first expanded.

The report can only contain eight of the columns available in the **Item Tracing** page, but the user can easily define which to include. The report request form contains eight lookup fields in which users can define for which columns the trace result must be shown in the report.

The request form also has options to include the number and name of the customer or vendor of traced sales or purchase documents, and can be exported to Microsoft Office® Excel® for printing.

Accordingly, this is a useful printout to reference when investigating an item flow.

Traceability Feature: Opens from Multiple Places

The **Item Tracing** page can be opened from:

- All relevant Tasks pages under History in the navigation pane.
- Item cards.
- Serial number and lot number information cards.

When it is opened from, for example, a lot number information card, the lot number and item number in question will be preset in the filter fields of the **Item Tracing** page, and an initial trace with the default trace method is executed.

This completes the conceptual descriptions of the Item Tracing feature. In the following are two short demonstrations illustrating a complete item tracking process, starting with a trace of usage to origin and then a trace of origin to usage. A demonstration of item tracking with Navigate based on the same scenario is provided in the "Navigate for Serial/Lot Numbers" lesson.

Demonstration: Trace from Usage to Origin

This demonstrates how Microsoft Dynamics NAV supports the task of identifying defective items by lot number and which vendor supplied them.

Scenario: Ellen, the warehouse manager at CRONUS, is working with Eduardo, the quality controller, to set up lot tracking on items that have a history of defects. One of those items is 80216, Ethernet Cable. She does not use the number series for lots because warehouse workers usually assign specific numbers during the receipt process.

Later, this item is purchased from a single vendor and registered as LOT10 and LOT20, respectively. After various units are sold to customers from different lots, one of the customers contacts Eduardo, stating that the cables are defective. It is his responsibility to identify from which lot those faulty cables came.

Steps: Set Up Item for Lot Tracking

Follow these steps to set up lot item tracking on item number 80216:

1. On the **Warehouse** page, click **Planning & Execution** and then click **Items**.
2. Open the item card for item 80216.

3. Expand the **Item Tracking** FastTab.
4. In the **Item Tracking Code** field, enter LOTALL.
5. Click **OK** to close the item card.

Steps: Purchase Ethernet Cables

Alicia, the purchasing agent at CRONUS, creates a purchase order to vendor 30000 for ten units each of item 80216 into LOT10 and LOT20, respectively.

Follow these steps to process the purchase order:

1. On the **Warehouse** page, click **Orders & Contacts** and then click **Purchase Orders**.
2. Click **New** and then press ENTER or TAB.
3. In the **Buy-from Vendor No.** field, enter 30000.
4. In the **Vendor Invoice No.** field, type 123455.
5. On the **Lines** FastTab, in the **Type** field, select Item.
6. In the **No.** field, enter 80216.
7. In the **Location Code** field, enter BLUE.
8. In the **Quantity** field, type 20.
9. On the **Lines** FastTab, click the **Actions** menu, point to **Line** and then click **Item Tracking Lines**.
10. On the first line, in the **Lot No.** field, type LOT10.
11. In the **Quantity (Base)** field, type 10.
12. On the second line, in the **Lot No.** field, type LOT20.
13. In the **Quantity (Base)** field, type 10.
14. Click **OK** to close the **Item Tracking Lines** page.
15. On the Action Pane, click **Post**.
16. Click **OK** to receive and invoice the purchase order.

Steps: Sell Ethernet Cables

Susan, the order processor, receives an order from customer 10000 for six units of item 80216. She takes them from LOT10.

Follow these steps to process the sales order:

1. On **Orders & Contacts** page, click **Sales Orders**.
2. Click **New** and then press ENTER or TAB.
3. In the **Sell-to Customer No.** field, enter 10000.
4. On the **Lines** FastTab, in the **Type** field, select Item.
5. In the **No.** field, enter 80216.
6. Ensure that the **Location Code** field is set to BLUE.

7. In the **Quantity** field, type 6.
8. On the **Lines** FastTab, click the **Actions** menu, point to **Line** and then click **Item Tracking Lines**.
9. On the first line, in the **Lot No.** field, type LOT10.
10. In the **Quantity (Base)** field, type 6.
11. Click **OK** to close the **Item Tracking Lines** page.
12. On the Action Pane, click **Post**.
13. Click **OK** to ship and invoice the sales order.

Susan receives an order from customer 20000 for 14 units of item 80216. Because only four remain in LOT10, she must split the order between LOT10 and LOT20.

Follow these steps to create the sales order:

1. On the **Sales Orders** list page, click **New** and then press ENTER or TAB.
2. In the **Sell-to Customer No.** field, enter 20000.
3. Click **Yes** to accept the credit limit message.
4. On the **Lines** FastTab, in the **Type** field, select Item.
5. In the **No.** field, enter 80216.
6. In the **Location Code** field, enter BLUE.
7. In the **Quantity** field, type 14.
8. On the **Lines** FastTab, click the **Actions** menu, point to **Line** and then click **Item Tracking Lines**.
9. On the first line, in the **Lot No.** field, enter LOT10.
10. In the **Quantity (Base)** field, type 4.
11. On the second line, in the **Lot No.** field, enter LOT20.
12. In the **Quantity (Base)** field, type 10.
13. Click **OK** to close the **Item Tracking Lines** page.

Prior to shipping, John, the warehouse worker notices that only two units can be shipped from LOT10 because the other two have been misplaced. He contacts Susan who confirms the partial delivery with the representative from customer 20000.

Follow these steps to partially receive the sales order to customer 20000:

1. In the **Qty. to Ship** field, type 12.
2. On the **Lines** FastTab, click the **Actions** menu, point to **Line** and then click **Item Tracking Lines**.
3. On the first line, in the **Qty. to Handle (Base)** field, type 2.

4. Click **OK** to close the **Item Tracking Lines** page.
5. On the Action Pane, click **Post**.
6. Click **Ship** and then click **OK**.
7. Click **OK** to close the sales order.

Steps: Trace from Usage to Origin

Ricardo is acting on a sales return of item 80216, Ethernet Cable. The customer, The Cannon Group, stated that the cables appear to be wired incorrectly because although they test well with a cable tester, communication using them is inconsistent. Quality Control (QC) engineers have confirmed that the cables are defective. The quality controller must now determine:

- Which lot of cables is faulty?
- On which purchase order was the faulty lot received?

From the Sales Department, Ricardo knows the returned cables were on shipment number 102035. From the usage of item 80216 on that sales shipment, he must first trace the origin to establish which lot number the faulty cables came from.

The results of this first item tracking task will identify which items are defective and which vendor supplied them. Afterward, but in the same overall tracking process, Ricardo must find all the sold cables from the faulty lot so that those orders can be stopped or recalled. This second item tracking task is performed by tracing from origin to usage. Refer to the "Trace from Origin to Usage" demonstration.

Follow these steps to determine which lot is faulty:

1. On the **Warehouse** page, click **Tasks** and then click **Item Tracing**.
2. In the **Item Filter** field, enter 80216.

3. Ensure that the **Show Components** field is set to Item-tracked Only and the **Trace Method** field is set to Usage -> Origin.
4. On the Action Pane, click **Trace**.

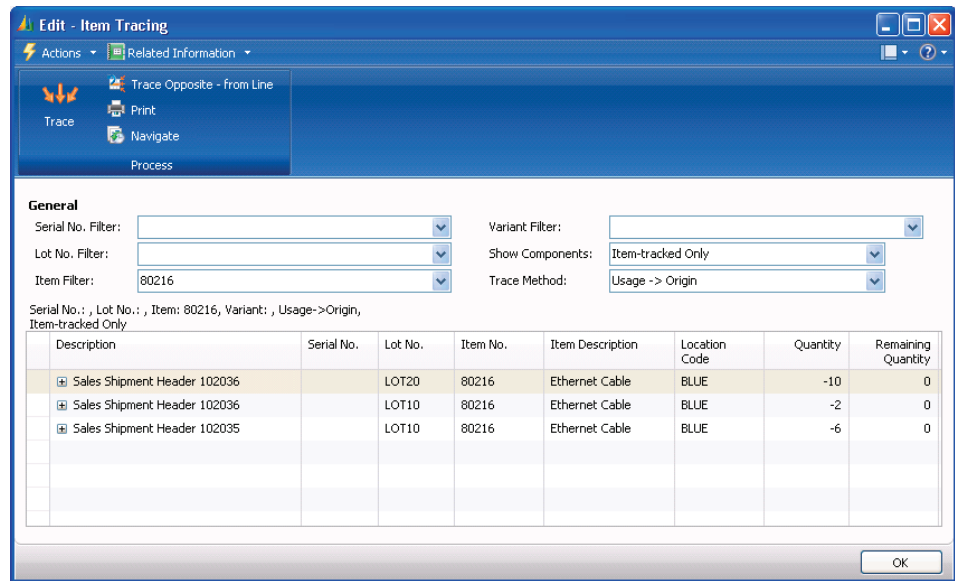


FIGURE 6.26 COLLAPSED TRACE RESULT OF USAGE – ORIGIN FOR ITEM 80216

Three sales shipment headers match the search criteria. Before continuing the trace, verify that shipment 102035 is the one that shipped the faulty cables to The Cannon Group PLC.

5. Click the **Description** field on the tracing line to open the posted sales shipment. Review and then close the posted shipment.

Ricardo sees that the faulty cables are from LOT10. He continues to trace the origin of this sales shipment.

6. Click the plus icon on the tracing line to expand and trace backward in the chain of transactions that sales shipment 102035 originates from.

The lowest posted document in this trace is the posted purchase receipt on which Ethernet cables with LOT10 entered inventory.

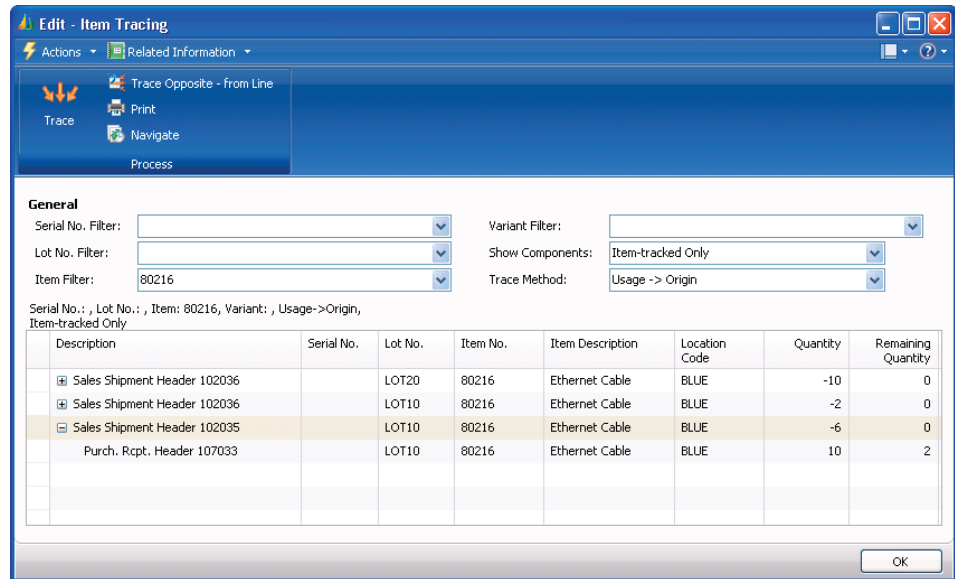


FIGURE 6.27 EXPANDED TRACE RESULT OF USAGE – ORIGIN FOR ITEM 80216

Ricardo has now established which lot of cables is faulty and he can click the last tracing line to see which vendor supplied them, namely CoolWood Technologies.

ATTENTION: Do not modify the trace result any further.

Now, QC staff will examine the rest of LOT10 and then suggest a purchase return process through the Purchasing Department.

The quality controller must determine if other posted sales documents carried the faulty Ethernet cables.

Demonstration: Trace from Origin to Usage

This demonstrates how Microsoft Dynamics NAV supports the defects management tasks involved in determining where the defective items are used since they arrived.

Scenario: Ricardo has established that the faulty cables came from LOT10. He must now determine which other sales shipments contain item 80216, LOT10.

One way to prepare the next trace is to manually enter LOT10 in the **Lot No. Filter** field and 80216 in the **Item Filter** field. However, this demonstration will use the Trace Opposite - from Line function.

Follow these steps to the trace result of the previous demonstration:

1. In the **Item Tracing** page that contains the results of the initial trace of usage to origin, click the purchase receipt (the last trace line) and then on the Action Pane, click **Trace Opposite - from Line**.

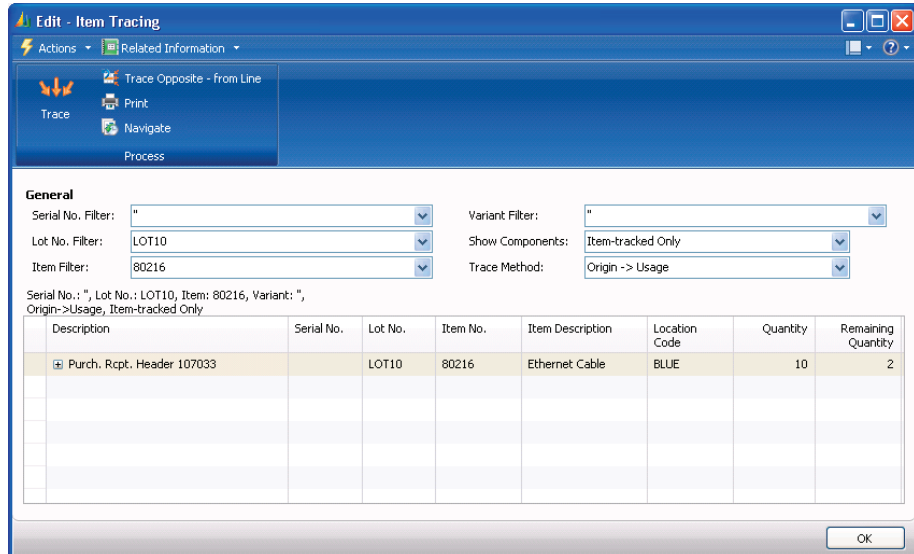


FIGURE 6.28 COLLAPSED TRACE RESULT OF ORIGIN – USAGE FOR LOT LOT10 AND ITEM 80216

The created trace result is based on the filters of the trace line for the purchase receipt (LOT10 and item 80216), and on the opposite trace method, namely Origin -> Usage.

To obtain an overview of all uses, continue to expand all trace lines.

2. Right-click any tracing line and then select **Expand All**.

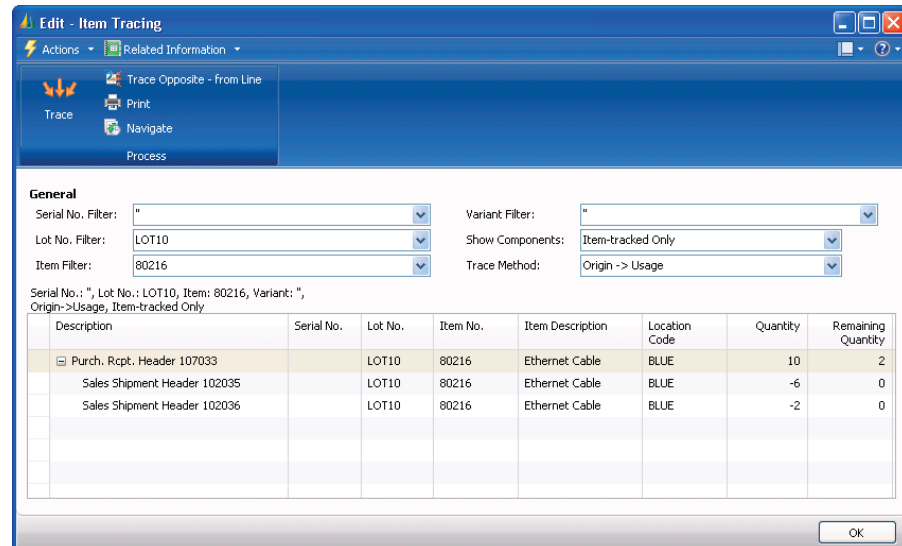


FIGURE 6.29 EXPANDED TRACE RESULT OF ORIGIN – USAGE OF LOT LOT10 AND ITEM 80216

The second trace line refers to the sales shipment to The Cannon Group PLC, which is already resolved. The next line indicates to Ricardo that more cables from purchase receipt 107033 were sold with sales shipment 102036. Ricardo immediately informs the Sales Department so that they can initiate a recall of the defective cables from customer 20000, Selangorian Ltd.

The trace result reveals no other orders are affected by the faulty lot of Ethernet cables; at least no orders that are represented by posted documents.

The item tracking tasks for this demonstration are now complete regarding the **Item Tracing** page. However, since the item tracing feature is based on posted entries only, Ricardo must continue to the **Navigate** feature to make sure that LOT10 is not used in unposted documents. Refer to the "Find all Occurrences of LOT10" demonstration.

This completes the description of the Item Tracing feature and demonstrations of how to use it for typical item tracking tasks.

Navigate with Serial/Lot Numbers

To support many different item tracking tasks, the Navigate feature in Microsoft Dynamics NAV provides a global search through all records that contain serial/lot numbers. Contrary to the Item Tracing feature, Navigate will find posted and open documents, and it will even find master data such as serial/lot number information cards. However, it does not provide information about item flows or document relations as the **Item Tracing** page does.

Navigate Page

The global item tracking functionality is provided with the **Item Tracking** FastTab on the **Navigate** page.

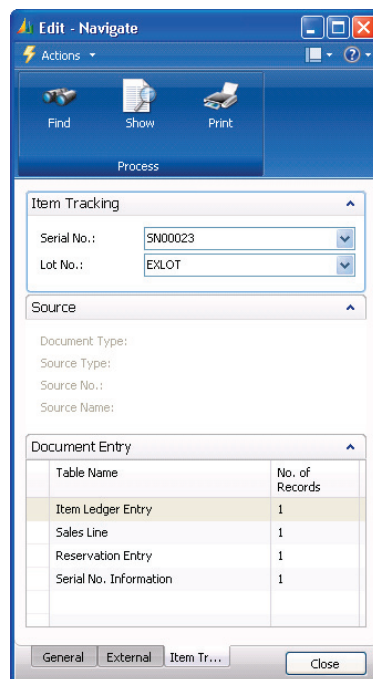


FIGURE 6.30 NAVIGATE PAGE, ITEM TRACKING FASTTAB

This FastTab enables a global search in the database for all records that contain either the serial number that is specified in the **Serial No.** field or the lot number that is specified in the **Lot No.** field.

When both fields in the header contain a value to find, only records where both values occur will be displayed. Accordingly, the search will typically yield more results when only one field is filled. This search limitation does not apply to records of type Serial No. Information or Lot No. Information; they will both be included in the result if an information card exists for each serial number and lot number that is specified.

When the **Navigate** page is opened from, for example, a lot number information card, the **Lot No.** field will be preset with that lot number.

Demonstration: Find all Occurrences of LOT10

This demonstrates how Navigate can be used in defects management to find serial/lot numbers in database records other than posted entries. It is a continuation of the item tracing demonstrations.

Scenario: With the Item Tracing feature, Ricardo, the quality controller found out that LOT10 contained the faulty Ethernet cables. He must now determine if LOT10 exists in any open documents.

Start from the trace result of the "Trace from Origin to Usage" demonstration.

1. In the **Item Tracing** page, click the first trace line, the purchase receipt of LOT10.
2. On the Action Pane, click **Navigate**.

The page is preset with the search result for LOT10. Ricardo recognizes most of the found records as pertaining to documents already identified in the **Item Tracing** page. However, the second Navigate line of type Sales Line stands out as an unposted document line so he continues to investigate.

3. Click the second line, Sales Line, in the **Navigate** page.
4. On the Action Pane, click **Show**.

Document Type	Document No.	Sell-to Customer No.	Type	No.	Description	Location Code	Quantity	Outstanding Quantity
Order	1008	20000	Item	80216	Ethernet Cable	BLUE	14	2

FIGURE 6.31 UNPOSTED SALES LINE FOR DEFECTIVE ETHERNET CABLES

Ricardo sees one open sales line for the faulty Ethernet cables. He immediately suggests to the Sales Department that this order be canceled.

This completes the description and short demonstration of the extended Navigate function for item tracking and how it ties in to a complete defects management process.

Lab 6.3 - Trace Item from Serial Number

Scenario

A representative from customer 20000 orders one unit of item 80102-T to ship from the SILVER warehouse. After shipment, he or she calls to say that the monitor is not working and it will be returned.

As the quality controller, you must locate which vendor you purchased this item from. When you receive the item, you note the serial number is 334.

Use the item tracing feature to trace serial number 334 for item 80102-T to the original purchase receipt.

***NOTE:** You must complete the "Assign Serial/Lot Numbers to a Partial Receipt and Put-Away" demonstration to perform this lab.*

Challenge Yourself!

1. Create the sales order to customer 20000 for one unit of item 80102-T, serial number 334, from the SILVER location.
2. Use the serial number to identify the vendor who sold the item.

Need a Little Help?

1. Create a sales order to customer 20000 for one unit of item 80102-T.
2. Open the **Item Tracking Lines** page and assign serial number 334.
3. Ship and invoice the order.
4. Open the **Item Tracing** page.
5. Enter the serial number and trace to the purchase receipt using the Origin -> Usage method.
6. Open the purchase receipt to identify the vendor who sold the item.
7. Expand the receipt and then open the shipment to confirm the shipment is to customer 20000.

Step by Step

Follow these steps to process the sales order:

1. On the **Warehouse** page, click **Orders & Contacts** and then click **Sales Orders**.
2. Click **New** and then press ENTER or TAB.
3. In the **Sell-to Customer No.** field, enter 20000.
4. On the **Lines** FastTab, in the **Type** field, select Item.

5. In the **No.** field, enter 80102-T.
6. In the **Location Code** field, enter SILVER.
7. In the **Quantity** field, type 1.
8. On the **Lines** FastTab, click the **Actions** menu, point to **Line** and then click **Item Tracking Lines**.
9. On the first line, in the **Serial No.** field, type 334.
10. In the **Quantity (Base)** field, type 1.
11. Click **OK** to close the **Item Tracking Lines** page.
12. On the Action Pane, click **Post**.
13. Click **OK** to ship and invoice the sales order.

Follow these steps to trace the item to the purchase receipt:

1. On the **Warehouse** page, click **Tasks** and then click **Item Tracing**.
2. In the **Serial No. Filter** field, enter 334.
3. In the **Trace Method** field, enter Origin -> Usage.
4. On the Action Pane, click **Trace**.
5. Click the **Description** field on the Purchase Header Receipt line to locate the vendor.
The vendor who sold this item was London Postmaster.
6. Close the **Posted Purchase Receipt** page.
7. Click the **Description** field on the Sales Shipment Header line to confirm it is the shipment to customer 20000.

Print Serial/Lot Number Documents and Reports

Serial/lot number information can be included in many different printouts, such as inventory picking lists and customer correspondence like order confirmations and sales shipment documents.

All printed documents and reports that hold item information can be set up to also print related serial/lot number information by these features:

- The Item Tracking Appendix report can be printed for relevant sales and purchase documents carrying serial/lot numbers.
- In selected warehouse activity documents, the request form has a **Show Serial/Lot Number** check box to include serial/lot numbers in the report.
- The Item Tracking Appendix report can be used to customize existing reports. For example, the standard Sales - Shipment report includes the item tracking customizations.

Item Tracking Appendix Report

For the most common printed sales and purchase documents that display item information, the Item Tracking Appendix report can be printed and appended to, for example, the order confirmation printout, before it is sent to customers.

The feature is based on a generic report that can be set up to print serial/lot numbers for a certain document type and number defined on the request form. The report is accessed from the **Documents** page of sales and purchase navigation pane pages. For example, to access the report from the **Sales & Marketing** page, click **Documents** and then click **Item Tracking Appendix**.

Refer to the "Print an Item Tracking Appendix" demonstration.

The Item Tracking Appendix report can be generated for business documents based on the following tables:

- Sales Header
- Sales Shipment Header
- Sales Invoice Header
- Purchase Header

This means that the report can be printed for all relevant sales and purchase documents that use any of these four tables. These include quotes, invoices, credit memos, returns, and blanket orders.

Foundation for Customization

The generic Item Tracking Appendix report can be used to customize existing reports.

The suggested customization provides order processors with the option to append additional report pages that specify serial/lot numbers assigned to the items specified in the main document printout, such as, an order confirmation.

As previously stated, the standard Sales - Shipment report includes the Item Tracking Appendix customizations. When the **Show Serial/Lot Number Appendix** check box is selected on the request form, the serial/lot numbers assigned to the items appear on the report.

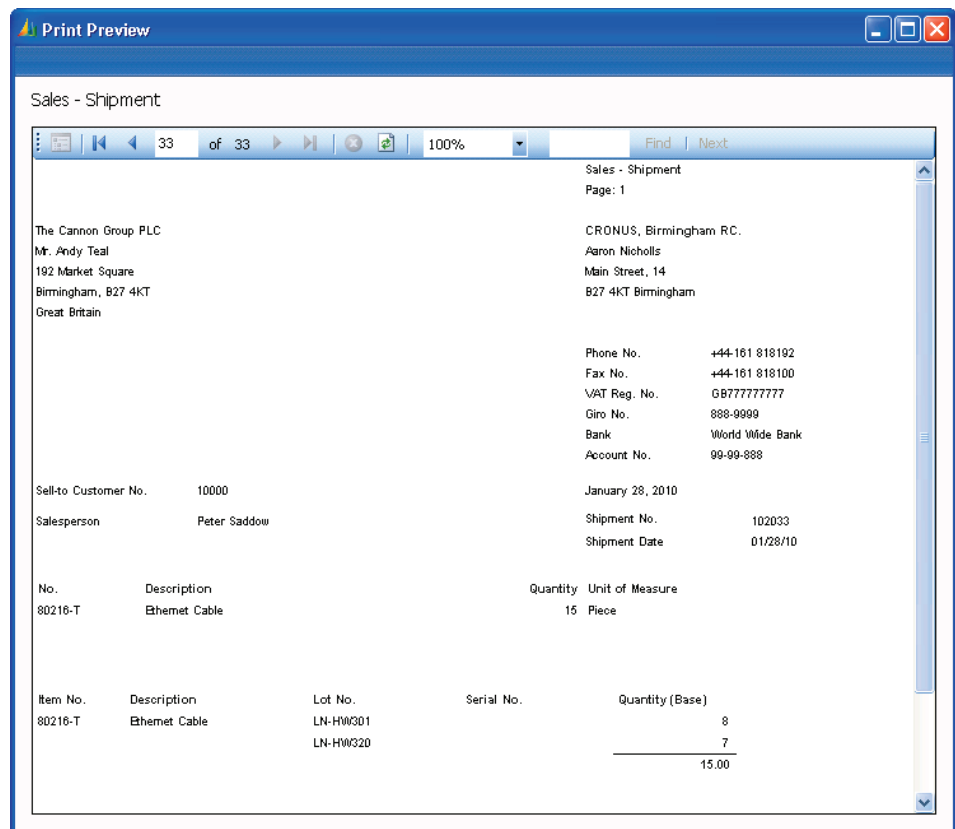


FIGURE 6.32 SALES SHIPMENT REPORT THAT SHOWS SERIAL/LOT NUMBERS

See the Appendix topic, "Customizing Item Tracking Reports", for the development steps to customize a serial/lot number report.

Demonstration: Print an Item Tracking Appendix

This demonstrates how to prepare a printout of serial/lot number information related to a specific sales order. The report is generated as a stand-alone. This means that it is not appended directly to the sales order printout.

Scenario: CRONUS customer 10000, The Cannon Group PLC, has requested that lot number information is included with the order confirmation of their recent order for Ethernet cables, sales order number 1003.

Follow these steps to open the Item Tracking Appendix report for sales order 1003:

1. On the Sales & Marketing page, click Documents and then click Item Tracking Appendix.
2. In the **Item Tracking Appendix** request form, enter Sales Order in the **Document** field and then type 1003 in the **Document No.** field.

If no document number is defined, the report will print Item Tracking Appendix report pages for all sales orders with serial/lot numbers.

3. Click **Preview**.

The report can now be printed and/or sent to the customer as a specification of serial/lot numbers together with the sales order confirmation.

Alternatively, if the order confirmation report is customized to include serial/lot number information, the appendix will automatically be printed after the order confirmation, if the option is selected.

Demonstration: Preview When Inventory Items Expire

This demonstrates how to prepare a report that shows which inventory items have expiration dates and when they expire.

Scenario: Alicia, the purchasing agent in charge of replenishing items with expiration date control, decides to run a report to check which items have expired and if any reordering is needed.

Follow these steps to preview the Item Expiration - Quantity report:

1. On the **Purchase** page, click **Inventory & Costing**, and then under Reports, click **Item Expiration - Quantity**.
2. On the **Options** FastTab, enter 01/28/10 in the **Ending Date** field, and type 1Y in the **Period Length** field.

The report calculates backward from the date in the **Ending Date** field and sets up three periods of the length specified in the **Period Length** field. Accordingly, this particular report will compare the current year with the two previous years.

3. Click **Preview**.

Item No.	Description	...before	1/29/2007	1/29/2008	1/29/2009	after ...	Inventory
80102-T	17" M780 Monitor	0	2	1	0	0	3
80103-T	19" M009 Monitor	0	0	0	10	0	10

FIGURE 6.33 ITEM EXPIRATION REPORT FOR THE YEAR 2010

Notice that the 17" and the 19" monitors are the only inventory items that carry expiration dates. Concerning item 80102-T, two pieces expired in 2008, and one piece expired in 2009.

Reserve Items With Serial/Lot Numbers

In environments that use specific serial number tracking, the program is programmed to assist outbound order handlers by trying to resolve any availability conflicts that occur when reservations and serial/lot numbers are combined.

The concept of Late Binding ensures that a non-specific reservation (user does not care which) of a serial/lot number remains loosely coupled until posting. At posting time, the program can reshuffle non-specific reservations to ensure that fixed application is possible against the serial/lot number actually picked. Meanwhile, the serial/lot number is made available for specific reservation (user does care which) in other documents requesting that particular serial/lot number.

NOTE: *The Late Binding functionality only relates to items set up with specific tracking and only applies to reservations against inventory, instead of to supply such as purchase orders.*

***BEST PRACTICES:** The information and warnings about serial/lot number availability helps avoid conflicts between reservations and serial/lot numbers because outbound order handlers will have less reason to reserve serial/lot numbers. Refer to the "Sell from a Specific Lot" demonstration for tips about how to help secure a serial/lot numbered supply.*

Specific Reservation

Late Binding includes two states for reservation entries: specific and non-specific. A specific reservation is a regular reservation, that is, a rigid link between supply and demand, where both carry serial/lot numbers. The demand must carry serial/lot number to be a specific reservation.

An example of a specific reservation is when a user requests the M780 monitor that carries serial number SN00023, and not just any M780 monitor.

Non-specific Reservation

A non-specific reservation is a state imposed on reservation entries for serial/lot numbers that are not selected specifically. In that case, the demand does not carry serial/lot numbers.

An example of non-specific reservation is when a user requests any M780 monitor, not a specific serial number. The user has then reserved any item that carries a serial/lot number, and the program non-specifically reserves the serial/lot number in question.

The main difference between specific and non-specific reservation is defined by the existence of serial/lot numbers on the demand side, as displayed in the following table.

	Supply	Demand
Specific	SN/Lot	SN/Lot
Non-Specific	SN/Lot	

Reshuffle

When a user posts an outbound document after picking the wrong serial/lot number, other non-specific reservations are reshuffled to reflect the actual serial/lot number that is picked. This satisfies the posting engine with a rigid link (fixed application) between supply and demand.

For all supported business scenarios, reshuffling will only be possible against positive item ledger entries that carry reservation and serial/lot numbers, but without serial/lot numbers defined on the demand side.

The reasons that the late binding system only focuses on reservations made against inventory is that this is the most important customer problem, another is that the implementation is less complex.

Supported Business Scenarios

The late binding solution involves functionality for three different business scenarios of serial/lot number reservation against inventory:

- Enter a specific serial/lot number on an outbound document with a non-specific reservation of a "wrong" serial/lot number.
- Reserve specific serial/lot number.
- Post an outbound document with a non-specific reservation of serial/lot numbers.

Enter an Outbound Document with Non-Specific Reservation

Entering a picked serial/lot number on an outbound document with non-specific reservation of a wrong serial/lot number is a business scenario that is the most common of the three supported scenarios. In this case, the Late Binding functionality ensures that a user can enter a specific picked serial/lot number on an outbound document that already has a non-specific reservation of another serial/lot number. The need arises, for example, when an order processor has at first made a non-specific reservation (of any serial/lot number). Later when the physical item is picked from inventory, the picked serial/lot number must be entered on the order before posting it.

The late binding feature ensures that users can enter the picked serial/lot number without losing a reservation. The feature therefore ensures that the picked serial/lot number can be fully applied and posted.

Reserve Specific Serial/Lot Numbers

This business scenario is supported with Late Binding functionality that ensures a user trying to reserve a particular serial/lot number, that is currently non-specifically reserved, can do so. This is facilitated as the program tries to reshuffle a non-specific reservation to free it for a specific request.

The functionality happens automatically, but embedded help is displayed in the bottom of the **Reservation** page showing the following text:

"XX of the Total Reserved Quantity are non-specific and may be available."

The **Non-specific Reserved Qty.** field displays how many reservation entries are non-specific. By default, this field is not visible to users.

Post an Outbound Document with a Non-Specific Reservation of Serial/Lot Numbers

This business scenario is supported with Late Binding functionality that enables fixed application and outbound posting of what is actually picked by reshuffling other non-specific reservations of serial/lot numbers. If the program cannot reshuffle, the standard inventory error ("cannot be fully applied") will appear when the user tries to ship.

Summary

Microsoft Dynamics NAV offers a comprehensive set of features for the handling of serial/lot numbers when items are inbound, on inventory, and outbound, such as:

- On inbound orders, assigning serial/lot numbers to items on purchase orders, receipts, drop shipments, and production output, and receiving items with expiration dates.
- On inventory, assigning serial/lot numbers on transfer orders, and reclassifying and counting items that use serial/lot numbers.
- On outbound orders, assigning serial/lot numbers to items on sales orders and shipments, selling serial/lot numbers from a specific bin, and selling the first serial/lot numbered item(s) to expire.

In addition, the industry-required transparency of item tracking information is provided, whether for FEFO-managed inventory or for quality control processes.

There are two Item Tracing features – Item Tracing and Navigate – that allow users to see where an item-tracked item was used, including how and when it was received or produced, transferred, sold, consumed, or returned.

With the use of serial/lot numbers and the Item Tracing features in Microsoft Dynamics NAV, users can more easily meet certain traceability requirements of the U.S. Food and Drug Administration and the European Union and minimize the work load involved in finding and recalling defective items.

Test Your Knowledge

Test your knowledge with the following questions.

1. To set up an item to be tracked by serial number, first specify a _____ on the item card, which specifies which transactions must contain a serial number for the item.

2. Which of the following are valid features used in the **Item Tracking Lines** page? (Select all that apply)
- Availability
 - Search function
 - Ability to select multiple entries
 - Create Customized Lot function
3. What is the definition of Current Pending Quantity?
- Quantity requested on another outbound order.
 - Quantity remaining to be entered in the item tracking line.
 - Quantity committed to the database but not yet posted.
 - Quantity entered in the item tracking line, but not yet committed to the database.
4. On which calculation formula is the serial/lot number availability based?
- Available = quantity in inventory - all demands
 - Available = quantity in inventory - (all demands + quantity in the current ITL page committed to the database)
 - Available = quantity in inventory - (all demands + quantity in the current ITL page not yet written to the database)
 - Available = quantity in inventory - (all demands - quantity in the current ITL page not yet written to the database)

5. In which warehouse documents can serial/lot numbers be auto-picked according to FEFO?
- Inventory Pick, Warehouse Pick
 - Inventory Pick, Warehouse Pick, Warehouse Movement, Warehouse Internal Pick
 - Warehouse Pick, Warehouse Movement, Warehouse Internal Pick
 - Inventory Pick, Warehouse Pick, Warehouse Movement

6. Outline the physical inventory counting process for serial/lot numbered inventory (not using Warehouse Management System functionality).

Step:

_____: Write counted serial/lot number quantities in the dedicated empty line.

_____: Calculate inventory in the physical inventory journal.

_____: Print the physical inventory list showing the serial/lot numbers.

_____: Go to the **Item Tracking Lines** page to specify which serial/lot numbers.

_____: Post the journal.

_____: Enter the counted quantities in the **Qty. (Phys. Inventory)** field of the Phys. Inventory Journal.

7. Which type of entries display posted serial or lot number transactions?
- Value Entries
 - Item Tracking Entries or Item Ledger Entries
 - General Ledger Entries
 - Item Tracing Entries
8. What are the three basic preconditions of the Item Tracing feature? (Select all that apply)
- Items must be set up for specific tracking.
 - Items must be set up with any item tracking code.
 - It tracks items with serial/lot numbers only.
 - It uses posted entries only.

9. Outline the business needs of the two trace methods, respectively.

10. Which Item Tracing function is best suited when the source of a defect is found and the usage of that defect must also be found?

- Set Filters with Line Values
- Trace Opposite - from Line
- Set Filters with Line Values + trace with opposite trace method
- Trace opposite - From Line + Next Trace Result

11. Which statements are valid about the differences between Item Tracing and the Navigate feature? (Select all that apply)

- Item Tracing shows open as well as posted entries containing the search value.
- Navigate shows all records containing the search value.
- Navigate shows the relations between entries.
- Item Tracing shows entry history.

12. Which tables are enabled for customization of the Item Tracking Appendix report by default?

13. Explain why the Item Tracking Appendix report cannot be customized for warehouse activity documents.

14. Name at least two warehouse reports that can be printed with serial/lot numbers.

15. Which statements are true about the Item Expiration - Quantity report?
(Select all that apply)

- The Item Expiration - Quantity report has the same layout as the Item Age Composition - Value report.
- The Item Expiration - Quantity report is based on expiration date.
- Item Expiration - Quantity report will only display inventory items with expiration date.
- The Item Expiration - Quantity report is based on posting date.

16. Explain the difference between specific and non-specific reservations.

Quick Interaction: Lessons Learned

Take a moment and write down three key points you have learned from this chapter:

1.

2.

3.

Solutions

Test Your Knowledge

1. To set up an item to be tracked by serial number, first specify a _____ on the item card, which specifies which transactions must contain a serial number for the item.

MODEL ANSWER:

Item tracking code

2. Which of the following are valid features used in the **Item Tracking Lines** page? (Select all that apply)
- Availability
 - Search function
 - Ability to select multiple entries
 - Create Customized Lot function
3. What is the definition of Current Pending Quantity?
- Quantity requested on another outbound order.
 - Quantity remaining to be entered in the item tracking line.
 - Quantity committed to the database but not yet posted.
 - Quantity entered in the item tracking line, but not yet committed to the database.
4. On which calculation formula is the serial/lot number availability based?
- Available = quantity in inventory - all demands
 - Available = quantity in inventory - (all demands + quantity in the current ITL page committed to the database)
 - Available = quantity in inventory - (all demands + quantity in the current ITL page not yet written to the database)
 - Available = quantity in inventory - (all demands - quantity in the current ITL page not yet written to the database)
5. In which warehouse documents can serial/lot numbers be auto-picked according to FEFO?
- Inventory Pick, Warehouse Pick
 - Inventory Pick, Warehouse Pick, Warehouse Movement, Warehouse Internal Pick
 - Warehouse Pick, Warehouse Movement, Warehouse Internal Pick
 - Inventory Pick, Warehouse Pick, Warehouse Movement

6. Outline the physical inventory counting process for serial/lot numbered inventory (not using Warehouse Management System functionality).

Step:

3 : Write counted serial/lot number quantities in the dedicated empty line.

1 : Calculate inventory in the physical inventory journal.

2 : Print the physical inventory list showing the serial/lot numbers.

5 : Go to the **Item Tracking Lines** page to specify which serial/lot numbers.

6 : Post the journal.

4 : Enter the counted quantities in the **Qty. (Phys. Inventory)** field of the Phys. Inventory Journal.

7. Which type of entries display posted serial or lot number transactions?
- Value Entries
 - Item Tracking Entries or Item Ledger Entries
 - General Ledger Entries
 - Item Tracing Entries
8. What are the three basic preconditions of the Item Tracing feature? (Select all that apply)
- Items must be set up for specific tracking.
 - Items must be set up with any item tracking code.
 - It tracks items with serial/lot numbers only.
 - It uses posted entries only.
9. Outline the business needs of the two trace methods, respectively.

MODEL ANSWER: Usage to Origin: This method traces the item starting from where it is used and backward to where it came from. Origin to Usage: This method traces the item starting from where it came and forward to where it is used.

10. Which Item Tracing function is best suited when the source of a defect is found and the usage of that defect must also be found?
- Set Filters with Line Values
 - Trace Opposite - from Line
 - Set Filters with Line Values + trace with opposite trace method
 - Trace opposite - From Line + Next Trace Result

11. Which statements are valid about the differences between Item Tracing and the Navigate feature? (Select all that apply)

- Item Tracing shows open as well as posted entries containing the search value.
- Navigate shows all records containing the search value.
- Navigate shows the relations between entries.
- Item Tracing shows entry history.

12. Which tables are enabled for customization of the Item Tracking Appendix report by default?

MODEL ANSWER: Sales Header, Sales Shipment Header, Sales Invoice Header, and Purchase Header.

13. Explain why the Item Tracking Appendix report cannot be customized for warehouse activity documents.

MODEL ANSWER: Printed warehouse activity documents, including those printed from worksheets and journals, may consist of split lines, which is not supported by the generic Item Tracking Appendix report.

14. Name at least two warehouse reports that can be printed with serial/lot numbers.

MODEL ANSWER: Put-away List, Picking List, Warehouse Movement, Internal Pick, Internal Put-Away, Phys. Inventory List, or Whse. Phys. Inventory List.

15. Which statements are true about the Item Expiration - Quantity report? (Select all that apply)

- The Item Expiration - Quantity report has the same layout as the Item Age Composition - Value report.
- The Item Expiration - Quantity report is based on expiration date.
- Item Expiration - Quantity report will only display inventory items with expiration date.
- The Item Expiration - Quantity report is based on posting date.

16. Explain the difference between specific and non-specific reservations.

MODEL ANSWER: A specific reservation is when the user reserves a specific serial/lot number on the demand side. A non-specific reservation is when the user reserves any item on the demand side, and the program decides which serial/lot number to reserve.

