

*Industry-specific*

**QAD SOLUTIONS**

*Manufacturing Applications*

# **MFG/PRO eB2 User Guide Volume 2A Distribution**

Purchasing  
Global Requisition System (GRS)  
Sales Quotations  
Sales Orders/Invoices  
Available to Promise  
Shipping  
Enterprise Material Transfer (EMT)  
Configured Products  
Consolidated Order Processing  
Sales Analysis



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# About This Guide

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This guide consists of two volumes, which describe features of the MFG/PRO Distribution modules:

- Volume 2A covers such functions as purchase orders, sales orders/invoices, and shipping.
- Volume 2B covers the two consignment modules—Customer Consignment Inventory and Supplier Consignment Inventory.

### Other MFG/PRO Documentation

- For an overview of new features and software updates, see the *Release Bulletin*.
- For software installation instructions, refer to the appropriate installation guide for your system.
- For conversion information, refer to the *Conversion Guide*.
- For instructions on navigating and using the QAD Desktop interface, see *User Guide: QAD Desktop*.
- For instructions on navigating the MFG/PRO Windows and character environments, refer to *User Guide Volume 1: Introduction*.
- For information on using MFG/PRO, refer to the *User Guides*.
- For technical details, refer to *Entity Diagrams* and *Database Definitions*.
- For information on using features that let MFG/PRO work with external applications, see the *External Interface Guides*. Each book in this set describes a separate interface such as the Warehousing application program interface (API) and Q/LinQ, the tool set for building and using data exchange tools.
- To view documents online in PDF format, see the *Documents on CD* and *Supplemental Documents on CD*. The CD-ROM media includes complete instructions for loading the documents on a Windows network server and making them accessible to client computers.

**Note** MFG/PRO installation guides are not included on a CD. Printed copies are packaged with your software. Electronic copies of the latest versions are available on the QAD Web site.

## Online Help

MFG/PRO has an extensive online help system. Help is available for most fields found on a screen. Procedure help is available for most programs that update the database. Most inquiries, reports, and browses do not have procedure help.

For information on using the help system in the different MFG/PRO environments, refer to *User Guide Volume 1: Introduction* and *User Guide: QAD Desktop*.

## QAD Web Site

QAD's Web site provides a wide variety of information about the company and its products. You can access the Web site at:

<http://www.qad.com>

For MFG/PRO users with a QAD Web account, product documentation is available for viewing or downloading at:

<http://support.qad.com/documentation/>

You can register for a QAD Web account by accessing the Web site and clicking the Accounts link at the top of the screen. Your customer ID number is required. Access to certain areas is dependent on the type of agreement you have with QAD.

Most user documentation is available in two formats:

- Portable document format (PDF). PDF files can be downloaded from the QAD Web site to your computer. You can view them with the free Adobe Acrobat Reader. A link for downloading this program is also available on the QAD Web site.
- HTML. You can view user documentation through your Web browser. The documents include search tools for easily locating topics of interest.

Features also include an online solution database to help MFG/PRO users answer questions about setting up and using the product. Additionally, the QAD Web site has information about training classes and other services that can help you learn about MFG/PRO.

## Conventions

MFG/PRO is available in several interfaces: Desktop (Web browser), Windows, and character. To standardize presentation, the documentation uses the following conventions:

- MFG/PRO screen captures show the Desktop interface.
- References to keyboard commands are generic. For example, choose Go refers to:
  - The forward arrow in Desktop
  - F2 in the Windows interface
  - F1 in the character interface

In the character and Windows interfaces, the Progress status line at the bottom of a program window lists the main UI-specific keyboard commands used in that program. In Desktop, alternate commands are listed in the right-click context menu.

For complete keyboard command summaries for each MFG/PRO interface, refer to the appropriate chapters of *User Guide: QAD Desktop* and *User Guide Volume 1: Introduction*.

This document uses the text or typographic conventions listed in the following table.

<b>If you see:</b>	<b>It means:</b>
monospaced text	A command or file name.
<i>italicized monospaced text</i>	A variable name for a value you enter as part of an operating system command; for example, <i>YourCDROMDir</i> .
indented command line	A long command that you enter as one line, although it appears in the text as two lines.
<b>Note</b>	Alerts the reader to exceptions or special conditions.
<b>Important</b>	Alerts the reader to critical information.
<b>Warning</b>	Used in situations where you can overwrite or corrupt data, unless you follow the instructions.

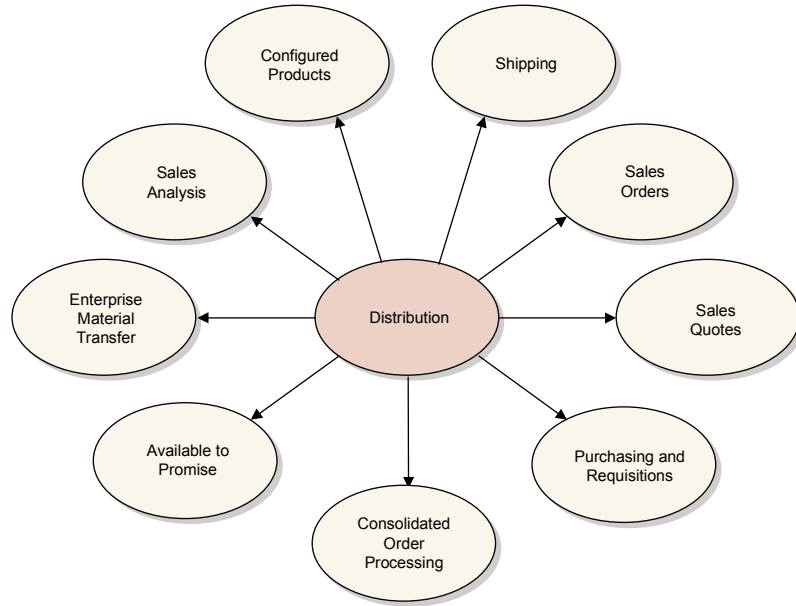


Chapter 1

# Introduction to Distribution

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Fig. 1.1  
Distribution



## Purchasing

▶ See “Purchasing” on page 9.

Purchasing provides comprehensive support for procuring components, materials, and supplies in a centralized or distributed environment. Features include:

- Creation and management of requisitions and purchase orders
- Integrated receiving and invoice vouchering
- Seamless integration with Inventory Control, Materials Requirements Planning (MRP), Quality Management, and Accounts Payable

## Global Requisition System

▶ See “Global Requisition System (GRS)” on page 41.

Global Requisition System (GRS) lets you create multiple-line purchase requisitions and route them through the approval process. Based on the type of purchase, the cost, and the requestor’s department, the system determines which individuals are authorized to approve the requisition. Optionally, GRS sends e-mail messages throughout the requisition life cycle to communicate status and required actions to originators, end users, reviewers, approvers, and buyers.

## Sales Quotations

Sales Quotations lets you respond to requests for quotations (RFQs), monitor statuses, calculate gross margins, retain histories by item and customer, and track unsuccessful quotes. Once accepted, sales quotes can be released to sales orders.

▶ See “Sales Quotations” on page 91.

## Sales Orders/Invoices

Sales Orders/Invoices lets you enter, price, and print sales orders, verify credit, allocate inventory, print picklists and packing lists, record shipment data, print invoices, and generate control reports. Sales Orders/Invoices is closely integrated with the Inventory Control, MRP, and Accounts Receivable modules to give a high level of control over the sales order process.

▶ See “Sales Orders/Invoices” on page 105.

## Available to Promise

Available to promise (ATP) is the uncommitted portion of inventory or planned production available to be promised to new orders. During order entry or confirmation, you can have the system check for adequate ATP before committing to a delivery date.

▶ See “Available to Promise” on page 133.

## Shipping

Shipping covers a wide range of features that support complex international shipping requirements. These requirements include numbering control, document formats, multiple carriers, and transaction-based security.

▶ See “Shipping” on page 147.

Advanced shipping programs such as Pre-Shipper/Shipper Workbench enable users to perform many functions in one place. Workbench automatically creates shippers for picklists and allows shipments to be containerized in a single process.

## Enterprise Material Transfer

- ▶ See “Enterprise Material Transfer (EMT)” on page 247.

Enterprise Material Transfer (EMT) supports automatic translation of sales orders into purchase orders. In companies using EDI ECommerce, EMT can transmit these purchase orders in electronic data interchange (EDI) format to secondary organizations that use different databases.

## Configured Products

- ▶ See “Configured Products” on page 301.

Configured Products lets you define a product structure that includes optional features and accessories. During sales order entry, you can accept a standard bill of material or select from a set of predefined features and options.

## Consolidated Order Processing

- ▶ See “Consolidated Order Processing” on page 317.

This chapter introduces topics on managing sales and purchase orders in a multisite, multi-database environment. Consolidated order processing affects programs in the Sales Orders/Invoices and Purchasing modules.

## Sales Analysis

- ▶ See “Sales Analysis” on page 337.

Sales Analysis lets you monitor salesperson productivity and effectiveness at maintaining margins. It gives greater visibility on sales by product line or item, and lets you rank items by sales, margin, or quantity.

# Purchasing

Purchasing provides comprehensive support for procuring components, materials, and supplies in a centralized or distributed environment.

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## Introduction

Purchasing lets you manage all aspects of ordering and receiving materials and services—requisitions, approvals, purchase orders, receipts, and returns. It supports purchasing of products as well as non-product materials and services—such as subcontracting services—and gives you the means to support discrete, process, and just-in-time (JIT) manufacturing.

### Effect of Optional Features

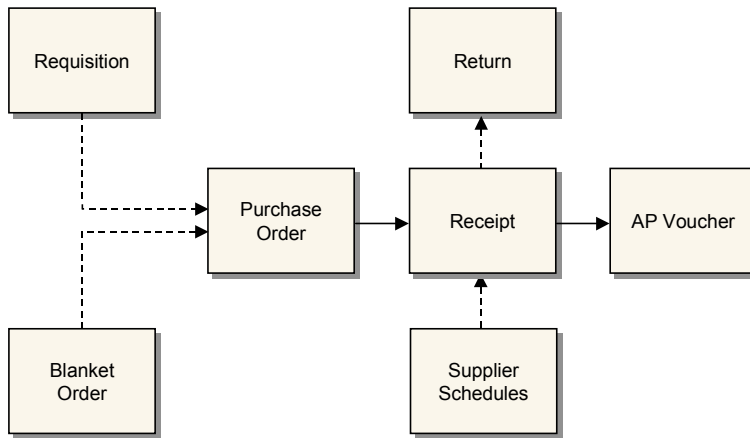
A number of optional features and modules affect the processing of purchase orders. Many of these options add additional pop-up windows that display during header or line-item entry. This chapter describes standard purchase orders. If you are using optional features, the following list indicates where you can find additional information when:

- You are using the optional Supplier Consignment Inventory module. The effect of this module in purchase orders is described in *User Guide Volume 2B: Distribution*.
- You are using the optional Logistics Accounting module. The effect of this module in purchase orders is described in *User Guide Volume 6: Master Data*.
- You are using the optional Enterprise Material Transfer (EMT) module. EMT automatically translates sales orders into purchase orders, which cannot be processed using standard purchase order features. EMT is described in Chapter 8.

▶ See page 247 for details.

### Purchasing

A purchase involves several steps. Often the first step is a requisition, which is the result of demands recognized by material requirements planning (MRP). An order is next, either a purchase order, a blanket order, or a supplier schedule. When the ordered goods arrive, a record is made called a receiver. If the goods are returned to the supplier, another record is made. The system keeps a record of each step.



**Fig. 2.1**  
Overview of  
Purchasing  
Activities

## Requisitions

A requisition is a record stating that an item is needed. Requisitions specify quantity, date needed, and place to be delivered. A requisition is often the first step of a purchase, although you can issue a purchase order without it. Create requisitions manually or by approving a planned order from MRP. Some companies also require approvals before requisitions become orders. The requisition's information is then transferred to a purchase order or a blanket order, and the requisition is deleted.

You can use standard requisition functions to manage requisitions, which are described in this chapter. If your company requires multi-line requisitions and complex approval cycles, you can use the optional Global Requisition System (GRS).

▶ See Chapter 3, “Global Requisition System (GRS),” on page 41.

## Purchase Orders

A purchase order is a contract with a supplier for items to be delivered on specified dates. It includes the delivery address, the terms of the agreement, tax data, and shipping costs.

## Receivers and Vouchers

A receiver is a record that goods have been received into inventory. Receivers update inventory balances and allow accounts payable to verify quantities and prices before paying suppliers.

As items are received into inventory, a supplier invoice for the items is typically received in accounts payable. Information from the invoice is recorded in a voucher. After verifying that no discrepancies exist among the voucher, the purchase order, and the receiver, accounts payable approves the voucher for payment.

▶ See *User Guide Volume 4A: Financials*.

Optionally, use Evaluated Receipts Settlement (ERS) to record a pending payment to a supplier without an invoice.

## Returns

A return is a record of purchased items returned to a supplier. If items are returned for exchange, a return transaction tracks the items. If they are returned for credit, a purchase order with a negative quantity adjusts supplier balances.

## Types of Purchase Orders

MFG/PRO supports three kinds of purchase orders:

- Discrete purchase orders
- Blanket purchase orders
- Supplier schedules

## Discrete Purchase Orders

Use these for single transactions with a supplier, where there is no assumption that further transactions will occur. Purchase orders contain a single delivery date for each line item. MRP treats purchase order items as supply, and assumes that ordered amounts will be available on the delivery date. Receipts can be processed against these purchase orders.

## Blanket Orders

Use these for multiple deliveries of stock items, where an ongoing relationship with the supplier is assumed, but exact delivery dates are yet to be determined. Quantities and due dates can be entered up to the time when a blanket order becomes a purchase order.

MRP ignores blanket orders, and receipts cannot be processed against them.

The system uses the blanket order as a template to create a purchase order when a release is made. However, once a blanket order is released, the resulting purchase order is treated like any other. Blanket orders can be released at specified intervals.

**Example** A manufacturer of circuit boards buys solder at irregular intervals, but always from the same supplier. A blanket order for 12 months is created. Each month an order for solder is released to the supplier, each order specifying a particular quantity.

## Supplier Schedules

A supplier schedule is an agreement with a supplier that guarantees a specified order level. Supplier schedules specify dates and even hours of delivery for the near term, and inform MRP and the supplier about long-term plans.

The header and trailer of a supplier schedule resemble those of a discrete purchase order for a single line item with multiple delivery dates.

However, the line item section of a supplier schedule has two parts:

- A short-term shipping schedule with exact quantities and delivery instructions
- A long-term planning schedule showing upcoming orders and authorizing the supplier to buy raw materials or make subassemblies

**Note** Standard MFG/PRO supplier schedules support a single schedule that combines short- and long-term requirements. If you have purchased the optional PRO/PLUS Supplier Shipping Schedules module, you can generate separate planning and shipping schedules.

▶ See *User Guide Volume 7: Release Management* for more information on supplier schedules.

▶ See *User Guide Volume 11: PRO/PLUS* for information.

Items listed in supplier schedules are seen by MRP as supply, and receipts can be processed against them. Supplier schedules are also used for multiple orders from a supplier who may need to adjust production to accommodate the orders.

**Tip**

For ongoing, irregular demands, use a blanket purchase order.

**Example** A manufacturer of circuit boards needs circuit board blanks supplied each week. The manufacturer knows its exact needs for the next four weeks and its approximate needs for the next 12 months. The supplier of the blanks uses the information in the supplier schedule to plan orders for raw materials and to plan production and deliveries.

## Creating Requisitions

▶ See “Global Requisition System (GRS)” on page 41.

The system provides two ways to manage purchase requisitions. Standard requisitions are created using functions on the Purchase Requisition Menu (5.1). If you have purchased the optional Global Requisition System (GRS), it is available as option 5.2.

Create standard requisitions manually with Purchase Requisition Maintenance (5.1.4) or by approving an MRP planned order with Planned Purchase Order Approval (23.11). The system refers to requisitions by requisition number.

Each requisition contains the following:

- One item number
- The quantity needed of the item
- The item’s unit of measure
- The site where the item will be received
- The date it is needed
- The ordering site

Use a requisition for non-inventory items—but not for subcontract purchases or supplier schedules. A requisition can use only the company base currency.

**Tip**

Small purchases may require a different supervisor’s approval than large purchases.

Use Requisition Approval Maintenance (5.1.16) to predefine approval levels. When a requisition is created, either manually or through MRP, the system determines the approval level. Approval codes can be set up for supervisors, sites, product lines, and purchase accounts.

The system always checks for approval codes, even when an order does not reference a requisition. When an approval code exists, you can prevent an item from being added to an order without a requisition by setting the value of Approved Requisitions for POs in Purchasing Control to Yes. Otherwise, a warning displays.

When a requisition is approved, it is considered open until a purchase order or blanket order references it. When an order references an open requisition, two things occur:

- The information from the requisition is transferred to the order, including item, quantity, unit of measure, unit cost, due date, Purchases account, and line type.
- The requisition quantity is decreased by the amount of the order. When the requisition quantity reaches zero, the requisition is automatically deleted.

Use Purchase Requisition Report (5.1.6) to generate reports showing supplier items, units of measure, quote prices, quote quantities, and lead times.

To specify suppliers or item prices, use a blanket order instead of a requisition.

**Tip**

Blanket orders consume open requisition quantities when purchase orders are released for the orders.

## Creating Purchase Orders

Use Purchase Order Maintenance (5.7) to create a purchase order, which includes three sections:

- The header contains the general terms of a contract, such as supplier name, ship-to address, currency (but not price), and delivery date. Some values can be updated during line-item entry.
- Each line specifies a particular item being ordered, its order quantity, and price. Line details include any exceptions to header information, such as a delivery date or receiving site, that apply to the line item only and not the whole order.
- The trailer contains tax, shipping, and order status information for all line items.

**Fig. 2.2**  
Purchase Order  
Maintenance (5.7)

The screenshot shows the 'Purchase Order Maintenance' window with the following data:

Purchase Order: PO1015			Supplier: 5017000			Ship-To: 10000005					
<b>Supplier</b>						<b>Ship To</b>					
Mission Bay Distributors						Quality Processes Inc.					
800 South Bay Drive						Div/Consolidated Coproration					
San Diego CA 90293						10 CNN Boulevard					
United States of America						Atlanta GA 30313					
United States of America						United States of America					
Order Date:	06/12/1992	Price Tbl:		Confirming:	<input checked="" type="checkbox"/>	Imp/Exp:	<input checked="" type="checkbox"/>				
Due Date:		Disc Tbl:		Currency:	USD	Language:					
Buyer:	KT	Ln Disc:	0.00%	Taxable:	<input type="checkbox"/>						
Bill To:	10000000	Site:		Fixed Price:	<input checked="" type="checkbox"/>	Consign:	<input type="checkbox"/>				
Sales/Job:		Project:		Credit Terms:	2/10-30		0.00				
Contract:				Entered By:	kph						
Contact:	Leslie Baker			Requested By:							
Remarks:	PREPAY ALL FREIGHT CHARGES										

## Header

Some header elements, such as Site, Due Date, and Sales/Job, become default values for the lines and can be changed during line item entry. Others, such as Supplier, apply to the entire purchase order and cannot be changed on the line level. Header fields with special significance to the PO include the following:

**Site.** This site entered on the header may or may not be the site where items are received. This site code displays as the default for each line item, but you can change it manually. If you leave the site code blank on the header, you must enter a site manually for each line item.

When you enter the voucher for this order, the system posts accounts payable amounts to the site entered on the header, regardless of the site receiving the shipments. All inventory transactions use the site entered on the line item receipt.

**Currency.** Specify the system base currency or an alternate currency. An order entered in an alternate currency can be paid in the alternate or the base currency.

When a non-base currency is entered, the system displays the effective exchange rate relationship and lets you override it.

**Price Tbl.** Enter a price list defined in the PO/RTS/Sched/RMA Recept Price Menu (1.10.2). These lists differ from those used for sales orders. Default price lists for purchase order headers can be specified in Supplier Maintenance (2.3.1). When a price list is referenced on an order, the system uses it to calculate the item's unit cost.

▶ See *User Guide Volume 6: Master Data* for more information on pricing and credit terms.

**Credit Terms.** The system supports proximo terms, end-of-week and end-of-fortnight dating, start dates for due date calculations (base date), and credit terms interest (for hyperinflationary environments).

### Line Items

Enter line items in single or multiple entry format. Single entry lets you customize due dates, sites, tax statuses, and other information for each line item. Multiple entry lets you enter basic information such as item number, quantity, and price for several lines on a single screen. The default format is specified in Purchasing Control (5.24).

**Fig. 2.3**  
Purchase Order  
Line Items

**Site.** Enter the site where the item is to be delivered. If requirements change, you can modify individual line items to redirect delivery to another site. You cannot change the site after receipts have been recorded against the line item.

▶ See “Type” on page 21.

**Item Number.** Enter the number of the item to be ordered. Item numbers tell the system whether the item is an inventory item, memo item, or supplier item. If the item number you enter is not in the item master, the system automatically treats the line as a memo purchase.

Set up supplier items in Supplier Item Maintenance (1.19).

When you enter a supplier item, the system displays the inventory item number, the default purchasing unit of measure, and quote cost.

**Qty Ordered.** Enter an order quantity. When you print a purchase order, it reflects the open order quantity. You can change the order quantity as needed. If receipts have already been recorded against the order, the printed order no longer shows the original order quantity.

**Unit of Measure.** Enter a unit of measure for the item. This value can differ from the standard unit of measure specified in the item master. When entering alternate UMs, use conversion factors to simplify line item entry and retain accurate planning and reporting. If a conversion factor exists, the system automatically accesses it to update the item unit cost for the alternate UM. If no conversion factor exists, an error message displays. Enter a value in UM Conversion; the default is 1.000.

**Example** A company buys steel rods in boxes of 100 but maintains inventory and planning records for each unit. The conversion is set up for EA to BX, and the conversion factor is 100.

**Unit Cost.** If a price table or discount table is specified in the header, the system checks the line item against that list. If a match in the order currency is found, the default unit cost is calculated using the listed value. If a price list is not specified in the header, the system determines the unit cost of an item to be one of the following:

- Supplier item price, if one exists
- Item master general ledger (GL) cost, if one exists
- Requisition cost

If you specify a minimum and/or maximum price in a price list, the system verifies the calculated (or user-entered) net cost against it. If the net cost is outside the minimum/maximum range, the system displays an error message and replaces the line item net cost with

#### Tip

The system can process receipts in either the standard or alternate unit of measure.

#### Tip

You can apply quantity-based pricing to both discrete purchase orders and scheduled purchase orders.

either the maximum or minimum price from the price list, as appropriate. You can also use price lists to define specific discounts or markups at different quantity levels.

**Disc %.** Enter the percentage, if any, by which the unit price is decreased.

**Location.** Enter the location where the item is to be received. If Inspection Required is Yes in the item master, location defaults to the inspection location specified in Purchasing Control. Otherwise, location defaults to the item location defined in the item inventory data.

**Revision.** Enter the revision level code for the line item. This can differ from the current item revision level, which defaults from the item master. This revision relates to the item and not to the purchase order document itself. The PO revision number is in the trailer.

**Status.** This code indicates whether an item or order is open (blank), canceled (X), or closed (C). Even if individual items are closed or canceled, the order can remain open.

When a line item is completely received, the system changes its status to closed. Once all line items are closed, the system changes the order status to closed.

Manually close an order or line item by changing the status to C or X. Line items and purchase orders that have been canceled or closed can be reinstated by changing the status code. However, it is not necessary to reopen items or orders to process returns.

When you cancel an order or line item, the system retains a record of unreceived quantities but excludes them from open order reports and MRP.

**Supplier Item.** Some suppliers require their item numbers to be on orders. In such cases, enter the supplier's item number here.

You can set up cross-references between items defined with Item Master Maintenance (1.4.1) and a supplier's item numbers. This lets you enter either your item number or the supplier's, and enables both numbers to be printed on orders.

**Tip**

The purchase order prints the unit cost after discount.

**Tip**

To have the system automatically cancel an ordered item if the quantity received is less than ordered, set Cancel Back Orders to Yes in Purchasing Control (5.24).

**Tip**

If a supplier needs more information, use line item comments.

Enter supplier items in Supplier Item Maintenance (1.19). For each supplier item, you can specify the unit of measure, lead time, quote price and quantity, currency, and references for its manufacturer and manufacturer item number.

Supplier items appear on printed purchase requisitions and purchase requisition reports. The buyer can review requirements for an item and compare lead times and prices for various suppliers.

The system uses the supplier number to set the default unit of measure. It also sets the default unit cost to supplier quote cost when a price is not found on a price list and:

- Currency for the order is the same as for the supplier item.
- Order quantity is at least as great as the quote quantity.
- Unit of measure is the same as for the supplier item.

**Due Date.** Enter the date when items are due to be received at the specified site. Defaults from the header.

**Perform Date.** Enter the supplier's promised delivery date, or leave blank to default to the due date.

**Need Date.** Enter the date items must be available for shipping or issuing to manufacturing. Need date should equal the due date plus any inspection lead time. If the line item references a requisition, the need date defaults from the requisition need date. If no requisition number is entered and need date is left blank, the need date defaults from the line item due date.

**Sales/Job Number.** Enter an optional code associating the purchase order with a specific sales or job number. If entered on the header, the number displays on each order line, but can be overridden there.

**Purchases Account.** Specify an expense or asset account used for memo purchases only, although the field also displays when entering inventory and subcontract line items. When a quantity is received against a memo item, a GL transaction is created to debit Purchases and credit Expensed Item Receipts.

**Project.** Enter an optional code identifying the default GL project associated with the purchase order. If you specify a value, it defaults to each line item and can be changed as needed.

When you are using the Project Realization Management (PRM) module, you can link a PO to a PRM project by specifying its ID in this field. If the project is open and has associated header comments, these comments are automatically copied to the PO header. If the project is on hold, complete, or closed, a warning displays. You cannot link PO lines to PRM project lines unless the PRM project has an open status.

◆ See *User Guide Volume 10: Project Realization Management*.

**Type.** Leave blank to indicate an inventory item. Enter M to indicate a memo item and S to indicate a subcontract item. The three receipt types each have a different effect on inventory, planning, and cost accounting when items are received.

If a line item is in the item master, the system assumes it is an inventory item and Type defaults to blank. Keep this value to have receipts update inventory balances and be considered supply by MRP. If the system cannot find the item number in the item master, the type defaults to Memo. Memo items do not update inventory. They are expensed or capitalized upon receipt, depending on the Purchases account for the item. Memo items have no effect on MRP.

Although subcontract items are in the item master, they are received to work orders rather than to inventory. As a result, MRP does not consider them a source of supply since these quantities are already included in the work order. The system prompts you to enter the work order number, work order ID, and operation for the subcontract item.

**Tip**  
Purchase orders and blanket orders can contain any kind of item. However, items on supplier schedules must be inventory items.

**Taxable.** Indicate whether the item is taxable. Items purchased for resale are normally not taxable. The taxable status on the purchase order header displays as the default for each line item, but it can be changed.

**Inspection Required.** Indicate if the item is to be inspected after receipt. This field defaults from item master data. If Yes, the location defaults to the inspection location as specified in Purchasing Control (5.24). If No, the location defaults to the item location specified in the item inventory data.

**Tip**

In a distributed purchasing environment, costs are updated in both the inventory and purchasing databases.

**Update Average/Last Cost.** Indicate whether the purchase order is to be reflected in the current cost of the item. The update will set the cost to the last cost (that is, this purchase) or to a weighted average cost depending on the setting in Inventory Control (3.24). If you use the Cost Management module and select average cost for GL as well as current costs, the system updates both current and GL costs.

**Trailer**

The trailer section contains financial information for the entire order. Major fields include the following:

▶ See *User Guide Volume 6: Master Data* for more information on taxes.

**View/Edit Tax Detail.** Set this field to Yes to update or review tax amounts.

**Revision.** Optionally specify the revision level of the purchase order. This value should not be confused with the item revision, which identifies the item's engineering drawing revision. Each time a purchase order is changed, you may want to increase the number by 1 to show how many times the order was changed. You may also want to add comments describing the change and reasons for making it. A new copy of the order can be printed to document the change.

**Print PO.** Only open order quantities appear on printed purchase orders. If you print the order after receiving line items, it is not reflected in the original order quantity.

To prevent you from accidentally reprinting an order, the system automatically resets Print PO to No. If you reprint the order without resetting Print PO to Yes, the word DUPLICATE appears on the order.

The revision level or change order number printed on the purchase order must be maintained manually on the purchase order trailer.

**EDI PO.** If you use EDI ECommerce to transmit purchase orders to your suppliers in electronic data interchange (EDI) format, this field controls whether the purchase order can be selected for export using Purchase Order Export (35.4.9). The field defaults from the logical parameter Send EDI PO in the supplier's record in Trading Partner Parameter Maintenance (35.13.10), if one is defined. If it is not, the default is No.

**Amount Prepaid.** Enter the amount of deposit sent with this purchase order. The amount does not update the GL or supplier account balance. A separate cash payment entry must be made to record the payment in Accounts Payable. This can be done by recording a manual non-AP check. A credit voucher should also be entered to track the prepayment amount. The credit voucher can be placed on hold and released later when the invoice is received.

**FOB Point.** Free on Board. Identifies where title passes to the buyer and often is used to indicate who pays shipping charges.

**Ship Via.** This field defaults from the carrier name specified in Supplier Maintenance (2.3.1), which identifies the preferred carrier for a supplier's orders. This value can be overridden.

## Updating Purchase Order Costs

Use Purchase Order Cost Update (5.19) to update the unit cost of items. This program uses the same logic as Purchase Order Maintenance (5.7) to recalculate the price of eligible lines on the selected purchase orders.

Enter Yes in the Fixed Price field on the PO line to exclude individual order lines from automatic cost recalculation or No to include them. Lines that are closed, canceled, or returned are automatically excluded from the update. Set the default value for each supplier in Supplier Maintenance (2.3.1). The header value defaults to each of the line items.

Orders are selected for update based on selection criteria you specify. Leave selection criteria blank to have all orders selected for processing. If Fixed Price for a line item is No, all available pricing information is used to determine the item's new cost, including item master cost, and the price list specified in the purchase order if applicable.

**Example** Enter a price list of type list. All purchase orders specifying that price list in the header are selected. Line items eligible for cost recalculation have their new costs calculated.

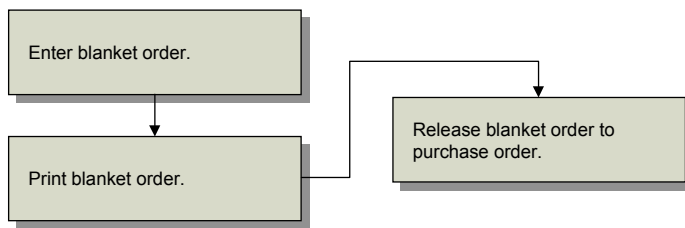
The update report shows both old and new costs and the discount for all lines changed. Net cost after discount is determined by the quantity ordered, but the open quantity is printed on the report.

If Keep Booking History is Yes in Purchasing Control (5.24), Purchase Order Cost Update creates transaction history records for all lines changed.

## Creating Blanket Orders

Blanket orders save time when placing periodic or recurring orders for the same item because they let you preapprove purchase orders. Blanket orders are templates for purchase orders. You cannot receive items against them and MRP does not include them as supply.

**Fig. 2.4**  
Blanket Order Flow



Use Blanket Order Maintenance (5.3.1) to record and modify blanket orders.

**Fig. 2.5**  
Blanket Order Maintenance  
(5.3.1)

Supplier			Ship To		
General Supply Corporation 720 East College Avenue Building B-2 Los Angeles CA 90293 United States of America			Quality Products Inc. Manufacturing Division One World Way San Diego CA 92130 United States of America		
Blanket Start: 07/16/2001	Cycle Code: MO	Blanket Order: PO1000			
Blanket End: 07/16/2002		Rel: 0			
Est Value: 1,000,000.00		Type: B			
Release: <input checked="" type="checkbox"/>					
Recurr: <input checked="" type="checkbox"/>					

You can create blanket orders for two types of deliveries:

- **Recurring.** Deliveries are regular, recurring, and of the same size. In the order header, set Recurring and Release to Yes. For deliveries that take place on a regular cycle, such as weekly or monthly, specify a cycle code. Set up values in Generalized Codes Maintenance (36.2.13) for field `po_cycl` to standardize input. You do not have to specify order and line item due dates during order entry. Leave these fields blank to have the system assign them automatically when the blanket order is released. Set Quantity to Release to the normal delivery size.
- **Irregular.** Delivery dates or item quantities vary with each PO. In the order header, set Recurring and Release to No. To release an irregular blanket order to a purchase order, set Release to Yes and enter the delivery due date and order quantity for each item.

Release the blanket order in Blanket Order Release to PO (5.3.6). You can set selection criteria for any combination of cycle code, order number, supplier, blanket order date, or due date. The system assigns a PO number by appending a release number to the blanket order number. For example, the first purchase order for blanket order 12004 would be 1200401, the second would be 1200402, and so on. A report is produced of the orders successfully released to POs.

**Tip**  
If the appended number would exceed eight characters, the system assigns a new number.

If you release an item by mistake, use Purchase Order Maintenance (5.7) to cancel or delete the line. When a purchase order line item is canceled or deleted, the open quantity on the corresponding blanket PO is automatically adjusted. You can also use Purchase Order Maintenance to change the site or quantity ordered for a line item on a released PO. The quantity open on the blanket order is automatically adjusted. The PO quantity cannot exceed the open line item quantity on the blanket order. Changing the delivery site on the PO does not update the blanket order. You cannot delete a PO line item or change its site or quantity when receipts are posted against it.

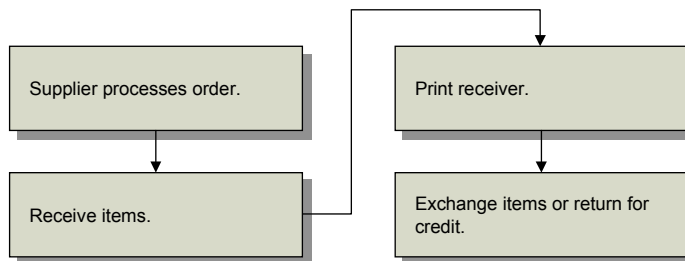
When a receipt is posted against a PO released from a blanket PO, the corresponding blanket order receipt quantity (if any) is also updated. The system closes blanket orders when the order is fully released or when all the lines are closed or canceled.

To delete or archive closed blanket orders, use Closed PO Delete/Archive (5.23). You cannot delete a blanket order when purchase orders created from it exist in the system.

## Creating Receivers

Record receipts against both purchase orders and supplier schedules in Purchase Order Receipts (5.13.1). More than one line item can be processed in a single transaction. You can correct errors made in receiving by entering negative quantities in Purchase Order Receipts. However, you may have to reopen a purchase order line to do this.

**Fig. 2.6**  
Receiving Flow



### Control Settings

Several settings in Purchasing Control (5.24) affect purchase receipts.

- The Receiver Type field determines whether receivers are created for each order or for each item on the order, or not printed at all.
- Tolerance Percent and Tolerance Cost determine how the system manages receipts that exceed the order quantity.

### History Records

When recording a receipt, the system updates several kinds of history records:

- Purchase receipts
- Inventory transactions
- Inventory GL costs
- Tax transactions

These records are used for accounts payable, variance reporting, tax reporting, and supplier performance reports. If you receive more than one delivery from a supplier on the same day for the same order, enter separate receipts to simplify vouchering in accounts payable.

### Shipment Information

If Shipment Info for Receipts is Yes in Container/Shipper Control (7.9.24), you can specify additional shipment information during receipt entry. A Shipment Information frame displays for input of data in:

- PO Shipper Receipt (5.5.5.11, 5.13.20)
- Purchase Order Receipts (5.13.1)

▶ See “Receipt Processing” on page 233.

### PO Receipt Packing Slip Inquiry

PO Receipt Packing Slip Inquiry (5.13.4) lets you review information by packing slip number and PO receipt number. Select records using one or more of the following selection criteria:

- Item number
- Purchase order
- Receiver
- Packing slip number

You can reconcile shipments by matching the supplier’s packing slip number or fiscal document number against your PO receipt. This is useful for supplier schedules and fiscal receiving.

The screenshot shows a software window titled "PO Receipt Packing Slip Inquiry". The window contains several input fields with the following values: Item Number: 01-0001, Supplier: 5001000, Packing Slip: abc, Receiver: RC1016, Purchase Order: po960106, Receipt Date: 07/16/2002, and Currency: usd. The Output is set to "terminal".

**Fig. 2.7**  
PO Receipt Packing Slip Inquiry (5.13.4)

## PO Containers and Shippers

You can receive items for one purchase order at a time. However, purchased items are often grouped in containers and managed with shippers. The Purchasing Receipts/Returns menu (5.13) provides support for recording, confirming, and deleting/archiving container and shipper information.

Use PO Container Maintenance (5.13.13) to record information on racks, boxes, crates, bags, or other conveyances used by a supplier to enclose and transport items or other containers. As with scheduled orders, containers must be defined in the item master before they can be used in PO Container Maintenance.

Use PO Shipper Maintenance (5.13.14) to record item numbers and quantities from formal shipping documents or supplier packing lists. In contrast to Purchase Order Receipts (5.13.1), PO Shipper Maintenance does not immediately update inventory balances or create GL transactions for PO receipts and inventory accounts. Rather, it lets you record a receipt and take time to verify it. PO Shipper Maintenance also lets you receive consolidated packing lists, as when a supplier consolidates several purchase orders in one shipment.

Use PO Shipper Receipt (5.13.20) to update inventory and the GL after manually verifying received items and quantities.

▶ See *User Guide Volume 7: Release Management*.

**Note** If you use EDI ECommerce, importing an advance ship notice (ASN) automatically creates a shipper. You do not need to do it manually. You can edit the shipper using PO Shipper Maintenance if changes are needed, or simply receive the items in PO Shipper Receipt.

Use PO Shipper Delete/Archive (5.13.23) to permanently remove shipper records from the system.

▶ See “Deleting Unused Containers” on page 185.

You can delete containers one at a time in PO Container Maintenance. To remove all unused container records by range of site and container number, use Container Delete/Archive (7.7.23).

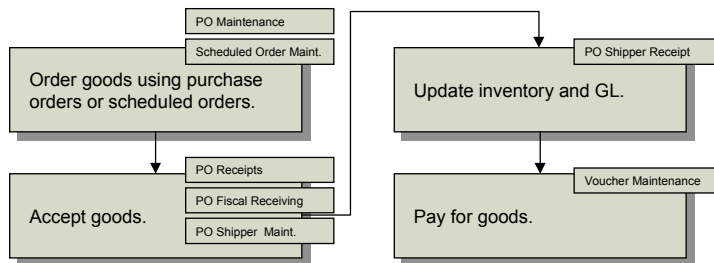
## PO Fiscal Receiving

PO Fiscal Receiving (5.13.16) lets you:

- Record item numbers, quantities, costs, and taxes from shipping documents.
- Update inventory and GL accounts.
- Process multiple POs per receipt.
- Calculate and register applicable taxes.

Fiscal receiving supports companies where:

- PO receipts are registered for fiscal inventory control and/or tax purposes.
- PO receipts are tracked and audited by fiscal shipping documents.
- Multiple POs are frequently consolidated by the supplier into one fiscal shipment for the same ship-to address.
- It is necessary to update purchase costs at PO receipt.



**Fig. 2.8**  
Fiscal Receiving  
Processing Flow

If the fiscal total does not match the PO total, a warning displays. However, PO Fiscal Receiving does not change the purchase order. This leaves a basis for comparison. PO Fiscal Receiving updates purchasing and tax records but does not affect physical inventory or GL balances.

After verifying received items and financial information, use PO Shipper Receipt (5.5.5.11 or 5.13.20) to finalize receipt and create inventory and GL transactions. Use PO Shipper Receipt to reference the fiscal receipt in AP Voucher Maintenance (28.1).

**Fig. 2.9**  
Header, PO Fiscal  
Receiving (5.13.16)

Supplier: 50000000		Hydroxco Gas Processors Inc.	
Shipper ID: cBX093		100 Foothill Blvd.	
Ship-To: 10000		San Diego Main Plant	
Control Lines: 22		Credit Terms: 90	
Control Total: 2,000.000		Issue Date: 02/01/2001	
		Due Date: 05/01/2001	

**Supplier.** Specify the supplier who sent you the goods. Must be a valid supplier in the database.

**Shipper ID.** This field is mandatory, and is usually used to record the fiscal document number, Nota Fiscal, or other shipping document number. It can also be used to record the bill of lading number.

**Ship-To.** Specify the site code or address code of the company address accepting the goods.

**Control Lines.** Specify the total number of lines on the fiscal document.

**Control Total.** Specify the total monetary amount shown on the shipping document, including tax amounts. Used as a control total for the fiscal receipt. If the sum of all lines received does not equal this total, a warning displays.

**Credit Terms.** Enter the credit terms listed on the shipping document. These should be the same terms as on the purchase order. Credit terms are especially important in hyperinflationary environments or if a credit terms interest percentage is specified on the purchase order.

**Issue Date.** Specify the date the supplier generated the shipment document. Becomes the start date for credit terms calculations.

**Due Date.** Specify the date the supplier is expecting payment for the shipment. Leave blank to have the system calculate the date based on credit terms and issue date. If you enter the due date printed on the supplier document, a warning displays if this due date is inconsistent with the credit terms and issue date.

For example, if the credit terms are 2% Net 30 Days and the Issue Date is April 1, and you enter a Due Date of April 15, a warning displays because the credit terms specify a due date of May 1.

**PO Fiscal Receiving**

Supplier: 5003000      West Coast Electronics  
Shipper ID: 1182      1120 Capacitor Road

---

Ship-to ID: 10000      San Diego Main Plant

---

**Contents (Items)**

Item Number: 44-100      CONTROL UNIT, HOME US  
Purchase Order: PO1003      Line: 1      Fiscal Line: 0  
Quantity: 10.0      UM: EA      Conversion: 1.0000  
Packing Quantity: 0.0  
Received Cost: 90.00      PO Net Cost: 90.00  
Site: 10000  
Location: 12000  
Lot/Serial:  
Reference:  
Multi Entry:       PO Comments:       PO Ln Cmmts:

**Fig. 2.10**  
Line Item Screen,  
PO Fiscal  
Receiving (5.13.16)

After the first screen, you see a frame for recording the PO, quantity, cost, and receiving information for each line item.

**Item.** Enter the item number as specified in the purchase order. This can be a memo item.

**Purchase Order.** Enter a valid purchase order number for the received line. You can reference multiple purchase order numbers on the same receipt, but only one per line item.

**Line.** Enter the purchase order line number. An error displays if you reference a line number that is not on the original purchase order or that corresponds to an item different from the item entered previously.

**Fiscal Line.** Enter the line item number from the shipping document. If only one purchase order is involved, this is normally the same as the PO line. If you are referencing an existing fiscal receipt, you can retrieve the remaining item information in this screen by using Next/Previous in either of the line fields.

▶ See *User Guide Volume 6: Master Data* for more information on taxes.

**Tip**  
Changing the site can cause the taxes to be recalculated, if the new site is in a different tax zone.

After entering the item, PO, PO line, and fiscal line, you are prompted to review and optionally edit the default Tax Usage, Tax Environment, and Tax In settings from the PO for the fiscal receipt. These settings determine how taxes are calculated for the fiscal receipt.

Most fields in this screen function the same way as their counterparts in Purchase Order Receipts (5.13.1) and PO Shipper Maintenance (5.13.14). If you receive items into a different site or location than specified on the PO, update them here. You can always go back to PO Fiscal Receiving and update this information before processing the receipt using PO Shipper Receipt.

**Quantity.** The actual received item quantity for this line.

**UM.** The unit of measure for the shipped items.

**Conv.** The conversion factor to use if the shipping unit of measure is not the same as the inventory stocking unit of measure. For example, if the shipping UM is cases, the stocking UM is pallets, and there are 10 cases per pallet, the conversion factor is .1.

**Packing Qty.** The packing list quantity printed on the supplier's packing list, or the official fiscal quantity printed on the supplier's fiscal document.

**Rcvd Cost.** The line item cost from the fiscal document for the received quantity. This cost includes any taxes included in the line cost. The value entered is the amount used for the received PO cost calculation, which overrides the cost entered in the PO line. For average cost users, this is the beginning basis for the average cost calculation.

**PO Net Cost.** Output only. Net line item cost from the purchase order. When you exit the screen, a warning displays if the received cost does not equal the PO cost. The system does not maintain an audit trail of variances, but variances are marked with an asterisk (\*) in PO Fiscal Receipt Inquiry (5.13.17).

**Site.** The company site that receives the items.

**Location.** The company location that receives the items.

*Lot/Serial.* Optional. Used only if items are tracked by lot or serial number.

*Ref.* An optional lot reference number for the received items.

*Multi Entry.* Indicates whether the item was received into multiple sites and locations, or whether multiple lot/serial numbers or lot reference numbers were received. Enter Yes to display the multiple-entry screen.

*PO Cmnts.* Enter Yes to enter transaction comments for the fiscal receipt. The reference code for PO comments defaults to RCPT: followed by the purchase order number; for example, RCPT: PO1000.

*PO Ln Cmnts.* Enter Yes to enter comments for individual line items. The reference code for line-item comments defaults to RCPT: followed by the purchase order number, a slash (/), and the line-item number; for example, RCPT: PO1000/1.

The trailer screen displays line item and tax totals. Use the View/Edit Tax Detail option to review and change tax amounts.

Use PO Fiscal Receipt Inquiry (5.13.17) to review fiscal receipts. Supplier code and shipper ID are mandatory. You can display either quantity or cost information. Variances for calculated due date, quantities, and costs are marked with an asterisk (\*). Where possible, investigate and resolve any discrepancies before processing the actual receipt using PO Shipper Receipt (5.5.5.11 or 5.13.20).

## Creating Returns

There are two ways to return goods to a supplier. If the purchase order still exists, use Purchase Order Returns (5.13.7). Or use Purchase Order Maintenance (5.7) to enter a new line or order for the items to be returned. Use negative numbers to indicate returned quantities. Receive items in Purchase Order Receipts (5.13.1).

If you are using the Service/Support Management module, the Return to Supplier functions (11.7.3) are used to return items to the supplier for service.

◆ See User Guide  
Volume 8B: SSM  
for details.

**Note** If you are not using purchasing, you can use Issues–Return to Supplier (3.8). This program is disabled once purchasing is installed.

The Return to Replace field in Purchase Order Returns defaults to No, indicating a return for credit. If Yes, the system automatically adds a new line to the original PO for the returned quantity.

All fields on the new line default to values for the returned line item except order quantity, which shows that quantity returned, cumulative quantity received, last quantity received, last quantity returned, and last quantity changed are all zero. The date received field for the new line is set to unknown, and the line number is set to the highest line on the PO plus one. The new line updates quantity on order, MRP, and transaction history just like any other PO line.

**Tip**

The Return to Replace option reopens a closed PO, but does not work if the original PO has been deleted.

When you process a voucher against the supplier invoice with Voucher Maintenance (28.1), the quantity returned appears in the receiver window as a negative quantity offset against the original PO line.

Purchase Order Returns supports reverse tax accruals and re-averages cost (return goods at the original received value). For returns of subcontracted material, you can specify whether the return should update the appropriate work order operation queues.

Many countries require that formal shipping documents accompany any movement of goods, even when goods are merely transferred, not sold. You can record shipping information and generate shipping documents for issue transactions in Purchase Order Returns.

▶ See “Purchase Order Returns” on page 232 for details.

## Deleting Expired Orders

Deleting expired blanket orders, purchase orders, supplier schedules, and receivers helps conserve database space. Use the following programs:

- Closed PO Receipt Delete/Archive (5.22)
- Closed PO Delete/Archive (5.23)
- Schedule Delete/Archive (5.5.3.23)
- PO Shipper Delete/Archive (5.5.5.23)

## Calculating Purchase Price Variances

Two types of variances can be calculated when purchasing materials:

- Purchase price variance
- Accounts payable variance

Purchase price variance is the difference between the purchase order cost and the GL cost and is calculated when purchase orders are received.

Accounts payable variance is the difference between the invoice price and the purchase order cost and is calculated when the supplier invoice is vouchered in accounts payable. When a voucher is confirmed, rate variances update inventory cost. In a multiple database environment, costs are updated in both the inventory and purchasing databases.

**Note** A third type of variance is caused by exchange rate fluctuations between the time a foreign currency order is received and when it is vouchered.

## Subcontract Purchasing

Instead of materials, suppliers sometimes provide services for completing manufacturing operations. Companies subcontract operations when there is insufficient manufacturing capacity or when operations require specialized equipment.

Like inventory items, subcontract services are set up in Item Master Maintenance (1.4.1). However, they are received to work orders rather than to inventory. As a result, MRP does not consider them a source of supply since these quantities are already included in the work order. During order entry, the system prompts you to enter the work order number, work order ID, and operation for the subcontract item. This information is needed by the receiving process.

Subcontract items are received into WIP, not into inventory. The receipt updates the quantity completed at the designated work order (WO) operation. When all items are received, the operation status is set to Complete. If you set Move to Next Operation to Yes during receipt, the status of the next operation is set to Queue so it appears on the dispatch list.

A number of accounting and cost issues in subcontract purchasing influence use and implementation of other modules.

▶ See *User Guide Volume 3: Manufacturing*.

Subcontract purchase orders can be used with the Work Orders module, or with Repetitive and Advanced Repetitive functions. Advanced Repetitive subcontracting supports additional features of subcontract shipping. This section discusses subcontracting with work orders.

## Subcontract Pricing

In Items/Sites, supplier items should be set up with quote prices and quote quantities so that the unit cost on subcontract purchase orders defaults correctly. The order of precedence for determining the correct price is as follows:

- Price list
- Quote
- GL cost

## Inventory and Cost Control

There are several ways of tracking components provided by you or the subcontractor. When components are supplied in kits for individual work orders, they should be handled as regular work order components.

▶ See *User Guide Volume 2B: Distribution* for information on consigned inventory.

Sometimes a manufacturer provides components to the supplier, who stores these as consignment inventory until used. In this case, set up a separate inventory site and location for supplier inventory since the supplier site is functioning as an extension of your company's inventory.

A supplier may provide components that are added during subcontract operations. Since there is no requirement to track supplier inventory, the cost of the components is usually included in the subcontract purchase cost. Normally, the components are not planned by MRP, and do not appear on work order picklists. To have them appear on product structures, you must exclude them from MRP and work order picklists. Also, the component costs must not be included in cost rollups for the parent product. One way to ensure this is to assign a structure code of D (document) to the components.

## Subcontract Lead Time

Use Routing Maintenance (14.13.1) to enter subcontract lead time. A subcontract lead time applies to an entire lot, not to individual units. The lead time for a work order operation is the same whether the quantity ordered is 1 or 10,000.

## Routings and Work Centers

Consider setting up separate departments (and possibly work centers) for outside processing to distinguish them from internal operations. Define departments and work centers for individual suppliers if more than one supplier can perform a particular operation.

**Example** Have all subcontract work center codes begin with the letter S to easily identify them on reports such as the Work Order Dispatch Report (16.18).

## Triggering Purchase Orders

If work order operations are used with work orders, determine when to release purchase orders for subcontract operations with Work Order Dispatch Report. This report lists upcoming operations by work center, then by item.

## Supplier Capacity

The Resource Planning and Capacity Requirements Planning (CRP) modules can be used to evaluate supplier capacity. Resource planning is set up and implemented in the same way as the planning of internal resources. However, there are special requirements for CRP:

- Set up one work center for each supplier.
- Give each work center its own shop calendar.
- Set up subcontract operations with queue, setup, run, wait, and move times.

## Material Requirements Planning

Open purchase order lines for subcontract items are not recognized as supply records by MRP. Supply for subcontract assemblies is represented by their corresponding work orders.

## Subcontract Work Flow

If all of the modules are used, the subcontract cycle includes the following steps:

- 1 Work Order Maintenance (16.1) or Planned Work Order Approval (23.10)
- 2 Work Order Component Check (16.5)
- 3 Work Order Release/Print (16.6)
- 4 Work Order Component Issue (16.10)
- 5 Work Order Dispatch Report (16.18)
- 6 Purchase Order Maintenance (5.7)
- 7 Purchase Order Receipts (5.13.1)
- 8 Shop Floor Control labor feedback functions
- 9 Work Order Receipt (16.11)
- 10 Work Order Accounting Close (16.21)

## Special Purchasing Topics

This section discusses issues related to purchasing in a multiple database environment, processing memo items, and special purchase needs.

### Multisite Purchasing

Often in multisite companies inventory items are purchased from one site only, although each site buys its own non-inventory items, such as supplies, floor stock, and expensed items. MFG/PRO supports purchasing initiated from multiple sites or databases.

**Example** Site Singapore creates a requisition for an item, specifying that the item be bought by Site Chicago because of price considerations. Because Singapore specifies Chicago in the PO Site field of Purchase Requisition Maintenance (5.1.4), Chicago sees the requisition when reviewing its requisition reports. Chicago creates a purchase order, taking information from the requisition and specifying that the item be delivered to Singapore. Receiver and voucher information is processed at Chicago. MRP information is processed at Singapore.

When generating reports in a multi-database environment, if the current database is not the originating database for a particular PO, that PO does not appear on the PO reports (by order, by supplier, commitment, or supply schedule). This happens even if line items on the PO are received into sites at the current database. To see these POs, switch to the originating database, which also contains the supplier address table.

### Purchasing Memo Items

Memo purchases are for items not in the item master, such as office supplies and equipment. Memo items do not update inventory. Rather, they are expensed or capitalized upon receipt, depending on the purchases account for the line item. Memo items have no effect on MRP.

Even if an item is in the item master, it is preferable in some cases to process it as a memo purchase. Such cases might include procurement of as-needed production materials and inventory items for non-production departments. Production materials, such as adhesives and solvents, are used as needed, and it is often impractical to maintain inventory balances and to process transactions for such materials.

▶ See Chapter 10, “Consolidated Order Processing,” for details on distributed and centralized purchasing.

**Tip**  
To process an inventory item as a memo item, change the Type field from blank to M in PO Maintenance.

Inventory items are items ordered for a non-production department, such as engineering or marketing. If these are handled as memo purchases, they can be charged to these departments upon receipt. Another way of transferring materials to non-production departments is by unplanned inventory issues.

### **Purchasing Miscellaneous Items**

Purchases for items not directly related to manufacturing or inventory and not delivered to a receiving department, such as airline tickets or seminar fees, are sometimes easier to handle with external purchase orders—that is, purchase orders outside the system. This is because when invoices are vouchered in Accounts Payable, the system lets you verify a purchase by matching an order, a receiver, and an invoice. Items that have not been delivered to a receiving department have no associated receivers. To have each purchase accounted for in a purchase order, use manual purchase orders for items not delivered to a receiving department.

# Global Requisition System (GRS)

This chapter summarizes the major features of the Global Requisition System (GRS).

*Introduction*    **42**

*Implementing GRS*    **46**

*Creating Purchase Requisitions*    **63**

*Reviewing and Approving Requisitions*    **77**

*Using Requisitions to Build POs*    **83**

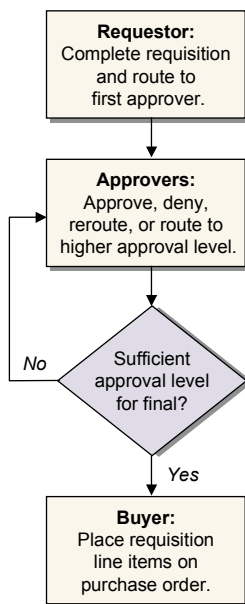
## Introduction

The Global Requisition System (GRS) lets you create multiple-line purchase requisitions and route them through the approval process. Based on the type of purchase, the cost, and the requestor's department, the system determines which individuals are authorized to approve the requisition. Optionally, GRS sends e-mail messages throughout the requisition life cycle to communicate status and required actions to originators, end users, reviewers, approvers, and buyers.

Reviewers and approvers can use the features of GRS to modify, approve, deny, or cancel entire requisitions or individual line items. When a requisition has been approved at the specified final level, a buyer can use approved requisition lines to build purchase orders (POs).

Figure 3.1 is a simplified flow diagram of the requisition process.

**Fig. 3.1**  
Requisition Process



## Features of GRS

### Flexible Approval Process

You can set up approval levels based on the way you assign responsibilities within your company.

- Approvers can be defined *vertically* through your organization, relating the approval levels to entities, sub-accounts, and cost centers.
- You can also set up approvers *horizontally* based on the categories of items they are approving.
- If an individual is responsible for a project that crosses different organizations, you can set that person up as a *job* approver.
- Or, a person who is responsible for replenishing inventory used for manufacturing can be a *product line* approver.

### Multiple-Line Requisitions

Unlike standard requisitions in MFG/PRO, which support one item only, GRS features multiple-line entry. You set up default information, such as the supplier, the requesting site, and the need date, in a header applying to the whole requisition. If you need to change any of this information for a single line item, you can override much of it on a line-by-line basis while you are entering individual requisition items.

You can also create a multiple-line requisition by approving a group of MRP planned orders.

### System-Generated E-mail

From the time a requisition begins the approval process until the last line item is referenced on a purchase order, GRS can use your e-mail system to advise end users, reviewers, and approvers of the requisition's status. Messages include notifications that a requisition is waiting for an approval and notifications to buyers when requisitions are approved.

If you use these features, you have two choices of e-mail mode. In regular mode, a minimum number of messages are generated, mainly to inform approvers that their inputs are needed. If you select extended mode, the system also sends status messages to the requestor and end user.

## PO Build from Requisitions

GRS reduces repetitive data entry by letting you generate a purchase order directly from approved requisitions. Common data from the requisition header is copied into the purchase order header. You can then copy approved requisition line items to build the detailed line items on the purchase order.

## GRS Work Flow

Table 3.1 shows the functions available in the GRS module.

**Table 3.1**  
Global Requisition  
Menu (5.2)

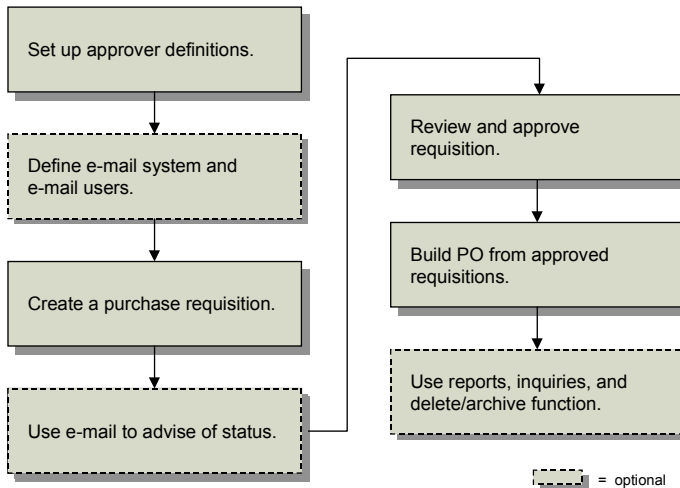
Menu Number	Description	Program Name
5.2.1	Setup Menu	
5.2.1.1	Approval Level Maintenance	rqfmt.p
5.2.1.2	Approval Level Browse	rqliq.p
5.2.1.4	Category Maintenance	rqcmt.p
5.2.1.5	Category Report	rqcrp.p
5.2.1.7	Job Maintenance	rqjmt.p
5.2.1.8	Job Browse	rqjiq.p
5.2.1.13	Horizontal Approver Maintenance	rqahmt.p
5.2.1.14	Vertical Approver Maintenance	rqavmt.p
5.2.1.15	Job Approver Maintenance	rqajmt.p
5.2.1.16	Product Line Approver Maint	rqaplmt.p
5.2.1.17	Approver Report	rqarp.p
5.2.1.20	Buyer Maintenance	rqbmt.p
5.2.1.24	Requisition Control	rqpm.p
5.2.3	Requisition Maintenance	rqrfmt.p
5.2.4	Requisition Inquiry	rqrqi1.p
5.2.5	Requisition Browse	rqrqi5.p
5.2.6	Requisition Report	rqrqp5.p
5.2.8	Requisition History Log	rqrqp4.p
5.2.13	Requisition Approval Maintenance	rqapmt.p
5.2.14	Requisition Routing Maintenance	rqrtmt.p
5.2.15	Approval Status Inquiry	rqrqi2.p
5.2.16	Approver's Open Req. Inquiry	rqrqi3.p

Menu Number	Description	Program Name
5.2.17	PO and Req. Cross Reference	rqpoi.q.p
5.2.18	Build PO from Requisitions	rqpobld.p
5.2.21	Out of Tolerance Inquiry	rqrqiq4.p
5.2.23	Requisition Delete/Archive	rqrqup.p

GRS programs fall into five groups. The programs you use depend on your role in the requisition process.

- GRS setup (system administrator)
- Requisition creation (requestors)
- Requisition approval (reviewers and approvers)
- PO build (buyers)
- Reports and inquiries (as needed)

Figure 3.2 shows the overall flow of GRS tasks. Subsequent sections describe each step in the requisition process.



**Fig. 3.2**  
GRS Task Flow

## Implementing GRS

This section describes how to set up GRS based on the specific way your company wants to use the requisition approval process. This section is designed for the system administrator responsible for preparing GRS for use. Topics include:

- Planning the best way to set up GRS for your company.
- Establishing data for the system to use during the requisition process.
  - Requisition Control: default settings for the system to use.
  - E-mail: If your company wants to use system-generated e-mail, define the e-mail system you use and specify user e-mail addresses.
  - Approval Levels: two-digit codes related to maximum amounts of a specified approval currency.
  - Categories: sets of related general ledger (GL) accounts with a single approver or group of approvers across organization structures; used when establishing horizontal approvers for types of items.
  - Jobs: limited-duration tasks, such as projects. Used to allow approval authority over a range of organizational structures, but only if associated with a specific job.
  - Buyers: individuals responsible for referencing approved requisition items on purchase orders.
  - Approvers: horizontal, vertical, job, and product line, depending on how your company wants to authorize purchases. Can be defined using various combinations of levels, categories, jobs, entities, sub-accounts, and cost centers.

The Global Requisition Setup Menu (5.2.1) lists the programs used to implement the purchase requisition process.

**Table 3.2**  
Global Requisition  
Setup Menu (5.2.1)

Menu Number	Description	Program Name
5.2.1.1	Approval Level Maintenance	rqlmt.p
5.2.1.2	Approval Level Browse	rqliq.p
5.2.1.4	Category Maintenance	rqemt.p
5.2.1.5	Category Report	rqcrp.p

Menu Number	Description	Program Name
5.2.1.7	Job Maintenance	rqjmt.p
5.2.1.8	Job Browse	rqjiq.p
5.2.1.13	Horizontal Approver Maintenance	rqahmt.p
5.2.1.14	Vertical Approver Maintenance	rqavmt.p
5.2.1.15	Job Approver Maintenance	rqajmt.p
5.2.1.16	Product Line Approver Maint	rqaplmt.p
5.2.1.17	Approver Report	rqarp.p
5.2.1.20	Buyer Maintenance	rqbmt.p
5.2.1.24	Requisition Control	rqpm.p

Figure 3.3 summarizes the tasks required to set up GRS. These tasks are described in detail in the following sections.

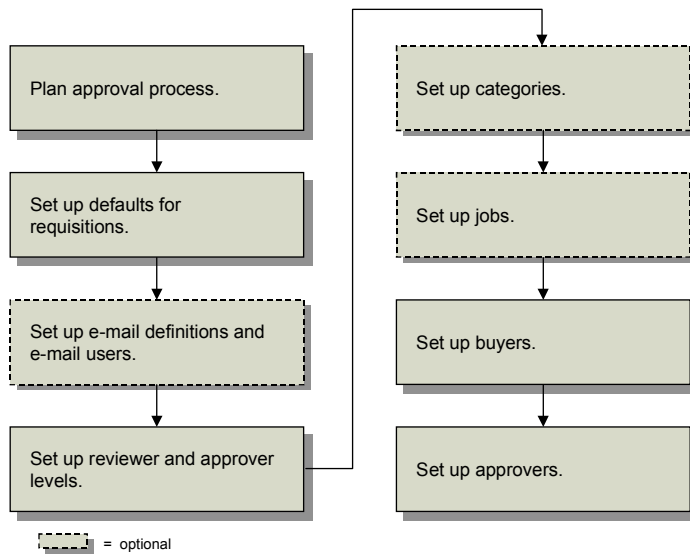


Fig. 3.3  
GRS Setup Tasks

## Planning the Approval Process

Before starting to set up GRS, you should consider the way you want the approval process for your company to flow. Use the following questions as a guideline:

- Will you operate more efficiently if GRS generates e-mail messages to the people involved in the approval cycle?
- Should only the next approver be notified of approval-related events, or would a wider distribution be better?
- Are most of your requisitions approved by department heads or supervisors?
- Are the types of purchases you make monitored across departments by certain reviewers, regardless of which department generates the requisition?
- Do you want the buyer to be able to change the cost specified on a requisition when placing a purchase order? And, if so, do you want to set parameters to identify a cost variance as out of tolerance?

### System-Generated E-Mail

One element to consider in the planning process is whether your company wants to use the automated e-mail notification features of GRS. If so, you must establish a record in E-mail Definition Maintenance (36.4.20) for each e-mail system your company uses. You must also enter e-mail addresses for all GRS users in User Maintenance (36.3.18).

If you decide to use automatic e-mail, you can send e-mail in regular or extended mode. Table 3.3 summarizes GRS events and the resulting e-mail recipients for these modes.

**Table 3.3**  
E-mail Modes

<b>GRS event</b>	<b>Regular mode notifies:</b>	<b>Extended mode also notifies:</b>
Route requisition	New route-to	Requested by, end user
Reverse route requisition	Current route-to	Requested by, end user
Modify or delete requisition	Current route-to	Requested by, end user
Mark out of tolerance	Requested by, end user	

A system-generated e-mail message includes the following:

- Action
- Requisition number
- Requisition date
- Need date
- Due date
- Requested by
- Entered by
- End user
- Route to
- Reason
- Remarks
- Approval status
- Database
- Extended cost total
- Maximum extended cost total
- Approval comments (up to 15 lines)

## Approver Types

Before you begin using the setup programs, consider how your company manages requisition approvals. GRS provides the flexibility to set up approvers based on the way your company wants to manage the approval process. You can set up four types of approvers—horizontal, vertical, job, and product line—using approver maintenance programs (5.2.1.13 through 5.2.1.16).

▶ See “Setting Up Approvers” on page 59.

Once you have decided which types of approvers are best suited to the way you want to use GRS, you are ready to set up levels, categories, and jobs—the building blocks used to define approvers.

**Note** Because GRS is flexible, you can change or add to the approver profiles at any time. For example, when you go through the initial setup process, your company might not need to use job approvers. However, later it may be convenient to isolate some purchase approval authority to a specific project. You can then define the job and add a job approver for it.

### Horizontal Approvers

Approvers can be set up *horizontally* based on the categories of items they are approving. For example, one manager in your company might approve all computer purchases, regardless of which department creates the requisition. You use Category Maintenance (5.2.1.4) to assign a range of accounts to a category such as Computers. You can then require all computer requisitions to be sent to the approver named for this category, regardless of the requestor’s sub-account or department.

▶ See “Setting Up Categories” on page 56.

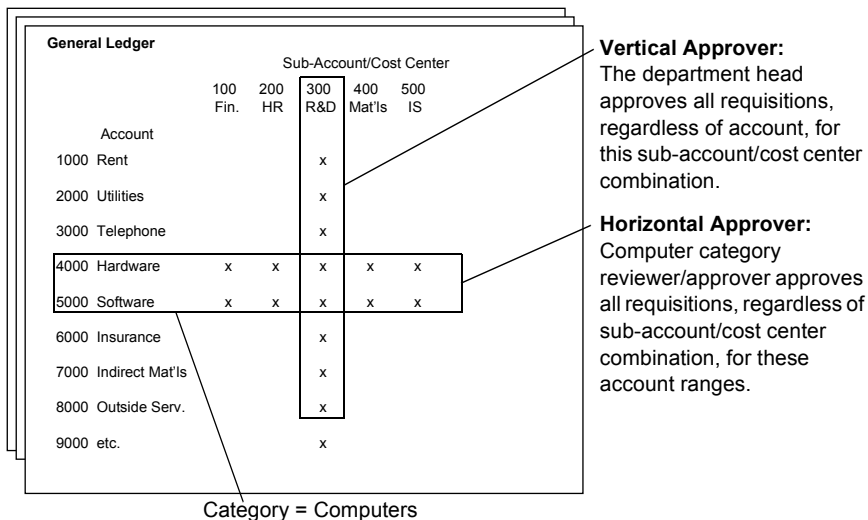
### Vertical Approvers

Many companies approve purchases on a group or department basis. Normally, a department manager or supervisor approves requisitions for the department. If this is the way your company works, you can define approvers *vertically* through the organization; the approval levels can be related to combinations of entities, sub-accounts, and cost centers.

Even if you use vertical approvers, you might want to have someone else review specific types of purchases across all organizations to make sure purchases conform to company policy. Then, you can also define categories and set up horizontal approvers with different ranges of account authorizations.

Figure 3.4 is a simplified overview of the difference between horizontal and vertical approvers. It also illustrates how a requisition might require both types of approval.

**Fig. 3.4**  
Vertical versus  
Horizontal  
Approvers



### Job Approvers

Sometimes, you might need to set up projects or other relatively short-term tasks that do not require long-term approval authority. In this case, you can set up one person—usually the program manager—as a *job* approver.

This approver can authorize requisitions within specified ranges of sub-accounts and cost centers—but only if the requisitions are associated with a specific job. This way, a single approver can authorize project-specific purchases originated by several departments (multiple sub-accounts).

### Product Line Approvers

Product lines group items for reporting, planning, and accounting purposes. A product line approver authorizes inventory purchases for direct materials associated with specific sites and product lines. A person who approves MRP-planned material purchases must be defined as a product line approver.

## Setting Up Requisition Defaults

Use Requisition Control (5.2.1.24) to establish default values for new requisitions you create with Requisition Maintenance (5.2.3). Setting default values saves time while preparing a requisition, because standard values are already filled in. As needed, the requisition originator can change most of these settings on individual requisitions.

**Example** Your company does not ordinarily use header comments on its requisitions, so you set the Header Comments field to No in Requisition Control. A requestor who needs to add header comments can change the field to Yes on individual requisitions.

The screenshot shows the 'Requisition Control' dialog box with the following settings:

- Using GRS:
- Requisition Prefix: req
- Next Requisition Number: 00000457
- Approval Currency: USD
- Product Line Approvals Required: 1
- Horizontal Approvals Required: 1
- Vertical Approvals Required: 1
- Use Tolerance Percent:
- Use Tolerance Value:
- Ln Format (S/M): Single
- E-mail Option: N
- Out Of Tolerance Routing: R
- Header Comments:
- Line Comments:
- Tolerance Percent: 0.00
- Tolerance Value: 1.00
- No E-mail
- None

**Fig. 3.5**  
Requisition Control  
(5.2.1.24)

*Using GRS.* Enter Yes to activate GRS. If set to No, the standard requisition programs located on the Purchase Requisitions Menu (5.1) are available. When Yes, you can no longer use Purchase Requisition Maintenance (5.1.4).

You cannot use requisitions created in Purchase Requisition Maintenance (5.1.4) to create purchase orders with GRS. Only GRS-created requisitions are available for the buyer to copy while using Build PO from Requisitions (5.2.18).

**Warning** If you activate GRS, create new requisitions in GRS Requisition Maintenance (5.2.3), then reset the Using GRS field to No, the GRS-created requisitions are not available from any of the 5.1 menu programs. In addition, any POs you have built from GRS requisitions are not accessible from Purchase Order Maintenance (5.7) when GRS is inactive.

**Tip**  
Prefix codes restrict the size of the numeric portion of the ID. The combined length cannot exceed eight characters.

*Requisition Prefix.* Enter an optional one- to three-character prefix for purchase requisition numbers. For example, you might want to make your purchase requisitions easy to identify by adding a prefix of RQ. When you add a new requisition and leave Requisition Number blank, it is automatically set to the prefix code followed by the next sequential number.

**Tip**  
Start with a large number (such as 10000) so that requisitions sort in sequence.

*Next Requisition Number.* This field displays the next automatic purchase requisition number for system-assigned numbers. When setting a default starting number, remember that purchase requisition numbers are alphanumeric and sort in that sequence: requisitions 10, 20, and 100 sort in the sequence 10, 100, 20.

*Approval Currency.* Specify the currency to be used in defining approval levels. The default is the system base currency.

Requisitions can be created in more than one currency. GRS converts other currencies to the approval currency as part of the approval process. A valid exchange rate must exist for this currency during approval.

*Product Line Approvals Required.* Specify the minimum number of approvers needed to approve direct material requisitions before they can be placed on a purchase order.

**Horizontal Approvals Required.** Specify the minimum number of category-oriented approvers needed to approve each category within a requisition before it can be placed on a purchase order.

**Vertical Approvals Required.** Specify the minimum number of organization-oriented approvers needed to approve requisitions before they can be placed on a purchase order. Job approvers are included in this number.

**Use Tolerance Percent.** Enter Yes if you want the system to check the cost of an item shown on the requisition against the actual cost specified on the purchase order. If this field is Yes and you enter a value in Tolerance Percent, the system compares the requisition maximum cost to the PO cost if the buyer increases the cost after copying the approved line to the PO. If the percentage is exceeded, GRS prompts the buyer to mark the line out of tolerance.

▶ See “Out-of-Tolerance Conditions” on page 88.

**Tolerance Percent.** Specify the default allowable percentage difference between the maximum cost shown on a requisition line item and the cost entered on the purchase order.

**Tip**  
If you set both Use Tolerance Percent and Use Tolerance Value to Yes, GRS uses the smaller of the two to determine if lines are out of tolerance.

**Use Tolerance Value.** Enter Yes or No to indicate whether you want to use Tolerance Value. Processing works similarly to Use Tolerance Percent.

**Tolerance Value.** Specify the default allowable cost difference between the maximum cost shown on a requisition line item and the cost entered on the purchase order. Processing works similarly to Tolerance Percent.

**Ln Format (S/M).** Specify the default method for entering purchase requisition line items—single-line or multiple-line. Multiple-line mode displays several lines on a single screen, but only allows input or modification of basic data. Single-line mode displays all data fields for one line per screen. This value can be changed at any time on individual requisitions.

**E-mail Option.** Enter the default e-mail mode. Valid settings are N, R, and E.

- Set to N (none), the default, if you do not want to use the system-generated e-mail features of GRS. Users cannot override this setting on individual requisitions.

▶ See “System-Generated E-Mail” on page 48.

- Set to R (regular) or E (extended) to make this the default e-mail mode for all requisitions. Users can change the default setting on individual requisitions.

**Tip**

This field is only used when Use Tolerance Percent or Use Tolerance Value is Yes.

**Out of Tolerance Routing.** Enter the code indicating the default routing for requisitions when the buyer chooses to route an out-of-tolerance line:

- R (requestor)
- L (last approver)
- F (first approver)
- N (none)

If you set the field to None, the Route To field on the out-of-tolerance routing screen defaults to blank.

**Header Comments.** Enter Yes if comments are normally entered on each requisition header. Information associated with the header usually applies to the entire requisition and prints at the top of the requisition. The field can be changed manually on a requisition. If you do not normally use header comments, set this field to No to avoid being prompted each time with the comment entry screen.

**Line Comments.** Enter Yes if comments are normally entered on each requisition line. The field can be changed manually on a requisition. If you normally do not use comments, set this field to No to avoid being prompted each time with the comment entry screen.

## Setting Up Automated E-Mail (Optional)

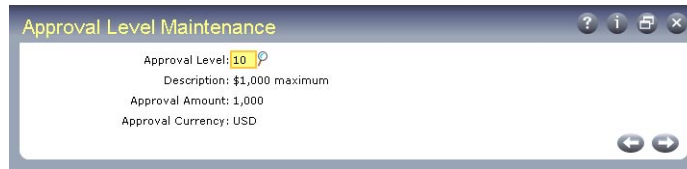
▶ See “System-Generated E-Mail” on page 48.

If you want GRS to send automatic e-mail notifications during the requisition approval cycle, use E-mail Definition Maintenance (36.4.20) to establish information about how GRS communicates with your e-mail system. You must also add e-mail information for each user in User Maintenance (36.3.18).

These functions are described in *User Guide Volume 9: Manager Functions*.

## Defining Approval Levels

An approval level within GRS is defined as the maximum amount of approval currency a person assigned that level is authorized to approve. You define approval levels in Approval Level Maintenance (5.2.1.1). To view existing approval levels, use Approval Level Browse (5.2.1.2).



**Fig. 3.6**  
Approval Level  
Maintenance  
(5.2.1.1)

**Approval Level.** Enter a two-digit number defining a level. At initial system setup, you should consider establishing these in increments of 5 or 10 so that you can later insert intermediate levels. These codes are also used in the Review Level field in approver maintenance programs (5.2.1.13 through 5.2.1.16).

Approval Level 00 is reserved by the system and indicates that a person is not an approver or reviewer. Individuals with this level are not included when reports are generated. Although you can route requisitions to zero-level approvers, their approvals do not count toward the number of required approvals specified in Requisition Control (5.2.1.24).

**Description.** Optionally enter a text description of the approval level. This description appears on various inquiries and reports.

**Approval Amount.** Enter the amount a person assigned this level is authorized to approve or required to review. This amount is expressed in the approval currency defined in Requisition Control.

This amount can represent either a maximum or minimum, depending on where it is used.

- In the approver maintenance programs, Approval Level is the *maximum* authorized level. When Approval Required is Yes in one of these programs, the associated individual must approve all requisitions *up to* this amount.
- But when Review Required is Yes, Review Level is a *minimum*—this individual must review all requisitions *above* this amount.

▶ See “Setting Up Approvers” on page 59.

**Approval Currency.** The system displays the currency defined in Requisition Control (5.2.1.24). You cannot update this field here.

## Setting Up Categories

A category is a logical grouping of accounts related to specific approvers. For example, you might have one person in your organization review all computer purchases.

Depending on the way your company wants to manage the requisition approval process, you can establish a set of categories with Category Maintenance (5.2.1.4). The center frame displays ranges of accounts and sub-accounts already associated with the category; use the bottom frame to add, modify, or delete records.

The same account numbers can be included in more than one category. If Verify GL Accounts is Yes in System/Account Control, each account and sub-account you enter must be valid on its own and in combination with each other.

Use Category Report (5.2.1.5) to view descriptions and ranges of accounts associated with existing categories.

**Fig. 3.7**  
Category  
Maintenance  
(5.2.1.4)

From Account	From Sub-Acct	Description	To Account	To Sub-Acct	Description
000PUR01	0100		000PUR01	0100	

**Category.** Enter a one- to four-character alphanumeric code identifying a category.

**Description.** Enter a brief description of the items in the category, such as computer equipment or communications. This description appears on various inquiries and reports.

*From Account.* Specify the beginning of a range of accounts to be included in this category. The same account numbers can be included in more than one category.

*From Sub-Acct.* Specify the beginning of a range of sub-accounts to be included in this category. Leave blank to include all sub-accounts up to the value specified in To Sub-Acct. This field can be left blank.

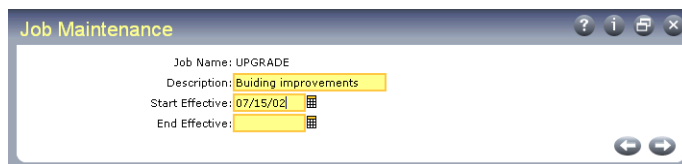
*To Account.* Specify the end of a range of accounts to be included in this category. To Account defaults to same value as From Account. Leave the default if you want only one account included. This field cannot be left blank.

*To Sub-Acct.* Specify the end of a range of sub-accounts to be included in this category. To Sub-Acct defaults to same value as From Sub-Acct. Leave the default if you want only one sub-account included. This field can be left blank.

## Setting Up Jobs

A job is a relatively short-term set of tasks, such as a limited-duration project. People from many different sub-accounts or cost centers often issue requisitions for the same job. To keep purchase accountability with one person—usually the project manager—you can set up a job code. Use Job Maintenance (5.2.1.7) to define jobs. Job Browse (5.2.1.8) lets you view existing job definitions.

**Note** While job and project are used for the same type of activity, projects are actually a component of an account and track expenses in the GL. Job is used only to determine an approver for a requisition.



The screenshot shows a window titled "Job Maintenance" with the following fields:

- Job Name: UPGRADE
- Description: Building improvements
- Start Effective: 07/15/02
- End Effective: (blank)

**Fig. 3.8**  
Job Maintenance  
(5.2.1.7)

**Job.** Specify an alphanumeric code identifying a job. When an approved requisition line is copied to a purchase order, this information is added to the Sales/Job field on the PO line. The job code is not validated against any system data. Consider establishing naming standards for your company to make the codes easy to recognize on reports and inquiries.

**Description.** Enter a short description of the project or activity for this job. This description appears on various inquiries and reports.

**Start Effective.** Specify the first date this job can be used on a requisition. The default is blank. Effective dates are optional. If you leave the date fields blank, the job is effective indefinitely.

**End Effective.** Specify the last date this job can be used on a requisition. The default is blank.

## Setting Up Buyers

The buyer—an individual who places purchase orders with suppliers—is the last person in the requisition process. After a requisition has passed through final approval, it is routed to the buyer, who references approved requisition line items on purchase orders. Use Buyer Maintenance (5.2.1.20) to add and delete buyers.

**Fig. 3.9**  
Buyer Maintenance  
(5.2.1.20)



**Buyer.** Specify the ID of a user previously defined in User Maintenance that is designated as a buyer. During the approval process, the buyer named on the requisition is notified by system-generated e-mail when the requisition is approved and ready to be moved onto a purchase order.

**Delete.** Enter Yes to remove the user's status as a buyer. Default is No; set to Yes to delete this person from the buyer master.

**Important** If you use generalized codes for the Buyer field (po\_buyer) in Purchase Order Maintenance (5.7), you must first use Generalized Codes Maintenance (36.2.13) to establish any user you want to define in Buyer Maintenance as a valid entry. Otherwise, an error displays in Buyer Maintenance.

## Setting Up Approvers

As discussed in the section on planning, GRS provides four programs for defining the approvers most appropriate to your company. These programs use combinations of the level, category, and job data you established earlier in the setup process, along with entity, sub-account, and cost center data, to define an approver profile.

Use Approver Report (5.2.1.17) to view information on existing approvers.

This section describes the four GRS approver maintenance programs. These programs include many common fields. Descriptions of these fields are provided only once and are not repeated for each program.

▶ See “Planning the Approval Process” on page 48.

The screenshot shows a software window titled "Horizontal Approver Maintenance". The window contains the following fields and values:

- User ID: tll
- Entity: 1000
- Category: 1300
- From Sub-Account: (empty)
- From Cost Center: (empty)
- Start Effective: (empty)
- End Effective: (empty)
- To Sub-Account: (empty)
- To Cost Center: 100
- Review Level: 00
- Approval Level: 10
- Amount: 0
- Amount: 100
- Review Required:
- Approval Required:
- Alternate Approver 1: sxx
- Alternate Approver 2: (empty)
- Administrative Approver: (empty)
- Start Effective: (empty)
- End Effective: 12/31/02

**Fig. 3.10**  
Horizontal Approver Maintenance (5.2.1.13)

**User ID.** Enter the ID of an individual assigned an expenditure authorization limit within a defined set of GL account, sub-account, cost center, and entity ranges. This can also be a reviewer—a person who may not have a high enough level to approve a purchase, but still reviews it from a policy or compliance standpoint.

**Tip** When you enter a valid value, the system displays the full description of the selected entry.

**Entity.** Enter the entity code for which an approver can authorize requisitions. Entity codes are used to process the GL transactions of a specific part of your company—an office or region, for example. Leave blank if this approver can authorize requisitions for all entities.

◆ See page 56.

**Category.** Enter the alphanumeric code for the selected category. This field applies to Horizontal Approver Maintenance only.

**From Sub-Account and Cost Center.** Specify the beginning of the range of sub-accounts and cost centers for which this approver is authorized to approve requisitions. If there are values in To Sub-Account and Cost Center, these fields cannot be blank.

**To Sub-Account and Cost Center.** Specify the end of the sub-account and cost center approval ranges. These default from the values in the From fields, if any. If there are values in From Sub-Account and Cost Center, these fields cannot be blank.

**Review Level.** Enter the two-digit code representing the minimum amount of specified currency an individual is required to review on a requisition. This field is used with the Review Required field to indicate that this person must review all requisitions at or above the level shown here—even if the person's approval authority is insufficient to make final approval.

**Review Required.** Enter Yes if all requisitions at or above the level specified in Review Level must be reviewed by this individual. Default is No. This applies only to requisitions requiring this person's approval type—horizontal, vertical, job, or product line.

**Approval Level.** Enter the two-digit code representing the maximum amount of specified currency an individual is authorized to approve on a requisition.

The way GRS uses this level varies by the type of approver. For example, for vertical and job approvers, the system determines approvers based on the total maximum cost of the requisition. This is because all the line items use the same sub-account and cost center combination. For horizontal approvers, GRS selects approvers based on the total maximum cost of all the line items for each category included on the requisition.

**Approval Required.** Enter Yes if all requisitions at or below the level specified in Approval Level must be approved by this individual. Default is No. This applies only to requisitions requiring this person’s approval type—horizontal, vertical, job, or product line.

**Alternate Approver 1, Alternate Approver 2.** Enter the ID of another approver with the same or greater expenditure authorization limit who is allowed to authorize requisitions on behalf of a regular approver when that person is not available. You can designate up to two alternate approvers.

**Tip**  
An alternate does not have to be the same type of approver—just the same level.

**Administrative Approver.** Enter the ID of an individual authorized to approve purchase requisitions on behalf of this approver. The person specified does not need to be assigned an approval level. Completing this field allows routine requisition activities to continue during a manager’s absence.

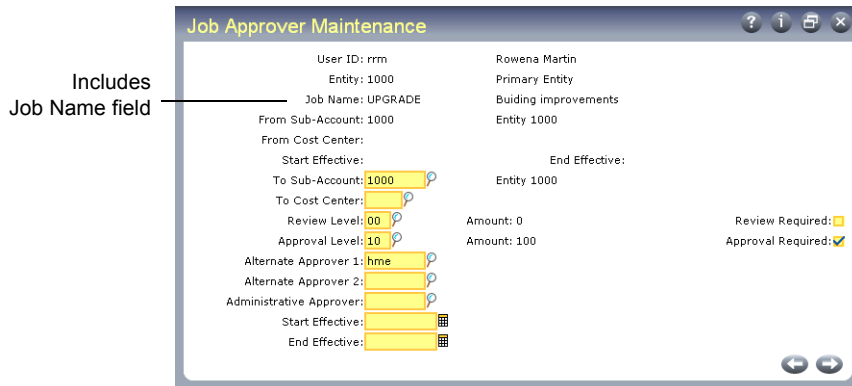
**Start Effective.** Enter the first date this approver is authorized to approve requisitions. The default is blank. Effective dates are optional; you can use start and end dates to assign approvers for short-term tasks or as temporary alternates.

**End Effective.** Enter the last date this approver is authorized to approve requisitions. The default is blank; effective period is open-ended.

Similar to Horizontal Approver Maintenance; does not include Category field

**Fig. 3.11**  
Vertical Approver Maintenance (5.2.1.14)

**Fig. 3.12**  
Job Approver Maintenance  
(5.2.1.15)

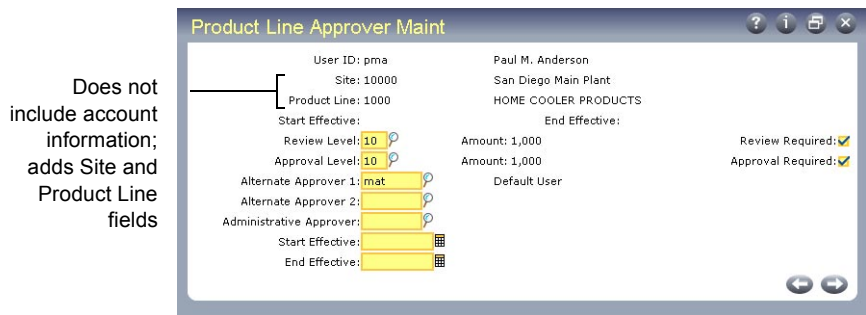


Includes  
Job Name field

See “Setting Up  
Jobs” on page 57.

**Job Name.** The job code assigned to this project or activity. This field applies to Job Approver Maintenance only.

**Fig. 3.13**  
Product Line Approver Maintenance  
(5.2.1.16)



Does not  
include account  
information;  
adds Site and  
Product Line  
fields

**Site.** Enter the site code for which this person is authorized to approve requisitions for inventory items. This field applies to Product Line Approver Maintenance only.

**Product Line.** Enter the code of the product line for which this person can approve requisitions. This field applies to Product Line Approver Maintenance only.

## Creating Purchase Requisitions

This section describes Requisition Maintenance (5.2.3), the main function you use to create a requisition and move it into the review and approval cycle.

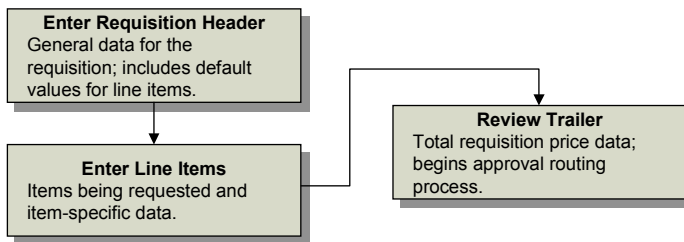
Purchase requisitions come from two sources:

- Manually entered requisitions built in Requisition Maintenance (5.2.3)
- Requisitions created by approving MRP planned orders with Planned Purchase Order Approval (23.11)

This section describes the structure of a requisition and discusses how to create a requisition using both of these sources.

### Creating a Requisition with Requisition Maintenance

With Requisition Maintenance (5.2.3), you build a requisition in three sections: the header, the line-item detail, and the trailer, as shown in Figure 3.14.



**Fig. 3.14**  
Requisition Entry Flow

This section provides a field-by-field description of each part of the requisition.

### Creating the Purchase Requisition Header

Data items you enter in the requisition header become defaults for each line of the purchase requisition. Header information is divided between two frames. You enter most of the data in the first frame; the second includes optional detailed supplier information.

When you begin entering detailed line-item data, you can modify some of these entries on individual lines.

**Note** Some fields are *required*; valid data must be entered in them or the system does not create the requisition. Other fields are *optional*; they do not require data for the system to create the requisition. Information in optional fields, such as Comments, can be used as follows:

- Explain the purpose of the requisition.
- When applicable, describe why the item being requested does not follow standards.
- Provide other information that might be needed during the approval or purchasing process.

**Fig. 3.15**  
Requisition  
Maintenance  
(5.2.3)

The screenshot shows the 'Requisition Maintenance' window with the following data:

Requisition Maintenance		
Req Number: RQ10004	Supplier: 5004000	Ship To: 10000000
<b>Supplier</b> Plastic Supply Corporation A Division of Hughes Intl. 18 Kilgore Road Oxnard CA 90293 United States of America		<b>Ship To</b> Quality Products Inc. Manufacturing Division One World Way San Diego CA 92130 United States of America
Rqstn Date: 07/26/2002	Sub-Account: [ ]	Currency: USD
Need Date: 07/26/2002	Cost Center: [ ]	Language: US
Due Date: 07/26/2002	Site: [ ]	Direct Matls: <input type="checkbox"/>
Entered By: mat	Entity: 1000	E-mail Option: <input checked="" type="checkbox"/>
Requested By: mat	Job Name: [ ]	Status: [ ]
End User: aqm	Project: [ ]	Comments: [ ]
Reason: [ ]		Aprvl Status: Unapproved
Remarks: INCLUDE TEST CERTIFICATION FOR ALL LO		

**Req Number.** Required. A unique control number must be assigned to each purchase requisition. You can enter a number of your own or let the system assign a number based on settings in Requisition Control (5.2.1.24). On a new requisition, leave this field blank and press Enter for a system-assigned number. To modify an existing requisition, enter its number.

**Supplier.** Optional. If you want to specify a supplier, enter the unique address code assigned to a supplier. If the supplier has not yet been defined in Supplier Maintenance (2.3.1), enter the supplier name, address, phone number, and name of contact in header comments.

If you do not specify a supplier, an approver or the buyer will complete this field during the approval process. If you enter a supplier code in the header, that supplier becomes the default for the entire requisition; you can change it at the line-item level.

**Ship To.** Optional. Enter the address to which the supplier is to send the goods. The default Ship To is set in Purchasing Control (5.24). If the default is not correct for this order, enter another Ship-To address.

**Requisition Date.** Required. Enter the date the requisition is created. The default is the current system date.

**Need Date.** Required. Enter the date the items are required at the end-user's site. Default is the system date. Need date is used on the purchase order generated from the requisition. It can be later than the due date to allow time for such activities as inspection or transportation from the receiving area to the end user. This date prints on most reports and inquiries. The need date can be changed for each line item. It cannot be earlier than the current date.

**Due Date.** Required. Enter the date the items are due to be received at the end user's site. Default is the system date. The system uses this date as the default for all line items on this requisition. However, you can change the due date when entering line-item data. It cannot be earlier than the current date.

**Entered By.** This reference field displays the log-in ID of the individual entering the requisition.

**Requested By.** Required. Enter the ID of the person requesting the items; validated against the user master. The system default is the log-in ID of the person completing the requisition. If you are using system-generated e-mail in the extended mode, the requestor receives requisition status e-mail.

**End User.** Required. Enter the ID of the person for whom the requisitioned items are intended; validated against the user master. If you are using system-generated e-mail in the extended mode, the end user receives requisition status e-mail.

**Reason.** Optional. Enter a brief explanation of the requisition for the approvers or purchase reviewers who authorize or deny the request. This field does not appear on the purchase order.

**Remarks.** Optional. Enter any remarks related to the requisition or to the supplier. This information applies to the entire requisition. It appears on system-generated e-mail messages and is also printed on the purchase order. When a supplier is specified in the header, and remarks for that supplier have been added in Supplier Maintenance (2.3.1), those remarks display here.

**Sub-Account.** Enter the alphanumeric code that identifies the department to be charged with the cost. May be required before final approval, depending on the GL setup of your company.

**Cost Center.** Enter the alphanumeric code designating the cost center for which the items are being purchased. May be required before final approval, depending on the GL setup of your company.

**Site.** Required. Enter the site from which the order is being placed. This becomes the default for the line items and can be changed at that level.

**Entity.** Required. Enter the entity code for the requisition. Entity codes are used to process the GL transactions of a specific part of your company—an office or region, for example.

**Job Name.** Optional. Enter the eight-digit alphanumeric code used to track expenses for a specific event or activity. If the items on this requisition are for a specific job, enter the job name. Otherwise, leave it blank.

The system uses jobs to determine appropriate reviewers and approvers for requisitions. When an approved requisition is copied onto a purchase order, the entry in this field is copied into the Sales/Job field.

**Project.** Optional. Enter the eight-digit alphanumeric code used to track expenses for a specific event or activity to a GL account. Project is not the same as the Job field, which is used to assign approval authority for requisitions and is not tied to the GL.

If Verify GL Accounts is Yes in System/Account Control (36.1), the system verifies that the project exists and is active and that it is valid with the other account components. When an approved requisition is copied onto a purchase order, the entry in this field is copied into the Project field.

**Currency.** Required. Enter the currency in which the purchase order will be created. Defaults from the supplier, if specified; otherwise, from the base currency in System/Account Control.

Requisitions can be created using any currency defined in Currency Maintenance (26.1) with a valid exchange rate. Exchange rates are set at the time the requisition is created, then recalculated when the buyer enters the PO price.

Fluctuations in exchange rates can create an out-of-tolerance condition; that is, the purchase price exceeds the maximum cost shown on the requisition line item by more than the out-of-tolerance parameters set in Requisition Control (5.2.1.24).

**Language.** Optional. Enter a language code if you want to use a language other than the default language for a requisition. A master comment, created in Master Comment Maintenance (1.12), can be stored in multiple languages using the same master reference code. The system uses language code to select comments in the appropriate language.

**Direct Materials.** Required. Specify whether this requisition applies to direct (MRP) materials items. The field defaults to No for all maintenance, repair, and operating supplies (MRO) purchases. GRS uses this field to determine whether a product line approval is required.

**E-mail Option.** Enter an optional e-mail mode: None, Regular, or Extended. This setting defaults from Requisition Control. If the system administrator has set this field to None, GRS is not using your company e-mail system.

If it is set to regular or extended, you can specify the extent to which you want GRS to generate e-mail messages during the approval process. The regular mode (R) sends a minimum number of messages—mainly to the user to whom the requisition is being routed. In the extended mode (E), status messages are sent to the requestor and end user.

**Tip**  
Define exchange rates in Exchange Rate Maintenance (26.4).

▶ See “Out-of-Tolerance Conditions” on page 88.

▶ See “System-Generated E-Mail” on page 48.

**Status.** Optional. Enter the code identifying the status of the requisition. The system uses this code to determine whether a requisition is to be included on some reports and inquiries:

- Blank indicates the requisition is open.
- X indicates the requisition is canceled. No further activity can be entered against a requisition with this status.

If a requisition or line item has been canceled, it can be reopened by changing the status.

**Comments.** Optional. Indicate whether you want to add header comments. The default is set in the Header Comments field of Requisition Control. Enter Yes if you want to enter additional information for approvers, purchase reviewers, and buyers to read when processing the requisition. Use comments for such things as new supplier data, item specifications, or special packaging or delivery requirements.

**Apvrl Status.** This reference field indicates whether the entire requisition is approved, not approved, or out of tolerance. At the header level, this field does not change to Approved until all lines have been approved. If at least one line item is out of tolerance, this field reads Out of Tolerance. If an out-of-tolerance line is changed on an approved requisition, this field reverts to Unapproved.

When you have completed the first frame of the header, press Go; the second frame displays.

**Fig. 3.16**  
Requisition  
Maintenance,  
Second Header  
Frame

Supplier			Ship To		
Plastic Supply Corporation			Quality Products Inc.		
A Division of Hughes Intl.			Manufacturing Division		
18 Kilgore Road			One World Way		
Oxnard	CA	90293	San Diego	CA	92130
United States of America			United States of America		

Req Number: RQ10004      Supplier: 5004000      Ship To: 10000000

Disc Pct: 0.00%      Price Table:      Discount Table:

**Discount %.** Optional. Enter the discount percentage the supplier is allowing for the requisitioned items. This discount percentage is the default for line items; you can change the discount at the line-item level if it varies by item. If a supplier is specified, this defaults from the supplier master.

**Price Tbl.** Optional. Specify the price table GRS uses to find the item's price. If a supplier is specified, this defaults from the supplier master. The entry in this field becomes the default value for the line items.

**Disc Tbl.** Optional. Specify the discount table GRS uses to look up the discount associated with this item. If a supplier is specified, this defaults from the supplier master. The entry in this field becomes the default value for the line items.

**Note** When you update the Price Tbl or Disc Tbl field on the header, the system prompts you to update line items. If you choose to make the updates, the system follows these rules:

- If the header specifies a supplier, the system updates the price or discount table only on line items that match the header supplier.
- If Supplier is blank in the header, the system updates only lines with a blank Supplier field.

**Tip**  
These fields are validated against the Price Table Required and Disc Table Required fields in Purchasing Control (5.24).

## Entering Line Items

You can enter line-item data in two modes—single-line or multiple-line—based on the setting of the Ln Format (S/M) field in Requisition Control (5.2.1.24).

In multiple-line mode, you can enter just the basic data for from 8 to 16 items—depending on your computer system—on a single screen. This basic data includes supplier data, site, item number, quantity, unit of measure, unit cost, and discount percentage. All other information defaults from the header.

**Note** If you need to change any of the other header information for a line item, you must use single-line mode, which displays detailed data for only one line on each screen. To change from multiple- to single-line mode, press End until the cursor appears in the Ln Format field; then enter S and press Go.

**Tip**  
You can alternate between Single and Multi when you are entering line items.

**Fig. 3.17**  
Requisition Maintenance,  
Requisition Line  
Frame

The screenshot shows a window titled "Requisition Maintenance". At the top, it displays "Req Nbr: RQ10004", "Supplier: 5004000", and "Ln Format (S/M): Single". Below this is a table with the following data:

Line	Site	Item Number	Supplier	Req Qty	UM	Unit Cost	Disc%
1	T100	TT-500L	5004000	100.0	EA	1.50	0.00%

Below the table are several data fields:

- Due Date: 07/26/2002
- Need Date: 07/31/2002
- Type: [ ]
- Category: UPGRADE
- Pur Acct: 5100
- Supplier Item: [ ]
- Manufacturer: [ ]
- Description: L-model clip
- Single Lot:
- Revision: [ ]
- UM Conversion: 1.0000
- Stock UM Quantity: 100.0
- Quantity Ordered: 0.0
- Maximum Unit Cost: 1.50
- Ext Cost: 150.00
- Max Ext Cost: 150.00
- Status: [ ]
- Comments:
- Approval Status: Unapproved

**Line.** Required. Enter a unique identifier for each line of the requisition. Press Enter to create a new line number. The line number is used to identify individual requisition lines during the review, approval, and purchase order process. To view or modify an existing line item, enter the number of the line or use Next/Previous to scroll through the list of line items.

**Site.** This value defaults from the header, but can be changed for each line item.

**Item Number.** Optional. Enter the catalog or stock identifier used for the inventory system. For memo item purchases, enter a brief description of the item being purchased. For other purchases, enter the item number from the item master. You can enter additional information in line-item comments, if needed.

**Supplier.** This value defaults from the header, but can be changed for each line item. When you advance to this field, a pop-up window prompts you for an optional price table and discount table.

**Tip**  
Memo items are not defined in Item Master Maintenance.

**Fig. 3.18**  
Requisition Maintenance,  
Supplier Detail  
Frame

The screenshot shows a window titled "Supplier" with the following information:

Supplier  
Plastic Supply Corporation  
A Division of Hughes Intl.  
18 Kilgore Road  
Oxnard CA 90293  
United States of America  
Pr Tbl: [ ] Disc Tbl: [ ]

*Pr Tbl.* Optional. This value defaults from the header, but can be changed for each line item.

*Disc Tbl.* Optional. This value defaults from the header, but can be changed for each line item.

**Note** Line-item price and discount tables may be updated automatically based on changes to the associated fields in the requisition header.

▶ See page 69.

*Req Qty.* Required. Enter the quantity of the item needed.

*UM.* Optional. Enter the unit of measure in which goods or services are priced, ordered, and received; for example, EA (each), BX (box), DZ (dozen), LT (lot), or HR (hour). UM is used in the search for a price on the associated price list or discount table.

*Unit Cost.* Optional. Enter the price from the associated price list or discount table. The system uses this information to calculate the extended cost of the line item.

*Disc %.* This value defaults from the header, but can be changed for each line item.

*Due Date.* This value defaults from the header, but can be changed for each line item.

*Need Date.* This value defaults from the header, but can be changed for each line item.

*Type.* Optional. The type of purchase. If you enter an inventory item code in the Item Number field, Type defaults to blank. Non-inventory items show M (memo) in this field. Valid item codes with blank types are visible to MRP as a source of supply. To identify an inventory item that should not be placed in inventory when received—for example, an extra quantity ordered for a special event—enter M in this field.

*Category.* Optional. Enter the code specifying a logical grouping of related items by GL account number. Category is used to determine the type of approval required for the item. If you enter an account code in Pur Account or if one defaults from the supplier, the system attempts to determine the category. You can override this entry.

**Pur Acct.** Required before final approval. Enter the GL account code used to record purchases. The Purchases account is a combination of the GL account, sub-account, cost center, and project. It defaults from the Purchases account in the supplier master when a supplier is specified. The entry in this field depends on the way your company's GL is set up.

**Sub-Account.** This value defaults from the header, but can be changed for each line item.

**Cost Ctr.** This reference field displays the cost center that was specified in the header, if any.

**Project.** This value defaults from the header, but can be changed for each line item.

**Supplier Item.** Optional. If the item has been defined in Supplier Item Maintenance (1.19), the system displays the supplier's item number in this field so it can be referenced on the purchase order.

**Manufacturer.** Reference field. If the supplier item master includes a manufacturer, it displays in this field.

**Description.** Optional. If you enter an inventory line item, Description defaults from the item master. If you enter a non-inventory item, "Item Not In Inventory" displays. Clear the field and enter a brief description of the item. This description prints on formal documents such as POs.

**Single Lot.** Optional. Specify whether each receipt requires a unique lot number. This information is copied onto the purchase order with the approved line item. It defaults from Compliance Control (1.22.24).

**Revision.** Optional. Enter the code identifying the engineering revision of this item. This code defaults from the item master. It is copied with the approved line item onto the purchase order. The code can be changed to indicate that the required revision is not the same as the one defined in Item Master Maintenance.

**UM Conversion.** Optional. Enter the factor used to calculate the equivalent amount or value from purchase unit to stock unit of measure (default is 1). This value defaults from the value defined in Unit of Measure Maintenance (1.13), if available.

▶ See *User Guide*  
Volume 6: *Master*  
*Data*.

This field allows for correct conversion of both the items and their currency value. For example, your company might control pencils as individual items; however, the supplier might sell them only by boxes containing 24 pencils. In that case, set the value of UM Conversion to 24.

**Stock UM Quantity.** This reference field displays the requisition quantity converted from the supplier's unit of measure to the unit of measure in which your company stocks this item.

**Quantity Ordered.** This reference field displays the actual quantity ordered. The default is zero. When all or part of a requisition line-item quantity is placed on a purchase order, that quantity is reflected in this field.

**Maximum Unit Cost.** Required. This field allows you to specify a higher purchase cost than entered in the Unit Cost field. The default is Unit Cost regardless of the discount percentage, but you can change it manually. The (optionally) higher cost by line item is used to calculate the total cost for which the requisition is approved. The system uses this cost when calculating whether the requisition is within tolerance parameters set in Requisition Control (5.2.1.24).

**Ext Cost.** This reference field displays a calculation using the quantity ordered, unit cost, and discount to determine total extended cost.

**Max Ext Cost.** This reference field displays a calculation using the quantity ordered and maximum unit cost to determine total maximum extended cost.

**Status.** Optional. This value identifies the status of the individual requisition line.

- Blank indicates the line item is open.
- X indicates the line item is canceled. No further activity can be entered against a line item with this status.

If a line item has been canceled, it can be reopened by changing the status. When a requisition is canceled at the header level, X displays on all line items.

**Comments.** Optional. Indicate whether you want to enter comments for this line. This is not the same field as header comments; you can add different comments for each line item if you choose.

- Enter Yes if you want to enter additional information about this line item—for example, item specifications or special packaging or delivery requirements.
- Enter No if you do not want to enter comments.

The system maintains a minimum audit trail of changes to purchase requisitions, so you can use comments to record changes to line items that might be important later for informational or tracking purposes. Line item comments can be copied onto the PO in Build PO from Requisitions (5.2.18); the buyer can then choose to print them on the PO.

### Completing the Trailer

In the final section of Requisition Maintenance, the trailer, you decide whether the requisition is ready to enter the approval process. The first trailer screen displays the total extended cost and maximum extended cost in both the requisition currency (left column) and the approval currency (right column).

**Fig. 3.19**  
Requisition  
Maintenance,  
Summary Frame

Requisition Totals			
Ext Cost Total: 150.00	USD	150.00	USD
Max Ext Cost Total: 150.00	USD	150.00	USD

Route this requisition

If you are satisfied that the requisition is correct, choose Yes. A routing frame lets you send the requisition into the approval process.

If you choose not to route the requisition at this time—for example, if you want to wait for additional information on a line item—then exit without adding any routing information. The requisition remains in your queue. You can return to it later by entering its number on the first screen of Requisition Maintenance, or you can use Requisition Routing

Maintenance (5.2.14) if the requisition is ready to route. The approval process does not start until you route the requisition to the first approver or reviewer.

Requisition Totals			
Ext Cost Total: 150.00	USD	150.00	USD
Max Ext Cost Total: 150.00	USD	150.00	USD

**Fig. 3.20**  
Requisition  
Maintenance,  
Routing Frame

**Action.** Specify the routing action you want to take. For new requisitions entering the approval process, select 1 to route the requisition to the first approver.

**Currently Routed To.** Enter the code for the user in whose queue the requisition resides. You can change this only if you are an alternate or administrative approver for the current routed-to user.

**Requisition Number.** Enter the requisition you want to route. This defaults from the requisition you have just completed.

**Maintain Aprvl Comments.** Enter Yes if you want to add comments for the next person on the routing to read.

**Route To.** Enter the code for the first person in the approval process. Use the look-up browse to view the list of appropriate approvers determined by the system based on sub-account, cost center, category, and job information. On MRP orders, this is a product-line approver.

**Buyer.** Enter the employee responsible for issuing a purchase order for approved requisition items. You can leave this field blank. However, a purchase reviewer or approver must complete the field before final approval.

▶ See “Requisition Routing Maintenance” on page 82.

If your company uses the system-generated e-mail feature, the buyer is informed by e-mail when the requisition has been approved. If a default supplier was entered for the requisition, and if a buyer was defined for that supplier in Supplier Maintenance (2.3.1), that buyer’s user ID appears in this field. It can be changed to any valid buyer.

When you have completed the routing frame and added approval comments (if any), you are prompted to confirm your actions. This routes the requisition into the approval process.

### Approving MRP Planned Orders

You can also create a purchase requisition by approving MRP planned orders using Planned Purchase Order Approval (23.11).

**Fig. 3.21**  
Planned Purchase Order Approval (23.11)

Establish selection criteria for planned orders.

Planned Purchase Order Approval

Item Number:  To:   
 Site: T100 To: T100  
 Release Date:  To:   
 Default Approve:   
 Buyer/Planner:   
 Include Phantoms:   
 Include Manufactured Items:

Ln	Req	Item Number	Qty Ordered	Rel Date	Due Date	Appr
1	RQ10021	TT-600	600.0	07/30/2002	07/30/2002	<input type="checkbox"/>
2	RQ10021	TT-600	500.0	08/12/2002	08/12/2002	<input type="checkbox"/>
3	RQ10021	TT-610	1,500.0	07/30/2002	07/30/2002	<input checked="" type="checkbox"/>
4	RQ10021	TT-620	900.0	07/30/2002	07/30/2002	<input checked="" type="checkbox"/>
5	RQ10021	TT-630	1,800.0	07/30/2002	07/30/2002	<input checked="" type="checkbox"/>

Approve planned orders to create a multiple-line requisition.

Ln	Req	Item Number	Qty Ordered	Rel Date	Due Date	Appr
1	RQ10021	TT-600	600.0	07/30/2002	07/30/2002	<input checked="" type="checkbox"/>

In the first screen of Planned Purchase Order Approval, you set selection criteria for MRP planned orders. You then set the Approve field to Yes or No for each planned order, as appropriate. The system creates one multiple-line requisition that includes all the approved planned orders. The new requisition number appears on all approved lines.

Use Requisition Maintenance (5.2.3) to make any required changes to the new requisition before beginning the approval process.

## Reviewing and Approving Requisitions

This section describes the procedures for approving, denying, or rerouting purchase requisitions.

As a requisition reviewer or approver, you are informed by system-generated e-mail—assuming your company is using that feature—that a requisition is awaiting action. You use Requisition Approval Maintenance (5.2.13) to review the requisition and then approve, deny, or reroute it. If you find incorrect or incomplete information, you can go from the approval screen directly into Requisition Maintenance (5.2.3) to make corrections and additions.

When you have completed your review, if you have a high enough approval level, you can approve the requisition for release and forward it to Purchasing. Or you can deny the requisition, reroute it to the originator for additional work, or reroute it to another approver.

This section describes the procedures used for routing and approving requisitions.

### Reviewing and Approving a Requisition

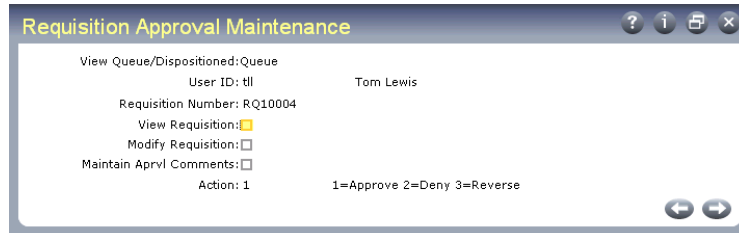
Requisition Approval Maintenance (5.2.13) is used to review and approve or deny a requisition. It also provides tools for viewing and modifying the requisition. When you have completed your approval, you use the program to forward the requisition to the next person in the approval process; additional routing options are provided by Requisition Routing Maintenance. (5.2.14)

### Requisition Approval Maintenance

When a requisition is ready to be reviewed, the originator begins the approval process as described in Reviewing and Approving Requisitions. If your company uses automated e-mail, the first person in the approval process receives a message that a requisition is awaiting action. The approver then uses Requisition Approval Maintenance (5.2.13) to look at the requisition. To see a list of requisitions waiting for an approver's disposition, use Approver's Open Req. Inquiry (5.2.16).

Use the View Queue/Dispositioned field in Requisition Approval Maintenance to select a requisition from the queue of items awaiting your attention.

**Fig. 3.22**  
Requisition  
Approval  
Maintenance  
(5.2.13)



**View Queue/Dispositioned.** Specify which list of requisitions you want to select from. The setting in this field determines which list you see when you use the arrow keys or the look-up browse.

Queue: The list of requisitions that are currently routed to you

Dispositioned: The list of requisitions that you have already acted on

**User ID.** Displays the user ID of the reviewer or approver. This field defaults to the individual logged on to the system. You can change this to another person's ID only if you have been designated as this person's alternate or administrative approver in an approver maintenance program.

**Requisition Number.** Enter the number of the requisition you want to approve. Use the arrow keys to select from the Queue or Dispositioned list.

**View Requisition.** Enter Yes or No to indicate whether the system should display the requisition in read-only mode, as shown in Figure 3.23. If you select Yes, the requisition is immediately displayed. At the line level, you can then choose the line to display details.

The screenshot displays the 'Requisition Approval Maintenance' window. At the top, it shows the Order number (RQ10004), Supplier (5004000), and Ship To (10000000). Below this, there are two columns: 'Supplier' and 'Ship To'. The Supplier information includes Plastic Supply Corporation, A Division of Hughes Intl., 18 Kilgore Road, Oxnard, CA 90293, United States of America. The Ship To information includes Quality Products Inc., Manufacturing Division, One World Way, San Diego, CA 92130, United States of America. At the bottom, there are various fields for dates, times, and user information, along with a 'Remarks' field containing 'INCLUDE TEST CERTIFICATION FOR ALL LO'.

Supplier			Ship To		
Plastic Supply Corporation			Quality Products Inc.		
A Division of Hughes Intl.			Manufacturing Division		
18 Kilgore Road			One World Way		
Oxnard	CA	90293	San Diego	CA	92130
United States of America			United States of America		

Rqstn Date: 07/26/2002	Sub-Account:	Currency: USD
Need Date: 07/26/2002	Cost Center:	Language: US
Due Date: 07/26/2002	Site:	Direct Matls: <input type="checkbox"/>
Entered By: mat	Entity: 1000	E-mail Option: N
Requested By: mat	Job Name:	Status:
End User: aqmn	Project:	Comments: <input type="checkbox"/>
Reason:		Aprvl Status: Unapproved
Remarks: INCLUDE TEST CERTIFICATION FOR ALL LO		

**Fig. 3.23**  
Requisition  
Approval  
Maintenance, View  
Requisition Screen

When you are finished viewing the requisition, press Exit to return to the Requisition Approval Maintenance screen.

**Modify Requisition.** Indicate whether you want to change the requisition. If you select Yes, the requisition is immediately displayed, as shown in Figure 3.24. Although the screen label still says Requisition Approval Maintenance, the program can perform all the functions of Requisition Maintenance. Modify the requisition as needed.

▶ See “Creating a Requisition with Requisition Maintenance” on page 63.

**Fig. 3.24**  
Requisition  
Approval  
Maintenance,  
Modify Requisition  
Screen

The screenshot displays the 'Requisition Approval Maintenance' window. At the top, it shows 'Order: RQ10004', 'Supplier: 5004000', and 'Ship To: 10000000'. Below this, there are two columns: 'Supplier' and 'Ship To'. The 'Supplier' column lists 'Plastic Supply Corporation', 'A Division of Hughes Intl.', '18 Kilgore Road', 'Oxnard CA 90293', and 'United States of America'. The 'Ship To' column lists 'Quality Products Inc.', 'Manufacturing Division', 'One World Way', 'San Diego CA 92130', and 'United States of America'. The bottom section contains various fields: 'Rqstn Date: 07/26/2002', 'Need Date: 07/26/2002', 'Due Date: 07/26/2002', 'Entered By: mat', 'Requested By: mat', 'End User: aqm', 'Reason: [redacted]', 'Remarks: INCLUDE TEST CERTIFICATION FOR ALL LO', 'Sub-Account: [redacted]', 'Cost Center: [redacted]', 'Site: [redacted]', 'Entity: 1000', 'Job Name: [redacted]', 'Project: [redacted]', 'Currency: USD', 'Language: US', 'Direct Matls: [checkbox]', 'E-mail Option: N', 'Status: [redacted]', 'Comments: [redacted]', and 'Aprvl Status: Unapproved'. Navigation arrows are visible at the bottom right.

When you have completed the changes, press Exit to return to the Requisition Approval Maintenance screen (Figure 3.22).

**Maintain Aprvl Comments.** Enter Yes or No to indicate whether you want to add comments for subsequent approvers to read. If you select Yes, you can enter comments.

**Action.** Enter the code for one of three possible actions. Enter 1 to approve the requisition, 2 to deny it, or 3 to reverse an earlier action.

After you review, modify, and take action on the requisition, you are prompted to confirm that all the information is correct; if you select Yes, you are prompted to route the requisition. No returns you to the Requisition Approval Maintenance screen.

If you select Yes on the routing prompt, a routing screen (Figure 3.25) lets you route the requisition to the next reviewer. If you select No, the action you indicated takes effect, but the requisition stays in your queue until you route it.

**Fig. 3.25**  
Requisition  
Approval  
Maintenance,  
Routing Screen

**Action.** Specify the routing action you want to take.

- Select 1 to route the requisition to the person whose user ID you enter in Route To.
- If you change your mind or route the requisition to the wrong person, select 2 to return the requisition to your queue.

**Currently Routed To.** This field displays the ID of the user in whose queue the requisition resides. You can change this only if you are an alternate or administrative approver for the current routed-to user.

**Requisition Number.** Enter the number of the requisition you want to route. This defaults to the requisition you have just reviewed.

**Maintain Aprvl Comments.** Enter Yes if you want to add comments for the next person on the routing to read. The default is No.

**Route To.** Enter the ID of the next person in the approval process. Use the look-up/browse to view the list of appropriate approvers determined by the system based on sub-account, category, and job information.

**Buyer.** Enter the ID of the person responsible for issuing a purchase order for approved requisition items. Buyers are defined with Buyer Maintenance (5.2.1.20). Unless you are the final person to approve the requisition, you can leave this field blank. However, a reviewer or approver must complete the field before final approval. The buyer is informed by system-generated e-mail when the requisition has been approved.

## Final Approval

If your approval is the last one needed, the system displays a message that the requisition is approved and prompts you to route the requisition to Purchasing. If you choose Yes and the Buyer field has not been completed, the cursor advances to Buyer. When you enter the user ID of a valid buyer, the approval process is finished.

However, you can override this system action. If you want another person to review the requisition, choose No. The cursor then moves to the Route To field, and you can specify another user.

## Requisition Routing Maintenance

Requisition Routing Maintenance (5.2.14) can be used instead of Requisition Approval Maintenance to route a requisition to another user. It also offers the ability to reverse a previous routing. For example, you, as a reviewer or approver, might accidentally route a requisition to the wrong person, or you might change your mind about the routing after it has been completed. When you reverse a previous routing, the recipient receives a second e-mail with the message that the requisition is no longer awaiting action.

**Fig. 3.26**  
Requisition  
Routing  
Maintenance  
(5.2.14)

See page 81.

The fields in Requisition Routing Maintenance are the same as those in the routing screen of Requisition Approval Maintenance.

This completes the approval process. The next section describes how the buyer creates a purchase order from the approved requisition lines.

## Using Requisitions to Build POs

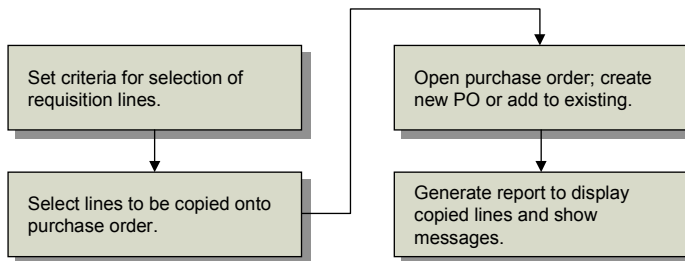
This section describes how to select requisition line items and use them to create a purchase order.

When a requisition has been approved, you can reference the requisition line items on a purchase order in two ways:

- On a new or existing purchase order, use Purchase Order Maintenance (5.7) to reference each individual requisition line on a PO line.
- Copy requisition lines directly to a new or existing purchase order using Build PO from Requisitions (5.2.18).

▶ See “Modifying the Purchase Order” on page 88.

This section discusses the second option. Figure 3.27 summarizes the task flow.



**Fig. 3.27**  
Build PO from Requisitions Task Flow

### Creating a Purchase Order

Build PO from Requisitions (5.2.18) consists of a series of frames that lead you through the build process:

- 1 Set the criteria you want to use for selecting appropriate requisition lines.
- 2 Select the lines you want to copy to the purchase order.
- 3 Open a purchase order; either create a new PO or open an existing one where you want to append the requisition lines.
- 4 Generate a report on the copy process. This report displays the lines that you copied, as well as any warning messages GRS has generated.

## Establishing Selection Criteria

The first screen lets you specify a number of selection criteria for the system to use in displaying approved requisition line items. You do not have to use all the criteria; use only the fields appropriate to the selection you want to make. You also specify on this screen whether you want the default setting for copying line items to the new PO to be Yes or No.

**Fig. 3.28**  
Build PO from  
Requisitions  
(5.2.18)

**Requisition Number.** Enter the first of the range of requisition numbers you want to include in the selection. Enter the same number in the To field to limit the selection to one requisition.

**Supplier.** Enter the first of the range of supplier numbers you want to include in the selection. Enter the same number in the To field to limit the selection to requisitions including only that supplier.

**Item Number.** Enter the first of the range of item numbers you want to include in the selection. Enter the same number in the To field to limit the selection to requisitions including only that item.

**Need Date.** Enter the first in the range of need dates you want to include in the selection. Enter the same date in the To field to limit the selection to requisitions including only that need date.

**Buyer.** Enter the user ID of the buyer. This defaults to the user who logged on. Clear this field to display the selection list for all buyers. You can also enter another buyer's user ID.

**Site.** Enter a specific site code to be included in the selection criteria.

**Tip**  
To include only requisitions that do not have a supplier specified, set Blank Suppliers Only to Yes.

**Requested By.** Enter the user ID of a specific requestor to be included in the selection criteria.

**Job Name.** Enter a specific job code to be included in the selection criteria.

**Ship-To.** Enter a specific ship-to address to be included in the selection criteria.

**Currency.** Enter a specific requisition currency to be included in the selection criteria.

**Blank Suppliers Only.** Enter Yes or No to indicate whether you want to view only those requisitions that *do not* have a supplier specified; the default is No.

**Note** If you have also made an entry in the Supplier field, changing Blank Suppliers Only to Yes takes precedence—only requisitions without a supplier are selected.

**Include MRP Items.** Enter Yes or No to indicate whether you want to include direct materials items in the selection criteria; defaults to Yes. If you do not want to include requisitions for direct materials in the selection criteria, change this field to No. If you set this to No and leave Include MRO Items set to Yes, the selection screen includes only MRO items.

**Tip**  
MRP items are received into inventory and considered by MRP as a source of supply.

**Include MRO Items.** Enter Yes or No to indicate whether you want to include MRO items in the selection criteria; defaults to Yes. If you do not want to include requisitions for MRO items in the selection criteria, change this field to No. If you set this to No and leave Include MRP Items set to Yes, the selection screen includes only direct-materials items.

**Tip**  
MRO items include maintenance, repair, and operating supplies.

**Copy Header Comments.** Enter Yes or No to indicate whether to copy header comments onto a new PO; defaults to Yes. If set to Yes and you are creating a new purchase order, the header comments from the first requisition you selected for copying become the header comments on the PO. This only applies the first time you copy lines to a new purchase order. If you are appending lines to an existing PO, the field is ignored. Once you have copied the header comments, you can modify them in Purchase Order Maintenance (5.7).

**Copy Line Comments.** Enter Yes or No to indicate whether to copy requisition line comments into PO line comments; defaults to Yes.

**Default Copy.** Enter Yes or No to indicate the default value for the Copy field on the line items listed on the next screen as a result of the criteria selection; defaults to Yes.

### Selecting Purchase Requisition Line Items

After you have completed the first screen, GRS shows a list of approved, open requisition line items that meet your selection criteria. Set the Copy field to Yes for lines you want to copy. The Copy field is the only field on this screen that can be changed.

**Fig. 3.29**  
Build PO from Requisitions, Selection Screen

Select a line for copying. →

Build PO from Requisitions							
Req Nbr	Line	Item Number	Open Qty	Need	Supplier	Buyer	Copy
RQ10007	2	TT-500L	50.0	07/29/2002	00100	jlb	<input checked="" type="checkbox"/>
RQ10017	1	TT-500	50.0	07/30/2002	5001000	jlb	<input checked="" type="checkbox"/>
RQ10022	1	22-120	100.0	08/02/2002	5001000	jlb	<input checked="" type="checkbox"/>

When you have selected the lines you want to copy to the PO, you are prompted to confirm that all the information is correct. Select Yes to advance to the next screen; No returns the cursor to the selection screen.

### Adding Requisition Lines to the Purchase Order

After you select the approved requisition lines you want to copy, a purchase order header frame appears. If you want to copy the requisition items to a new purchase order, press Enter and the system assigns a new PO number. To append the copied requisition lines to an existing purchase order, enter the PO number.

Build PO from Requisitions

Purchase Order: PO1050    Supplier: 00100    Ship-To: 10000000    Output:

Supplier	Ship To
Swift Transport 2100 Hueneme Road Port Hueneme CA 93033 United States of America	Quality Products Inc. Manufacturing Division One World Way San Diego CA 92130 United States of America

Adding new record

**Fig. 3.30**  
Build PO from Requisitions, First Header Frame

Message indicates a new PO.

A message at the bottom of the screen indicates whether this PO is new or existing. If it is a new purchase order, the Supplier and Ship-To fields default from the first requisition you selected for copying. You can change these fields as required. If this is an existing purchase order, that PO's Supplier and Ship-To values are displayed. If you want to change one of these fields, you must use Purchase Order Maintenance (5.7).

Use the Output field to select the way you want to display the PO report.

**Note** Sending this report to a printer is *not* the same as printing the PO for the supplier. When you are ready to issue the PO, print it with Purchase Order Maintenance (5.7) or Purchase Order Print (5.10).

### Using the PO Report

The PO report shows a line-by-line summary of all the requisition items you copied to the purchase order. Warnings, if any, are displayed after each line item. Review the report and make changes as needed in Purchase Order Maintenance (5.7).

Among other things, the report indicates conflicts between the header supplier and line-item supplier.

**Fig. 3.31**  
PO Build Report

```

rgpdold.p                    5.2.18 Build PO From Requisition                    Page: 1
Need Site  Req      Byeq  NJob   Item Number  Open QTY  UM Unit Cost  Disc
10000     REQ2700                0009000          1  EA   20.00   0.004%

site100

WARNING: PO LINE SITE IS DIFFERENT FROM PO HEADER SITE.
Record Added
    
```

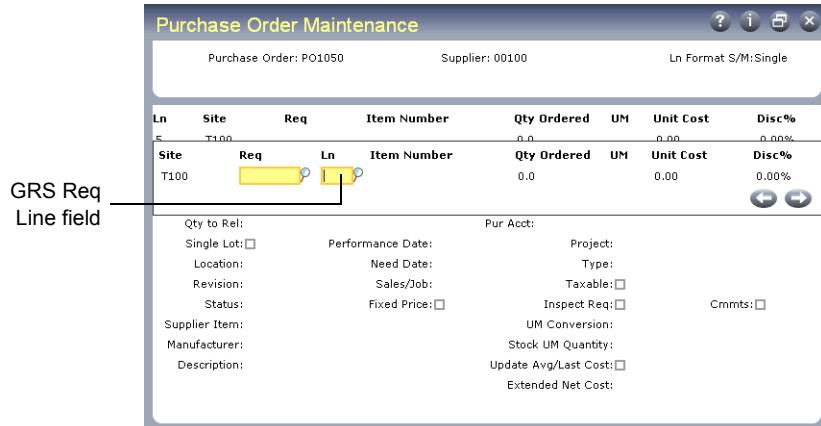
## Modifying the Purchase Order

▶ See “Creating Purchase Orders” on page 15 for details on Purchase Order Maintenance.

Use Purchase Order Maintenance (5.7) to make any changes required to the new purchase order and continue the purchasing process. When GRS is active, a requisition line field displays to accommodate the multiple-line requisitions built in GRS (see Figure 3.32).

A look-up browse on the Req field lists the approved requisitions currently routed to Purchasing so that they can be added directly to the PO without using Build PO from Requisitions (5.2.18).

**Fig. 3.32**  
Purchase Order Maintenance (5.7),  
Line Item Frame



## Out-of-Tolerance Conditions

▶ Control settings for out of tolerance are described beginning on page 53.

Your company defines the way it wants to deal with out-of-tolerance conditions in Requisition Control (5.2.1.24). Two fields—Use Tolerance Value and Use Tolerance Percent—enable the system administrator to control if and how GRS calculates out of tolerance. Out-of-tolerance processing works only if one of those fields is set to Yes.

A requisition line becomes out of tolerance if the buyer changes the Unit Cost field on a PO line to exceed the requisition maximum cost by more than the tolerance percent or tolerance value. When this happens, GRS displays the out-of-tolerance cost along with a Mark Requisition Line Out of Tolerance field.

The screenshot shows the 'Purchase Order Maintenance' window. At the top, it displays 'Purchase Order: PO1056', 'Supplier: 5001000', and 'Ln Format S/M:Single'. Below this is a table with the following data:

Ln	Site	Req	Item Number	Qty Ordered	UM	Unit Cost	Disc%
1	T100	RQ10017	TT-500	50.0	EA	2.00	0.00%

Below the table, the requisition details are shown:

Requisition: RQ10017      Req Ln: 1

PO Net Unit Cost: 2.00000      USD      EA      2.00000      USD      EA

Maximum Unit Cost: 0.70000      USD      EA      0.70000      USD      EA

Mark Requisition Line Out Of Tolerance:

Reroute Requisition:

**Fig. 3.33**  
Purchase Order  
Maintenance, Out-  
of-Tolerance Frame

If the buyer selects No, the cursor returns to the Unit Cost field—offering the buyer a chance to enter a lower value to bring the line back into tolerance. The line cannot be placed on a PO if its cost is higher than the maximum approved cost plus the tolerance value or percent, if one has been assigned.

When the buyer selects Yes, the cursor advances to the Reroute Requisition field. If the buyer sets the field to Yes, a Routing Maintenance screen appears. The Route To defaults from the setting in the Out of Tolerance Routing field in Requisition Control. The buyer can change this to any valid user. If the buyer chooses not to route the out-of-tolerance requisition at this time, it stays in the buyer's queue.

**Note** When the buyer marks a line out of tolerance, the Aprvl Status fields in the requisition header and the requisition line detail change from Approved to Out of Tolerance. If the requisition maximum cost is changed to bring the line back into tolerance, the status changes to Unapproved, and the requisition must repeat the approval process for that line before it can be placed on a purchase order. While the status is Out of Tolerance, the line can still be placed on a PO if the buyer enters a cost that is within the tolerance parameters.



# Sales Quotations

The Sales Quotations functions let you respond to a customer's request for a quote, monitor the quote's status, report on quote history by item or customer, and report on expired quotes that did not result in sales orders. You can also automatically create sales orders from approved quotes. This chapter explains how to manage sales quotes.

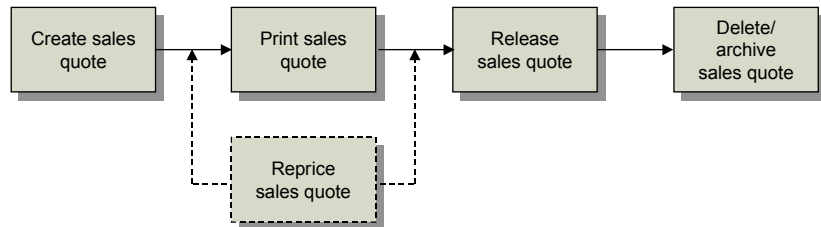
<i>Sales Quotations Overview</i>	<b>92</b>
<i>Setting Up Sales Quotes</i>	<b>93</b>
<i>Creating Sales Quotes</i>	<b>95</b>
<i>Printing Sales Quotes</i>	<b>100</b>
<i>Releasing Sales Quotes</i>	<b>100</b>
<i>Repricing Sales Quotes</i>	<b>102</b>
<i>Deleting and Archiving Sales Quotes</i>	<b>103</b>

## Sales Quotations Overview

A sales quotation or sales quote is a commitment to sell a certain customer certain items at a certain price. Customers who use bids for choosing suppliers often request quotes. Exact delivery dates and order quantities are usually specified when a quote becomes a sales order.

The Sales Quotations module includes tools to enter and print a sales quote, release it to a sales order, update prices on the quote, create a new quote from an existing quote or sales order, and track lost sales by reason code.

**Fig. 4.1**  
Sales Quote  
Process Flow



## Types of Quotes

MFG/PRO supports two types of sales quotes:

- One-time quote for a single sale. When the customer agrees to the terms, you can release the quote to an order.
- Recurring quotes for repeat business. The quantity to release represents the quantity you anticipate the customer will order each time. If the customer orders on a regular cycle such as weekly or monthly, you can enter a cycle code. Groups of quotes can be released together based on cycle code.

▶ See *User Guide Volume 7: Release Management*.

To support customer partnerships and recurring deliveries, the system provides an alternative to sales quotes. The Customer Schedules function in the optional Release Management module provides more visibility into the timing of a customer's projected requirements. Additionally—unlike sales quotes—MRP sees customer schedules as a source of demand. If you choose to use quotes instead of customer schedules, be sure to include anticipated sales from open quotes in your forecast.

## Menu Listing

Table 4.1 illustrates the functions available in the Sales Quotation module.

Number	Menu Label	Program
7.12.1	Sales Quote Maintenance	sqqomt.p
7.12.2	Sales Quote Browse	sqbr001.p
7.12.3	Sales Quote Print	sqqorp05.p
7.12.5	Sales Quote Copy from Order	sqqocpy.p
7.12.6	Sales Quote Copy from Quote	sqqoqo.p
7.12.8	Sales Quote Repricing	sqrepr.p
7.12.10	Sales Quote Release to Order	sqqoso.p
7.12.13	Sales Quote by Quote Report	sqqorp.p
7.12.14	Sales Quote by Customer Report	sqqorp01.p
7.12.15	Sales Quote by Item Report	sqqorp02.p
7.12.16	Sales Quote Gross Margin Report	sqqorp08.p
7.12.17	Sales Quote Reason Lost Report	sqqorp03.p
7.12.23	Expired Quote Delete/Archive	sqqoup.p
7.12.24	Sales Quote Control	sqqopm.p

**Table 4.1**  
Sales Quotation  
Menu (7.12)

## Setting Up Sales Quotes

To create a sales quote, your system must first be set up with standard data—customer addresses, sites, item masters, and so on. For example, if you track salespersons and commissions, set up records in Salesperson Maintenance before issuing sales quotes.

Set most of the defaults for entering and controlling sales quotes in Sales Quote Control (7.12.24). Some of the default settings shared with sales orders—for example, Calculate Freight and Display Weights—come from Sales Order Control (7.1.24). You can change many defaults on individual quotes.

**Fig. 4.2**  
Sales Quote  
Control (7.12.24)

The screenshot shows a window titled "Sales Quote Control" with the following settings:

- Quote Prefix: SQ
- Next Quote: 100011
- Ln Format S/M: Single
- Are Quotes Printed:
- Company Address: 10000000
- FOB: Escondido
- Quote Header Comments:
- Quote Line Comments:
- Days Until Expire: 60
- Calculate Freight by Site:
- Price Table Required:
- Vary Pricing Date by QO Line:

Use control program settings to tailor the Sales Quotations module to the way your business works.

**Quote Prefix and Next Quote.** Set up a prefix for the quote number to easily distinguish quotes from sales orders. Start automatic number assignment with a high number to ensure that the alphanumeric sort properly sequences the quotes.

**Ln Format S/M.** You can enter quotes in either single- or multiple-line mode—depending on how many fields are updated during order entry. New quotes default to the value set in this field.

**Are Quotes Printed.** Set this field based on your company procedure. This field determines the default for the Print Quote field when a new quote is created.

**Company Address.** Use Company Address Maintenance (2.12) to set up the company address you want printed on the top of the sales quote—generally, your formal address.

**FOB.** Optional default free-on-board location for calculating freight charges manually. A value set here appears in the quote trailer and is copied to the sales order.

**Quote Header and Line Comments.** Set default values based on whether your company normally uses comments.

**Days Until Expire.** Enter a default number of days for the system to add to the quote date to produce an expiration date. For example, if you set this field to 60, then generate a quote on April 3, the Expires field on the quote header defaults to June 2.

**Tip**  
Leave blank to use  
preprinted forms.

**Calculate Freight by Site.** Companies with multiple ship-from sites usually set this field to Yes. The system then calculates freight charges using the line item site. Otherwise, it uses the header site.

**Price Table Required.** This field determines how strictly price lists are used to control order entry.

No: Items can be entered whether or not a price list exists.

Yes: Only items from an existing price list can be entered, and only if the price list item, unit of measure, and currency match the order item, unit of measure, and currency exactly.

**Vary Pricing Date by QO Line.** During line-item entry in Sales Quote Maintenance, a pop-up window displays four fields related to pricing: Pricing Date, Credit Terms Interest %, Reprice, and Manual. If Vary Pricing Date by QO Line is Yes, you can modify the Pricing Date and Credit Terms Interest % fields for each line. When Vary Pricing Date by QO Line is No, you cannot update these fields on individual lines. Instead, the system automatically updates all the lines when you change the header field.

## Creating Sales Quotes

Since the quote is an optional first step in the sales order process, you can enter most of the data needed by the sales order on a quote. The system copies the data to the sales order when you release the quote.

You create a sales quote by entering data in Sales Quote Maintenance or by copying an existing quote or sales order.

### Using Sales Quote Maintenance

The sales quote is similar in layout to the sales order. Multiple frames display when you enter a quote: the header, optional comments, line items and optional comments, and the trailer.

▶ See “Creating Sales Orders” on page 108.

### Header Information

Header information applies to the entire quote. Some values default from control program settings and master data, but you can change many of them. The header identifies the customer as well as billing and shipping

locations. This section also contains pricing and credit terms information. You do not need to enter dates (Required, Promise, and Due Dates) until you are ready to release the quote to a sales order.

**Fig. 4.3**  
Sales Quote  
Maintenance  
Header (7.12.1)

The screenshot shows the 'Sales Quote Maintenance' window with the following data:

- Quote: SQ10253
- Sold-To: 01000000
- Bill-To: 01000000
- Ship-To: 01000000

**Sold-To Details:**

- Company: Colossal Conglomerates LTD
- Address: Suite 1000 Colossal Building, Colossal Industrial Park, Evanston, IL 090876, United States of America

**Ship-To Details:**

- Company: Colossal Conglomerates LTD
- Address: Suite 1000 Colossal Building, Colossal Industrial Park, Evanston, IL 090876, United States of America

**Additional Fields:**

- Quote Date: 07/16/2002
- Expires: 09/14/2002
- Confirm Date: [Empty]
- Follow-up: [Empty]
- Pricing Date: [Empty]
- Purchase Order: [Empty]
- Remarks: ALL SHIPMENTS PER CORP CONTRACT A-00
- Reprice:
- Entered By: pnm
- Line Pricing: [Empty]
- Manual: [Empty]
- Site: 10000
- Channel: [Empty]
- Project: [Empty]
- Release:
- Currency: USD
- Taxable:
- Language: US
- Fixed Price:
- Credit Terms: 30
- Credit Terms Interest %: 0.00
- Cycle Code: [Empty]
- Recurring:

Most of the fields on a sales quote are the same as the corresponding fields in Sales Order Maintenance. Fields that apply especially to quotes are described here.

**Expires.** Enter the date the quote expires. The system calculates this date by adding the time interval specified in the Days Until Expire field (Sales Quote Control) to the quote date. You can override this date.

**Purchase Order.** Specify the customer purchase order number, if any. Frequently, the customer knows only their own purchase order number—so a cross-reference on your quote can be useful. If PO Required is Yes for the customer, the quote cannot be released to a sales order unless a purchase order number is specified.

**Release.** Enter Yes or No to indicate whether a sales order should be created from this quote. Sales Quote Release to Order (7.12.10) examines this value. Orders are only created for quotes with a Yes in the release field, matching other selection criteria. Typically, this field is set to Yes when the customer accepts the quote.

**Tip**  
PO Required is defined in Customer Maintenance (2.1.1).

▶ See “Releasing Sales Quotes” on page 100.

**Fixed Price.** This field indicates whether the quoted prices are fixed or subject to batch updates due to inflation, commodity repricing, or break quantities. The header value sets the default for each line. Sales Quote Repricing (7.12.18) examines the value of this field to determine if a line item price should be adjusted.

▶ See “Repricing Sales Quotes” on page 102.

Unlike most quote fields, the value of Fixed Price on the header is not copied to the order when a quote is released. The system redefaults the appropriate value from Customer Maintenance. However, the value established for each quote line is copied.

**Cycle Code.** If Recurring is Yes, indicate the frequency you plan on releasing sales orders from this quote. Set up values in Generalized Codes Maintenance (36.2.13) for field qo\_cycle to standardize input.

**Recurring.** Enter Yes to allow a quote to be used for a sales order more than once. If the quote is reused on a regular basis, you can enter a cycle code. Recurring quotes can also be used for recurring deliveries or blanket customer orders.

**Tip**  
Quotes are not considered by MRP.

**Last Sales Order and Release Count.** Used for recurring quotes only. Last Sales Order displays the number of the last sales order released from this recurring quote. Release Count displays how many times this quote has been released to sales orders.

**Reason Lost.** You can use this to track sales quotes that did not become sales orders. Predefine codes with Reason Codes Maintenance (36.2.17). The Sales Quote Reason Lost Report (7.12.17) lists quotes by reason lost codes. You can also enter a reason lost code by line item.

## Line Item Section

A quote contains one or more lines. Each line includes the item number, quantity quoted, and unit of measure. If the item number is your customer’s number, the system displays your internal item number, referenced from Customer Item Maintenance. Both numbers print on all sales quote documents.

You can enter line items in single- or multiple-line mode—the default is specified in Sales Quote Control. More fields are available for updating in single-line mode, such as Due Date and Qty to Release, but multiple-line entry is quicker. You can switch between the two within a quote.

**Fig. 4.4**  
Sales Quote  
Maintenance Line  
Items (7.12.1)

The screenshot shows the 'Sales Quote Maintenance' window. At the top, it displays 'Quote: SQ10025', 'Sold-To: 01000000', and 'Ln Format S/M:Single'. Below this is a table with the following data:

Ln	Item Number	Qty Quoted	UM	List Price	Discount	Net Price
1	10-1000	1.0	EA	0.00	0.0	0.00

Below the table, there are several fields for item details: Desc: Item Not In Invent, Location: S, Lot/Serial: S, Qty to Release: 0.0, Qty Released: 0.0, Cost: 0.00, Fixed Price: , Required: , Promise: , Due Date: . A pricing dialog box is open, showing Pricing Date: 07/16/2002, Credit Terms Int: 0.00, Reprice: , Manual:  (highlighted in yellow), Taxable: , Comments: , and Credit Terms Int: 0.00. Navigation arrows are visible at the bottom of the dialog box.

Most of the quote line values default from the header and can be updated on each line item. These fields are used in almost exactly the same way as sales orders. Fields specific to quotes are:

**Qty to Release.** Determines the Qty Ordered field on the sales order line created from the quote. This field defaults to the Qty Quoted. For recurring quotes, the release quantity is usually less than the quote quantity. It represents the quantity to release each cycle: For example, if the quote is for 12 months of support billed monthly, enter a quote quantity of 12 and a quantity to release of 1.

The line item quantity refers to the quote as a whole. But since multiple sales orders can be made from one quote, Qty to Release and Qty Released indicate what to enter on a single sales order and how much has been released on all sales orders generated from this quote so far.

**Qty Released.** The system updates this field automatically each time a quote is released. It indicates how much has been released on all sales order lines generated from this quote.

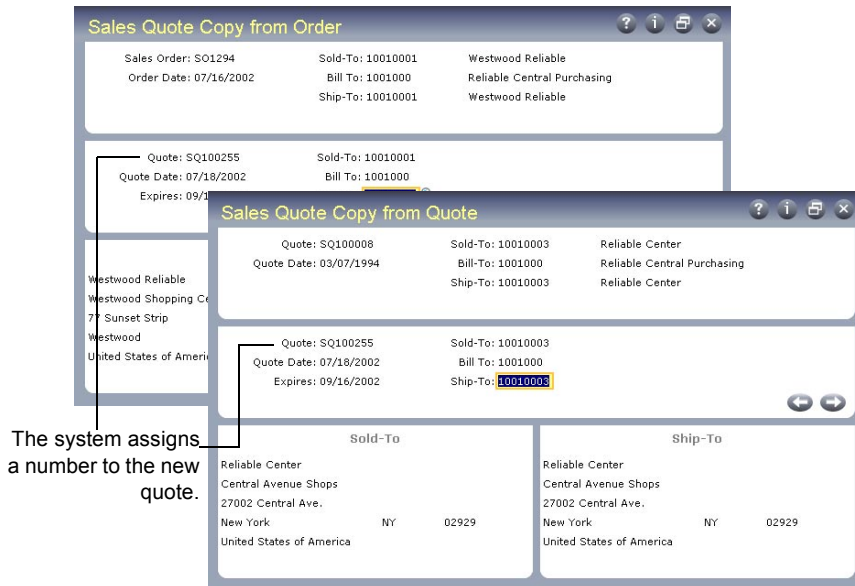
## Trailer Section

Once all line items are entered, trailer information displays. Line items are totaled, and taxes, optional order discounts, and freight charges are calculated. Add any miscellaneous charges here. The fields on the trailer are similar to those on the sales order trailer. The value of Print Quote defaults from Sales Quote Control.

▶ See “Sales Orders/Invoices” on page 105 for details.

## Copying a Sales Quote

Sales Quote Copy from Order (7.12.5) and Sales Quote Copy from Quote (7.12.6) are useful for minimizing data entry for similar quotes.



**Fig. 4.5**  
Sales Quote Copy from Order (7.12.5) and Copy from Quote (7.12.6)

Enter the number of the sales order or quote to be copied; then add the customer and ship-to address codes and the quote expiration date. The system generates a new quote based on this data and the information in the source quote or order. You can modify the quote as needed in Sales Quote Maintenance before printing or releasing it.

## Printing Sales Quotes

Use Sales Quote Print (7.12.3) to print single or multiple quotes by number, customer, or quote date. Set Print Features and Options to Yes to list detailed data for configured items.

**Fig. 4.6**  
Sales Quote Print  
(7.12.3)

The quote layout depends on the Form Code setting.

After printing the selected quotes, the system prompts you to verify that they printed correctly. This updates the Print Quote field in Sales Quote Maintenance (7.12.1) to prevent unwanted duplication. To reprint a quote that has successfully printed before, you must manually reset the field to Yes.

Tax detail (tax type, tax rate, and so on) prints only if Display Detail on Reports is Yes in Global Tax Management Control.

## Releasing Sales Quotes

**Tip**  
Cycle codes are used with recurring quotes.

When the customer requests delivery, modify the Release field in Sales Quote Maintenance (7.12.1) and specify Yes. Then enter the Qty to Release and Due Date for each line item. Sales Quote Release to Order (7.12.10) enables you to release quotes to sales orders by cycle code, quote number, customer number, or quote date.

Enter a number or let the system use the next number from Sales Order Control.

**Fig. 4.7**  
Sales Quote  
Release to Order  
(7.12.10)

When you release a quote, the system resets several fields in Sales Quote Maintenance:

- Release in the header is reset to No on all quotes except recurring quotes with a non-blank cycle code.
- Released Date displays the new sales order date.
- Release Count increments by one if it is a recurring quote.
- The number of the created sales order appears in Last Sales Order.

You do not have to release the entire quantity of a sales quote to one sales order. The system can process multiple releases for any line item.

If you release an item by mistake, use Sales Order Maintenance to change, cancel, or delete the line. These changes do not affect the values in Release Count and Qty Released, however.

A sales quote cannot be released if either of these conditions exists:

- It has a non-blank action status.
- The customer requires a PO and one has not been specified.

## Repricing Sales Quotes

### Tip

Tax is also recalculated, if applicable.

You may need to change the price of items on sales quotes, particularly when the product is commodity based. Sales Quote Repricing (7.12.8) uses the same logic as Sales Quote Maintenance to recalculate the price of eligible lines on the selected sales quotes.

**Fig. 4.8**

Sales Quote Repricing (7.12.8)

You can perform optional credit checks during repricing.

▶ See “Sales Orders/Invoices” on page 105 for more information on repricing.

Enter selection criteria to specify quotes for repricing. If you leave the selection criteria blank, the system reprices all eligible quotes using the best pricing algorithm and recalculates quantity breaks and discounts. Only quote lines with Fixed Price set to No are included.

As a part of the update process, you can optionally perform credit checking and update credit action status based on the newly calculated prices.

**Check Credit.** If No, the following two fields are skipped and no credit checking is performed.

**Set/Clear Action Status.** If Yes and the quote exceeds the customer credit limit, the Action Status is updated to the New Action Status. If a quote on hold is now found to be within the customer credit limit, the action status is cleared.

**New Action Status.** Specify the new action status to be placed on quotes that exceed the customer credit limit. If left blank and Set/Clear Action Status is Yes, the system automatically resets the action status to HD (hold).

**Recalculate Taxes.** Indicate whether tax amounts should be recalculated for the quotes being repriced. Tax recalculation will overwrite any manually updated tax values.

The update report shows both the old and new price and the discount for all lines changed. Price is determined by the quantity ordered, but the open quantity is printed on the report. The update creates transaction history records for all lines changed.

## Deleting and Archiving Sales Quotes

The system does not automatically delete historical information at period or year end. You can delete this information as often as you want.

Most companies keep old quotes available for some time—you can use them with Sales Quote Copy from Quote to generate new quotes. When you do delete them, be aware that Expired Quote Delete/Archive (7.12.23) deletes all quotes that have passed the specified expiration date, regardless of whether they have been released to sales orders or not.

Run with Delete set to No and review the report. Then run with Delete set to Yes.

**Fig. 4.9**  
Expired Quote Delete/Archive (7.12.23)

When Delete is Yes, historical information satisfying the selection criteria is deleted from the database. When Archive is Yes, deleted data is also copied to an ASCII file that can be reloaded using Archive File Reload (36.16.5). Otherwise, deleted data cannot be recovered.



# Sales Orders/Invoices

MFG/PRO enables you to manage all aspects of sales order and invoice processing, including creation, confirmation, allocation of inventory, shipping, and posting.

<i>Introduction</i>	<b>106</b>
<i>Creating Sales Orders</i>	<b>108</b>
<i>Calculating Promise and Due Dates</i>	<b>116</b>
<i>Processing Freight Charges</i>	<b>118</b>
<i>Repricing Sales Orders</i>	<b>120</b>
<i>Printing Sales Orders</i>	<b>123</b>
<i>Printing Picklists</i>	<b>123</b>
<i>Shipping</i>	<b>124</b>
<i>Managing Containers and Shippers</i>	<b>125</b>
<i>Processing Invoices</i>	<b>126</b>
<i>Processing Returns</i>	<b>129</b>
<i>Generating Reports</i>	<b>130</b>

## Introduction

Four modules are typically involved in the sales order process:

▶ See Chapter 4, “Sales Quotations,” for details.

- 1 Sales Quotations (7.12) enables you to:
  - Respond to a customer’s request for a quote
  - Monitor a quote’s status
  - Easily release a quote to an order, copying relevant data
  - Provide visibility on potential gross margin contribution
  - Provide quote history by item number or customer
  - Generate reports on expired quotes that did not result in customer orders

- 2 Sales Orders/Invoices (7) enables you to:
  - Create a sales order
  - Confirm the order
  - Determine whether inventory is available to promise on the due date
  - Allocate needed inventory
  - Ship
  - Invoice
  - Post the invoice

▶ See Chapter 9, “Configured Products,” for details.

- 3 Configured Products (8) enables you to:
  - Define a product in terms of its components
  - Specify if components are optional or mandatory
  - Release a sales order directly to a work order

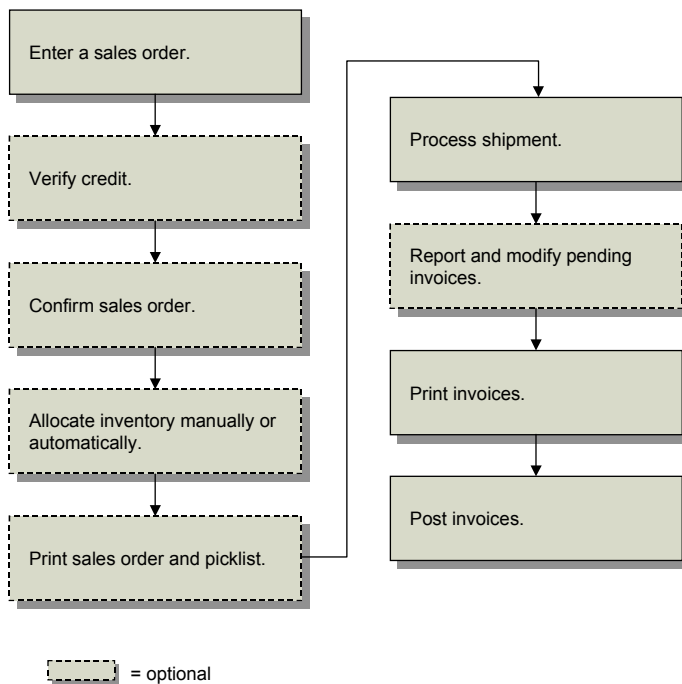
▶ See Chapter 11, “Sales Analysis,” for details.

- 4 Sales Analysis (7.17) enables you to:
  - Monitor salesperson productivity and effectiveness at maintaining margins
  - Report sales by product or item
  - Rank items by sales, margin, or quantity

## Sales Order Work Flow

A customer sale can begin as a sales order or a sales quote. Both represent offers to sell the customer certain items at a certain price at a certain time. The sales order also represents a commitment from the customer to purchase the items, but a sales quote does not. Consequently, sales quotes are not considered by MRP.

When a customer accepts a sales quote, the quote is released to a sales order. Information from the sales quote is automatically transferred to the sales order. Figure 5.1 shows a typical sales order life cycle.



**Fig. 5.1**  
Sales Order Life Cycle

The system supports a number of different shipping methodologies, from the very simple to highly complex. The most simple methods are discussed in this chapter. Other shipping methods are discussed in Chapter 7.

▶ See page 148 for details.

Once invoices are posted, financial processing continues with accounts receivable functions.

▶ See *User Guide Volume 4A: Financials* for details.

## Creating Sales Orders

Use Sales Order Maintenance (7.1.1) to create a sales order, which includes three sections.

### Tip

If you use sales quotes, Sales Quote Release to Order copies information from the quote into the new sales order. See “Releasing Sales Quotes” on page 100.

- Header. Contains the general terms of the order, as well as default values for line items.
- Line Item. Specifies a particular item being ordered, its order quantity, and price. Lists any exceptions to header information, such as a date or address that applies to only the line item and not the whole order.
- Trailer. Contains tax, shipping, and order status information for all line items.

## Effect of Optional Features

A number of optional features and modules affect the processing of sales orders. Many of these options add additional pop-up windows that display during header or line-item entry. This chapter describes standard sales orders. If you are using optional features, the following list indicates where you can find additional information when:

- ▶ See page 134 for details.
  - You are using available-to-promise (ATP) features and the system determines that insufficient inventory will be available on the due date. These pop-ups are described in Chapter 6.
- ▶ See page 248 for details.
  - You are using Enterprise Material Transfer (EMT). These pop-ups are described in Chapter 8.
- ▶ See page 106 for details.
  - You are entering a sales order for a configured item. These pop-ups are described in Chapter 9.
  - You are using Service/Support Management (SSM) and you enter a sales order for a service item that updates the installed base. This feature is explained in *User Guide Volume 8A: Service/Support Management*.
  - You are changing a value in a field or deleting an entire sales order line and these conditions are tracked for changes. This feature is explained in *User Guide Volume 9: Manager Functions*.

- You are using the optional PRO/PLUS Container and Line Charges module and the order qualifies for container or line charges. These effects are described in *User Guide Volume 11: PRO/PLUS*.
- You are using the optional Customer Consignment Inventory module. The effect of this module in sales orders is described in *User Guide Volume 2B: Distribution*.
- You are using the optional Logistics Accounting module. The effect of this module in sales orders is described in *User Guide Volume 6: Master Data*.

## Header

Some header elements, such as some date fields, Site, and Confirmed, become default values for the line items and can be changed during line item entry. Others, such as Sold To and Line Pricing, apply to the entire sales order and cannot be changed on the line items.

The screenshot shows the 'Sales Order Maintenance' window with the following data:

Sales Order Maintenance			
Order: S01294	Sold-To: 10010001	Bill To: 1001000	Ship-To: 10010001
Sold-To		Ship-To	
Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America		Westwood Reliable Westwood Shopping Center 77 Sunset Strip Westwood CA 89029 United States of America	
Order Date: 07/16/2002	Line Pricing: <input checked="" type="checkbox"/>	Confirmed: <input checked="" type="checkbox"/>	Language: US
Required Date: 07/31/2002	Manual: <input type="text"/>	Currency: USD	Taxable: <input type="checkbox"/>
Promise Date: 07/31/2002	Site: 10000	Channel: <input type="text"/>	Project: <input type="text"/>
Due Date: 07/21/2002	Perform Date: <input type="text"/>	Fixed Price: <input checked="" type="checkbox"/>	Credit Terms: 2/10-30
Pricing Date: <input type="text"/>	Purchase Order: PO127865	Credit Terms Interest %: 0.00	Reprice: <input type="checkbox"/>
Remarks: STORE HOURS BETWEEN 10:30 AND 5 PM.	Entered By: pnm		

**Fig. 5.2**  
Sales Order  
Maintenance  
(7.1.1)

Major header fields include the following:

**Order Date.** The default is the system date. This can be the date the order was entered into the system or the date the customer placed the order.

**Required Date.** Enter the date the customer requires delivery. The default is blank. If you specify a different date than the due date, the system uses the value you enter as the default for new line items. If the header required date is the same as the due date, the line-item default is blank.

**Promise Date.** Enter the date that items are promised to arrive at the customer location. If you enter a date, it defaults to each new order line.

The header default is blank on both new orders and revised orders. If you enter a date in this field, the system resets the field to blank each time you access the order header.

**Due Date.** The system calculates the default due date by adding the Shipping Lead Time from Sales Order Control (7.1.24) to the Order Date. You can change this date.

▶ See “Calculating Promise and Due Dates” on page 116 for information.

**Note** Based on control program settings, the system may use Due Date, Required Date, and Promise Date to determine default dates on order lines.

The system uses the due date for MRP and for determining shipping priorities.

**Performance Date.** Enter the date originally planned to be the due date. If you enter a date, it defaults to each new order line.

The header default is blank on both new orders and revised orders. If you enter a date in this field, the system resets the field to blank each time you access the order header.

This date does not include transit time and can be used to evaluate the accuracy of shipment due dates.

▶ See *User Guide Volume 6: Master Data* for more information on sales order pricing.

**Pricing Date.** Enter the date used to select effective price lists. If you leave this field blank, it defaults from one of the other header dates after you finish entering header data. The system uses the date specified in SO Default Price Date in Pricing Control (1.10.1.24).

The date in this field defaults to each line item. You can modify it for individual lines only when Vary Pricing Date by SO Line is Yes in Sales Order Control.

**Line Pricing.** Enter Yes to have the system price each line item as it is entered and then display the best price. If No, the system waits until all line items are entered, then prices the order. In either case, if the prices change because of quantity breaks, the system recalculates the price. This setting only affects new orders. If you are maintaining an existing order, this field has no effect.

**Confirmed.** When you release a sales quote to an order, Confirmed is set to Yes in the header and each line and cannot be modified. When you create a new sales order, Confirmed defaults from Confirmed Orders in Sales Order Control and can be modified. The header value then defaults to the line items.

Enter Yes in the header to indicate a firm order. Firm orders can be allocated, consume forecast, and create demand for MRP. Enter No in the header to keep the order unconfirmed. Unconfirmed orders cannot be allocated and are not considered by MRP.

To confirm an order, run Sales Order Confirmation (7.1.5). To confirm by batch at the end of order processing, set Auto Batch Confirmation to Yes in Sales Order Control (7.1.24).

In the line item section, the Confirmed field indicates the item's status. If Yes, the system considers that line item firm. If No, the system does not consider it firm.

**Manual.** Enter a price list to have it included as a price list candidate when the system selects price lists to consider for this order. By specifying a manual price list, you are only marking it to be considered. The system still determines the best price according to the rules and codes previously set up.

**Fixed Price.** Indicates whether the prices for items on this order are normally fixed or subject to batch updates due to inflation, commodity repricing, or break quantities. If Yes, Sales Order Repricing (7.1.11) does not update the line. Fixed Price defaults from the customer ship-to Fixed Price setting, if it exists; otherwise, from the sold-to. The header value of Fixed Price defaults to line items and can be changed on each line.

♦ See “Repricing Sales Orders” on page 120.

**Reprice.** Enter Yes to have the system reprice changed line items. It also reprices line items belonging to the same break category as an item code to which you make a change. If No, you can still reprice

each line item individually in the order detail pop-up window. If Reprice is No on the order header and you enter a new line item, the system automatically reprices the new line.

**Consume Forecast.** Specifies whether the quantity ordered should consume available forecast. If Yes, the order consumes the forecast. If No, the order quantity is considered abnormal and is planned in addition to the forecast. The setting in the header defaults to the line items and can be changed.

**Detail Alloc.** Indicates whether the system should make detail allocations for this line. If No, the system makes general allocations. This value defaults from Sales Order Control and becomes default value for line items.

**Allocate Days.** Optionally, enter the number of calendar days until cutoff date for allocating sales orders items. Use this field to manually control allocations. In Sales Order Maintenance, Sales Order Manual Allocations (7.1.6), and Sales Order Auto Allocations (7.1.7), the system allocates inventory only to line items due within this number of days.

## Line Items

Enter line items in single or multiple entry format. Single entry lets you customize due dates, sites, tax statuses, and other information for each line item. Multiple entry lets you enter basic information such as item number, quantity, and price for several lines on a single screen. The default format is specified in Sales Order Control (7.1.24).

**Important** If you are entering a sales order for an EMT item, you must use single-line mode. Otherwise, EMT Type defaults to non-EMT and the system does not automatically generate a PO for the supplier.

**Fig. 5.3U**  
Sales Order  
Maintenance  
(7.1.1), Sales Order  
Line Frame

**Location.** Specify a location from which inventory is to be allocated. This is *detail allocation*—you allocate specific inventory to fill the order. If the order customer has assigned reserved locations at the order site, a reserved location displays by default. Otherwise, the location defined in Item Master Maintenance (1.4.1) displays.

**Lot/Serial.** Use Lot/Serial to specify detailed information. If location and lot/serial are left blank, the system allocates inventory from the item's default site/location. This is *general allocation*.

**Qty Allocated.** Specify the quantity allocated to this order line. You can change this quantity.

**Qty Picked.** The quantity printed on a picklist for this line item. When a picklist prints, the system updates the quantity picked, ensuring that the same quantity is not printed again on the next picklist printed for this order.

**Qty Shipped.** A system-maintained field recording the total quantity shipped against this order line item.

**Qty to Invoice.** Displays how much has already been shipped on this order. When invoices print, quantity to invoice is multiplied by net price to determine invoice amount. The total of the allocated, picked, and shipped fields shows how much remains to be invoiced.

▶ See *User Guide Volume 6: Master Data* for information on reserved locations.

▶ See “Type” on page 21.

**Type.** This type is similar to the Type field in Purchase Order Maintenance (5.7) and determines if the item affects inventory. A non-blank type is considered a memo item. If an item does not exist in Item Master Maintenance, type defaults to M (memo).

**Date fields.** Some line-item dates default directly from the header; others may be calculated based on header date values and control settings.

▶ See “Calculating Promise and Due Dates” on page 116.

- **Required:** This defaults from the header only if it is different from the header due date. Otherwise, the line-item default is blank. If you do not enter a required date for the line, the system sets it to the line due date after you complete line-item entry.
- **Promised and Due:** These fields can either default from the header or be automatically calculated.
- **Performance:** This field defaults from the header. If the header field is blank and you do not enter a value for the line, the system sets it to the line due date after you complete line-item entry.
- **Pricing:** This field displays the header pricing date. You can modify it in a pop-up frame for individual lines only when Vary Pricing Date by SO Line is Yes in Sales Order Control.

▶ See *User Guide Volume 11: PRO/PLUS* for information on Shipment Performance.

**Note** If you use the Shipment Performance module available with PRO/PLUS, you can generate reports that compare a baseline date with the actual ship date. You can specify the line-item required date, due date, or performance date as that baseline date when you generate the reports.

**Category.** This field can be used to assign optional categories to material order line items. For example, you can generate some reports based on categories in the Shipment Performance module.

Entries are validated against values defined in Generalized Codes Maintenance (36.2.13) for field line\_category.

## Trailer

The trailer section contains financial information for the entire order.

**Sales Order Maintenance**

Order: SO1294      Sold-To: 10010001      Bill To: 1001000      Ship-To: 10010001

Non-Taxable: 300.75	Currency: USD	Line Total: 5,200.00
Taxable: 0.00	0.00%	Disc Amt: 0.00
Tax Date:	Service: 10	: 0.00
Containers: 0.00	Freight: 20	: 100.75
Line Charges: 0.00	Special: 30	: 0.00
		Total Tax: 0.00
View/Edit Tax Detail: <input type="checkbox"/>		Total: 5,300.75

CR Initials:       Print Sales Order:       AR Acct: 1200

Credit Card:       Print Pack List:       Prepaid: 0.00

Action Status:       Print Inv Hist:       FOB Point: ESCONDIDO

Revision: 0       EDI Inv Hist:       Ship Via: GROUND

EDI PO Ack:       Partial OK:       BOL:

**Fig. 5.4**  
Sales Order  
Maintenance  
(7.1.1), Trailer  
Frame

Major fields include the following:

**View/Edit Tax Detail.** Set this field to Yes to update or review tax amounts.

**Revision.** Enter the revision level of the sales order. Each time an order is changed, you may want to increase the number by 1. You may also want to add comments describing the change and reasons for making it. A new copy of the order can be printed to document the change. You can also update the revision automatically when the order is printed by setting Increment Order Revision to Yes in Sales Order Print.

**EDI PO Ack.** If you use EDI ECommerce to import purchase orders from your customers in electronic data interchange (EDI) format to be converted to sales orders, this field controls whether the system creates a PO acknowledgement for export to the customer using Purchase Order Acknowledgement (35.4.5). If the customer has a record defined in Trading Partner Parameter Maintenance (35.13.10), the value defaults from the Send EDI PO Ack parameter. Otherwise, the default is No.

▶ See *User Guide Volume 6: Master Data* for more information on taxes.

*Amount Prepaid.* The amount of prepayment applied to this sales order. The amount does not update the GL or customer account balance. Note that a separate cash payment entry must be made to record the payment in Accounts Payable. This can be done by recording a manual non-AP check. A credit voucher should also be entered to track the prepayment amount. The credit voucher can be placed on hold and released later when the invoice is received.

*FOB Point.* Free on Board. Identifies where title passes to the buyer and often is used to indicate who pays shipping charges.

*Ship Via.* Default carrier name set up in Customer Maintenance (2.1.1), which identifies the preferred carrier for a customer's orders. This value can be overridden.

## Calculating Promise and Due Dates

Optionally, you can set up the system to perform automatic date calculations on sales order lines and issue lines on return material authorizations (RMAs).

▶ See *User Guide Volume 6: Master Data* for information on delivery transit time.

Using data set up in Delivery Transit Time Maintenance (2.16.1), the system can make two date calculations:

- Promise date, calculated by adding transit time days to the due date
- Due date, calculated by subtracting transit time days from the promise date

When Calculate Promise Date is No in Sales Order Control (7.1.24), any dates specified in the sales order or RMA header default as-is to the line items.

Set Calculate Promise Date to Yes to enable automatic date calculations. Default line-item dates then depend on the values you enter in the header date fields:

- If you accept the default due date in the header, leave the header required date blank on sales orders, and enter a promise date, the line-item promise date is set to the header promise date. The system calculates the line-item due date by subtracting the delivery transit time specified in Delivery Transit Time Maintenance from the promise date.

- If you enter a required date in the sales order header that is not the same as the due date, accept the default header due date, and leave the promise date blank, the line-item required date and promise date are set to the header required date. The system then subtracts the transit delivery time from the promise date and enters that value as the line-item due date. This processing applies to sales orders only since the RMA header does not include a required date.

**Note** After you have saved an order, the system sets the header required date to equal the header due date. If you subsequently enter new lines, date calculations ignore the header required date unless you change it. If you do, the system sets the line promise date to equal the header required date as described.

- If you modify the default due date in the header and leave the promise date blank, the due date defaults to the line items. The system calculates the line-item promise date by adding the transit delivery time to the due date. If you specify a header required date on sales orders, the system copies it as the default line required date, but does not use it in date calculations.
- If you modify the default due date in the header and enter a promise date, the line-item due date and promise date are set to the header values. Specifying a header required date for sales orders has no effect in this case.

Additionally, when ATP Enforcement is Yes in Sales Order Control, the system automatically calculates dates in the following situations when Calculate Promise Date is Yes:

- When you have the system modify a due date based on an ATP warning or error, the promise date is recalculated.
- When you use Sales Order Confirmation (7.1.5) or RMA Confirmation (11.7.1.6), you can specify whether the system recalculates promise dates when it adjusts a due date to meet ATP requirements.
- When you use ATP Enforcement Check to determine if an item will be available on a given date, you can have the system calculate the due date or promise date based on ATP information.

▶ For more information on ATP processing, see Chapter 6, “Available to Promise,” on page 133.

The system does not calculate promise dates for the following, regardless of the setting in Calculate Promise Date:

- EMT direct-shipment or transshipment items
- Unmodified existing line items
- Items shipped from sites with no transit times defined

## Processing Freight Charges

▶ See *User Guide Volume 6: Master Data* for details on setting up freight charges.

The system enables you to manage many tasks relating to freight charges. You can:

- Calculate freight charges automatically for memo items based on the shipping weight input by the user.
- Perform freight accounting at sales order shipment.
- Define how the system calculates automatic freight charges for sales order returns.
- Review and change all information used to calculate freight for line items on sales quotes, orders, shipments, and pending invoices.
- Override the item's freight class and freight ship weight during transaction entry.

**Note** Enabling the optional Logistics Accounting module changes how freight charges are tracked and billed. See *User Guide Volume 6: Master Data* for details on setting up Logistics Accounting.

Whenever the system cannot calculate freight automatically, an error message identifies whether the problem stems from a missing freight zone (2.20.4) or freight charge (2.20.10). For example, if the system cannot match the transaction's address with a defined freight zones, the error message identifies the missing freight zone as the source of the problem. When calculating freight charges, if no due date exists, the system uses the current date.

You can enter freight information in the transaction headers for:

- Sales Quote Maintenance (7.12.1)
- Sales Order Maintenance (7.1.1)
- Sales Order Shipments (7.9.15)
- Pending Invoice Maintenance (7.13.1).

On existing quotes and orders, the Calculate Freight field defaults to No. Change this to Yes to have the system recalculate freight.

When you set the Display Weights field to Yes, the system displays a freight window for each line item. In this window you can enter (for memo items) or override (for inventory items) the Freight Class and Freight Ship Weight. For inventory items, the values for Freight Class and Freight Ship Weight default from the item master.

## Automatic Freight Calculations and Sales Order Returns

Specify how the system should handle automatic freight charge calculations for sales order returns in Freight Control (2.20.24).

*Sales Returns Freight Calculation.* Enter P, N, or Z:

P (positive): The customer is charged for freight.

N (negative): The customer is credited for freight.

Z (zero): No freight is charged.

## Freight Accounting

Sales Order Shipments (7.9.15) and Pending Invoice Maintenance (7.13.1) create an additional GL transaction that enables you to accrue freight expenses incurred but not yet billed to you by the freight carrier. In addition to the usual GL transaction for sales order shipments, the system also creates the following transaction for freight charges:

- Debit Sales Freight Applied account
- Credit Sales Freight Accrued account

The system uses the sales freight applied and accrued accounts, defined in System/Account Control (36.1), to post freight dollars calculated in sales order shipments.

The system debits the Sales Freight Applied account and credits the Sales Freight Accrued account for the calculated freight amount rather than the actual freight amount charged to the customer on the order. This approach lets you track estimated freight expense separately from freight actually billed. You can also compare expected freight expense to the charges paid in Accounts Payable.

## Freight Charges Setup

Setup for automatic freight charges involves these steps:

- 1 Define accounts for Sales Freight Applied and Sales Freight Accrued.  
First, set up the accounts in Account Code Maintenance (25.3.13). Then, specify these in System/Account Control (36.1). To *not* track accrued freight expenses, use the same account number for both sales freight applied and accrued.
- 2 Decide how to handle freight charges for Sales Order Returns.  
In Freight Control (2.20.24), specify the Sales Returns Freight Calculation option for your company.

## Repricing Sales Orders

Use Sales Order Repricing (7.1.11) to reprice items on sales orders. This program uses the same logic as Sales Order Maintenance (7.1.1) to recalculate the price and tax of eligible lines on selected sales orders.

▶ See *User Guide Volume 6: Master Data* for more information.

The system excludes from automatic price recalculations lines that are closed, canceled, or returned. You can also selectively exclude lines by setting Fixed Price for line item to Yes. The customer's Fixed Price status defaults to the sales order header and ultimately to the line item, but can be overridden at the header or line level.

Orders are selected for update based on selection criteria you specify. Leave selection criteria blank to process all orders.

Specify how credit data is checked and updated.

Specify how orders are combined for quantity discounts.

**Fig. 5.5**  
Sales Order  
Repricing (7.1.11)

When repricing, you can reprint the sales order, perform credit checks, update the order's credit action status based on the newly calculated prices, and combine sales order quantities to provide better prices.

**Print Sales Order.** Enter Yes to have the system change Sales Order Print to Yes in Sales Order Maintenance (7.1.1).

**Check Credit.** Enter Yes to perform credit checks based on values entered in subsequent fields. Enter No to skip the credit check.

**Set/Clear Action Status.** If Yes and the order exceeds the customer credit limit, the sales order action status is updated to the value of New Action Status. If an order that was on hold is now found to be within the customer credit limit, the action status is cleared.

**New Action Status.** This represents the new action status to be placed on orders that exceed the customer credit limit. If left blank and Set/Clear Action Status is Yes, the system automatically resets the order action status to HD (hold).

**Check Credit Hold.** Enter Yes for the system to check the hold field in the customer record before removing the order from credit hold. If the customer hold is Yes, the hold is not removed. If No, the sales order can be approved even if the customer is on credit hold.

**Tip**  
Credit-related fields can be updated only when Check Credit is Yes.

**Hold Over Credit Limit.** Enter Yes for the system to compare the customer balance to the customer credit limit before approving the order. The customer balance includes open invoices and, depending on the value of Include Sales Orders, can optionally include open order balances. Enter No to have orders approved even if the customer is over its credit limit.

**Include Sales Orders.** Enter Yes to have balances of open sales orders falling within the selection criteria for this function included in the customer balance. This is to determine if a customer has exceeded its credit limit.

**Check Past Due Invoices.** Enter Yes to have the system check for invoices that are past due more than the number of days specified in the Days field. If Set/Clear Action Status is Yes and past due invoices are found, the order is placed on hold.

**Days.** Enter the number of days invoices can be past due before the order is placed on hold.

**Amount.** Enter the maximum total invoice amount that can be overdue before the system places the order on hold.

**Combine Sales Orders.** Enter Yes to combine sales orders according to specified matching criteria to provide for best pricing based on quantity discounts. Use Match Sold-To, Match Ship-To, Match Bill-To, and Match PO to specify the combining logic.

When this field is No, the system reprices each order individually.

**Include RMA Issues.** If Yes, the system includes RMA issues in sales order repricing.

**Recalculate Taxes.** Indicate whether tax amounts should be recalculated for the sales orders being repriced. Tax recalculation will overwrite any manually updated tax values.

The update report shows both the old and new price and the discount for all lines changed. The price is determined by the quantity ordered, but the open quantity is printed on the report. The update creates transaction history records for all lines changed.

**Tip**

The four Match fields can be updated only when Combine Sales Orders is Yes.

## Printing Sales Orders

To print a sales order, use Sales Order Print (7.1.3). All sections of the sales order—header, line items, and trailer—print. Display Detail on Reports must be Yes in Global Tax Management Control (2.13.24) for tax details to be included.

If you select a range of sales orders to print, the system skips any orders in that range being entered in Sales Order Maintenance (7.1.1) or Pending Invoice Maintenance (7.13.1) during the print run.

After printing the sales order, the system sets Print Sales Order in Sales Order Maintenance (7.1.1) to No. To reprint the order, set Print Sales Order to Yes and reprint using Sales Order Print (7.1.3).

To print simulated sales orders for review without updating the print field, set Update to No. SIMULATION appears in the header of each printed page.

**Note** The quantity shown on the sales order is the quantity open. If you reprint the sales order after shipment, the quantity does not reflect the original quantity ordered.

## Printing Picklists

To print a picklist for a sales order, use Sales Order Packing List (7.9.13). You can only print picklists for sales orders not on credit hold—that is, sales orders with a blank Action Status in Sales Order Maintenance (7.1.1).

If you are using containers and shippers, you can use Picklist/Pre-Shipper—Automatic to generate pre-shippers, which are similar to sales order picklists.

▶ See “Creating Pre-Shippers Automatically” on page 187.

The picklist shows what items to pick to fill an order and what site or location to pick them from. If you created detailed allocations in Sales Order Maintenance—including lot/serial numbers and lot reference numbers—this information appear on the picklist. If you performed a general allocation for the sales order, the system automatically converts the general allocation to a detail allocation when it prints the picklist.

Fig. 5.6  
Sample Picklist

Quality Products Inc. Manufacturing Division One World Way Consolidated Business Plaza San Diego, CA 92130 U.S.A.		PACKING LIST Order Number: 10018 Page 1 Order Date: 10/11/99 Print Date: 10/12/99					
Sold To: 01000000		Ship To: 01000000					
Colossal Conglomerates LTD Suite 100 Colossal Building Colossal Industrial Park 1000 Production Drive Birdsboro, IL 090876 U.S.A.		Colossal Conglomerates LTD Suite 100 Colossal Building Colossal Industrial Park 1000 Production Drive Birdsboro, IL 090876 U.S.A.					
Salespersons: WL.INC		Purchase Order: PO28003-C Ship Via: FED EX FOB Point: ESCONDIDO					
Credit Terms: 30 DUE 30 DAYS FROM INVOICE		Remarks: ALL SHIPMENTS PER CORP CONTRACT A-009091					
Header comments							
<u>Ln</u>	<u>Item Number</u>	<u>T</u>	<u>Site Location</u>	<u>Lot/Serial</u>	<u>Qty to Ship</u>	<u>UM</u>	<u>Due Shipped</u>
1	10-1000		10000	O-138874	1.0		10/12/99
	Oasis (TM) Cooling System				1.0		( )
	Line item 1 comments						

After printing the picklist, the system updates the values displayed in Sales Order Maintenance for the quantity allocated and quantity picked.

Set Update to No to print a simulated picklist for review without updating the database.

## Shipping

To ship an order, use Sales Order Shipments (7.9.15). If using allocations, set Ship Allocated to Yes and Ship Picked to No. If using picklists, set Ship Allocated to No and Ship Picked to Yes.

The system displays all open line items and quantities for the order. Select the line items to ship and specify the quantity. You are prompted to verify the items selected. If Minimum Shipment Amount is Yes in Sales Order Control (7.1.24), a warning displays when the order value in base currency is less than the control program value. This message can also display in Sales Order Maintenance.

When the cumulative quantity shipped for a scheduled line exceeds the maximum order quantity for that line, the system displays a warning message.

After you select and verify items to be shipped, the trailer displays, where you can enter freight or special charges, bill of lading numbers, and carrier information.

When a sales order ships, the system automatically marks it ready for invoicing. To delay invoicing, set Ready to Invoice to No. Enter Yes to have the invoice for the shipped order included in the next invoice printing.

## Managing Containers and Shippers

Programs in the Containerization Menu (7.7) and Shipment Processing Menu (7.9) enable you to record, confirm, and delete/archive container and shipper information, and include support for discrete sales orders.

- Use SO Container Maintenance (7.7.5) to record information on racks, boxes, crates, bags, or other conveyances used to package and transport items or other containers. As with scheduled orders, containers must be defined in Item Master Maintenance (1.4.1) before they can be used in SO Container Maintenance.

**Note** If you are using the optional PRO/PLUS Container and Line Charges module, items must also be defined as container items before they can be specified.

- Use Sales Order Shipper Maintenance (7.9.8) to record item numbers, quantities, and sales orders being shipped. This function does not update inventory balances or create GL transactions.
- Use Pre-Shipper/Shipper Confirm (7.9.5) to record an individual shipment to a customer and mark it for invoicing, or to automatically post the invoice. To select and confirm multiple shippers at the same time, use Pre-Shipper/Shipper Auto Confirm (7.9.7). Confirming a shipper decreases inventory and updates the general ledger.
- Use Shipper Delete/Archive (7.9.23) to permanently remove shipper records from the system to preserve database space.

♦ See Chapter 7, “Shipping,” for details on shipment processing.

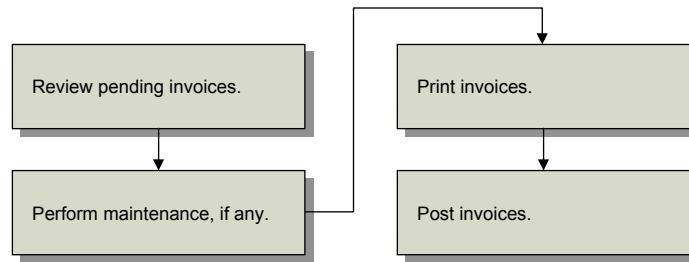
Shipping programs are described in Chapter 7.

SO Container Maintenance does not support all of the features that may be needed to meet international shipping requirements such as inventory movement codes. If your business needs these features, use Container Workbench (7.7.1), Picklist/Pre-Shipper—Automatic (7.9.1), and Pre-Shipper/Shipper Workbench (7.9.2).

## Processing Invoices

Shipping an order automatically creates a pending invoice, which you can review, print, post, or put on hold.

**Fig. 5.7**  
Invoicing Cycle



See “Posting Invoices at Confirmation” on page 215 for details.

If you are using containers and shippers, you can define document formats so that the shipper itself can be used as an invoice. Based on a control program setting, these invoices can be posted when the shipment is processed, eliminating the need for separate steps.

## Reviewing a Pending Invoice

Before invoicing a shipment, use Pending Invoice Maintenance (7.13.1) to make any changes to invoice information regarding credit terms, commission percentages, prices, and/or discounts. For items shipped from multiple locations, only the following information can be changed:

- Due date
- Interest terms
- Price
- Discount
- Net price
- Commission percentage
- Taxable field
- Tax class
- Comments

Use Sales Order Maintenance (7.1.1) or Sales Order Shipments (7.9.15) to make changes to line item information.

Set Ready to Invoice to Yes in Sales Order Shipments (7.9.15) and Pending Invoice Maintenance (7.13.1) to mark invoices for printing. To exclude an invoice, change Ready to Invoice to No.

## Printing Invoices

Use Invoice Print (7.13.3) to perform any of the following tasks:

- Print a single invoice or a range
- Consolidate invoices
- Print invoices by sales order number, shipping date, sold-to, or bill-to
- Print invoices in different languages, as specified in the Language field

The date on an invoice is the system date unless a different date is specified in the Invoice Date field.

## Posting Invoices

After printing, post invoices using Invoice Post (7.13.4). Posting an invoice has the following effects:

- Updates Accounts Receivable, creating a corresponding AR transaction of type I (invoice) for the invoice amount and updating the customer's open balance
- Updates General Ledger, debiting the Accounts Receivable and Sales Discount accounts and crediting sales, tax, and trailer charge accounts
- When the line entities are different from the header entity, the system automatically generates intercompany balancing entries to the Intercompany Accounts Receivable debit and credit accounts.
- Updates sales analysis history, including salesperson commission and quota history.
- Updates invoice history.
- Deletes fully shipped order lines and deletes the sales order if all the line items on the order have been shipped

- Updates the installed base in the Service/Support Management module if Ship To Installed Base is Yes in Service Management Control (11.24)
- Generates a report showing invoices posted, corresponding sales order numbers, line item information, and financial amounts

## Correcting Invoices

Use the invoicing process to reverse a billing by entering a negative quantity on the original sales order. Then process the invoice normally. This can be done whenever it is necessary to make a change involving an item, quantity, price, discount, or commission.

To record transactions involving deleted sales orders, create new sales orders with new sales order numbers, then process the new, corrected sales orders normally.

## Invoicing Multiple Shipments

You can make more than one shipment for a sales order before printing and posting an invoice. In such a case, the system assumes there is only one pending invoice, and that quantities for the successive shipments are to be added until the invoice is posted. To separate invoices for each shipment, print and post the pending invoice after each shipment and before the next. If there is another shipment before the pending invoice is posted, the system prompts you to either delay the next shipment or post the outstanding pending invoice.

## Special Invoice Requirements

In many countries, it is a legal requirement to print invoices and credit memos on separate forms. Do this using either Invoice Print (7.13.3) or Closed Invoice Reprint (7.13.12).

*Include Debit Invoices.* Enter Yes to have all invoices with a positive invoice amount printed. The system considers a zero amount a positive amount.

*Include Credit Invoices.* Enter Yes to have all invoices with a negative amount printed.

In Brazil and other countries, a Nota Fiscal shipping document is required by law whenever goods are transported between physical locations. A Nota Fiscal contains the following information:

- The contents of the shipment
- A breakdown of taxes
- A payment schedule with due dates and amounts, identified by a unique letter (a through x)
- An identification number for all parties involved in the transaction

By law, a Nota Fiscal cannot be longer than one page. To include more than one page of information, issue multiple Nota Fiscal documents. When there are multiple documents for the same order, each is individually complete.

To issue a Nota Fiscal when shipping an order, you can use Pre-Shipper/Shipper Confirm (7.9.5) or Invoice Print (7.13.3). To print a Nota Fiscal, enter 11 in the Form Code field of the invoice printing options frame.

If you are using containers and shippers, you can specify that the shipper document format can be used as an invoice and use the form code 11. Use the Max Lines on a Pre-Shipper setting in Container/Shipper Control to ensure the document is not longer than a page.

▶ See “Set Up Container/Shipper Control” on page 164 for details.

## Processing Returns

You can process returns using sales order functions or using the Return Material Authorization feature of the Service/Support Management module.

▶ See *User Guide Volume 8B: SSM* for more information.

Using sales order functions, the method for processing a return depends on whether the sales order involved is open or closed and whether the line item involved is open or closed. Use Sales Order Shipments (7.9.15) to process returns.

If the sales order and line item are both open at the time of return:

- 1 Enter the line item for the item being returned.
- 2 Enter the quantity returned as a negative amount.
- 3 Enter the location where the item was restocked.

If the sales order is open at the time of return, but the line item is closed:

- 1 Add a new line item for the returned material.
- 2 Add the line item as a negative amount to the original, open sales order. The return is then processed as negative receipt.

If the sales order is closed at the time of return:

- 1 Create a new sales order to receive the item.
- 2 Enter the returned quantity as a negative amount.
- 3 Reference the original, closed sales order in the comments area of the new sales order. The system then processes the return as negative receipt.

## Credit Invoices for Returned Goods

The system creates credit invoices for returns to stock. A credit invoice credits a customer's account for the amount of any returned material plus applicable taxes. Process credit invoices just like regular invoices.

## Generating Reports

You can generate a number of reports related to sales orders and invoices.

**Table 5.1**  
Sales Order Reports

Menu	Report	Description
7.13.8	Invoice History Report	Generates a report on invoicing activity.
7.15.1	Sales Order by Order Report	Generates a report of selected sales order activity sorted by order number.
7.15.2	Sales Order by Customer Report	Generates a report of selected sales orders activity sorted by customer.
7.15.3	Sales Order by Item Report	Generates a report of selected sales order activity sorted by item number.
7.15.5	Sales Order Gross Margin Report	Displays information relevant to commissions and profitability for selected sales orders.
7.15.7	Sales Order Pricing Report	Generates a report based on history records created whenever there is a pricing change. These records include details about the source of the price and discount per order/line.

<b>Menu</b>	<b>Report</b>	<b>Description</b>
7.15.9	Unconfirmed Sales Order Report	Generates a report of selected sales orders that need to be confirmed.
7.15.11	EMT Tracking Report	Generates a report on the status of selected EMT sales orders and related purchase orders.
7.15.14	Booking Transaction Report	Generates a report based on transaction booking history, in summary or detail format. If Keep Booking History is Yes in Sales Order Control, a complete audit trail of all changes is maintained (in tr_hist) along with the revision number.
7.15.15	Booking Transaction Summary by Item	Generates a summary report of total quantity sales and gross margin summarized by item number into daily, weekly, or monthly buckets.
7.15.18	Shipment Transaction Report	This report generates a report of sales orders shipment transactions (based on transaction history) during a specified range of dates.
7.15.19	Shipment Transaction by Customer Report	Generates a report of sales orders shipment transactions and gross margin sorted by customer.
7.15.21	Transaction Summary by Item Report	Generates a report of sales orders shipment transactions sorted by item number and summarized into daily, weekly, or monthly buckets.
7.15.22	Transaction Summary by Customer Report	Generates a report of sales orders transactions sorted by customer and summarized into daily, weekly, or monthly buckets.
7.15.23	Transaction Summary by Customer by Item Report	Generates a report of sales orders transactions sorted by customer and item number and summarized into daily, weekly, or monthly buckets.



# Available to Promise

The available-to-promise (ATP) processing features of MFG/PRO help you determine whether inventory will be available to meet date commitments on sales orders, return material authorizations, and material orders.

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*Setting Up ATP Processing*    **136**

*Using ATP Processing Features*    **140**

## Introduction

▶ See *User Guide Volume 3: Manufacturing* for more information on ATP.

Available to promise (ATP) is the uncommitted portion of inventory or planned production available to be promised to new orders. The system displays ATP quantities and cumulative totals on master schedule reports and inquiries.

ATP calculations can be used to verify whether an order can be filled within a specific time frame given other demands and currently scheduled supply orders. For example, during order entry, this lets you determine whether inventory will be available to meet a customer's needs before you commit to a promise date.

▶ See *User Guide Volume 8: SSM* for more information on MOs and RMAs.

The system calculates ATP for sales orders, as well as for material orders (MOs) and return material authorizations (RMAs), which are part of the Service/Support Management (SSM) module. Depending on the level you select when you define ATP processing for individual items or item-site combinations, the system may either warn you or prevent you from processing a confirmed order when ATP is insufficient.

**Note** In addition to the ATP features described in this section, optional ATP functionality is available for the Advanced Planning and Optimization (APO) applications from Adexa, Inc., Factory Optimizer and Supply Chain Optimizer. APO ATP uses an application program interface (API) to communicate real-time demand data to the Optimizer application and return up-to-date ATP information to MFG/PRO.

## Overview of ATP Processing

▶ See "Setting Up ATP Processing" on page 136.

You can control ATP processing by specifying control program settings as well as enforcement levels for individual items or item-sites.

When ATP Enforcement is Yes in Sales Order Control (7.1.24), the system ensures during order processing that specific items will be available on the due date. In order maintenance programs, the quantity and due date on the order line are compared with the cumulative ATP before the order is processed. If the order quantity for the item is more than the cumulative ATP, subsequent processing depends on enforcement-level settings for individual items or item-sites.

The enforcement level can be:

- None: The system processes order lines for the item regardless of whether adequate ATP exists.
- Warning: The system warns the user when the specified item is not available to promise by the due date, but the user can override the system manually. Due date and required date are not affected.
- Error: The system displays an error and prohibits order processing for the item unless the order quantity or due date is changed to meet ATP requirements.

▶ See “Determining ATP during Order Entry” on page 140.

The system calculates ATP in real time. When an order line is confirmed for a specified due date, cumulative ATP for the item is updated immediately. This way, the system can determine ATP for subsequent orders based on the latest availability data.

The system uses the same item-specific settings in determining how to proceed when you run a confirmation program for order lines on which ATP requirements are not met.

▶ See “Determining ATP during Order Confirmation” on page 142.

You can use ATP Enforcement Check (7.1.19.2) to determine whether an item will be available on a specified date without entering a confirmed order line.

▶ See page 144.

## ATP Calculations

When you are using ATP features, the system automatically calculates the availability of items to fulfill orders by specified due dates. The system calculates the ATP for most kinds of items directly. However, for configured items and family items, the system considers component and planning information in its ATP calculation.

▶ See *User Guide Volume 3: Manufacturing* for information on how ATP is used in the planning process.

## Configured Items

For configured items, ATP is based on the component item with the smallest ATP quantity. The system does *not* check cumulative ATP of the configured item itself, since configured items are typically used in an assemble-to-order environment.

▶ See “ATP Enforcement Levels for Items” on page 137.

However, the system *does* use the ATP enforcement level associated with the parent item in Item Master Maintenance (1.4.1) or Item-Site Planning Maintenance (1.4.17) to determine how to process order lines with inadequate ATP. It disregards the setting of ATP Enforce for individual item components in favor of the enforcement level (Warning, Error, or None) set for the configured item.

### Family Items

For family items, the system can check the ATP of all members in the family to determine item availability. You must enter Yes in Family ATP in Item Master Maintenance or Item-Site Planning Maintenance for every family item and member you want the system to verify for availability. The system then accesses the ATP of all items in the same family with dates outside the material requirements planning (MRP) time fence to fulfill the specified line-item order.

**Important** You should only use this function for items that are interchangeable or that require a minimum amount of modification. Also, if the system uses a portion of an alternate family item to complete a line-item order, the system posts the total amount of the order to MRP for the family item. If the amount consumed was less than the entire amount for the due date, the system may misreport ATP for the alternate family item.

## Setting Up ATP Processing

Perform the following tasks to have the system calculate ATP during order processing:

- Set up ATP-related fields in Sales Order Control (7.1.24).
- Define ATP processing parameters for individual items and sites.

### Setting Control Values

Three fields in Sales Order Control affect ATP processing:

**ATP Enforcement Enabled.** Enter Yes to activate ATP calculation functions for order line-item processing.

**Note** If you are using the optional ATP features available with the Advanced Planning and Optimization (APO) applications from Adexa, Inc., you must set this field to Yes, as well as enabling ATP for individual types of transactions in APO ATP Control (36.5.5.24).

**ATP Horizon.** Enter the number of days from the current system date that the system should consider when determining ATP.

**Calculate Promise Date.** Enter Yes to calculate the promise date automatically for order-line items.

▶ See page 116.

When this field is Yes and you have set up delivery times in Delivery Transit Time Maintenance (2.16.1), the system calculates promise dates.

▶ See *User Guide Volume 6: Master Data* for information on delivery transit times.

**Note** Entering a promise date manually in the order header frame prevents the system from calculating a promise date for order lines when you enter the lines. However, if you subsequently modify the due date on a line, the system recalculates the promise date when this field is Yes.

When you confirm an order and the system changes the due date based on one of the Change Due Date fields in the confirmation program, you can choose to automatically update the order-line promise date. To do so, Calculate Promise Date must be Yes both in the control program and in the confirmation program.

▶ See “Determining ATP during Order Confirmation” on page 142.

## ATP Enforcement Levels for Items

Two programs let you specify enforcement levels for individual items:

- Use Item Master Maintenance (1.4.1) to define enforcement levels for specified individual items and family items regardless of site.
- Use Item-Site Planning Maintenance (1.4.17) to determine enforcement levels for specified individual items and family items by site. Item-site records take precedence over those defined in Item Master Maintenance.

These programs use the same two fields for defining ATP parameters:

**ATP Enforce.** Enter the ATP enforcement level you want the system to apply to this item. You can specify one of three different levels:

- None: The system does not intervene in the transaction regardless of availability of this item.
- Warning: A warning displays if availability is insufficient. You can bypass the ATP warning manually and process the sales order regardless of ATP.
- Error: The system displays an error message and will not process the order line when availability of this item is insufficient. You must change the due date or order quantity as needed to meet ATP requirements.

▶ See “Family Items” on page 136.

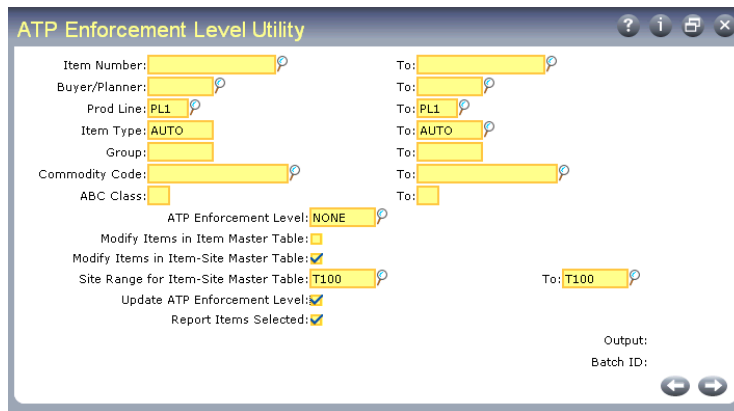
**ATP Family.** Enter Yes to have the system check the ATP for other items of the same family before issuing a warning or error. If No, family items are ignored.

Additionally, you can use ATP Enforcement Level Utility (7.1.19.1) to set enforcement levels for ranges of items and sites. You can select according to various criteria to manage ATP enforcement levels, eliminating the need to process each item individually.

▶ See page 139.

**Note** If you are in a multi-database environment, run ATP Enforcement Level Utility once in each database to keep item-site ATP settings synchronized.

**Fig. 6.1**  
ATP Enforcement Level Utility (7.1.19.1)



Specify selection criteria ranges as needed; then use the following fields to determine how ATP records are updated:

*Modify Items in Item Master Table.* Enter Yes to modify the ATP enforcement level for a range of items in the item master table. Otherwise, enter No.

Changing the ATP enforcement level in the item master table only does not modify the level in the item-site master table.

*Modify Items in Item-Site Master Table.* Enter Yes to modify the ATP enforcement level for a range of items in the item-site master table. Otherwise, enter No.

When an item and site are entered in a sales order line, the system checks the ATP enforcement level in the item-site master table first. If no records exist there, the system uses data recorded in the item master table, if any.

*Site Range for Item-Site Master Table.* Enter the range of site codes for which you want to specify an the ATP enforcement level in the item-site master table. Leave blank to begin with the first site record.

**Note** Specifying a range of sites when Modify Items in Item-Site Master Table is No has no effect.

## Setting Up ATP with Multiple Databases

You can set up ATP functionality to operate successfully in a multi-database environment. To accomplish this, some data must be set up the same way for each database. The following must be true for ATP to work in multiple databases:

- The customer records, including address fields, entered in the sales order are the same in each database.
- The ATP fields in Item Master Maintenance and Item-Site Planning Maintenance are the same in each database.
- For configured items, all components entered on a sales order must exist in each selected database.
- The database including sites where inventory is held must be able to access MRP detail records.

## Using ATP Processing Features

Since the system calculates ATP only on confirmed order lines, the way the system enforces ATP depends on how the order is entered:

- Entered as confirmed in an order maintenance program, such as Sales Order Maintenance (7.1.1), or confirmed by changing Confirm to Yes for the line
- Confirmed using a batch confirmation program, such as Sales Order Confirmation (7.1.5)
- Created from a customer's purchase order imported using EDI ECommerce

### Determining ATP during Order Entry

The system determines ATP during order-processing functions when you enter confirmed order lines in one of the following programs:

- Sales Order Maintenance (7.1.1)
- Material Order Maintenance (10.7.1 or 11.11.1)
- RMA Maintenance (11.7.1.1)

During order-line entry, an ATP pop-up window displays under the following conditions:

- ATP Enforcement is Yes in Sales Order Control.
- The ATP enforcement level is set to Warning or Error for the item.
- The quantity ordered is unavailable for the specified due date for a confirmed non-EMT inventory order.

▶ See “ATP Enforcement Levels for Items” on page 137.

The pop-up window lets you select alternate due dates and review ATP quantities when the full order quantity cannot be filled by the specified due date.

**Sales Order Maintenance**

ATP Enforcement ERROR

Ship-From Site: T100	T-series factory	
Ship-To Customer: 2000-1	SoCal Electrical	
Item Number: TT-640	Large wire harness	
Stocking UM Order Qty: 300.0	EA	Due Date: 07/30/2002
Ordered UM Order Qty: 300.0	EA	ATP Horizon Date: 09/13/2002

---

Earliest Due Date for Full Order: 09/14/2002

Cum ATP Available for Due Date: 0.0 EA

Review Other ATP Dates:

Display Master Schedule Summary Inquiry:

Accept Earliest Available Due Date:

**Fig. 6.2**  
Order-Line ATP  
Enforcement  
Frames

The top frame displays information related to the original order line. The bottom frame displays ATP information and user options:

**Earliest Due Date for Full Order.** This value indicates the earliest date that planned inventory is available to ship in the quantities ordered.

**Cum ATP Available for Due Date.** This value indicates the cumulative planned inventory available on the original due date.

**Review Other ATP Dates.** Enter Yes to display alternative dates to fulfill this order line item. If you enter Yes and press Go, the review frame displays immediately. If you enter No and press Go, the cursor moves to the next field.

**Display Master Schedule Summary Inquiry.** Enter Yes to open Master Schedule Summary Inquiry (22.18) to display inventory planning, quantity, and ATP data for the ordered item. If you enter Yes and press Go, the inquiry frame displays immediately. If you enter No and press Go, the cursor moves to the next field.

**Accept Earliest Available Due Date.** Enter Yes to accept the earliest available due date calculated for the item.

## Determining ATP during Order Confirmation

When ATP Enforcement is Yes in Sales Order Control and the ATP Enforcement setting for the item is Warning or Error, the system checks for adequate ATP when you run the following programs:

- Sales Order Confirmation (7.1.5)
- Material Order Confirmation (10.7.2 or 11.11.2)
- RMA Confirmation (11.7.1.6)

Because the confirmation programs confirm all the lines of an order as part of the same batch process, you specify how the system handles lines with inadequate ATP before the confirmation process is run.

▶ See Figure 6.2 on page 141.

**Note** When you confirm a single line of an order in an order-maintenance program by changing the Confirm field to Yes for the line, the system processes the ATP calculation just as it would if you entered the line as confirmed. If ATP is inadequate to meet the due date, the ATP enforcement pop-up frames display.

**Fig. 6.3**  
ATP Fields in Order Confirmation Programs

<p>This field is used only with the optional APO ATP module. _____</p>	<p>Change Due Dates for ATP Enforcement Warnings: <input type="checkbox"/>                  Change Due Dates for ATP Enforcement Errors: <input type="checkbox"/>                  Change Promise Date: <input checked="" type="checkbox"/>                  Use Standard ATP when APO ATP is Unavailable: <input type="checkbox"/></p>	<p>This field does not display in Material Order Confirmation. _____</p>
--	---	--

Use the following fields to control ATP processing during order confirmation:

**Change Due Dates for ATP Enforcement Warnings.** Enter Yes to change the due dates on order lines if ATP is insufficient for items with ATP Enforce set to Warning. The system adjusts the order-line due date to the best possible later due date and confirms the order.

If No and ATP is insufficient, the order is confirmed, and a warning message displays on the report.

**Change Due Dates for ATP Enforcement Errors.** Enter Yes to change the due dates on order lines if ATP is insufficient for items with ATP Enforce set to Error. The system adjusts the order-line due date to the best possible later due date and confirms the order.

If No and ATP is insufficient, the order is not confirmed, and an error message displays on the report.

**Change Promise Date.** Enter Yes to change the promise date for the range of sales orders or RMAs you have selected to confirm based on the new due date. Otherwise, enter No. This applies only if the system assigns a new due date based on the value of one of the Change Due Date fields.

The promise date is the due date plus the delivery time entered in Delivery Transit Time Maintenance (2.16.1).

The initial value defaults from the Calculate Promise Date field in Sales Order Control (7.1.24). You can update it in the order confirmation program only when the control program field is Yes.

No promise date is associated with material orders. This field is not included in Material Order Confirmation.

**Note** The Use Standard ATP when APO ATP is Unavailable field is used only when you have installed and enabled the optional APO ATP module available with one of the Advanced Planning and Optimization (APO) applications from Adexa, Inc.

▶ See *User Guide Volume 6: Master Data* for information on delivery transit times.

## Determining ATP with Imported Purchase Orders

When you use EDI ECommerce to import your customer's electronic data interchange (EDI) purchase order with Document Import (35.1), the system automatically creates a sales order based on purchase order and master data.

▶ See *User Guide Volume 7: Release Management*.

When ATP Enforcement is Yes in Sales Order Control, the sales order creation process uses the following settings to determine how the order line is created:

- When the customer's record in Trading Partner Parameter Maintenance (35.13.10) has Load SO As Confirmed set to No, ATP processing does not take place. The sales order is created as unconfirmed, and the system checks for ATP during confirmation.
- When that field is Yes, the system creates the sales order and confirms lines based on the ATP enforcement level for the item:
  - None: No ATP processing takes place. The order line is confirmed.

- Warning: The order line is confirmed regardless of whether adequate ATP is found. The system displays a warning message on the output report.
- Error: The order line is not confirmed. The system displays an error message on the output report.

## Determining ATP without a Confirmed Order

Use ATP Enforcement Check (7.1.19.2) to display ATP information, including alternate due dates and ATP quantities, without entering an order. You can select according to customer, item, site, quantity, due date, and promise date.

▶ See *User Guide Volume 6: Master Data* for information on locations.

This inquiry displays the same ATP information as the Master Schedule Summary Inquiry (22.18). However, because this function lets you select according to customer, the system also considers the ATP of reserved inventory for customers associated with reserved locations. This means that the quantity on hand displayed when you run Master Schedule Summary Inquiry may not be the same as the value displayed using this program.

**Fig. 6.4**  
ATP Enforcement Check (7.1.19.2)

The screenshot shows a window titled "ATP Enforcement Check" with the following fields and values:

Ship-From Site:	T100	UM:	
Ship-To Customer:	2000-1	UM:	ea
Item Number:	TT-640		
Stocking UM Order Qty:			
Ordered UM Order Qty:	500		
Due Date:	08/05/02		
Promise Date:			

You can use the date fields as follows:

- When you do not enter a due date or promise date, the system calculates the earliest possible due date for the quantity specified for the site and customer.
- When you enter a due date without entering a promise date, the system accesses transit time data and calculates forward to determine a promise date.

**Note** Calculate Promise Date must be Yes in Sales Order Control (7.1.24) for this feature to work.

- When you enter a promise date without entering a due date, the system accesses transit time data, if any, and calculates backward to determine a due date.

If the calculated due date is earlier than the current system date, the current system date defaults.

**Note** If you enter a promise date only and transit-time data for the site and customer is not entered in Delivery Transit Time Maintenance (2.16.1), an error occurs.

When quantities of the item are available for the due date, ATP information displays and a message confirms availability. When quantities are not available, you can choose to review other due dates or quantities, review master schedule data, or determine the earliest possible due date.



The background of the page is a grayscale image of several interlocking gears. The gears are of various sizes and are positioned in a way that they appear to be meshing together. The lighting is soft, creating a sense of depth and texture. The overall tone is professional and technical.

## Chapter 7

# Shipping

This chapter explains how to ship goods in MFG/PRO using the container/shipper method and enhanced shipping features.

*Introduction*    **148**

*Setting Up Shipping*    **148**

*Processing Shipments*    **169**

*Processing Issue Transactions*    **227**

*Creating Scanned Shipping Documents*    **234**

*Creating Custom Shippers*    **238**

## Introduction

MFG/PRO can handle a broad range of shipping requirements: from simple sales-order shipments and intrasite transfers to more complex international or global shipments.

This chapter focuses on setting up and using the system's shipping features for domestic and global sales-order shipments using containers, shippers, and master bills of lading. Issue transactions that are not based on sales orders, such as transfers and returns, are also covered. It concludes with information on how to use scanned information to create shipping documents and how to customize shippers.

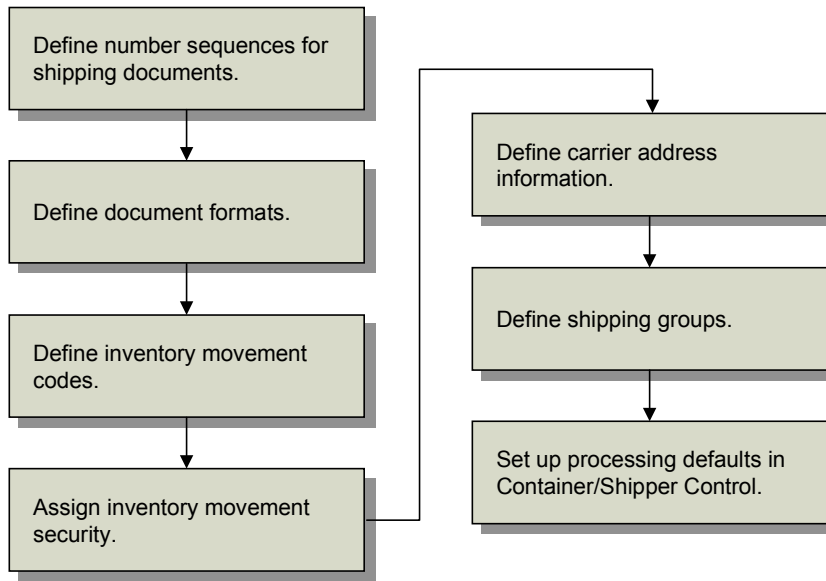
Other aspects of shipping are included in the discussion of customer schedules and sales orders and invoices.

▶ See *User Guide Volume 7: Release Management* and Chapter 5, "Sales Orders/Invoices," on page 105.

## Setting Up Shipping

MFG/PRO shipping has a broad focus that enables you to produce and record sales order shipping documents that comply with diverse regional requirements and common business practices on a global scale. A flexible, user-configured set of related shipping features can be used to facilitate international shipments and control how documents are produced.

The work flow for setting up all shipping features is shown in Figure 7.1.



**Fig. 7.1**  
Shipping Setup  
Work Flow

Each organization must determine how many features they need to implement to meet their own shipping needs. You should consider requirements such as:

- Local and regulatory requirements governing document numbering
- Local and regulatory requirements governing inventory movement
- Company-specific information
- Industry or company-specific business practices

If your shipping needs are very simple, only two setup steps are required:

- Set up numbering sequences for shipper documents (see page 150).
- Set up Container/Shipper Control (see page 164).

**Important** Number Range Management is required if you use shippers and pre-shippers.

Each of the steps in the work flow is described in detail in the following sections.

## Define Number Sequences

To obtain approval for tax filings or statutory reporting, some countries require that businesses adhere to local numbering standards and conventions when assigning numbers to documents, including shipping documents.

**Example** Document numbering in Italy is related to the print date of the document, and it is a common business practice to have multiple number ranges for shipment and invoice documents. In Brazil, however, document numbering is strictly related to a specific physical site, requiring multiple number ranges with a prefix that identifies a site code.

With Number Range Maintenance (36.2.21.1), you can assign specific number range sequences to pre-shippers, shippers, and master bills of lading so that you can comply with these varied document numbering requirements.

Defining number sequences is a prerequisite to setting up shipping. For instructions on how to define document numbering sequences, see the chapter on Number Range Management in *User Guide Volume 9: Manager Functions*.

This section includes information about how NRM sequences affect shippers.

### Shipper Number Assignment

NRM assigns or validates unique ID numbers to each sales order shipper, using predefined sequences. This same method is used for Advanced Repetitive subcontract shippers and inventory issue transactions. However, incoming supplier schedule shippers are assigned numbers in another way.

Table 7.1 lists shipper types and indicates how the system assigns a number.

**Table 7.1**  
Shipper Types

Shipper Type	Shipper Number Assignment
Sales Order	NRM generated/validated
Issue Transaction Shipper	NRM generated/validated
Subcontract (Advanced Repetitive)	NRM generated/validated
Supplier Schedule	Manually entered

The system stores all shippers in the same table, using the combination of shipper number and Ship-From site.

### Ensuring Unique Shipper IDs

While NRM always dispenses unique numbers to sales order shippers, it does not validate against supplier schedule shipper numbers assigned using other methods. Therefore, NRM may dispense or accept an ID number that already belongs to a different shipper type with the same Ship-From site. In this case, an error occurs.

To ensure all shipper numbers are unique, do one of the following:

- Set up Ship-From sites to be used only for sales order shippers, thus ensuring that a sales order shipper never uses the same Ship-From site as a subcontract or supplier schedule shipper.
- Define NRM sequences with unique fixed prefixes or another fixed segment to be used only for sales order shippers. If you choose this method, ensure that users entering manual shipper numbers are aware of shipper number requirements.

### Multi-Database Environments

Each NRM sequence is specific to the database in which it resides and is not aware of sequences in other databases. Thus, in a multi-database environment, sequences in one database may intersect with sequences in another.

**Example** A sequence in database A generates shipper numbers ranging from 000001-200000. A different sequence in database B generates shipper numbers in the range 100000-399999. As a result, shippers in the overlapping range have identical numbers.

Additionally, a shipper created in a multi-database environment is created and processed completely in the central database with no mirroring in any remote database, even if the material is being shipped from a site in the remote database. Thus, the shipper number is generated from a sequence in the central database and the shipment is recorded in the central database, even though the shipment originates in the remote.

Users with very stringent locale-based numbering requirements should, therefore, ensure that all shipment processing occurs only within the central database and no independent shipments are created in a remote database.

### Default Shipping Sequences

Default NRM sequences are set in Container/Shipper Control (7.9.24) for shippers, pre-shippers, and master bills of lading. They can also be defined and associated with each shipping group.

For companies with international shipping requirements, sequence numbers are typically assigned relative to shipping groups. The defaults in the control program are only used for pre-shippers, shippers, and master bills of lading that do not use inventory movement codes or shipping groups.

◆ See “Posting Invoices at Confirmation” on page 215 for details.

**Important** If you use shipper IDs as invoice numbers, you must ensure that the NRM sequence for the shipper ID is no more than eight characters long.

### NRM Datasets for Shipping

NRM sequences are associated with target datasets, which determine where the sequence number is used. The three predefined target datasets for shipping are:

*abs\_id.shipper*. Used by sales order shippers.

*abs\_id.preship*. Used by sales order pre-shippers.

*abs\_id.mbol*. Used by master bills of lading.

## Define Document Formats

Some countries, such as Italy, require the use of specific documents and document formats when shipping goods. Use Document Format Maintenance (2.18.13) in the Shipping Group/Document menu to define and create documents to conform with local requirements. Use Document Format Browse (2.18.14) to search for and display information relative to defined document formats.

Document formats for shippers and master bills of lading can be created. The format you assign to your document identifies any special processing and printing requirements. It also determines whether the document can be used as an invoice.

A document format is assigned a form code to specify form layout and to identify a service-encapsulation procedure. This procedure identifies a set of services that perform additional processing tasks required for printing documents.

**Example** A procedure can gather additional data to appear on the printed document and check that the document includes all necessary information and is ready to print.

A default document format is set in Container/Shipper Control (7.9.24) and Customer Schedules Control (7.3.24). The default format is used for shippers without inventory movement codes or with no available shipping group, and for master bills of lading. It can also be assigned to inventory movement codes within shipping groups.

You can print shippers or master bills of lading based on a range of document formats. If you have a series of compatible document formats, set up their codes sequentially for efficient printing.

**Example** You have three document formats that print on the same form. If you name them FMT001, FMT002, and FMT003, you can load the appropriate form in the printer and print only documents with format codes from FMT001 through FMT003. If you have a number of document formats that print on blank paper, set them up in the same way.

Use Master Comment Maintenance (2.1.12) to create master comments associated with a document format by entering the format code in the Master Reference field. You can copy master comments to shipper

◆ See “Creating Custom Shippers” on page 238 for details on creating custom print formats.

headers, line items, or trailers when creating or maintaining a shipper using Pre-Shipper/Shipper Workbench (7.9.2). To differentiate between header, line item, and trailer comments, use the Comment Type field.

**Note** A document format cannot be deleted if it is used by any shipment or shipping group.

**Fig. 7.2**  
Document Format  
Maintenance  
(2.18.13)

Specify the document format characteristics you want to create or modify by entering appropriate values in the following fields:

**Document Type.** Enter the type of document to which the format applies. Possible values are:

- SHP for shippers
- MB for master bills of lading

**Document Format.** Enter a new or existing document format code of up to eight alphanumeric characters. This field cannot be blank.

**Description.** Enter up to 30 characters describing this document format. The description displays on browses and reports.

**Form Code.** Enter a code (up to 2 characters) identifying the requirements for processing and printing documents of this format. This field is required. The default is 1.

**Invoice.** This field only applies to shipper type documents. Enter Yes if shipping documents printed using this format can serve as legal invoices. The default is No. Once documents with this format exist, you cannot modify this field.

## Define Inventory Movement Codes

Movement codes are a common business practice in many countries and a legal requirement in others, such as Argentina. Inventory movement codes identify the reason for a transaction, as well as the type of transaction. Inventory movement codes enable you to create shippers for inventory issues not related to a sales order.

Use Inventory Movement Code Maintenance (1.1.9) to create these codes and their descriptions. Use Inventory Movement Code Browse (1.1.10) to search for and display information relative to existing inventory movement codes.

Inventory movement codes are similar to transaction types, but provide a more detailed reason for the transaction. There can be several inventory movement codes for each transaction type. The code can only be specified for the associated transaction. For example, you cannot assign an inventory movement code associated with receipts to a shipment transaction.

**Example** One inventory movement code of type ISS-SO may be required for sales order shipments to destinations within Italy, while another is required for shipments to destinations outside of Italy.

To edit shippers with assigned inventory movement codes and associated containers, use Container Workbench (7.7.1), Pre-Shipper/Shipper Workbench (7.9.2), or Sales Order Shipper Maintenance (7.9.8). If you attempt to edit such a container or shipper using SO Container Maintenance (7.7.5), the system displays an error message and indicates how you should proceed.

**Note** An inventory movement code cannot be deleted if it is used by any shipment, site/inventory movement security record, or shipping group.

**Fig. 7.3**  
Inventory  
Movement Code  
Maintenance  
(1.1.9)

Specify the inventory movement code characteristics you want to create or modify by entering appropriate values in the following fields.

**Inventory Movement Code.** Enter a code of up to eight alphanumeric characters.

**Description.** Enter up to 30 characters describing this inventory movement code. Description displays on browses and reports.

**Transaction Type.** Enter a valid transaction type associated with this movement code. Transaction types can be up to eight alphanumeric characters. More than one movement code can reference the same transaction type.

▶ See *User Guide Volume 6: Master Data* for details on transaction types.

### Assign Inventory Movement Code Security

You can restrict which inventory movement codes can be used at a site and who can use them. Use Inventory Movement Code Security (36.3.11) to grant or deny access to individuals and groups when using a specific inventory movement code at a particular site. Use Inventory Movement Code Security Browse (36.3.12) to search for and display information relative to existing inventory movement code security.

When a shipper is created, the system checks inventory movement code security records to determine which inventory movement codes are available, based on the Ship-From site of the shipper. These records also determine who can confirm or update an existing shipper.

**Note** This level of security does not affect whether a line item from a given sales order or other originating transaction can be added to a shipper.

▶ See the chapter on security in *User Guide Volume 9: Manager Functions* for details.

**Fig. 7.4**  
Inventory Movement Code Security (36.3.11)



Assign or modify access rights to users/groups by entering the appropriate data in the following fields:

**Site.** This field is used in conjunction with the Inventory Movement Code field to determine whether a given user (defined in the Groups field) has access to the specified inventory movement code at the site entered. Enter an existing site code, up to eight alphanumeric characters.

**Inventory Movement Code.** Enter a valid inventory movement code to be secured at the defined site. This code is used in combination with the Site field to determine whether a given user has access to the inventory movement at the site.

**Groups.** Specify the users or groups who are granted or denied access. Groups are associated with users in User Maintenance (36.3.18).

## Define Carrier Addresses

Printing the carrier's name and address on shipping documents is a requirement in some locations. The system provides an address type specifically for carriers, allowing the information to be easily included on shipping documents.

▶ See *User Guide Volume 6: Master Data* for instructions on how to define carrier addresses.

Use Carrier Maintenance (2.17.1) to define carrier names and addresses, telephone and fax numbers, contact names, and the carrier's tax ID to be included on printed shipping documents.

Because shipments often require the use of more than one carrier, you can assign a series of carriers to each address in a shipping group. Carriers are listed sequentially based on their role in the transportation of inventory.

A carrier cannot be deleted if it is referenced by any shipment, shipping group, or tax history record.

## Define Shipping Groups

Shipping groups determine many shipment defaults, as well as consolidation and auto-transfer requirements. When the system processes shipments, it assigns each to a shipping group based on the Ship-From and Ship-To addresses.

Use Shipping Group Maintenance (2.18.1) to create and maintain shipping groups. A source/destination address combination can belong to only one shipping group. When adding addresses to the group, you must indicate whether shipments are to be consolidated with others of the same transaction type. The system refers to both the source and destination address of a shipment to determine consolidation requirements.

To use broad defaults, you can define shipping groups that contain only source addresses, destination addresses, or all addresses by entering blank in the source and destination address fields.

Inventory movement details for a shipping group include default NRM sequences, document formats, and carriers used for shipments with a specific inventory movement code. When several carriers are required for a shipment, you can define a default series, listing them sequentially based on their role in the transportation of inventory.

The system uses the following search order when it looks for a shipping group:

- 1** Searches for a shipping group based on both source and destination addresses of the shipment. If found, the system assigns the shipment to that group.
- 2** If no group meeting the first criteria is found, the system searches for a shipping group that contains the shipment's destination address and has a blank source address. If found, the system assigns the shipment to that group.
- 3** If no group meeting the second criteria is found, the system searches for a shipping group that contains the shipment's source address and has a blank destination address. If found, the system assigns the shipment to that group.
- 4** Finally, if no group with the above criteria is found, the system searches for a group with both blank source and destination addresses, and assigns the shipment to that shipping group.

Once the shipping group for the shipment has been found, the system applies appropriate defaults and shipment attributes.

**Fig. 7.5**  
Shipping Group  
Maintenance  
(2.18.1)

Specify shipping group characteristics by entering appropriate values in the following fields:

**Shipping Group.** Enter a code identifying the shipping group. This field is required.

**Description.** Enter up to 30 characters describing this shipping group. Description displays on browses and reports.

**Auto Transfers.** When shipping or receiving an item from a site other than the inventory site, the system generates an automatic inventory transfer. This field determines whether automatic transfer of inventory is allowed between the source and destination addresses in this shipping group. Specify No if movement of inventory between addresses within the shipping group requires a formal shipment. The default is Yes.

**Master Bill Sequence ID.** This field specifies the NRM sequence code for master bills of lading. Enter an existing NRM sequence code with a target dataset of abs\_id.mbol.

### Adding Source Addresses

For a new shipping group, the system prompts you for the first source address code. Enter an address code that is not assigned to any other shipping group.

Address	Name	Consolidate Ship
5017000	Mission Bay Distributors	optional
5017000	Mission Bay Distributors	optional

**Fig. 7.6**  
Shipping Group  
Maintenance  
(2.18.1), Source  
Addresses

Use the Insert command to add source addresses to an existing shipping group. You are prompted to specify how you want to add addresses:

- 1- Add Single Address.* To add a single address, choose 1. At the prompt, enter an existing address code that is not assigned to any other shipping group.
- 2- Add Addresses by List Type.* To add multiple addresses by list type, choose 2. The system prompts you for an address list type. All addresses of the list type you enter are added to the shipping group. Only addresses that are not already source addresses of the shipping group can be added.
- 3- Add Addresses by Country.* To add multiple addresses by country code, choose 3. The system prompts you for a country code. All addresses of the country you enter are added to the shipping group. Only addresses that are not already source addresses of the shipping group can be added.

A blank source address record can be used to indicate that a shipping group can be used regardless of the actual source address of the shipment.

After you have entered the address codes, modify the Consolidate Ship field, if required.

*Consolidate Ship.* This field determines whether the source address allows for consolidation of shipments across multiple transactions of a given type such as sales orders or transfers. Values are:

- No indicates that consolidation is prohibited.
- Optional (the default) indicates that consolidation is allowed.
- Yes indicates that consolidation is required.

You cannot establish a shipping group that contains any combination of source and destination addresses where one address requires consolidation and another prohibits it.

## Adding Destination Addresses

Adding destination addresses is identical to adding source addresses.

Destination Addresses		
Address	Name	Consolidate Ship
	<All addresses>	optional

Address	Name	Consolidate Ship
<input type="text"/>	<input type="text"/>	optional

**Fig. 7.7**  
Shipping Group  
Maintenance  
(2.18.1)—  
Destination  
Addresses

## Inventory Movement Details

Define the inventory movement details for the shipping group by entering appropriate values in the following fields.

Inventory Movement Details							
Inv Mov	Tr Type	Default	PS Seq	Ship Seq	Format	Carrier	Multi
Ship	ISS-SO	<input checked="" type="checkbox"/>	00000010	00000004	01		<input type="checkbox"/>

Inv Mov	Tr Type	Default	PS Seq	Ship Seq	Format	Carrier	Multi
<input type="text"/>	<input type="text"/>	<input checked="" type="checkbox"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="text"/>	<input type="checkbox"/>

**Fig. 7.8**  
Shipping Group  
Maintenance  
(2.18.1)—  
Inventory  
Movement Details

**Inv Mov.** Enter an inventory movement code that can be used for shipments within this shipping group. Inventory movement codes determine the default NRM sequence, carriers, and document format used for the shipment. Enter an existing inventory movement code with a transaction type associated with shipments.

**Tr Type.** This field displays the transaction type associated with the inventory movement code. It cannot be edited.

**Default.** Enter Yes to mark this inventory movement code as the default for the associated transaction type for the shipping group. Enter No if this inventory movement code is not the default. You can designate only one default inventory movement code per transaction type for a shipping group.

When a shipping transaction is created for a shipping group, the system assigns the default inventory movement code for the appropriate transaction type to the shipper.

This field defaults to Yes if no other inventory movement code of the same transaction type is marked as a default. Otherwise, the default is No.

**PS Seq and Ship Seq.** Enter the NRM sequence codes the system should use to generate sequence numbers for all pre-shippers or shippers within this shipping group with this inventory movement code.

The system defaults are the value of the Pre-Shipper Sequence ID or Shipper Sequence ID in Container/Shipper Control.

**Format.** Enter the document format to be used for shipments within this shipping group, for this inventory movement code. Enter an existing document format code of type shipper, or leave the field blank. If a code is not entered, the system uses the value of the Document Format field in Container/Shipper Control.

**Carrier.** Enter the carrier to be used for shipments within this shipping group, for this inventory movement code. Shipments often require only one carrier, which you enter in this field. If a series of carriers is needed for a shipment, maintain the list by specifying Yes in the Multi field.

If a shipping group has multiple carriers, the Carrier field displays the first carrier and cannot be edited.

**Multi.** This field indicates whether you want to enter a series of default carriers for this shipping group, for this inventory movement code. Enter Yes if this shipping group requires more than one carrier. The system prompts you for additional carriers. When this field is No, you can enter only one carrier in the Carrier field.

### Adding Multiple Carriers to Shipping Groups

When you set the Multi field to Yes in the Inventory Movement Details frame, the Carriers frame displays.

**Fig. 7.9**  
Shipping Group  
Maintenance  
(2.18.1)—Carriers  
Frame

Inv Mov	Seq	Carrier	Name
Ship	1		

Enter a sequential series of default carriers for the specified shipping group and inventory movement code. The sequence position of the carrier is determined by the value entered in the Seq field, not by the order used to enter the information.

*Inv Mov.* This field displays the inventory movement code entered previously in the Inventory Movement Details frame and cannot be updated.

*Seq.* This field indicates the order in which the various carriers handle shipments for this inventory movement code and shipping group. The Ship-From site of a shipment turns over possession to the first carrier, which may later turn over possession to a second carrier, and so on, before the shipment is eventually delivered to the Ship-To destination.

When you remove a carrier, the system does not automatically renumber the remaining carriers. The lowest-numbered carrier is always considered the first carrier.

Enter an integer greater than zero that has not already been used for this shipping group and inventory movement code.

*Carrier.* Enter the carrier to be used in this sequence for shipments within this shipping group and for this inventory movement code.

*Name.* This field displays the name of the carrier you entered in the Carrier field and cannot be edited.

**Tip**  
Do not confuse this sequence with NRM sequence fields.

## Displaying Shipping Group Information

Use the following shipping group browses to search for and display information related to shipping groups:

- Shipping Group Browse (2.18.2).
- Shipping Group Address Browse (2.18.3). Other fields associated with a shipping group address detail, including Address Sort Name and Consolidate shippers requirement, can be viewed by scrolling the display to the left or right.

- Shipping Group Inventory Movement Code Browse (2.18.4). Other fields associated with inventory movement codes within shipping groups, including Pre-Shipper and Shipper Sequences, Document Format, and Carrier, can be viewed by scrolling the display left or right. If more than one carrier is associated with a given shipping group and inventory code, a separate line displays for each.

Use Shipping Group Report (2.18.5) to display the defaults and attributes defined for shipping groups, including inventory movement, pre-shipper/shipper ID, document format, carrier defaults, source and destination addresses, consolidation, and auto-transfer requirements.

**Fig. 7.10**  
Shipping Group  
Report (2.18.5)

The screenshot shows a software dialog box titled "Shipping Group Report". It features a standard Windows-style title bar with help, information, and close icons. The main area contains four text input fields: "Shipping Group:", "Master Bill Sequence ID:", "To:", and another "To:". The "To:" fields are positioned to the right of the "Shipping Group:" and "Master Bill Sequence ID:" fields. Below these fields, there is an "Output:" section with a "Batch ID:" field. At the bottom right of the dialog, there are two circular navigation buttons, one pointing left and one pointing right.

Select the shipping groups you want to include on your report by entering a range of groups and/or master bill of lading sequence IDs. To include all shipping groups, leave the fields blank.

## Set Up Container/Shipper Control

**Tip**  
Changes to  
Container/Shipper  
Control  
automatically  
update Customer  
Schedules Control  
(7.3.24).

To enable full global shipping functionality, you must update Container/Shipper Control to include default pre-shipper, shipper, and master bill of lading sequence IDs and document formats. You must also specify whether inventory movement codes and shipment information for receipt processing are required and if maintenance of sales order trailer amounts is allowed.

The screenshot shows the 'Customer Schedules Control' window with the following fields and values:

- Next Container: 3
- Pre-Shipper Sequence ID: 00000010 (Sequence for Preshipper Number)
- Shipper Sequence ID: 00000004 (Sequence for Preshipper Number)
- Master Bill Sequence ID: 00000003 (Sequence for Preshipper Number)
- Shipper Document Format: shp-01 (Created automatically)
- Master Bill Document Format: mb-01
- Max Lines on a Pre-Shipper: 15
- Shipping Label Templates:
  - Mixed Load Label: /users/ID001/defaultmixed
  - Master Load Label: /users/ID001/defaultmaster
  - Single Load Label: /users/ID001/defaultsingle
- Use Shipper Number for Invoice:
- Consolidate Invoices:
- Require Inventory Movement Codes:
- Maintain Trailer Amounts:
- Shipment Info For Receipts:
- Use Ship/Plan PCR:
- Auto Invoice Post:
- Print Invoice:
- Sum History - Items:
- Sum History - Containers:
- Automatic Cum Pegging:
- Customer Ref Is Customer Item:

**Fig. 7.11**  
Container/Shipper  
Control (7.9.24)

Enter the appropriate information in the following fields:

**Next Container.** Enter the next sequential container number to be assigned as a default when creating a container using either Container Workbench (7.7.1) or Pre-Shipper/Shipper Workbench (7.9.2).

**Pre-Shipper Sequence ID and Shipper Sequence ID.** Enter the NRM sequence codes used for pre-shippers and shippers, respectively. The system uses these codes to generate sequence numbers for all pre-shippers or shippers that do not use inventory movement codes or have no available shipping group. Enter an existing NRM sequence code with a target dataset associated with pre-shippers (abs\_id.preship) or shippers (abs\_id.shipper). The sequence description appears to the right of the code.

**Master Bill Sequence ID.** Enter the NRM sequence code used for master bills of lading. The system uses this code to generate sequence numbers for all master bills of lading with no available shipping group. Enter an existing NRM sequence code with a target dataset associated with master bills of lading (abs\_id.mbol). The description appears to the right of the code.

**Shipper Document Format.** Enter a valid document format code applicable to pre-shippers/shippers or leave blank to specify no format code. This format is assigned by default to all pre-shippers/

shippers that do not use inventory movement codes or have an available shipping group. The description appears to the right of the code.

**Master Bill Document Format.** Enter a valid document format code applicable to master bills of lading or leave blank to specify no format code. This format is assigned by default to all master bills of lading that do not use inventory movement codes or have an available shipping group. The description appears to the right of the code.

**Max Lines on a Pre-Shipper.** Enter the maximum number of lines to print on a pre-shipper created by Picklist/Pre-Shipper–Automatic (7.9.1). If zero, this option has no effect.

▶ See *User Guide Volume 7: Release Management*.

**Mixed Load Label, Master Load Label, Single Load Label.** Enter the name of a template file to be used for mixed load, master load, or single load shipping label formats. These are barcode labels that enable shipments to be received with barcode readers

▶ See “Selecting Confirmation Options” on page 213.

**Use Shipper Number for Invoice, Consolidate Invoices.** These fields set the default values for their corresponding fields in Pre-Shipper/Shipper Confirm (7.9.5).

**Require Inventory Movement Codes.** This field indicates whether inventory movement codes are required for newly created pre-shippers and shippers. If you use movement codes and shipping groups, set this field to Yes to ensure they are always applied. This field should be No if you are not using advanced shipping features or if the setup of inventory movement codes and shipping groups is not complete. The default is No.

**Maintain Trailer Amounts.** Enter Yes if you want to maintain sales order trailer amounts during shipper maintenance and confirmation. If No, you can still specify trailer amounts using Sales Order (7.1.1) and Pending Invoice Maintenance (7.13.1). This field applies only when the shipper document format is used as an invoice.

**Shipment Info for Receipts.** This field indicates whether the system prompts for shipment information during material receipt entry. Enter Yes if you want to specify shipment number, ship date, and inventory movement code when entering receipts. If No, the system does not prompt you. The default is No.

**Use Ship/Plan PCR.** This field determines whether prior cumulative required quantities are considered by Required Ship Schedule Update (7.5.5) or Selective Required Ship Schedule Update (7.5.6).

No: The beginning of the planning schedule is replaced by the shipping schedule and no prior cumulative quantities are considered.

Yes: The beginning of the planning schedule is replaced by the shipping schedule and remaining planning schedule quantities are adjusted by prior cumulative quantities.

**Auto Invoice Post.** This field sets the default value for the Auto Inv Post field in Scheduled Order Maintenance and the Post Invoice field in Pre-Shipper/Shipper Confirm.

**Print Invoice.** When Post Invoice is Yes, this field determines the default value for the `Print Invoice?` prompt in Pre-Shipper/Shipper Confirm. Enter Yes to print an invoice when the shipper is confirmed. Otherwise, enter No and print invoices later using Closed Invoice Reprint (7.13.12), or export them in EDI format using Invoice Export (35.1).

**Sum History–Items, Sum History–Containers.** These settings determine whether Pre-Shipper/Shipper Confirm generates a separate transaction history record for each item or container detail record on a shipper or summarizes transaction history by item or container.

No: A separate transaction history record is generated for each detail record on the shipper.

Yes: A transaction history record is generated for each unique combination of the following shipper detail data: sales order number, line number, item or container number, ship-from site and location, lot or serial number, and reference number.

Setting Sum history–Items and Sum history–Containers to Yes may significantly improve system performance when confirming shippers that reference the same item or container numbers, site and location detail, and sales order information on multiple shipper detail records. The improvement is less significant when you use serial numbers to uniquely identify individual items or containers.

**Tip**  
This field only affects customer scheduled orders with netting logic set to 3.

▶ See “Selecting Confirmation Options” on page 213.

**Tip**  
This field has no effect when Post Invoice is No in Pre-Shipper/Shipper Confirm.

▶ See *User Guide Volume 7: Release Management* for information on pegging.

**Automatic Cum Pegging.** This field lets you optionally disable automatic pegging records for cumulative scheduled orders in:

- Picklist/Pre-Shipper–Automatic (7.9.1)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Shipper Gateway (7.9.22)

Yes (the default): Automatic pegging occurs for cumulative orders.

No: Automatic pegging does not occur.

This field has no effect on required scheduled orders. Automatic pegging always occurs for them.

▶ See *User Guide: Volume 7: Release Management*.

**Customer Ref is Customer Item.** Indicate the default value for the Customer Ref is Customer Item field in Scheduled Order Maintenance (7.3.13). That field determines whether the value entered in the Customer Ref field in Scheduled Order Maintenance must be a valid customer item.

Specifying Yes in Scheduled Order Maintenance has the following effects:

- When you specify a customer item number defined in Customer Item Maintenance (1.16) in the Item field, that customer item number defaults to the Customer Ref and Customer Item field (in the Order Line Item Data frame). The system replaces the value you enter in the Item field with the corresponding internal item number and displays a message to inform you of the change.
- When you enter an item defined in Item Master Maintenance (1.4.1) in the Item field and that internal item corresponds to just one customer item, the corresponding customer item number defaults to Customer Ref and Customer Item.
- When you enter a valid internal item number in the Item field that does not have a corresponding customer item number an error displays. You must change the item or set up a customer item cross-reference in Customer Item Maintenance.
- When you enter a valid internal item number in the Item field that has more than one customer item number, no default displays in the Customer Ref field. You must specify a valid customer item in Customer Ref to continue.

- When you leave the Item field blank and enter a valid customer item in the Customer Ref field, the system enters the corresponding internal item number in the Item field and defaults the value in Customer Ref to the Customer Item field.

Setting this field to No has the following effects:

- When you enter a valid customer item in the Item field, that customer item number defaults to the Customer Item field. The system replaces the value you enter in the Item field with the corresponding internal item number and displays a message to inform you of the change. The customer item number displays next to the Customer Ref field, but the Customer Ref field is not updated.
- When you enter a valid internal item number that corresponds to just one customer item in the Item field, the corresponding customer item displays next to the Customer Ref field and defaults to the Customer Item field; Customer Ref is not updated.
- When you enter an item number that either does not have a corresponding customer item number or has more than one customer item number, then both Customer Item and Customer Ref are left blank. Values entered in Customer Ref are not validated.

## Processing Shipments

This section covers shipment processing—both domestic and global—using the container/shipper method. These functions can be found in the Containerization menu (7.7) and in the Shipment Processing menu (7.9).

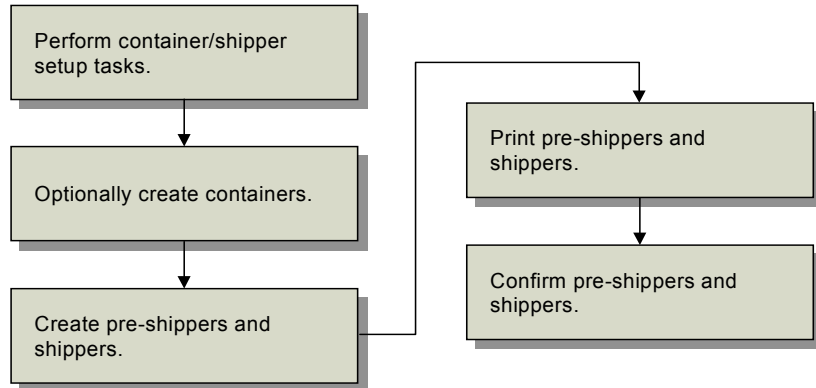
### Container/Shipper Method of Shipping

The work flow in Figure 7.12 gives an overview of the container/shipper method of shipping. Following the work flow are business reasons for using the containers, how to set up containers in Container Workbench, business reasons for using shippers, and detailed instructions on how to create, print, and confirm shippers using the pre-shipper/shipper programs.

▶ See *User Guide Volume 11: PRO/PLUS*.

**Note** If you are using the optional PRO/PLUS Container and Line Charges module, additional features are available for managing containers.

**Fig. 7.12**  
Container/Shipper  
Work Flow



## Containers

Use containers to package and store finished goods at the end of a production line and to warehouse them in single-level containers before shipping. Also use containers to consolidate goods going to the same location. A container can be a box of finished goods, a pallet of boxes, or a truckload of pallets.

You can:

- Create containers in two places: Container Workbench (7.7.1) for single-level containers and Pre-Shipper/Shipper Workbench (7.9.2) for hierarchical containers. You can only create new containers in these two programs. Using Pre-Shipper/Shipper Workbench, you can also merge and modify pre-shippers.
- Package single-level containers off the production line.
- Build hierarchies of containers from boxes to truckloads, with intermediate sizes.
- Add, delete, and remove containers and items from shipping documents.

You must set up item numbers representing containers such as boxes, pallets, racks, or truck trailers in Item Master Maintenance (1.4.1). Containers can be managed like any item in the system. You can use no order planning or inventory tracking to full MRP with lot/serial control to track expensive racks, truck trailers, or other specialized containers.

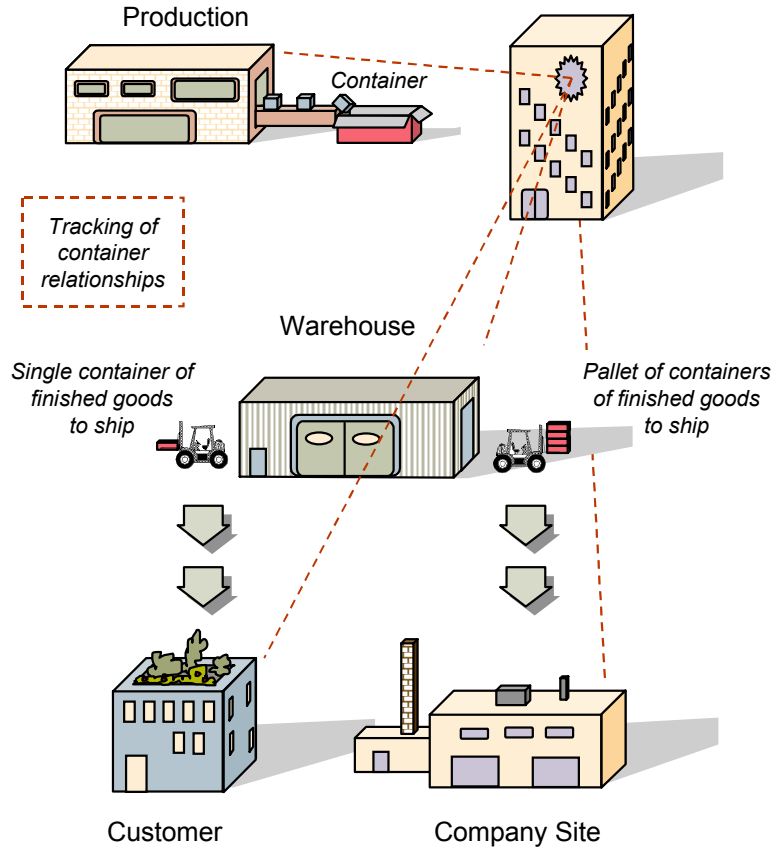
If you want to track container inventory, assign a nonzero GL cost to container item numbers. This ensures that the system creates inventory transactions of type ISS-UNP when you confirm shippers that reference these container items. If you do not want to track container inventory, create dummy item numbers for containers that have zero GL costs.

▶ See “Creating Shippers Manually” on page 196.

### Using Containers Effectively

Figure 7.13 shows an example of how containers can be used effectively. Many businesses with fast-paced, high-volume shipping docks place finished goods into containers and warehouse the containers on-site. The containers and their contents are uniquely identified by a number assigned by the company.

**Fig. 7.13**  
Business Case for  
Containers

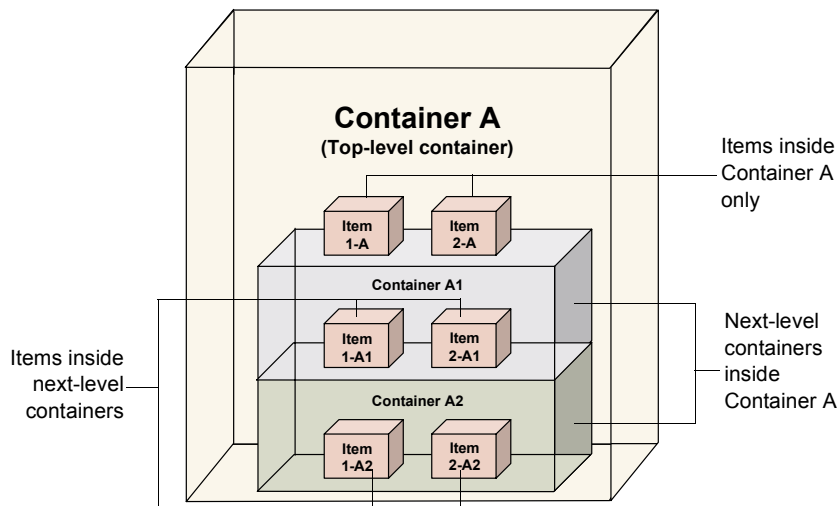


For many automotive suppliers, an additional requirement is the ability to define the containers comprising a shipment. This is typically done at the end of the production sequence by attaching products to the containers. The containers are visible within the picking process and attached to the shipper document to satisfy requirements.

At the end of a production line, you can put finished goods in containers to store them before shipping. Once your finished goods are in containers, you can ship them to customers by container or by a larger unit, such as a pallet of containers or truckload. Container-to-finished-goods relationships can be tracked throughout the shipping process.

## Container Relationships

Figure 7.14 shows the relationship between containers and items. A container can include products and other containers. Each container within a set of containers is uniquely identified by a site code and a container number. You can track and monitor containers throughout the supply chain regardless of how they are manipulated, separated, or repackaged.



**Fig. 7.14**  
Relationship  
Between  
Containers and  
Items

## Establishing and Modifying Hierarchies

Containers and items have a hierarchical structure. When you create containers in Container Workbench (7.7.1), you can create single-level containers that hold products; when you use Pre-Shipper/Shipper Workbench (7.9.2), you can assign multiple container levels, with each container holding either products or other containers (Figure 7.15).

**Fig. 7.15**  
 Container Detail in  
 Container  
 Workbench and  
 Pre-Shipper/  
 Shipper Workbench

The screenshot shows the 'Container Workbench' window. It features a toolbar with various icons for navigation and actions. Below the toolbar is a table with the following data:

Level	Container	Item Number	Quantity	UM
0	00000005	box1	1.0	EA
.1	00000004	BOX1	1.0	EA
..2	00000003	BOX1	1.0	EA
...3		22-110	40.0	EA

Below the table, there is a section for detailed information:

Container: 00000005                      Volume: 0.0  
 Item Number: box1                      Site: 10000      Loc:  
 Quantity: 1.0                      UM: EA      Lot/Serial:  
 Net Weight: 8,000.0                      Reference:      Comments: No  
 Tare Weight: 0.0                      Kanban:  
 Gross Weight: 9,600.0                      Description: Shipping Box  
 Order:                      Order Line:

You can establish container hierarchies and add containers and items to other containers by either building up or by building down.

Building down containers is a process of adding containers and items to existing container structures. In the Pre-Shipper/Shipper Workbench Detail frame, you can build down into containers, adding items and other containers to larger containers.

Building up containers is a process of creating a superset of containers. You can build up containers in the Container Workbench Add Container field on the Summary frame. For example, you can create or add master containers, such as a pallet container and an overseas shipping container. You have only one opportunity to create master containers for a shipment. You must start at the lowest level container with its item contents and use the Add Container field to create a hierarchy by building up master containers. The Summary frame appears after the Item Information frame.

Within the first entry session of the first container, every time you set Add Container to Yes, you add master containers up the hierarchy. As soon as you enter No and return to the Detail frame, you can no longer increase the hierarchical structure for this shipment. You can add at various levels within the hierarchy as displayed on the Detail screen.

## Planning for Containers

Picklists and customer schedule requirements can form the basis for the input source for container and shipper information. Table 7.2 lists the options on the Containerization Menu.

Number	Menu Label	Program
7.7	Containerization Menu ...	
7.7.1	Container Workbench	rcctwb.p
7.7.2	Container Inquiry	rciq03d.p
7.7.3	Container by Item Inquiry	rcctiq.p
7.7.5	SO Container Maintenance	rectmt.p
7.7.7	Shipping Label Print	rcrp10.p
7.7.23	Container Delete/Archive	rectdel.p

**Table 7.2**  
Containerization  
Menu (7.7)

### Container Workbench

Use Container Workbench (7.7.1) to create containers and add items to containers. You can simultaneously create multiple containers that share the same characteristics. When you add several of the same item to more than one container, Container Workbench divides them equally among all containers. Any remainder is added to the first container.

The site code and container number uniquely identify containers and their contents. You can manually assign container numbers or have the system automatically assign them.

You can grant and/or deny access to users when using a specific inventory movement code at a particular site. This is done through Inventory Movement Code Security (36.3.11). As a result, you can only edit a container associated with a shipment if a security record does not exist that denies access to the inventory movement code and ship-from site of the shipment.

▶ See “Assign Inventory Movement Code Security” on page 156.

## Container Workbench Key Frame

Two fields identify a container:

**Fig. 7.16**  
Container  
Workbench (7.7.1),  
Site/Container  
Selection

**Site.** Enter the site code from which this container is shipped.

**Container.** Enter a number identifying this container. Leave blank to create a new container.

## Container Information Frame

To create a container in Container Workbench (7.7.1), first define its qualities such as volume, weight, site, location in the Container Information frame (Figure 7.17). You can assign a container number or let the system assign one.

**Fig. 7.17**  
Container  
Workbench (7.7.1),  
Container  
Information

If you leave Next Container blank, the system assigns a default container number.

**Next Container.** Specify a number identifying the first container in a set of one or more containers. The default is the next available container number defined in Container/Shipper Control.

**Container Item.** Specify the item number of the container, defined in Item Master Maintenance (1.4.1). For example, the item number assigned to the pallet or shipping carton, packing material, and labels.

**Quantity.** Enter the number of containers of this item number that the system should create. The system creates as many container records as specified here, assigning sequential container numbers to each one.

Each container record created shares the same values that you enter in the container information fields, except for site, location, lot/serial, and reference, which can be assigned different codes by setting Multi Entry to Yes.

*UM.* The system displays the unit of measure defined in the item master record of this container item number. This field is for reference only and cannot be modified.

*Net Weight.* The net weight of the container item before packing or loading defaults from the item master record.

*UM (Net Weight).* The net weight unit of measure defined in the item master record of this container item number.

*Volume.* The volume of the container item before packing or loading defaults from the item master record.

*UM (Volume).* The volume unit of measure defined in the item master record of this container item number.

*Site.* Specify the site code for this container item. You can assign each container to a different site code by setting Multi Entry to Yes. When you specify a site that differs from the header Ship-From site, auto-transfer from the inventory to the shipping site must be allowed. Otherwise, an error displays.

*Location.* Specify the location code for this container item. You can assign each container to a different location code by setting Multi Entry to Yes.

*Lot/Serial.* Specify the lot/serial number for this container item. You can assign each container to a different lot/serial number by setting Multi Entry to Yes. If Lot/Serial is Yes in the item master record of this item, you must set Multi Entry to Yes and enter each lot/serial number separately.

*Ref.* Specify the Reference number for this container item. You can assign each container to a different Reference number by setting the Multi Entry field to Yes.

*Multi Entry.* Enter Yes to enter different sites, locations, lot/serial numbers, and reference numbers for each container you are creating, or No to assign the same values.

**Tip**  
If you are creating several containers that include a lot or serial number, enter Yes in the Multi Entry field.

See *User Guide Volume 11: PRO/PLUS* for details on Container and Line Charges.

**Sales Order and Line.** When the Container and Line Charges module is active, specify a sales order and line associated with the items in this container. If you leave these fields blank, sales order number and line are retrieved from the first item in the container.

### Issue Detail Frame

If you enter Yes in the Multi Entry field, the Issue Detail frame displays so you can assign different site codes, location codes, lot/serial numbers, and reference numbers for each container you are creating.

**Fig. 7.18**  
Container Workbench (7.7.1), Issue Detail

Issue Detail - Quantity: 1 EA

Site	Location	Lot/Serial	Reference	Quantity
10000	100			1.0

Enter a site, location, lot/serial number, and reference number. Then specify the number of container items to which you want to assign these values.

Repeat until you have assigned values for the total number of container items entered in the previous frame. Then press End to close the Issue Detail pop-up.

## Item Information Frame

You enter information about the items within the container in the Item Information frame, shown in Figure 7.19.

Container Workbench

Item Information

Item Number: 10-10000  
QASIS(TM) COOLING SY  
HOME/INDUST MODEL

Quantity: 1.0 Site: 10000  
Unit of Measure: EA Location: 200  
Conversion: 1.0000 Lot/Serial:   
Reference:   
Net Weight: 50.00 RG Multi Entry: No  
Volume: 1.00 CM Comments: No  
Sales Order: Order Line:

Enter the number of the item to add to the container.

Enter the quantity, weight, and inventory location of the item to add.

**Fig. 7.19**  
Container  
Workbench (7.7.1),  
Item Information

**Item Number.** Specify the item number of the commodity, part, or product to be added to the container.

**Quantity.** Specify the number of items to be added to the container. If you created more than one container record in the Container Information frame, the system evenly distributes the quantity of this item among each container record. If the quantity of items does not divide equally into the quantity of containers, the remainder is added to the first container.

**UM.** Enter the unit of measure of the inventory transaction quantity. The value defaults from the item master record.

**Conversion.** Specify the conversion factor the system should use if you specify an alternate unit of measure.

**Net Weight.** The net weight per unit defined in the item master record of this item number displays by default.

**UM (Net Weight).** The net weight unit of measure defined in the item master record of this item number displays by default.

**Volume.** The volume defined in the item master record of this item number displays by default.

**UM (Volume).** The volume unit of measure defined in the item master record of this item number displays by default.

**Site.** Specify the site code for this item number.

**Tip**

If you are adding several items that include a lot or serial number to a container, enter Yes in the Multi Entry field.

**Location.** Specify the location code for this item number.

**Lot/Serial.** Specify the lot/serial number for this item number.

**Ref.** Specify the reference number for this item number.

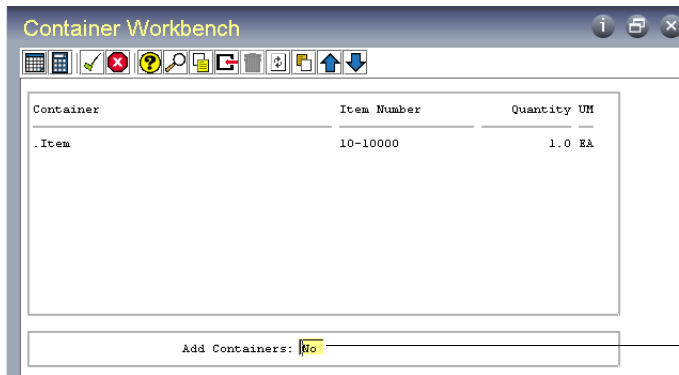
**Multi Entry.** Enter Yes to enter different sites, locations, lot/serial numbers, and reference numbers for each item you are adding to each container, or No to assign the same values.

**Comments.** This field specifies if comments can be associated with this line item on this container. Specify Yes to enter or edit transaction comments. The system prompts you for your comments. Enter No if you do not want to add or edit transaction comments.

### Container Summary Frame

The Summary frame shows you the container and item information you have entered. Figure 7.20 shows the Summary frame.

**Fig. 7.20**  
Container  
Workbench (7.7.1),  
Summary



Summary shows the container and item information you have entered.

Enter Yes to add listed containers and items to a larger container or pallet.

**Tip**

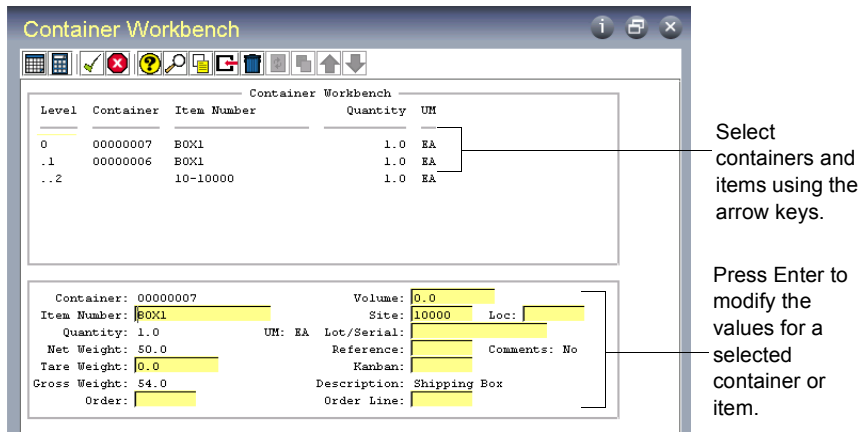
Once you choose No, you cannot add the current zero level container or its contents to a larger container.

**Add Containers.** Enter No in Add Containers if the container item and product item relationships are correct. Enter Yes to add the listed containers and items to a larger container or a master container.

In this case, the Container Information frame (Figure 7.17 on page 176) displays for the input of the parent container information.

## Container Detail Frame

In the Container Detail frame, you can modify detail related to a container. You can also add a container to the container, add an item to the container, or delete an item or container from the container.



**Fig. 7.21**  
Container  
Workbench (7.7.1),  
Container Detail

Select  
containers and  
items using the  
arrow keys.

Press Enter to  
modify the  
values for a  
selected  
container or  
item.

**Container.** Specify the container number of this container item number.

**Item Number.** Specify the item number of this container, commodity, part, or product.

**Quantity.** Specify the number of items listed in Item Number to be added to the container. If you created more than one container record in the Container Information frame, the system evenly distributes the quantity of this item among each container record. If the quantity of items does not divide equally into the quantity of containers, the remainder is added to the first container.

**UM.** Specify the unit of measure of the inventory transaction quantity. The value defaults from the item master record of this item number. This field is for reference only.

**Net Weight.** Specify the net weight per unit defined in the item master record of this container or product item number.

*UM (Net Weight).* Specify the net weight unit of measure defined in the item master record of this item number. This field is for reference only.

*Gross Weight.* Specify the gross weight of this item. For container item numbers, it is the sum of the net weight of the container item number plus the net weight of the item numbers added to the container. For product item numbers, it is the net weight of the product item number.

*UM (Gross Weight).* Specify the net weight unit of measure defined in the item master record of this item number. This field is for reference only.

*Volume.* Specify the volume defined in the item master record of this item number.

*UM (Volume).* Specify the volume unit of measure defined in the item master record of this item number.

*Site.* Specify the site code for this item number. You can assign each container to a different site code by setting Multi Entry to Yes.

*Lot/Serial.* Specify the lot/serial number for this item number. You can assign each container to a different lot/serial number by setting Multi Entry to Yes.

*Ref.* Specify the reference number for this item number. You can assign each container to a different Reference number by setting Multi Entry to Yes.

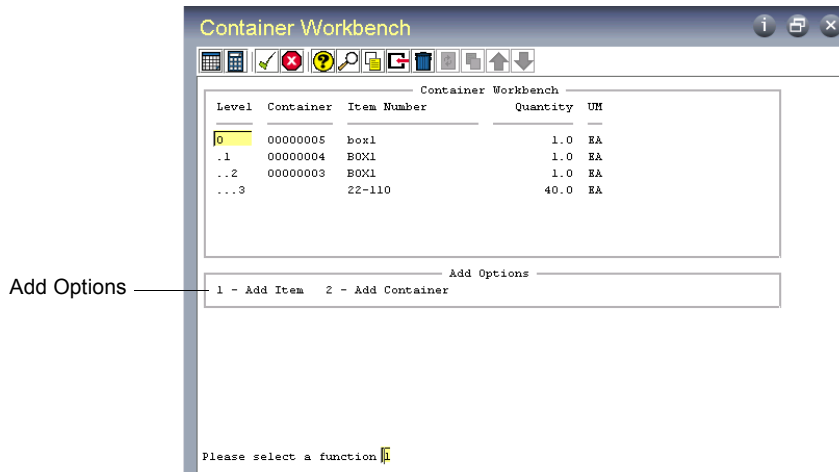
*Kanban.* Specify the kanban number of this container record. This field is for reference only.

*Description.* Specify the description defined in the item master record of this container or product item number.

*Comments.* This field indicates whether comments can be associated with this line item on this container. Enter Yes to enter or edit transaction comments. The system prompts you for your comments. Enter No if you do not want to add or edit transaction comments.

To add a container:

- 1 Use the Add command appropriate for your user interface. The Add Options pop-up appears.



**Fig. 7.22**  
Container  
Workbench (7.7.1),  
Add Options

- 2 Choose Option 2 to add a container.  
The Container Information frame appears.
- 3 Enter a container item number and the values for the container item.  
The Container Detail frame appears with the new container added.

To add an item to an existing container:

- 1 Select an existing container.
- 2 Use the Add command appropriate for your user interface.  
The Add Options pop-up appears.
- 3 Choose Option 1 to add an item.  
The Item Information frame appears.
- 4 Enter an item number and the values for the item in the Item Information frame.  
The Container Detail frame appears with the new item added to the selected container.

▶ See Figure 7.17  
on page 176.

▶ See Figure 7.21  
on page 181.

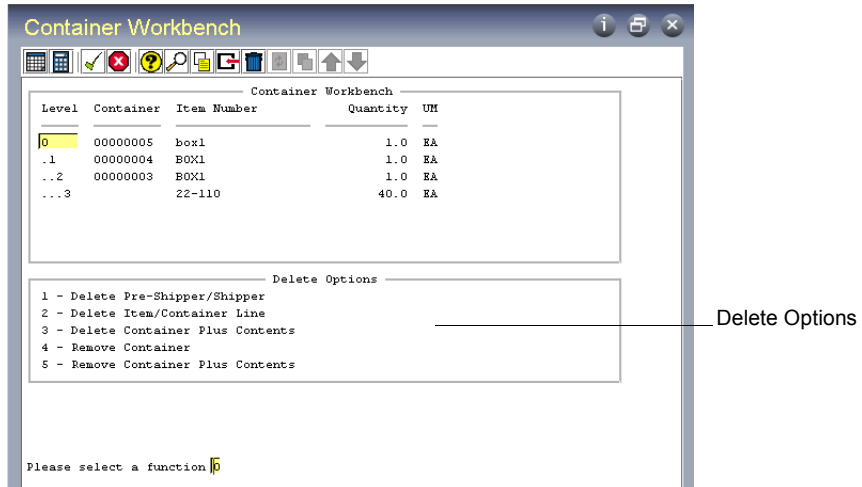
▶ See Figure 7.22  
on page 183.

▶ See Figure 7.19  
on page 179.

To delete a container or item:

- 1 Select a container and use the Delete command appropriate for your user interface.
- 2 The Delete Options pop-up displays.

**Fig. 7.23**  
Container Workbench (7.7.1), Delete Options Pop-Up



- 3 Choose one of the following options:

Choose	To
1-Delete Pre-Shipper/Shipper	Delete the entire container from the database.
2-Delete Item/Container Line	Delete a container or item line from the database. Any container or item belonging to the deleted container or item line is moved up one level. You cannot delete a container line if it results in an item that does not have a container line.
3-Delete Container plus Contents	Delete a container and all containers or items belonging to it.
4-Remove Container	Remove a next-level container from a container. The container can still be accessed under its own container number.
5-Remove Container plus Contents	Remove a next-level container and all containers or items belonging to it from a container. The container can still be accessed under its own container number.

- 4 You are prompted to confirm the deletion. Enter Yes to continue deleting, or No to cancel.

## SO Container Maintenance

SO Container Maintenance (7.7.5) supports the following shipping features.

- Shipping documents with assigned document formats. If the format specifies that the document can be used as an invoice, you cannot add a container that violates the restrictions for consolidating sales orders on invoices. For example, line items in the containers cannot reference sales orders with different bill-to addresses.
- Shipping documents with assigned NRM sequence IDs.
- Ship-from sites with an assigned address code.

However, you cannot use SO Container Maintenance to edit a container associated with a shipper that uses an inventory movement code. To edit these containers, use Container Workbench (7.7.1).

## Deleting Unused Containers

Use Container Delete/Archive (7.7.23) to delete and archive unused container records when they are no longer needed. An unused container is one that is no longer linked to another container or shipper. When you have many unused containers, you may run out of container IDs.

You cannot use this program to delete a container that is currently linked, either to another container or to a shipper record. To delete specific linked containers, use one of the following programs, depending on the type of container:

- Container Workbench (7.7.1) for type S (shipper) containers
- SO Container Maintenance (7.7.5) for type S (shipper) containers
- Sub Container Maintenance (18.22.5.4), for type U (subcontract) containers
- PO Container Maintenance (5.13.13), for type R (purchase order) containers

You can select unused container records by site, by container number, and by container type. You can also choose to remove any container structure associated with an unused container.

## Shippers

A shipper is a document accompanying the shipment as a record of what is included. You can send a shipper electronically as an advance ship notice (ASN) when the shipment leaves your dock or send it with the shipment as a packing list.

All programs on the Shipment Processing Menu are listed in Table 7.3.

**Table 7.3**  
Shipment  
Processing Menu  
(7.9)

Menu	Menu Label	Program Name
7.9	Shipment Processing Menu ...	
7.9.1	Picklist/Pre-Shipper–Automatic	sososl.p
7.9.2	Pre-Shipper/Shipper Workbench	reshwb.p
7.9.3	Pre-Shipper/Shipper Inquiry	rciq03.p
7.9.4	Pre-Shipper/Shipper Print	rcrp13.p
7.9.5	Pre-Shipper/Shipper Confirm	rcsois.p
7.9.6	Pre-Shipper/Shipper Report	reshrp01.p
7.9.6	Pre-Shipper/Shipper Report	rcshrp01.p
7.9.7	Pre-Shipper/Shipper Auto Confirm	rcauis.p
7.9.8	Sales Order Shipper Maintenance	rcshmt.p
7.9.9	Sales Order Shipper Print	rcrp11.p
7.9.10	Manual SO Shipper Verification	rcvrfsh.p
7.9.13	Sales Order Packing List	sosopk.p
7.9.14	Sales Order Shipping Label Print	sosorp14.p
7.9.15	Sales Order Shipments	sosois.p
7.9.18	Backlog/Missed Shipment Report	soshprp5.p
7.9.19	Fill Rate Report	soshprp4.p
7.9.20	Undo Shipper Number Assignment	rcslrb.p
7.9.21	Shipper Unconfirm	rcunis.p
7.9.22	Shipper Gateway	rcshgw.p
7.9.23	Shipper Delete/Archive	rcscdel.p
7.9.24	Container/Shipper Control	rcpm.p

A pre-shipper is a document used to select containers and product inventory for shipment. When you select products and containers on pre-shippers, the inventory for those items can be detail allocated, if it has not been already. Pre-shippers are similar to sales order picklists and can be printed in Pre-Shipper/Shipper Print (7.9.4).

◆ For information on the Bills of Lading Menu (7.9.12), see page 222.

The system makes a distinction between pre-shippers and shippers and numbers them separately. This distinction accommodates businesses that must number their shipments consecutively. When you print pre-shippers, you can automatically turn them into shippers. If you do not assign a shipper number to a pre-shipper when you print it, the shipper number is assigned (based on an internal or external sequence) when the pre-shipper is confirmed in Pre-Shipper/Shipper Confirm (7.9.5).

**Note** If you are required to maintain consecutive shipper numbering based on the order in which products leave the dock, always create pre-shippers. You can turn them into shippers when they are ready to be sent, ensuring that consecutive shipper numbers are assigned.

Customer demand drives pre-shipper creation and, therefore, detail allocation of product inventory. Requirements from sales orders and customer schedules become the pre-shipper, and the pre-shipper becomes the shipper. The data from each document carries forward with each step in the shipping cycle. Once created, pre-shippers can be merged into other pre-shippers or shippers using Pre-Shipper/Shipper Workbench (7.9.2).

Use Picklist/Pre-Shipper–Automatic (7.9.1) to create pre-shippers in batches. Use Pre-Shipper/Shipper Workbench (7.9.2) to create pre-shipper and shipper documents one at a time.

### Creating Pre-Shippers Automatically

Picklist/Pre-Shipper–Automatic creates pre-shippers for orders generated in Sales Order Maintenance (7.1.1) and Scheduled Order Maintenance (7.3.13). Once you create a set of pre-shippers, you can merge them with other pre-shippers and shippers using Pre-Shipper/Shipper Workbench (7.9.2).

Before the system finishes creating a batch of pre-shippers, it prompts you to confirm each pre-shipper. You can verify that each pre-shipper printed correctly before recording detail allocation transactions.

Total shipping requirements can be broken down into multiple pre-shippers based on shipping weight, address list types, or other criteria set up in Picklist/Pre-Shipper–Automatic.

### Inventory Detail Allocation

When you create pre-shippers using Picklist/Pre-Shipper–Automatic (7.9.1), the system can detail allocate inventory depending on how you set it up.

In general, the system performs two types of allocations:

- *General allocations* reserve some quantity of an item number at a specific site to fill a specific confirmed order. This can be done in Sales Order Maintenance (7.1.1).
- *Detail allocations* reserve unexpired, on-hand inventory uniquely identified by site, location, lot/serial number, and reference number.

A detail allocation is often referred to as an item being picked, either for a manufacturing operation or a shipping order. Inventory can be allocated at several stages in the life cycle of a sales order:

- Sales Order Maintenance automatically creates general allocations for all orders due within a certain number of days, as specified in Sales Order Control. Detail allocations can be entered if the customer specifies particular lots or characteristics (Expire Date, Grade, Assay %).
- You can run Sales Order Auto Allocations (7.1.7) regularly to create general allocations for any orders due within a certain number of days. These orders are typically not allocated at order entry. Run this function by customer class to allocate scarce inventory to high priority customers first.
- Use Sales Order Manual Allocations (7.1.6) to override general or detail allocations.
- Sales Order Packing List (7.9.13) and Picklist/Pre-Shipper–Automatic (7.9.1) normally print allocated quantities only (set Print Only Lines to Pick to Yes). The pre-shipper details each item by quantity per location, lot, and reference number. The system converts general allocations to detail allocations at this time.

When you create a pre-shipper with Picklist/Pre-Shipper–Automatic, the allocations made to the original sales order are deleted and new allocations created for the pre-shipper. This is not true when you create a pre-shipper manually or add another sales order line to a pre-shipper with Pre-Shipper/Shipper Workbench. In this case, the pre-shipper allocations are in addition to the sales order allocations.

**Important** To prevent double allocations, you must delete the sales order allocations manually using Sales Order Manual Allocation.

When you run Picklist/Pre-Shipper–Automatic with Auto Allocation set to Yes and Stage Open Quantities set to No, the system detail allocates confirmed sales order lines. With Auto Allocation set to No, the system detail allocates the lesser of the general allocated quantity or the quantity to ship.

▶ See “Auto Allocation” on page 192.

You can select orders by range of due date, sales order number, ship-to, language, site, address type, item number, and reference. These selection criteria determine which orders are processed. They have no effect on the sequence in which sales orders are picked and printed. The system always picks items for sales orders in sequence by customer code and then sales order number.

To ensure that orders with the most recent item due dates are picked, use Sales Order Auto Allocations to allocate the items by due date before using this function. Then when generating the pre-shippers, set Print Only Lines to Pick to Yes.

Running Picklist/Pre-Shipper–Automatic can produce different results based on the setting of Stage Open Quantities and Print Only Lines to Pick.

- **Stage Open Quantities.** If Yes, pre-shippers are created based on open sales order quantities, not allocated quantities. This lets you create pre-shippers for sales order lines even when sufficient inventory is not available. This option is useful when you are sure that inventory will become available soon.
- **Print Only Lines to Pick.** If Yes, only lines with an allocated quantity print. If No, all sales order line items with a non-zero open quantity are printed, regardless of the quantity allocated.

When Print Only Lines to Pick is No and an allocated quantity does not exist, a document still prints, but the pre-shipper number is blank. The document lists sales order line items with a quantity open greater than zero.

### Using Containers with Automatic Pre-Shippers

▶ See “Use Containers” on page 193.

Use Containers must be Yes to assign containers using this method. You can automatically assign containers created in Container Workbench (7.7.1) to pre-shippers using Picklist/Pre-Shipper–Automatic if they meet the following criteria:

- The container has not been assigned to another container, pre-shipper, or shipper.
- The container contains only the sales order line item number. Automatic container assignment does not work when containers include more than one item number.
- For customer scheduled orders only, the container item number is either the primary container for the scheduled order line or one of the alternate containers for the scheduled order line.
- The container is designed to hold a quantity of the sales order line item number that is equal to or less than the quantity of the sales order line.

### Other Picklist Defaults

If Require Inventory Movement Codes is Yes in Container/Shipper Control, the system looks for a default inventory movement code to assign to each picklist. An error is generated when:

- The system cannot find a default inventory movement code based on the shipping group.
- You are denied access to the code at the Ship-From site of the picklist/pre-shipper.

If movement codes are not required, picklists are created without them.

The system assigns a picklist/pre-shipper ID based on the NRM sequence ID for the inventory movement code and shipping group, or from Container/Shipper Control. In order for the system to dispense the

number, the NRM sequence must be an internal sequence (system-generated). If the assigned NRM sequence is an external sequence, the system displays an error message.

The document format and carriers used are also based on defaults defined for the inventory movement code and shipping group, or Container/Shipper Control.

### Consolidation Requirements

Consolidation requirements are based on the shipping group used for the shipment.

- If either the ship-to or ship-from address of the shipment prohibits consolidation, the system generates a new picklist for each sales order.
- If either the ship-to or ship-from address requires consolidation, and other consolidation criteria are met (such as weight and volume limitations), the system consolidates line items on a single picklist.

**Tip**  
The Break on Sales Order option also affects consolidation.

The Max Lines on a Pre-Shipper field in Container/Shipper Control limits the number of printed lines allowed on each picklist, which can limit the number of line items. This takes precedence over consolidation requirements.

If the document format used for the picklist allows the printed shipping document to be used as an invoice, the restrictions for consolidating sales orders on invoices apply. These take precedence over the shipment consolidation requirements of the shipping group.

### Selecting Sales Orders for Pre-Shipper Creation

The range of values you enter in the sales order selection fields of Picklist/Pre-Shipper–Automatic (7.9.1) determines the sales orders for which the system creates pre-shippers. Each of these fields includes a From and a To value. Leaving any of these fields blank results in the system considering all sales orders, regardless of the value of this field (see Figure 7.24).

**Fig. 7.24**  
Picklist/  
Pre-Shipper—  
Automatic (7.9.1)

**Tip**  
Reference applies to scheduled orders only.

You can select sales orders by range of due dates, order number, ship-to address, language, site, address list type, item number, or schedule reference.

### Selecting Pre-Shipper Creation Options

▶ See Figure 7.24 on page 192.

The following fields define the system’s level of automation when creating pre-shippers, based on the sales order line items selected:

▶ See “Inventory Detail Allocation” on page 188.

**Auto Allocation.** Enter Yes to detail allocate matching, confirmed sales order lines, or No to ignore allocations.

**Allocate Components.** This field enables you to create detail inventory allocations for the components of configured kits. Enter Yes if you want to create detail allocations for confirmed sales order lines. Enter No if you do not want to allocate components.

**Ship Avail Qty for Kit.** This field determines the quantity picked for kit items. A kit is a type of configured item that represents a set of items that are picked and shipped together; no real assembly takes place.

**No:** The quantity to ship for the kit item is set to the corresponding quantity open on the order line.

**Yes:** The system determines the component of the kit with the least quantity available to allocate. The quantity to ship for the kit item is set to this quantity. This ensures that complete kits are shipped.

Use Available Kit Quantity to Ship (7.1.8) to create or display allocations based on the kit component with the least quantity available to allocate.

**Tip**  
Setting Stage Open Quantities to Yes overrides a Yes value in Ship Avail Qty for Kit.

**Stage Open Quantities.** Enter Yes to create pre-shippers for sales order lines that cannot be detail allocated because inventory is not available. Picklists are created based on open sales order line quantities. Enter No to ignore sales order lines for items without available inventory.

A Yes for Stage Open Quantities overrides the effects of the Auto Allocation setting and overrides a Yes setting for Ship Avail Qty for Kit.

You cannot stage open quantities and also use containers. When this option is selected, only sales order information prints on the picklist.

**Override Partial OK.** Indicate if the system should consider the Partial OK setting in the trailer of each sales order when creating pre-shippers. This field defaults from Customer Maintenance (2.1.1) and specifies whether the customer accepts partial shipments.

No: The system checks the value of Partial OK on each order and creates pre-shippers based on this setting. If the setting is No for the order, the system verifies that all line items for each site represented on the order are available (allocated) and can be completely shipped. If this is not true, the pre-shipper does not include any of the line items from that site.

**Example** Lines 1 and 2 for site 100 and line 3 for site 200 all have the complete order quantity available. However, line 4 for site 200 has only a partial quantity available. When both Partial OK on the sales order and Override Partial OK are No, the pre-shipper includes only the site 100 lines.

Yes: Pre-shippers include all lines regardless of availability and the Partial OK setting on the order.

**Use Containers.** Enter Yes to assign containers meeting certain criteria, or No if you do not containerize shipments.

**Break on Sales Order.** Enter Yes to have the system create separate pre-shippers for each sales order in the selection with the same ship-to address code or No to have the system create a combined pre-shipper for all sales orders in the selection with the same ship-to address code.

**Tip**  
Use Containers cannot be Yes when this field is Yes.

▶ See “Using Containers with Automatic Pre-Shippers” on page 190.

**Break on Maximum Weight.** Enter the maximum gross weight for a pre-shipper.

- If zero, the system creates pre-shippers without regard to maximum gross weight.
- If nonzero, the system checks the pre-shipper gross weight before adding a sales order line item to it to make sure the line item does not exceed the maximum gross weight value. If a sales order line item exceeds the maximum gross weight value, the system creates a new pre-shipper.

**UM (Weight).** Enter the unit of measure of the Break on Maximum Weight value.

**Break on Maximum Volume.** Enter the maximum volume for a pre-shipper.

- If zero, the system creates pre-shippers without regard to maximum volume.
- If nonzero, the system checks the pre-shipper volume before adding a sales order line item to it to make sure the line item does not exceed the maximum volume value. If a sales order line item exceeds the maximum volume value, the system creates a new pre-shipper.

**UM (Volume).** Enter the unit of measure of the Break on Maximum Volume value.

### Selecting Printer Options

◆ See Figure 7.24 on page 192.

**Include Packing List Comments.** Enter Yes to leave room on each pre-shipper page to print packing list comments or No to ignore the size of packing list comments in consideration of the number of lines on the pre-shipper. This setting works in relation to the Max Lines on a Pre-Shipper setting in Container/Shipper Control (7.9.24). If zero, the Include Packing List Comments setting has no effect.

**Tip**  
This field defaults from the setting of Pick Only Allocated Lines in Sales Order Control.

**Print Only Lines to Pick.** Enter Yes to only print sales order line item numbers that have been detail allocated on packing lists or No to print all sales order line item numbers regardless of allocations.

**Print Features and Options.** Enter Yes to print configured sales order line item numbers followed by a list of features and options selected for the item or No to only print the configured item number.

**Print Packing List Comments.** Enter Yes to print packing list comments or No to not print packing list comments.

**Create Pre-Shipper in SO UM.** When an alternate unit of measure is specified on a sales order, indicate which unit of measure the system should use when creating the picklist/pre-shipper:

**Yes:** The picklist/pre-shipper is created and printed using the unit of measure specified on the sales order in Sales Order Maintenance.

**No:** The picklist/pre-shipper is created and printed using the stocking unit of measure for the item on the sales order, as specified in Item Master Maintenance.

To print the pre-shipper/shipper later, use Pre-Shipper/Shipper Print, which lets you select either the sales order unit of measure or the shipper unit of measure.

**Form Code.** Specify the form code of the document format on which you want these documents to print. You can customize forms to suit your business needs.

▶ See “Creating Custom Shippers” on page 238 for details.

## Running Picklist/Pre-Shipper–Automatic

The following instructions give a generalized view of how to use Picklist/Pre-Shipper–Automatic. The settings you use depend on the processes and methods employed in your operation. Review the previous sections carefully to make sure you understand how this program works and what settings you must make in this and other programs in order to get the results you want.

- 1 Choose Picklist/Pre-Shipper–Automatic (7.9.1) and enter a range of values matching the numbers of the sales orders for which you want to create pre-shippers.
- 2 Choose the pre-shipper creation and print options you need for the specified selection of sales orders.

▶ See page 191.

▶ See “Selecting Pre-Shipper Creation Options” on page 192 and “Selecting Printer Options” on page 194.

- 3 Choose a device in Output and, optionally, enter a Batch ID. The system displays a message while the report is running.  
When the report is complete, you are prompted to update the quantity picked.
- 4 Review the report to confirm that the correct sales orders have been selected and that the Pre-Shipper List is satisfactory.
- 5 Choose Yes at the Update Quantity Picked? message to accept the update and continue processing the transactions or No to modify your sales order selections or the update parameters.
- 6 If you chose No in step 5, repeat Steps 2 through 5 until you are satisfied with the Pre-Shipper List.

Figure 7.25 shows a sample picklist.

**Fig. 7.25**  
Sample Picklist

Ship To: 2000-1		P I C K L I S T / P R E - S H I P P E R			
SoCal Electrical 22314 W. 199th St.		Pre-Shipper: PS000123		Page: 1	
Torrance, CA 90278 United States of America		Print Date: 08/02/02			
Sales Order: so10068 Order Date: 08/02/02 Ship To PO:					
Ln	Item Number	Site T Location	Lot/Serial Ref	Qty Open Qty to Ship UM	Due Shipped
1	TT-610 small wire clip	T100		1000.0 EA	08/07/02

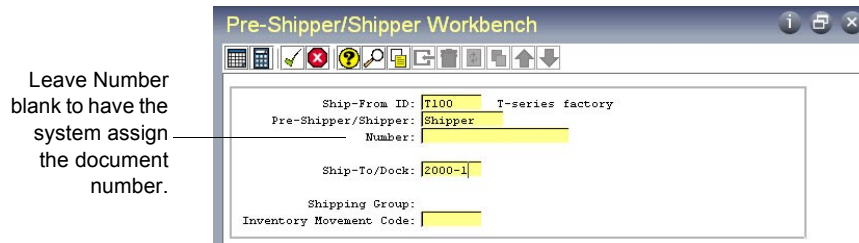
### Creating Shippers Manually

Use Pre-Shipper/Shipper Workbench (7.9.2) to do the following:

- Modify picklists/pre-shippers.
- Create pre-shippers to document the contents and structure of an actual shipment.
- Establish a master container hierarchy. The hierarchy can be modified after initial creation.

In Pre-Shipper/Shipper Workbench, the Ship-From, Pre-Shipper/Shipper, and Number fields uniquely identify shipping documents. If a pre-shipper exists for the entered values, that pre-shipper is retrieved. If a pre-shipper or shipper does not exist for the entered values, a new document is created.

**1** Choose Pre-Shipper/Shipper Workbench (7.9.2).



**Fig. 7.26**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2)

- 2** Enter the site code from which this shipment originates in Ship-From. This site must have a valid associated address record. If inventory movement codes are required, a shipping group must be available for the Ship-From and Ship-To/Dock address combination.
- 3** Choose either Pre-Shipper or Shipper in Pre-Shipper/Shipper:
- Enter Pre-Shipper to create a pre-shipper document that can later be turned into a shipper. A shipper number is not assigned until the pre-shipper is turned into a shipper document.
  - Enter Shipper to create a shipper document with a shipper number.
- 4** Enter a new number in Number (external sequence) or leave it blank to have the system assign a default pre-shipper or shipper number (internal sequence), depending on your selection in step 3.
- 5** Enter a customer, ship-to, or dock address code in Ship-To/Dock. If inventory movement codes are required, a shipping group must be available for the Ship-From and Ship-To/Dock address combination, and displays in the next field, for reference.

▶ See “Define Inventory Movement Codes” on page 155.

- 6 For global shipping, enter a valid inventory movement code. Inventory movement codes determine NRM sequences, carriers, and document formats. This field defaults to the value assigned in the shipping group if one applies. Otherwise, inventory movement code remains blank.

When you press Go, the system:

- Retrieves and displays the shipping group, based on the Ship-From and Ship-To/Dock address combination.
- Validates the inventory movement code against the shipping group.
- If shipper ID is blank or does not exist, the system:
  - Verifies your access to the inventory movement code, based on site/inventory movement security.
  - Creates a new shipper.
  - Retrieves and displays a valid NRM sequence number, based on the shipping group and inventory movement code (if shipper ID is blank), or validates the number you entered.
  - Retrieves all other shipping group and inventory movement defaults from the control programs, including carriers and document formatting parameters.
- If you specified an existing shipper, the system:
  - Retrieves the shipper.
  - Verifies your access to the inventory movement code, based on site/inventory movement security.
  - Issues a warning if you enter a Ship-To address or inventory movement code that differs from those stored in the actual shipper record.
  - Displays the Ship-To address and inventory movement code, obtained from the existing shipper record.

Finally, the system displays the Carrier Detail frame.

**Fig. 7.27**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Carrier  
Detail

Carrier:	UPS	Multi:	No	Document Format:	01
Ship Via:		Consolidate Ship:	optional	Language:	us
FOB Point:	ESCONDIDO				
Mode of Transport:					
Carrier Shipment Ref:	80000010	Merge Other Pre-Shippers:	No	Comments:	No
Vehicle ID:					

- 7** Enter the carrier data for this shipment.  
Carrier, Ship Via, FOB Point, Mode of Transport, Carrier Shipment Reference, and Vehicle ID appear on various printed documents.
- 8** Set the Multi field to Yes if this shipment requires more than one carrier. The system prompts you for additional carriers.
- 9** Enter a valid document format of a type applicable to shippers, or leave this field blank. If the document format specifies the printed shipper is used as an invoice or if the document format is edited for a shipper marked as having been printed, the system issues a warning message, but lets you continue.
- 10** Consolidate indicates whether this shipment can be consolidated by transactions of a given type. Enter No to prohibit consolidation. Enter Optional to allow but not require consolidation. Enter Yes to require consolidation.
- 11** The Language field contains the default language for retrieving header, line item, and trailer comments with the shipper.
- 12** The Merge Other Pre-Shippers field is automatically set to No and cannot be edited if the shipper is confirmed or is not a sales order shipper. Specify Yes if you want to combine several pre-shippers together. Pre-shippers can be merged only if consolidation and NRM sequence number discarding restrictions are not violated. Canceled pre-shippers cannot be merged.  
  
You can merge any number of pre-shippers sharing the same Ship-To/Dock address code. This setting only works with pre-shipper documents. You cannot view merged pre-shippers using their original pre-shipper number after they have been merged.
- 13** Choose Yes in Comments if you want to attach any information about this document. The Master Reference field defaults to the document format of the shipper, and the Language field defaults to the language of the shipper. This enables you to copy comments associated with the document format to the line item of the shipper.

▶ See “Adding Multiple Carriers” on page 206 for details.

Skip steps 14 through 16 if you selected No in Merge Other Pre-Shippers. If you chose Yes in Merge Other Pre-Shippers and No in Multi, the Merge Pre-Shipper pop-up appears. If you chose Yes in Merge Other Pre-Shippers and Yes in Multi, the Merge Pre-Shipper pop-up appears after the Carrier window.

- 14 Enter a pre-shipper number in the Merge Pre-Shipper pop-up. A message confirms the update.
- 15 Repeat step 14 for each pre-shipper you want to merge.
- 16 Choose No in Merge Other Pre-Shippers when you are done adding the pre-shippers you want to merge together.

The Shipper Detail frame appears.

**Fig. 7.28**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Shipper  
Detail



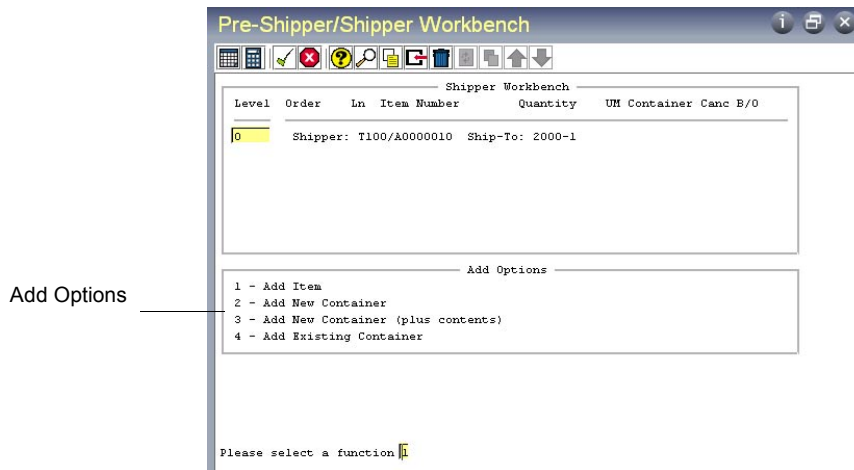
From the Shipper Detail frame you can:

- Add items, containers, and containers of items to a shipper.
- Delete items, containers, containers of items, and shippers.
- Remove containers and containers of items from a shipper without deleting the container or container of items.

#### Adding an Item to a Shipper

- 1 Select a container number, pre-shipper number, or shipper number from the Shipper Detail frame
- 2 Use the Add command appropriate for your user interface.

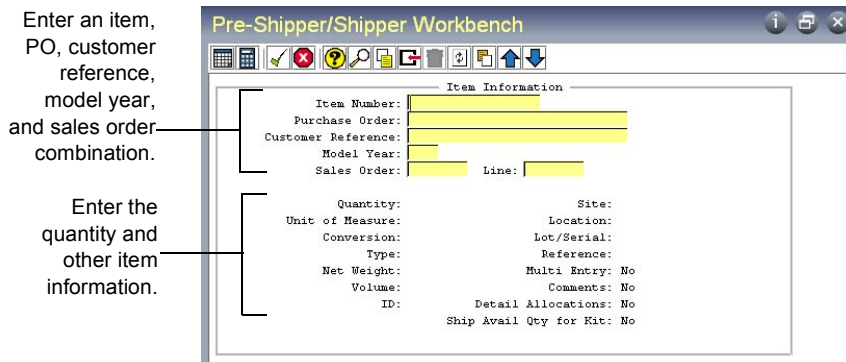
The Add Options pop-up appears.



**Fig. 7.29**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Add  
Options Pop-Up

### 3 Choose Option 1 to add an item.

The Item Information frame appears.



**Fig. 7.30**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Item  
Information

### 4 Enter the item number, customer reference number, or model year for the item you want to add and one of the following orders identifying it:

- Purchase order number
- Sales order and line item number
- Customer schedule

**Tip**  
Position the cursor in Sales Order and use Next/Previous to scroll through open sales orders line by line.

An open, scheduled sales order, customer schedule, or purchase order must exist for the ship-from site code and ship-to/dock address code you assigned to the pre-shipper or shipper document.

▶ See “Inventory Detail Allocation” on page 188.

- 5 Enter the quantity to be shipped for this order or schedule and other item information. The ID field contains the final assembly work order for an ATO configured item. This value is used when confirming the shipper. The Detail Alloc field specifies if detail allocations are created.

For an ATO item, entering Yes creates a detail allocation for the quantity to ship for this item from the quantity available. For a kit configured item, entering Yes creates detail allocations for the components of the item. Enter No if you do not want to create detail allocations.

▶ See Figure 7.28 on page 200.

The Shipper Detail frame appears.

- 6 Repeat steps 1 through 5 for each item you want to add.

#### Adding a Container to a Shipper

- 1 Select a container number, pre-shipper number, or shipper number from the Shipper Detail frame using the arrow keys.
- 2 Use the Add command appropriate for your user interface.

The Add Options pop-up appears.

▶ See Figure 7.29 on page 201.

- 3 Choose Option 2 to add a container.

You can add containers created in Container Workbench to a pre-shipper only. Containers created in Container Workbench can also be selected by Picklist/Pre-Shipper–Automatic.

The Container Information frame displays.

**Fig. 7.31**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Container  
Information

Container Information	
Next Container:	<input type="text"/>
Container Item:	
Quantity: 1	Site:
Unit of Measure:	Location:
Tare Weight:	Lot/Serial:
Volume:	Reference:
Sales Order:	Multi Entry: No
	Order Line:

If you leave Next Container blank, the system assigns a default container number.

- 4 Enter the item number for the container you want to add to this shipment and other container information.

The Shipper Detail frame appears.

▶ See Figure 7.28 on page 200.

- 5 Repeat steps 1 through 4 for each container you want to add.

#### Adding a Container of Items to a Shipper

- 1 Select a container number, pre-shipper number, or shipper number from the Shipper Detail frame using the arrow keys.

- 2 Use the Add command appropriate for your user interface.

The Add Options pop-up appears.

▶ See Figure 7.29 on page 201.

- 3 Choose Option 3 to add a container of items.

The Container Information frame appears.

▶ See Figure 7.31 on page 202.

- 4 Enter the item number for the container you want to add and other container information.

You cannot add a container created in Container Workbench to a shipper. Containers created in Container Workbench can only be selected by Picklist/Pre-Shipper–Automatic.

The Item Information frame appears.

▶ See Figure 7.30 on page 201.

- 5 Enter the item number, the customer reference, or the model year for the item you want to add, and either the purchase order, sales order, or customer schedule that includes the item you want to add.

An open, scheduled sales order, customer schedule, or purchase order must exist for the ship-from site code and ship-to/dock address code you assigned to the pre-shipper or shipper document.

**Tip**  
Position the cursor in Sales Order and use Next/Previous to scroll through open sales orders line by line.

- 6 Enter the quantity to be shipped from this order or schedule and other item information.

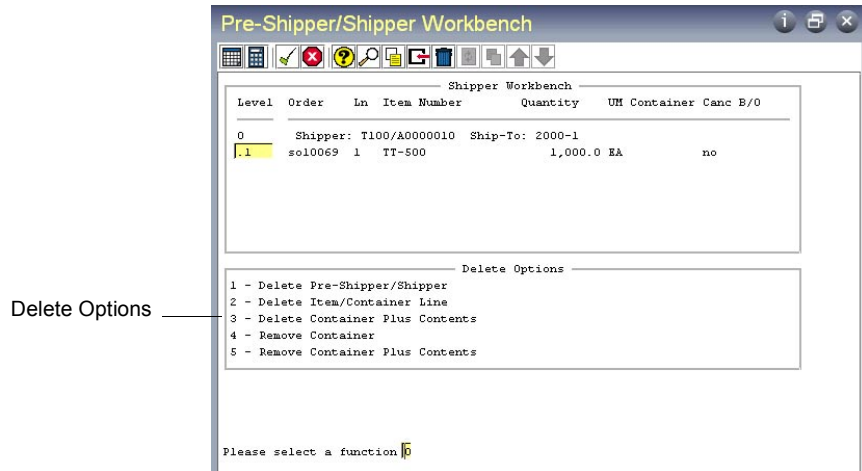
The Shipper Detail frame appears.

- 7 Repeat steps 1 through 6 for each item you want to add.

## Deleting or Removing Items/Containers/Shippers

- 1 Select a container and use the Delete command appropriate for your user interface.
- 2 The Delete Options pop-up displays.

**Fig. 7.32**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Delete  
Options Pop-Up



- 3 Choose one of the following options:

Choose	To
1-Delete Pre-Shipper/Shipper	Delete the entire container from the database.
2-Delete Item/Container Line	Delete a container or item line from the database. Any container or item belonging to the deleted container or item line is moved up one level. You cannot delete a container line if it results in an item that does not have a container line.
3-Delete Container plus Contents	Delete a container and all containers or items belonging to it.
4-Remove Container	Remove a next-level container from a container. The container can still be accessed under its own container number.
5-Remove Container plus Contents	Remove a next-level container and all containers or items belonging to it from a container. The container can still be accessed under its own container number.

- 4 You are prompted to confirm deletion. Enter Yes to continue deleting or No to cancel.

## Adding and Editing Trailer Information

After maintaining line items, the Trailer Information frame displays.

Trailer Information	
Status:	<input type="text"/>
Trailer Comments:	No
Cancel Date:	

**Fig. 7.33**  
Pre-Shipper/  
Shipper  
Workbench, Trailer  
Information

- 1 The Status field specifies whether the shipper is active or canceled. Leave this field blank for active shippers. To cancel a shipper, enter X. A canceled shipper is ignored by the system and unavailable for processing, other than deleting or archiving. You cannot cancel a confirmed shipper.
- 2 The Cancel Date field contains the date the shipper was canceled. The system sets this field to the current date when an open shipper is canceled. When a canceled shipper is reopened, the system sets the date to blank.
- 3 The Trailer Comments field indicates whether trailer comments can be associated with this shipment. Enter Yes to enter trailer comments. The system prompts you for your comments. Enter No if you do not want to add comments.

## Sales Order Trailer Amounts

If the document format of the shipper allows printed shippers to be used as invoices and Maintain Trailer Amounts is Yes in Container/Shipper Control (7.9.24), the following frame appears where you can enter trailer amounts for each sales order associated with the shipment.

Sales Order: S010070 Trailer Amounts		
Service	10 :	4.00
Taxable Service	11 :	0.00
Freight	20 :	0.00

**Fig. 7.34**  
Pre-Shipper/  
Shipper  
Workbench, Sales  
Order Trailer  
Amounts

- 1 The Sales Order field contains the sales order number for the trailer amounts entered.
- 2 Trailer descriptions fields display in the left portion of the frame and contain a description for the adjacent sales order trailer code.

- 3 Trailer codes fields display to the right of the trailer descriptions and contain the sales order trailer code associated with the adjacent description.
- 4 Trailer amount fields display to the right of the trailer codes and contain the trailer amount for each adjacent code. Trailer amounts display on invoice documents. Enter them here to facilitate the use of the printed shipper as an invoice. You can enter the same amounts during or after shipment confirmation using Pending Invoice Maintenance.  
The Print Shipper frame appears.
- 5 If the shipper has a document format assigned, you can print the shipper after you accept the Trailer Information frame.

#### Adding Multiple Carriers

▶ See step 8 on page 199.

If you specified that you want multiple carriers for this shipment, the Carriers frame displays after completing the header information.

**Fig. 7.35**  
Pre-Shipper/  
Shipper Workbench  
(7.9.2), Carriers  
Frame

Seq	Carrier	Name
1	COAST	Coastal Trucking
2	BCS	Bonded Courier Service

Seq	Carrier	Name
2	BCS	Bonded Courier Service

**Tip**  
This Sequence field is not the same as an NRM sequence.

**Seq.** This field indicates the order in which the various carriers handle shipments for this inventory movement code and shipping group. The ship-from site of a shipment turns over possession to the first carrier, who may later turn over possession to a second carrier, and so forth, before the shipment is eventually delivered to the ship-to destination.

Since you can remove any carrier and the system does not automatically renumber remaining carriers, the lowest-numbered carrier is always considered the first carrier. For sequence, enter an integer greater than zero that is unique to this shipping group and inventory movement code.

**Carrier.** This field identifies the carrier to be used for shipments within this shipping group, for this inventory movement code, in the sequence defined by the Seq field. Enter an existing carrier address code.

**Name.** This field displays the name of the carrier you entered in the Carrier field and cannot be edited.

## Deleting Shipments

To delete a shipment created with Pre-Shipper/Shipper Workbench, NRM must permit the assigned sequence number to be deleted. If the sequence number cannot be deleted, you can cancel the shipper using the Status field on the trailer frame. If the shipper was converted from a pre-shipper, the system also checks whether the NRM pre-shipper number can be deleted. If not, the shipper cannot be deleted.

## Importing Shippers

Some companies contract with external warehouse providers not using MFG/PRO to stock items and ship them in response to customer sales orders. They communicate the demand to the warehouse using some form of shipping authorization. Although these companies do not actually ship the items themselves, they must have shipment records in the MFG/PRO database. These records are required to complete the sales order process by updating inventory and invoicing the customer. If appropriate to the trading partner relationship, the shipper is also needed to generate an advance ship notice (ASN) informing the customer that the order has been shipped.

In such cases, the warehouse service provider may provide shipping information in electronic data interchange (EDI) format. This EDI document—most commonly called a sales order shipping advice—can then be imported into MFG/PRO using Document Import (35.1) in the EDI ECommerce module.

◆ See *User Guide Volume 7: Release Management* for information on EDI ECommerce.

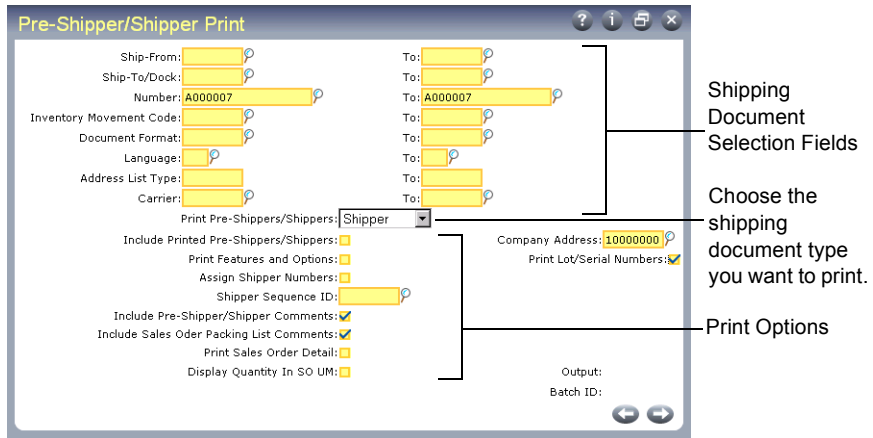
See “Confirming Shippers” on page 211.

After importing the shipping advice, which MFG/PRO records as an unconfirmed shipper, use Pre-Shipper/Shipper Confirm (7.9.5) or Pre-Shipper/Shipper Auto Confirm (7.9.7) to confirm it. Then you can generate an invoice or ASN just as though you had shipped the order directly to the customer instead of through the warehouse service provider.

### Printing Shippers

Use Pre-Shipper/Shipper Print (7.9.4) to print shipping documents. You can print either pre-shippers or shippers, but not both at the same time. You can select pre-shippers and shippers based on the sequence number, document format, language, and carriers.

**Fig. 7.36**  
Pre-Shipper/  
Shipper Print  
(7.9.4)



### Selecting Documents to Print

The range of values you enter in the Pre-Shipper/Shipper Print selection fields determines which pre-shippers or shippers print. Each of these fields includes a From and a To value. Leaving any of these fields blank results in the system considering all pre-shippers and shippers, regardless of the value of this type.

**Tip**  
Select documents by language when you are using preprinted forms in a specific language.

You can select documents to print by range of ship-from address, ship-to or dock address, order number, inventory movement code, document format, language, address list type, and carrier. For shipments with multiple carriers, only the first carrier is considered.

## Selecting Print Options

The following fields define the actions you want the system to take when it prints shipping documents based on the specified selection:

*Print Pre-Shippers/Shippers.* Enter Pre-Shipper or Shipper, depending on the shipping document type you want to print.

*Include Printed Pre-Shipper/Shipper.* Enter Yes to reprint documents in the specified selection that have already been printed or No to skip documents in the selection that have already been printed.

*Print Features and Options.* Enter Yes to print configured sales order line item numbers followed by a list of features and options selected for the item or No to only print the configured item number.

*Assign Shipper Numbers.* This field specifies whether you want the system to assign a shipper number to the pre-shipper. The system propagates the new shipper numbers to all records linked to the converted pre-shipper, including containers, line items, and carrier detail records.

In order for the system to generate a number, the NRM sequence for the pre-shipper/shipper must be an internal sequence generated by the system. If the assigned NRM sequence is external, the pre-shipper/shipper is skipped. To use an external sequence, you can assign the shipper number during shipper creation (if pre-shippers are not used), or during confirmation (if pre-shippers are used).

*Shipper Sequence ID.* Enter an NRM sequence ID to select the pre-shippers or shippers you want to print. The way you use this field differs, depending on whether you are printing pre-shippers or shippers.

- For pre-shippers, the system compares the specified sequence to the sequence that *will be* used to assign a shipper number when the pre-shipper becomes a shipper. The sequence used to assign the pre-shipper ID is not considered.
- For shippers, the system compares the specified sequence ID to the sequence that *was* used to assign the shipper number to each shipper.

Use this field when you want to assign shipper numbers sequentially at print time. Shipper number can be drawn from multiple NRM sequences based on the associated shipping group and inventory movement code. Limiting selection to a single sequence ensures numbers are assigned sequentially as documents are printed.

*Include Pre-Shipper/Shipper Comments.* Enter Yes to include pre-shipper or shipper comments for the specified selection on the printed documents or No to not include such comments.

*Include Sales Order Packing List Comments.* Enter Yes to include packing list comments for the specified selection on the printed documents or No to not include such comments.

*Print Sales Order Detail.* This field determines whether the sales order number and the sales order line number associated with line items on the shipper is included in the printed output.

Reviewing sales order data provides detailed accountability for the shipper items. It can also be used to determine if the sales order or line associated with an item on a shipper no longer exists in the system. This condition will cause an error when a shipper is issued or confirmed.

*Display Quantity in SO UM.* Indicates which unit of measure (pre-shipper/shipper UM or sales order UM) to use in the printed output.

No: Display the quantity and UM according to the pre-shipper/shipper UM.

Yes: Displays the quantity and UM according to the sales order UM.

To use the sales order UM, the sales order lines must not be completely shipped, invoiced, and posted.

**Tip**  
This field applies only when the two UMs are not the same.

## Updating Documents

When printing completes, you are prompted to confirm that the documents printed correctly. Review the printed shipping documents and respond appropriately. If you enter No, the shippers remain marked as unprinted.

If shipper numbers were assigned during printing, you are prompted to undo shipper number assignment. You should respond Yes if your manufacturing environment uses shipper numbers as invoice numbers and you do not want numbering gaps between invoice numbers.

When you indicate Yes, the system removes any shipper numbers from the canceled shippers that were printed incorrectly. The affected documents return to pre-shipper status. The system then resets the NRM ID being used and allows the canceled NRM-generated numbers to be re-used later.

### Confirming Shippers

Use two programs to confirm shipper documents:

- Pre-Shipper/Shipper Confirm (7.9.5) records individual shipments and:
  - Converts pre-shippers into shippers
  - Creates, prints, and posts invoices based on shipments
- Pre-Shipper/Shipper Auto Confirm (7.9.7) performs similar functions for multiple shipments.

**Note** Because Pre-Shipper/Shipper Auto Confirm is a batch program, its features are not identical to those of Pre-Shipper/Shipper Confirm.

You can export a confirmed shipper as an advance ship notice (ASN) to inform your customer that an order has been shipped. Export ASNs using EDI ECommerce.

▶ See “Confirming Multiple Shippers” on page 217.

▶ See *User Guide Volume 7: Release Management*.

## Confirming Individual Shippers

Use Pre-Shipper/Shipper Confirm to select a single pre-shipper or shipper document to be confirmed.

**Fig. 7.37**  
Pre-Shipper/  
Shipper Confirm  
(7.9.5)

The screenshot shows a window titled "Pre-Shipper/Shipper Confirm" with the following information:

Ship-From ID: T100	T-series factory
Pre-Shipper/Shipper: Shipper	
Number: A0000012	
Ship-To/Dock: 2000-1	SoCal Electrical
	22314 W. 199th St.
Ship Date: 08/05/2002	
Effective Date: 08/05/2002	

When you confirm a pre-shipper, the system converts it to a shipper before the confirmation process occurs. The shipper number is assigned based on the NRM sequence ID from the shipping group of the shipment or from Container/Shipper Control.

If the NRM sequence is an internal sequence, the system generates and displays the shipper number. If the sequence is external, the system prompts you for an entry and validates the results. The system propagates the new shipper numbers to all records linked to the converted pre-shippers, including containers, line items, and carrier detail records.

The following applies when confirming pre-shippers or shippers:

- Canceled shipments (Status is X) cannot be confirmed.
- To select a shipper for confirmation, you must have access, as defined in Inventory Movement Code Security.
- If Container/Shipper Control specifies that trailer amounts cannot be maintained, the system does not display the trailer amount maintenance frames during confirmation.
- If the document format of the shipper indicates that the printed shipper is also used as an invoice, the system does not let you print an invoice. Invoice processing occurs, but the invoice is not printed.

## Selecting Confirmation Options

The following fields define the shipment selection and the dates the system uses to apply the shipment transactions. The dates to record shipments should be considered in relation to GL period end and the dates used to record invoice printing and invoice posting.

▶ See Figure 7.37 on page 212.

**Ship-From.** The site code of the site from which the shipment originates.

**Pre-Shipper/Shipper.** Enter Pre-Shipper or Shipper, depending on the shipping document type you want to confirm.

**Number.** Enter the identifying number for the pre-shipper/shipper you are confirming. You can only specify sales order shippers for confirmation. The system determines the source of demand for a shipper by checking the transaction type of the assigned inventory movement code.

**Ship-To/Dock.** Enter the ship-to or dock address code assigned to the selected shipping document.

**Ship Date.** The system displays the last date a shipment was processed for the order underlying this shipping document. The default is the system date.

**Effective.** The date of this shipment. The default is the system date. The effective date determines the date of the GL transaction to inventory. The effective date has no effect on the inventory balance update, which is updated immediately.

## Managing Shipments at Period End

While the ship date and effective date are usually the same, you can assign shipment effective dates that occur earlier or later than the actual date of the shipment, provided that the entered effective date falls in an open GL period.

For example, if the accounting period ends on a Friday, but you cannot get all of the shipping and invoicing activity entered into the system until Monday, you can leave the GL period open and process the remaining shipment and invoice documents with Friday's date as the effective date.

### Matching Dates on Corresponding Transactions

The same date should be used as the Effective Date in Pre-Shipper/Shipper Confirm, the Invoice Date in Invoice Print, and the Effective Date in Invoice Post. Otherwise, your shipment history for the period does not correspond to your accounts receivable and GL balances.

### Entering Reference Data

Optionally, you can use the second frame to enter reference data associated with the pre-shipper/shipper, including an identifier for the carrier's vehicle, the time of the shipment, and the arrival date and time.

**Fig. 7.38**  
Pre-Shipper/  
Shipper Confirm,  
Reference Data  
Frame

Vehicle ID:

Shipping Time: 00:00

Arrive Date:

Arrival Time: 00:00

### Selecting Invoice Options

The fields in the third frame of Pre-Shipper/Shipper Confirm determine how the system processes the invoices generated by this function.

**Fig. 7.39**  
Pre-Shipper/  
Shipper Confirm,  
Invoice Options  
Frame

Print Invoice:

Post Invoice:

Use Shipper Nbr for Inv Nbr:

Consolidate Invoices:

Calculate Freight:

**Post Invoice.** Use this field to indicate whether to post an invoice for the selected shipment automatically. When you use shippers as invoices, you should generally set this field to Yes.

**No:** The invoice is not posted. You can post it later using Invoice Post (7.13.4).

**Yes:** The invoice is automatically posted. You can print the invoice during shipper confirmation by responding Yes when prompted to print the invoice. Otherwise, print the invoice later using Closed Invoice Reprint (7.13.12) or Invoice Export (35.8).

*Use Shipper Nbr for Inv Nbr.* This setting indicates how the system assigns invoice numbers to the invoices generated in this function.

No: The system uses the next available invoice number from Sales Order Control (7.1.24).

Yes: The assigned invoice number is identical to the shipper number.

When Consolidate Invoices is No, this field must also be No.

*Consolidate Invoices.* This field indicates whether the system combines data for multiple sales orders into one invoice or generates a separate invoice for each sales order on the selected shipper. When Use Shipper Nbr for Inv Nbr is Yes, this field must also be Yes.

*Calculate Freight.* Enter Yes to indicate that the system should recalculate freight charges for all sales orders attached to the shipper being processed. Otherwise, enter No.

If you enter Yes, any previous, manually entered freight charges will be recalculated.

## Posting Invoices at Confirmation

If you invoice cumulatively or want to post invoices during shipper confirmation for other reasons, perform these setup steps:

- 1 To have Post Invoice automatically default to Yes in Pre-Shipper/Shipper Confirm, do one of the following:
  - Set Auto Invoice Post to Yes in either Customer Schedules Control (7.3.24) or Container/Shipper Control (7.9.24). Changing this field in either program sets it in the other.
  - In Document Format Maintenance (2.18.13), set Invoice to Yes for the document formats you use with shippers. This causes Post Invoice, Use Shipper Nbr for Inv Nbr, and Consolidate Invoices to default to Yes during shipper confirmation regardless of how the corresponding fields are set in Customer Schedules Control or Container/Shipper Control.
- 2 If you want to use shipper IDs as invoice numbers, set Use Shipper Number for Invoice to Yes in either Customer Schedules Control or Container/Shipper Control.

♦ See “Define Document Formats” on page 153.

▶ See “Define Number Sequences” on page 150.

**Important** To use shipper IDs as invoice numbers, you must ensure that the NRM sequence used with shippers is no more than eight characters long. When you confirm a shipper with an ID that is more than eight characters, Use Shipper Nbr for Inv Nbr defaults to No and cannot be updated.

- 3 To generate consolidated invoices for shippers that reference multiple sales orders, set Consolidate Invoices to Yes in either Customer Schedules Control or Container/Shipper Control.

When Consolidate Invoices is Yes in Pre-Shipper/Shipper Confirm, the system generates a single consolidated invoice for sales orders with the following identical values:

- Sold-to address
- Bill-to address
- Currency
- Exchange rates
- Credit terms
- Trailer codes
- Tax environment
- Sales entity
- Salespersons

**Note** The sales entity associated with an order is determined by the site specified in the order header. When the header site is blank, the default entity from System/Account Control (36.1) is used.

### Printing Invoices

You can print invoices during shipper confirmation by selecting Yes at the `Print Invoices?` prompt. This prompt only displays when the document format of the selected shipper has Invoice set to No.

The following document formats are provided for printing invoices:

- The standard invoice format is form code 1.
- To print a Brazilian Nota Fiscal, use form code 11.

Other forms used by your company can be assigned different form codes. Only predefined form codes can be referenced.

When Post Invoice is No in Pre-Shipper/Shipper Confirm, you can still print an invoice during shipper confirmation or later using Invoice Print (7.13.3). However, if you record additional shipments against the same sales order or customer scheduled order without first posting this invoice, the following occurs:

- The system generates a new invoice containing invoicing data for all shipments recorded against the order since the last invoice was posted.
- Any previously printed invoices related to the order are deleted from the system and cannot be posted.

### Confirming Multiple Shippers

Use Pre-Shipper/Shipper Auto Confirm (7.9.7) to select pre-shippers or shippers based on ranges of ship-from sites, ship-to addresses, shipper numbers, or inventory movement codes.

**Fig. 7.40**  
Pre-Shipper/  
Shipper Auto  
Confirm (7.9.7)

This program functions much like Pre-Shipper/Shipper Confirm (7.9.5). However, because it is a batch process, the program's features are limited in these areas:

- You cannot print invoices. Instead, use Invoice Print (7.13.3).
- You cannot update trailer charges during confirmation regardless of the setting of Maintain Trailer Amounts in Container/Shipper Control. Instead, use Sales Order Maintenance (7.1.1).
- Error reporting related to freight charges is not as detailed as in Pre-Shipper/Shipper Confirm.

Set Print Selection Only to Yes to review the effects of the selection criteria before updating the shippers in the database. When the field is No, the system confirms all shippers meeting the selection criteria before generating the report.

### Sales Order Shipper Maintenance

Sales Order Shipper Maintenance (7.9.8) supports the following shipping features:

- Shipping documents with assigned document formats. If the format specifies that the document can be used as an invoice, you cannot add a container that violates the restrictions for consolidating sales orders on invoices. For example, line items in the containers cannot reference sales orders with different bill-to addresses. The same restriction holds true when adding line items
- Shipping documents with assigned NRM sequence IDs.
- Ship-from sites with an assigned address code.

However, you cannot use Sales Order Shipper Maintenance to edit a shipper that uses an inventory movement code. To edit these shippers, use Pre-Shipper/Shipper Workbench (7.9.2). Shippers created in Sales Order Shipper Maintenance have a blank inventory movement code.

### Unconfirming Shippers

Some countries such as Italy and Brazil require that confirmed shipment documents can also be unconfirmed.

Use Shipper Unconfirm (7.9.21) to reverse most actions performed by the system at confirmation, returning the shipment to its pre-confirmed state and allowing it to be subsequently modified, canceled, reprinted, or re-confirmed.

In order to unconfirm a shipment, the following criteria must be met:

- The shipment must have been confirmed.
- Selection of the shipper must be permitted by both site security and inventory movement security.

#### Tip

If you try to unconfirm a shipment that does not meet these requirements, the system displays an error.

- The effective date must be in a valid open fiscal period for all entities, with inventory affected by the confirmed shipper.
- Inventory issue sites and locations must still exist.

When you unconfirm a shipper, the system:

- Reverses the movement of inventory out of the ship-from site/location/lot-serial for each shipped line and container.
- Reverses any automatic transfers made between the inventory site of each line item and container, and the ship-from site of the shipper.
- Creates IC and SO GL transactions, reversing the GL transactions created at the original confirmation.
- Creates intercompany transactions, as necessary.
- Reverses modifications to sales order fields updated at confirmation, including line item quantities, calculated freight charges included in the price, and schedule details.
- Updates Material Requirements Plan (MRP) to reflect items returned to inventory.
- Creates reversing entries to Global Tax Management history.

**Important** Some actions performed during or after confirmation are not reversible. Read the following list carefully before using Shipper Unconfirm.

Shipper Unconfirm does not perform the following:

- Fully populate all fields of re-created location and lot/serial records. If such information is required (for example, if the unconfirmed shipper is not intended to be re-confirmed), you must enter the information manually.
- Fully reverse changes to GL average costs for line items. After the original confirmation, average costs could have been changed and recorded in various other transactions that are not reversible (for example, if other receipts or issues were made in that time period).
- Reverse trailer amounts entered or modified during or following the original confirmation.

- Reverse the issue of any invoice numbers assigned during or following the original confirmation. While the next invoice number stored in the sales order header is not removed when you unconfirm a shipper, you can edit it manually using Pending Invoice Maintenance (7.13.1).

1 Choose Shipper Unconfirm (7.9.21).

**Fig. 7.41**  
Shipper Unconfirm  
(7.9.21)

2 Unconfirm the shipment by entering the appropriate information in the following fields.

**Ship-From.** Enter the code for the address from which the shipment was issued. The address name appears next to the code. This field is used in conjunction with the shipper number to identify the shipper you want to unconfirm.

**Pre-Shipper/Shipper.** Choose either Pre-Shipper or Shipper in this field.

**Number.** Enter the pre-shipper/shipper number for the shipment you want to unconfirm. This field is used in conjunction with the ship-from address code. You can only select sales order shippers. The system determines the source of demand for a shipper by checking the transaction type of the assigned inventory movement code.

**Ship-To/Dock.** Displays the code for the address where the shipment is to be delivered.

**Ship Date.** Displays the ship date of the shipper specified during confirmation.

**Effective Date.** Displays the effective date of the shipper specified during confirmation.

**Post Invoice.** Enter the same value (Yes or No) entered in this field in Pre-Shipper/Shipper Confirm. If you have not posted invoices since confirmation, then the effect of unconfirm is to net out the original confirmation, since invoice information is cumulative until posting. However, if you have posted invoices during or since confirmation, then the effect of the unconfirm is part of the next invoicing.

**Use Shipper Nbr for Inv Nbr.** Enter Yes if you entered Yes in the corresponding field in Pre-Shipper/Shipper Confirm and if the invoice has not been posted since confirmation. Otherwise, enter No.

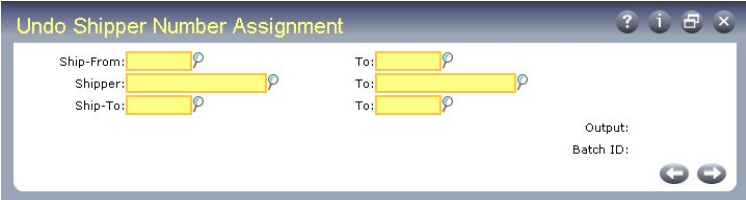
**Consolidate Invoice.** The effect of this field is identical to that of the corresponding field in Pre-Shipper/Shipper Confirm. To specify No, Use Shipper Nbr for Inv Nbr must also be No.

Unconfirm your selection when the system prompts you.

### Undoing an Assigned Shipper Number

Use Undo Shipper Number Assignment (7.9.20) to unassign a shipper number and change the document type from shipper to pre-shipper. You can only undo an unconfirmed shipper.

When you undo a shipper number, the original pre-shipper number is reassigned. This can occur only if NRM permits the discarding of the associated sequence number. If the sequence number cannot be discarded, the shipper is not rolled back and is reported as such on the Undo Shipper Number Assignment status report. Shipping documents originally created as shippers cannot be converted back to pre-shippers.



The screenshot shows a software dialog box titled "Undo Shipper Number Assignment". The dialog contains several input fields for data entry. On the left side, there are three fields labeled "Ship-From:", "Shipper:", and "Ship-To:". On the right side, there are three fields labeled "To:", "To:", and "To:". Below these fields, there are labels for "Output:" and "Batch ID:". At the bottom right of the dialog, there are two arrow buttons, one pointing left and one pointing right. The dialog also has a standard title bar with a question mark, an information icon, and a close button.

**Fig. 7.42**  
Undo Shipper  
Number  
Assignment  
(7.9.20)

Enter values in the following fields to undo a shipper number assignment:

*Ship-From.* Enter a range of site codes from which the shippers you want to undo originate. Only those shippers with ship-from addresses in the specified range are processed. Leave these fields blank to process all shippers.

*Shipper.* Enter a range of shipper numbers to undo. Only those shipper numbers within the specified range are processed. Leave these fields blank to process all shippers.

*Ship-To.* Enter a range of ship-to addresses to select which shipper number to undo. Only those shippers with addresses in the specified range are processed. Leave these fields blank to process all shippers, regardless of their ship-to address.

## Bills of Lading

Shipper documents are used as the basis for bills of lading. This can be useful for consolidating shipments. A bill of lading shows a detailed breakdown of a shipper's content. A master bill of lading combines two or more individual bills of lading. Use the options on the Bills of Lading Menu shown in Table 7.4 to create and print bills of lading.

**Table 7.4**  
Bills of Lading  
Menu (7.9.12)

Menu No.	Menu Label	Program
7.9.12	Bills of Lading Menu ...	
7.9.12.1	Bill of Lading Print	rcrp12.p
7.9.12.2	Master Bill of Lading Maintenance	rcmbmt.p
7.9.12.3	Master Bill of Lading Inquiry	rcmbiq.p
7.9.12.4	Master Bill of Lading Print	rcmbrp.p
7.9.12.23	Master Bill Delete/Archive	icmbdel.p

## Printing Bills of Lading

Use Bill of Lading Print (7.9.12.1) to print a single bill of lading from a shipper document. A bill of lading shows a detailed breakdown of a shipper's content. This breakdown shows the products shipped, the total weight of the product, and the containers used to pack the product.



**Fig. 7.43**  
Bill of Lading Print  
(7.9.12.1)

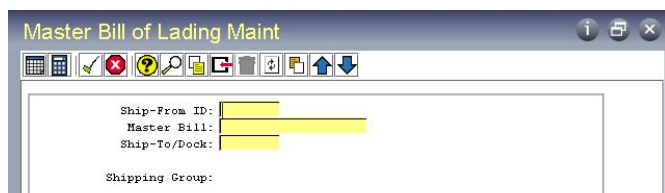
**Ship-From.** Enter the site code where the shipment originates.

**Shipper.** Enter the shipper number for which you are printing a bill of lading. You can select only sales order shipments for printing bills of lading. The system determines the source of demand for a shipper by checking the transaction type of the inventory movement code.

### Master Bills of Lading

Use Master Bill of Lading Maintenance (7.9.12.2) to create a document that combines two or more individual bills of lading. Shipper documents are used as the basis for bills of lading. Master bills of lading are useful for consolidating shipments.

Master bills of lading are identified by the ship-from code, the master bill number, and the ship-to code. The shipping group associated with the from and to addresses displays if one has been defined.



**Fig. 7.44**  
Master Bill of  
Lading  
Maintenance  
(7.9.12.2)

**Ship-From.** Enter the site code for the site from which the inventory is shipped. This must be an existing site with a valid associated address record.

**Master Bill.** Enter the master bill of lading code. If blank, the system assigns the next available Master Bill number from Container/Shipper Control.

**Ship-To/Dock.** Enter the transit ship-to or dock address (typically a distribution center) at which the shippers associated with this master bill of lading are reloaded for transport to the final customers.

**Shipping Group.** This field displays the shipping group code and description for this combination of Ship-From and Ship-To/Dock addresses. This field appears after you enter the Ship-From and Ship-To/Dock addresses. If no shipping group is available for the specified addresses, this field is blank.

### Carrier Detail Frame

Use the Carrier Detail frame to define the carrier and other carrier-related information.

**Fig. 7.45**  
Master Bill of  
Lading  
Maintenance  
(7.9.12.2), Carrier  
Detail

Carrier:	Car-Cust	Multi:	No	Document Format:	Std
Ship Via:					
FOB Point:					
Mode of Transport:	Air				
Carrier Shipment Ref:				Language:	US
Vehicle ID:					
Ship Date:	01/22/97				
Ship Time:	00:00				
Arrive Date:	/ /				
Arrival Time:	00:00			Comments:	No

**Carrier.** Enter a valid address code of type carrier if this master bill uses a single carrier. Use the Multi field to specify multiple carriers.

**Multi.** Enter Yes if this master bill requires more than one carrier. The system prompts you for additional carriers. Enter No if this master bill uses a single carrier.

Enter additional carrier data for this shipment: Ship Via, FOB Point, Mode of Transport, Carrier Shipment Reference, and Vehicle ID appear on various printed documents. For reference, you also can enter shipment and arrival dates and times.

**Document Format.** Enter a valid document format of a type applicable to shippers. Defaults from the shipping group if one is specified. If blank, the document cannot be printed.

**Language.** Enter the language code for the master bill. You can print all master bills of a particular language by specifying the language code in the print selection.

**Comments.** Specify if comments are entered regarding this master bill of lading and whether these comments should be printed. If Yes, the next screen prompts you to review and enter comment information. If No, the comment screen does not display.

## Adding Multiple Carriers

If multiple carriers have been specified in the Multi field of the Carrier Detail frame, the Carriers frame displays for listing the carriers. This is exactly the same frame that displays in Pre-Shipper/Shipper Workbench.

▶ See Figure 7.35 on page 206.

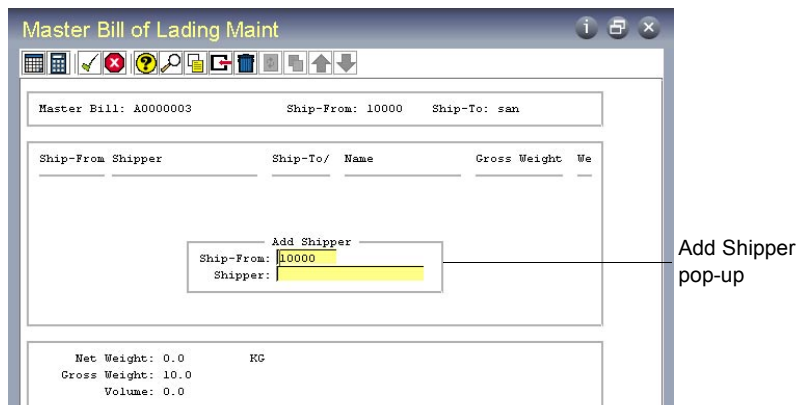
## Select Option Frame

The Select Option frame lets you indicate how you want to add shippers to the master bill:

- 1: Single. You select shippers one at a time using the Master Bill of Lading Detail frame.
- 2: Multi. The Shipper Multi-Selection frame displays. Enter selection criteria to display a list of shippers. You can select or deselect shippers as needed. When you press Go, selected shippers are added to the master bill of lading. They display in the Master Bill of Lading Detail frame.

## Master Bill of Lading Detail Frame

The Master Bill of Lading Maintenance Detail frame appears after completing the Carriers frame. It lists bills of lading that have been added to this master bill.



**Fig. 7.46**  
Master Bill of Lading Maintenance (7.9.12.2), Details

To add a shipper, use the Add command. The Add Shipper pop-up appears. Choose a Ship-From code and a Shipper number and press Enter. The shipper is added to the master bill.

### Deleting Master Bills of Lading

To delete a bill of lading from the master bill, select the bill you want to delete, and use the Delete command. You are prompted to confirm the deletion. Type Yes, and press Enter.

You can only delete a master bill if NRM permits the discard of the assigned sequence number. If NRM does not permit the discard, you cannot delete the master bill, but you can remove shippers from it as needed.

### Printing Master Bills of Lading

When you have finished adding shippers to the master bill, press End to exit the shipper list. If the document format is not blank, the Print Master Bill frame appears.

### Printing Master Bills of Lading

If a master bill has multiple carriers assigned to it, addresses for all the carriers associated with the master bill print in the shipper body following all the shipper details.

- 1 Choose Master Bill of Lading Print (7.9.12.4).

**Fig. 7.47**  
Master Bill of  
Lading Print  
(7.9.12.4)

- 2 Enter a range of ship-from site codes, master bill numbers, ship-to site codes, document formats, language codes, and carrier IDs to select the master bills you want to print.

## Processing Issue Transactions

Many countries require that formal shipping documents accompany any movement of goods, even when goods are merely transferred, not sold. You can record shipping information and generate shipping documents for issue transactions other than sales order shipments in the following programs:

- Transfer–Single Item (3.4.1)
- Transfer–Multi Item (3.4.2)
- Transfer with Lot/Serial Change (3.4.3)
- Issue–Unplanned (3.7)
- Issue–Return to Supplier (3.8)
- Purchase Order Returns (5.13.7)
- Distribution Order Shipments (12.17.22)
- Sub Shipper Maintenance (18.22.5.5)

This section describes the shipping-related portion of these programs.

## Inventory Control Programs

Shipping documents can be created from the following inventory control programs:

- Transfer–Single Item (3.4.1) is used to move inventory of an item from one site and location to another. Transfers can occur within a facility, changing the location or lot reference, or between facilities, changing the site. This program creates ISS-TR transactions
- Transfer–Multi Item (3.4.2) is used to move inventory of multiple items from one site and location to another. Transfers can occur within a facility, changing the location or lot reference, or between facilities, changing the site. This program creates ISS-TR transactions.
- Transfer with Lot/Serial Change (3.4.3) is like Transfer–Single Item, except it lets you change the lot serial and lot reference numbers associated with an item, in addition to changing the site and location. This program creates ISS-TR transactions.

- Issues–Unplanned (3.7) lets you reduce inventory quantity for an item at a designated site and location. Issues not involving any open sales, purchase, manufacturing, or quality order are unplanned issues. This program creates ISS-UNP transactions.
- Issue–Return to Supplier (3.8) also supports shipping functionality. This program creates ISS-RV transactions.

This section illustrates Transfer–Single Item, but creating shipping documents from any of these programs is just the same.

After you enter transaction information and press Go, the system:

- Checks if the From-Site and To-Site of the transfer exist within a valid shipping group.
- If so, checks whether the shipping group includes valid inventory movement codes for the appropriate transaction type.

If these conditions are not true, the transaction is completed as usual. If a shipping group exists, you can create a shipper for the transferred item by entering information in a series of frames, described next.

### Shipping Information Frame

When a valid shipping group exists for the transfer, the Shipping Information frame displays after you press Go to transfer the items.

**Fig. 7.48**  
Transfer–Single  
Item, Shipping  
Information Frame

The screenshot shows a window titled "Transfer - Single Item" with a sub-header "Shipping Information". The fields and their values are as follows:

Field	Value	Description
Ship-From ID	T100	T-series factory
Number	[Yellow input field]	[Search icon]
Ship-To/Dock	T200	QA site
Shipping Group	mat	local shipping group
Inventory Movement Code	move1	intersite transfer

Navigation arrows are visible at the bottom right of the frame.

The Shipping Information frame contains the following fields:

*Ship-From ID.* Displays the source site of the transfer, with the site description displayed beside it. This field cannot be edited.

**Number.** Enter the identifying number of a new or existing shipper.

- If you specify an existing shipper number, the system adds the transfer item as a new line item.
- If you enter a new shipper number, the system validates it using the NRM sequence, as determined by the shipping group and inventory movement code. If the number is valid, the system creates a new shipper.
- Leave the field blank for internally generated numbers. The system attempts to generate a new shipper number using the NRM sequence, as determined by the shipping group and inventory movement code.

The system displays a warning, but lets you proceed when you:

- Select an existing shipper that has already printed.
- Select an existing shipper that prohibits consolidation.
- Attempt to create a new shipper and either the Ship-From or Ship-To address requires consolidation, and another unprinted shipper exists with the same type, Ship-From, Ship-To, and effective date. You can then either consolidate with the existing shipper or continue creating a new shipper.

**Ship-To/Dock.** This field displays the destination site of the transfer. The site address name and address line 1 display next to the site. This field cannot be edited.

**Shipping Group.** This field displays the shipping group code and description for this combination of Ship-From and Ship-To addresses. This field cannot be edited.

**Inventory Movement Code.** Enter the inventory movement code for the shipment. This field defaults to the value assigned for the transaction type in the shipping group. You must have access to both the site and inventory movement code.

The description displays next to the code. If you select an existing shipper, the system overwrites any value entered in this field with the value from the selected shipper. You cannot edit an inventory movement code on an existing record.

**Note** If you press End while on this shipment header frame, the system terminates the shipper creation. The item is transferred as usual, without a shipper.

When you accept the input frame, the system selects an existing shipper or creates a new shipper, depending on the value entered in the Number field. Another frame displays that enables you to enter additional information. The system records the transfer item as a new line item on the shipper.

### Additional Shipment Header Information

When the Shipment Information frame is accepted, the following frame displays.

**Fig. 7.49**  
Transfer—Single  
Item, Additional  
Shipment Header  
Information

Carrier:	BCS	Multi:	<input type="checkbox"/>	Document Format:	Standard
Ship Via:		Consolidate Ship:	<input type="checkbox"/>	optional	
FOB Point:	ESCONDIDO	Language:			
Mode of Transport:		Carrier Shipment Ref:	A0000013	Vehicle ID:	
Vehicle ID:		Comments:	<input type="checkbox"/>		

▶ See “Creating Shippers Manually” on page 196 for details.

With the exception of the Document Format field, all fields function exactly as they do in Pre-Shipper/Shipper Workbench (7.9.2).

**Document Format.** Enter a valid document format of a type applicable to shippers. If the document format specifies the printed shipper is also used as an invoice or if the document format is edited for a shipper marked as having been printed, the system displays a warning message, but lets you continue.

Shippers with blank document formats cannot be printed and do not have available any additional format-specific processing services provided by service encapsulation procedures associated with document formats. Although they are not printable, shippers with blank formats can be maintained, deleted, archived, and otherwise processed as usual.

**Note** If you press End from this frame, the system reverses any modifications made to any field on the frame. If you are editing an existing shipper, the previous field values are restored. If you are creating a new shipper, any modifications made to the default field values are reversed; however, the new shipper itself remains.

After you accept the input frame, the Trailer Information frame displays.

### Trailer Information

The Trailer Information fields function as they do in Pre-Shipper/Shipper Workbench, except that you cannot cancel the shipper. You can add trailer comments.

The Status field is set to C, indicating that the shipper is created as confirmed. It cannot be confirmed using Pre-Shipper/Shipper Confirm.

After you accept the Trailer Information frame, if the shipper has an assigned document format, the system prompts you to print a shipping document. If the document format is blank, you cannot print the shipper.

The screenshot shows a rectangular frame titled "Trailer Information". Inside the frame, the text "Status: C" is on the left, "Cancel Date:" is below it, and "Comments:" is on the right. At the bottom right corner of the frame, there are two circular navigation arrows, one pointing left and one pointing right.

**Fig. 7.50**  
Transfer–Single  
Item, Trailer  
Information

### Print Shipper Frame

If you choose to print the shipper, the Print Shipper frame displays.

The screenshot shows a rectangular frame titled "Print Shipper". Inside the frame, the text "Include Shipper Comments:" is on the left and "Output:" is on the right. At the bottom right corner of the frame, there are two circular navigation arrows, one pointing left and one pointing right.

**Fig. 7.51**  
Transfer–Single  
Item, Print Shipper

**Include Shipper Comments.** This field determines whether shipper comments display on the printed shipping document. Enter Yes to include the shipper comments; enter No to omit the comments. The default is Yes.

**Note** If you press End from this frame, the shipper is not printed. However, you can print or reprint it later using Pre-Shipper/Shipper Print (7.9.4).

## Purchase Order Returns

Purchase Order Returns (5.13.7) lets you specify source and destination addresses for the shipper.

**Fig. 7.52**  
Purchase Order  
Returns (5.13.7)

Purchase Order: PO1057	Supplier: 5001000	Status:	Effective: 08/05/2002
RTV Nbr:	General Supply Corporation		Return All:
Ship-From: T100	T-series factory		Return to Replace:
Ship-To: 5001000	General Supply Corporati		Comments:
			Move to Next Operation:

The Purchase Order Returns header frame contains the following shipper-related fields:

*Ship-From.* Specify the ship-from site for the PO return. It defaults to the receiving site on the PO; however, you can enter a different site.

*Ship-To.* Specify the ship-to address for the purchase order return. It defaults to the supplier on the purchase order; however, you can enter a different address.

**Note** If you leave the Ship-From and Ship-To fields blank, the purchase order return is processed without creating a shipper.

After the PO Returns header frame is accepted, the system:

- Checks if the Ship-From and Ship-To of the PO return exist within a valid shipping group.
- If so, checks whether the shipping group includes a valid inventory movement code for the transaction type ISS-PRV.

▶ See “Shipping Information Frame” on page 228.

If these conditions are not true, the PO return is completed as usual. If a shipping group does exist, you can create a shipper for the PO return by entering information in the same series of frames described for Transfer–Single Item.

## Distribution Order Shipments

Distribution Order Shipments (12.17.22) enables you to create a shipper. All issued line items from the distribution order are included in the shipper. After all the Distribution Order Shipments information is entered and accepted, you can create a shipper. The system does the following:

- Checks if the source Site and Ship-To of the distribution order exist within a valid shipping group.
- If so, checks whether the shipping group includes a valid inventory movement code for the transaction type ISS-DO.

If these conditions are not true, the distribution order is completed as usual. If a shipping group does exist, you can create a shipper for the distribution order by entering information in the same series of frames described for Transfer–Single Item.

▶ See “Shipping Information Frame” on page 228.

**Note** This same feature is supported in Distribution Order Processing (12.17.21), which combines the functions of Distribution Order Maintenance (12.17.14) and Distribution Order Shipments.

## Receipt Processing

All material receiving functions enable you to specify additional shipment information during receipt entry:

- Receipts–Unplanned (3.9)
- Receipts–Sales Order Return (3.10)
- Receipts–Return to Stock (3.11)
- PO Shipper Receipt (5.5.5.11, 5.13.20)
- Purchase Order Receipts (5.13.1)

The additional fields provided are optional and informational only, and appear in transaction history.

If Shipment Info for Receipts is Yes in Container/Shipper Control, a Shipment Information frame displays for input of data for each receipt. When this field is No, the fields in transaction history are blank.

## Creating Scanned Shipping Documents

Use Shipper Gateway (7.9.22) to import records scanned by a bar-code reader into MFG/PRO. The records represent containers, pre-shippers, shippers, or items. The data can come from an ASCII-formatted file or be output from a UNIX process.

Shipper Gateway provides two options for the normal shipment flow from pre-shipper to shipper:

- Verify shipment contents to determine whether they match the pre-shipper or stage list.
- Verify shipment contents and create shippers from the scanned information. In this case, you do not need to use a pre-shipper. Instead, scan in the shipment information and create the shipper from that data. This method can satisfy some customer requirements to create shippers and ASNs electronically, rather than manually.

Each line of an inbound Shipper Gateway document file represents a line on the shipper and correspond to a single `abs_mstr` record. Since a typical shipper (type S) may include containers (type C) and items (type I), the fields required for a particular line vary.

Table 7.5 lists each field in the `abs_mstr` record and indicates whether it applies to shipper, container, item, or receiver lines.

The following rules apply to the document format:

- Separate each record (line) with a hard carriage return.
- Specify a value for each field listed in Table 7.5.
- When a value is not applicable or optional, enter a hyphen. This tells the system to use the default value or blank.
- Surround a field with quotation marks unless it accepts only integer or decimal data.

The following example represents a file that loads shipper (S), container (C), and item (I) records in abs\_mstr. The system ignores fields containing the hyphen placeholders. In this example, the item is listed on SO11898.

```
"S" - - "crmsite" "1207-3" - - - - "crm1207" - - - - - - - - - -
- - - - -

"C" "crmsite" "crmloc" "crmsite" "1207C-3" "crm1207cnt" - - 1.00
- - - "S1207-3" - "EA" 135.00 "LB" - - 35.00 "LB" - - - - -

"I" "crmsite" "crmloc" "crmsite" - "crm1207sg" - - 10.0 -
"SO11898" 1 "C1207C-3" - "EA" 100.00 "LB" - - 100.00 "LB" - - - - -
```

Enter values in the following fields to import scanned information:

**Process/File.** Enter Process if you want the system to look for an executable program or script, start it as a separate process, and read its standard output. Enter File if you want the system to look for, open, and read an ASCII file. The Process option can be used only with UNIX systems.

▶ See Table 7.5 for detailed format requirements of Shipper Gateway documents.

**Filename.** Enter the name of the file or process to derive data from. If a process, it must exist in your PROPATH and be an executable program. If a file, it must be in ASCII format.

**Verify Only.** Enter Yes to verify that the shipment contents match the pre-shipper or stage list.

Enter No to verify shipment contents and also create shippers from the scanned information. The system stores the records it reads into the database.

Seq	Field	Applies to Record Type				Description
		C	S	I	R	
1	Type	C	S	I	R	Must be C (Container), S (Shipper), I (Item), or R (Receiver).
2	Site	C	—	I	—	Must be a valid site code.
3	Location	C	—	I	—	Optional. If supplied, must be a valid location at the specified site.
4	Ship-from	C	S	I	R	Must be a valid site code and must be supplied with records that have a Parent ID.

**Table 7.5**  
Format for Shipper Gateway Files

Table 7.5 — Format for Shipper Gateway Files — (Page 1 of 3)

Seq	Field	Applies to Record Type				Description
		C	S	I	R	
5	ID	C	S	—	R	Must be unique in combination with Ship-From. Do not supply a prefix letter.
6	Item	C	—	I	—	Must be a valid item number.
7	Lot/serial	C	—	I	—	The lot or serial number for the item.
8	Reference	C	—	I	—	The reference number for the item.
9	Quantity	C	—	I	—	The item quantity.
10	Ship-to	—	S	—	R	Must be a valid ship-to address code.
11	Order Number	—	—	I	—	Must be a valid sales order number unless the item is from a receiver. Then, specify a valid purchase order number.
12	Line	—	—	I	—	Must be a valid sales order line number unless the item is from a receiver. Then, specify a valid purchase order line number.
13	Parent ID	C	—	I	—	The parent record ID number, including the S or C prefix.
14	Customer PO	—	—	I	—	The customer's purchase order number.
15	Quantity UM	C	—	I	—	Must be a valid unit of measure code.
16	Gross Weight	C	S	I	R	For type I, enter the item's gross weight. The system derives the tare weight from the difference between the gross and net weights.  For type S, R, and C, this field is ignored. The system calculates type S and C gross weights during processing.
17	Weight UM	C	S	I	R	The UM associated with Gross Weight.
18	Volume	C	S	I	R	The volume for the record.
19	Volume UM	C	S	I	R	The UM associated with Volume.

Table 7.5 — Format for Shipper Gateway Files — (Page 2 of 3)

Seq	Field	Applies to Record Type				Description
		C	S	I	R	
20	Weight	C	S	I	R	For type I, enter the item's net weight. For type S, R, and C, enter the tare weight. This weight is rolled up during the processing of the shipper lines and containers.
21	Ship Via	—	S	—	R	The carrier to use for the shipper.
22	FOB	—	S	—	R	The FOB point for the shipper.
23	Carrier Reference	—	S	—	R	The ID of the carrier for the shipper.
24	Transportation Mode	—	S	—	R	The method of delivery for the shipper.
25	Vehicle Reference	—	S	—	R	The ID of the vehicle for the shipper.
26	Kanban	C	—	I	—	The Kanban number for the shipper.
27	Customer Job	—	—	I	—	The customer job of the item.
28	Customer Sequence	—	—	I	—	The customer sequence of the item.
29	Customer Dock	—	—	I	—	The customer dock where the part is to be delivered.
30	Customer Linefeed	—	—	I	—	The customer line feed location where the part is to be delivered.
31	Sequence Status	—	—	I	—	The indicator for sequences with special statuses, such as prototype.
32	Customer Ref	C	—	I	—	The customer reference for the item.
33	Model Year	C	—	I	—	The model year of the item.

Table 7.5 — Format for Shipper Gateway Files — (Page 3 of 3)

## Creating Custom Shippers

This section describes the steps necessary to create a customized shipper document for outgoing shipments. This procedure can be used for the following programs:

- Pre-Shipper/Shipper Workbench (7.9.2)
- Pre-Shipper/Shipper Print (7.9.4)
- Sales Order Shipper Maintenance (7.9.8)

**Note** This procedure cannot be used by Sales Order Shipper Print (7.9.9).

This procedure is intended for users with a working knowledge of the MFG/PRO environment, record structures, and functionality, as well as programming using Progress Version 8 or later.

### Overview of Form Services

Shipping provides the ability to create shippers with customized layouts and/or customized data to comply with statutory requirements or common business practice. The customization can be performed by anyone with MFG/PRO and access to a Progress development environment, including third-party developers and end users.

Shipping is designed so that the customization requirements are minimal and localized. To create a new customer shipper, you need to create or modify only one Progress procedure, even though the results of the customization can be visible in a multiple functional area. This prevents customizations from adversely affecting other functionality and minimizes their maintenance costs when later updates are installed.

QAD provides a procedure, `sofmsv01.p`, to print a shipping document in a standard format for any outgoing shipment. The procedure `sofmsv01.p` is fully functional, but is designed to serve also as a model for end-user customization. Customized shipper formats can be added by copying and modifying this standard procedure. Each shipper, whether custom or standard, is supported by a single procedure.

A shipment is associated with a specific print format, either standard or customer, through the use of the shipper's Document Format field, visible when maintaining the shipment. Each document format is associated with

a specific printing procedure, such as `sofmsv01.p`, through the use of the document format's Form Code field, visible when maintaining the document format. The two-character form code corresponds to the last two characters of the name of the procedure. The remaining characters of the procedure name are fixed.

**Example** Any shipment with a document format that uses form code 01 is printed by procedure `sofmsv01.p`, any with a format using form code 02 is printed by `sofmsv02.p`, any with a format using form code *nn* is printed by procedures `sofmsvnn.p`.

Shipping allows a form code to be permanently associated with each shipping transaction, enabling you to print shippers of various formats in a single print run.

## Additional Form Services

At a minimum, `sofmsv01.p` and similar procedures facilitates printing a shipper. However, this type of procedure can provide other services also. For example, some local requirements dictate that additional data, which is neither maintained using the standard shipper maintenance programs nor stored in the standard record structure, display on printed shipping documents.

Services for handling the maintenance of such additional data can be included, or *encapsulated*, within the same procedure that handles printing the shipper. Therefore, `sofmsv01.p` and similar procedures are referred to as *service encapsulation procedures*. The `sofmsvnn.p` procedure includes all of the services required to maintain the necessary data and print a shipping document for all shippers with a document format using form code *nn*.

**Example** Suppose your local jurisdiction requires a permit in order to transport certain goods, and the permit number must display at the top of printed shipping documents. In standard MFG/PRO, there are no facilities for maintaining such a permit number, storing it with the shipper, or printing it on shipping documents.

You can create a custom procedure encapsulating the services that enable you to enter the permit number when maintaining the shipper, print the number on the shipper, archive the number prior to deletion, and delete the additional data with the shipper. The custom procedure can then be

associated with a document format through the use of the form code and the document format can be assigned to any shippers within the local jurisdiction.

Each of the services within an encapsulated procedure, including the one that prints the document, is implemented as a separate internal Progress procedure. The encapsulation procedure itself is simply a collection of internal procedures—it does not have its own executable procedure body.

### Sample Procedure—`sofmsv01.p`

The `sofmsv01.p` procedure is included with MFG/PRO. This service encapsulation procedure prints standard shippers. The procedure also serves as a model for end-user customization. It includes internal comments that document the technical aspects of creating a procedure to process and print customized shipping documents.

In addition to the internal documentation and the functioning print service, `sofmsv01.p` also includes sample internal service procedures for all of the services supported by shipping, including gathering, storing, archiving, and deleting additional shipper information.

Because these services are not required for the actual processing of standard shippers, the sample procedures in `sofmsv01.p` are disabled by being enclosed within comments. The procedures are otherwise fully functional and can be enabled by removing the comments.

## Creating a Custom Shipper

Use the following steps as a guideline to create a custom shipper, using `sofmsv01.p` as a model:

- 1 Identify an unused form code.

Every procedure that encapsulates shipper print and other form services must be named `sofmsvnn.p`, where `nn` is a two-character code. Your procedure name must be unique; therefore, choose a form code that is not in use. Use the MFG/PRO source code directory to determine which form codes are already in use.

You can use custom shipper print procedures created in earlier versions of MFG/PRO, named `rcrp13nn.p`. When printing a shipping document, the system uses the form code `nn` of the shipper's document format, first checking for `sofmsvnn.p`. It checks for `rcrp13nn.p` only if `sofmsvnn.p` is not found.

Therefore, any custom `sofmsvnn.p` procedure that uses the same form code `nn` as an existing shipper print `rcrp13nn.p` procedure effectively replaces the older procedure. To avoid this, select a form code that is not used by either `sofmsvnn.p` or `rcrp13nn.p` procedures.

**2** Copy the sample procedure.

Copy the standard `sofmsv01.p` procedure from the MFG/PRO source code directory to a working directory. Make sure the working directory is not in the `PROPATH`. This copy serves as the basis for your customization.

**3** Rename the sample procedure.

In the working directory, rename the copied procedure, replacing the `01` in the procedure name with the two-character form code you identified in step 1. For example, if form code `15` is not in use and you want to use it for your new procedure, name your new procedure `sofmsv15.p`.

Find the scoped definition of the preprocessor titled "PROC-NAME." Change the value of this preprocessor from `sofmsv01.p` to the name of your procedure.

**4** Open your procedure for editing.

Open your procedure in the Progress procedure editor or in any other suitable text editor, such as `vi`. You might first have to change file permissions to edit the procedure.

Before proceeding, it is recommended that you read through the comments within the procedure thoroughly to familiarize yourself with its structure and the programming conventions used.

**5** Determine whether custom data is required.

Is your custom shipper required to display data that is not stored within the system? If not, then skip steps 6 through 10 and proceed to step 11.

Custom data may be required at the header, line item, or trailer levels. Your procedure contains three internal procedures—*sh\_gather\_header*, *sh\_gather\_item*, and *sh\_gather\_trailer*—that allow maintenance of these three types of data. Each internal procedure is initially disabled by being enclosed in comments. Removing these fully enables the procedure.

**6** Enable your procedure to allow maintenance of custom data.

If your printed shipper requires custom data at the header level, enable the internal *sh\_gather\_header* procedure by removing the enclosing comments.

If your printed shipper requires custom data at the line item level, enable the internal *sh\_gather\_item* procedure by removing the enclosing comments.

If your printed shipper requires custom data at the trailer level, enable the internal *sh\_gather\_trailer* procedure by removing the enclosing comments.

**Important** There is no need to modify any other procedure to call the enabled internal procedures—at all points within the shipping cycle where it is appropriate to call a shipper service, the shipper does so.

For example, in Pre-Shipper/Shipper Workbench, after the shipper header information is accepted, the system checks the form code *nn* of the shipper's document format, finds the appropriate service encapsulation procedure *sofmsvnn.p*, and looks for an internal *sh\_gather\_header* procedure within the service encapsulation procedure.

If found, the internal procedure is executed and the system prompts you to enter or edit additional custom header data before going on to line item maintenance. If the internal procedure is not found, the system proceeds to line item maintenance without prompting for additional header data.

**7** Modify your custom data maintenance procedures.

If enabled but not further modified, the sample versions of *sh\_gather\_header*, *sh\_gather\_item*, and *sh\_gather\_trailer* each prompt for entry of five fields—one for each of the five primary data types recognized by Progress. The data entered is stored in the *qad\_wkfl* table, where it can be retrieved later as needed.

**Tip**  
Possible data types are character, integer, decimal, logical, and date.

While the sample versions are functional as they are, they are unlikely to satisfy your requirements without some modification. The extent of the modification depends on your requirements. The only absolute restrictions are that you must not rename the procedures or change the number, type, or order of any input or output parameters.

This is necessary since the procedure name and parameters are referenced from outside the service encapsulation procedure, in standard programs. It is strongly recommended that you follow the programming conventions detailed in the comments to the sample `sofmsv01.p` procedure.

Although it is impossible to address specific modifications, the following list provides some flexible and easily implemented possibilities:

- Add, change the type of, or remove editable fields.
- Create custom labels or display formats for editable fields.
- Store editable information in fields of `qad_wkfl` table in user fields of shipper or other existing tables, in custom tables, or in custom databases.
- Add display-only informational fields from any source, such as customer credit or item pricing information.
- Set conditions on the editability of fields.
- Build and store information accumulated from any internal source, without requiring user interface.

**Note** While the sample versions of `sh_gather_header`, `sh_gather_item`, and `sh_gather_trailer` are initially identical in structure, they can be modified independently according to your requirements.

## 8 Enable your procedure to allow archiving of custom data.

You may want to archive custom header, line item, or trailer data with standard shipper data. The internal `sh_archive` procedure lets you archive the three types of data. The sample archiving procedure is initially disabled by being enclosed in comments. Removing the comments fully enables the procedure.

You do not need to modify any other procedure to call the enabled archiving procedure—the call occurs as part of the standard Shipper Delete/Archive process.

If all of your data-gathering procedures store information only in `qad_wkfl`, as the sample procedures do, the enabled archiving procedure can function as is, since it archives associated `qad_wkfl` records in their entirety. If you modified any of your data-gathering procedures to store information in another table, you also need to modify `sh_archive` to read the data from the appropriate source and archive it.

**Note** The `sh_archive` procedure processes custom data from all possible levels—header, line item, and trailer. You do not need separate procedures for each of the three levels, since the archive process is invoked only once for the entire shipper. The archive procedure recursively archives additional data from the entire shipper, including the header as well as all of its child records.

#### 9 Enable your procedure to allow deletion of custom data.

If custom header, line item, or trailer data is stored in any table other than the standard shipper data table (`abs_mstr`), you must provide a mechanism to delete the custom data.

Your procedure contains an internal `sh_delete` procedure that allows deletion of the three types of data. Like the data-gathering and archive procedures, the sample deletion procedure is initially disabled by being enclosed in comments. Removing comments fully enables it.

As with the other service procedures, you do not need to modify any other procedure to call the enabled deletion procedure. The call occurs as part of Shipper Delete/Archive, and all other areas where shipper information is deleted.

If all of your data-gathering procedures store information only in `qad_wkfl`, as the sample procedures do, the enabled deletion procedure can function as is, since it deletes associated `qad_wkfl` records in their entirety. If you have modified any of your data-gathering procedures to store information in another table, you also need to modify `sh_delete` to delete it from the appropriate source.

**Note** The `sh_delete` procedure deletes custom data from all three possible levels—header, line item, and trailer. You do not need separate procedures for each of the three levels. The deletion procedure recursively deletes additional data from a shipper header or detail record, as well as from all of its child records.

## 10 Enable your procedure to handle changing the shipper number.

If custom header, line item, or trailer data is stored in any table other than the standard shipper data table (`abs_mstr`), these records are typically identified using the pre-shipper/shipper number `abs_id`. Because `abs_id` changes when a pre-shipper is converted to a shipper, you must provide a mechanism to propagate this change to the records storing the additional data.

Your procedure contains an internal `sh_rename` procedure that allows renaming the three types of data. This procedure is initially disabled and can be enabled by removing the enclosing comments. As with the other service procedures, you do not need to modify any other procedure to call the enabled renaming procedure, since the call occurs in all areas where the `abs_id` field changes.

If all of your data-gathering procedures store information only in `qad_wkfl`, as the sample procedures do, the enabled rename procedure can function as is. If you have modified any of your data-gathering procedures to store information in any other table, you must modify `sh_rename` to change the data in the appropriate source.

**Note** The `sh_rename` procedure renames both header and trailer-level custom data since both are identified using the `abs_id` field of the shipper header record. Line item-level custom data does not need to be processed since the `abs_id` field of shipper line items does not change when a pre-shipper is converted to a shipper.

## 11 Modify your custom print procedure.

Your procedure contains an internal `sh_print` that prints a shipping document for a shipper. Because the sample `sofmsv01.p` procedure also encapsulates all of the shipper form services for standard shippers, and printing is the only service required for standard shippers, `sh_print` is the only service in the sample program that is not disabled.

Modifications to the appearance of printed shipping documents are implemented by modifying `sh_print`. While it is impossible to address specific modifications, the following describes some common ones:

- Change the location of displayed fields.
- Change the appearance, such as label or display format, of displayed fields.

- Change the content of the shipping document by displaying standard data from the shipper or other standard tables or custom data accumulated using *sh\_gather\_header*, *sh\_gather\_item*, or *sh\_gather\_trailer*.
- Change the overall form dimensions.

## 12 Document your modifications.

To document your customizations, remove any unnecessary comments copied to your new procedure from the sample procedure and add new comments describing your modifications. Although this is not required, it is highly recommended. Documenting changes facilitates future changes to the procedure and enables the procedure to be used effectively as the basis of a new customized shipper.

## 13 Move your procedure to the MFG/PRO environment.

The final step is to copy your new procedure to the MFG/PRO source code directory or directories in the propath. Also, you need to compile your procedure against the MFG/PRO databases and save the compiled version to the appropriate object code directory or directories within your environment.

Remember that for multiple-language installations, separate sets of code are maintained within language-specific subdirectories. Be sure to copy your custom procedure into the appropriate subdirectory for every language used in your installation.

# Enterprise Material Transfer (EMT)

Enterprise Material Transfer (EMT) enables you to translate sales orders into purchase orders automatically and transmit those purchase orders electronically using EDI ECommerce. EMT supports both standard two-level and multilevel organizations.

**Note** If you are using the Service/Support Management (SSM) module, you can also use EMT to convert material orders (MOs) to purchase orders.

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*Communicating EMT Documents with EDI*    **295**

## Introduction

In traditional MRP, customer purchase orders become sales orders, which then become purchase requisitions after MRP is run. Purchase requisitions become purchase orders, and approved purchase orders are transmitted to the supplier. In some cases the supplier must manually reenter the orders. These steps can waste time, especially when the supplier is the company's own manufacturer or distributor or one with whom the company regularly does business.

You can use Enterprise Material Transfer (EMT) to save time by automating several of these steps—and reducing the wait time between them. With EMT you can:

- Automatically generate purchase orders from sales orders, where appropriate. In the simplest scenario, you can just print the purchase order and mail or fax it to your supplier.
- Automatically export purchase orders using EDI ECommerce. Your supplier then imports the purchase order and converts the PO to its own sales order.
- Automatically generate legal and financial data required for international transactions.
- Modify purchase orders easily. When you update your sales order for an EMT item, the system automatically updates the associated PO. EMT also supports automatic transmission of changes using EDI ECommerce. Suppliers can be changed on individual sales order lines or mass-changed on all existing sales orders. Credit hold status on existing orders can be changed whenever the customer's credit status changes.
- Allocate items directly in real time in a supplier's database.
- Optionally deviate from standard system logic in determining intercompany prices, as specified in the supplier/item record.
- Chose one of two delivery options for EMT items: direct delivery from final supplier to end customer, or transshipment to the business unit that created the original sales order.
- Integrate with standard invoicing. When your EMT supplier provides the items, you can follow the same invoicing procedures you would use for any sales order.

- Generate sales order tracking reports. You can view the transmission status of the purchase orders generated by EMT or the shipping status of items ordered from EMT suppliers.

**Note** If you use the Service/Support Management (SSM) module, you can also use EMT to support material orders (MOs) for EMT transshipment items.

▶ See “Material Orders” on page 254.

Depending on the relationships among the business units involved in EMT transactions, EMT is defined as *standard* EMT or *multilevel* EMT. A *business unit* is any supplier or manufacturer in a supply chain other than the original customer.

## Standard EMT Overview

Standard EMT includes a simple, two-level relationship between two business units:

- A *primary business unit (PBU)* is responsible for processing the customer’s original purchase order.
- A *secondary business unit (SBU)* is responsible for maintaining secondary sales orders created from the PBU’s purchase order.

A PBU can have multiple SBUs, and SBUs can reside in different countries.

Standard EMT begins at the PBU when you enter a confirmed sales order line for an item that has been set up for EMT processing. Either enter the sales order manually in Sales Order Maintenance (7.1.1) or use EDI ECommerce to import your customer’s purchase order. When the sales order is confirmed, EMT automatically generates the appropriate purchase orders, called *EMT POs*. You then use EDI ECommerce to transmit EMT POs to the supplier.

**Note** This chapter assumes that you are using a fully automated EMT environment, which is supported by EDI ECommerce.

If the supplying SBU’s database is connected to the PBU’s database, you can make a *direct allocation*. This is a preliminary allocation of inventory in the SBU’s database that is automatically converted to a normal allocation when the SBU imports the PBU’s purchase order.

▶ See “Using Direct Allocations” on page 253.

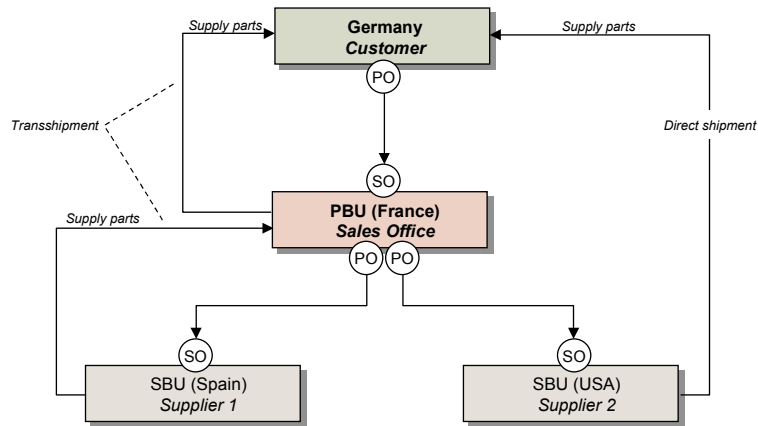
The SBU's system imports the EMT PO and converts it to a *secondary sales order*. After sending a PO acknowledgment to the PBU, the SBU then uses its standard procedures to fill the sales order by purchasing or manufacturing the items. Based on information provided by the original end customer and the PBU, the SBU can ship EMT sales orders in two ways:

**Tip**

Direct shipment is not available for material orders.

- With *direct shipments*, the SBU is authorized to satisfy a demand directly, bypassing the site that originally received the customer's purchase order.
- With *transshipments*, the SBU must satisfy a demand through the PBU, which in turn ships the order to the original customer. The PBU typically adds value such as packaging or testing.

**Fig. 8.1**  
Standard EMT  
Order Processing  
Model



The SBU transmits a status change indicating that the order has been picked, shipped, or—in the case of a configured item—released to a work order. Based on control program settings, the PBU may still be able to make changes to its primary sales order after a status change. If the SBU wants to make changes to the promise date or quantity required, it transmits a change request to the PBU, which either accepts or denies the request.

**Note** The promise date at the SBU is the same as the due date at the PBU.

When the SBU confirms the shipping document to ship the order, the system automatically generates an advance ship notice (ASN) document for transmission to the PBU. When imported, this document creates a purchase order shipper, which can then be received at the PBU.

- For direct shipments, the PBU does not physically receive the merchandise, since the SBU ships it directly to the end customer. Instead, the system creates a receiving inventory transaction then immediately issues the merchandise to the sales order, as though it has been shipped from the PBU. Based on control program settings, the PBU can choose to automatically receive the PO when it imports the ASN without any operator action. The PBU can then create a sales order shipper, issue an ASN to the customer, and invoice the order.
- For transshipments, the SBU ships the merchandise to the PBU. The PBU receives it just as it would any PO. The system automatically allocates the merchandise to the primary sales order, and the PBU follows its standard procedures to ship to the end customer, generate an ASN, and submit an invoice.

## Multilevel EMT Overview

Standard EMT involves a two-level relationship between the organization issuing the original sales order (the PBU) and the final supplier (the SBU). In multilevel EMT, however, the secondary sales order creates yet another PO, which is transmitted to a lower-level supplier.

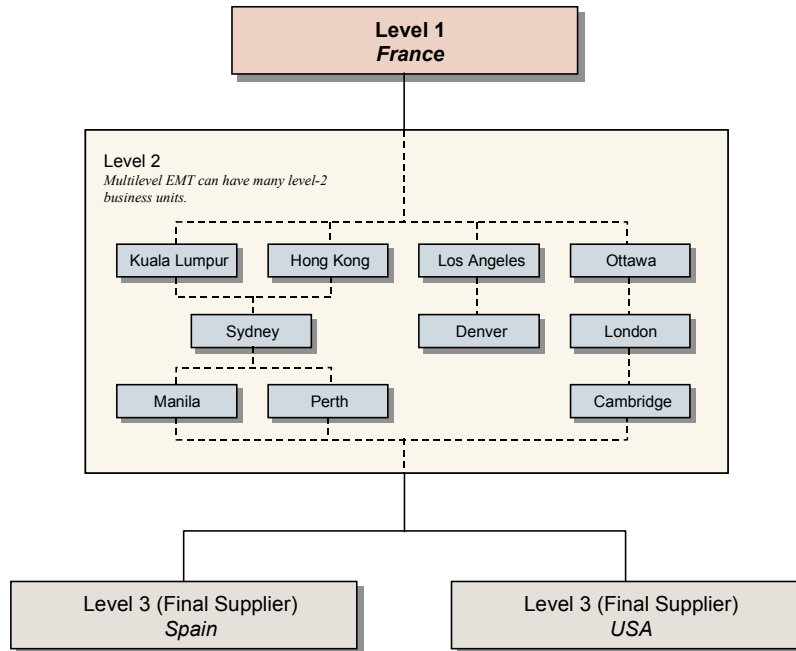
Although multilevel EMT can have as many levels as required by a specific business model, business units within a multilevel EMT supply chain are normally defined at three levels:

- Level 1: The business unit receiving the end customer's original order. This corresponds to the PBU in standard EMT.
- Level 2: Mid-level organizations between the level 1 business unit that recorded the original customer demand and the final supplier, which actually provides the items to fill the demand. The level 2 hierarchy can include any number of business units. In standard EMT terms, a level 2 unit acts as a PBU in some relationships and as an SBU in others.
- Level 3: The lowest-level business unit in the supply chain, which supplies the original demand. This is the equivalent of the SBU in standard EMT.

The work flow among multiple levels is similar to that used in standard EMT. Business documents such as POs, change documents, and ASNs are passed up and down the supply chain one level at a time. However, some restrictions apply to level-2 business units:

- They must accept changes from business units above or below them on the supply chain. They simply pass them on to the next level using a PO change or PO change acknowledgment, as appropriate.
- They cannot modify the quantity or due date on a primary sales order. They can, however, change the EMT supplier or the EMT type—direct ship, transship, or non-EMT. When they do, the system automatically cancels the purchase order issued by the level-2 business unit and generates a new one.

**Fig. 8.2**  
Multilevel EMT  
Hierarchy



## Electronic Data Interchange

*Electronic data interchange (EDI)* is the paperless exchange of trading documents such as purchase orders, shipment authorizations, advance ship notices, and invoices using standardized document formats. You can use MFG/PRO's EDI ECommerce features to communicate EMT documents automatically among multiple levels of suppliers.

**Note** If you are using standard EMT, in which there is a two-level relationship between the organization recording the final customer's demand and its supplier, EDI transmission is optional. For example, you can fax or mail the EMT purchase order to the SBU. EDI is required for the other automated processing features offered by EMT.

However, if you use multilevel EMT, in which there are two or more organizational levels in addition to the final supplier, EDI is required.

▶ See "Using Multilevel EMT" on page 285.

## Using Direct Allocations

In some supplier relationships, a business unit on one level of the supply chain is allowed to allocate inventory from the MFG/PRO database of a lower-level supplier.

EMT supports this requirement under a specific set of circumstances:

- The PBU and SBU databases must be connected.
- Site records at the PBU and SBU must reflect the correct database relationships.
- The Direct Allocation field in Sales Order Control (7.1.24) at the PBU must be set to Yes.
- The allocation can only take place across one level; a level-1 business unit cannot directly allocate a level-3 supplier's inventory.

▶ See "Setting Up Direct Allocations" on page 266.

When you enter an EMT item on a sales order and the setup has been done correctly, you can change the default site for the sales order line to the site established for the SBU's connected database. The system automatically changes the supplier to the one defined for the SBU's database. The quantity specified is then assigned a preliminary allocation in the SBU's database.

After you export the resulting EMT PO and the SBU imports it as a secondary sales order, the SBU's system converts the preliminary allocation into a general allocation to the secondary sales order. From that point, processing continues just as in any other EMT order.

## Material Orders

▶ For more information on material orders, see *User Guide Volume 8B: Service/Support Management*.

In the Service/Support Management (SSM) module, service personnel use material orders (MOs) to order repair parts for specific calls or to replenish their inventory.

EMT supports MOs in the same way it supports sales orders. When you place a confirmed MO for an EMT item, the system automatically begins EMT processing by generating a purchase order for the associated supplier and queuing it for export with EDI or EDI ECommerce.

You can also make direct allocations of MO items in your supplier's MFG/PRO database.

**Tip**  
EMT can process only transshipment items on MOs—not direct-shipment items.

After the system automatically generates a purchase order from the confirmed MO, EMT processes material orders just like sales orders. Change management, status tracking, and exchange of EDI documents throughout all levels of the EMT supply chain work the same way.

## Intrastat Effects of EMT Orders

▶ See *User Guide Volume 6: Master Data* for information on Intrastat.

MFG/PRO's Intrastat features support regulatory-agency reporting requirements for tracking business transactions involving companies in countries that are members of the European Union (EU).

If your EMT orders involve direct shipments among trading partners in multiple EU nations, specific rules apply to which trading partner—the PBU, the SBU, or the end customer—is responsible for reporting the transaction.

When you receive a PO shipper or post an invoice for a direct-ship Intrastat item, the system uses the following rules to determine whether to create an Intrastat history record, which is used as the basis for reporting:

- **Dispatches:** When the PBU and SBU are in the same country, the PBU is responsible for reporting the shipment. When they are in different countries, the SBU is responsible.
- **Arrivals:** When the PBU and the end customer are in the same country, the PBU is responsible for reporting the receipt. When they are in different countries, the end customer is responsible.

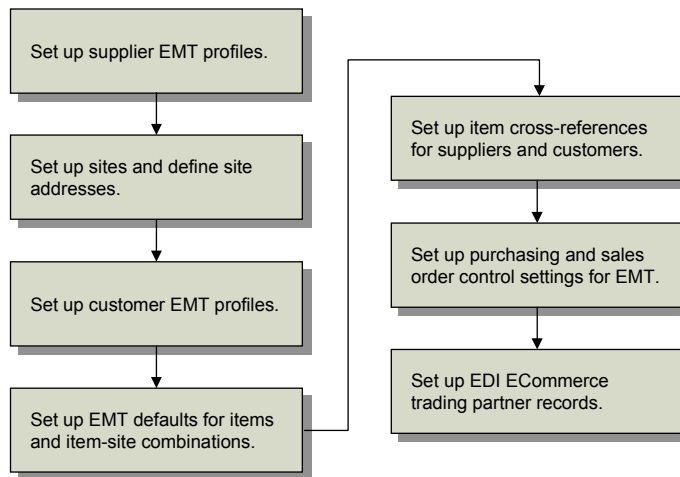
**Tip**  
Standard Intrastat logic applies to non-EMT and transshipment items.

## Setting Up EMT

EMT setup is required at both the PBU and the SBU. Most EMT setup takes place at the PBU, and consists of defining appropriate default values. Figure 8.3 illustrates a general work flow for setup activities.

Some differences in setup data are required if you use multilevel EMT. These differences are described within the appropriate setup tasks and are also summarized in the section covering multilevel EMT.

▶ See “Setup Considerations” on page 287.



**Fig. 8.3**  
EMT Setup Work Flow

Table 8.1 lists the programs used to complete EMT setup tasks at the PBU and SBU in standard EMT.

**Table 8.1**  
EMT Setup

<b>Function</b>	<b>Set Up</b>	<b>PBU</b>	<b>SBU</b>
Supplier Maintenance (2.3.1)	Supplier's EMT order processing information.	✓	
Site Maintenance (1.1.13)	Primary and secondary business units as sites and define default suppliers.	✓	✓
Company Address Maintenance (2.12)	Newly created sites as company records.	✓	✓
Customer Maintenance (2.1.1)	Customer's EMT profile.		✓
Item Master Maintenance (1.4.1)	How the system processes EMT items.	✓	✓
Item-Site Planning Maintenance (1.4.17)	How the system processes EMT items at a particular site. Optional.		
Customer Item Maintenance (1.16)	Item cross-reference at SBU.		✓
Supplier Item Maintenance (1.19)	Item cross-reference at PBU.	✓	
Sales Order Control (7.1.24)	Defaults for EMT sales orders.	✓	✓
Purchasing Control (5.24)	Defaults for purchase orders.	✓	
Trading Partner Maintenance (35.13.7)	Trading partners; used with EDI ECommerce module.	✓	✓
Trading Partner Parameter Maint (35.13.10)	Parameters associated with specific trading-partner site and address cross-references; used with EDI ECommerce module.	✓	✓

## Setting Up Supplier Profiles

Use Supplier Maintenance (2.3.1) to set up EMT processing defaults for suppliers.

The screenshot shows a window titled "Supplier Maintenance" with a sub-header "Supplier Address". The main area contains the following information:

- Supplier: 00100 Temporary:
- Name: Swift Transport
- Address: 2100 Hueneme Road
- Address:
- Address:
- City: Port Hueneme State: CA Post: 93033 Format: 0
- Country: United States of America USA County:
- Attention: Jerry Cooper [2]:
- Telephone: 1-805-555-1225 Ext: [2]:
- Fax/Telex: 1-805-555-1255 [2]: Added: 07/11/2002

Below this is a section titled "Enterprise Material Transfer Data" with the following fields:

- Send SO Price:
- Send Credit Held SO:
- Auto EMT Processing:
- Automatic PO Receipt:
- SO Price Reduction: 0.00%
- Use SO Reduction Price:

An arrow points from the text "This frame supports EMT processing." to the "Enterprise Material Transfer Data" section.

**Fig. 8.4**  
Supplier  
Maintenance  
(2.3.1)

This frame  
supports EMT  
processing.

The fields in the Enterprise Material Transfer Data frame support EMT order processing for suppliers.

**Send SO Price.** Yes indicates that the supplier is authorized to receive the original sales order price from the PBU. No indicates that the supplier is not authorized to receive the original sales order price.

**Send Credit Held SO.** Enter Yes to have this supplier receive EMT purchase orders from SOs placed on credit hold at the PBU. Enter No to prevent the supplier from receiving these purchase orders.

This field is related to the EMT Credit Flow field in Customer Maintenance, which determines whether credit information is transmitted with a sales order.

**Auto EMT Processing.** This field is used only for multilevel EMT processing. Enter Yes to have level 2 business units automatically generate secondary POs for lower-level business units.

**SO Price Reduction %.** Enter the mark-down percentage to use when Use SO Reduction Price is Yes.

▶ See “Credit Held Orders” on page 271.

▶ See “Using Multilevel EMT” on page 285.

**Use SO Reduction Price.** Enter Yes to reduce the price of items ordered from the supplier by the specified SO price reduction percentage. The SO reduction price calculation is similar to a markdown. Enter No to use standard SO prices without any reduction percentage.

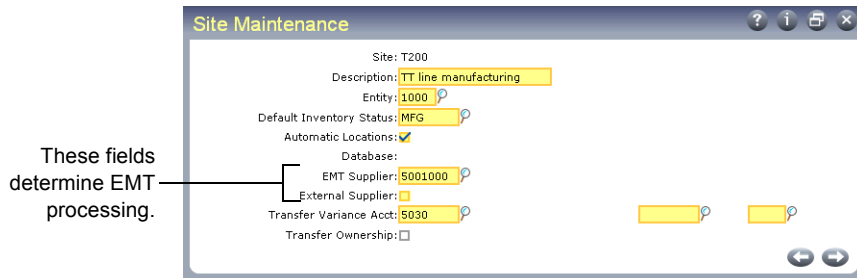
**Automatic PO Receipt.** Enter Yes to have the PBU automatically receive the SBU's purchase orders on EMT direct shipment items when the PBU imports the SBU's ASNs. This lets you complete the order cycle on direct shipments without requiring a user to manually receive the PO shipper.

**Note** This feature is available on direct shipments because the PBU never actually needs to physically receive the items shipped by the SBU. The PBU still must receive purchase orders manually on EMT transshipments.

## Setting Up Sites

If the SBUs are not defined in your database, create them in Supplier Maintenance (2.3.1) first. Then use Site Maintenance (1.1.13) to set up the PBU and SBUs as sites.

**Fig. 8.5**  
Site Maintenance  
(1.1.13)



Enter the default supplier for this site in the EMT Supplier field. This supplier is automatically referenced during sales order entry when ordering an item from this site.

▶ See "Using Direct Allocations" on page 253.

Set External Supplier to Yes only when this site is associated with a supplier whose connected database allows direct allocations from the PBU.

## Establishing Sites as Companies

EMT requires that sites have address records to support such features as direct shipments and direct allocation. Create site addresses in Company Address Maintenance (2.12). Simply creating a site in Site Maintenance does not create this record.

## Setting Up Customer Profiles

Use Customer Maintenance (2.1.1) to define the default EMT type and other EMT values for customers. The system uses these values to:

- Determine the default processing mode for sales order lines for this customer.
- Determine whether credit status information is included in purchase orders generated to fill demand from this customer. This feature lets your suppliers automatically place credit holds on their secondary sales orders when the primary sales order is on credit hold.
- Establish a customer's EMT shipping lead time. The system uses this data when calculating the due date.
- Determine whether imported EDI or EDI ECommerce documents with PO data create confirmed or unconfirmed secondary sales orders at the SBU.

**Tip**  
This process is not limited to EMT orders.

The PO Required field in Customer Maintenance has special significance for EMT. Set this field to Yes at the PBU for customers normally involved in EMT processing. When Yes, all sales orders for this customer must have a corresponding PO number. This is required for EDI transmissions between the PBU and SBU.

**Fig. 8.6**  
Customer  
Maintenance  
(2.1.1)

The screenshot shows a window titled "Customer Maintenance" with a sub-header "Customer Address". The main area contains the following information:

Customer: 2000-1  
 Name: SoCal Electrical  
 Address: 22314 W. 199th St.  
 Address:  
 Address:  
 City: Torrance State: CA Post: 90278 Format: 0  
 Country: United States of America usa County:  
 Attention: Bob Stephens [2]:  
 Telephone: (310)555-1423 Ext: [2]: Ext:  
 Fax/Telex: [2]: Added: 07/30/2002

Below this is the "Enterprise Material Transfer Data" frame with the following fields:

EMT Type: **TRANSHIP** Customer Shipping LT: **5** Confirmed EMT SO:   
 EMT Credit Flow:

An arrow points from the text "This frame supports EMT processing." to the EMT Type field.

The fields in the Enterprise Material Transfer Data frame support EMT order processing.

**EMT Type.** Determines the default EMT type, either transshipment or direct shipment, or instructs the system to use standard, non-EMT processing.

▶ See "Calculating Due Dates" on page 272.

**Customer Shipping LT.** Enter the customer's shipping lead time. This is the average number of days needed to get the items to the customer on time. This value is added to the purchase lead time for the item, and the total subtracted from the end customer's required date. The result is the due date used on the EMT purchase order.

**Confirmed EMT SO.** Indicate whether imported EDI messages with PO data create confirmed or unconfirmed sales orders at the SBU. Enter Yes to specify that a confirmed secondary SO be created. Enter No to specify that unconfirmed SOs be created. This field does not affect processing at the PBU.

▶ See "Credit Held Orders" on page 271.

**EMT Credit Flow.** Enter Yes to have EDI transmit the credit status of the order so that credit-held primary sales orders result in credit-held secondary sales orders. Enter No if credit information should not be transmitted.

This field is related to the Send Credit Held SO field in Supplier Maintenance, which determines whether a supplier is authorized to receive purchase orders generated from credit-held sales orders.

## Setting Up Items

Set up items for EMT processing in Item Master Maintenance (1.4.1).

The screenshot shows the 'Item Master Maintenance' window for Item Number TT-620, Description: Medium wire harness, Unit of Measure: EA. The 'Item Planning Data' section contains the following fields:

- Mstr Sched:
- Plan Orders:
- Time Fence: 0
- MRP Required:
- Order Policy: POQ
- Order Qty: 0
- Batch Qty: 1.0
- Order Period: 7
- Safety Stock: 0
- Safety Time: 0
- Reorder Point: 0
- Revision: 1
- Issue Policy:
- Buyer/Planner: jlb
- Supplier: 2000-1
- PO Site: T100
- Purchase/Manufacture: p
- Configuration Type: [blank]
- Inspect:
- Ins LT: 0
- Mfg LT: 0
- ATP Enforcement: NONE
- Family ATP:
- Run Seq 1: 2
- Phantom:
- Minimum Order: 0
- Maximum Order: 0
- Order Multiple: 0
- Op Based Yield:
- Cum LT: 0
- Pur LT: 2
- Yield Percent: 100.00%
- Run Time: 0.000
- Setup Time: 0.000
- EMT Type: TRANSHIP
- Auto EMT Processing:
- Network Code: [blank]
- Routing Code: [blank]
- BOM/Formula: [blank]

Annotations in the image:

- A callout box points to the 'Pur LT: 2' field with the text: "Purchase lead time affects the EMT PO delivery date."
- A callout box points to the 'EMT Type: TRANSHIP' field with the text: "These fields determine EMT processing."

**Fig. 8.7**  
Item Master  
Maintenance  
(1.4.1)

**Pur LT.** The purchasing lead time is important in calculating the final expected delivery date for an EMT PO. The system combines this value with the value in the Shipping LT field in Customer Maintenance for the end customer and then subtracts from the EMT PO's due date to determine the expected delivery date.

**EMT Type.** This field defines how the system processes this item at the PBU.

- Enter NON-EMT to specify normal sales order processing.
- Enter TRANSHIP for transshipments.
- Enter DIR-SHIP for direct shipments.

**Auto EMT Processing.** This field is used only for multilevel EMT processing. Enter Yes to have level 2 business units automatically generate secondary POs for lower-level business units.

▶ See "Calculating Due Dates" on page 272.

▶ See "Using Multilevel EMT" on page 285.

## Establishing Item-Site Relationships

Item planning data controls planning and manufacturing functions. For an item used at multiple sites, you can set up planning data differently for each site. All planning and manufacturing functions use item-site planning data.

If the same item is stocked at different sites, it can have different purchase lead times and EMT types. In this case, use Item-Site Planning Maintenance (1.4.17) to establish the specific item-site relationships.

If you are using multilevel EMT, set Auto EMT Processing to Yes.

## Setting Up Item Cross-References

Use Supplier Item Maintenance (1.19) to set up supplier items at the PBU so that EMT purchase orders transmitted to the SBU reference the correct item numbers. Two fields affect EMT order processing.

**Fig. 8.8**  
Supplier Item  
Maintenance (1.19)

The screenshot shows the 'Supplier Item Maintenance' window with the following data:

- Item Number: TT-620
- Supplier: 5001000
- Supplier Item: WH600M
- Unit of Measure: EA
- Supplier Lead Time: 3
- Use SO Reduction Price:  10%
- Currency: USD
- Quote Price: 7.50
- Quote Date: 07/30/2002
- Quote Qty: 0.0
- Price List:
- Manufacturer:
- Manufacturer Item:
- Comment:

Item Name: Medium wire harness  
Supplier Name: General Supply Corporation

Callout: These fields affect EMT processing.

**Use SO Reduction Price.** Enter Yes to specify a reduction percentage.

**Reduction Price Percentage.** If use SO Reduction Price is Yes, enter a reduction price percentage. The sales order price is marked down based on the percentage you specify. For example, if the sales order price is 10 USD and you specify a reduction of 10%, the final price is marked down to 9 USD.

See “Setting Up Supplier Profiles” on page 257.

You can also update similar fields in Supplier Maintenance. These are used for items that have not been defined in Supplier Item Maintenance.

As an alternative, use Customer Item Maintenance (1.16) to set up item cross-references at the SBU. In this case, setting up supplier cross-references is not needed.

**Note** If cross-references are not defined, the sales order at the SBU is created for a memo item, even if item numbers are identical in both databases.

### End Customer Item Numbers

You can also use Customer Item Maintenance at the PBU to set up item cross-references for your end customer. When an EMT item at the PBU is associated with a customer item number, that number is exported to the SBU as part of the EMT purchase order. It is stored at the SBU in the secondary sales order record, although it does not display anywhere on the user interface.

When the item is directly shipped to the end customer, the customer's own item number prints on the shipping document. If no cross-reference has been defined, the system prints the regular item number on the shipping document.

### Setting Up Sales Order Control

Sales Order Control (7.1.24) controls allocations, standard sales orders, EMT sales orders, forecast consumption, trailer codes, and history retention.

The screenshot shows the 'Sales Order Control' window with the following settings:

- Use Enterprise Material Transfer:
- EMT Type:
- EMT Sequence:
- Automatic EMT Processing:
- Calculate Due Date:
- Direct Allocation:
- Direct Shipment Location:
- Auto Accept Supplier Changes:
- Use Customer Currency On PO:
- Allow Mod/Del When SO Picked:
- Allow Mod/Del When Released to WO:
- Allow Mod/Del When Shipped:

On the right side of the window, there is a list of options:

- A-Item/Site
- B-Item
- C-Customer
- D-Sales Order Control File

**Fig. 8.9**  
Sales Order Control  
(7.1.24)

This frame  
includes EMT  
control  
settings.

Use the second frame of Sales Order Control to establish EMT defaults at the PBU and SBUs.

*Use Enterprise Material Transfer.* Enter Yes to activate EMT.

*EMT Type.* Specify the default EMT type for processing sales orders. The system uses this field in combination with EMT Sequence. Possible values are: NON-EMT, TRANSHIP, DIR-SHIP.

*EMT Sequence.* Enter the search order sequence the system should use when determining the default EMT type for a sales order. Specify any combination of A, B, C, and D, where:

- A = Item/Site, defined in Item-Site Planning Maintenance (1.4.17)
- B = Item, defined in Item Master Maintenance (1.4.1)
- C = Customer, defining in Customer Maintenance (2.1.1)
- D = Sales Order Control

▶ See “Using Multilevel EMT” on page 285.

*Auto EMT Processing.* This field is used only by level-2 business units for multilevel EMT processing. Enter Yes to have level-2 business units automatically generate secondary POs for lower-level business units.

▶ See page 272.

*Calculate Due Date.* Enter Yes to have the system calculate the due date using various lead times.

▶ See page 253.

*Direct Allocation.* Enter Yes to reserve a supplier’s inventory for EMT sales orders that you create. When the PBU and SBU databases are connected, the system makes a preliminary allocation in the SBU’s database. This is confirmed and converted to a normal allocation when the SBU creates a confirmed secondary sales order from the EMT purchase order.

Direct allocation works only under a specific set of conditions related to database connections and setup data. Under most circumstances, leave this field set to No.

*Direct Shipment Location.* Enter a location at the PBU to be used when items are shipped by the SBU directly to the customer. The system uses this location to create and relieve allocations in preparation for invoicing the customer. No inventory actually exists

there. The location must have an inventory status of non-nettable and available. This prevents MRP from planning requirements for these items.

**Auto Accept Supplier Changes.** Enter Yes to allow the PBU to automatically accept due date and quantity change requests received from the SBU.

When this field is No, the system creates change records associated with change requests. You must then use Sales Order Maintenance (7.1.1) to manually accept supplier changes, or Supplier Change Rejection Maint (35.22.2) to reject them.

**Use Customer Currency on PO.** Enter Yes to have the system use the currency associated with the end customer when generating an EMT purchase order from the PBU's primary sales order. When the SBU imports this purchase order to create a secondary sales order, that sales order is in the end customer's currency.

**Tip**  
Specify currencies in Customer Maintenance (2.1.1) and Supplier Maintenance (2.3.1).

When this field is No, the system uses the currency associated with the supplier when generating the EMT purchase order—resulting in a secondary sales order that is also in the supplier's currency.

**Allow Mod/Del When SO Picked, When Released to WO, When Shipped.** Enter Yes to let the PBU modify or delete the primary sales order line after importing a status change message from the SBU. When you access a line with a status change with one of these fields set to Yes, the system displays a warning and prompts you to continue.

♦ See “Shipment Status” on page 282.

When one of these fields is set to No, the PBU is prevented from making any changes to a sales order line after importing the related status change from the SBU.

**Note** The system does not accept all changes to a line with a status change. For example, while you can change the salesperson commission on a line that has already been picked at the SBU, the system displays an error message if you attempt to change the quantity.

## Setting Up Purchasing Control

Purchasing Control (5.24) controls PO information. The Require Acknowledgment field affects EMT processing.

**Fig. 8.10**  
Purchasing Control  
(5.24)

**Purchasing Control**

Price by PO Line Due Date:

PO Interest Accrued Acct: 6900

PO Interest Applied Acct: 2270

Next Fiscal Batch: 3

Require Acknowledgment:

Generate Date Based Release ID:

This field affects EMT processing.

**Require Acknowledgment.** If the supplying site is using EMT, enter Yes to require a PO acknowledgment from the SBU. This field should be Yes at both the PBU and the SBU.

When set to No, PO acknowledgments are not required from lower-level business units. When an EMT PO is created, it is automatically marked as acknowledged so that the originating business unit can modify its primary sales order as required.

This field only determines whether an initial PO acknowledgment is sent after the original PO message has been imported. PO change acknowledgments are always sent when your EMT process is using EDI messages.

## Setting Up Direct Allocations

Use EMT's direct allocation feature to make a preliminary inventory allocation in the SBU's MFG/PRO database when you generate the original primary sales order. When the SBU imports your EMT PO to create a secondary sales order, the system automatically converts this preliminary allocation to a standard general allocation.

▶ See "Setting Up EMT" on page 255.

For direct allocations to work, make sure the following conditions are met in the setup data. These setup tasks are in addition to the setup required for any EMT environment. For example, you must also set up customer, site, and item records, as well as the trading partner data required to transmit electronic business documents in EDI ECommerce.

### At the PBU

- In Site Maintenance (1.1.13), set up an additional site record to represent the SBU when you are making direct allocations.
  - In the Database field, enter the name of the connected SBU database.
  - Leave EMT Supplier blank.
  - Set External Supplier to Yes.

When you enter a sales order line that allocates inventory directly from another database, you change the Site field in the EMT pop-up to this site. This allows you to make a preliminary allocation in the specified database.

- In Supplier Maintenance (2.3.1), create a supplier master record for this site.
- In Sales Order Control (7.1.24), set Direct Allocation to Yes.

### At the SBU

- In Site Maintenance, set up site records that match both the default supplier site and the direct allocation (connected database) site at the PBU.

In both records, leave EMT Supplier blank and set External Supplier to No.

- In Customer Maintenance (2.1.1), create a customer record to represent the PBU.

## Setting Up EDI ECommerce to Support EMT

Before you can begin processing EMT transactions with ECommerce, you must have the following data set up for each type of EMT EDI document in the database of each trading partner that will process ECommerce data:

- EC subsystem definition
- Exchange file definition
- EC subsystem/exchange file cross-reference

▶ See *User Guide Volume 7: Release Management* for EDI ECommerce setup information.

- MFG/PRO document definition
- Implementation definition
- Transformation definition

▶ See *User Guide Volume 7: Release Management* for information on these programs.

In addition, you must have trading-partner data defined using the following programs. Depending on how you use EDI ECommerce, you already may have defined much of the required setup data.

- Transmission Group Maintenance (35.13.13). Specify default destination directories for exported files.
- Trading Partner Maintenance (35.13.7). Set up site and address cross-references, as well as references to document transformation definitions needed to transmit EMT documents.
- Trading Partner Parameter Maint (35.13.10). Set control fields that let you export EMT-specific documents to the trading partner.

## Using Standard EMT

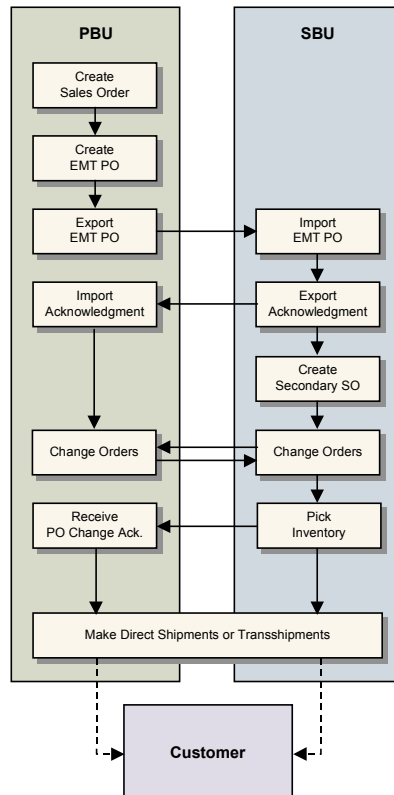
▶ See “Setting Up EMT” on page 255.

You can start processing EMT sales orders only after you have set up all the control and master programs to establish EMT functionality. This section describes the process flow for EMT orders, which is summarized in Figure 8.11.

▶ See page 295.

Throughout this section, references to importing and exporting documents assume you are using EDI ECommerce to exchange EMT business documents with your trading partners.

**Fig. 8.11**  
EMT Process Flow



## Creating an EMT Sales Order

Create EMT sales orders in Sales Order Maintenance (7.1.1) or by importing your customer's PO with EDI ECommerce. The system identifies an EMT sales order line by retrieving the EMT type setting from records associated with the customer, item, item/site, or Sales Order Control. The order the system uses to determine the EMT type is defined in Sales Order Control.

The system automatically determines the default supplier for an item from item-site, item, or site information. Once the site has been entered and a default supplier established, you can override the default and choose another supplier. When the sales order has been confirmed, the system automatically builds the purchase orders and queues them for transmission.

♦ See "Deferring the Creation of an EMT Purchase Order" on page 275.

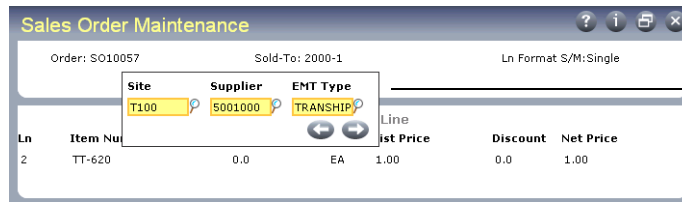
You must enter a PO number if the PO Required field in Customer Maintenance (2.1.1) is Yes for your customer. If the PO Required field is No and you do not enter a PO number, a warning displays indicating that a PO number is required for EMT sales order processing.

See “Setting Up Sales Order Control” on page 263.

Based on master records and settings in Sales Order Control, the system displays the default supplier and EMT type. Sales order line data includes the Supplier and EMT Type fields only when Use Enterprise Material Transfer is Yes in Sales Order Control.

**Important** When you enter a sales order for an EMT item, you must enter data in single-line mode. Otherwise, EMT Type defaults to non-EMT and the system does not automatically generate a PO for the supplier.

Fig. 8.12 Sales Order Line



EMT type and default supplier display for each sales order line.

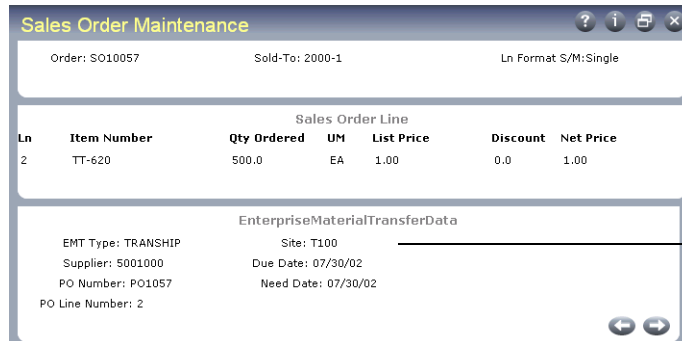
When the sales order line is complete, the system automatically creates an EMT purchase order and queues it for transmission to the SBU. EMT PO details display in the Enterprise Material Transfer Data frame.

You can specify a different supplier for each line of a multiple-line sales order. Additionally, you can enter non-EMT and EMT items on different lines of the same sales order.

See page 275.

**Note** Purchase orders are generated only for confirmed sales order lines.

Fig. 8.13 Enterprise Material Transfer Data Frame



EMT PO data displays in this frame.

## Direct Allocations

When you enter an EMT item on a sales order and the setup has been done correctly, you can change the default site to the site established for the SBU's connected database. The system automatically changes the supplier to the one defined for the SBU's database. The quantity specified is then assigned a preliminary allocation in the SBU's database.

▶ See "Setting Up Direct Allocations" on page 266.

After you export the resulting EMT PO and the SBU imports it as a secondary sales order, the SBU's system converts the preliminary allocation into a general allocation to the secondary sales order.

## Credit Held Orders

The way credit-held sales orders are transmitted from the PBU to the SBU is determined by two fields:

- EMT Credit Flow in Customer Maintenance (2.1.1) for the sold-to customer on the primary sales order. This setting determines whether credit data for the customer is exported to the SBU.
- Send Credit Held SO in Supplier Maintenance (2.3.1) for the EMT supplier on the primary sales order. This setting determines whether the supplier is authorized to receive EMT purchase orders generated from credit-held sales orders.

Table 8.2 summarizes the effects of the combinations of these fields.

EMT Credit Flow	Send Credit Held SO	Effect
Yes	Yes	PO is exported to PBU. If primary SO is on credit hold, secondary SO is on credit hold.
Yes	No	PO is not exported to PBU.
No	No	PO is not exported to PBU.
No	Yes	Purchase order is exported to PBU. Secondary SO is not on credit hold, even if primary SO is.

**Table 8.2**  
EMT Credit Flow

When a supplier is not authorized to receive credit-held orders, EMT still automatically generates purchase orders. However, they are not queued for transmission until the credit hold is cleared.

The trailer frame of the sales order indicates whether an order is on credit hold. If the Action Status field has any value other than blank, the order is on hold.

### Calculating Due Dates

EMT calculates sales order and purchase order dates as follows:

- Unless specified otherwise, all due date calculations are the same for transshipments and direct shipments.
- Inspection lead time calculations use the shop calendar.
- Promise date calculations occur only during entry of a new sales order line. If components in the promise date calculation change, you must delete and reenter the sales order line.
- Inspection lead time is calculated only if Inspect is Yes for the item in the Item Planning Data frame of Item Master Maintenance or Item-Site Planning Maintenance.
- Customer shipping lead time applies only to transshipment orders, with the following exception. If an SBU has the end customer in its database with a customer shipping lead time, that lead time is included in date calculations.
- There is no adjustment for past-due purchase orders. If the sales order due date is already past due, the resulting purchase order will also be past due.
- PO performance date may not allow enough time for purchasing lead time in certain situations.

Table 8.3 summarizes the formulas for due date calculations at the PBU.

**Table 8.3**  
Formulas for Due  
Date Calculations  
at the PBU

<b>Date</b>	<b>Calculation</b>
SO line due date	User enters this date.
SO line required date	User enters this date.
SO line promise date (transshipments only)	Today + purchasing LT + inspection LT + shipping LT + customer shipping LT

Date	Calculation
SO line promise date (direct shipments only)	Today + purchasing LT
PO line need date	SO line due date
PO line due date (transshipments only)	SO line due date – inspection LT
PO line due date (direct shipments only)	SO line due date
PO line performance date	PO line due date

Table 8.4 summarizes the formulas for due date calculations at the SBU.

Date	Calculation
SO line required date	PBU PO due date
SO line due date (transshipments only)	PBU PO due date – Customer shipping LT
SO line due date (direct shipments only)	PBU PO due date
SO line promise date	SO line required date

**Table 8.4**  
Formulas for Due  
Date Calculations  
at the SBU

### Due Date Changes Originating at the PBU

Changing the SO line due date on an EMT order at the PBU queues a PO change for transmission to the SBU. When the change is executed, the following dates are recalculated at the PBU using the rules described previously:

- PO line need date
- PO line due date
- PO line performance date

When the change is imported at the SBU, the change is automatically applied and the following dates are recalculated using the rules in the previous tables:

- SO line required date
- SO line due date

### Due Date Changes Originating at the SBU

If the promise date is changed on the secondary sales order at the SBU, the change is queued for export to the PBU as a PO Change Acknowledgment. The only date that changes at the SBU is the promise date. However, when the PBU imports and accepts the change, the following dates are recalculated:

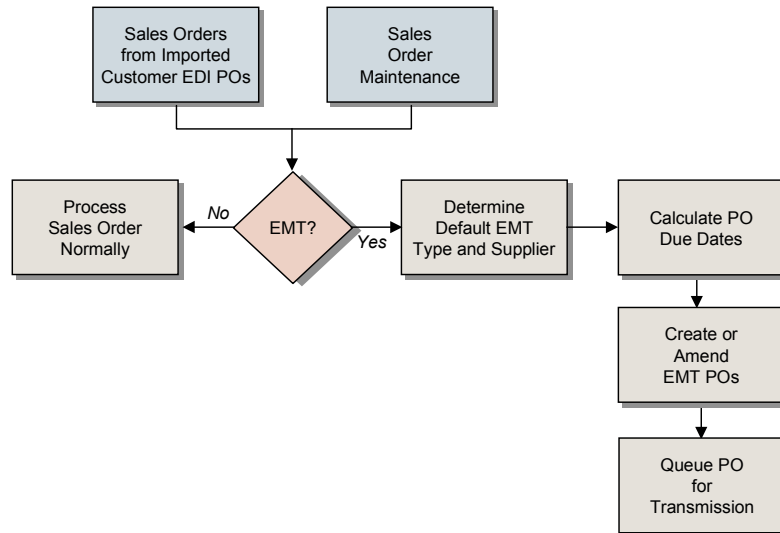
- PBU PO line due date is set to the new promise date.
- PBU PO line need date is offset from the new PO line due date.
- PBU PO line performance date is set to the new PO line due date.
- SO line due date is set to the new PO line due date.

In multilevel EMT, the middle-level business units set the SO line due date, SO line required date, and the SO line promise date to the new SO line performance date originating from the lower-level business unit.

### Creating the EMT Purchase Order

An important advantage of EMT is its ability to generate purchase orders from confirmed sales orders automatically. Figure 8.14 summarizes the EMT purchase order process, which takes place automatically when you enter a confirmed sales order.

**Fig. 8.14**  
Creating an EMT  
Purchase Order



When a sales order is confirmed at the PBU, the system checks control program and master-table values to determine whether EMT processing is required. If it is, the system calculates the EMT due date, creates an EMT purchase order, and queues the PO for export to the appropriate SBU.

**Note** When you create an EMT sales order with multiple lines and multiple suppliers, the system combines the lines into a single, multiple-line purchase order for each supplier. If multiple lines represent the same item, the PO has each line item quantity on a different line. If order lines for one supplier are on separate sales orders, the system maintains a separate purchase order for each sales order.

The system creates or maintains a sales order based on an imported EDI document. An EDI document contains PO information used to create sales orders at an SBU.

### Deferring the Creation of an EMT Purchase Order

To prevent automatic EMT processing from starting immediately on sales orders, create or import the sales orders as unconfirmed.

- When you enter a sales order manually in Sales Order Maintenance (7.1.1), set Confirmed to No. You can set the default for all new sales orders in the Confirmed Orders field of Sales Order Control (7.1.24).
- When you import the end customer's purchase order using EDI ECommerce, set Confirmed EMT SO to No for that customer in Customer Maintenance (2.1.1).
- To create an unconfirmed secondary sales order from the PBU's imported purchase order, set Confirmed EMT SO to No in the PBU's record in Customer Maintenance.

In either situation, if an EMT sales order is unconfirmed, EMT processing does not begin until you confirm it using Sales Order Confirmation (7.1.5). This creates the corresponding EMT purchase order and queues it for export.

## Printing the EMT PO

Use Purchase Order Print (5.10) to print the EMT purchase order at the PBU. If Use SO Reduction Price in Supplier Maintenance is Yes and a sales order reduction percentage is specified, the price discount appears on the PO. This pricing information is also exported to the SBU if Send SO Price is Yes for the supplier.

## Exporting the EMT PO from the PBU

▶ See “Communicating EMT Documents with EDI” on page 295.

In a very simple EMT environment where you use EMT only to generate the initial purchase order and do everything else manually, you can just mail or fax the printed purchase order to the supplier. However, in a fully automated EMT environment, you use ECommerce EMT Manager (35.22.13) to export the EMT purchase order from the PBU.

▶ See “Credit Held Orders” on page 271 for more information.

If the sales order is on credit hold and Send Credit Held SO is Yes in Supplier Maintenance, the PO is sent to the SBU. If EMT Credit Flow is Yes in Customer Maintenance for the end customer, the resulting SBU sales order is placed on hold at the SBU.

## Importing the EMT PO into the SBU

▶ See “Transmission Status” on page 282.

The SBU uses ECommerce EMT Manager to import the created EMT PO. When it has created a confirmed secondary sales order from the PBU’s purchase order, the SBU sends an acknowledgment to the PBU. The PBU imports the PO acknowledgment and the system changes and registers the transmission status.

The PBU cannot modify the primary sales order until it receives an acknowledgment from the SBU unless Require Acknowledgments is set to No in Purchasing Control (5.24) at the PBU.

## Modifying an EMT Order

You can make certain types of changes at both the PBU and the SBU during the EMT process. For example, the PBU’s customer that created the original demand might want to change the quantity of an item.

Types of acceptable changes depend on three factors:

- The business unit within the EMT supply chain that generates the change
- The status of the order within the overall EMT process
- The settings of status-related fields in Sales Order Control

### Modifying a Sales Order at the PBU

Based on related settings in Sales Order Control, you may be able to modify the primary sales order line after a PO acknowledgment has been received even after one of the following occurs at the SBU:

▶ See “Shipment Status” on page 282.

- The order is picked.
- An order for a configured item is released to a work order.
- The order is shipped.

### Change Records

To manage changes made to the primary SO, the system uses change records. Once a sales order is created, transmitted, and acknowledged, any changes made to it generate a change record, which is queued for transmission to the SBU. These records are called *pending changes* and stay on the primary system pending acknowledgment from the SBU.

EMT sales order lines can be modified as long as no pending changes are present on the system for the corresponding PO. Changes made to a sales order are applied immediately to that sales order, and corresponding POs are also modified. The superseded PO values are recorded in the change record. If the PBU rejects the changes, the system rolls back the values to those stored in the record.

To automatically accept supplier change requests at the PBU, set Auto Accept Supplier Changes to Yes in Sales Order Control (7.1.24).

When a change record contains values for fields you are editing at the PBU, the system prompts you to use change request values. If you respond Yes, the system displays the change request values in frames where they are used. When you confirm a frame, the related change records are deleted.

If you choose not to apply change record values, run Manual Acknowledgment Resolution (35.22.1) or Supplier Change Rejection Maintenance (35.22.2) to reject the values.

If you choose No when prompted to use change request values, the current sales order line cannot be modified.

When you change a sales order line, conditions for acceptance of these modifications depend on the status of the EMT purchase order. Table 8.5 shows the rules.

**Table 8.5**  
PBU Changes

PBU SO Changes	Current State of EMT PO			
	PO Not Transmitted	PO Transmitted	PO Acknowledged	Shipped, Picked, or Released to WO
Delete SO.	Delete SO. Record PO changes.	Delete SO. Cancel PO. Send EDI message.	Delete SO. Record PO changes. Cancel PO. Send EDI message.	Not allowed for direct shipments. For trans-shipments, ask if user wants to delete SO references from PO.
Delete SO line.	Delete SO line. Delete SO if no remaining line. Record PO changes. Cancel PO line. Cancel PO if no remaining line.	Delete SO line. Delete SO if no remaining line. Delete PO line. Delete PO if no remaining line. Send EDI message.	Delete SO line. Delete SO if no remaining line. Record PO changes. Cancel PO line. Cancel PO if no remaining line. Send EDI message.	Not allowed for direct shipments. For trans-shipments, ask if user wants to delete SO references from PO.
Modify site. (trans-shipment only)	Cancel PO line. Open new PO line. Record PO changes.	Apply to PO. Send EDI message.	Cancel PO line. Open new PO line. Record PO changes.	Not allowed.

PBU SO Changes	Current State of EMT PO			
	PO Not Transmitted	PO Transmitted	PO Acknowledged	Shipped, Picked, or Released to WO
Modify EMT type.	Cancel modified PO line, if changing EMT type to other type. Record PO changes. Open new PO line, if new type is an EMT type.	Delete PO, if changing from EMT type to normal type. Delete modified PO line, if changing EMT type to other type. Create new PO line, if changing from any type to other EMT type. Send EDI message.	Cancel modified PO line, if changing EMT type to other type. Record PO changes. Open new PO line if new type is an EMT type. Send EDI message.	Not allowed.
Modify quantity ordered.	Record PO changes.	Apply to PO. Send EDI message.	Record PO changes. Send EDI message.	Not allowed.
Modify due date.	Record PO changes.	Apply to PO. Send EDI message.	Record PO changes. Send EDI message.	Not allowed.
Change supplier after SO entry.	Cancel PO line. Open new PO line. Record PO changes.	Cancel PO line. Open new PO line. Send EDI message.	Cancel PO line. Open new PO line. Record PO changes. Send EDI message.	Not allowed.
Add SO line.	Add line to PO or create new PO. Record PO changes.	Add line to PO or create new PO. Send EDI message.	Add line to PO or create new PO. Record PO changes. Send EDI message.	May be allowed based on SO Control. See “Shipment Status” on page 282.

PBU SO Changes	Current State of EMT PO			
	PO Not Transmitted	PO Transmitted	PO Acknowledged	Shipped, Picked, or Released to WO
Change credit status after SO entry.	Record PO changes.	Apply to PO. Send EDI message.	Record PO changes. Send EDI message.	Not allowed.
Change other sales order fields.	Record PO changes.	Apply to PO, if appropriate. Send EDI message if required.	Apply to PO, if appropriate. Send EDI message if required.	May be allowed based on SO Control. See “Shipment Status” on page 282.

### Changing the Credit Hold Status

◆ See “Credit Held Orders” on page 271.

All changes influencing the credit hold status of a sales order are applied to the corresponding EMT purchase orders, and changes are then queued for export. These changes may originate from:

- Sales Order Credit Maintenance (7.1.13)
- Sales Order Auto Credit Hold (7.1.16)
- Sales Order Auto Credit Approve (7.1.17)

### Changing the Supplier

You can change the EMT supplier code associated with an EMT sales order line in Sales Order Maintenance (7.1.1). This cancels the existing EMT PO, creates a new PO for the new supplier, and queues the cancellation and the new PO for export.

Similarly, you can use EMT Mass Supplier Change (7.1.22) to cancel *all* EMT POs for a supplier and issue new POs for a replacement supplier.

### Modifying a Sales Order at the SBU

The following changes at the SBU are transferred to the PBU:

- Quantity ordered
- Due date, entered at SBU as change to Promise Date

These modifications are recorded in a change management record, and adjustments to satisfy the demand are exported to the PBU. The PBU imports the modifications as a change request from the SBU.

The PBU either accepts the requested changes when prompted to do so in Sales Order Maintenance or rejects them using Supplier Change Rejection Maintenance (35.22.2).

To have the PBU's system automatically accept date and quantity change requests received from the SBU, set Auto Accept Supplier Changes to Yes in Sales Order Control (7.1.24).

## Status Tracking

The PBU maintains two forms of status tracking data related to EMT purchase orders. You can view both with EMT Tracking Report (7.15.11):

- Transmission status
- The SBU's shipping status

Ln	Item Number	SO Due Date	PO Nbr	Ln	Trans	PO Due Date	Promised	SS
1	33-100	07/29/02	NY41090	1	3	07/29/02	07/29/02	P
Qty Ordered	Qty Picked	Qty Shipped	Qty to Invoice	Qty Rec	Qty Open			
1.0	0.0	0.0	0.0	0.0	1.0			

Transmission Status —                      Shipping Status —

**Fig. 8.15**  
EMT Tracking  
Report Output

### Transmission Status

The transmission status displays in the Trans column of the tracking report. For example, when the PBU imports the PO acknowledgment, the transmission status changes from 2 to 3.

**Table 8.6**  
Transmission  
Statuses of EMT  
Sales Orders

Status	Action
1	The EMT purchase order is created and queued for transmission.
2	The EMT purchase order is pending receipt acknowledgment from the SBU.
3	Receipt of the EMT purchase order is acknowledged.
4	Awaiting receipt of change acknowledgment from the PBU.
5	A pending change to the EMT PO is awaiting acknowledgment from the SBU.

### Shipment Status

Some programs modify the status of a secondary sales order at the SBU:

- Sales Order Release to Work Order (8.13)
- Picklist/Pre-Shipper Automatic (7.9.1)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Pre-Shipper/Shipper Confirm (7.9.5)

When an order is picked or, in the case of a configured product, released to a work order, the SBU queues a PO change acknowledgment for export to the PBU. When the SBU ships the order, it exports either an ASN or a PO change acknowledgment, based on its trading policy with the PBU. When one of these documents is received, the EMT PO's status change is reflected at the PBU.

The SS column of the tracking report represents a shipment status, which is communicated to the PBU by PO change acknowledgments sent by the SBU.

**Table 8.7**  
Ship Statuses of  
EMT Sales Orders

Status	Action
blank	No status change has been received from the SBU.
W	A configured item has been released to a work order.
P	Inventory has been allocated and picked at the SBU.
S	The SBU has shipped the items.

Whether or not the PBU can make changes to the primary sales order and have them accepted by the SBU after a status change is determined by the related setting in Sales Order Control and by the nature of the change.

### Manual Acknowledgment

During EDI communications, requests can be sent simultaneously from the primary and secondary business units, causing potential acknowledgment conflicts. In this case, use Manual Acknowledgment Resolution (35.22.1) to replace the automatic acknowledgments.

**Example** Allow Mod/Del When SO Picked is Yes in Sales Order Control at the PBU. The PBU is allowed to change some fields, such as Commission, on the primary sales order line after importing a status change of P—indicating that the SBU has already picked the item. However, the PBU cannot change certain other fields on the primary sales order line—the quantity, for example.

### Picking Inventory at the SBU

At the SBU, use Picklist/Pre-Shipper–Automatic (7.9.1) to pick and allocate inventory to the sales order. This creates a change management record that is exported to the PBU as a PO change acknowledgment.

When the PBU imports the PO change acknowledgment, the status of the EMT PO changes to P, indicating that inventory has been allocated and picked at the SBU.

When the original sales order at the PBU is for a configured product, and it is released to a work order in the SBU, another change record is created. When it is imported by the PBU, the order line status changes to W, indicating that the SBU order has been released to a work order and is in process.

Depending on how Sales Order Control is set, the PBU may no longer be able to make changes to its own sales order for the end item after one of these status changes takes place.

♦ See “Shipment Status” on page 282.

## Shipping Inventory from the SBU

Shipment and receipt processing vary slightly for transshipments and direct shipments.

EMT shipments are processed using Picklist/Pre-Shipper–Automatic (7.9.1) or Pre-Shipper/Shipper Workbench (7.9.2) and Pre-Shipper/Shipper Confirm (7.9.5) rather than Sales Order Shipments (7.9.15). This triggers a change record that is exported to the PBU either as an ASN or a PO change acknowledgment, based on the SBU’s trading policy with the PBU.

- For transshipments, the SBU ships the order to the PBU.
- For direct shipments, the SBU ships the order directly to the PBU’s end customer. When the sales order is created from the EMT PO at the SBU, the ship-to address becomes the end customer’s address. The end customer’s address is provided to the SBU by the imported EDI file.

The SBU creates the address as a temporary ship-to address for the PBU. This way, when the SBU ships its items, they go directly to the end customer, bypassing the PBU. Only the ASN generated during this process is sent to the PBU. When Closed AR Delete/Archive (27.23) is run at the SBU, temporary ship-to addresses are deleted.

If the PBU has used Customer Item Maintenance (1.16) to set up cross-references between its own item numbers and those used by its end customers, the customer’s item number prints on shipping documents produced by the SBU.

In either case, the SBU has now finished the EMT order processing cycle and can invoice the PBU.

When the PBU imports the ASN from the SBU, the ASN automatically creates a PO shipper for the order. The PO shipper number is the same as the SO shipper number at the SBU. The EMT Tracking Report shows that the status has changed to S, indicating that the SBU has shipped the items.

▶ See “End Customer Item Numbers” on page 263.

## Receiving Inventory at the PBU

EMT inventory receipt processing varies based on the type of shipment—direct or transshipment. In both cases, the PBU uses PO Shipper Receipt (5.13.20) to receive the inventory:

- On transshipments, the PBU uses PO Shipper Receipt to receive the inventory and automatically allocate it to the primary sales order. This ends the EMT cycle. The PBU then creates a shipper for the end customer’s order, ships the inventory, sends the end customer an ASN if required, and invoices the customer.
- After importing the ASN on a direct shipment, the PBU can receive the PO immediately in PO Shipper Receipt.

**Note** Depending on the setting of Auto PO Shipper Receipt in the SBU’s Supplier Maintenance record, the PBU can receive the PO automatically when the ASN is imported for a direct shipment item. In that case, it is not necessary to use PO Shipper Receipt.

The inventory is received at the direct shipment location (specified in Sales Order Control) and an ISS-SO transaction is completed. The primary sales order is shown as shipped and the direct shipment location is cleared. This ends the EMT cycle; normal sales order processing now begins. The PBU can use transaction history records to determine the sales order shipper number. It can then use this number to generate an ASN and invoice the customer.

♦ See “Setting Up Supplier Profiles” on page 257.

**Tip**  
In this situation, no real inventory exists at the direct shipment location. It must have a non-nettable status to prevent MRP from using the items for planning.

## Using Multilevel EMT

In EMT, a multilevel organization is one with a top level, one or more middle levels, and a bottom level. The top level, or level 1, is equivalent to the PBU in standard EMT. The bottom level, or level 3, is equivalent to the SBU. The middle level (level 2) is where most multilevel EMT processing occurs.

Although multilevel EMT involves complex transactions, most are processed automatically, with minimal user intervention. Once the system has been set up for multilevel EMT sales order processing, you create and modify sales orders in the same way you do using standard EMT.

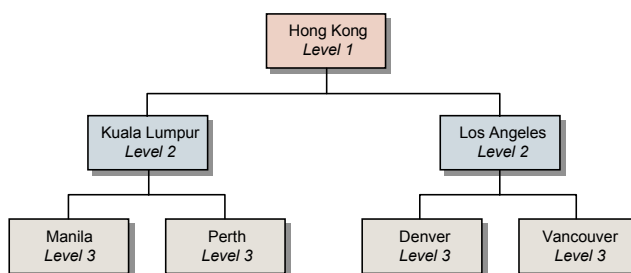
**Tip**  
A level 2 EMT sales order is both a secondary sales order to a level 1 business unit and a primary sales order to a level 3 business unit.

The Auto EMT Processing field activates multilevel EMT. This field appears in:

- Item Master Maintenance (1.4.1)
- Item-Site Planning Maintenance (1.4.17)
- Supplier Maintenance (2.3.1)
- Sales Order Control (7.1.24)

When supported by EDI ECommerce, multilevel EMT can handle orders across multiple levels of an organization.

**Fig. 8.16**  
Multiple Levels  
Within an  
Organization



**Tip**  
There can be a mix of level 1, level 2, and level 3 sales orders residing in the same EMT database at the same time.

In Figure 8.16, suppliers, items, and item-sites are set up in such a way that a line item on an EMT sales order received from Hong Kong at Kuala Lumpur automatically creates an EMT purchase order at another level (Manila or Perth). The system uses control and master data to determine that the database has been set up for EMT order processing and is designated as a multilevel EMT business unit.

## Organizational Roles at Multiple Levels

Each level plays a different role in multilevel EMT order processing.

- Level 1. Like the PBU in standard EMT, this is the level where EMT orders originate.
- Level 2. There can be any number of level 2 sites, depending on the characteristics of the supply chain. Most multilevel processing occurs at level 2 sites. A level 2 EMT sales order is both:
  - A secondary sales order to a level 1 business unit, and
  - A primary sales order to a level 3 business unit.

- Level 3. These sites are like SBUs in standard EMT. At level 3, there are no processing differences between multilevel and standard EMT.

## Multilevel Restrictions

Multilevel EMT is restricted as follows:

- It works only in an EDI environment.
- Reports provide information from one level to another for EMT purchase orders and sales orders, but not across multiple levels.
- Credit flow can cross only one level.
- Configured items must have the same configuration across all levels within the supply chain.
- Change management is communicated level by level, one level at a time for some changes, and automatically for other changes. For example, a change at level 1 is automatically accepted at level 3 unless the order is picked, released to a work order, or shipped. If a change made at a lower level is rejected by an upper level, the orders are compromised and must be resolved manually.
- ASNs are processed through the original supply chain. For example, an ASN cannot be processed from a level 3 site directly to the end customer.
- If there is an error creating the secondary sales order at a lower level, the originator of the purchase order must open a new PO with correct data and reexport it.

## Setup Considerations

You can control the extent to which multilevel sales orders are processed manually or automatically. An automatic SO process is appropriate when a business unit has well-defined links in the item supply chain. For example, an item may always be supplied by the same supplier. A manual SO process is appropriate when the supplier of a particular item varies from order to order.

Multilevel EMT supports automatic, manual, or a combination of automatic and manual sales order processing, depending on the requirements of the business units. This is achieved by providing controls at four key points in the EMT sales order processing cycle:

- An Auto EMT Processing field in Item Master Maintenance (1.4.1) determines whether EMT orders related to the item are created automatically.
- An Auto EMT Processing field in Item-Site Planning Maintenance (1.4.17) determines whether EMT orders related to the item-site are created automatically.
- An Auto EMT Processing field in Supplier Maintenance (2.3.1) determines whether EMT orders related to the supplier are created automatically.
- An Auto EMT Processing field in Sales Order Control (7.1.24) determines whether the creation of an EMT sales order across multiple levels is automated within the database.

Several other differences between standard and multilevel EMT are discussed in the following sections.

## Maintaining Sales Orders

You cannot add a new line to a secondary EMT sales order at a level 2 business unit. The only changes allowed at a level 2 business unit are the supplier and/or EMT shipment type.

Sales order lines can be deleted at any level. The effect of deleting an EMT sales order line is to cancel the corresponding EMT purchase order. This is similar to changing an EMT supplier. In a multilevel environment, some purchase orders and sales orders may be stranded and must be resolved manually.

## Processing EMT Purchase Orders

A multilevel supply chain may use a combination of delivery methods to a customer. When this occurs, the EMT purchase order is referenced on the shipping documents, depending on the ship-to destination.

A sales order for a business unit that is at least two levels down may have three different purchase order references:

- The purchase order from the previous level that drove the demand
- The end customer's purchase order
- The purchase order for a ship-to destination

## Change Management

Changes flow through multiple levels of a supply chain. Some changes are automatic. For example, changes to quantities made by a level 3 supplier flow automatically through level 2 business units, for review at level 1. Others require manual processing. For example, a change in the due date made at level 3 requires a review at level 1.

▶ See “Change Records” on page 277.

There are three categories of change management involved when processing multilevel EMT sales orders:

- Changes to the quantity and due date on a sales order line.
- Changes to the EMT supplier or the EMT shipping type.
- Status changes triggered by activities to EMT orders at lower-level business units.

Change processing is different at each level within the supply chain.

- Quantity and due date changes can be initiated at level 1 and level 3 business units, but not at level 2 business units.
- Quantity changes are processed automatically through level 2 business units (top down and bottom up).
- Date changes are propagated automatically through level 2 business units.

- Status changes are propagated automatically through level 2 business units.
- Changes originating at a level 1 are automatically accepted at level 3.
- When a level 2 business unit receives an accept (or reject) message from a lower level business unit, the level 2 business unit acts on the message and passes the message up to the next level.

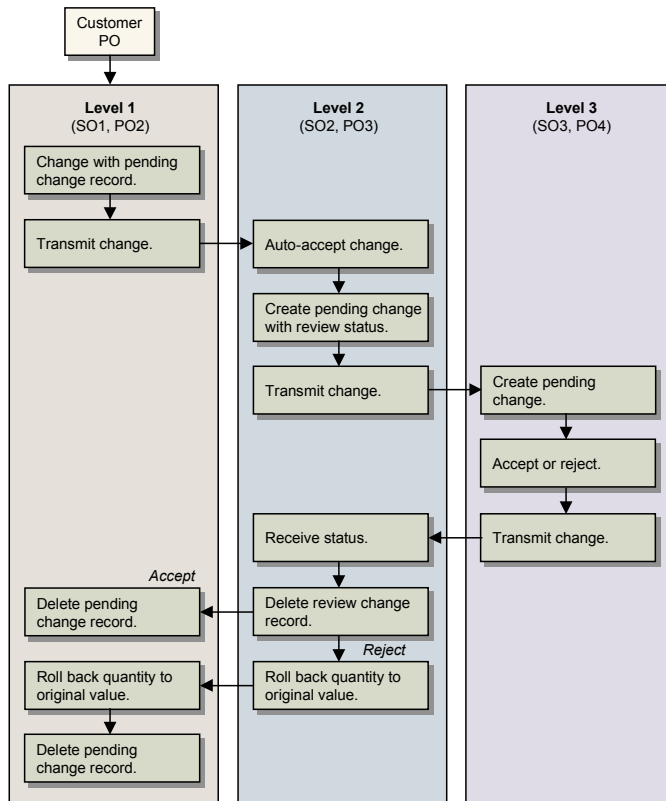
### **Quantity or Due Date Changes Initiated at Level 1**

Quantity or due date changes can only be initiated at level 1 or level 3 business units, not at a level 2 business unit.

If the quantity or due date change is initiated at level 1, a change record with a Pending status is created in Sales Order Maintenance and the record is queued for export. The change is sent to the level 2 business unit by exporting an EDI PO change document.

When the change is received at level 2, the level 2 business unit exports a PO change document to level 3. The level 3 business unit now creates a change record with a pending status.

Figure 8.17 shows the process flow for a quantity or due date change initiated at level 1.



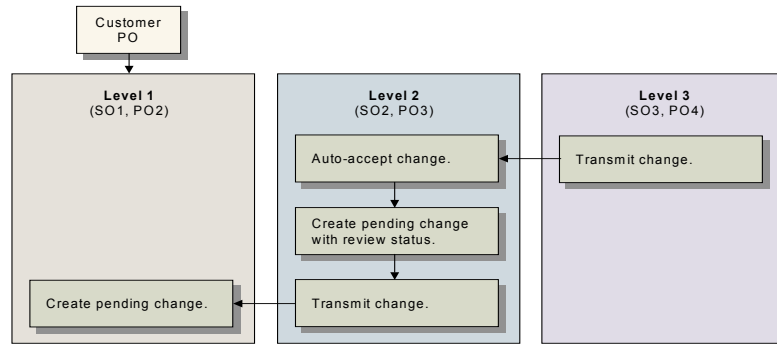
**Fig. 8.17**  
Quantity or Due  
Date Changes  
Initiated at Level 1

### Quantity or Due Date Changes Initiated at Level 3

If the quantity or due date change is initiated at level 3, the level 3 business unit exports a PO Change Acknowledgment to level 2. The level 2 business unit automatically accepts the change and exports a PO Change Acknowledgment to level 1. The level 1 business unit accepts or rejects the change. If it rejects the change, the order will be compromised and must be resolved manually.

Figure 8.18 shows the process flow for a quantity or due date change initiated at level 3.

**Fig. 8.18**  
Quantity or Due  
Date Changes  
Initiated at Level 3



### Status Changes

▶ See Table 8.7 on page 282.

Status changes occurring when an order is picked, shipped, or released to a work order can only be initiated at a level 3 business unit.

If the level 3 business unit initiates a status change to its order, the changes are exported to the level 2 business unit by a PO Change Acknowledgment. The level 2 business unit automatically accepts the change and exports a PO Change Acknowledgment to level 1. Whether the PBU can make changes after receiving a status change is determined by settings in Sales Order Control.

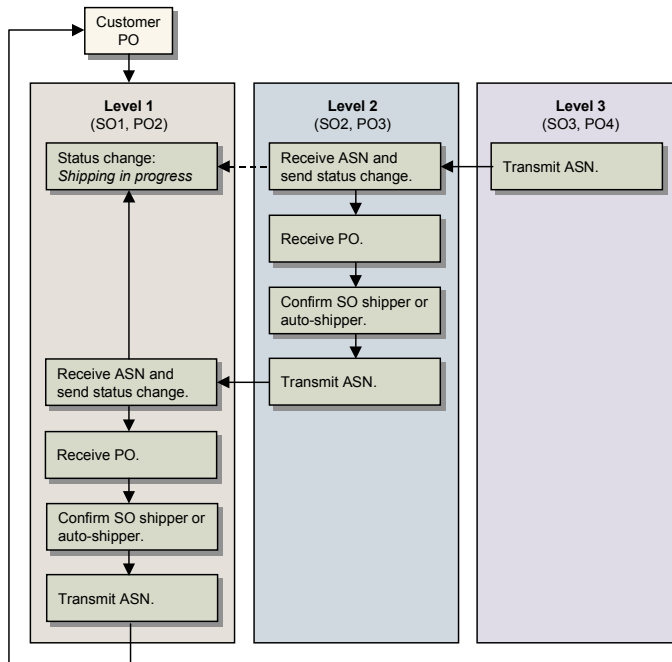
### Processing Advance Ship Notices (ASNs)

When an ASN is queued for receipt processing at a level 2 business unit, the level 1 business unit is notified that the shipment is in process. For direct shipments, the receipt of items automatically triggers the shipment to the next level. For transshipments, receipt of items does not automatically create a shipment, and the business unit at the next level up is notified of a pending shipment.

When an ASN for a transshipment is imported, a new change management status message is queued for export up to the next business unit. The message tells the next level that a downstream shipment has been processed.

If level 2 sends an ASN, the level 2 business unit also sends a status change message to level 1 so that the level 1 business unit knows it can make no further changes to the order.

Figure 8.19 shows the process flow for ASNs initiated at level 3.



**Fig. 8.19**  
ASN Processing,  
Initiated at Level 3

## Processing Supplier or Shipping Type Changes

Figure 8.20 shows the process flow for supplier or shipping type changes initiated at level 1.

**Fig. 8.20**  
Supplier or Shipping Type Changes Initiated at Level 1

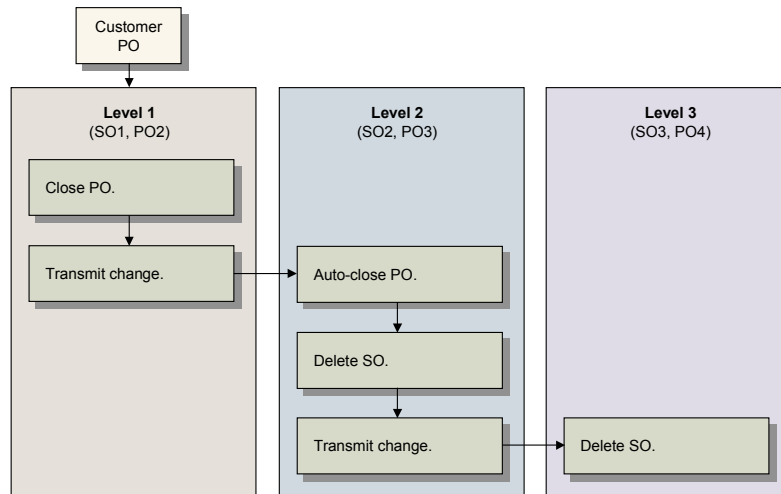


Figure 8.21 shows the process flow for supplier or shipping type changes initiated at level 2.

**Fig. 8.21**  
Supplier or Shipping Type Changes Initiated at Level 2

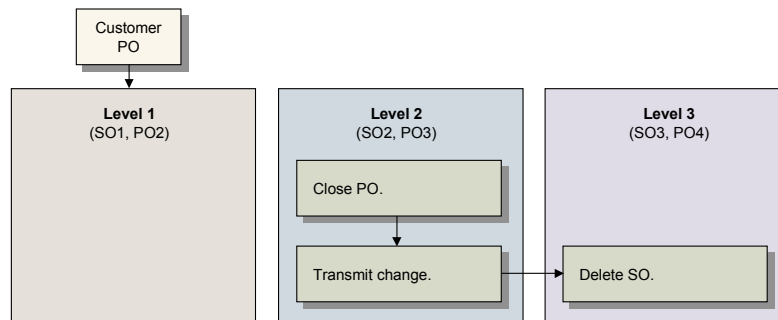
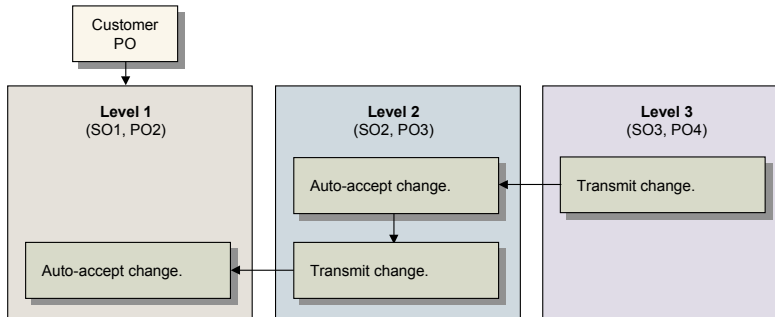


Figure 8.22 shows the process flow for supplier or shipping type changes initiated at level 3.



**Fig. 8.22**  
Supplier or  
Shipping Type  
Changes Initiated at  
Level 3

## Communicating EMT Documents with EDI

EMT begins at the PBU when you enter a confirmed sales order line for an item that has been set up for EMT processing. Either enter the sales order manually in Sales Order Maintenance (7.1.1) or use EDI ECommerce to import your customer's purchase order.

When the sales order is confirmed, EMT automatically generates the appropriate purchase orders, called EMT POs. You then use EDI ECommerce to export EMT POs to the supplier. When imported, these become secondary sales orders. In multilevel EMT, you can generate another purchase order from a secondary sales order, which is again exported to a lower level of the supply chain.

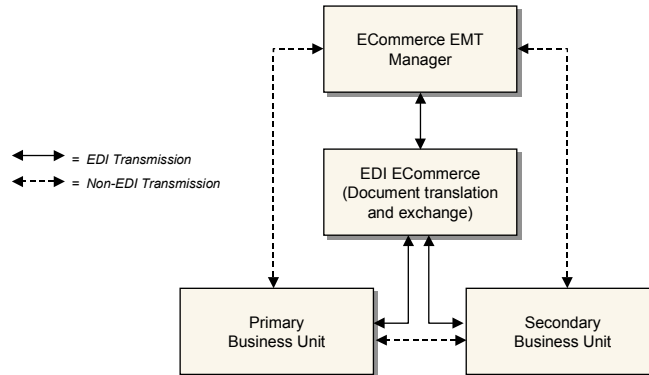
Throughout the life cycle of an EMT sales order, you exchange several other types of electronic documents with other business units:

- Purchase order acknowledgments
- Purchase order changes
- Purchase order change acknowledgments
- Advance ship notices (ASNs)

## EMT and EDI eCommerce

When you use EDI eCommerce to communicate EMT documents with your trading partners, eCommerce EMT Manager (35.22.13) lets you control processing of various types of EDI transmissions.

**Fig. 8.23**  
EMT Document  
Transmissions



## Exporting

When the system creates an EMT document such as a purchase order to be exported, it generates a record in the `trq_mstr` database table to indicate that the associated document is queued for export. When you run eCommerce EMT Manager or one of the individual export programs on the Document Export menu (35.4), the system scans the `trq_mstr` table for these records. Each export field set to Yes in eCommerce EMT Manager instructs the system to look for a different message type among existing `trq_mstr` records.

Several message types can be present in the `trq_mstr` table at the same time. Data is only exported if you specify Yes in the related field in eCommerce EMT Manager or run the associated program from the Document Export menu.

Table 8.8 lists the kinds of message types stored in `trq_mstr` records. The system searches for sequences in a logical order designed to minimize potential conflicts in EMT processing. The Seq column indicates the order in which data is exported.

Seq	Type	Message	Site
1	ORDRSP-I	PO Acknowledgment	SBU
2	ORDRSP-C	PO Change Acknowledgment (customer initiated)	SBU
3	ORDRSP-S	PO Change Acknowledgment (supplier initiated)	SBU
4	ORDERS	Initial PO	PBU
5	ORDCHG	PO Change	PBU
6	ASN	Advance Ship Notice	SBU

**Table 8.8**  
Use of Export  
Transmission  
Records

## Importing

When you set Import Documents to Yes in ECommerce EMT Manager, the system scans the specified import directory for files with appropriate extensions and then imports them in the sequence shown in Table 8.9. This sequence is logically designed to minimize potential conflicts during EMT processing.

Seq	Message
1	Initial PO
2	PO Acknowledgment
3	PO Change Acknowledgment (customer initiated)
4	PO Change Acknowledgment (supplier initiated)
5	PO Change
6	Advance Ship Notice

**Table 8.9**  
Import Sequence

## Using ECommerce EMT Manager

When you use ECommerce EMT Manager (35.22.13) to specify the types of EMT documents to export, the system looks for transmission records in the trq\_mstr table to determine which documents are queued for transmission. It then selects the documents in the database and performs the standard ECommerce load/transform/transfer process to create the EMT document in the export directory specified in Transmission Group Maint (35.13.13) for this trading partner.

**Tip**  
You can have any number of export fields, as well as Import Files, set to Yes at the same time.

Message types stored in `trq_mstr` are listed in Table 8.8 on page 297.

If you want to export only selected documents instead of all the documents of a specific type that have a transmission record in `trq_mstr`, several ECommerce programs let you specify selection criteria for EMT-related document types:

- Purchase orders: Purchase Order Export (35.4.9)
- Purchase order acknowledgments: PO Ack Export (35.4.5)
- Purchase order changes: PO Change Export (35.22.16)
- Purchase order change acknowledgments: PO Change Ack Export (35.22.15)
- Advance ship notices (ASNs): Shipment ASN Export (35.4.1)

After a document has successfully completed the transformation process, the system automatically deletes the associated record from `trq_mstr` so that the document cannot be accidentally selected again by ECommerce EMT Manager.

ECommerce EMT Manager also includes the timed-polling features offered by another ECommerce program—Export/Import Controller. By entering values in Polling Frequency per Hour and Hours of Polling, you can have the system automatically poll the import directory and the `trq_mstr` table for records or files to process.

To begin processing as soon as you execute the program, leave the two fields set to zero.

**Fig. 8.24**  
ECommerce EMT  
Manager (35.22.13)

The screenshot shows the ECommerce EMT Manager application window. The title bar reads "ECommerce EMT Manager". The window contains a form with the following fields and values:

- Polling Frequency per Hour: 0
- Hours of Polling: 0.00
- Export ASN: No
- Export PO: No
- Export PO Change: No
- Export PO Ack: No
- Export PO Change Ack: No
- Import Files: Yes
- Print Details: Yes
- Output:
- Batch ID:

Change these values to set up time-based automatic processing of selected EMT documents types.

To import files containing EMT documents, set Import Files to Yes. When the program runs either in real time or in timed-polling mode, the system looks in the import directory specified in ECommerce Control and begins processing any files it finds.

To select specific files from the import directory, use Document Import (35.1) from the EDI ECommerce menu.

**Tip**

You can have Import Files and any number of export fields set to Yes at the same time.



# Configured Products

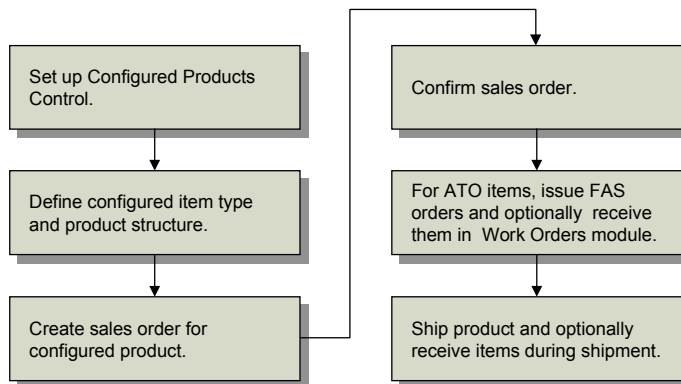
Configured products assume their final form based on customer specifications. For these products, standard components are joined with a relatively small number of options or accessories to create a variety of product combinations. This chapter explains how MFG/PRO supports configured products.

<i>Introduction</i>	<b>302</b>
<i>Defining Control Program Settings</i>	<b>303</b>
<i>Defining a Configured Product</i>	<b>305</b>
<i>Ordering a Configured Product</i>	<b>308</b>
<i>Issuing Final Assembly Orders</i>	<b>311</b>
<i>Shipping Configured Items</i>	<b>312</b>
<i>Master Scheduling</i>	<b>315</b>

## Introduction

A configured product, such as an automobile, allows many end-item combinations to be made from a relatively small number of assembly options. The Configured Products module lets you define and maintain configured products. It also works with standard MFG/PRO features to create orders for configured products, assemble them, and ship them to the customer.

**Fig. 9.1**  
Configured  
Products Task Flow



Configured products are assembled from lower-level items that can be master scheduled and made to stock. They should not be confused with products such as specialized scientific instruments or communication satellites, which are engineered to order. Actual production of configured products is controlled, not by a master schedule, but by an assembly schedule driven by customer orders. The master schedule is then focused on a manageable number of lower-level items.

There are two types of configured products: assemble to order (ATO) and kits. The configuration type determines how the product is managed in the system. ATO items are managed in the Work Orders module with final assembly (FAS) work orders. Kits can be shipped and backflushed in one step.

An *option* is a choice between two or more versions of a standard component. Using a car as an example, choice of engine size is an option. Nonstandard components such as stereos or antitheft systems are considered *accessories*. Options and accessories are organized into *feature groups* such as engine, transmission, or electronics.

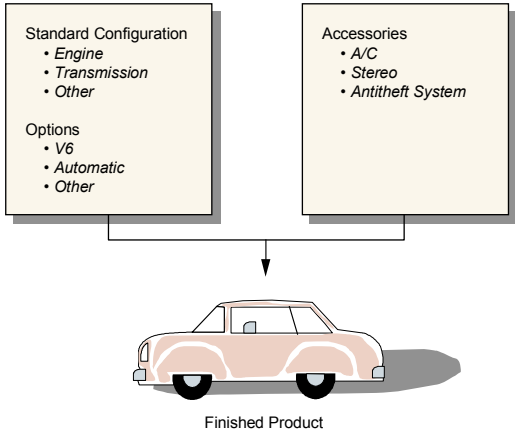


Fig. 9.2 Example Configured Product

## Defining Control Program Settings

Configured Products Control (8.24) determines the kind of transactions that can be used for final assembly (FAS) orders and how final assembly orders are created for items that require serial-number control.

FAS orders can only be created for configured items that have been defined as assemble to order (ATO) in Item Master Maintenance (1.4.1). Therefore, the first three control program fields apply to ATO items only.

See page 305.

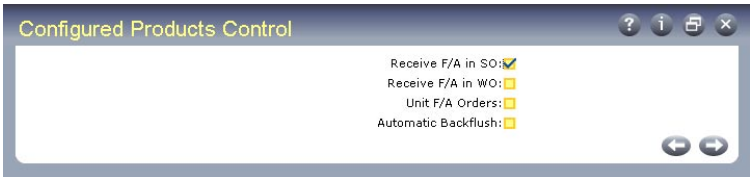


Fig. 9.3 Configured Products Control (8.24)

**Receive F/A in SO.** Enter Yes to have sales order shipments automatically record a receipt on final assembly work orders. This does not happen for unit final assembly orders, because the system cannot know which of several orders to complete.

**Receive F/A in WO.** If Yes, you can receive items from FAS orders using Work Order Receipt (16.11) or Work Order Receipt Backflush (16.12), maintaining complete component traceability for serial-numbered items.

**Tip**

These items have Lot/Serial set to S in Item Master Maintenance.

**Unit F/A Orders.** Set to Yes only when separate (unit) final assembly work orders, each with an order quantity of one, should be created for multiple quantity orders of a serial-controlled configured product. This option may be necessary if full lot/serial traceability is required for serialized products.

**Example** A computer manufacturer has an expensive line of high-performance workstations that are serial-number controlled. The internal disk drive is also serial numbered. To ensure that the service department knows exactly which disk drive is included in each unit, each multiple-unit sales order must be broken into individual work orders.

When Unit F/A Orders is No, the system supports lot/serial traceability of components to a group of configured assemblies but not to the individual serial number.

▶ See *User Guide Volume 8: Service/Support Management.*

If you are using the Service/Support Management module and track components of configured items in the installed base, this field should be set to Yes.

**Note** FAS orders for non-serial-controlled items are always created with a quantity equal to the line item quantity on the sales order, regardless of how Unit F/A Orders is set.

**Tip**

These items must be defined as kits.

**Automatic Backflush.** Determines whether the component issue transactions for configured items that are shipped without a final assembly order are created without having to enter shipment information for each sales order line.

If Yes, when you use Sales Order Shipments (7.9.15) or Pre-Shipper/Shipper Confirm (7.9.5) for an order with a configured item that does not have a final assembly order, a component issue pop-up displays so that you can automatically backflush components. If the default quantity is not available for each component of a configured item, you manually process that line.

## Defining a Configured Product

There are three aspects to defining a configured product:

- Setting up the parent item in Item Master Maintenance (1.4.1)
- Defining the base product structure for the item in Product Structure Maintenance (13.5)
- Defining feature sets in Configured Structure Maintenance (8.1)

### Set Up the Parent Item

Configured items are identified with a Purchase/Manufacture code of C (configured) in Item Master Maintenance. They must be further identified as either kits or assembled to order (ATO) in the Configuration field.

#### Kit Configuration Type

In some instances, such as packaging, assembly of a configured item involves no more than finding components and grouping them together as a final product. If the lead time to do this is a day or less, a copy of a confirmed sales order may be enough to track the packaging operation.

Define these items as configuration type kit. A kit is a set of items that are picked for shipment. No real assembly takes place. The configured item is not itself a physical entity—it only exists as a logical superset of its components. The configuration defines the content of a kit, and a shipment contains the end items that comprise the kit.

Kit items must be received during shipment. You cannot use final assembly orders to manage kits.

When you use Sales Order Shipments (7.9.15) or Pre-Shipper/Shipper Confirm (7.9.5) to ship a kit, you can backflush the components with the Issue Components pop-up. Set up this option in Configured Products Control.

▶ See “Automatic Backflush” on page 304.

#### Assemble-to-Order Configuration Type

ATO items require more significant assembly time than kits and are managed with a final assembly (FAS) work order. Use FAS orders for products that have moderate to long lead times and require picklists and

routings to control component issues and operation activity. The work orders provide visibility to material requirements planning, shop floor control, and capacity requirements planning.

The ATO item is a discrete end item in itself, produced from a combination of various components. In this case, the configuration defines components or ingredients of a finished product.

You cannot backflush components of an ATO item in shipping programs. Instead, you must issue the components to the FAS work order using Work Order Component Issue (16.10). Kit and ATO items can also be processed through the scheduled order programs, using the same component issue work flow as discrete sales orders.

## Define the Base Components

Some components are required for the basic product. These items are neither an option nor an accessory.

While there may be several ways to add such components, they are typically defined as standard components using Product Structure Maintenance. Set the Reference field to a value such as Base or Required.

The Structure Code for standard components remains blank, allowing the cost of the components to be rolled up to the top-level product. Components of a configurable product that are added as regular component items are automatically set up as mandatory and default items.

## Define Features and Options

Define configured products using Configured Structure Maintenance (8.1). This program has two sections. In the first, you identify the configured product, set up a feature code, and indicate whether the feature is mandatory. In the second, you identify options available for this feature. The system automatically identifies a configured item with an O (option) structure type.

The Mandatory and Default Option settings can be used together to define a *standard bill*. The standard bill represents the typical way the product is sold. During order entry, selecting the standard bill bypasses the configured product pop-ups.

**Fig. 9.4**  
Configured  
Structure  
Maintenance (8.1)

**Parent Item.** Enter the number of the configured item. The value of Purchase/Manufacture for the item in Item Master Maintenance must be C (configured).

**Feature.** Enter a code identifying a set of options. Options are known as a feature set. For example, a car may have more than one engine option. You can set up a feature code called Engine, with the available engine choices being options of that feature code. During order entry, the system prompts you to select components from each feature set.

**Mandatory.** This field lets you define standard configurations. Enter Yes to indicate that a feature is required for a configured item. During order entry, the system displays a warning if a mandatory option is not selected.

Enter No to exclude an item from a standard configuration. Such items are typically accessories.

**Component Item.** Enter the item number for each option available for this feature.

**Default Option.** Yes indicates that this item is normally selected when this feature is included on a sales order. If Yes and Mandatory is Yes, the item is included in the standard bill. If Yes and Mandatory is No, it determines the default component of a nonstandard feature group selected during order entry.

**Tip**  
This field corresponds to the Reference field in Product Structure Maintenance.

Enter Yes to have the system select the component item for the standard bill of material. For example, in the case of a car, make the most popular engine model the default option.

**Quantity Per.** Enter the quantity of the component item normally used in the configured product. During order entry, the component quantity per is multiplied by the sales order quantity to determine the suggested quantity to select on the configuration. It can be changed manually.

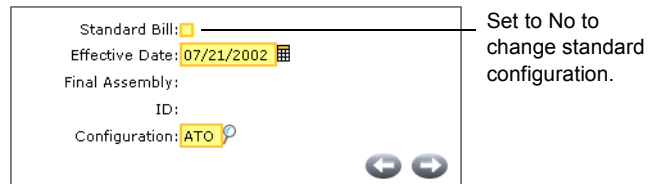
The system creates a standard bill of material for items with Yes in both the Mandatory and Default Option fields. When you create a sales order for the configured product, you can use the standard bill of material or select individual components.

## Ordering a Configured Product

See “Creating Sales Orders” on page 108 for more information.

Enter sales order information in Sales Order Maintenance (7.1.1) just as you would for a regular product. When you enter a configured line item—one with a Purchase/Manufacture code of C in Item Master Maintenance—a pop-up window appears.

**Fig. 9.5**  
Configured Item  
Pop-Up



Standard Bill:  Yes

Effective Date: 07/21/2002

Final Assembly: ID:

Configuration: ATO

Set to No to change standard configuration.

**Standard Bill.** Enter Yes to have the system automatically configure the item with all its mandatory, default options. Enter No to define a bill of material.

**Tip**  
Enter start and end effective dates in Configured Structure Maintenance (8.1).

**Effective Date.** Configured product structures are further qualified by an effective date. The default is the sales order due date. The date specified must be within the configured product structure’s effective start and end dates. Enter a question mark to have the system not consider effective dates.

**Final Assembly and ID.** System-maintained fields recording the work order information for final assembly of ATO configured products only. The product configuration options are specified on the sales

order and a work order is released from that sales order to build that specific assembly. To tie them together, the work order number and lot are recorded on the sales order.

**Configuration.** Enter the type of configuration—either ATO or KIT. The default is set in Item Master Maintenance.

See “Set Up the Parent Item” on page 305.

When Standard Bill is Yes, normal sales order entry continues. When it is No, the Features pop-up displays so you can select a feature group.

Feature	Mandatory
▶ BACKUP	<input type="checkbox"/>
▶ CONDITIONERS	<input type="checkbox"/>
▶ MOTOR	<input checked="" type="checkbox"/>
▶ POWER CABLES	<input checked="" type="checkbox"/>
▶ PUMP-VOLUME	<input checked="" type="checkbox"/>
▶ STANDARD	<input checked="" type="checkbox"/>

This value comes from the Mandatory field in Configured Structure Maintenance.

Fig. 9.6 Feature Group Pop-Up

The system next displays all the options available in the selected feature group. An option defined in Configured Structure Maintenance as the default is marked with an asterisk.

Item Number	Required	Selected	List Price	Disc%	Net Price
* ▶ 90-100	10.0	0.0	100.00	0.0	100.00
▶ 90-110	10.0	0.0	25.00	0.0	25.00

Asterisk indicates default option.

Fig. 9.7 Option Selection Pop-Up

The value entered for Selected can be any positive or negative quantity. For example, you can enter a negative value to delete a standard option, such as an automobile radio.

**Important** The default option of a mandatory feature group has an initial positive value. If you choose another option, you must enter a value in Selected for the option you chose and change the default option to zero.

MFG/PRO does not at this time have an expert configurator that verifies whether a particular combination of options is valid. It is possible to configure an order that cannot be manufactured—for instance, an automobile with both a 1.6-liter and 2-liter engine.

## Cost and Price

When you finish selecting options, the system automatically calculates the cost and price of the configured product. It does this by adding the cost or price of the product to the costs or prices for each of the items in the configuration bill.

You can change List Price, Discount, and Net Price for options only. Items on the standard product structure (that is, items with a blank structure code) have already been considered in the configured parent's price.

When a configuration requires additional units of a standard item, you can change the quantity but not the pricing. Change the configured parent's price on the sales order to include the additional components, or add the component under another feature as an option. Prices for options are added to the line item list price.

**Note** Taxes for configured items are based on the characteristics of the parent item, not components.

The prices, discounts, and costs for components in a configuration bill are handled the same way as those for regular items on sales orders and sales quotations. Component prices and discounts take into account the currency and pricing information for the order or quotation, as well as the item's list price. Costing is based on the GL costs for the component item at the site. Since the component costs or sales order site might change, the system automatically rolls up the cost again when the product is shipped.

## Modifying Configured Line Items

When modifying the order quantity for a configured item, you can review the previously selected components. After you change the quantity, a pop-up window appears. Set Review Bill to Yes. The system displays the sales order configuration and all other product structure alternatives.

## Phantoms

Phantom structures—those with a product structure code of X or a BOM code parent (instead of an item number)—can create sales order bills if they meet either condition for a standard bill. The resulting configured item inherits the feature of the first level structure, regardless of the number of phantoms exploded.

▶ See *User Guide Volume 3: Manufacturing*.

## Configured Components

When components of the configured line item are themselves configured items, the system includes their mandatory defaults in the sales order bill.

## Pending Invoice Maintenance

Pending Invoice Maintenance (7.13.1) does not handle components of configured products. Adding a configured item does not create a sales order bill and modifying a pending invoice line for a configured item does not modify the sales order bill. However, deleting a configured item in Pending Invoice Maintenance *does* delete the sales order bill.

## Issuing Final Assembly Orders

Use Sales Order Release to Work Order (8.13) to generate final assembly (FAS) work orders based on confirmed sales order lines for configured products of type assemble-to-order (ATO). You cannot release kit items to a work order.

▶ See *User Guide Volume 3: Manufacturing* for details on work orders.

One FAS order for the same quantity as the sales order line is created for each line released, unless the item is serial-number controlled (Lot/Serial is S in Item Master Maintenance). In this case, the value of Unit F/A Orders in Configured Products Control determines work order quantity.

▶ See “Unit F/A Orders” on page 304.

FAS orders have a work order type code of F. Work order numbers for FAS orders are generated based on the related sales order and line numbers. For example, the number for an FAS order generated for line 3 of sales order SO5078 is SO5078.3.

The work order bill of materials for an FAS order is identical to the configuration bill defined in the sales order. The work order routing is set to the standard routing for the configured item.

## Configuration Updates

You can modify a sales order configuration bill any time before releasing a final assembly order. When a final assembly order is created, its work order bill and the sales order configuration bill are synchronized, if not identical. If any later modifications are required, the configuration must be updated in both Sales Order Maintenance (7.1.1) and Work Order Bill Maintenance (16.13.1).

If you need to modify data on an FAS order, do so in Work Order Maintenance (16.1). For example, if a sales order for a configured product is canceled, you must manually cancel the associated work order and return the applicable components and assemblies to their appropriate inventory locations.

## Shipping Configured Items

Using standard sales order shipping, you can ship a configured item in one of three ways:

- Use Sales Order Shipments (7.9.15) to ship the product and backflush its components. Use this method only if the configured item type is Kit rather than ATO.
- Receive a final assembly work order at the time of shipment using Sales Order Shipments (7.9.15). To do this, set Receive F/A in SO to Yes in Configured Products Control (8.24). Use this method for serialized items when there is only one work order for a sales order line.
- Receive the work order in finished goods inventory using Work Order Receipt (16.11) or Work Order Receipt Backflush (16.12). Then ship the product from inventory using Sales Order Shipments (7.9.15). Use this method only when work orders are required for each unit of a sales order line item.

**Tip**  
Shipment automatically updates the quantity received on the FAS work order.

▶ See “Finished Goods Inventory” on page 313.

Before deciding on a method, review the costing issues that arise when there are configured products in inventory.

## Shipping in an Average Cost Environment

The previous shipment methods assume you are operating in a standard cost environment. If you are using average costs, you must manage shipments to avoid double booking of costs. Follow these steps:

- 1 Freeze the GL cost for the parent item of the configured structure. This ensures that the cost of the parent item remain zeros when its final assembly orders are closed through Work Order Accounting Close (16.21).
- 2 If previous Work Order Receipt (16.11) transactions exist, zero out these costs to prevent the doubling of costs for the optional items.
- 3 In Configured Products Control (8.24), set Receive FA in SO to Yes and Receive FA in WO to No.
- 4 Release the sales order to a final assembly work order (8.13).
- 5 Receive the final assembly work order at the time of shipment using Sales Order Shipments (7.9.15).
- 6 After shipping the configured product and executing Work Order Accounting Close, a residual cost may be left over for the optional items. This represents the difference between the cost of the components when they were issued to the work order and the cost of the components when the sales order line was shipped. Book this residual amount to the Cost of Sales account.

## Finished Goods Inventory

When a configured product is received to and shipped from inventory as a finished good, GL transactions to work-in-process (WIP), inventory, and cost-of-goods-sold are based on the configured cost calculated for the item, not the standard cost for the item itself. However, an inventory valuation report uses the standard cost for the item itself, not the configured cost.

This can result in a discrepancy between the account balance for inventory in the GL and the amount on an inventory valuation report. When configured products are in inventory, the inventory valuation report usually understates the value of inventory because it does not include the value of components for those products.

To avoid such a discrepancy, ship all configured products immediately after they are received into inventory. This precaution is especially important at month-end. If a configured product cannot be shipped on the same day it is received, it should be left in work-in-process.

It is impossible to determine the configuration of an item in inventory unless it can be linked back to a specific final assembly order. To provide some traceability when a unit on a final assembly order is received into inventory, assign it a lot or serial number based on the final assembly order.

### Using Shippers with Configured Products

If you typically ship with containers and shippers, you can use any of the following programs to create and process shippers for configured products:

- Picklist/Pre-Shipper–Automatic (7.9.1)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Pre-Shipper/Shipper Print (7.9.4)
- Pre-Shipper/Shipper Confirm (7.9.5)

You can create a pre-shipper that allocates the kit/ATO components in Picklist/Pre-Shipper–Automatic, and print an exploded list. There are some differences in the way kits and ATOs are processed:

*Kits.* Once you have created the pre-shipper, you can use the Pre-Shipper/Shipper Workbench to add new component items to a Kit configuration item. When the shipper is confirmed, all allocated components are relieved.

*ATOs.* Once you have created the pre-shipper, you must issue the work order components. When the work order components are issued, all allocated components are relieved.

**Note** If Receive F/A in WO is Yes in Configured Products Control, you can issue the ATO items directly, since the receipt was already performed in the Work Orders module.

## Master Scheduling

You can master schedule base items, options, and accessories for configured products using either single-level or multilevel scheduling.

Configured items can be planned directly using single-level master scheduling techniques, or they can be planned using planning bills and forecast percentages to create production forecasts.

Option bills are treated in the same way as planning bills by master scheduling. The forecast percentage and quantity per for the option determines the production forecast. However, unlike components in a planning bill, independent demand can often exist for an option.

For example, a Zip drive is an option for a computer model. You enter a forecast percentage indicating how frequently a Zip drive is included when a computer is purchased. Zip drives can also be sold as a separate item.

When you sell a Zip drive separately, it does not consume production forecast. If, however, you have an independent forecast for the zip drive, not derived from upper-level requirements, it will be consumed.

If you know that an option will be sold both by itself and as part of another item, you can plan production by either increasing the forecast percentage associated with the product structure or entering independent forecast in Forecast Maintenance.



# Consolidated Order Processing

MFG/PRO's consolidated order processing supports management of sales and purchase orders in a multisite, multi-database environment.

*Introduction*    **318**

*Using Multiple Databases*    **322**

*Creating Consolidated Orders*    **324**

*Financial Transactions*    **331**

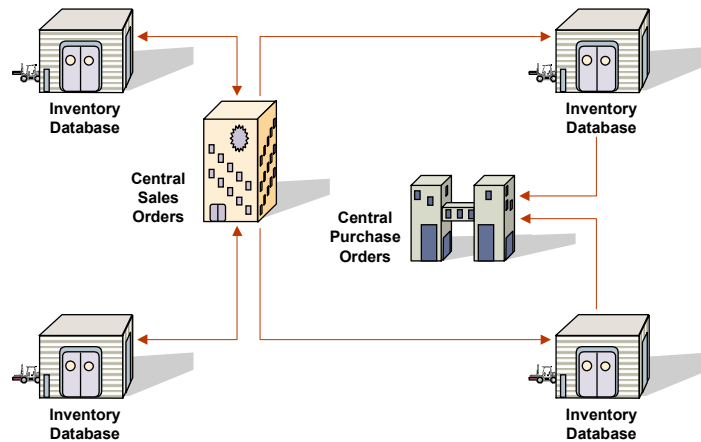
*Processing Configured Products*    **334**

## Introduction

In consolidated order processing, a central database handles all sales orders, then informs its distribution and/or manufacturing sites what to ship. These sites are each located in their own local databases.

Purchasing can either be centralized or distributed among sites. Companies using consolidated order processing benefit in their ability to make larger orders and reduce the overhead involved in multiple order processing departments.

**Fig. 10.1**  
One Form of  
Consolidation:  
Centralized Order  
Processing



Consolidated order processing refers to activities supported by central sales orders and distributed purchase orders. Distribution Requirements Planning (DRP) also supports multisite, multi-database operations.

▶ See *User Guide Volume 9: Manager Functions* for details on multiple databases.

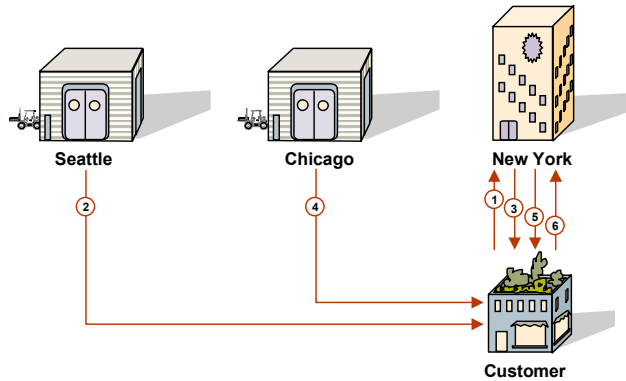
Three multisite demonstration databases—*newyork*, *chicago*, and *seattle*—are included with MFG/PRO. Some examples in this chapter correspond to these databases.

In the demonstration database scenario, New York is the central sales office. New York sells binders, which are manufactured in Chicago. New York ships from both New York and Chicago, and replenishes its inventory using DRP. Chicago obtains most of its raw materials from Seattle, and also replenishes its inventory using DRP. New York is the distributed purchase order site for Seattle. Orders are created in New York, material is shipped to Seattle, then reshipped to Chicago.

**Example** New York receives an order for 250 binders and 250 covers. New York has only 125 binders in stock, and only Seattle has covers. A sales clerk in New York creates a single sales order with three line items:

- One directing 250 covers to be shipped from Seattle
- One directing 125 binders to be shipped from Chicago
- One directing 125 binders to be shipped from New York

After the sales order is created, the events shown in Figure 10.2 occur.



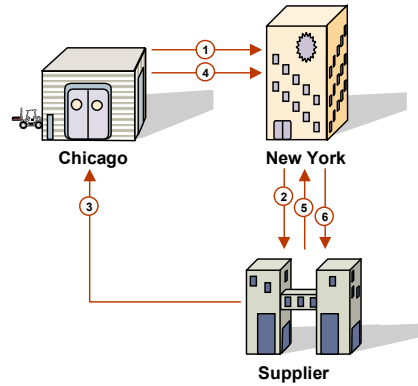
1. Sales order comes to New York.
2. 250 covers shipped from Seattle.
3. 125 binders shipped from New York.
4. 125 binders shipped from Chicago.
5. Invoice comes from New York.
6. Payment recorded at New York.

**Fig. 10.2**  
Sales Order  
Supplied by Three  
Separate Sites

For sales orders, the system supports only the centralized model shown in Figure 10.2. For purchase orders, it is more flexible.

**Example** Binders made of glue, cardboard, and metal are manufactured in Chicago. Glue is available locally, but cardboard and metal must be ordered in bulk, with prices varying geographically. Binder materials are ordered as shown in Figure 10.3. All requisitions are created in Chicago.

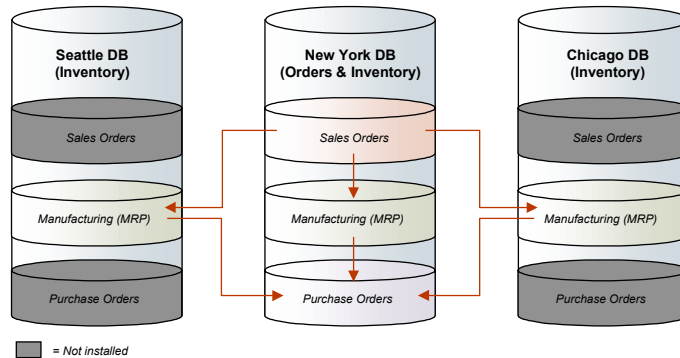
**Fig. 10.3**  
Distributed  
Purchasing



1. Requisition for one roll of cardboard created in Chicago with PO site New York.
2. PO created in New York, sent to supplier.
3. Cardboard shipped to Chicago.
4. On receipt, line item closed in New York.
5. Supplier invoice received in New York.
6. AP voucher created in New York.

Continuing this example, computers on a network connect the three sites. Database functions are assigned according to each site's real-world functions. Since New York handles all sales orders and purchasing, sales order and purchasing functions are only active in the New York database.

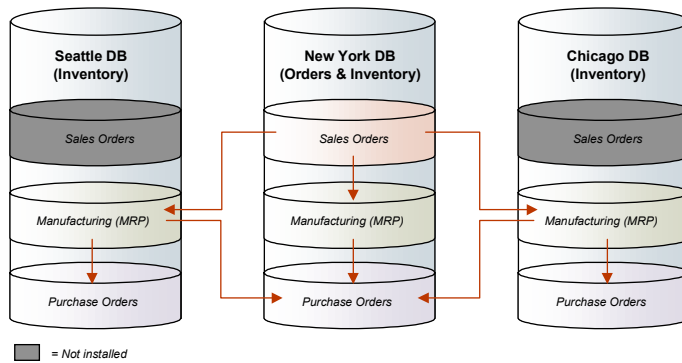
**Fig. 10.4**  
Database  
Configuration for  
Fully Centralized  
Orders



MRP in Chicago receives and processes sales order demand from New York just as if it had come from Chicago. New York's MRP receives and processes requirements from Chicago or Seattle just as it would requirements originating in New York.

It is important to note, however, that consolidated order processing only requires that certain *database* operations be centralized, not necessarily *site* operations. In the example above, part of the sales force could be in Chicago, where they would process orders through the New York database using remote connections.

The choice could be made to distribute purchasing among sites, in which case a configuration like the one in Figure 10.5 would be appropriate.

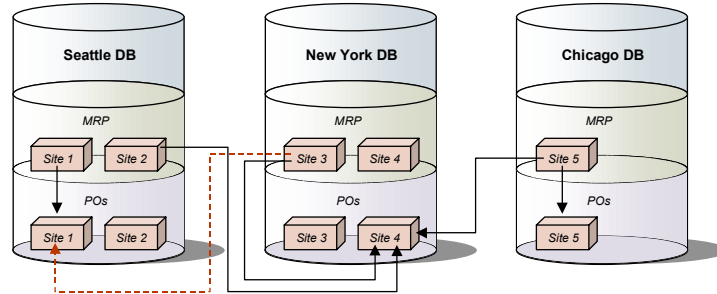


**Fig. 10.5**  
A Distributed  
Purchase Orders  
Configuration

**Example** Chicago requires metal for binders and sends a requisition to New York, in order to take advantage of centralized purchasing power. New York issues the purchase order for the metal. The metal is shipped to Chicago, with billing and payment handled in New York. Chicago also requires glue for binders, which they order locally, using a purchase order generated in Chicago.

More complex scenarios can also be created. For example, metal could be ordered centrally from New York, while cardboard is ordered centrally from Seattle. Actual physical locations of people and computers are unimportant to the system, as long as data transaction paths are clearly mapped.

**Fig. 10.6**  
Distributed  
Purchase Orders  
by Site



**Example** The Seattle and New York databases each have two inventory sites where requisitions are issued and purchased items received. Chicago has one inventory site. Central purchasing for most items is handled in Site 4 (New York). However, the system is set up so that Site 3 can order cardboard from Site 1 in order to take advantage of a better price. Similarly, Site 5 can order from itself when appropriate, or order from both itself and Site 4.

## Using Multiple Databases

It is not necessary to have multiple databases to use consolidated order processing. Sales orders can be managed from a single central site, and purchase orders can be created in and for multiple sites, all within a single database.

However, multiple databases allow companies to keep data associated with each site in a different database and reduce network traffic for local transactions. A multi-database environment is more typical for consolidated orders.

## Requirements

For the system to consolidate order processing in multiple databases:

- Each site must be associated with a database in Site Maintenance (1.1.13), and
- The PO Site field in Item Master Maintenance (1.4.1) must contain a value identifying where purchase orders for the item are normally created.

For consolidated orders, it is typical to have two or more databases continuously connected either on the same system or over a network. Each user works in one database at a time. Each database queries the others for needed information.

▶ See *User Guide Volume 9: Manager Functions* for details on these functions.

## Examples

The functions on the Multiple Database Menu (36.6) enable you to identify the databases to which the current database can be connected, and determine the default connections on startup. Most users remain in their primary database. Authorized users can change to another database using Current Database Change (36.6.17).

When a sales order is entered in New York, the system checks the list of sites in the New York database. It determines that the Chicago site is associated with the Chicago database. The system then queries the Chicago database for inventory information and displays it to the person using the New York database.

Similarly, when goods are received in Seattle, the system determines the purchase order site and then checks the list of sites in the Seattle database to find the associated database. It then modifies the purchase order at that site.

## Setup Requirements

To use consolidated order processing with multiple databases, basic information must be synchronized among the connected databases.

- Account numbers for all accounts that might involve cross-database transactions must be identical. GL account cross-reference tables are not used for real-time transactions.
- Sites that share information must be defined the same in all databases, including the site code, associated database, and entity. Other values recorded in Site Maintenance, such as Auto Locations, can differ.
- Entities must be referenced by the same code in each database. However, entity attributes such as Primary Entity do not need to be identical.

- All items that are used in two or more databases must have identical item numbers and units of measure. Typically, they should belong to identical product lines, as well.
- Purchase order numbers must be unique across databases.

If any of these requirements are not met, either the databases will not be able to communicate or the system will not be able to distribute information appropriately among the databases.

## Creating Consolidated Orders

Although order processing functions are similar whether you are in a single-site or consolidated order processing environment, the system imposes two basic rules:

- All sales order functions must be run from a single, central database. This includes quote and order processing, shipping, invoicing, and sales analysis.
- Purchase order functions can be distributed across any number of databases. However, purchase orders must be vouchered at the database where they originated.

These rules refer to information, not actual location of operations. Sales order shipments actually done on a loading dock in Chicago can be recorded in the New York database.

The effect of consolidated order processing on MFG/PRO functions is summarized in the following sections.

## Sales Orders

### Sales Order Maintenance

Sales order header and trailer information is all maintained and updated local to the central database. This includes customers, freight lists, freight terms, price lists, and credit terms.

During line item entry, special processing occurs when you enter a site for the item being ordered. The system determines the database associated with the site and checks that database for the quantity on hand (QOH) of the item. The QOH and amount available to allocate at the inventory site are displayed in a message just as they are in single-site operation.

In single-line mode, you can display a browse on the Site field that lists all sites having the item and quantities available. You can also specify a site without a quantity on hand. If Automatic Locations is Yes at that site, the system creates an inventory master record for the item at the site and location.

**Tip**  
In multiline mode, you cannot choose the ship-from site.

The quantity available to allocate is calculated according to the method specified in Sales Order Control for the central database.

**Note** You cannot create a sales order line for an item at a site in a remote database unless the databases are connected.

### Sales Order Print

Sales orders are printed from a central location. Conceptually, there is no way of distinguishing sales orders entered in Chicago from those entered in New York. While you can print the sales orders anywhere, you cannot group them by site, so they are usually printed in the central location.

### Sales Order Confirmation

When Confirmed Orders is No in Sales Order Control, orders may be created as unconfirmed.

Execute Sales Order Confirmation (7.1.5) to allocate inventory at the database associated with the site for lines that would have been allocated during sales order entry.

When a sales order is confirmed, the appropriate demand records are created at the inventory database. A copy of the sales order is also created at that database, but it should not be modified or accessed.

### Manual and Auto Allocations

Both kinds of allocations access the inventory databases when executed.

### Picklists

▶ See *User Guide Volume 6: Master Data* for information on picking logic.

You can execute Sales Order Packing List (7.9.13) for a range of sites. Since the pick field in the sales order is attached to the line, each site has control over their own picklists. Multiple picklists can be created for each order. Set the picking logic in Inventory Control (3.24) in the inventory database.

### Shipping Labels

Shipping labels can only be printed by order, not by site.

### Shipping

Sales order shipments are usually entered at the shipping dock by someone logged into the central sales database.

▶ See Table 10.1 on page 333 for sample GL transactions.

Sales order shipments are driven by site. When a site is specified in Sales Order Shipments, only the line items from that site display for processing. You can ship an item from another site. If you do, the system displays a warning. If you continue, an intercompany posting occurs.

### Invoice Print

▶ See “Sales Orders/Invoices” on page 105.

Invoices are commonly printed in a central site. The printing is by sales order, not by site. The invoice is for all shipped line items.

## Invoice Post to AR and GL

Centralized sales orders implies centralized accounts receivable functions. As a result, the general ledger in the inventory databases does not give a complete picture of the financial state of the company, since some postings occur in other databases.

When invoices are posted, the sales price and discount are booked to the inventory site's entity, but the GL transaction is in the central sales order database. The GL transactions for sales price and discount are not recognized until they are transferred from the central database to the inventory database using Transaction Export (25.19.14) and Transaction Import (25.19.15).

If the inventory database operates in a different base currency, the sales and sales discount accounts should be set up with a foreign exchange conversion index of 4 (historical) in GL Account Code Maintenance (25.3.13). An invoice can be billed in any currency defined within the central database, just as in single-database mode.

## Sales Order Cost Revaluation

The sales order cost revaluation function uses costs from the relevant inventory database to update the sales order.

## Purchase Orders

### Purchasing Control

Set up purchase order numbers to be unique across all databases. When a purchase order is received for an item requiring inspection, the inspection location is taken from Purchasing Control in the receiving database.

### Purchase Requisitions

A purchase requisition can specify both the site where the purchase order will be created (PO Site field) and where the item will be shipped (Site field). PO Site defaults from Item-Site Planning Maintenance (1.4.17) or,

if that does not exist, from Item Planning Maintenance (1.4.7). If PO Site is blank, the system uses Site to determine where the purchase order is created.

### Purchase Requisition Report

Run Purchase Requisition Report (5.1.6) from each site that issues purchase orders. The report searches all the connected databases and lists all requisitions that have a specified site in the PO Site field. It also lists all the requisitions in the current database with a blank PO Site.

### Purchase Order Maintenance

The header site is significant with consolidated purchase orders because it becomes the default for each line item. The line site indicates the source of the requisition for the item. Since requisition numbers are not unique across databases, the site is important in identifying individual requisitions.

The requisition site can also be used to segregate purchase order line items by site and to specify a shipping address for those line items. If Sort by Site is Yes in Purchase Order Print (5.10) and an address has been associated with the site code in the address master, this address prints on the purchase order. Otherwise, the address is the default ship-to address.

For memo items, no site is required. When none is specified, the default ship-to address is used.

In the purchase order line item detail, location defaults from item inventory data defined in the inventory database. If inspection is required, the inspection location defaults from Purchasing Control in the inventory database.

When the purchase order is entered, the system copies the relevant line items from the purchase order to the appropriate database. The Print field in the copied databases is set to No to avoid duplication.

#### Tip

You should set the purchase order prefix in each database.

## Purchase Order Browsers and Reports

If the current database is not the originating database for a purchase order, the order does not appear on a PO report, even if line items on that order are received into sites at the current database. To include the purchase order on a report, generate the report from the originating database.

## Purchase Order Print

Use Purchase Order Print (5.10) to print consolidated purchase orders.

*Sort by Site.* Enter Yes to have the system sort line items by site. The system uses the address of the site specified for the line item. If a site is not specified for the line item or if there is no address for the site, the system prints a ship-to address.

All purchase orders should be printed from the database where they originated.

## Return to Supplier and Return Document Print

When the inventory site returns an item on a purchase order, both the inventory copy and the central copy of the purchase order are adjusted.

## Purchase Order Receipts

Use Purchase Order Receipts (5.13.1) in the inventory database to record receipts at the inventory site. Receipt records (receivers) are automatically copied to the central database for referencing on AP vouchers. Data copied to the central database includes GTM tax detail for the lines received at the inventory database.

When a receipt closes a line on a purchase order, it is closed in both the inventory and the central database. When all lines are closed, the purchase order is closed. Since the inventory database only has PO lines related to its site, a purchase order for multiple sites may be closed in an inventory database and open in the central database.

When you are in an inventory database, even if you set Receive All to Yes, only lines for the inventory database are shown and updated. In addition, you cannot change the site associated with the PO line. This field is for reference only.

### Supplier Performance Report

Use Supplier Performance Report (5.1.18) to report purchase order and receipt information for the local database. For a report on suppliers to all sites, generate the report from the central database.

### Voucher Maintenance

Use Voucher Maintenance (28.1) to record supplier invoices and authorize payments against purchase orders. Vouchers must be created at the database where their associated purchase orders originated.

When you create a voucher for a purchase order that was received at a remote database, invoiced and open line quantities are updated at the inventory database based on the invoice quantities entered on the voucher. In addition, the system compares the PO receiver, which was copied to the central database during PO receipt, with the supplier invoice data and records any variances in the inventory database as appropriate.

**Example** In an average costing environment, any variance between the receipt price recorded in Purchase Order Receipts and the invoice price recorded in Voucher Maintenance causes a recalculation of the item cost at the inventory database.

### Voucher Confirmation

Vouchers can be confirmed automatically upon creation or later using:

- Voucher Confirmation—Automatic (28.6)
- Voucher Confirmation—Manual (28.7)

Confirming a voucher at the central database updates receipt history—such as the last voucher number and tax data—for associated purchase orders at the inventory database.

## ERS Processor

Evaluated Receipts Settlement (ERS) functions let you generate vouchers based on PO receipt data, eliminating the need for a supplier invoice. Vouchers generated by ERS Processor (28.10.13) update the inventory database identically to those created manually in Voucher Maintenance.

## Financial Transactions

Finances are affected when inventory is shipped or received, when invoices are posted or vouchered, and when payments are made or received. With consolidated orders, key elements are the database, entity, and site.

In general, inventory transactions are associated with the site that has the inventory. Since each site belongs to only one database and entity, the site determines which database and entity contain the transactions.

- A sales order shipment credits Inventory and debits Cost of Goods Sold (COGS). These transactions appear in the database associated with the ship-from site, using the costs specified in that database. They are always associated with the site's entity.
- Purchase order receipts debit Inventory and credit PO Receipts in the inventory database using standard costs at the receiving (inventory) site. Vouchering a purchase order, in turn, debits PO Receipts in the inventory database and credits Accounts Payable. These transactions use the costing method specified in Inventory Control at the inventory database.

All other transactions occur in the database where the orders are created using data, such as customer and supplier terms, from that database. They use the entity associated with that site by default.

When sites are associated with different entities or reside in different databases, a standard intercompany transaction occurs at invoice post and at vouchering. With invoice post, for instance, the invoicing entity is credited in an intercompany accounts receivable credit account, and the shipment entity is debited in an intercompany accounts receivable debit account.

In Figure 10.7, the GL transactions associated with the inventory transfer are stored in the inventory database, and those associated with the order are stored in the order database.

**Fig. 10.7**  
PO Receipts  
and Vouchers

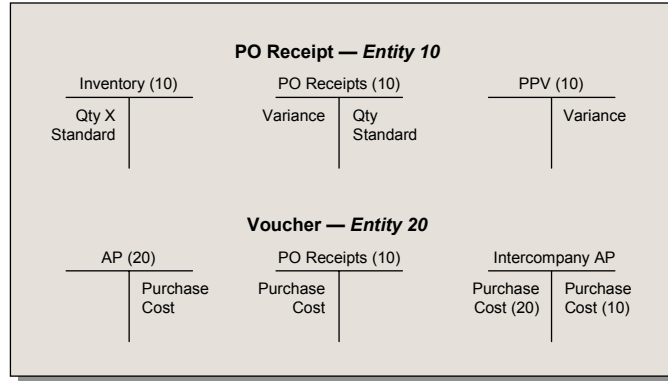
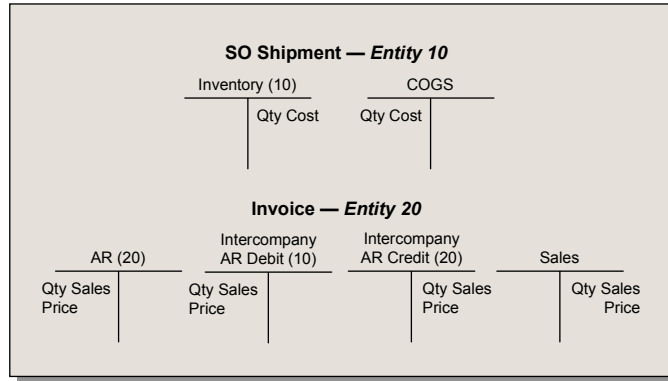


Figure 10.8 illustrates similar transactions for a sales order.

**Fig. 10.8**  
Sales Order  
Shipments and  
Invoice Post



Most GL transaction processes remain unchanged in a consolidated system. GL entries are generally made in the database where transactions occur.

**Example** Table 10.1 shows GL transactions created when a central database does purchasing for a local (inventory) database that receives the items. The purchasing site is in a different entity than the inventory site.

**Table 10.1**  
General Ledger  
Transactions

Type	Amount	Entity	Database
<b>Receipt</b>			
Debit Inventory	Std Cost	Inventory	Inventory
Credit Intercompany Accounts Payable (Credit)	Std Cost	Inventory	Inventory
Debit Intercompany Accounts Payable (Debit)	Std Cost	Central	Central
Credit PO Receipts	Std Cost	Central	Central
Debit Purchase Price Variance	PO – Std	Inventory	Inventory
Credit Intercompany Accounts Payable (Credit)	PO – Std	Inventory	Inventory
Debit Intercompany Accounts Payable (Debit)	PO – Std	Central	Central
Credit PO Receipts	PO – Std	Central	Central
<b>Voucher</b>			
Debit PO Receipts	PO Cost	Central	Central
Credit Accounts Payable	PO Cost	Central	Central
Debit AP Rate or AP Usage Variance	Inv – PO	Central	Central
Credit Accounts Payable	Inv – PO	Central	Central
<b>Check Print</b>			
Debit Accounts Payable	Inv Cost	Central	Central
Credit Cash	Inv Cost	Central	Central

Typically, costs are handled in the inventory database, and are updated at receipt (and, for purchase orders, at vouchering) using the method specified in Inventory Control (3.24) in the inventory database. With list type price lists, the cost in the inventory database is used. Cost sets by set can be created in any database, even if the site is not assigned to that database. In a multiple database environment, costs are updated in each database as appropriate.

## Processing Configured Products

▶ See Chapter 9, “Configured Products,” for details on setting up configured products.

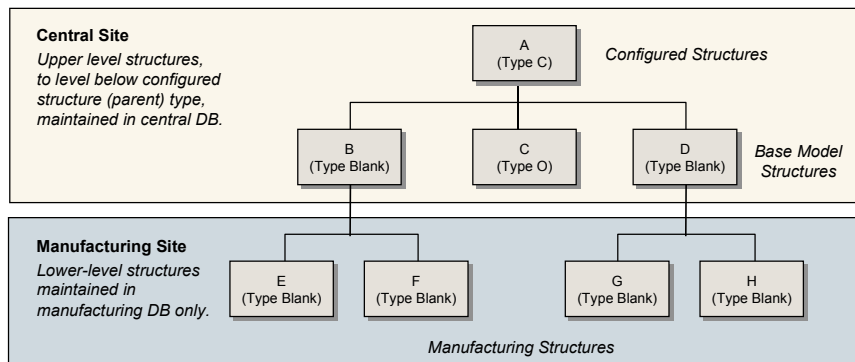
In a multi-database environment, users create and maintain sales orders in a central sales database. The system then creates sales order lines in the appropriate remote database after order confirmation. For configured products, structures defining standard configurations and options must be located in the central database in order to be available for configuration processing during order entry. Lower-level structures required to build or cost the product are kept in the manufacturing databases.

A configured product can have a complex, multilevel bill of material that includes three different types of structures:

- Configured end-item structure, which represents the top-level parent and is defined in Item Master Maintenance with Purchase/Manufacture code set to C. This item can also be a lower level of another configured structure. In this case, it is defined in Configured Structure Maintenance as Structure Type O (option).
- Base module structure, which defines the required components of a configured item. This consists of a single-level relationship between a configured item (level 0) and its level 1 non-option components. In Product Structure Maintenance, this structure is identified with a blank structure type.
- Manufacturing structure, which identifies the lower-level structure defining the content of configured structure components. In Product Structure Maintenance, it is identified with a blank structure type.

Figure 10.9 summarizes the types of configured product data needed in each database.

**Fig. 10.9**  
Distributed  
Configured Item  
Data



Where each type of structure resides is governed by some basic rules:

- Configured structures must reside in the central sales order database for use in configuring sales quotes and sales orders.
- Base module structures must reside in the central database for use in configuring sales order bills of material (one level only).
- For standard cost sites, base module structures must also reside in the remote database, for use in standard cost rollups at the remote site. The system calculates standard cost of configured products by rolling up the costs of these components.
- Manufacturing structures must reside in the remote manufacturing database for use in such functions as costing and work orders.
- The sales order database must maintain configuration data down to level one. Nonconfigured products on lower levels of the configured product structure can reside strictly in the remote manufacturing database.
- The system determines prices using pricing structures and policies in the central sales database. If pricing is based on mark-up from cost, the cost used for pricing must be appropriate for the sales order site. If the site resides in an inventory database, the cost comes from the item-site in that database.

## Setup Options

There are two basic approaches for setting up multi-database configured sales orders: centralized and decentralized. Each provides a different degree of central control.

The *centralized* approach supports users who want to maintain very tight control over configured products from the central sales order database. Because the central and remote databases maintain all configured product data on all levels, such a model requires extensive replication to keep the databases synchronized.

Upper-level configuration data needed only by the sales site also exists at the manufacturing database, and lower-level details used only by the manufacturing site are replicated in the central database.

To set up a centralized approach:

- Enter both Configuration Structure Maintenance and Product Structure Maintenance data at the central database.
- Duplicate manufacturing and base module structure data at the remote databases that build each product. Or, alternatively, maintain all product structures in all databases.

The *decentralized* approach assumes that data is stored where it is used. For example, a manufacturing site does not need customer address records. The central sales order database does not need detailed manufacturing data on lower-level items. This approach minimizes duplication among central and remote databases, but requires some duplication. For instance, the same data would have to reside in multiple databases in order to enable costing rollups.

To set up a decentralized approach:

- Enter Configured Structure Maintenance data at the central database.
- Enter Product Structure Maintenance data at the remote database that builds the product.
- Enter base module structures at the central database. This only applies to the non-option level 1 components of configured items.

# Sales Analysis

Use Sales Analysis to analyze results of sales order shipment transactions, track salesperson performance, and generate sales reports.

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*Using Salesperson Quota Maintenance*    **339**

*Using Sales Analysis Inquiries*    **340**

*Using Sales Analysis Browses*    **340**

*Using Sales Analysis Reports*    **341**

*Changing the Fiscal Year*    **344**

*Deleting/Archiving Sales History*    **344**

## Introduction

Sales Analysis can be integrated with Sales Orders/Invoices to generate data on year-to-date sales, margins, costs, and quotas. Sales Analysis enables you to:

- Itemize sales by item, product line, customer, ship-to, and salesperson
- Maintain monthly and year-to-date totals for quantity sold and cost of sales
- Analyze salesperson quotas for a given month
- Compare salesperson quotas and actual sales
- Track sales of memo or non-inventory items

**Fig. 11.1**  
Sales Analysis  
Flow



## Fiscal Year and Calendar Year Reporting

Sales Analysis reporting is based on a 12-month year. The default mode is calendar year reporting. In this mode, all references to fiscal year are regarded as calendar year. Fiscal year reporting may be used if:

- The fiscal year consists of exactly 12 periods, and
- Each fiscal period corresponds to a calendar month.

In such a case, Fiscal Year Change (7.17.22) defines the calendar month (1 through 12) that corresponds to the first period of a fiscal year.

## Using Salesperson Quota Maintenance

Use Salesperson Quota Maintenance (7.17.1) to add and maintain monthly sales quotas for salespeople.

	Quota	Sales	Cost
January:	500	0	0
February:	500	0	0
March:	500	0	0
April:	500	0	0
May:	500	0	0
June:	500	0	0
July:	500	0	0
August:	500	0	0
September:	500	0	0
October:	500	0	0
November:	500	0	0
December:	500	0	0
Total:	6,000	0	0

**Fig. 11.2**  
Salesperson Quota  
Maintenance  
(7.17.1)

**Salespsn1.** Enter the code for the salesperson whose quota is being added or modified. The system accepts quotas for primary salespeople only.

**Year.** Enter the quota year. The default is the current fiscal year.

**Quota.** Enter a quota amount for each month.

**Sales.** The system displays the amount of sales credited to this salesperson each month.

**Cost.** The system displays the cost of sales for each month.

Totals are given for quota, sales, and cost.

## Using Sales Analysis Inquiries

### Salesperson Quota Inquiry

Use Salesperson Quota Inquiry (7.17.2) to generate a screen or printed list of monthly quotas and quota percentages for a salesperson for a specific year. Totals are given by quota, sales amounts, over/under amounts, and quota percentage.

The Over/Under column displays the difference between the quota and the sales amount. The Quota% displays the percentage of quota met.

### Salesperson Margin Inquiry

Use Salesperson Margin Inquiry (7.17.3) to generate a screen or printed list of monthly quotas and gross margins for a salesperson for a specific year. Totals are given by quota, sales amounts, margin, and margin percentage.

The margin represents the difference between amount of sales and cost of sales. The margin percentage represents the percentage difference between amount of sales and cost of sales.

## Using Sales Analysis Browsers

Three sales analysis browsers display year-to-date sales based on different criteria:

- Use Sales By Salesperson Browse (7.17.5) to display a list of year-to-date sales for a salesperson.
- Use Sales By Customer Browse (7.17.13) to display a list of year-to-date sales to a customer.
- Use Sales By Item Browse (7.17.17) to generate a screen or printed list of year-to-date sales for an item.

## Using Sales Analysis Reports

### Salesperson Ranking Report

Use Salesperson Ranking Report (7.17.6) to produce a report listing salespeople by year-to-date sales for a particular year. You can select salespersons based on a number of criteria: identification number, territory, year-to-date sales amounts, and address list type.

The report can be sorted by sales amount, salesperson, or margin. Enter:

- Sales (the default sort order) to sort the report by sales amounts from highest to lowest.
- Code to sort by salesperson code.
- Enter Margin to sort by gross margin percentage from highest to lowest.

The report displays year-to-date sales, gross margin, and margin percentage.

### Sales by Site Report

Use Sales by Site Report (7.17.10) to produce a report listing year-to-date sales by site. Sales to include can be selected by site, product line, item number, item group, and item type.

You must specify an ending fiscal year and period for the report:

**Ending Period.** Enter the last monthly period to appear on the report. The default is the period previous to the current fiscal period. For example, if the fiscal year begins in October, and sales are reflected through September, enter an ending period of 12.

**Ending Fiscal Year.** Enter the last fiscal year to appear on the report. The default is the fiscal year associated with the default fiscal period.

This report can be printed in a detailed or summary format and offers a number of display options:

**Show Qty.** Includes the monthly sales quantity on this report. This option is most useful when Detail is Yes. The quantity of each item sold to the customer at that ship-to address displays. When Summary is Yes, the total quantity sold of each product line is printed.

**Show Sales.** Includes the total monthly sales amount on the report.

**Show Margin.** Includes the monthly sales margin amount on the report. This is useful for evaluating profitability by product line, customer, and ship-to address.

**Show Margin %.** Includes the margin percentage on the report. The percentage is calculated as the margin amount divided by the sales amount, multiplied by 100%.

**Tip**  
Margin is calculated as the total sales amount less the cost of sales.

## Sales by Customer Report

Use Sales By Customer Report (7.17.14) to produce a report listing year-to-date sales by customer. Sales to include can be selected by range of customer, product line, item number, customer type, region, and salesperson.

This report can be printed in a detailed or summary format and offers the same display options as the Customer By Site Report.

The report sorts 12 months of activity by product line within customer ship-to.

**Qty.** The quantity shipped of the product line, for this customer, for this month.

**Sales.** The sales amount shipped of the product line for this customer, for this month.

**Margin.** The gross margin for the sales amount shipped for this customer, for this month.

**Margin%.** The gross margin percentage for the sales amount shipped for this customer, for this month.

## Customer Ranking Report

Use Customer Ranking Report (7.17.15) to produce a report ranking customers by year-to-date sales. Select customers to include by range of number, customer type, region, year-to-date sales, and salesperson.

The report can be sorted by sales amount, customer, or margin. Enter:

- Sales (the default sort order) to sort the report by sales amounts from highest to lowest.
- Customer to sort by customer code.
- Enter Margin to sort by gross margin percentage from highest to lowest.

The report displays customer year-to-date sales amounts, gross margin amount, and margin percentage. Customer information also displays, including type, and credit limit, the open accounts receivable balance, the primary salesperson code, and the customer region.

## Sales by Item Report

Use Sales By Item Report (7.17.18) to produce a detailed report on sales for particular items. Select items to report by range of product lines, item numbers, item groups, and item types. Other input fields are the same as Sales By Site Report.

▶ See “Sales by Site Report” on page 341 for details.

The report sorts 12 months of activity by product line within customer ship-to. Totals are given by customer and product line.

## Item Ranking Report

Use Item Ranking Report (7.17.19) to produce a report listing items by year-to-date sales. Select items to include by range of number and product line, and by year-to-date quantity, sales amount, and cost.

The report can be sorted by sales amount, quantity, or margin. Enter:

- Sales (the default sort order) to sort the report by sales amounts from highest to lowest.
- Quantity to sort by item quantity.
- Enter Margin to sort by gross margin percentage from highest to lowest.

The report displays year-to-date quantity sold and sales amount, gross margin amount, margin percentage, and current quantity on hand.

## Changing the Fiscal Year

Use Fiscal Year Change (7.17.22) to change the starting calendar month for sales reporting.

**Fig. 11.3**  
Fiscal Year Change  
(7.17.22)



Sales Analysis reporting is based on a 12-month year. The default mode is calendar year reporting. In this mode, all references to fiscal year are regarded as calendar year. Fiscal year reporting may be used if:

- The fiscal year consists of exactly 12 periods, and
- Each fiscal period corresponds to a calendar month.

In such a case, Fiscal Year Change defines the calendar month (1 through 12) that corresponds to the first period of a fiscal year.

*Old Start Month.* The old fiscal year start month displays.

*New Start Month.* Enter the new fiscal year start month.

## Deleting/Archiving Sales History

Use Sales Analysis Delete/Archive (7.17.23) to delete/archive sales history for previous (fiscal) years.

**Fig. 11.4**  
Sales Analysis  
Delete/Archive  
(7.17.23)



**Year/To.** Enter an inclusive range of years to be deleted and/or archived. The system does not delete the current year sales history.

**Delete.** Enter Yes to delete the sales history for the years specified. The default is No.

**Archive.** Enter Yes to archive sales history for the years specified to a flat file. The default is Yes. This disk file can be copied to tape for off-line storage. If needed, you can reload the data using Archive File Reload (36.16.5).

**Archive File.** If Archive is Yes, the system displays the file name to be used. The file name is `saYYMMDD.hst` where `sa` is the record type and `YYMMDD` is the archive date. If the file does not exist, it is created. If it does exist, the system appends to it.



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