Industry-specific

QAD SOLUTIONS

Manufacturing Applications

MFG/PRO eB2 User Guide Volume 7
Release Management

Customer Schedules
Supplier Schedules
EDI ECommerce

QAD

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Contents

About This Guide

This guide covers features of MFG/PRO Release Management, including customer scheduled orders and supplier scheduled orders. It also includes information about electronic data interchange (EDI), which is often used in conjunction with Release Management.

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 Volume 1: Introduction* and *User Guide: QAD Desktop*.

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

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

Chapter 1

Release Management

Release management in MFG/PRO includes Customer Schedules and Supplier Schedules. Electronic data interchange (EDI) is closely related to release management. This chapter provides a brief overview of the underlying principles of release management and EDI and how they are implemented in MFG/PRO.

Overview of Release Management

Release management is a combination of processes for managing the regular exchange of information among customers and suppliers. This information is used to coordinate a customer's manufacturing activities and demand for material with a supplier's manufacturing activities and shipments of material.

Information is typically transmitted in the form of schedules using electronic data interchange (EDI) to streamline the process. The way information is processed depends on whether you take the point of view of the customer or the supplier:

- As a customer, you transmit schedules to suppliers, balancing demand against what has already been received.
- As a supplier, you process schedules received from customers, balancing demand against what has already been shipped.

Origins of Release Management

Release management has its roots in practices developed by the automotive industry to support just-in-time (JIT) manufacturing. Just-in-time methods ensure that the required quantity of material is delivered from suppliers exactly when it is needed. By having a reliable, precisely coordinated flow of goods from suppliers, a customer can maintain an uninterrupted flow of work, while maintaining minimum levels of inventory.

Companies that use release management share a common profile:

- High production volume
- Long-term commitments with customers and/or suppliers
- Frequent shipments to customers and/or frequent deliveries from suppliers
- Use of electronic data interchange (EDI)

Release Management Today

Although it originated in the automotive industry, principles of release management are being applied by companies in other industries such as electronics and consumer goods. Historically, schedules in the automotive industry have been based on cumulative accounting. A total schedule quantity was determined for a period—often a year. The effect of each shipment to a customer was calculated based on a cumulative total.

However, today, many business environments use release management to ship against specific requirements. For example, many original equipment manufacturers (OEMs) in the automotive industry use a schedule releasing method that does not rely on cumulative quantities.

MFG/PRO fully supports noncumulative accounting requirements for customer schedules. Each scheduled order can be marked as cumulative or noncumulative. While shipments can be referenced by cumulative position, discrete pegging of shipping requirements is also supported.

Release Management Flow

Figure 1.1 illustrates the basic flow of supply and demand between customers and suppliers.

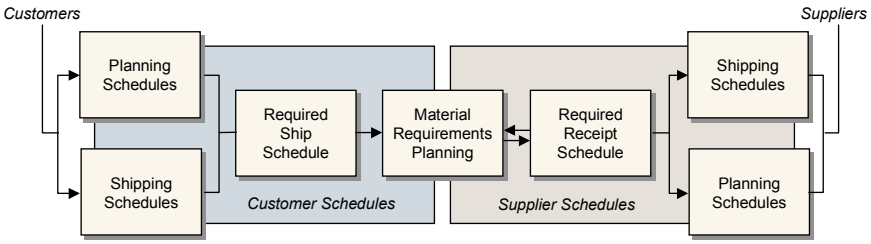


Fig. 1.1 Release Management Flow

Customers send information about the items they need and when they need them as planning or shipping schedules. Based on this information, a required ship schedule is created.

When material requirements planning (MRP) is run, planned work orders and purchase orders are created to fulfill the required ship schedule. The planned purchase orders can be used to create a schedule for your suppliers, communicating your requirements to them.

Characteristics of Schedules

Customer schedules and supplier schedules represent two points of view relative to schedules. The schedules, however, have similar elements.

Shipping Schedules

Shipping schedules are used to coordinate the delivery of materials in the short term, typically one to two weeks. Demand is reported in detail, with quantities specified by date or by date and time. Shipping schedules can be updated frequently to reflect changes in production line schedules.

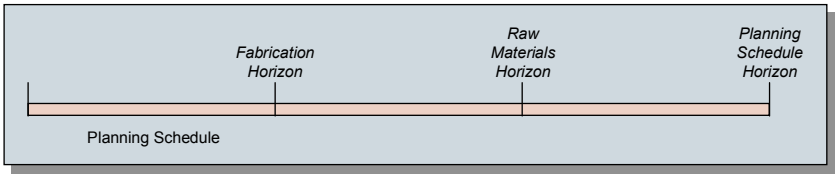
Planning Schedules

Planning schedules are used for moderate and long-term planning of production, materials, and resources. Demand is summarized and reported in quantities aggregated by day, week, or month. Planning schedules reflect requirements from repetitive schedules, released orders, master schedule orders, and planned orders produced by material requirements planning (MRP).

Schedule Horizons

The horizon of a planning schedule should be long enough to allow the supplier to plan materials and resources to support it. It should be longer than the cumulative lead time for the item being supplied.

Fig. 1.2
Schedule Horizons



Within a planning schedule, a customer can also define two other horizons:

- A *fabrication horizon* authorizes the supplier to proceed with the production of quantities, scheduled for delivery up to a specified date. The level of fabrication is usually below that of a finished product.

- A *raw material horizon* authorizes the purchase of raw materials to support the production of quantities that are scheduled for delivery up to a specified date.

The end of the planning schedule normally extends beyond both of these horizons.

Schedule Overlap

Shipping and planning schedules overlap for the period covered by the shipping schedule. Within this period, the two schedules may not be exactly the same, since they obtain demand from two different sources:

- The shipping schedule from production line schedules.
- The planning schedule from repetitive schedules, released orders, master schedule orders, and MRP-planned orders.

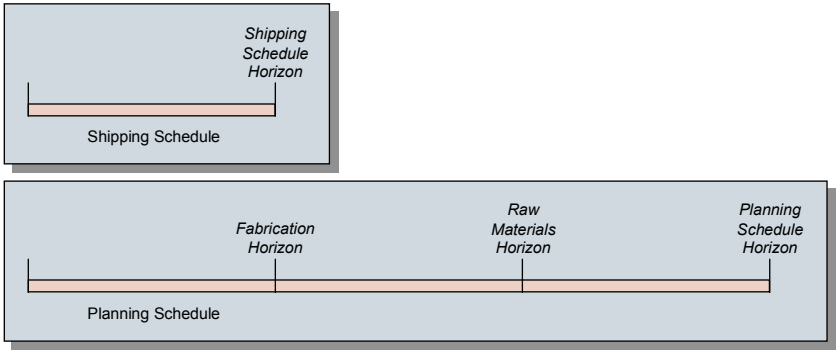


Fig. 1.3
Schedule Overlaps

MFG/PRO lets you determine which schedule should take precedence when discrepancies occur.

Updating Schedules

Shipping and planning schedules are only effective when they are accurate and up-to-date. In the automotive industry, new shipping and planning schedules are typically created for each update. Creating separate releases of each schedule ensures that it is easy to distinguish the new from the old. This reduces the potential for confusion and miscommunication.

Schedule Quantities

There are three types of schedule quantities:

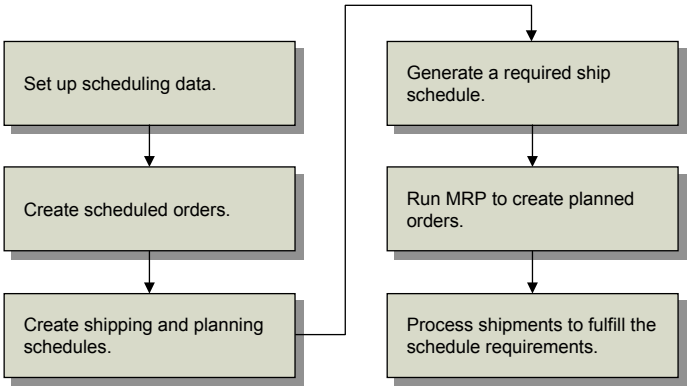
- Discrete quantities are like the order quantities on standard purchase or sales orders.
- Cumulative quantities also reflect order quantities, but are a total of one or more discrete quantities. For example, a sales order has an item with an order quantity of 25 for five consecutive Mondays. The cumulative quantities for those lines would be 25, 50, 75, 100, and 125.
- Net quantities are similar to the quantity open for purchase and sales order lines. However, they are calculated from discrete quantities and adjusted using the cumulative quantity required less the cumulative quantity received or shipped.

Customer Schedules

See Chapter 2, “Customer Schedules,” on page 17.

Customer Schedules lets you process sales orders using a set of scheduled shipment dates and quantities rather than individual sales orders. Figure 1.4 illustrates the steps required to process customer schedules.

Fig. 1.4
Customer Schedule Task Flow



Depending on your business requirements, set up the data required to manage schedules. Typically, this includes such things as customer calendars and order periods, dock addresses, and shipping labels.

A master order determines scheduling parameters. In the short term, the customer provides day-to-day shipping requirements. These are firm commitments and override any existing plan for that period. Customers may also provide advance schedules, which are not firm orders. These are used for planning production and scheduling material.

The Customer Sequence Schedules (CSS) module lets you receive and process shorter term, more detailed customer sequence schedules. If you have purchased the optional PRO/PLUS module, Customer Sequence Schedules is available as option 7.5.4.

For details, see *User Guide Volume 11: PRO/PLUS.*

After releases are entered as customer schedules, a required ship schedule can be calculated and the net demand passed to the Material Requirements Planning (MRP) module (23 menu).

The system calculates due dates based on shipping lead times, calendars, and planned shipping schedules. If noncumulative schedules are being processed, requirement detail can be maintained throughout the process. During shipment, shipper lines that are tied to specific requirements are consumed. This process is known as *pegging*.

The shipper workbench streamlines the shipping process by automatically creating a shipper from a shipping picklist and allowing containerization of the shipment in a single process.

Other optional features of MFG/PRO support Customer Schedules functions; for example:

- You can use Customer Consignment Inventory to plan, order, ship, track, and report customer-consigned material while at the same time deferring invoicing and accounts receivable (AR) transactions. You can also have the system automatically replenish consumed amounts on the active schedule.

See *User Guide Volume 2B: Distribution*.

- You can use Logistics Accounting to track third-party transportation costs incurred when a product is shipped to your customer.

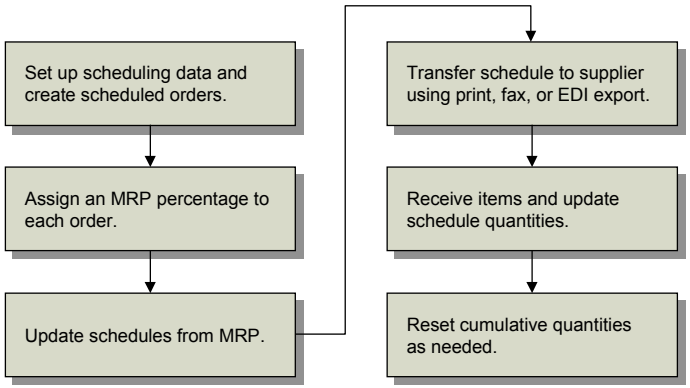
See *User Guide Volume 6: Master Data*.

Supplier Schedules

See Chapter 3, "Supplier Schedules," on page 67 for more information.

Supplier schedules are cumulative, schedule-driven purchase orders with multiple line items from which releases of requirements and due dates are issued. Figure 1.5 illustrates the steps required to process supplier schedules.

Fig. 1.5 Supplier Schedule Task Flow



Each release has its own ID number. Send each supplier the most recent release, which replaces previous releases and becomes the active one. Net requirements are recalculated with each scheduled release and each shipment receipt.

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

The PRO/PLUS Supplier Shipping Schedules module lets you generate separate supplier planning and shipping schedules. If you have purchased the optional PRO/PLUS module, these functions are available as menu 5.5.7.

MRP-planned purchase orders are managed with supplier schedules, where they can be edited and communicated to the supplier as schedules. You can send these schedules out using EDI ECommerce. The schedules can also be printed or sent to a file that interfaces with fax software.

When you receive items, schedule quantities are updated. These quantities are reset periodically, typically at year end.

Other optional features of MFG/PRO support Supplier Schedules functions; for example:

- You can use Customer Consignment Inventory to plan, order, receive, stock, track, and report supplier-consigned material while at the same time deferring vouchering and accounts payable (AP) transactions.

See *User Guide Volume 2B: Distribution*.

- You can use Logistics Accounting to track third-party transportation costs incurred when a product is shipped by your supplier.

See *User Guide Volume 6: Master Data*.

Electronic Data Interchange (EDI)

Releases are typically sent and received using EDI, which is an international protocol that defines means and methods for electronic transmission of documents. EDI can be used to transmit a variety of documents, but most common are purchase orders and supplier schedules, sales orders and customer schedules, invoices, and advance shipping notices (ASNs).

EDI ECommerce is MFG/PRO's globally deployable EDI solution, providing EDI functions with reduced installation and support requirements. EDI ECommerce processes international EDI document standards with most major third-party EDI communications or translation software—referred to collectively as EC subsystems—currently on the market.

See "EDI ECommerce" on page 87 for details.

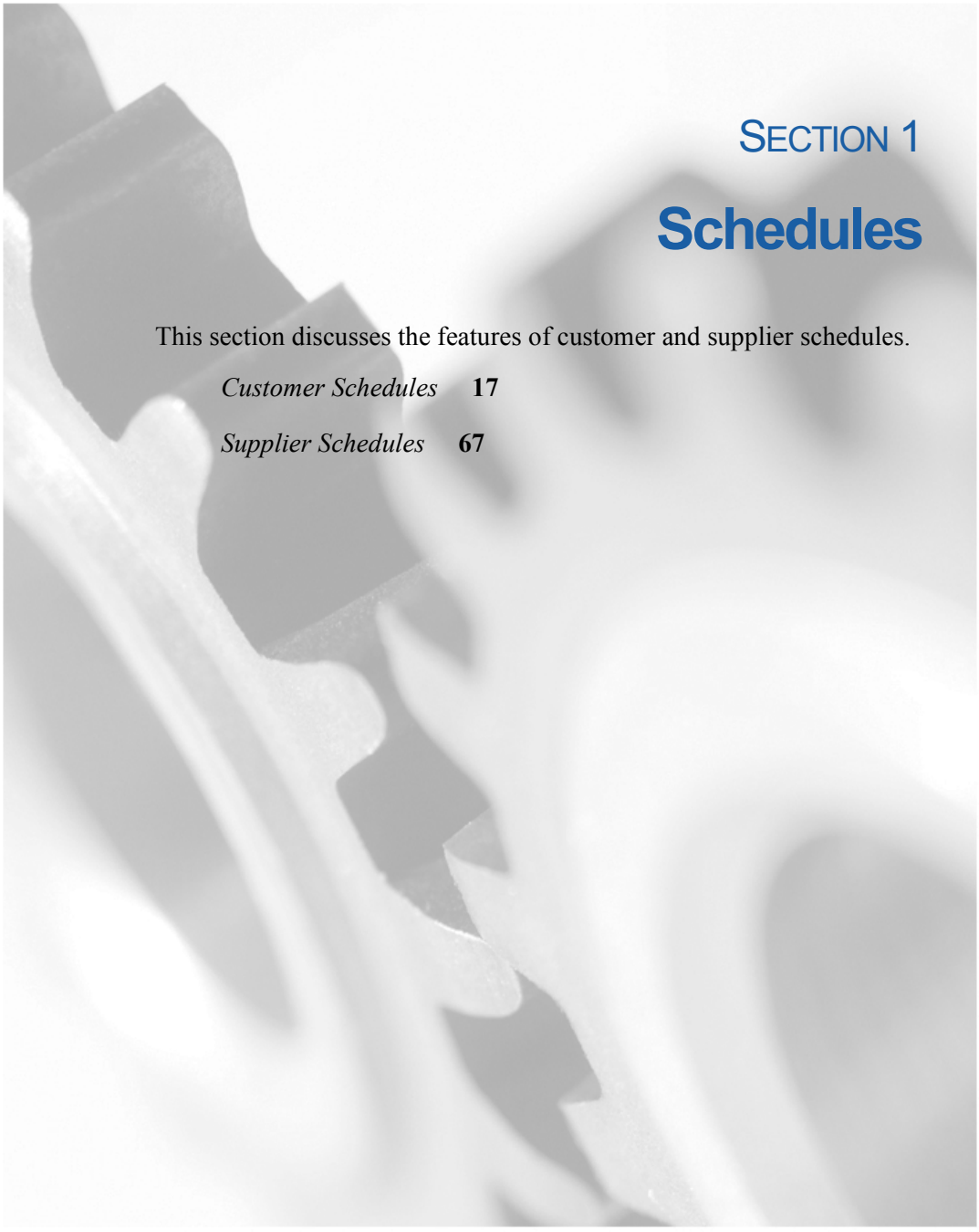
For customer schedules, EDI-enabling software is used to pull the releases from a customer's computer network or an e-mail address the customer has designated. The document is then imported into MFG/PRO using EDI ECommerce and mapped into a customer schedule maintenance program. Purpose codes within the EDI document determine how it is processed; for example, as an add, append, delete, or test.

For supplier schedules, EDI ECommerce translates the schedule into an EDI format that can be read by the supplier's system, which is then transmitted as a flat file and imported by the supplier.

Many customers require that an advance ship notice (ASN) be communicated when a shipment is made. MFG/PRO fulfills this requirement by storing the ASN information from the shipment confirm transaction in the database. EDI ECommerce then converts the ASN information to a format acceptable to the customer's EC subsystem for

transmission to the customer. Some customers also require that invoices be sent via EDI; other customers do not require an invoice and pay from the ASN.

Similarly, if you require your suppliers to send an ASN, you import that information using EDI ECommerce. When an ASN is received, it creates a purchase order shipper. When the shipment itself arrives, all you need to do is confirm it and adjust quantities if needed.



SECTION 1

Schedules

This section discusses the features of customer and supplier schedules.

Chapter 2

Customer Schedules

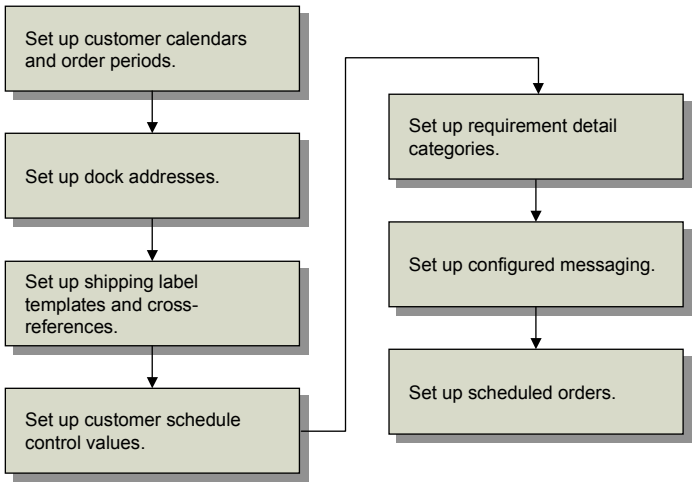
Customer schedules refer to the shipping and planning schedules that your customers send to you as a supplier. These schedules are used to create cumulative, schedule-driven sales orders with multiple line items. Based on scheduled orders, you release shipments using standard sales order shipping functions. Each release has its own ID number and each shipment you send to a customer has its own shipment number.

Setting Up Customer Schedules

To use customer schedules, you must set up the same baseline data required for sales orders, including items and customer addresses. If you plan to use shipping containers, you must also set up the container items in Item Master Maintenance (1.4.1).

Within customer schedules, there are a number of additional kinds of data that can be set up to streamline order processing. Most setup functions are found on the Customer Schedules Setup Menu (7.3). Figure 2.1 illustrates the flow of setup tasks.

Fig. 2.1 Customer Schedules Setup Flow



Two steps are optional:

See page 23 for details.

- If you use a noncumulative accounting procedure for release management, you also need to set up categories to use for requirement detail pegging.

See page 27 for details.

- If you want to add special checks to verify shipper structure or modify how the system verifies authorization numbers, use Configured Message Maintenance (36.4.6) to customize the validation process.

Setting Up Schedule Data

This section covers setting up data used in other customer schedule functions:

- Customer calendars
- Customer order periods
- Customer dock addresses
- Shipping labels

Customer Calendars

When customers do not work the same days that you do, you should set up customer calendars in Customer Calendar Maintenance (7.3.1). The system checks the customer calendar when required ship schedules (RSSs) are calculated so that releases do not occur on nonworking days. If you do not set up a customer calendar, the system uses your shipment planning calendar.

Customer Order Periods

Use Customer Order Period Maintenance (7.3.3) to set up customer order periods. You can then match your shipment planning calendar to customer order periods. For example, some trading partners develop, and require you to use, period numbers that correspond to specific dates.

Customer order periods are used in detail screens such as Customer Plan Schedule Maintenance (7.5.1).

Dock Addresses

Your customers may have multiple docks at a ship-to location and may specify which dock to use for a particular shipment. Define dock addresses with Dock Maintenance (7.3.6).

Before you can define docks, the related ship-to addresses must exist. A dock address supersedes a ship-to address on orders specifying a dock.

See "Processing Shipments" on page 51 for details.

You can assign the dock address in Scheduled Order Maintenance (7.3.13) as the default ship-to for the order. The dock should also be entered in Sales Order Shipper Maintenance (7.9.8) during shipment processing. Tax calculations use the ship-to site address.

Shipping Labels

Shipping labels are barcode labels that you can define and print for single-item-number containers, mixed-content containers, and master containers (such as pallets) of single-item-number subcontainers. The labels enable shipments to be received with barcode readers. Labels can replace printed shipper documents used as packing lists in some supplier-customer relationships.

Tip
Three label types are master, mixed, and single.

To implement shipping labels, you must create a shipping label template file for each type of label required for each customer. These templates control the data format, the bar size, printed boundary lines, and other printed information. Templates are specific to your operation, to barcode reading equipment used by your customers, and to your industry.

You can select from a wide array of barcode label design software in creating templates. Each third-party package may have different requirements for creating a template.

See *User Guide Volume 9: Manager Functions* for details.

In addition to creating template files, you must have a barcode-capable printer. You may need to add printer-control codes in the Bar Code Control frame in Printer Setup Maintenance (36.13.2), depending on the third-party software selected. The printer codes are usually described in the printer hardware manufacturer's documentation. Escape codes for many of the standard printer types should be provided in the documentation of the third-party barcode template design software that you choose.

Enter template values in Shipping Label Definition Maintenance (7.3.11). Each of these template values corresponds to an order field value. At print time, they are converted to barcode symbols. Table 2.1 lists template values and the field data that replaces them.

Table 2.1
Template Values

Template Value	Data Field	Entry Program
000001	Container ID	Container Workbench
000002	Shipper ID	Sales Order Shipper Maintenance
000003	Customer Item	Customer Item Maintenance
000004	Item Number	Item Master Maintenance
000005	Description	Item Master Maintenance
000006	Quantity	Container Workbench, SO Shipper Maintenance
000007	Purchase Order	Scheduled Order Maintenance
000008	Supplier	Scheduled Order Maintenance
000009	Ship-From Name	Company Address Maintenance
000010	Net Weight	Item Master Maintenance
000011	Gross Weight	Item Master Maintenance
000012	Number of Sub-containers	Container Workbench
000013	UM	Item Master Maintenance
000014	Special 1 barcoded data value	Container Workbench
000015	Special 2 barcoded data value	Container Workbench
000016	Special 3 barcoded data value	Container Workbench
000017	Special 4 barcoded data value	Container Workbench
000018	Special 1 text data value	Container Workbench
000019	Special 2 text data value	Container Workbench
000020	Special 3 text data value	Container Workbench
000021	Special 4 text data value	Container Workbench

When the system sends labels to the printer, it checks the entire shipment structure. Label-related information from container and shipper maintenance must be complete and accurate. A label referencing the shipper ID is printed for each container in the shipment. The system prints:

- Master-load labels when multiple single-item-number containers are shipped in another container
- Mixed-load labels when multiple item numbers are shipped in a container
- Single-load labels when a single item number is packed in a container

When you define templates, you specify where template files are located in your file system. You also indicate the label type: mixed, master, or single.

Some customers may use their own identification number for you. If so, you must create a cross-reference between the customer's ID number for you and an MFG/PRO internal site so that the customer's ID number prints on the shipping label. Use Site Ship-from ID Maintenance (7.3.10) to create these cross-references. The shipping label supplier ID is printed on the shipping label by the Shipping Label Print function (7.7.7).

Setting Up Control Program Values

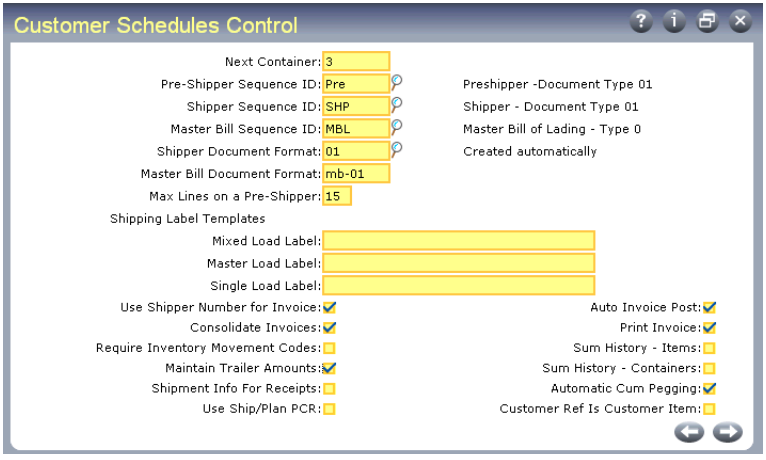
Customer Schedules Control (7.3.24) contains the same fields as Container/Shipper Control (7.9.24). Changing one automatically updates the other.

See *User Guide Volume 2A: Distribution* for details.

To ship scheduled orders, you must complete the same setup required for shipping standard sales orders. This includes defining sequence numbers using Number Range Management (NRM) features for pre-shippers, shippers, and bills of lading.

If you are using other shipping features such as shipping groups and inventory movement codes, they must also be defined and the defaults established in the control program.

Fig. 2.2
Customer Schedules Control (7.3.24)



The fields in this control program are described in the discussion of shipping.

See *User Guide Volume 2A: Distribution* for details.

Setting Up Categories for Requirement Detail

You can maintain special requirements information associated with schedules, such as:

- Special marking required by the customer for the items shipped
- Specific information needed on barcode labels for packaging
- Requirements tied to authorization numbers such as release authorization numbers (RAN)

Multiple sets of requirement detail can be associated with each schedule detail record. This information can be updated in a subframe of Customer Plan Schedule Maint (7.5.1) and Customer Ship Schedule Maint (7.5.2).

See "Requirement Detail Maintenance Frame" on page 46.

When Required Ship Schedule Update (7.5.5) is run, requirement detail is copied to the RSS and can be viewed and maintained in Required Ship Schedule Maintenance (7.5.3). It can be reviewed on various schedule reports including:

- Schedule Inquiry (7.5.8)
- Schedule Report (7.5.10)

Requirement categories are created in Generalized Codes Maintenance (36.2.13) for field rqm_cat. The categories you create should be based on the type of requirement detail you receive.

The category AUTHNBR represents an authorization number. This category is created during document import, if it does not exist. AUTHNBR is the only category that has special meaning to the system. Other categories are for your reference only.

Authorization numbers are tracked from time of receipt through the entire shipment process to final invoicing. During import, if authorization numbers are received, the database is checked to verify that the numbers are unique, based on business rules.

Setting Up Configured Messages

The requirements of companies involved in long-term, scheduled relationships vary greatly. One trading partner's requirements for how shipments are represented on an ASN may differ from another's. Meeting the trading partner's requirements is an important measure of supplier performance.

MFG/PRO provides a flexible method of verifying the structure and content of newly created shippers. This optional feature lets you determine the severity of various error conditions. Any shipper can be verified, whether created automatically or manually.

The verification process uses an external execution file defined in Configured Message Maintenance (36.4.6) to confirm that the structure and content of the shipper are valid. It also uses records defined in Configured Message Maintenance to determine the message to display if the shipper fails the verification.

Configured messaging enables you to tailor conditional error processing to meet specific business rules. You determine which conditions do not justify a message, and which require an informational message, a warning message, or an error message. You can also specify the sequence in which the system checks for errors.

Different message conditions can be applied to different sites and addresses, letting you tailor processing based on the trading partner's requirements.

Shipper Verification

Shipper verification executes automatically at the end of Shipper Gateway (7.9.22) and Picklist/Pre-Shipper–Automatic (7.9.1). Any shipper can also be verified manually using Manual SO Shipper Verification (7.9.10). This program alerts you to potential shipping problems that should be corrected before proceeding through the shipment process.

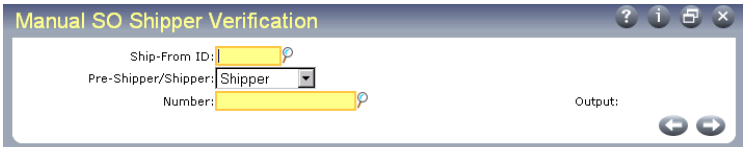


Fig. 2.3
Manual SO Shipper Verification (7.9.10)

Configured messaging is currently only implemented for shippers. Entries are based on the verification calling program, message number, message sequence, execution file, and severity level. You can set up messages based on language code, site, and address. Set up generic entries by leaving Site and Address blank. Define trading-partner-specific entries by entering a site code, customer ID, or ship-to code.

Sample Configured Message Files

Table 2.2 lists the five sample shipper verification programs supplied with MFG/PRO, or you can specify your own. There are many other conditions you may need to verify, such as:

- All items in a container are for the same purchase order.
- All items in a container are for the same authorization number.
- All items in a container are for the same lot.
- A returnable container is correctly cross-referenced in Customer Item Maintenance (1.16).

To create your own verifications, determine which are required, write the program, attach it to a configured message entry, and verify the shipper. Multiple verifications can be run on one shipper, provided multiple configured message entries exist.

Table 2.2
Sample Configured Message Execution Files

Msg No.	Message	Calling Program	Execution File	Description
1533	Container quantity is greater than 1	rcvrfsh1.p	rcvrfc01.p	Sample container quantity verification program
1535	A ship item is not containerized	rcvrfsh1.p	rcvrfi01.p	Sample item containerization verification program
1540	A container is empty	rcvrfsh1.p	rcvrfc02.p	Sample container empty verification program

Msg No.	Message	Calling Program	Execution File	Description
1541	Containerization is greater than 2 levels	rcvrfsh1.p	rcvrfc03.p	Sample containerization level verification program
1542	A container has two different order/line items	rcvrfsh1.p	rcvrfi02.p	Sample container has same order/line verification program

While shipper verification is optional, its use is recommended, since the process identifies initial problems with shippers. During verification, each program is executed in the order specified by the message sequence value. If any portion of the shipper is found to be invalid according to the execution file, the appropriate message displays. You can analyze and correct the situation and continue with the shipment process.

You can generate a Config Msg Verif Report (36.4.10), which lists the execution programs run, and the sequence in which they are run. The shipper is typically used to create an advance ship notice (ASN). Since transmission of the ASN is often time-critical, being aware of invalid shipper content or structure before shipment is vital.

Setting Up Configured Messaging

To set up configured messaging, follow these steps:

1. Create a user-defined verification execution program, or choose one of the five sample programs provided.
2. Define entries in Configured Message Maintenance. Multiple entries for the same verification program can exist, with different message sequence numbers.
3. Create the shipper manually using Pre-Shipper/Shipper Workbench (7.9.2) or automatically using Picklist/Pre-Shipper–Automatic (7.9.1) or Shipper Gateway (7.9.22).
4. If the shipper is created in Shipper Gateway or Picklist/Pre-Shipper–Automatic, verification is run automatically. Warning or error messages are displayed to the terminal or routed to a destination file name or print device.

5 If changes are made to the shipper or it is created in Pre-Shipper/ Shipper Workbench, manually verify it using Manual SO Shipper Verification (7.9.10).

6 Optionally, print the Config Msg Verif Report (36.4.10) for a list of execution programs and the sequence in which they were run.

Configured Message Maintenance

Use Configured Message Maintenance (36.4.6) to create configured message entries. Make the entries specific by adding a site and address or generic by leaving site and address blank.

If Site and Address fields are blank, the verification program applies to every site and every customer and ship-to. Provide more information to make shipper verification trading-partner specific. More specific entries are used first.

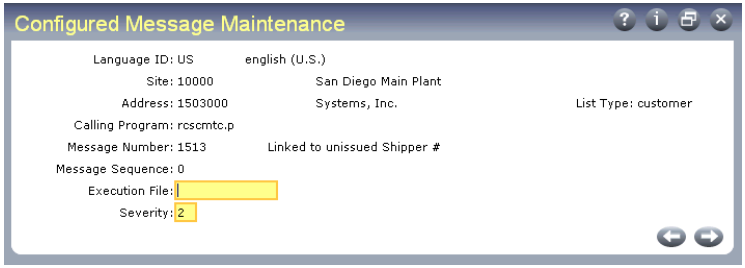


Fig. 2.4 Configured Message Maintenance (36.4.6)

Language ID. Enter a language code for selecting the appropriate message language.

Site. Optionally enter a site to be associated with the messages.

Address. Optionally enter a customer or ship-to code defined in Customer Maintenance (2.1.1) or Customer Ship-to Maintenance (2.1.13).

Calling Program. Currently, the only valid entry is rcvrfsh1.p, the shipper verification program.

Message Number. Enter the appropriate MFG/PRO message number identifying specific message text.

If you are writing your own custom Progress programs, you may want to use standard messages for consistency. These are accessed using the include file `mfmsg.i`. Pass the message number and a severity indicator, and the message displays.

Message numbers 9000 through 9900 are reserved for customer use and are not used by QAD.

Message Sequence. Enter a number indicating the order in which the execution file should be run.

See Table 2.2 on page 25 for a list of sample programs.

Execution File. Enter the appropriate verification program. This may be one of the five sample programs supplied with MFG/PRO, or a custom, user-defined program.

Severity Level. Enter a number from 0 to 4 indicating the message severity.

0. No message displays.
1. An informational message displays.
2. A warning message displays.
3. An error message displays along with `Please re-enter`, and processing stops.
4. An error message displays, and processing stops.

Warning When verifying shippers, do not use severity level 3. Verification is a noninteractive process run after the shipper is created, without opportunity to re-enter data. Use severity level 4, which does not include `Please re-enter`.

Creating Scheduled Orders

Create scheduled orders in Scheduled Order Maintenance (7.3.13). A scheduled order is a combination of sales order header and trailer fields and line-item planning fields. This combination of fields provides the structure against which item quantities and dates are received.

Header Frame

Some of the header fields are similar in function to the equivalent fields in Sales Order Maintenance. Fields that are unique to scheduled order processing are discussed here.

See *User Guide Volume 2A: Distribution*.

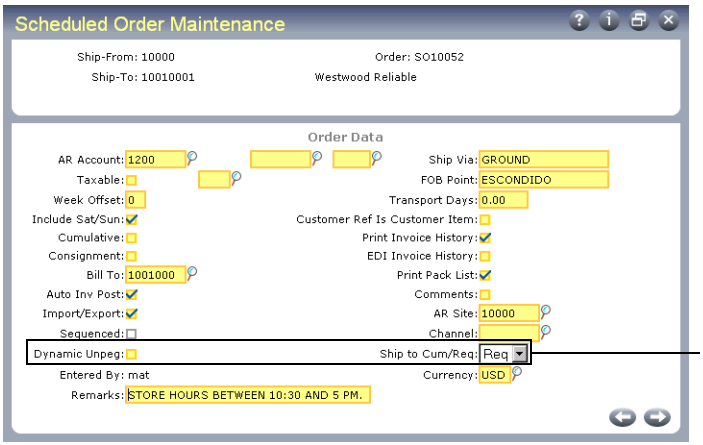


Fig. 2.5 Scheduled Order Maintenance (7.3.13)

Use these two fields to control noncumulative schedules.

Week Offset. This field sets the weekly starting day of this scheduled order to match the customer's work week. The default is 0 (zero), which represents Monday. If this customer's business week begins on Tuesday, set this to 1, and so on through 6, which sets Sunday as the starting day. All reports and inquiries with bucketed quantities display the period requirements on this weekday.

Cumulative. Determines how requirements are entered on scheduled releases and displayed in reports and inquiries.

No: Net quantities are entered.

Yes: All quantities are entered as cumulative, meaning that the discrete quantity is added to the cumulative quantity of the previous requirement.

See *User Guide Volume 2B: Distribution* for information on Customer Consignment Inventory.

Consignment. Enter Yes if items on this scheduled order are consigned. This value defaults from Ship-To/Item Controls Maintenance (7.18.1), if used. If not used, the value defaults from Customer Consignment Control (7.18.24).

Enter No if the most items on this order are non-consigned. You can designate individual items as consigned in the Consignment Order Line Item Data frame that displays later during order entry.

Auto Inv Post. This field sets the default value for the Post Invoice field in Pre-Shipper/Shipper Confirm (7.9.5).

- When Post Invoice is No, invoices are not posted during shipper confirmation. You must post them manually using Invoice Post (7.13.4).
- When Post Invoice is Yes, invoices are automatically posted during shipper confirmation to the general ledger Accounts Receivable (AR) account specified in Customer Maintenance (2.1.1). You can print accumulated invoices using Closed Invoice Reprint (7.13.12).

This value defaults from the Auto Invoice Post field in Customer Schedules Control (7.3.24).

For details, see *User Guide Volume 11: PRO/PLUS.*

Sequenced. This field is available only when using the PRO/PLUS Customer Sequence Schedules module. It indicates whether the scheduled order is a sequenced scheduled order. If Yes, enter sequence information in the Sequence Delivery Data frame.

This value is used by EDI ECommerce, Required Ship Schedule Update (7.5.5), and Picklist/Pre-Shipper–Automatic (7.9.1) to verify whether scheduled orders are sequenced orders. It defaults from the Scheduled Order Default field in Sequence Schedule Control (7.5.4.24).

Dynamic UnPeg. Set to Yes to initiate dynamic de-allocation. This affects the open quantity by letting pegged requirement quantities on unconfirmed shippers for the same order line number be included in the calculation. The pegged quantities are unpegged from unconfirmed shippers and pegged to ship lines on newly created shippers.

This activity is optional. It should only be used if unconfirmed shippers are left in the system for extended periods of time.

Transport Days. Enter the number of calendar days it takes for a shipment to arrive at the customer site. Specify a value only if your customer gives you a receipt schedule, specifying the date they want the product in-house. If your customer gives you a shipping schedule, they have already factored in the transportation time.

The schedule update functions uses this to set shipment dates.

Shipment Date = Requirement Date – Transport Days

Print Invoice History. Specify whether an invoice history can be printed for this scheduled order using Closed Invoice Reprint (7.13.12). This lets you print a paper copy of an invoice after an EDI invoice is transmitted electronically or when the advance ship notice (ASN) is used by the customer as the invoice.

EDI Invoice History. Specify whether an invoice for this scheduled order can be selected for export to the customer in EDI format using Invoice Export (35.4.3). On new orders, this field defaults from the Send EDI Invoices parameter specified for the customer in Trading Partner Parameter Maintenance (35.13.10). If that parameter is not specified, the default is No.

AR Site. Enter the site where the sales order or invoice was recorded. This can be the same as the ship-from site, but does not have to be. You can change this site for each line item.

In multisite transactions where the AR site is different from the ship-from site, you can make shipments and let a separate AR site collect the revenues. Also, the AR site can exist in a different entity or different database, or both.

Ship to Cum/Req. Specify Req (required) to indicate a noncumulative schedule. If Req, an additional frame displays. Specify Cum to indicate a cumulative schedule.

Enter Req to peg ship details out of sequence. Pegging occurs automatically during the creation of the shipper in:

See “Pegging Requirement Detail” on page 56.

- Picklist/Pre-Shipper–Automatic (7.9.1)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Shipper Gateway (7.22)

For a cumulative order, you can disable automatic pegging by setting Automatic Cum Pegging to No in Container/Shipper Control (7.9.24) or Customer Schedules Control (7.3.24).

Customer Ref is Customer Item. Use this field to indicate whether the value entered in Customer Ref should be a valid customer item. It defaults from Customer Schedules Control.

You use Customer Item Maintenance (1.16) to cross-reference customer item numbers to your internal item numbers. Some customers may use more than one of their own identification numbers for your item.

If you have an internal item that correspond to more than one customer item, you can use this field, in conjunction with the Item and Customer Ref fields, to indicate which of the various customer items to use. This lets you set up more than one order line for the same combination of internal item, PO number, and ship-to address.

The effect of setting this field to Yes varies depending on what you enter in the Item field:

- 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.

Any values entered in Customer Ref are validated against existing customer item numbers.

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.

Non-Cumulative Quantity Accounting Data Frame

This frame displays when Ship to Cum/Req is set to Req.

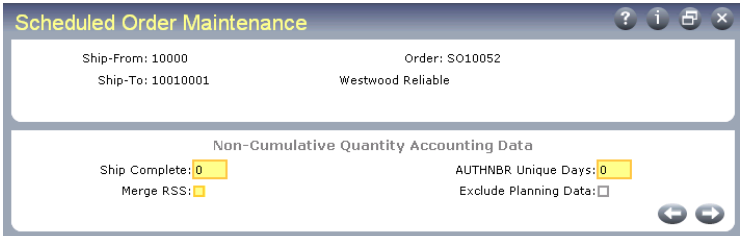


Fig. 2.6 Scheduled Order Maintenance, Non-Cumulative Quantity Accounting Data Frame

Ship Complete. Ship Complete is used to specify what percentage of a requirement quantity must be shipped to be considered complete. If you consider a requirement satisfied when 100 percent of the requirement quantity has been shipped, set Ship Complete to 100.

To verify that a requirement with only one authorization number is shipped properly, set Ship Complete to 1. This prevents any other occurrence of an authorization number from being shipped. When the first occurrence is pegged, it satisfies the ship complete percentage, and sets open quantity to zero. If you attempt to peg the requirement quantity for a second occurrence, an error displays.

During the generation of a required ship schedule, this field determines which RSS requirements are open and should be carried to the new active schedule. If a percentage shipped is less than the Ship Complete percentage, the requirement is included in the new active RSS.

During shipment, this field determines which requirements are available for pegging in various shipper programs.

Example Set Dynamic Unpeg to No and Ship Complete to 100. Create a shipper with an item, in a box, on a pallet, with a ship quantity of 500. With an RSS requirement of 500, when you peg 500 in the Consume Required Ship Schedule Requirements frame, the open quantity is reduced to zero. This shipment is now considered complete.

AUTHNBR Unique Days. If not zero, the system verifies that duplicate authorization numbers are not reused within the time period specified.

Tip
During the merge, the value of Ship Complete determines which requirements are open.

Merge RSS. This field determines whether open requirements from existing required ship schedules (RSS) are copied to newly generated schedules. A requirement is considered open if it has not been fully shipped.

No: Required Ship Schedule Update and Selective Required Ship Schedule Update do not copy requirements from existing active schedules to new schedules.

Yes: Required Ship Schedule Update (7.5.5) and Selective Required Ship Schedule Update (7.5.6) copy open requirements from existing active schedules to new schedules. If Yes, enter yes or No in the Exclude Planning Data field to indicate whether to merge planning data.

Set to Yes if your trading partner does not retransmit requirements that have not yet been shipped.

See “Merging Imported Schedules” on page 49.

Note Open requirements that are already allocated are always copied regardless of this setting.

Exclude Planning Data. You can update this field only when Merge RSS is Yes. When open requirements are being merged, this field determines how the system manages planning data.

No: Planning data from the active required ship schedule is merged into the newly generated schedule.

Yes: Planning data from the active required ship schedule is not merged into the newly generated schedule.

Order Line Item Identification Frame

Use the following frame to identify items in the scheduled order:

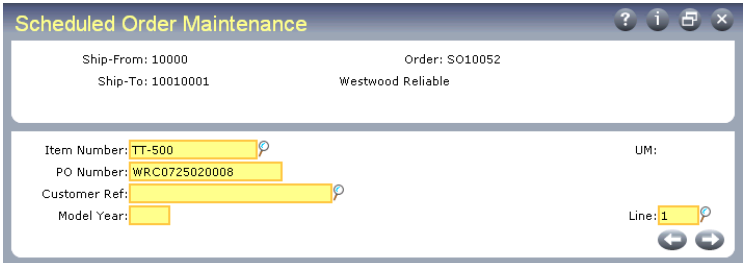


Fig. 2.7 Scheduled Order Maintenance, Order Line Item Identification Frame

The following four fields uniquely identify a scheduled order detail record:

Item. Enter the item code for this order line. Inventory item codes must be defined previously in Item Master Maintenance (1.4.1). If you specify a customer item, the system accesses the corresponding internal item number and displays it in the Item field.

PO Number. Enter the customer purchase order for this line item record. You can leave this field blank.

Note You cannot specify the same item and PO number on a scheduled order for the same ship-from site and ship-to customer.

See "Customer Ref is Customer Item" on page 32.

Customer Ref. The value you enter in this field depends on the value of Customer Ref is Customer Item in the scheduled order header.

If Customer Ref is Customer Item is Yes, you must provide a valid customer item number. When a customer item defaults, it corresponds to the internal item number entered in Item. Alternatively, if you enter a customer item in Item, then that customer item defaults here. Any value you enter here is validated against existing customer item numbers.

If Customer Ref is Customer Item is No, optionally enter any customer reference. This value is not validated.

Model Year. Optionally enter a model year for the scheduled order line item.

UM. Enter the unit of measure for the item. For inventory items, this defaults from the item master record.

Line. Enter the line number that uniquely identifies a scheduled sales order line item. The system assigns line item numbers automatically when you add new line items. Use this number to access and modify an existing line item.

Order Line Item Data Frame

The following frame always displays.

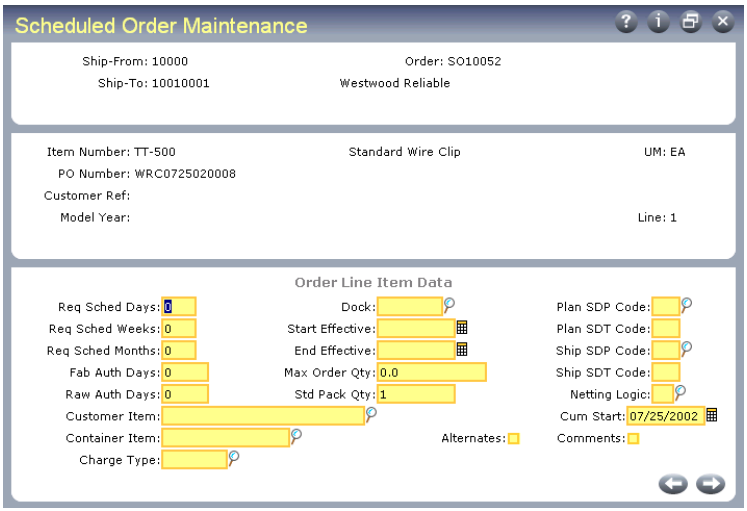


Fig. 2.8
Scheduled Order Maintenance, Order Line Item Data Frame

Req Sched Days, Req Sched Weeks, Req Sched Months. These fields rebucket customer requirements into a sequential horizon of days, then weeks, then months.

Entering values in these fields has an impact on MRP. The weekly and monthly quantities are seen by MRP as requirements on the first day of the period, and MRP plans accordingly. This can result in excessive and unnecessary action messages.

Set these fields to zero to maintain the customer's date and quantity requirements. Also leave these fields set to zero if you are using noncumulative accounting procedures and pegging requirements through authorization numbers.

Fab Auth Days, Raw Auth Days. Raw and fabrication authorization commitments are made to give suppliers some protection against sudden and unforeseen reductions in demand.

- Raw quantity is the quantity of product the customer commits to covering component costs.
- Fab quantity is the quantity of product the customer commits to covering manufacturing costs.

These fields are used by Customer Plan Schedule Maint (7.5.1) to calculate the authorization quantities, in the event customer authorizations are for a number of days into the future.

The Schedule Report (7.5.10) shows all authorizations by release, then prints the highest of each type authorization, referencing the release ID of each. The highest of each type is determined by the highest quantity or the latest end date.

See "Customer Ref is Customer Item" on page 32.

Customer Item. Enter the item number used by the customer. This number appears on ASNs and invoices in place of your internal item number. The value that displays in this field defaults from the Item field or Customer Ref field.

Container Item. Optional container item number, used for shipping the scheduled order item. The Required Ship Schedule Detail Report (7.5.14) display this number, if defined.

Dock. Optionally, enter a valid dock address for this customer ship-to address. Items are delivered to this dock.

Start and End Effective. Optional dates controlling the introduction and duration of this line item on the order. Warning messages display for orders released before or after the effective dates.

Max Order Qty. Enter the maximum, cumulative quantity for the life of this order. When this quantity has been exceeded, the system displays warning messages at order updates, maintenance functions, inquiries, and reports.

Std Pack Qty. Enter the value used for shipping orders for this item. This field is similar to Order Multiple in the item master, but appears here because the standard shipment multiple may be different for different customers. The schedule update rounds order quantities up to this multiple. In order to preserve the scheduled order packing multiple, you must remove any order multiple specified in Item Master Maintenance (1.4.1).

Plan SDP, Ship SDP. Enter a code specifying the default ship/delivery pattern. These codes indicate the days of the week or month that shipments or deliveries are required.

The schedule update functions use this code to determine due dates for shipping the order. SDP codes can differ for shipping and planning schedules. For instance, if planning schedules are not used, leave these fields blank to avoid any rescheduling of the planning dates, while the ship schedule is rescheduled based on your shipping days.

SDP codes support both the ODETTE and Automotive Industry Action Group (AIAG) ship/delivery patterns. They are translated to the appropriate industry-standard code during EDI conversion and transmission.

Netting Logic. Determines which schedule types the system uses to create the required shipping schedule.

1: Use the ship schedule only.

2: Use the plan schedule only.

3: Combine the planning and shipping schedules, with the shipping schedule taking precedence where the schedules overlap. This is known as replace logic.

4: Combine planning and shipping schedule with the greater of the shipping or planning schedule taking precedence when the schedules overlap. This is known as consume logic.

Viewing Schedule Order Information

The system supplies two ways to view schedule order information:

- Schedule Order Inquiry (7.3.14)
- Schedule Order Report (7.3.15)

To display scheduled order information, you can specify the site from which all items for the scheduled order will be shipped, customer address, item, customer reference for the item, model year, PO number, or order. Additionally, Scheduled Order Report provides a sort option for scheduled order information that displays.

Processing Customer Schedules

Once scheduled orders are set up in your system, you can receive printed or electronic schedule releases from your customers. The most recently received release normally supersedes all previous releases. An exception is raw and fabrication authorizations. The longest authorizations, calculated by end date, are the valid ones.

How a schedule is loaded also depends on the EDI purpose code specified in the header of the imported file. Based on the purpose code, schedules can be added, deleted, or simply loaded as a test without making any updates.

Two types of schedules are received: planning and shipping. The two schedule types may or may not match in quantity or due dates for any date or period. The ship schedule is usually more accurate, but this depends on your customer. The selection of which schedule takes precedence in the short term is managed through the Netting Logic setting on the order header.

There are four basic steps to processing a schedule:

1. Receive the schedule, usually using EDI ECommerce.
2. Enter the release into the system or verify the schedule received through EDI ECommerce.
3. Run the schedule update to create the required ship schedule.
4. Run MRP to explode demand and schedule component orders.

Importing Schedules with EDI ECommerce

See “Importing Documents” on page 161.

All EDI documents are imported using the same EDI ECommerce Document Import (35.1) function. Based on control data in the EDI file, the system determines the type of document being imported, maps the data to match the appropriate MFG/PRO database tables and fields, and calls the appropriate gateway program to load the document into MFG/PRO.

When adding a schedule, the system:

- Verifies that the trading partner exists in the system.

- Verifies that your site code matches that on the release.
- Cross-references item numbers to your internal item numbers.
- Checks and opens the order record and line number.
- Determines if quantities are discrete or cumulative based on information in the imported EDI file.
- Checks that cumulative quantities appear in ascending order.
- Deletes this specific release if it already exists in the system.
- Sets the effective end date of the prior release.
- Adds any comments and the detail schedule data.
- Creates requirement detail records if they are received. If authorization numbers are received, verifies that they are unique based on the AUTHNBR Unique Days setting in the schedule.
- Updates the cumulative requirements.
- Updates last receipt information from attached ASNs.
- Updates the fabrication and raw material authorizations.
- Creates a new schedule release, incrementing the release ID.

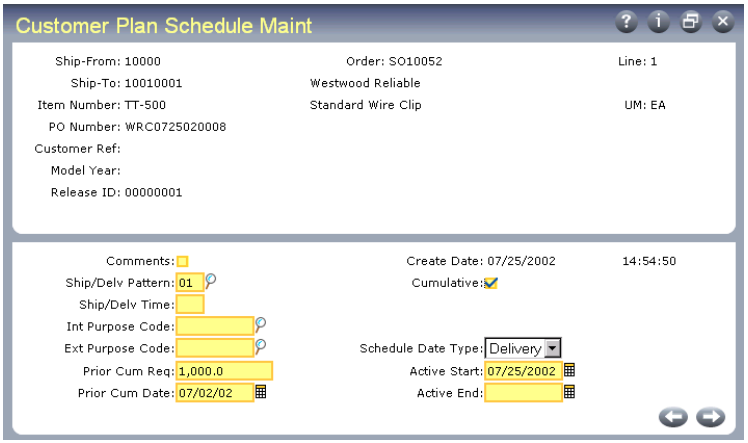
If the schedule import would override a required ship schedule with unshipped requirements, the transaction is not completed and an error displays.

Entering or Verifying the Release

If you do not import schedules using EDI ECommerce, enter the release into the system using Customer Plan Schedule Maintenance (7.5.1) or Customer Ship Schedule Maintenance (7.5.2). In an EDI ECommerce environment, use these programs to verify that release receipt was successful and that past customer receipts match your shipment records. The following is a brief discussion of some significant fields.

The following discussion focuses on Customer Plan Schedule Maintenance. Customer Ship Schedule Maintenance is almost the same. Any differences are noted.

Fig. 2.9
Customer Plan Schedule Maintenance (7.5.1)



See “Customer Ref is Customer Item” on page 32.

Customer Ref. The value you enter in this field depends on the value in Customer Ref is Customer Item in Customer Schedules Control (7.3.24).

If Customer Ref is Customer Item is Yes, you must provide a valid customer item number. When a customer item defaults, it corresponds to the internal item number entered in Item. Alternatively, if you enter a customer item in Item, then that customer item defaults here. Any value you enter here is validated against existing customer item numbers.

If Customer Ref is Customer Item is No, optionally enter any customer reference. This value is not validated.

Model Year. Enter the model year of the scheduled order line item.

Release ID. Enter a sequential number identifying this release. Planning, ship, and required schedules for the same customer schedule line item can share release IDs. Pressing Go in this field selects the active release. You can enter and make active any other release.

Ship/Delv Pattern. Enter the ship/delivery pattern that the customer used in creating this release. Your order header takes precedence over the customer’s SDP code.

Ship/Delv Time. Specify the code indicating the time of day when shipments or deliveries are accepted.

Int and Ext Purpose Code. These fields are not currently used. Their values have no effect on processing.

Prior Cum Req. The total customer receipts on this scheduled order up to the Prior Cum Date. This is automatically incremented by new releases from the customer based on the customer's record of received quantities. A record of the last three or more customer receipts is often sent with each scheduled release to help identify any quantity discrepancies.

Prior Cum Date. The day before this scheduled release became active. This date is used to determine cumulative quantities. All customer receipts up to and including the prior cum date are added to the order's cumulative total and display in the Prior Cum Req field.

Cumulative. Defaults from the scheduled order header.

Schedule Date Type. This field determines how requirement dates are calculated by Required Ship Schedule Update. Valid entries are:

Ship: Schedule dates are shipment based and requirement dates are not adjusted.

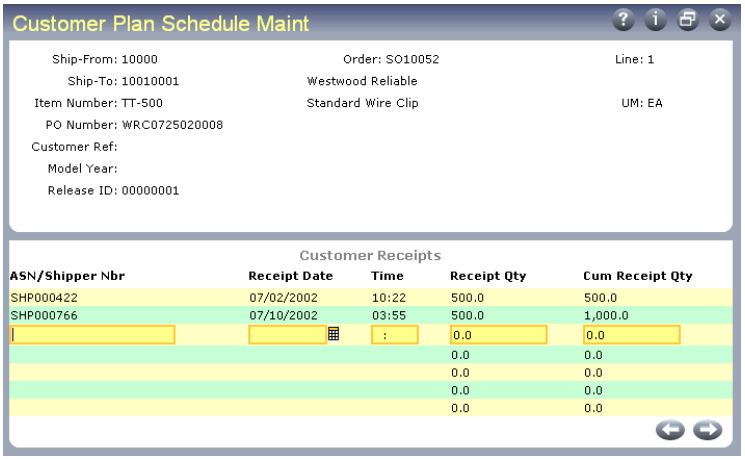
Delivery: Schedule dates are delivery based. Requirement dates are adjusted by the number of days specified for Transport Days in Scheduled Order Maintenance.

The value of this field is read from the schedule when it is loaded using EDI ECommerce.

Customer Receipts

The next frame displays up to the last 10 ASNs that you sent to the customer and shows that they have been appended to the release to help maintain accurate cumulative totals.

Fig. 2.10
Customer Receipts Frame



ASN/Shipper Nbr. The last three ASNs, or receipt documents, are typically sent by the customer with each schedule release. Each is identified with a shipper or ASN number. The ASNs were originally sent by your company to notify the customer of a shipment, and are used by the customer to verify quantities and delivery times.

If there are discrepancies between the ASN you sent and the received items, the customer changes the quantities and times accordingly, and attaches the ASN to the next schedule release for your verification.

Receipt Qty. The discrete quantity the customer received in the specified shipment.

Cum Receipt Qty. The cumulative quantity for this item, including this ASN/shipper receipt.

Schedule Detail Data Frame

In the Schedule Detail Data frame, you can view and edit the requirements sent by the customer on this release.

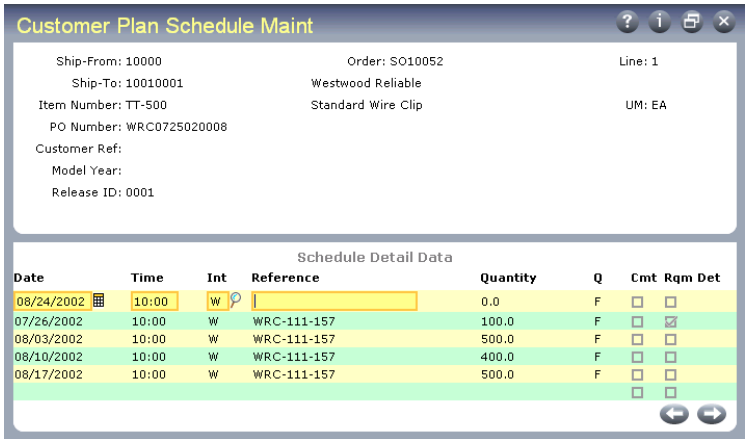


Fig. 2.11
Schedule Detail Data Frame

Interval. Indicate the interval this quantity requirement covers. Values are D (daily), W (weekly), M (monthly), Q (quarterly), H (half-yearly), Y (yearly).

Weekly intervals bucket requirements into the first day of the week, Monthly intervals bucket all requirements for the next month into the first Monday of the month.

Reference. The reference number is used by the customer to identify a specific shipment or delivery quantity. If this trading partner uses RAN numbers, they display in this field.

Q. A one-character forecast qualifier, communicated by the customer in plan and ship schedules.

This value normally defines whether the requirement quantity is firm or still in the planning stages. It can also be used for any special purpose specified by the customer communicating the schedule.

Since all quantities in a required ship schedule are firm, Required Ship Schedule Update sets this field to indicate the source of the requirement:

1: The requirement originated from a planning schedule.

2: The requirement originated from a shipping schedule.

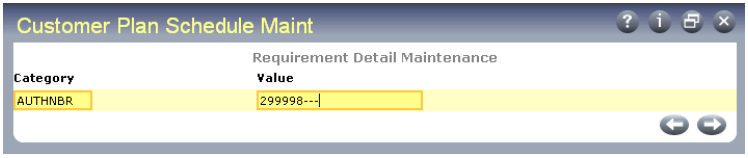
However, if the scheduled order defines bucketing quantities and the schedule does not have any detailed requirements, the Q column still displays F after bucketing processing.

Rqm Det. Enter Yes to display an additional frame for adding or modifying requirement detail. Requirement detail is typically updated only if you are using noncumulative accounting procedures.

Requirement Detail Maintenance Frame

Figure 2.12 illustrates the Requirement Detail Maintenance frame. This frame displays when Rqm Det is Yes in the Schedule Detail Data frame.

Fig. 2.12
Requirement Detail Maintenance Frame



Specify a valid category previously defined in Generalized Codes Maintenance (36.2.13) and enter the requirement detail in Value.

Tip
Specify category AUTHNBR.

If an authorization number is specified, the system verifies that it is unique, based on the setting of AUTHNBR Unique Days in the schedule.

If a requirement exists on a confirmed or unconfirmed shipper, avoid modifying the record. Doing so could result in one of the following messages:

- `LINKED TO UNCONFIRMED SHIPPER`
- `LINKED TO CONFIRMED SHIPPER`

The messages display if an entry is defined in Configured Message Maintenance with a severity level of 1 or higher.

In Required Ship Schedule Maintenance (7.5.3), the value of Reference is linked to the value for AUTHNBR. If you modify the Reference value, a new schedule detail record is created. Only one authorization number can exist for each entry in Required Ship Schedule Maint. If you attempt to add a second, an error displays.

Resource Authorization Data Frame

The Resource Authorization Data frame only displays in Customer Plan Schedule Maintenance. These fields are not updated for ship schedules.

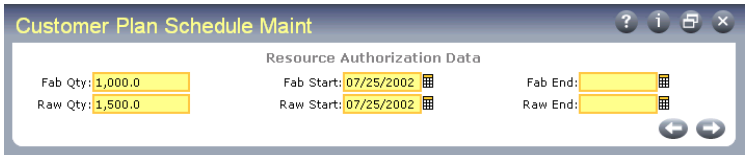


Fig. 2.13 Resource Authorization Data Frame

Fab Qty, Raw Qty. The quantity of this item, in end-item terms, that the customer authorizes you to fabricate (Fab Qty) or purchase materials for (Raw Qty), as of this scheduled release. The quantity and dates are used by the Schedule Authorization Report (7.5.12), which calculates the largest fab and raw authorizations by item and order.

Fab Start/End, Raw Start/End. Start and end date for these authorizations. Some customers send dates, others quantities.

Creating a Required Ship Schedule

At any point during schedule processing, you can use Required Ship Schedule Maintenance (7.5.3) to edit the active or any other required ship schedule release. To call up the active schedule release, select the correct order and press Go. In the Release ID field, press Go again to open the active release.

To run the schedule update, use either Required Ship Schedule Update (7.5.5) or Selective Req Ship Sched Update (7.5.6). The update creates a required ship schedule from either or both the planning and ship schedules. Which schedule is used depends on the Netting Logic setting in the order header. The system records the source of the requirement—either a shipping or planning schedule. This information displays in the output of the update functions.

If the order is using netting logic 3, the value of Use Ship/Plan PCR in Customer Schedules Control affects the schedule calculation.

See “Netting Logic” on page 39.

- If No, the beginning of the planning schedule is replaced by the shipping schedule and no prior cumulative quantities are considered.

- If Yes, the beginning of the planning schedule is replaced by the shipping schedule and remaining planning schedule quantities are adjusted by prior cumulative quantities.

RSS Calculations

The update first selects the most recent release for each schedule type. It then uses the order header data (Week Offset, Cumulative, Transport Days, Req Sched Days, Weeks and Months, Standard Pack, Netting Logic, and SDP Codes), your calendar, and your customer's calendar to adjust, if necessary, any dates or quantities. Adjustments are required when a customer does not schedule their requirements with reference to your open days, ship schedule, or shipment multiples. All date adjustments are back-scheduled.

The program performs the following calculations:

1. Back-schedules for ship/delivery pattern.
2. Combines schedules using netting logic.
3. Back-schedules for customer calendar from ship/delivery schedule.
4. Back-schedules for transport lead time from calendar-adjusted schedule.
5. Revises quantities to standard pack quantity multiple.
6. Rebuckets quantities from month and week quantities into dates and quantities.
7. Creates a new active required ship schedule, assigning a Release ID and displaying quantities and dates.

Managing Requirement Detail

If you are using noncumulative accounting procedures, the system manages requirement detail based on the settings you define in the Non-Cumulative Quantity Accounting Data frame of Scheduled Order Maintenance.

See “Non-Cumulative Quantity Accounting Data Frame” on page 33 for details.

If requirement detail exists, the system verifies that authorization numbers are unique, based on the AUTHNBR Unique Days setting for the scheduled order. Then requirement detail is copied to the RSS and a schedule detail record is created for each requirement detail record. In addition, open requirements from the previous active RSS can be carried to the new RSS if Merge RSS is Yes.

Planning data is excluded from the merge based on the setting of Exclude Planning Data. In some environment, authorization numbers are only supplied with scheduled requirements, not planned ones.

Merging Imported Schedules

When you import a schedule using EDI ECommerce, the system uses information from the customer’s EDI file to determine whether the incoming schedule should be merged with an existing one or replace it.

While updating the RSS also performs this function when Merge RSS is Yes in Scheduled Order Maintenance (7.3.13), it is sometimes impractical to merge the schedules manually if changes are being imported several times a day.

See “Merge RSS” on page 34.

The value of the `schedule_merge` variable in the implementation definition associated with the imported document controls whether the schedule is merged with the previous one.

See “Defining a Specific Implementation” on page 118.

- When the variable is No, the system replaces the current schedule with the corresponding new schedule from the EDI file.
- When it is Yes, requirements from the new schedule are added to those in the existing schedule.

Example A schedule arrives at 10:00 a.m. with October 2 forecast for a quantity of 10. At 11:00 a.m., another schedule arrives with a new release ID for an October 3 forecast for a quantity of 2. The `schedule_merge` variable file is Yes. The system makes the second schedule the active schedule, then copies the requirements from the first schedule into it. The

resulting schedule includes the requirements for both October 2 and October 3. If the second schedule had the `schedule_merge` variable set to No, the second schedule would replace the first—leaving only one requirement for a quantity of 2 on October 3.

Another variable, `detail_purpose`, can be used to provide more control over how imported forecasts are used when `schedule_merge` is Yes. Table 2.3 shows the effects of each value of the `detail_purpose` variable.

Table 2.3 Effects of detail_purpose Variable

Value of detail_purpose	Effect
A	For forecasts matching type, order number, line, release, date, time, firm/plan setting, and reference, the incoming amount is added to the current value.
R	The matching forecast replaces the current value.
D	The current value is set to 0 (zero).
Other value or blank	The matching forecast replaces the current value.

Report Output

When Report Detail/Summary is set to Detail in Required Ship Schedule Update, the entire calculation prints an audit trail. The update function can be run in preview mode first by setting Update to No.

When Update is Yes, a required ship schedule is created and the release ID incremented. You can rerun a schedule update by specifying the release ID of the order.

Viewing Schedule Information

The system supplies a number of reports for viewing schedule information. Each displays the source of the requirement—ship or plan schedule—received through loading EDI schedules.

- Schedule Inquiry (7.5.8)
- Schedule History Inquiry (7.5.9)
- Schedule Report (7.5.10)

Running MRP

You are now ready to run MRP to explode demand and schedule component orders.

See *User Guide Volume 3: Manufacturing*.

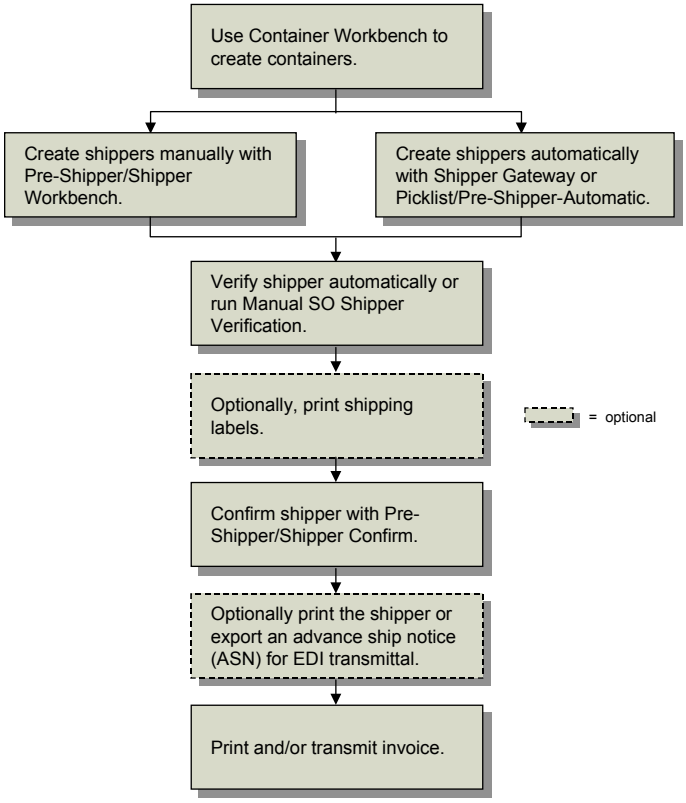
Processing Shipments

Use Sales Order Shipper Maintenance (7.9.8) to specify what is going to be shipped. However, since some time may elapse between the actual shipment and the creation of the shipper, use Pre-Shipper/Shipper Confirm (7.9.5) to execute shipment.

A shipment consists of multiple items, which can be end items or containers holding other containers and/or end items. Each shipper has a unique ID, which can also be the ASN number and invoice number.

Shipment maintenance relies on a structural relationship between items and containers. Containers are similar to parents and can include any number of items or other containers. A shipper is defined for the entire shipment, which contains all containers as well as any items that are not in containers.

Fig. 2.14
Scheduled Order Shipping Flow



Each shipment is processed in a similar manner using the following steps. Not all steps are required.

See *User Guide Volume 2A: Distribution* for details.

1 Containerize the shipment using Container Workbench (7.7.1), or use Pre-Shipper/Shipper Workbench (7.9.2) to add items and containers to shippers directly.

You can also define the shipper using Sales Order Shipper Maintenance (7.9.8).

Tip
Once a container is attached to a shipper or to a parent container, it cannot be deleted.

This step can be done without defined containers by simply assigning end items to the shipper itself. However, if you use shipping labels, items must normally be in a container.

Assign containers and items, the quantities for each, then add any lot or serial detail information. You are also prompted for carrier details such as Ship Via and FOB Point. Volume and weight are not referenced.

All container and shipper data can be edited before shipper confirmation with the exception of the container ID. You can also modify shippers that have already been confirmed. However, modified shippers cannot be reconfirmed.

If you change the Ship Via or FOB Point fields on the shipper, the system does not automatically update the fields on the original scheduled order. To have the fields updated on the original scheduled order, the Post Invoice field in Pre-Shipper/Shipper Confirm (7.9.5) must be Yes.

For noncumulative schedules, requirement detail pegging takes place during this step.

See “Pegging Requirement Detail” on page 56.

If you are in multi-entry mode, you can also reedit line detail allocations for previously unconfirmed detail allocations when using multiple databases and allocating the line from a remote database.

2 Shipment verification is executed automatically at the completion of step 1. However, if you make additional modifications, you may want to execute Manual SO Shipper Verification (7.9.10) to reverify the structure of the shipper.

See “Setting Up Configured Messages” on page 24 for details.

3 Print shipping labels using Shipping Label Print (7.7.7) or SO Shipping Label Print (7.9.14).

Print the labels by container. If you have referenced multiple containers under one container ID, multiple labels print. If no other containers are referenced, one label prints. Select the printer for which you have added barcode escape codes and developed template files.

4 Confirm the shipper using Pre-Shipper/Shipper Confirm (7.9.5).

This program confirms individual shipments by shipper ID. For noncumulative schedules, requirement detail consumption takes place during this step.

See “Consuming Requirements” on page 59.

Confirmation decrements finished goods inventory, updates GL accounts, and increases the cumulative shipped quantity. Depending on how the Post Invoice field is set, it may also post an invoice.

The value of Post Invoice initially defaults from the Auto Inv Post field in the scheduled order header.

- When Post Invoice is No, the standard procedure for processing an invoice applies. You can print the invoice during shipper confirmation or later using Invoice Print (7.13.3), then post it using Invoice Post (7.13.4).
- When Post Invoice is Yes, Pre-Shipper/Shipper Confirm automatically posts the invoice to the customer's AR account. When Use Shipper Nbr for Inv Nbr is also Yes, the shipper ID/ASN number is used as the invoice number. You can print the invoice during shipper confirmation or later using Closed Invoice Reprint (7.13.12).

When Post Invoice is No, 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 customer scheduled order without first posting this invoice, posting information will be consolidated and therefore not match the original invoice.

See *User Guide Volume 2A: Distribution* for details.

You can print formal registered fiscal shipping documents, such as a Nota Fiscal, by specifying the appropriate form code.

The effective date in Pre-Shipper/Shipper Confirm can be used to record the shipment in a specific open GL accounting period. For example, this could be used after period end when shipments for that period have not all been fully processed.

Tip
Use Pre-Shipper/Shipper Print to include authorization numbers on the printed shipper.

5 Optionally, print the shipper using Pre-Shipper/Shipper Print (7.9.4) or Sales Order Shipper Print (7.9.9).

The shipper print program creates a shipper record or packing list. This function also updates the item quantity picked. At this point, the shipment is ready to leave your shipping dock.

6 Optionally, transmit the ASN using Shipment ASN Export (35.4.1).

In many scheduled order relationships, a customer does not process a shipment receipt until an ASN has been received. The ASN provides the customer with all the detail relevant to the shipment including:

- Purchase order and order line number
- Supplier and customer item numbers
- Authorization numbers, if available

- Item shipped
- Quantities
- Cumulative quantities
- Arrival time

In a trusted supplier relationship, the customer plans the shipment quantities directly into their production line, based on the electronically transmitted ASN with no receipt processing and no inspection. Often, the dock address where deliveries are made is the point on the production line where the items are going to be used, and their arrival time is coincident with the time the first item is needed for production.

Whether ASNs are sent for this particular customer is controlled by the Send EDI ASNs field in Trading Partner Parameter Maintenance (35.13.10).

7 Print and/or transmit the invoice using either Closed Invoice Reprint (7.13.12), Invoice Print (7.13.3), and/or Invoice Export (35.4.3).

Tip
Authorization numbers are included on the printed invoice.

The Print Invoice History field determines whether the invoice can be selected for printing. The EDI Invoice History field, which defaults from the customer's record in Trading Partner Parameter Maintenance (35.13.10), determines whether invoices are transmitted using EDI. When invoices are neither printed nor transmitted, the customer makes payments against ASNs.

When printed invoices are permitted and the scheduled order is marked for auto-invoicing, confirming the shipper generates an invoice and then closes it. This is equivalent to the standard printing and posting steps. This enables you to make several daily or weekly shipments without requiring any specific invoicing tasks. You can print the closed invoices at the end of the day, week, or month using Closed Invoice Reprint (7.13.12).

Printing Bills of Lading

You can use Bill of Lading Print (7.9.12.1) to print a separate bill of lading for a shipment. The bill of lading is identified by the ship-from site and a code identifying the shipper record (for example, Shipper ID). Remarks entered in the Comments field of Sales Order Shipper Maintenance (7.9.8) also appear on the bill of lading.

A bill of lading shows a detailed breakdown of a shipper's content. This breakdown shows the products shipped, the total weight, and the containers used.

Pegging Requirement Detail

When noncumulative and cumulative schedules are being processed, requirement detail can be maintained throughout the process. During shipment, shipper lines that are tied to specific requirements are consumed. This process is known as *pegging*.

Pegging occurs automatically in:

- Picklist/Pre-Shipper–Automatic (7.9.1)
- Pre-Shipper/Shipper Workbench (7.9.2)
- Shipper Gateway (7.9.22)

For a cumulative schedule, you can disable automatic pegging in these three shipper programs by setting Automatic Cum Pegging to No in Container/Shipper Control (7.9.24) or Customer Schedules Control (7.3.24).

When you set Automatic Cum Pegging to No, the Consume Req field defaults to No in Pre-Shipper/Shipper Workbench (7.9.2).

Shipper Gateway

Pegging occurs during execution of Shipper Gateway, which uses an external ASCII file in the designated format to create shippers.

Fig. 2.15
Shipper Gateway (7.9.22)

The relationship between required ship schedule lines and individual shipper lines is maintained by Shipper Gateway. As shipper lines are created and pegged, the requirement is consumed.

You can disable automatic pegging for a cumulative schedule if pegging detail is not needed.

See “Pegging Requirement Detail” on page 56.

Shipper Gateway generates a report that displays information related to pegged requirements, including requirement detail authorization numbers (Kanban).

Picklist/Pre-Shipper–Automatic

Use Picklist/Pre-Shipper–Automatic (7.9.1) to create and peg shipper lines based on the active RSS for the appropriate requirement. This program creates the shipper, adds items to it, and pegs shipper lines.

The relationship between required ship schedule (RSS) lines and individual ship lines is maintained during the shipment staging list process. As shipper lines are created and pegged, the requirement is consumed.

You can disable automatic pegging for a cumulative schedule.

See “Pegging Requirement Detail” on page 56.

The report generated at completion displays information regarding the pegged requirement, including requirement detail authorization numbers. The pegged shipper lines can be viewed and maintained in Pre-Shipper/Shipper Workbench.

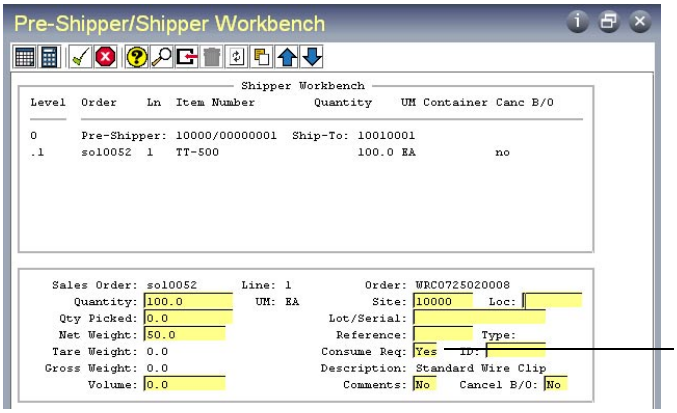
When a shipper with authorization numbers is created and pegged using Picklist/Pre-Shipper–Automatic, the authorization numbers are assigned to shipper lines based on a FIFO method. You cannot designate which authorization numbers are assigned to individual shipper lines.

Pre-Shipper/Shipper Workbench

You can manually maintain the relationship between required ship schedule (RSS) requirements and individual shipper lines in Pre-Shipper/Shipper Workbench (7.9.2).

To maintain pegged shipper lines in Pre-Shipper/Shipper Workbench, set Consume Req to Yes to display the Consume Required Ship Schedule Requirements frame.

Fig. 2.16
Pre-Shipper/ Shipper Workbench (7.9.2), Consume Req Field

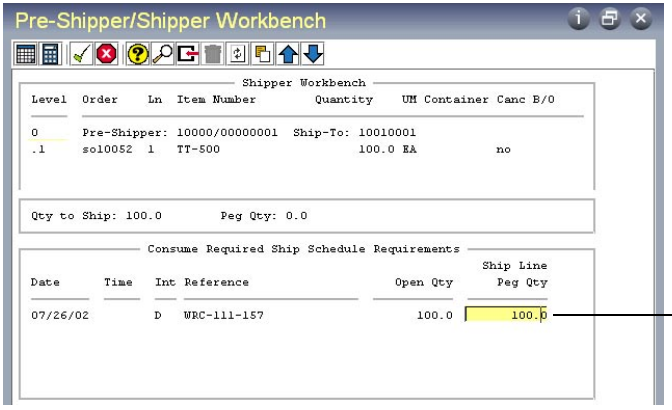


Yes displays Consume Required Ship Schedule Requirements frame.

The Consume Required Ship Schedule Requirements frame displays, showing the RSS requirements for the scheduled order line number.

For a cumulative schedule, you can disable automatic pegging by setting Automatic Cum Pegging to No in Container/Shipper Control (7.9.24) or Customer Schedules Control (7.3.24). When you set Automatic Cum Pegging to No, Consume Req defaults to No.

Fig. 2.17
Consume Required Ship Schedule Requirements Frame



Specify the amount of the requirement pegged to this authorization number.

You can modify the Ship Line Peg Qty as needed. The system adjusts the Open Qty based on the pegged quantity you enter.

Open quantity for the requirement is calculated based on:

1. The Ship Complete percentage in the Scheduled Order Maintenance.
2. The RSS requirement quantity tied to this shipper line.
3. The amount pegged (the quantity placed in Ship Line Peg Qty).
4. Dynamic Unpeg in Scheduled Order Maintenance.

See “Ship Complete” on page 34.

See “Dynamic UnPeg” on page 30.

Consuming Requirements

Requirement quantities are considered open until the shipper is confirmed in Pre-Shipper/Shipper Confirm (7.9.5). At this point, pegged quantities are transferred to shipped quantities.

During confirmation, the requirement quantity is used to increase the cumulative shipped quantity and decrease the net requirement for the order line item. Inventory is also decreased by this quantity. When Post Invoice is Yes, the invoice is automatically posted.

The confirm process also transfers pegged quantities to shipped quantities. The shipped quantities are incremented by the ship line quantity and pegged quantities are decremented by the ship line quantity.

Cumulative Shipped Maintenance

Use Cumulative Shipped Maintenance (7.9.16) to correct cumulative shipped quantities or reset the quantities on the order line item to zero, as might be done for an accounting close. This program is typically not used often, and should be restricted with menu security.

Enter the customer, PO, line item, and line number. Choose Adjust to correct a quantity problem. Choose Reset to set both cum quantities to zero.

Adjustments are typically made when an ASN is returned showing a quantity different than you shipped. If the ASN reflects the most recent shipment, adjust the Cum Shipped quantity. If another shipment has since gone out, adjust the Prior Day Cum Shipped quantity.

Adjusting quantities creates a CUM-SADJ transaction in transaction history.

Resetting Cumulative Quantities

Use Cum Shipped Reset (7.5.18) to reset the cumulative totals for scheduled orders and to generate a summary or detail report showing the updated order. You can reset one or a range of scheduled orders based on the selection criteria. This action cannot be undone.

You can run the cumulative reset function without actually resetting a scheduled order's cumulative totals. This gives you an opportunity to review the scheduled orders being reset before actually changing the database. Do this by setting Update to No. When Update is Yes, the cumulative totals are reset.

Include manual adjustments made in Cumulative Shipped Maintenance (7.5.16) by setting the Include Manual Cum Adjustments field to Yes. Setting this field to No ignores all manual adjustments when resetting the cumulative shipped quantity.

At the time you reset a scheduled order's cumulative totals, you can also enter a new cum shipped start date and time. This new date and time replaces the scheduled order's current cumulative start date and time. The time must be in 24-hour format.

Tip
Only shipments for scheduled sales order lines are included.

When the cumulative totals are reset to zero for a date in the past, all shipments made between the specified time in the past and the current system date are totaled. This total is set as the new cumulative shipped quantity for the scheduled sales order lines.

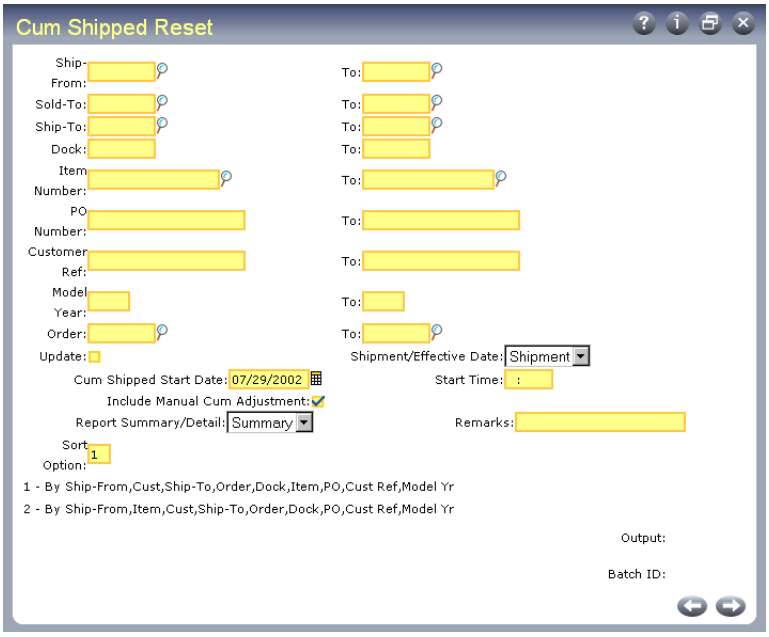


Fig. 2.18
Cum Shipped Reset (7.5.18)

The first half of the Cum Shipped Reset screen consists of selection criteria ranges such as ship-from, sold-to, ship-to, dock address, item number, PO number, customer ref, model year, and order. Use these values to identify the cumulative shipped quantities to reset.

Update. Enter Yes to reset the cumulative totals. Enter No to print the report without resetting cumulative totals.

Shipment/Effective Date. Enter the type of date specified in Cum Shipped Start Date.

Shipment: The value in Cum Shipped Start Date is the date when the shipment was initially entered into the system.

Effective: The value in Cum Shipped Start Date is the date when the shipment was effective for accounting purposes.

Cum Shipped Start Date. Enter the new date to start accumulating cumulative quantities for the scheduled orders.

Start Time. Enter the time when cumulative shipped reset is to occur on the specified date. The time must be entered in 24-hour format.

Include Manual Cum Adjustment. Enter Yes to include all manual adjustments in the Cum Shipped total. Enter No to ignore all manual adjustments made in Cumulative Shipped Maintenance (7.5.16).

Report Summary/Detail. Enter the format to use for this report.

Remarks. Enter any general comments.

Sort Option. Enter the sort option that determines the order the information prints on the report.

Adjusting Prices with Retrobills

Retrobilling is the term used for a price changing practice common among automotive suppliers. This practice also applies to many commodity-driven markets where the cost of raw materials, not the process cost, causes prices to fluctuate.

The price change and effective date are agreed upon between you and your customer. When the effective date is in the past, an invoice detailing all shipments since the effective date through the end date must be created for the incremental price difference.

Retrobilling provides greater control and flexibility in changing the price of items already shipped to customers. Retrobill Maintenance (7.13.13.1) enables you to make price changes by individual line item in a scheduled order instead of by invoice. You can:

- Specify a scheduled order.
- Change prices for one or more line items on a scheduled order.
- Create a separate debit/credit invoice for each line item or create a single invoice for all line items within the same purchase order.
- Specify if the retrobill change is a price change or a new price.

The line items being changed can be from the same purchase order or from multiple purchase orders. If they are from multiple purchase orders, they all must be on the same scheduled order.

Use Retrobill Inquiry (7.13.13.2) to view the retrobill information entered in Retrobill Maintenance. If a debit/credit invoice has been created, the invoice number displays.

Use Retrobill Report (7.13.13.3) to create a debit/credit invoice for the net amount of the price adjustment calculated for each scheduled order line item. You can specify an account number to be used by the system for posting the amount of the price adjustment.

Retrobill Process

Use the following steps to set up a retrobill for a scheduled order line item:

1. Create retrobills in Retrobill Maintenance (7.13.13.1). Set up the retrobill identifier and specify the scheduled order affected and the terms of the retrobill.
2. View retrobill information in Retrobill Inquiry (7.13.13.2).
3. Create a debit/credit memo with Retrobill Report (7.13.13.3)
4. Use Invoice Print (7.13.3) to print the debit/credit invoice.
5. Use Invoice Post (7.13.4) to post the invoice.
6. Use DR/CR Memo Inquiry (27.2) to view the invoice.

Retrobill Maintenance

In the first frame, enter a sold-to code and amendment number. These form the unique retrobill ID used by the system. The amendment number authorizes the retrobill and is typically provided by the customer. The as-of date is used when more than one retrobill is applied to the same scheduled order line items. It determines the sequence for applying the retrobills.

Memo Per Item determines how many debit/credit invoices are to be created.

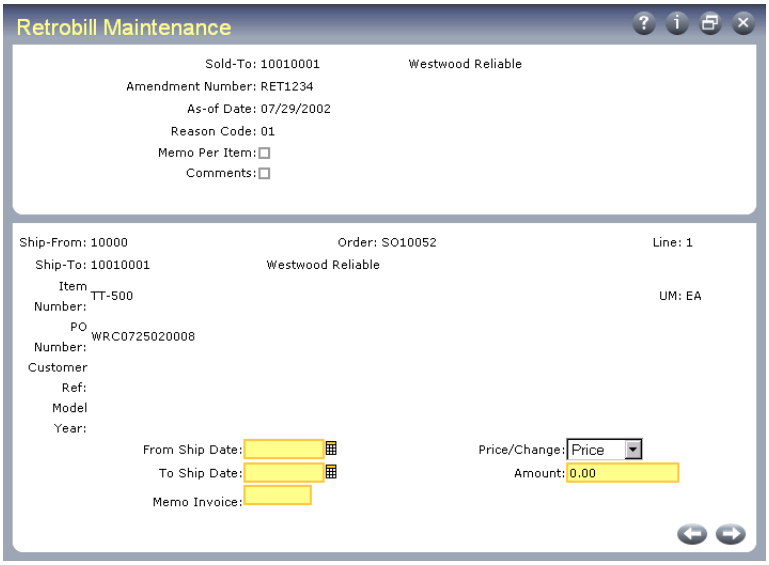
- Set it to Yes if you want a separate debit/credit invoice created for each line item.
- Leave the field set to No (the default) if you want one debit/credit invoice created for all line items in a purchase order, or if no debit/credit invoice should be created.

Memo Per Item works in conjunction with Create Memos in the Retrobill Report (7.13.13.3). Both Memo Per Item and Create Memos must be set to Yes to print invoices.

The Reason Code and Comments fields are optional.

Press Go to move to the second frame.

Fig. 2.19 Retrobill Maintenance (7.13.13.1)



The second frame consists of two sections. In the first section, identify the scheduled order and line item being changed. In the second, define the terms of the retrobill.

The ship-from, ship-to, item, PO number, scheduled order number, line item number, customer reference, and model year are used to select the scheduled order and line item being changed by the retrobill.

Press Go to advance to the lower section of the frame.

In this section, you define the terms of the retrobill by specifying:

From Ship Date/To Ship Date. These set the date range used for selecting invoices during retrobill processing. Invoices falling outside this date range are not included.

Price/Change. Indicates whether the Amount field contains a new price (Price) or a price change (Change).

Price: The value entered in the Amount field replaces the current price.

Change: The amount is applied to the current price. To reduce an existing price, enter a negative amount.

Amount. Specify the currency amount to be applied based on the Price/Change field.

Memo Invoice. Displays the debit/credit invoice number set by the Retrobill Report (7.13.13.3) when Create Memo is Yes. You can also use this field to manually enter a debit/credit invoice number.

Retrobill Report

Use Retrobill Report (7.13.13.3) to run the retrobill process. The retrobill is identified by the sold-to and amendment number.

If you want to create a debit/credit invoice, set Create Memos to Yes. To prevent invoices from being created, set the field to No. The Retrobill Acct field lets you specify an account number to be used for posting the calculated debit/credit amount.

Note In Retrobill Maintenance (7.13.13.1), Memo Per Item determines if a debit/credit invoice is created per line item or per purchase order. In the Retrobill Report (7.13.13.3), Create Memos determines if a debit/credit invoice is created at all. If this field is set to No, a debit/credit invoice is *not* created regardless of how Memo Per Item is set.

Invoices meeting the selection criteria defined in Retrobill Maintenance are selected for processing. During processing, the price change amount is used to calculate the net amount of the price adjustment for each line item being changed.

Chapter 3

Supplier Schedules

Supplier schedules supports generation of supplier releases, incorporating a set of scheduled receipt dates and quantities.

Introduction

Supplier schedules are cumulative, schedule-driven purchase orders with multiple line items from which releases of requirements and due dates are issued. They are typically used by companies with long-term supplier contracts that require regular weekly or daily deliveries. The schedules specify, for the near term, dates and even hours of deliveries. But they also inform MRP and the supplier about long-term plans.

The header and trailer of a supplier schedule resemble those of a normal purchase order for a single line item with multiple delivery dates. However, the line-item section of a supplier schedule combines information for:

- Short-term shipping schedule with exact quantities and delivery instructions
- Long-term planning schedule that shows upcoming orders and authorizes the supplier to buy raw materials or make subassemblies

For details, see the *User Guide Volume 11: PRO/PLUS.*

Note If you have the PRO/PLUS Supplier Shipping Schedules module you can generate separate supplier planning and shipping schedules, rather than one schedule that combines both.

As with a regular purchase order, the items listed in a supplier schedule are seen by the system as supply. You can also receive items against a supplier schedule.

Supplier schedules are used for multiple deliveries from a supplier who needs to adjust production to accommodate your orders.

Example A manufacturer of circuit boards needs blank boards supplied each week. The manufacturer knows exact needs for the next few weeks and approximate needs for the next 12 months. The supplier of these circuit board blanks needs this information in order to place its orders for raw materials and plan production. It can use supplier schedules to set up its delivery and planning schedule.

See *User Guide Volume 2A: Distribution* for a discussion of Purchasing.

The Supplier Schedules Menu (5.5) is located as a submodule of Purchasing. It has three selection menus:

- Supplier Schedule Setup (5.5.1)
- Supplier Schedule Processing (5.5.3)
- Supplier Receipts Processing (5.5.5)

Table 3.1 contrasts the characteristics of scheduled orders with other kinds of purchase orders.

Table 3.1 Summary of Purchase Order Characteristics

	Supplier Schedules	Purchase Orders	Blanket Orders
Delivery Dates	Multiple	Single for order/item	Multiple
Seen by MRP	Yes	Yes	No
Receipts	Yes	Yes	No
Duration	Medium/long-term	One time	Short/medium
Elements	Header Planning schedule Shipping schedule Trailer	Header Line Items Trailer	Header Line Items Trailer POs

Setting Up Supplier Schedules

To use supplier schedules, you must set up the same baseline data required for purchase orders, including purchased items and supplier addresses. MRP uses item parameters specified in Item Master Maintenance (1.4.1) to create planned purchase orders for scheduled items. These orders contain due dates, release dates, and order quantities.

Supplier Calendars

If your supplier works different days than you do, set up a supplier-specific calendar for them in Supplier Calendar Maintenance (5.5.1.1). Schedule Update from MRP considers these calendars when generating schedule releases. For suppliers that do not have supplier-specific calendars, the system uses the applicable shop calendar defined in Calendar Maintenance (36.2.5).

Scheduled Order Maintenance

Set up supplier schedules in Scheduled Order Maintenance (5.5.1.13). You must define several parameters that the system uses to calculate receipt, planning, and shipping schedules for individual items that have been entered on separate purchase order lines. This order provides the framework for a contract, but has no delivery dates.

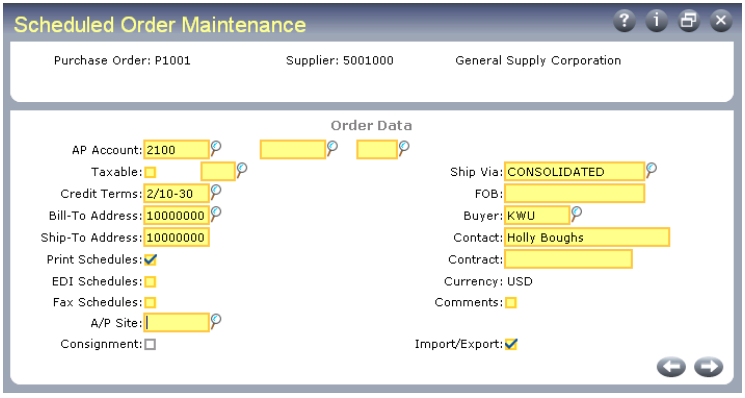
After you enter an order ID and supplier code, additional detail frames display. The first contains shipping and credit information for the whole order. The next contain line-item information such as item numbers, ship-to data, line-item details, schedule details, and optional comments.

Header

See "Transmitting Supplier Schedules" on page 79.

Several values in the header frame indicate how schedules based on this order are delivered to suppliers. Schedules can be printed, transmitted using EDI ECommerce, or sent by FAX, depending on the values you specify.

Fig. 3.1 Scheduled Order Maintenance (5.5.1.13), Header Frame



When you are finished entering values in the header frame, press Go to display the line-item frame.

Line Items

Use fields in the first line-item frame to specify an item to be ordered from the supplier and the site to receive that item. Unique line numbers enable you to enter more than one schedule line for the same item, if needed, as long as each line has a different ship-to site.

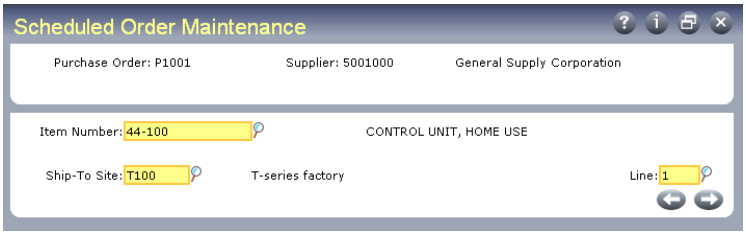


Fig. 3.2
Scheduled Order Maintenance, Item and Ship-To Site

First Order Line item Data Frame

Use fields in the first Order Line Item Data frame to specify pricing and inventory data for the item referenced in the previous frame.

Use the list/discount table pricing functions in the PO/RTS/Sched/RMA Rcpt Price Menu (1.10.2) to set up price lists for scheduled orders. The price from the applicable list displays in the Unit Cost field. Effective prices can be updated in Purchase Order Receipts (5.13.1) and PO Shipper Receipt (5.5.5.11). Set Update Current Cost to Yes to update current costs for inventory items during receipt.

See *User Guide Volume 6: Master Data* for details on price lists.

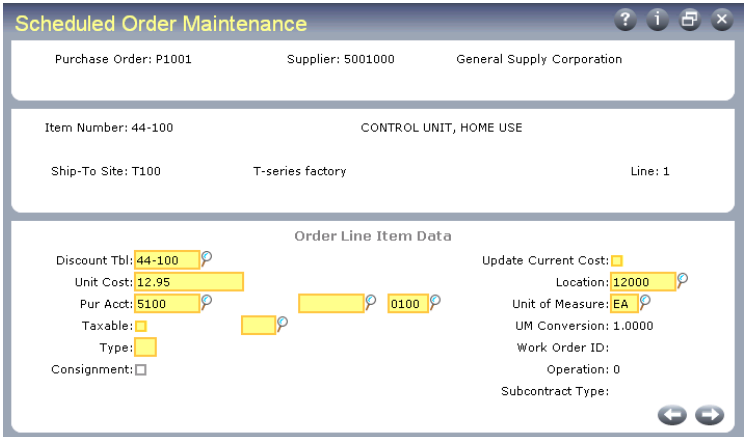


Fig. 3.3
Order Line Item Data, First Frame

Type. This value determines whether the associated line item is received into inventory and considered by planning.

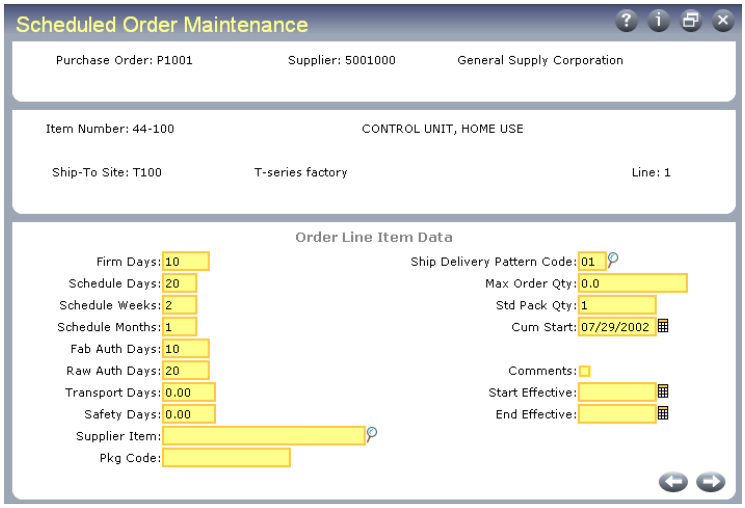
- When Type is blank, the associated line item is received into inventory. When the receipt is processed, inventory balances are increased and a GL transaction debits the Inventory account.

- A Type of S indicates a subcontract operation. A work order number and operation are specified on the order and on the receipt. Rather than updating inventory, the receipt updates the work order operation status and creates a GL transaction debiting the WIP account from the work order.

Second Order Line Item Data Frame

Use fields in the second Order Line Item Data frame to record data that impact the requirements and schedules generated for the associated line item.

Fig. 3.4 Order Line Item Data, Second Frame



See “Effect of Firm Days” on page 77 for more details.

Firm Days. Specify the number of days inside the schedule update time fence for scheduled release calculations. These days should not exceed the number specified in Schedule Days.

Quantities and dates within this period are not changed by Schedule Update from MRP (5.5.3.1). Set Firm Days to zero to eliminate the update time fence. Do this when all requirements are released as planned so that the schedule update replans all dates and quantities.

Note This value does not affect how MRP uses the Time Fence value defined for the item. Firm Days controls order releases by date and quantity. The item master Time Fence field controls planned orders by date and quantity.

Schedule Days. Specify the number of days of discrete dates and quantities to appear on printed or transmitted releases and on reports and inquiries, including intraday quantities and times.

See "Schedule Bucketing" on page 80 for details.

Schedule Weeks. Specify the number of weekly bucketed quantities to appear on printed or transmitted releases and on reports and inquiries following any Schedule Days dates and quantities. Each quantity represents the total requirement for the Monday through Sunday week. Bucketing is for print and reporting purposes only. Internally, the system stores all requirements by discrete dates and quantities.

Schedule Months. Specify the number of monthly bucketed quantities to appear on printed or transmitted releases and on reports and inquiries following weekly buckets and discrete dates and quantities. Each quantity represents the entire month's requirements from the first Monday up to the first Monday of the following month.

Fab Auth Days, Raw Auth Days. Raw and fabrication authorization commitments are made to give suppliers some protection against sudden and unforeseen reductions in demand.

- Raw quantity is the quantity of product you commit to covering the component costs.
- Fab quantity is the quantity of product you commit to covering manufacturing costs.

Note Schedule Update from MRP uses these values only if scheduled requirements extend beyond the number of days in the authorization horizon. Otherwise, the authorization horizon equals the schedule days.

Transport Days. This field is normally blank. Specify a value for suppliers who do not ship or take responsibility for shipping, but from whom you pick up or schedule the pickup of orders. Entering a value in Transport Days converts all order dates from receipt dates to shipment dates.

Schedule Update from MRP uses this value to set shipment dates based on delivery dates (delivery date – transport days). It then checks the supplier's calendar, if one exists, to verify that the shipment date is a workday for the supplier. If not, the update back-schedules to the next supplier workday.

All reports and inquiries check this field to verify whether to print or display delivery dates or shipment dates. When this value is positive, the system uses shipment dates.

Std Pack Qty. Enter the multiple in which orders for this item are shipped. This is similar to Order Multiple in the item master. It displays here because the standard shipment multiple for an item can vary among suppliers. Schedule Update from MRP rounds order quantities up to this multiple.

Order Multiple should generally be blank in the item master for items that are referenced on scheduled orders, since both values are applied to orders during different planning functions (MRP and Schedule Update from MRP).

Cum Start. Enter the date on which this order began to accumulate quantities. This may or may not be the date on which the order was created in your database.

When a line item is first scheduled, the cumulative receipt quantity is zero and the cumulative start date is set to the active start date of the schedule. As receipts are processed, the system updates the cumulative receipt quantity.

See “Resetting Cumulative Quantities” on page 84 for details.

Sometimes cumulative receipt quantities must be adjusted manually, usually as dictated by policy. For example, you may reset them to zero at the start of your new fiscal year using Cum Received Reset to Zero (5.5.5.14). The affected cumulative start dates are then changed to that date.

See “Cumulative Received Maintenance” on page 84 for details.

You can also adjust cumulative receipts manually to reflect returned or defective items or losses due to theft using Cumulative Received Maintenance (5.5.5.13). For example, when defective items are returned to the supplier, you may want to process a return and credit without decreasing cumulative quantity.

Allocating Percentages for MRP

After you have set up all suppliers and schedules for each item, you must allocate order percentages among suppliers using Scheduled Order MRP % Maintenance (5.5.1.17). This step is required. Percentages must equal 100% for each item.

Schedule Update from MRP uses these percentages to allocate MRP planned orders for the item among suppliers. To phase in new percentages, enter the same ship-to site and item number with different effective dates.

Defining Release ID Format

The format of the release ID generated by Schedule Update from MRP (5.5.3.1) is affected by the value of Generate Date Based Release ID in Purchasing Control (5.24).

When this is Yes, eleven digit date-based release IDs are generated using the following components:

- The four digit year
- The two digit month
- The two digit day
- A three digit release number

For example, the first schedule release created on October 19, 2002, would have the release ID 20021019-001.

If you want to track release IDs using this formula, make sure you set up Purchasing Control appropriately.

Note Date-based numbers are not supplied by the system when you create a release manually in Schedule Maintenance (5.5.3.3).

Processing Supplier Schedules

Processing schedules involves three major steps:

1. Creating a release of the schedule.
2. Optionally, modifying it.
3. Transmitting it to the supplier by print, EDI ECommerce, or fax.

Creating a Schedule Release

Use Schedule Update from MRP (5.5.3.1) to create releases of supplier schedules. A release is a set of item quantities and requirement dates identified by a release ID number, which is then sent to your supplier.

Schedule Update from MRP generates releases based on the following:

- Planned purchase orders generated by MRP based on item requirements and due dates
- Item planning data, such as safety days
- Scheduled order percentages defined for items and ship-to sites in Scheduled Order MRP % Maint (5.5.1.17)
- Scheduled order data from Scheduled Order Maintenance (5.5.1.13)
- Supplier calendars, defined in Supplier Calendar Maintenance (5.5.1.1)

Note MRP planned orders for a co-product/by-product or a base process item cannot be used to update supplier schedules.

You can run Schedule Update from MRP for combinations of items, suppliers, scheduled orders, receiving sites, or buyers.

Because you are sending order quantities and planning data to your supplier, you define requirements as either firm or planned quantities. You can send all firm, all planned, or some of both. The Firm Days field on the scheduled order line item determines the order status.

Effect of Firm Days

The schedule update process automatically applies firm status to any requirements within the time fence set by the Firm Days field. All planned orders outside this period are approved, but maintained as planned requirements. This means that they are not seen by MRP as sources of supply and can be replanned.

Any unreceived firm requirements from one release are automatically carried forward to the next release during schedule update. These quantities are maintained as a prior cumulative requirement.

When you run MRP again, it plans or replans orders for scheduled requirements that are now within its planning horizon. Executing Schedule Update from MRP adds the planned orders, firming any that now fall within the Firm Days period.

If requirements change, you may need to manually adjust the firm quantities in Schedule Maintenance (5.5.3.3).

- If increased demands create additional requirements within the Firm Days period, MRP creates planned orders in that period. When you regenerate the schedule, the system does not select any planned orders falling within the firm period covered by a schedule. The warning message `Order not selected` displays.
- If requirements decrease due to decreased demands, MRP sees the supply as excessive and produces action messages.

You can avoid rescheduling problems due to fluctuations in short-term MRP data by setting Firm Days to zero on scheduled order lines. When Firm Days is zero:

- Firm requirements are not generated or carried forward from one release to the next.
- The system sets Prior Cum Req equal to Prior Cum Received.
- Each schedule release is based on the most recent MRP planned-order data available.

Use a positive number in the field if you have an agreement with this supplier that requirements will not change within a specified time period.

Important To avoid schedule discrepancies between printed bucketed schedules and the actual required schedule, firm days should never exceed the number of days specified in the Schedule Days field.

Schedule Adjustment for Work Days

On receipt of your scheduled release, the supplier is responsible for recalculating its own plans. If, as a customer, you do not set up a supplier calendar, or if you use a ship/delivery pattern that permits shipments on any day of the week, your schedule update process may create requirements on days when you or the supplier are closed.

The supplier would then reschedule the quantity requirement to the next earlier date when the supplier is open and you are open to receive it.

Quantity and Date Calculations

Schedule Update from MRP performs the following calculations:

1. Back-schedule for safety days from planned order due dates.
2. Back-schedule for Ship/Delivery Pattern from safety day schedule.
3. Back-schedule for Supplier Calendar from ship/delivery schedule.
4. Allocate planned order quantities by percentage to this supplier (from Scheduled Order MRP% Maintenance) to create new quantities by planned order.
5. Revise quantities to Standard Pack Quantity multiple.
6. Display any unfulfilled prior cumulative requirements.
7. Create release, assigning a Release ID, and determine whether quantities are firm (within the Firm Days time fence) or planned.

See “Defining Release ID Format” on page 75.

8. Display fabrication and raw authorization quantities and start and end dates.

With the Report Detail/Summary field set to Detail, an audit report of the entire calculation is printed. Execute the function with Update set to No to preview the results.

When Update is Yes, selected planned orders are automatically approved and a release is created. This can then be edited in Schedule Maintenance or sent to your supplier.

Modifying Supplier Schedules

Modify a scheduled release using Schedule Maintenance (5.5.3.3).

You can change schedule detail data such as requirement dates, quantities, and firm or planned status, and fab and raw authorization quantities and dates.

Transmitting Supplier Schedules

Transmit the scheduled release using:

- Schedule Print (5.5.3.8), which lets you print a hard copy of the schedule to send to your supplier. For a schedule to be selected for printing, Print Schedules must be Yes in Scheduled Order Maintenance (5.5.1.13). This field defaults to Yes on new orders.

  Schedule Print creates the printed supplier schedule. In the header of this document, the supplier and ship-to information, the release ID, purchase order number, item number, receipt quantity, and cumulative receipts appear. The ship/delivery pattern displays, then the order detail. The detail shows any prior open quantities, including quantities in transit, and then each scheduled requirement.

- Schedule Print in Fax Format (5.5.3.9), which formats the schedule for facsimile transmission. For a schedule to be selected by this program, Fax Schedules must be Yes in Scheduled Order Maintenance. This field defaults to No on new orders.

  When you transmit the scheduled release by fax, the orders are sorted by supplier rather than by site/supplier. At the top of the first schedule for each supplier, a pound sign (#) prints, followed by the supplier's fax number. The remainder of the information is the same as Schedule Print.

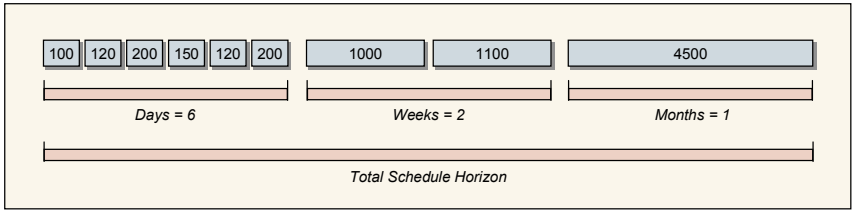
See “Defining Trading Partner Parameters” on page 139.

- Supplier Shipping Schedule (35.4.8), which exports the schedule in an EDI format that can be imported into the supplier’s system. You can export a schedule only when EDI Schedules is Yes in Scheduled Order Maintenance. Define defaults for each supplier in Trading Partner Parameter Maintenance (35.13.10).

Schedule Bucketing

Scheduled requirements are maintained as discrete dates and quantities in the database. When you print or transmit a scheduled release, the system uses the Schedule Days, Schedule Weeks, and Schedule Months field values to bucket requirements for the supplier.

Fig. 3.5
Schedule Bucketing



In Figure 3.5, all requirements within the next six days are labeled Daily and displayed in discrete quantities on discrete dates including any intraday requirements and times.

Requirements in the two weeks following daily requirements are labeled Weekly. All requirements for the week are bucketed into one quantity with a delivery date of the Monday of that week. Ship dates, if you use Transport Days, are back-scheduled from that Monday. Monthly requirements beyond the weekly period are bucketed in the first Monday of the month.

On the printed schedule:

- Req Qty is the discrete or bucketed quantity for that schedule line.
- Cum Req Qty is the total cumulative requirement, including that line quantity, for the entire life of the order.
- Net Req Qty is the total open quantity including that line quantity.

Receiving Scheduled Orders

Receipts against a scheduled order have several possible stages. How a relationship is arranged is a matter of policy between trading partners. MFG/PRO offers the tools and capabilities to support any receiving relationship between you and your supplier. The primary tools are the various shipment documents.

There are four documents. Each one can be treated as a separate document, or in some cases, one document can serve the function of all four.

Advance Ship Notice (ASN). The ASN is transmitted when a shipment leaves the supplier's shipping dock to provide advance notice of items to be received. This document can represent multiple items over multiple orders.

Receiving Document. This printed packing list accompanies the shipment, recording quantities and items, identified by a shipper ID.

Shipment Labels. Barcode labels can be affixed to each shipment container and container group. All items, including container items, explode into inventory during barcode reader receiving.

See "PO Container Maintenance" on page 83.

Invoices. The invoice lists quantity and item detail by order, with extended pricing.

In some relationships, the ASN is the only document transmitted. It is treated as the receiving document and the invoice. The ASN number becomes the shipper number and the invoice number, referenced on payments.

Once you have determined how shipments from your suppliers are to be documented, you can process receipts. Recording a receipt updates three history records:

- Purchase receipts
- Inventory transactions
- Inventory GL costs

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

Depending on the documents involved, you use different programs.

- If you need to manually enter receipts or confirm them, use PO Shipper Maintenance (5.5.5.5) first. You can also receive scheduled orders with Purchase Order Receipts (5.13.1).
- If you typically accept the ASN or receiving document without verification, simply confirm the receipt with PO Shipper Receipt (5.5.5.11).
- If you need to modify container quantities, use PO Container Maintenance (5.5.5.4).
- If you need to modify item quantities on a confirmed shipper, use Cumulative Received Maintenance (5.5.5.13).

PO Shipper Maintenance

Enter the shipment ID using PO Shipper Maintenance (5.5.5.5). The shipment ID can be an ASN number already in the system, a number obtained through a barcode reading of a shipping label, or a number entered manually from the receiving document.

You can enter each container in the shipment, or press End to skip the Container entry screen. Enter shipped quantities by item number, purchase order, purchase order line number, and quantity in the next frame. Use PO Container Maintenance to modify container item quantities if necessary.

Press Go to accept the first item and quantity, and continue entering items for the shipment.

Note You can modify shippers that have already been confirmed. However, you cannot reconfirm modified shippers.

PO Shipper Receipt

Confirm the shipment using PO Shipper Receipt (5.5.5.11). If the tolerance for a discrete order receipt is exceeded, the system displays a warning. Confirmation increases inventory, increases the cumulative received quantities, decreases net cumulative requirements, and updates AP and GL accounts.

When you confirm the shipper, the cumulative totals and net requirements are properly updated and automatically transmitted to the supplier on the next scheduled release.

Purchase Order Receipts

If you are not receiving ASNs or reading barcode labels and exploding containerized shipments, you can also enter receipts against 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. However, you may have to reopen a purchase order line to do this. Several settings in Purchasing Control (5.24) determine how receiving documents are entered and printed.

If the cumulative quantity received for a scheduled order line exceeds the maximum order quantity for that line, the system displays a warning message.

PO Container Maintenance

A container is a subset of a shipper, holding any number of different items or other containers. You can receive container information electronically as a part of an ASN or the information may arrive with the shipment and be entered manually. Container information may also explode into the system from barcode readings of shipping labels.

Containers conveniently group items, but are not a required part of a shipper. You can also receive items individually, or the shipper as a whole.

Tip
To return containers that have been explicitly received on a shipper, use Issues–Unplanned (3.7).

Containers are not often a concern with supplier schedules. However, you can track them for lot/serial control. If the actual shipment does not match the shipper, fix the quantities in PO Shipper Maintenance or PO Container Maintenance (5.13.13) before confirming the shipper.

Cumulative Received Maintenance

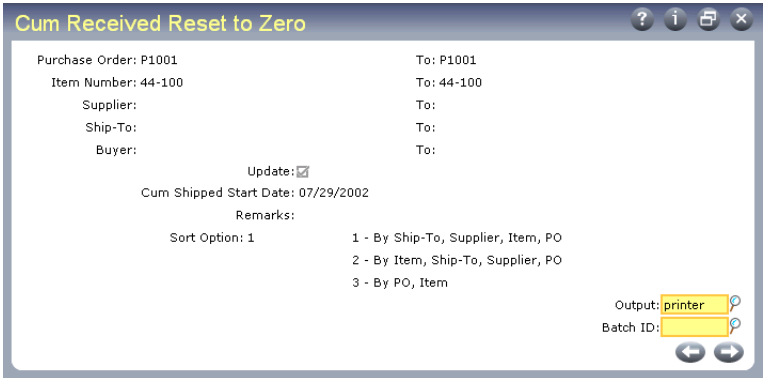
You may need to increase or decrease item quantities on a confirmed shipper. Do this with Cumulative Received Maintenance (5.5.5.13), using the Adjust option. The new cumulative quantity is then transmitted on the next scheduled release. You can also reset the entire scheduled order back to a zero quantity with a new Cum Start Date.

This program is typically not used often and should be restricted with menu security. If a discrepancy between cumulative customer receipts and your cumulative shipped quantities occurs, this is accommodated in the process of making a scheduled release active. However, the Adjust option can be useful for a discrepancy adjustment that occurs solely on your end of the trading relationship, such as the addition or removal of items after shipper confirmation and before ASN export.

Resetting Cumulative Quantities

Use Cum Received Reset to Zero (5.5.5.14) to reset the cumulative totals for scheduled orders and generate a report showing which orders were reset. You can reset one or a range of scheduled orders. Select scheduled orders for reset using order number, item number, supplier, ship-to, or buyer.

Fig. 3.6
Cum Received Reset to Zero (5.5.5.14)



You can run the cumulative reset function without actually resetting a scheduled order's cumulative totals. This gives you an opportunity to review the scheduled orders being reset before actually changing the database. Do this by setting Update to No. When Update is Yes, the cumulative totals are reset. This action cannot be undone.

When you reset the totals, you can also enter a new cum shipped start date. This new date replaces the order's current cum start date specified in Scheduled Order Maintenance (5.5.1.13).

Typically, you reset cumulative orders to zero when the contract related to the order is renegotiated. Scheduled order pricing is usually based on an agreed-upon total cumulative order quantity. When you renegotiate the price, you normally renegotiate a new total for the cumulative order quantity.

Deleting Supplier Scheduled Orders

You can use Closed PO Delete/Archive (5.23) to delete and archive scheduled orders that do not have an associated active or inactive schedule. This program works like other delete/archive programs in the system.

However, to ensure that all records associated with the scheduled order are also deleted, you must follow these steps:

1. Delete all releases for the supplier schedule in Schedule Maintenance (5.5.3.3).
2. Delete the MRP percentage in Scheduled Order MRP % Maint (5.5.1.17).
3. Delete the supplier scheduled order with Closed PO Delete/Archive (5.23).

SECTION 2

EDI ECommerce

This section discusses how to perform electronic data interchange (EDI) functions using the features of EDI ECommerce.

Chapter 4

EDI ECommerce Overview

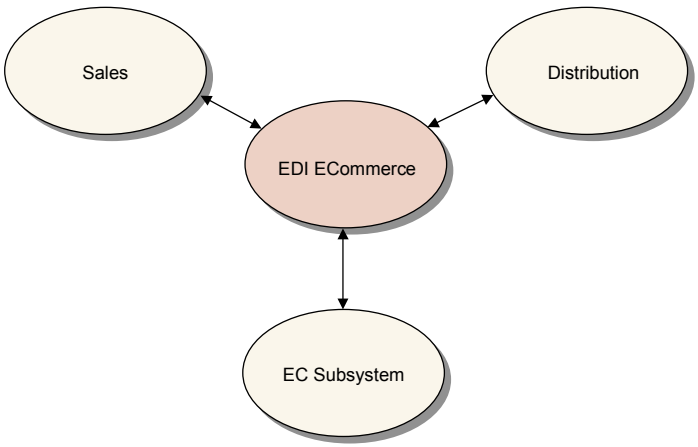
This chapter describes how EDI ECommerce exchanges business documents between MFG/PRO and an external electronic commerce (EC) subsystem.

Introduction

EDI ECommerce is an improved method of managing electronic data interchange (EDI) communications between MFG/PRO and trading partners. It is the interface between MFG/PRO and third-party EDI communications or translator products called EC subsystems.

EC subsystems send and receive EDI data files containing documents used by MFG/PRO's sales and distribution components. This packaged software performs electronic data communications for flat-file transfer. In the EDI ECommerce context, EC subsystems translate EDI data to and from the QAD standards-neutral formats (SNFs), which are defined for all inbound and outbound EDI documents.

Fig. 4.1 ECommerce Overview



ECommerce's table-based logical structure supports all major EDI standards, making the system compatible with most EC subsystem translation capabilities. Additionally, you can map inbound or outbound data in extensible markup language (XML) format—an important feature in making MFG/PRO's EDI communications interoperable with external systems.

Traditional EDI processing applications require program changes at the code level to meet the input and output requirements of external systems. In contrast, ECommerce's processing logic, EDI document specifications,

and trading partner specifications are stored in database tables. These tables can be modified through the user interface with a set of maintenance programs.

The import and export processes use gateway programs to move data into and out of MFG/PRO. These programs are the same for all combinations of document type and trading partner. Specifications for trading partners and document definitions are set up in tables instead of in the code.

ECommerce also stores the EDI data in tables. This enhances the system's ability to manipulate, analyze, edit, and reprocess EDI documents.

The EDI ECommerce Trading Partner Library includes a set of file definitions and transformation mappings between MFG/PRO and a variety of SNFs. Since these are trading-partner specific, you can often use them as-is to exchange documents with the trading partners for whom they were designed. Additionally, implementers can use these mappings as templates, then use ECommerce maintenance programs to make the maps fit their specific needs.

Contact your account representative or see the QAD Web site for more information.

Note EDI ECommerce supports the EDI requirements of the Enterprise Material Transfer (EMT) module, which allows you to automatically generate purchase orders from sales orders and transmit them to lower-level suppliers. Use ECommerce programs to communicate the following types of EMT-related documents among trading partners:

See *User Guide Volume 2A: Distribution* for information on EMT.

- Purchase orders
- Purchase order acknowledgments
- Purchase order changes
- Purchase order change acknowledgments
- Advance ship notices (ASNs)

Elements of EDI ECommerce

ECommerce consists of several elements.

- A document repository
- A tool set containing table definitions and transformation procedures needed to integrate transactions and support table maintenance, import, and export
- Document import and export process control functions

Document Repository

See “EDI ECommerce Processing” on page 96.

ECommerce includes a document repository, a set of tables that store data in transition during various phases of processing. Types of data included in the repository include:

- Exchange file documents
- MFG/PRO documents
- Turnaround data

See “Maintaining the Document Repository” on page 185.

Maintenance programs let you change all three types of repository data. However, this should be done with care since modifying data values in the ECommerce tables can cause data synchronization problems for the MFG/PRO database.

Exchange File Repository

This portion of the repository holds data at two stages of processing.

- Inbound data from a standards neutral format (SNF) file before it undergoes transformation processing and is moved into the MFG/PRO document repository
- Outbound data that has already undergone transformation processing before it is written to an SNF file and transferred to the EC subsystem

See “Exchange Data Repository” on page 185.

The system moves documents into and out of the repository as needed. A maintenance program lets you modify data in the exchange file data repository, if necessary.

MFG/PRO Data Repository

The MFG/PRO data repository includes data in MFG/PRO formats:

- Outbound MFG/PRO data that is awaiting transformation processing before it is moved to the exchange file repository
- Inbound data that has already undergone transformation processing and is waiting to be transferred into the MFG/PRO database

See “MFG/PRO Document Repository” on page 187.

The system moves documents into and out of the repository as needed. A maintenance program lets you modify data in the MFG/PRO document repository, if necessary.

Direct Import to MFG/PRO Repository

To provide flexibility in using the document mapping functions of EDI ECommerce, you can import source files directly into the MFG/PRO document repository and export them without having to create MFG/PRO business documents.

See “Importing Documents” on page 161.

For example, you can use this feature to:

- Receive an EDI file containing a sales order from an external system.
- Load it into the MFG/PRO repository based on an implementation definition.
- Transform it into XML format.
- Post it using an HTTP adapter on a Web server where it is available to a second external system.

During this process, you never are required to create an MFG/PRO sales order.

Turnaround Data

Turnaround data includes some data items being stored from transactions imported from an EC subsystem into MFG/PRO. Such data items cannot be mapped into the MFG/PRO database, but are required for related outbound documents.

Example An inbound supplier schedule includes additional customer data your company does not ordinarily track in MFG/PRO’s shipping documents. However, the customer requires the same data to be included on all advance ship notices (ASNs) your company exports for items included on the schedule.

You can define inbound documents from this customer to map turnaround data during gateway processing. The system marks this data as turnaround data and stores it, but does not attempt to map it to the MFG/PRO database. The corresponding outbound implementation for this trading partner indicates that the outbound gateway program should pick up these data items and place them in the appropriate fields on the ASN exchange file document sent to the EC subsystem.

EDI ECommerce provides a tool for modifying stored turnaround data.

See “Turnaround Data” on page 188.

EDI ECommerce Tool Set

The EDI ECommerce tool set includes a set of tables containing trading partner data, exchange file document definitions, and implementation-specific document definitions used in the transformation process. Additionally, a set of menu programs lets you maintain these tables. Other menu programs are used to set up the system and to run the import and export functions.

Most of the programs are not intended for day-to-day use. Typically, a user requires only import and export programs, reprocessing programs, and a few reports and browses.

The other programs are used by system implementers to perform initial setup and to add trading partners and document types during system maintenance.

EDI ECommerce programs are located on the 35 menu.

Document Types

ECommerce allows several types of documents to be exchanged between MFG/PRO and EC subsystems. Table 4.1 lists examples of the international standards typically associated with some of the document types supported by ECommerce. Standards include those defined by the following:

- American National Standards Institute (ANSI) Accredited Standards Committee (ASC) X12
- Electronic Data Interchange for Administration, Commerce, and Transportation (EDIFACT)
- Organization for Data Exchange by Teletransmission in Europe (ODETTE)
- Verband der Automobilindustrie e.V. (VDA)

Note These standards are provided as examples. Because of the flexible, database-centered design of ECommerce, the SNF-based maps can be tailored to any standard or nonstandard business document.

Table 4.1 ECommerce Document Type Summary

Document Type	Examples of International Standards
Planning and shipping schedules	• ANSI X12 830 and 862 • EDIFACT DELFOR and DELJIT • ODETTE DELINS • VDA 4905
Purchase orders (including changes and acknowledgments)	• ANSI X12 850, 860, and 865 • EDIFACT ORDERS and ORDCHG • ODETTE ORDERR
Invoices	• ANSI X12 810 • EDIFACT INVOIC • ODETTE INVOIC • VDA 4906
Remittance advices	• ANSI X12 820 • EDIFACT REMADV
Advance ship notices (ASNs)	• ANSI 856 • EDIFACT DESADV • ODETTE AVIEXP • VDA 4913
Inventory advices	• ANSI X12 846 • EDIFACT INVRPT • ODETTE STOACT
Distribution order receipts	• ANSI X12 944 • ODETTE STOACT
Sales order shipments	• ANSI X12 945 • ODETTE STOACT

Note QAD's Trading Partner Library is an evolving collection of EDI ECommerce implementation data prepared to meet the needs of specific companies and document standards.

Tip Contact your account representative for more information.

EDI ECommerce Processing

During import and export, the system stores data in repository tables based on table-resident exchange file definitions and trading-partner-specific implementation definitions of MFG/PRO data. Then, it uses transformation definitions to determine the processing actions needed to convert between the EDI-oriented exchange file and the MFG/PRO-oriented MFG/PRO document.

Most ECommerce processing is done at a programmatic level. Very little system interface is required on the part of the day-to-day user.

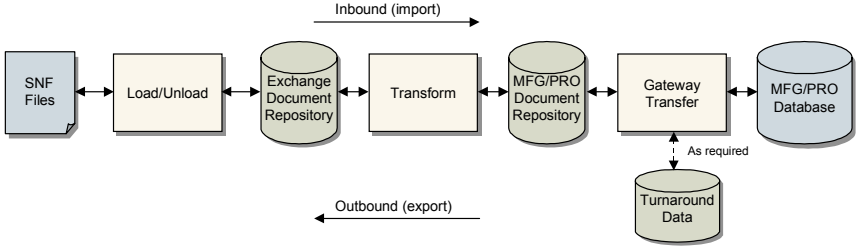
Menu-level programs let you select documents for import and export processing, if required. Depending on how your system is set up, processing might not start from the user interface, as in the following cases.

See “Scheduling Automatic Processing” on page 156.

- You can use Export/Import Controller (35.17.5) to set up a time-based process that searches for documents or files and automatically begins processing them.
- The external EC subsystem can use a customer-written program to start inbound ECommerce processing when files are ready for import.

Three basic steps take place when you import or export a file with ECommerce: load/unload, transform, and gateway transfer. Each step moves data into or out of the repository. Figure 4.2 summarizes the process.

Fig. 4.2
Import/Export Process Steps



- Load/Unload
  - The inbound process loads EDI data from the EC subsystem SNF files into the exchange file repository.
  - The outbound process unloads data from the exchange file repository into the EC subsystem SNF files.
- Transform
  - The inbound process transforms the documents from the EDI format into MFG/PRO format, applying trading partner-specific logic to map fields appropriately.
  - The same process is applied in reverse to outbound documents—MFG/PRO documents are transformed into EDI-oriented formats.
- Gateway transfer
  - The inbound process extracts transformed documents from the MFG/PRO repository and calls the appropriate gateway program to update the MFG/PRO database.
  - The outbound transfer process starts with the selection of a gateway program. MFG/PRO data is then placed in the MFG/PRO document repository.
  - The transfer process also stores trading partner-specific turnaround data on inbound messages. It retrieves stored turnaround data for outbound messages.

The import and export processes run automatically from beginning to end. If the system detects an error with a file or document at any time, it generates error messages and continues processing the rest of the job. Depending on where the error occurs, documents with errors are placed either in an error file or in the appropriate repository with a field indicating an error status. You can then use reporting tools to determine why errors occurred, then correct the problems and reprocess the documents.

See “Correcting Errors” on page 179.

Imports

The way import documents are processed and the gateways are used to transfer data into MFG/PRO depends on the types of files loaded from the EC subsystem. A single menu program provides access to the documents

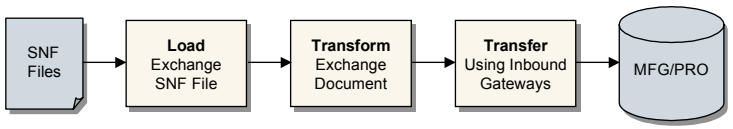
See “Importing Documents” on page 161.

available for import and allows you to select from a list of eligible files. The system reads control records in the SNF file to determine the document type, then selects the appropriate gateway processing program. All further processing is automatic.

You can also use the import function to load files from the EC subsystem directly into the MFG/PRO document repository. This feature lets you transform inbound files and export them again without ever creating MFG/PRO business documents.

The import process control flow is shown in Figure 4.3.

Fig. 4.3 Document Import Process



Exports

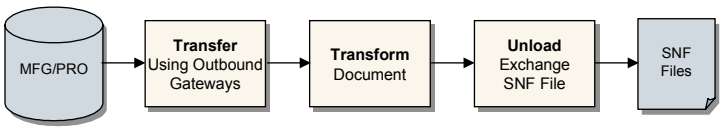
See "Exporting Documents" on page 164.

Document export processing is similar to import processing at the user interface, with one exception. Instead of a single export program, there is a program for each type of document. This lets the user enter selection criteria for the specific type of document to be exported.

These programs begin the process of extracting document data from the MFG/PRO database and transforming it into a format that meets the requirements of the receiving trading partner.

The export process control flow is shown in Figure 4.4.

Fig. 4.4 Document Export Process



See "Tracking Exported Documents" on page 181.

The system can create optional tracking records for exported documents. After acknowledgment messages are imported from the EC subsystem, tracking records are automatically updated with status information from both the EC subsystem and the trading partner's application.

Chapter 5

Setting Up EDI ECommerce

This chapter discusses the programs used to implement and set up EDI ECommerce.

Introduction

This chapter is for the system implementers and EDI specialists setting up ECommerce to exchange data with EC subsystems external to MFG/PRO.

See Chapter 4 for a description of how ECommerce works.

The complexity of setting up and implementing ECommerce depends on your company's specific needs. If you usually exchange standard types of EDI documents with your trading partners, then the QAD-developed transformation mappings available with the Trading Partner Library will probably meet your needs with a minimum of customization. However, ECommerce's powerful implementation tools let you perform setup tasks of much greater complexity.

This chapter describes all the programs available for implementing ECommerce. Depending on the complexity of your implementation scenario, you may not need to use all of the programs—or even most of them.

Setup Overview

The implementation definition is the main element used to customize the transformation of data exchanged between MFG/PRO and an external system. Building an implementation definition is a complex task. But many ECommerce installations will never require this activity. QAD provides a set of templates with much of the basic content already in place. ECommerce implementers then use ECommerce programs to copy and modify the template and to perform other required setup tasks.

Although ECommerce is separate from MFG/PRO in most aspects, the setup procedures assume that you have already completed a standard MFG/PRO implementation and have defined common base data such as items, customers, and sites in the MFG/PRO database.

A significant step in the implementation process is to define the document exchange requirements of an external EC subsystem. During setup, you do this in terms of several elements:

- Control record structures and formats used by the EC subsystem
- Data structure definitions of the standards neutral format (SNF) exchange files communicated between the EC subsystem and MFG/PRO.
- Transformation mappings that describe to MFG/PRO the actions needed to transform data from one system's specifications to the other's. If these actions require functions not provided with ECommerce, you can define your own functions.

See "Using Transformation Functions" on page 152.

Figure 5.1 summarizes a typical setup work flow. The degree to which you use the setup programs depends on your company's trading partners and the types of documents you exchange with them.

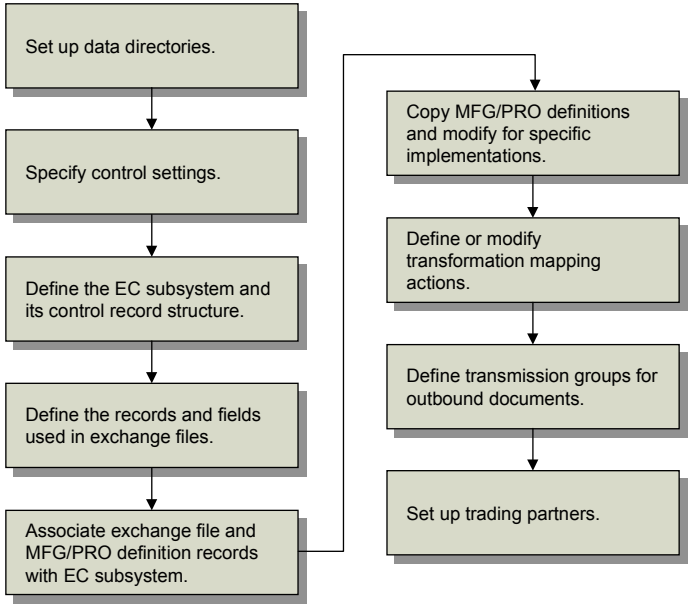


Fig. 5.1 Typical Setup Work Flow

See “Using Other Setup Programs” on page 138.

In addition to the initial setup programs, the ECommerce menus provide several other programs you can use to customize the way your MFG/PRO system uses ECommerce. These programs allow you to:

- Copy the QAD-provided exchange files, MFG/PRO documents, and implementation definitions so that you can modify them for your specific needs.
- Build your own MFG/PRO document definitions to be used in designing trading-partner-specific implementations.
- Custom-define additional definitions and functions used in transformation mapping. You can copy existing items to use as the basis for new ones.
- Define cross-references to specific data values that can be converted automatically to new values during processing.
- Define data values that can be validated automatically against specified values during transformation.
- Set up a polling schedule that enables the system to search automatically for files and begin processing when it finds them.

Setting Up Data Directories

Before setting up EDI ECommerce, the system administrator should set up a data directory for ECommerce data files. Below that directory, there must be several subdirectories for the following types of data:

- Error files
- Inbound files for import into MFG/PRO
- Archive files, which are inbound flat files that have completed processing
- Function definition files, which include the user-defined functions used for transformation processing

See “Direct Import to MFG/PRO Repository” on page 93.

- Files from an external system that are imported directly into the MFG/PRO document repository for transformation and export to another external system
- Outbound files, which contain documents exported from MFG/PRO

All but the outbound directories are specified in ECommerce Control (35.13.24). Outbound directories are used in Transmission Group Maintenance (35.13.13) to specify where exported document files should be stored for a trading partner. You can set up a separate outbound directory for each trading partner.

If your company's environment includes clients on multiple operating systems, your system administrator must ensure that these directory definitions do not contain anything that is operating system-specific.

To set up a dual environment, you still must create a master data directory that includes the other ECommerce subdirectories. Then change the PROPATH—an environment variable containing the list of directories searched by Progress—for ECommerce users to include the master directory as the first item. For the directory definitions in ECommerce Control (35.13.24) and Transmission Group Maintenance (35.13.13), use only the names of the subdirectories, such as error or archive.

Example A directory structure might look like the following:

```
/qad/Ecommerce/Data
    /qad/Ecommerce/Data/inbound
    /qad/Ecommerce/Data/arch
    /qad/Ecommerce/Data/error
    /qad/Ecommerce/Data/scan
    /qad/Ecommerce/Data/oarch
    /qad/Ecommerce/Data/oerror
    /qad/Ecommerce/Data/funcs
    /qad/Ecommerce/Data/companyA
    /qad/Ecommerce/Data/companyB
```

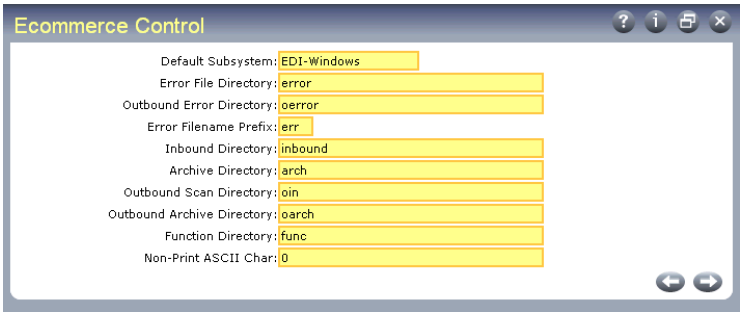
In this case, you would add `/qad/Ecommerce/data` as the first entry in the PROPATH. The first four items on the list would be specified as ECommerce Control directory entries, as shown in Figure 5.2. You would reference the `companyA` and `companyB` subdirectories in the Destination field in Transmission Group Maintenance.

See "Defining Transmission Groups" on page 133.

Configuring ECommerce Control

Use ECommerce Control (35.13.24) to set default values for ECommerce processing. This program is also available on the ECommerce Utilities menu (35.17).

Fig. 5.2
ECommerce Control (35.13.24)



Default Subsystem. Enter the name of the EC subsystem to be used when documents being processed do not identify the originating subsystem. This subsystem must be defined in EC Subsystem Definition Maint (35.13.1) before you can enter it in this field.

Tip
All directory fields are required and are validated by the system.

Error File Directory. Enter the directory where files from the Inbound Directory that fail during load or unload are stored. Reporting and reprocessing functions use this directory for input.

Outbound Error Directory. Enter the directory where files from the Outbound Scan Directory that fail during processing are stored. Reporting and reprocessing functions use this directory for input.

Error Filename Prefix. Enter a three-character prefix to be added to the names of files containing documents that encounter errors during load or unload. The system places these files in the location specified in Error File Directory. Reporting and reprocessing functions use this prefix to identify target files.

Inbound Directory. Enter the directory where the EC subsystem places files for import into MFG/PRO. When you run Document Import (35.1) with Direction set to Outbound, the system uses this as the source directory for selecting files.

Note Destination directories for exported files are specified in the Destination field in Transmission Group Maintenance (35.13.13).

Archive Directory. Enter the directory where the system places the original SNF files when processing begins.

Outbound Scan Directory. Enter the directory where the system looks for files to load directly into the MFG/PRO document repository and process for export without creating MFG/PRO business documents.

When you run Document Import with Direction set to Outbound, the system uses this as the source directory for selecting files.

Outbound Archive Directory. Specify the directory where files from the Outbound Scan Directory are moved after processing.

Function Directory. Enter the directory where the user-defined functions used during transformation processing are stored.

See “Using Transformation Functions” on page 152.

Non-Printable ASCII Character. Specify the ASCII code for the non-printable character used during transformation to separate the record name from the field name; for example, `record.field`.

If you leave this field at the default value, 0 (zero), the system uses chr(254) as the separator character.

Based on the code page used by your MFG/PRO installation, you can modify this field as needed to specify an appropriate non-printing character.

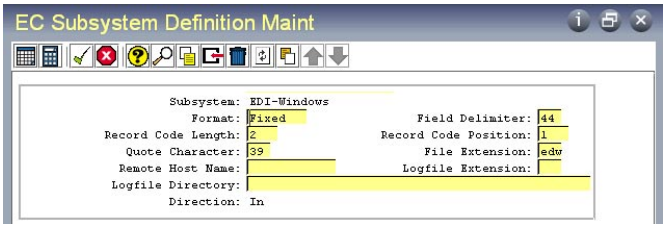
Defining the EC Subsystem

Use EC Subsystem Definition Maint (35.13.1) to define the format and content of the control records exchanged between an EC subsystem and MFG/PRO. The values you enter must correspond to those used in the SNF file by the EC subsystem you are defining.

Create a separate EC Subsystem Definition Maint record for each direction—inbound and outbound. The combination of subsystem and direction is a unique identifier, so you can use the same subsystem name for both.

The program consists of three frames. Use the first frame to define basic EC subsystem data.

Fig. 5.3
EC Subsystem Definition Maint (35.13.1), First Frame



Subsystem. Enter up to 20 characters to identify an EC subsystem that exchanges data with MFG/PRO. Use any name that makes the subsystem easy to identify. For example, if you use the same subsystem for both imports and exports, you might add the suffix "In" or "Out" to the end of the subsystem name.

Format. Specify whether the fields in the records used by the EC subsystem are fixed or variable lengths.

Field Delimiter. If you specify variable-length fields for this EC subsystem, enter the ASCII code for the character the EC subsystem uses to separate fields.

Record Code Length. Enter the number of characters the EC subsystem uses to indicate the type of record it is sending. This value must be between 1 and 4.

Record Code Position. Enter the number of the character position where the record code begins.

Enter zero to indicate that the record code is in the last position in the document.

Quote Character. Enter the ASCII code for the quote character used by the EC subsystem. If no quote character is required, enter zero.

See "Defining Transmission Groups" on page 133.

File Extension. Enter the three-character file extension that the EC subsystem uses to identify its inbound files. For outbound files exported by MFG/PRO, the system appends this extension to identify the files to the EC subsystem. The name of the file is based on data you define in Transmission Group Maint.

Remote Host Name. If this EC subsystem runs automated activities on a host computer, enter the name of that host computer. For example, you might run an e-mail program on this system to process messages containing exported files.

To specify the program to be run on the remote host, use the Processing Program field in the Transmission Group record for the transmission group that accesses this host.

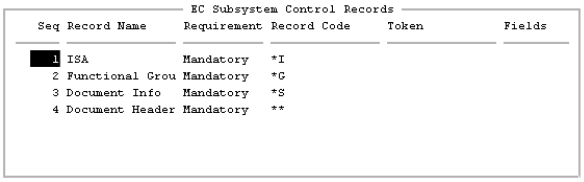
Logfile Extension. If the computer specified in Remote Host Name creates a log file related to its processing activities, enter its file extension.

Logfile Directory. If the computer specified in Remote Host Name creates a log file related to its processing activities, enter the directory that contains the log file.

Direction. Specify whether this EC subsystem definition is for inbound or outbound records. In ECommerce, direction is always relative to MFG/PRO—inbound for imports and outbound for exports.

Each EC subsystem must have separate definitions for inbound and outbound records.

Use the second frame to define the control records for this EC subsystem.


EC Subsystem Control Records

Seq	Record Name	Requirement	Record Code	Token	Fields
1	ISA	Mandatory	*I		
2	Functional Grou	Mandatory	*G		
3	Document Info	Mandatory	*S		
4	Document Header	Mandatory	**		

Fig. 5.4
EC Subsystem Definition Maint, Control Records Frame

Seq. Enter a sequence number identifying the order in which control records are received from or sent to the EC subsystem.

Record Name. Enter the name of this control record.

Requirement. Specify whether this control record is mandatory or optional for the receiving system—MFG/PRO for inbound documents or the EC subsystem for outbound documents. When mandatory records are not included in a document being processed, the system generates an error.

Record Code. Enter the alphanumeric code the EC subsystem uses to define this type of record.

Tip
At least tp-id and tp-document-id must be defined.

Token. A token is a critical variable used to populate the exchange file master record during the load process. It provides such information as the trading partner identifier or the document type. Tokens determine the specific way data is transformed between the EC subsystem and MFG/PRO.

If applicable, enter the name of the token associated with this record. Valid tokens are:

- tp-id (mandatory for transformation processing)
- tp-document-id (mandatory for transformation processing)
- tp-document-nbr
- tp-message-nbr
- tp-func-grp-nbr
- tp-interchange-nbr
- tp-address
- tp-site
- app-table
- app-table-index
- app-table-value
- app-document-id
- app-document-vers
- app-address
- app-site

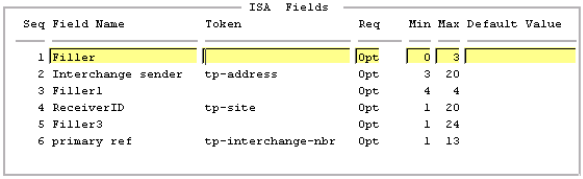
To assign multiple tokens to one field, separate them with commas.

The system treats any other values in this field as reference information.

Fields. Enter Yes to display an additional frame that lets you enter or edit the fields contained in this record.

Use the last frame to define each field included in the control records for this EC subsystem.

Note This frame displays only when Fields is Yes for the selected record.


ISA Fields

Seq	Field Name	Token	Req	Min	Max	Default Value
1	Filler		Opt	0	3	
2	Interchange sender	tp-address	Opt	3	20	
3	Filler1		Opt	4	4	
4	ReceiverID	tp-site	Opt	1	20	
5	Filler3		Opt	1	24	
6	primary ref	tp-interchange-nbr	Opt	1	13	

Fig. 5.5
EC Subsystem Definition Maint, Control Record Fields Frame

Seq. Enter the numerical sequence in which this field occurs in the record.

Field Name. Enter a descriptive name for this field.

Token. If applicable, enter the token that applies to this record.

See page 108.

Req. Specify whether this field is mandatory (Man) or optional (Opt) for the receiving system—MFG/PRO for inbound documents or the EC subsystem for outbound documents.

Min. Enter the minimum length of this field. The system validates that data included in the field is greater than or equal to the minimum required number of characters.

Max. Enter the maximum length of this field.

- If the field lengths are variable and separated by the specified delimiter, the system validates that the field length is between the Min and Max values.
- If the field lengths are fixed, the system uses this value as the actual length to calculate where each field starts and ends.

Default Value. Optionally enter a default value for the system to place in this field if no other value is specified. For example, this field could be used on an outbound transaction when the receiving EC subsystem requires a value in a field that generally is blank.

Use EC Subsystem Report (35.13.2) to review the structure of the records and fields in an existing subsystem definition.

Defining an Exchange File

An exchange file defines the documents communicated between the EC subsystem and MFG/PRO. It includes data record structures that match the definition of the SNF communicated with the EC subsystem.

See "Copying Exchange File Definitions" on page 149.

Note You can use this program to modify an exchange file definition you have created yourself or one based on a copy of a QAD-developed template definition. However, the system does not allow you to modify a QAD-developed definition. If you attempt to do so, the program acts as an inquiry and shows the data in display-only mode. Use Exchange Definition Copy (35.15.1) to copy a definition before modifying it.

Use Exchange Definition Maintenance (35.15.6) to define the layout and content of the exchange file documents. You can define records and fields in records.

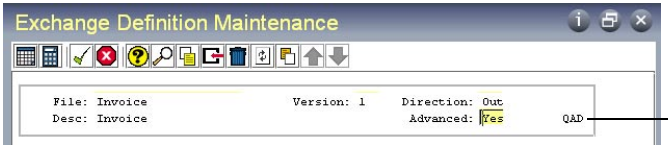
Important You must create a different exchange file definition for each type of document.

The program consists of three standard frames. Optionally, when the exchange definition is used for mapping documents to or from extensible markup language (XML) format, an additional frame displays.

Tip
You cannot delete QAD-provided exchange definitions.

Use the first frame to identify an exchange file definition by a unique combination of name, version, and direction. You can delete a definition by choosing Delete when the cursor is the Description field. However, if the system finds existing transformation maps that reference this definition, it displays an error message, and you must delete the transformation maps in Transformation Definition Maint before deleting the exchange definition.

Fig. 5.6
Exchange Definition Maintenance (35.15.6), First Frame



Name. Enter a name for the exchange file definition.

Version. Enter a version number. You can use the same name for more than one definition, then use a different version number to differentiate among multiple definitions with the same name.

Additionally, you can use Direction—inbound or outbound—to distinguish between multiple definitions with the same name.

Direction. Enter the direction of the file transfer that will use this exchange file definition. Specify the direction relative to MFG/PRO. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

Desc. Optionally enter a text description of this exchange file definition. This description is for reference only.

Advanced. When this field is Yes, another frame lets you specify information related to XML translation of data.

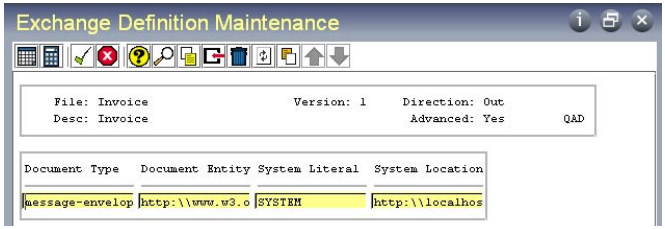


Fig. 5.7 Exchange Definition Maintenance, XML Information Frame

Document Type. Enter the document-level XML identifier for the document to be created using this definition. The resulting XML document includes this identifier in the first line.

Document Entity. Enter the URL containing the namespace definition that controls the XML structure associated with documents created using this definition; for example, http://www.w3.org/2000/xmlns/.

An XML namespace is a collection of names, identified by a specific uniform reference locator (URL), which are used in XML documents as element types and attribute names.

System Literal. Specify whether the document type definition (DTD) used to validate the content of exported XML files is on a public server or within a system domain. Valid values are:

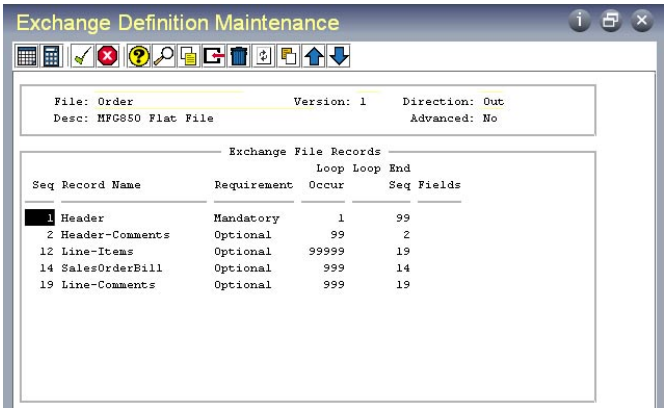
PUBLIC: The value specified in System Location is outside the local system domain.

SYSTEM: The specified system location is within the local system domain.

System Location. Enter the path to the location where the document type definition (DTD) used to validate the content of XML files is stored.

Use the next frame to define exchange file records.

Fig. 5.8
Exchange Definition Maintenance, Exchange File Records Frame



Tip
Set up a logical numerical hierarchy for record sequence numbers.

Seq. The sequence number of this record. Choose Insert to add a new record. The system automatically assigns the next number, but you can change this to any number.

Important In all cases, the first record in a document added to the repository must be sequence number 1. Other records can be numbered as you choose. The following examples show valid and invalid record sequences.

Valid	Invalid
1, 2, 3, 4, 5	2, 3, 4, 5
1, 10, 20, 22, 30	10, 20, 22, 30

After you have used an exchange definition in a transformation definition, you cannot change record sequences in the exchange definition without deleting and reentering the entire transformation definition.

Record Name. Enter a name for this record. Each record name must be unique in an exchange file definition.

This record name is used as a variable during the transformation process, without the sequence number.

Requirement. Enter Mandatory to indicate that this record is required during the load or unload process or Optional to indicate that it is not. When the system cannot find a mandatory record to load or unload, it generates an error message and does not process the associated document.

Loop Occurs. Enter the number of times the processing logic should loop through the records during transformation.

Loop Ends Seq. Enter a defined record sequence number to indicate where the loop ends. For example, enter a Loop Ends Seq value of 2 on sequence number 2 to indicate that the entire loop sequence takes place on a single record. Or, enter an end sequence of 4 on sequence number 3 to indicate a loop that starts at 3 and ends at 4.

To specify a loop structure that includes all records, enter zero or a number higher than the last record sequence defined.

Fields. Enter Yes to display an additional frame that lets you enter or edit the fields contained in this record.

Use the last frame to edit or enter field information for the selected record. Choose Insert to add a new field.

Note This frame displays only when Fields is Yes for the selected record.

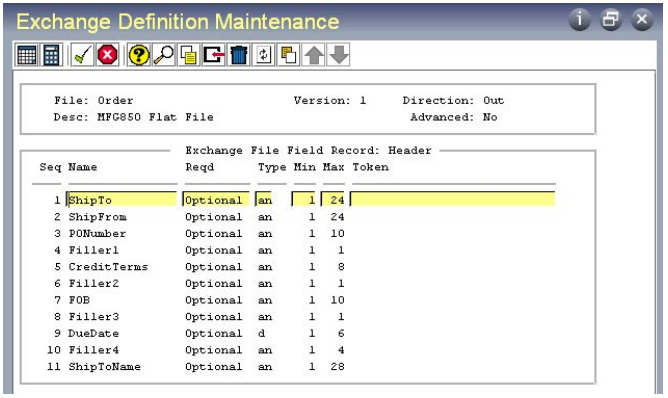


Fig. 5.9 Exchange Definition Maintenance, Exchange File Field Record Frame

Seq. The sequence number of this field in the record. Choose Insert to add a new field. The system automatically assigns the next available number. You can modify the number as needed or navigate to the blank fields at the bottom of the frame and assign numbers.

Note It is recommended that you number the fields sequentially, beginning with 1. When you do this, a total of 99 fields are available for each record. Although the system accepts non-sequential numbers, their use is not recommended.

Name. Enter the name of the field. The name must be unique in the record.

Reqd. Enter Mandatory to indicate that this field is required during the load process or Optional to indicate that it is not. When the system cannot find mandatory fields to load, it generates an error message and does not process the associated record.

Type. Enter a code representing the type of data stored in this field. Valid entries are:

- AN: Alphanumeric
- D: Date
- I: Integer
- L: Logical
- R: Real number

Min. Enter the minimum number of characters to be included in this field. The system validates that required or optional data is greater than or equal to the minimum required value for the field.

Max. Enter the maximum number of characters to be included in this field.

- If the field lengths are variable and separated by the delimiter specified in EC Subsystem Definition Maint, the system validates that the field length is between the Min and Max values.
- If the field lengths are fixed, the system uses this value to calculate where each field starts and ends.

Token. A token is a critical variable used to populate the exchange file master record during the load process. It provides such information as the trading partner identifier or the document type. Tokens determine the specific way data is transformed between MFG/PRO and the EC subsystem.

Tip
At least tp-id and tp-document-id must be defined.

If applicable, enter the name of the token associated with this field. Valid values are the same as those used when you define the EC subsystem.

See page 108.

Defining EC Subsystem Cross-References

Depending on whether you are importing documents that will be added to the database or bringing them in from an external source for transformation and export in a new format, use one of the following methods to set up cross-reference records between ECommerce and an EC subsystem:

See “EDI ECommerce Processing” on page 96.

- When you load records into the exchange repository, then through transformation, into the MFG/PRO document repository, and through a gateway into the MFG/PRO database, set up cross-reference records using EC Subsystem/Exchange Maintenance (35.13.3).
- When you load records directly into the MFG/PRO document repository, you can transform files for export without ever creating business documents in the MFG/PRO database. Set up cross-reference records for this type of processing using EC Subsystem/MFG Maintenance (35.13.5).

EC Subsystem to Exchange File Cross-References

Use EC Subsystem/Exchange Maint (35.13.3) to correlate the structure of the data records in the SNF file received from the EC subsystem with an exchange file definition.

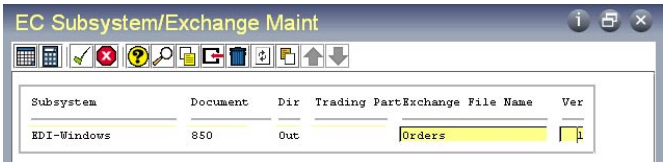
This lets the system place data properly in the exchange repository before beginning transformation processing.

Control records are defined in EC Subsystem Definition Maint.

See “Defining the EC Subsystem” on page 105.

This program consists of two frames. In the first, you define a unique combination of EC subsystem, document type, and exchange file name.

Fig. 5.10
EC Subsystem/ Exchange Maint (35.13.3), First Frame



Subsystem. Enter the name of an EC subsystem defined in EC Subsystem Definition Maint.

See "Token" on page 109.

Document. Enter the type of document to be exchanged between MFG/PRO and this EC subsystem. For example, 810 could be used to identify an ANSI X12 standard 810 document, which is used to export an invoice. This is ordinarily the value represented by the tp-doc-id token.

Direction. Enter the direction for this document type—inbound or outbound. Documents imported into MFG/PRO are inbound, while those exported to an EC subsystem are outbound.

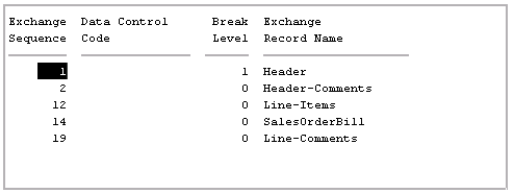
Trading Partner. Enter an identifier for the trading partner to which this exchange/subsystem cross-reference applies. Leave blank if it applies to all trading partners.

By setting up trading partner-specific cross-reference records, you can apply different SNF definitions for different trading partners.

Exchange File Name. Enter the name of the exchange file to be associated with this document type. If you have set up multiple exchange files with the same file name in Exchange Definition Maintenance, scroll through the unique name, version, and direction combinations and select the appropriate one.

Ver. Enter the version of the exchange file to be associated with this document type. Multiple exchange files can have the same name. Be sure to use the correct version for the specific exchange file.

Use the next frame to establish a link between the document type and the record sequences, data control codes, and data record names in the exchange file.



Exchange Sequence	Data Control Code	Break Level	Exchange Record Name
1		1	Header
2		0	Header-Comments
12		0	Line-Items
14		0	SalesOrderBill
19		0	Line-Comments

Fig. 5.11
EC Subsystem/ Exchange Maint, Second Frame

Exchange Sequence. Enter a number to represent the sequence in which this record appears in the exchange file document.

Data Control Code. Enter the code the EC subsystem uses to identify this type of data record in this document type.

Break Level. Enter the break level associated with this record.

Break level lets you define documents in which the same record name can be used more than once. For example, you can use Comment in both the header and in the detail. When the system processes data during transformation and encounters a duplicate record name, it looks for the record with a higher Break value than the previous instance.

Exchange Record Name. The system displays the name of the record from the exchange file definition.

EC Subsystem to MFG/PRO Cross-References

Use EC Subsystem/MFG Maintenance (35.13.5) to cross-reference the EC subsystem definition to MFG/PRO document definitions. This lets you load files from an external application directly into the MFG/PRO document repository.

Fig. 5.12
EC Subsystem/ MFG Maintenance (35.13.5)

This program is very similar to EC Subsystem/Exchange Maintenance. The major difference is that you are cross-referencing file structures to the MFG/PRO document repository with this program, rather than to the exchange repository.

See page 115.

Defining a Specific Implementation

ECommerce includes a number of generalized document definitions for MFG/PRO data. You cannot directly edit these definitions. Instead, you can copy a definition and tailor it as needed to accommodate the data exchange needs of a specific trading partner. In ECommerce, this is known as an *implementation*.

The system uses three definitions to correlate the specific data structure and format requirements of MFG/PRO and the EC subsystem:

- The implementation definition
- An exchange file definition
- A transformation definition

See "Copying Implementation Definitions" on page 151.

Note You can use this program to modify an implementation definition you have created yourself or one based on a copy of a QAD-developed template definition. However, the system does not allow you to modify a QAD-developed definition. If you attempt to do so, the program acts as an inquiry and shows the data in display-only mode. Use Implementation Definition Copy (35.15.3) to copy a definition before modifying it.

Use Implementation Definition Maint (35.15.13) to define the data exchange requirements for a specific trading-partner implementation. The program includes three primary frames. Optional frames display under the following circumstances:

- When this implementation is used for mapping data to or from extensible markup language (XML) format
- When you are defining turnaround data
- When you are setting up fields that can be updated during document export

In the first frame, you name the implementation and specify an associated MFG/PRO document definition.

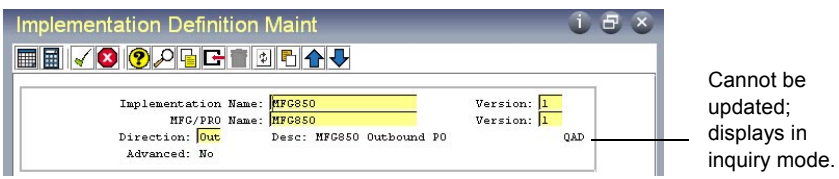


Fig. 5.13 Implementation Definition Maint (35.15.13), First Frame

Implementation Name. Enter an alphanumeric name for this implementation.

Version. Enter a version number for this implementation. You can use the same name for more than one implementation, then use a different version number to distinguish between them.

MFG/PRO Name. Enter the name of an MFG/PRO document definition to be copied to create this implementation definition. This can be one you created or one supplied by QAD.

Version. Enter the version number of the MFG/PRO document definition you are using as a template for this implementation document.

Direction. Enter the direction—inbound or outbound—of the MFG/PRO document definition you are using as a template for this implementation definition.

Multiple MFG/PRO document definitions can have the same name and version number and be distinguished only by direction. Be sure to use the right version.

Tip
Direction is relative to MFG/PRO—imported files are inbound and exported documents are outbound.

Desc. Optionally enter a text description of this implementation. This description is for reference only.

Advanced. When this field is Yes, another frame lets you specify information related to XML translation of data. This is identical to the frame that displays when you set Advanced to Yes in Exchange Definition Maintenance (35.15.6).

See Figure 5.7 on page 111.

Use the next frame to edit an existing record structure or add new records. To add or modify fields in a record, set Fields to Yes for that record line and choose Go.

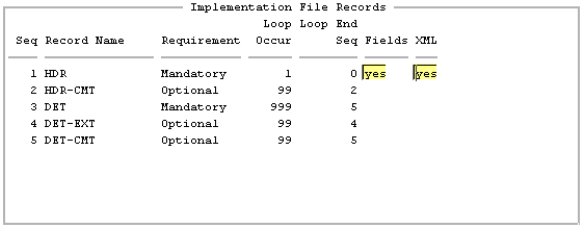


Fig. 5.14
Implementation Definition Maint, Implementation File Records Frame

Seq. The sequence number of this record. Choose Insert to add a new record. The system automatically assigns the next number. You can modify sequence numbers as needed. Choose Go to modify an existing record.

Important In all cases, the first record in a document added to the repository must be sequence number 1. Other records can be numbered as you choose. The following table shows examples of valid and invalid record sequences.

Valid	Invalid
1, 2, 3, 4, 5	2, 3, 4, 5
1, 10, 20, 22, 30	10, 20, 22, 30

After you have used an implementation definition in a transformation definition, you cannot change record sequences in the implementation definition without deleting and reentering the entire transformation definition.

Record Name. Enter a name for this record. Each record name must be unique in an implementation definition.

The transformation process uses this as the first part of the record variable, independent of the sequence number.

Note Naming conventions apply to the record names used in MFG/PRO document definitions and implementation definitions. When you create new definitions, you must use these names. Table 5.1 lists the naming conventions.

Table 5.1
Record Naming Conventions

Document Type	Record Name	Description
Sales Order	HDR	Header
	HDR-EXT	Header Extended
	HDR-CMT	Header Comment
	DET	Detail
	DET-EXT	Detail Extended
	DET-CMT	Detail Comments
	DET-SOB	SO Configuration Bill

Document Type	Record Name	Description
Customer Schedule	HDR	Header
	HDR-EXT	Header Extended
	DET	Detail
	DET-EXT	Detail Extended
	ATH	Authorizations
Invoice	HDR	Header
	HDR-EXT	Header Extended
	HDR-CMT	Header Comment
	DET	Detail
	DET-EXT	Detail Extended
	DET-CMT	Detail Comments
	ADDR	Address
ASN	HDR	Header
	HDR-EXT	Header Extended
	CTR-TARE-SUMM	Container Tare Summary
	TARE-HDR	Tare Header
	TARE-DET	Tare Detail
	CTR-TARE	Container Tare
	CTR-PRIM	Container Primary
	CTR-ITEM	Container Item
	ITM	Item
	ITM-EXT	Item Extended
	ITM-AUTH	Item Authorizations

Requirement. Enter Mandatory to indicate that this record is required during the load or unload process or Optional to indicate that it is not. If the system cannot load or unload mandatory records, it generates an error message and does not process the associated document.

Loop Occurs. Enter the number of times the processing logic should loop through the records during loading or unloading.

Loop Ends Seq. Enter a defined record sequence number to indicate where the loop ends. For example, enter a Loop Ends Seq value of 2 on sequence number 2 to indicate that the entire loop sequence takes place on a single record. Or, enter an end sequence of 4 on sequence number 3 to indicate a loop that starts at 3 and ends at 4.

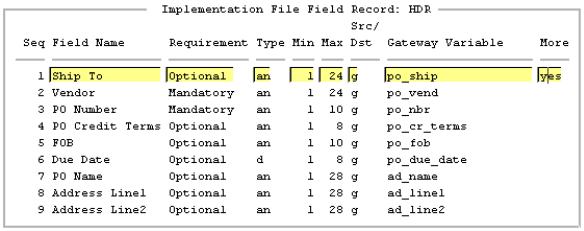
To specify a loop structure that includes all records, enter zero or a number higher than the last record sequence defined.

Fields. Enter Yes to display an additional frame that lets you enter or edit the fields contained in this record.

XML. Enter Yes to display the XML Tag field. Optionally enter the XML tag associated with this record. When the field is blank, the system uses the record name as the XML tag when transforming documents to XML format.

In the next frame, you can edit the fields copied from the MFG/PRO document definition or add new fields.

Fig. 5.15 Implementation Definition Maint, Implementation File Field Record Frame


Implementation File Field Record: HDR

Seq	Field Name	Requirement	Type	Min	Max	Src/ Dst	Gateway Variable	More
1	Ship To	Optional	an	1	24	g	po_ship	yes
2	Vendor	Mandatory	an	1	24	g	po_vend	
3	PO Number	Mandatory	an	1	10	g	po_nbr	
4	PO Credit Terms	Optional	an	1	8	g	po_cr_terms	
5	FOB	Optional	an	1	10	g	po_fob	
6	Due Date	Optional	d	1	8	g	po_due_date	
7	PO Name	Optional	an	1	28	g	ad_name	
8	Address Line1	Optional	an	1	28	g	ad_line1	
9	Address Line2	Optional	an	1	28	g	ad_line2	

Seq. The sequence number of this field in the record. Choose Insert to add a new field. The system automatically assigns the next number. You can modify the number as needed or navigate to the blank fields at the bottom of the frame and assign numbers.

Note It is recommended that you number the fields sequentially, beginning with 1. Provided you do this, a total of 99 fields are available for each record. Although the system will accept non-sequential numbers, their use is not recommended.

Select a line and choose Go to edit an existing field record.

Field Name. Enter or modify the name of the field. This value is used with the record name, formatted as `recordname.fieldname`, during transformation.

Requirement. Enter Mandatory to indicate that this field is required during the load or unload process or Optional to indicate that it is not. If the system cannot find mandatory fields while loading records, it generates an error message and does not process the associated record.

Type. Enter the type of data stored in this field. Valid entries are:

- AN: Alphanumeric
- D: Date
- I: Integer
- L: Logical
- R: Real number

Min. Enter the minimum length of this field. The system validates that required or optional data is greater than or equal to the minimum required value for the field.

Max. Enter the maximum length of this field.

- If the field lengths are variable and separated by the delimiter specified in EC Subsystem Definition Maint, the system validates that the field length is between the Min and Max values.
- If the field lengths are fixed, the system uses this value to calculate where each field starts and ends.

Source/Destination. Enter the type of variable associated with this field. Valid choices include:

- G: Gateway. This variable type is used by the gateway during the transfer process.
- T: Turnaround. This variable type represents imported data that is stored in the turnaround data table, indexed, and later associated with an exported document.
- D: Data entry. The operator adds this data during processing. This function is not currently implemented.

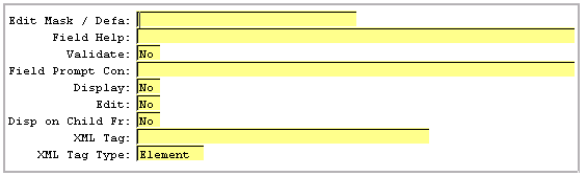
Gateway Variable. Enter the name of the variable associated with this field. The gateway program uses this variable to move data into the application. The default variable is copied from the associated MFG/PRO document definition.

More. Leave this field set to No to skip the next frame. Enter Yes to display another frame that you can use to define field data used in additional applications of the implementation definition.

The next optional frame applies to implementation definitions used for the following purposes:

- Outbound ASNs and invoices, when you want to be able to update data on the outbound document before exporting it to your trading partner
- Imported documents, when you want to define custom fields that display on the report generated during import
- XML documents, when you want to specify an XML tag type and tag for a field

Fig. 5.16
Implementation Definition Maint, Field Update Frame



The following fields in this frame are currently implemented:

Tip
Set Display to Yes for these values to have an effect.

Edit Mask/Default. When you want to display custom fields on the report generated during import, use this field to specify the field length and label to display, separated by a slash (/). For example, if you enter 4/Max, the report displays the output defined in this implementation record in a four-character field, with a label of Max.

Field Help. Enter text to be displayed at the bottom of the data entry screen when the cursor is in this field during editing. For example, you can describe the type of data or values that should be entered.

Display. Enter Yes to display data on the import report based on the field length and label specified in Edit Mask/Default.

See “Exporting Documents” on page 164.

Edit. Enter Yes to have this field display for editing when you specify Update or Both in the Update/Export/Both field of Shipment ASN Export (35.4.1) or Invoice Export (35.4.3).

XML Tag. Optionally enter an XML tag name associated with this field. If you do not enter a value, the system uses the field name as the tag.

XML Tag Type. Indicate the type of the specified XML tag. Valid values are Attribute and Element. The default is Element.

If Src/Dst is T, indicating a turnaround variable, another frame displays. Use it on inbound definitions to enter the table and field with which the turnaround data for this implementation should be associated. On implementations for outbound documents, enter the name of the function used to retrieve the turnaround data and attach it to the exported document.

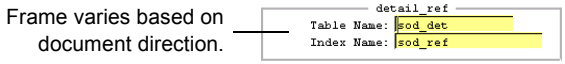


Fig. 5.17 Turnaround Data Location Frame

Table Name and Index Name. On implementation definitions for imported documents, enter the name of the database table and field with which this turnaround data value is associated.

See “Turnaround Data” on page 188.

Note Turnaround data is not actually stored in the specified table. Instead, it is stored in a set of turnaround repository tables that use the table and field names as part of the index.

Retrieval Function. On implementation definitions for exported documents, enter the name of the function defined in ECommerce Function Maintenance (35.15.21) used to retrieve the turnaround data from the database and add it to the outbound document. When you enter a valid function, the system displays the parameters from the function definition for update.

See “Using Transformation Functions” on page 152.

Defining Transformation Maps

The system uses a transformation map in combination with an exchange file definition and an implementation file definition to exchange data between MFG/PRO and an external EC subsystem. The resulting output meets the specific data structure and format requirements of both systems.

See “Copying Transformation Definitions” on page 151.

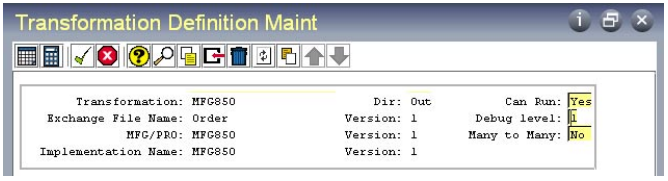
Note You can use this program to modify a transformation definition you have created yourself or one based on a copy of a QAD-developed definition. However, the system does not allow you to modify a QAD-developed definition. If you attempt to do so, the program acts as an inquiry and shows the data in display-only mode. Use Transformation Definition Copy (35.17.1) to copy a definition before modifying it.

Use Transformation Definition Maint (35.15.17) to define a transformation map.

This program consists of four frames. Use the first frame to:

- Name the transformation definition.
- Identify the existing combination of exchange file definition, MFG/PRO document definition, and specific implementation that uses this transformation map.
- Set up two fields for testing the transformation map. The Can Run and Debug Level options can be especially valuable when you are testing a new implementation for a new trading partner or document.

Fig. 5.18 Transformation Definition Maint (35.15.17), First Frame



Transformation. Enter a name for this transformation definition.

Direction. Specify the direction—inbound or outbound—of the documents to be transformed using this definition. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

Two transformation definitions can have the same name and be distinguished only by direction.

Exchange File Name, Version. Enter the name and version of the exchange file definition used in this transformation.

MFG/PRO, Version. Enter the name and version of the MFG/PRO document definition used in this transformation. This can be a QAD-supplied definition or one you created.

Implementation Name, Version. Enter the name and version of the implementation definition used in this transformation.

Can Run. Set to Yes to make this transformation map completely operational.

During testing, you can set this field to No. The system then runs the entire transformation process, but backs the data out of the MFG/PRO repository instead of storing it. You can identify transformation mapping problems and correct them before changing the field to Yes, letting the data be saved in the MFG/PRO data repository.

Debug Level. Specify a value between 0 and 9 to indicate the level of detail reported in the activity file created when this transformation is run. Lower levels provide less detail. For example, you can set this to 9 during testing to get a complete record of what happens during transformation processing.

Warning Leaving this field set to a high value can produce very large files and can lead to disk space problems.

The system names these activity files using the convention *MMDDYYYY*.DBG, where *MMDDYYYY* is the date the transformation map is used. A new file is created when the first session is run each day. A record of each transformation operation that occurs during that day is appended to this file.

Many to Many. Set to Yes to combine multiple input documents and treat them as one document. This lets the system back out multiple files or create a single output from several inputs.

If No, the system always maps one input document to one or many output documents, depending on how many times the transformation definition indicates a new header should be written.

Tip
Multiple exchange file, MFG/PRO document, and implementation definitions can use the same name. Make sure to specify the correct version numbers.

Before displaying the second frame, the system creates variables from the exchange file and the implementation associated with this transformation definition. Only these and user-defined variables can be used during transformation, along with the following automatically assigned variables.

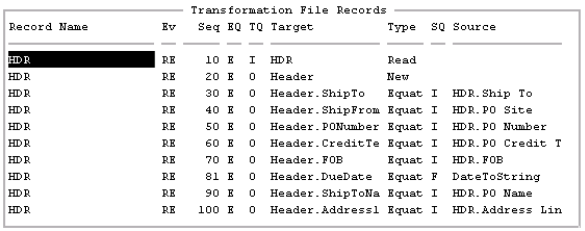
- tp-id
- tp-document-id
- tp-message-nbr
- tp-func-grp-nbr
- tp-interchange-nbr
- tp-document-nbr
- tp-doc-dir
- tp-site
- tp-address
- mfg/pro-site
- mfg/pro-address
- map-name
- map-exf-vers
- map-imp-name
- map-imp-vers
- map-mfg-name
- map-mfg-vers
- map-exf-name
- map-many-to-many
- map-debug-level
- map-can-run
- current-exf-seq
- current-mfg-seq
- conditional-rec-flushed

See “Token” on page 109.

The trading partner variables correspond to tokens. The system uses MFG/PRO-SITE and MFG/PRO-ADDRESS to determine the customer address and the MFG/PRO site code automatically, based on the cross-reference defined in Trading Partner Maintenance (35.13.7). You can also assign these values as an event that takes place during transformation. Other variables contain information associated with the transformation definition.

The second frame displays the events and actions associated with the current transformation definition records. The records are always related to the direction of the document. For example, an inbound document always displays exchange file record names.

Choose Insert to define a new event. To delete the current selection, choose Delete, then confirm the deletion when prompted.



Transformation File Records

Record Name	Ev	Seq	EQ	TQ	Target	Type	SQ	Source
HDR	RE	10	E	I	HDR	Read		
HDR	RE	20	E	O	Header	New		
HDR	RE	30	E	O	Header.ShipTo	Equat	I	HDR.Ship To
HDR	RE	40	E	O	Header.ShipFrom	Equat	I	HDR.PO Site
HDR	RE	50	E	O	Header.PONumber	Equat	I	HDR.PO Number
HDR	RE	60	E	O	Header.CreditTe	Equat	I	HDR.PO Credit T
HDR	RE	70	E	O	Header.FOB	Equat	I	HDR.FOB
HDR	RE	81	E	O	Header.DueDate	Equat	F	DateToString
HDR	RE	90	E	O	Header.ShipToNa	Equat	I	HDR.PO Name
HDR	RE	100	E	O	Header.Address1	Equat	I	HDR.Address Lin

Fig. 5.19
Transformation Definition Maint, Transformation File Records Frame

In the Event Qualifiers frame, begin identifying a new event by specifying a combination of event qualifier, event, record name, and action sequence.

Event Qualifiers

Ev Qual	Event	Record Name	Action Seq
Each	RECORD-ENTRY	HDR	60

Fig. 5.20
Transformation Definition Maint, Event Qualifiers Frame

Ev Qual. Enter an event qualifier or use Next/Previous to scroll through the list and choose Go to select a value.

Note The current version of ECommerce uses only the Each option.

Event. Enter the type of event or use Next/Previous to scroll through the list and choose Go to select a value. Valid values are:

- Loop-Entry
- Record-Entry
- Loop-Exit
- Record-Exit

Record Name. Enter the name of the record to be acted upon during this event.

You can also use Next/Previous to scroll through the list and choose Go to select a value. Because the record name is associated with the direction of the document, Next/Previous displays only the records that can be used as input to the transformation. For example, on an outbound document, only implementation record names are available.

Action Seq. Enter a number to represent the sequence in which this event occurs.

See "Renumbering Transformation Actions" on page 155.

Important You cannot change this sequence after you have defined the event. The only way to change the definition is to delete it and add a new event with a different sequence. When setting up event qualifiers, consider using increments of 10 so you can later insert intermediate sequence numbers. Use the Transformation Renumber Utility (35.17.3) to update all the event sequence numbers automatically and to leave space between numbers in which to insert new events.

After you enter a value in Action Sequence and choose Go, a final frame displays for you to enter the type of action associated with this event—for example, equating two values or reading a record into memory. You also specify a qualifier for the source, the target, or both, depending on the type of action.

Note The target is always the element being acted upon. For example, if you are equating two values, you are instructing the system to make the target equal to the source.

Fig. 5.21 Transformation Definition Maint, Event Actions Frame

Event Actions

Type	Qual	Target
	Qual	Source
Equate	0	Header.CreditTerms
	I	HDR.PO Credit Terms

Type. Specify the type of action to be performed or use Next/Previous to scroll through the list of action types and choose Go to select one. Valid action types are:

- Equate: Set the target equal to the source.
- Read: Read the target record fields into memory. This can be used only with an input record.
- Clear: Remove the target record fields from memory.
- Write: Write the target record to the database. You can only write an output record. You must write a header record before another record can be written. Write can be used optionally with the QAD-provided check-hash function, which determines the header for which the detail will be written.
- Create: Logical placeholder for creating outbound transactions.
- Loop: Loop through the records already read into memory.
- EndLoop: End a loop. Does not require a source or target.

- If: Conditional logic based on the source and source qualifier. The If statement must return a value of True or Yes. It allows the use of Else and Endif and does not require a source or target.
- Endif: End of an If statement. Endif does not require a source or target.
- Else: Logical branch between If and Endif statements. Else does not require a source or target.

Qual Target. Select the form of data to be specified as the target for this event. Valid values for the Target field are determined by this setting.

Enter the qualifier for the target or use Next/Previous to scroll through the list of qualifiers and choose Go to select one. Valid values are:

- I: Input data
- O: Output data
- V: Variable

Target. Enter the inbound record or field, outbound record or field, or variable that is the target of the action specified in Type.

Enter the name of the target or use Next/Previous to scroll through the list of available targets and choose Go to select one.

Qual Source. Select the form of data to be specified as the source for this event. Valid values for the Source field are determined by this setting.

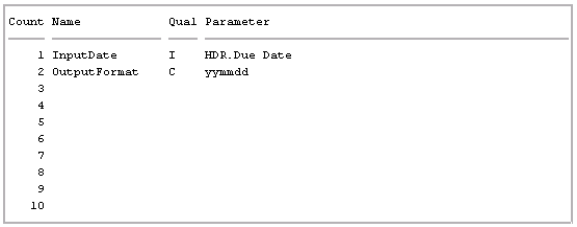
- I: Input data
- O: Output data
- V: Variable
- C: Constant
- F: Function

If you specify a function and enter its name in Source, another frame lets you modify it as needed for this specific instance. Some functions are provided with ECommerce. However, you can also define your own functions with ECommerce Function Maintenance (35.15.21). Use ECommerce Function Copy (35.17.2) to copy an existing function before modifying it as required.

See “Using Transformation Functions” on page 152.

Source. Enter the inbound record or field, outbound record or field, variable, constant, or function that is the source of the action specified in Type. If you enter the name of a function, another frame displays. Use it to modify the qualifiers and parameters as needed for this specific instance.

Fig. 5.22
Transformation Definition Maint, Function Frame



Count	Name	Qual	Parameter
1	InputDate	I	HDR.Due Date
2	OutputFormat	C	yymmdd
3			
4			
5			
6			
7			
8			
9			
10			

Qual. Enter a code indicating the structure of the data passed in this parameter. Valid values for the Parameter field are determined by this setting.

Enter the qualifier for the parameter or use Next/Previous to scroll through a list of qualifiers and choose Go to select one. Valid values include:

- I: Input data
- O: Output data
- V: Variable
- C: Constant

Parameter. Enter the name of the input, output, or variable. You can use Next/Previous to scroll through a list of available parameters and choose Go to select one. The contents of the list are determined by the Qual value.

If Qual is C, you must enter a constant. If you enter a value not already defined, the system prompts you to define the data type as one of the following:

- AN: Alphanumeric
- D: Date
- I: Integer
- L: Logical
- R: Real number

Defining Transmission Groups

Transmission groups consolidate multiple trading partners by network location so that outbound documents can be batched appropriately. For example, you can create a transmission group for all the trading partners on one value-added network (VAN).

When you set up trading partners who will receive documents exported from MFG/PRO, you assign them to a transmission group. This relationship indicates such information as where the system should place outbound files for the trading partner.

See “Setting Up Trading Partners” on page 135.

Use Transmission Group Maintenance (35.13.13) to define transmission groups.

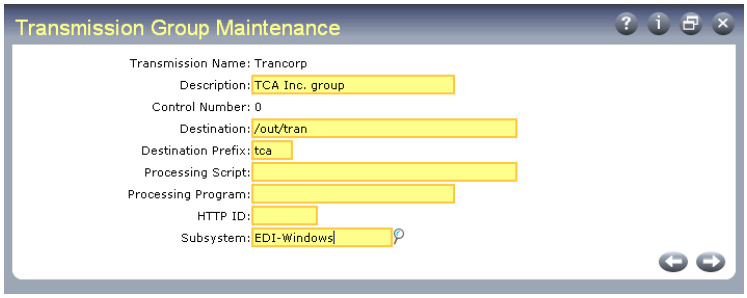


Fig. 5.23 Transmission Group Maintenance (35.13.13)

Transmission Name. Enter a name for the transmission group or use Next/Previous to scroll through the existing records and choose Go to select one.

Description. Enter a description of the transmission group, such as a company name.

Control Number. Displays the system-assigned control number for transmissions involving this group. This number is combined with the value in Destination Prefix and the file extension specified in EC Subsystem Definition Maint (35.13.1) to create a unique transmission file name.

This number starts at zero and automatically increments after each transmission. You cannot edit this field.

Destination. Enter the directory where exported SNF files associated with this group will be written.

See “Setting Up Data Directories” on page 102.

Destination Prefix. Enter a prefix to be added to the control number and the extension assigned in EC Subsystem Definition Maint to create a unique file name.

Processing Script. Optionally enter the file name of a custom script to be run after a group of documents is created. For example, this could be a script that invokes an e-mail program to transmit the exported files to the trading partner.

Processing Program. Enter the path name to an executable program file to be run when a file is exported to this transmission group. For example, this might be an e-mail program that transmits the file to a trading partner.

To specify a processing program on a different computer, use the Remote Host Name field in the EC Subsystem Definition Maintenance record for the EC subsystem associated with this transmission group.

See "Defining HTTP Adapters" on page 142.

HTTP ID. Enter the code representing the set of parameters used to post XML data to a server for trading partners in this transmission group. If specified, this must be a valid code defined in HTTP Adapter Maintenance (35.13.19).

By default, the Progress program `edimhtad.p` is used to post this data. If you use a custom-written processing program for this task, it should be set up to receive the following parameters:

- INPUT: The table storing parameter values (in matching pairs).
- INPUT: The XML pointer. This can be blank. In the case of `edimhtad.p`, the program is using the memory pointer from the XML document that was created in memory.
- INPUT-OUTPUT: The message table used to capture messages and pass messages back to the calling procedure.
- OUTPUT: The success flag used to determine if the process was successful.

Subsystem. Enter the EC subsystem associated with this transmission group. This subsystem must be defined in EC Subsystem Definition Maint.

This field determines the file extension used for the SNF files sent to trading partners assigned to this transmission group.

Setting Up Trading Partners

Use Trading Partner Maintenance (35.13.7) to identify the document types that are exchanged with each trading partner and to set up cross-references between trading partner documents and MFG/PRO. You can also cross-reference the trading partner's site and address codes to the codes used in the MFG/PRO database.

This program consists of three frames. In the first frame, specify the ID the trading partner uses to identify itself in the control record portion of the SNF files exchanged between the EC subsystem and MFG/PRO.

Fig. 5.24 Trading Partner Maintenance (35.13.7), First Frame

See "Token" on page 109.

TP ID. Enter an alphanumeric identification code for this trading partner. This must be the same as the code used in the SNF file control record for the tp-id token.

Name. Enter an identifier for this trading partner. This is for reference only.

Choose Go to access the Trading Partner Document Records frame. Set up a separate record for each document type exchanged with this trading partner.

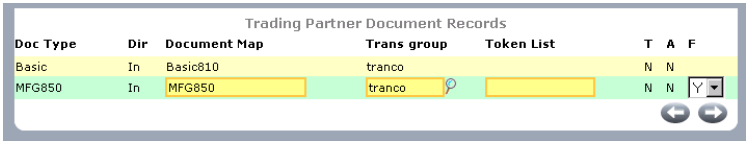


Fig. 5.25 Trading Partner Maintenance, Trading Partner Document Records Frame

See "Token" on page 109.

TP Doc ID. Enter the identifier for the document type exchanged with this trading partner. For example, this might be 810 to indicate an invoice exported in the ANSI X12 810 format. This must be the same as the code used in the SNF file control record for the tp-document-id token.

Dir. Specify whether this record applies to inbound or outbound records. This field lets you distinguish between two trading partner records with the same document type by making one inbound and the other outbound.

See “Defining Transformation Maps” on page 125.

Document Map. Enter the name of the transformation map to be used in converting the data in this record for this combination of trading partner, document type, and direction. This transformation map must be defined in Transformation Definition Maint.

See “Defining Transmission Groups” on page 133.

Transmission Group. Enter the name of the transmission group associated with this trading partner for this document type. This group must be defined in Transmission Group Maintenance. The field is mandatory for outbound documents.

See “Token” on page 109.

Token List. Optionally enter a comma-separated list of valid tokens for the system to use to differentiate between multiple trading partner cross-references to the same combination of MFG/PRO site and ship-to address. These values are used to determine the source of imported documents.

When Fields is Yes, you can then associate corresponding comma-separated values for each combination of trading partner site and address.

Enter enough tokens and values to create a unique combination of trading partner site, trading partner address, and tokens for each instance where trading partner site and trading partner address are the same.

See “Tracking Exported Documents” on page 181.

Track. Indicate whether the system should automatically generate tracking records when exporting documents of this type to this trading partner. MFG/PRO can then import acknowledgment and status messages from the EC subsystem and update the tracking records as required.

When this field is No, tracking records are not created and imported acknowledgments are disregarded.

Note Documents are tracked only when the Primary Reference field in the exchange repository master record contains a value. For example, this can be a purchase order, invoice, or ASN number.

Ack. Indicate whether the system typically receives acknowledgment messages from the EC subsystem after the subsystem processes exported documents of this type for this trading partner.

When Track is set to Yes, the system creates a tracking record each time it exports this type of document to this trading partner. When Ack to Yes, the system leaves the Ack Status field in the tracking

record blank until importing an acknowledgment message from the EC subsystem. When Ack is No, the system automatically sets Ack Status to None Expected. The system can still update the Ack Status field by importing a status message.

Fields. Enter Yes to display an additional frame that lets you enter or edit trading partner cross-reference information.

Tip
This frame displays only when you set Fields to Yes.

The third frame lets you set up cross-references between the trading partner's site and address codes and those used by MFG/PRO. The system uses these cross-references during the transformation process to automatically identify such information as the customer's site and address. Without the cross-references, you must use Transformation Definition Maintenance (35.15.17) to assign the MFG/PRO-SITE and MFG/PRO-ADDRESS variables before the output header record is written. Otherwise, the system generates a transformation error message.

The frame acts as a selection list for all the needed combinations for this trading partner. Select an existing record and choose Go to update it. Choose Insert to add a new record.

Fig. 5.26
Trading Partner Maintenance, TP Location Cross-Reference Frame

TP Site and TP Address Reference. Enter the site and address codes used by the trading partner. Several different site and address combinations can exist at this level. For example, one cross-reference may be for the trading partner (sold-to) and the others for the ship-to addresses.

For inbound documents, the combination of trading partner site and address provides a cross-reference to the MFG/PRO site and address. For outbound documents, the transformation process determines the trading partner site and address codes using the following three elements:

- MFG/PRO document definition name and version
- Implementation name and version
- MFG/PRO site and address

Token List Values. Enter a comma-separated list of values associated with the tokens entered in Token List in the previous frame. Be sure that there is one-to-one correspondence between tokens and values.

On imported documents only, the system uses these values to differentiate between multiple trading partner cross-references to the same combination of MFG/PRO site and address.

Site and MFG Addr. Enter cross-references from the trading partner site and address to the MFG/PRO site and address.

Note Site and Address are not validated against the MFG/PRO database.

Export. Specify whether the system exports this document type to this combination of site and address for this trading partner.

In an environment where you have mapped more than one trading partner cross-reference to the same combination of MFG/PRO site and address, this field lets you limit the trading partner addresses that are selected to receive exported documents. For example, you can send an ASN both to a ship-to customer and to the central ordering point that placed the order by having a cross-reference record for each and setting Export to Yes for both.

This field can be updated only when the Direction field for a trading partner document ID is Out.

Using Other Setup Programs

Several other programs on the ECommerce menu support initial setup and system maintenance:

- Trading Partner Parameter Maint (35.13.10)
- Data Cross-Reference Maintenance (35.13.16)
- HTTP Adapter Maintenance (35.13.19)
- Data Validation Maintenance (35.13.21)
- MFG/PRO Definition Maintenance (35.15.10)

- Definition copy programs
  - Exchange Definition Copy (35.15.1)
  - MFG/PRO Definition Copy (35.15.2)
  - Implementation Definition Copy (35.15.3)
  - Transformation Definition Copy (35.17.1)
- ECommerce Function Maintenance (35.15.21)
- ECommerce Function Copy (35.17.2)
- Transformation Renumber Utility (35.17.3)
- Export/Import Controller (35.17.5)
- Trading Partner Library Load (35.17.7)

Defining Trading Partner Parameters

Use Trading Partner Parameter Maint (35.13.10) to assign parameters and values to a variety of trading-partner-specific processing actions.

The system creates a parameter record for each unique combination of trading partner address and site specified in Trading Partner Maintenance (35.13.7). If you delete an address and site combination in Trading Partner Maintenance, the parameter record for that combination is also deleted.

See “Setting Up Trading Partners” on page 135.

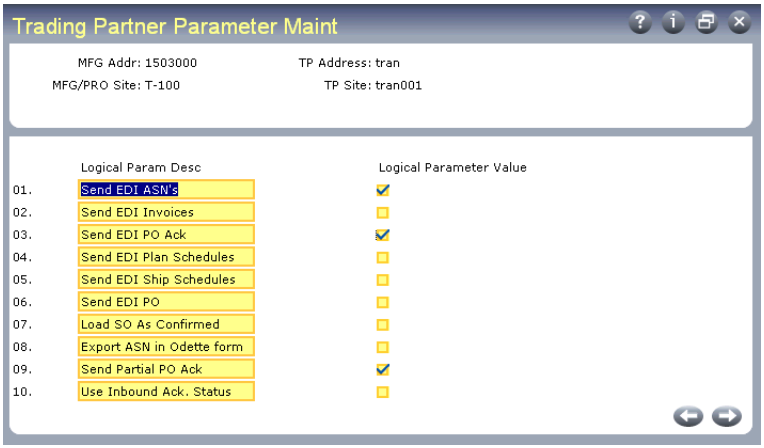
System-generated default values for some standard parameters are created at the same time the record is generated. Several of these are used to specify values required by the import and export gateway programs. For example:

- Logical fields for a trading partner determine which types of documents you exchange with that partner.
- Another logical fields specifies whether purchase orders imported from this trading partner should be entered as confirmed sales orders.
- Character and integer parameters provide the gateway programs with the names and version numbers of the MFG/PRO document definitions used in processing.

Example Logical parameters set default values for the EDI PO, EDI Schedule, and EDI PO Ack fields in Purchase Order Maintenance (5.7), Scheduled Order Maintenance (7.3.13), and Sales Order Maintenance (7.1.1), respectively.

The program consists of five frames. In the first you select the combination of trading partner address and site for which you want to define or modify parameters. In the bottom part of the frame, you can define up to 20 logical parameters. The first frame displays 10 lines. Choose Go to access 10 more.

Fig. 5.27
Trading Partner Parameter Maint (35.13.10)



MFG Addr and MFG/PRO Site. Enter the MFG/PRO address and site codes of the trading partner whose parameters are defined in this record.

The system displays the corresponding trading partner address and site cross-references, defined in Trading Partner Maintenance, in the TP Addr and TP Site fields.

Logical Param Desc. Enter an alphanumeric description of the logical parameter defined in Logical Param Value.

Logical Param Value. Enter Yes or No to define the logical value of this parameter.

Continue to choose Go to display input screens where you can enter up to 20 descriptions and values for the following types of parameters:

- Character parameters. These consist of up to 40 alphanumeric characters.
- Date parameters. Enter a date in MM/DD/YYYY format. The system validates this entry.
- Integer parameters. These are positive or negative whole numbers of up to 9 digits.
- Decimal parameters. These are positive or negative decimal numbers. The system accepts up to eight characters to the left of the decimal point and two characters to the right.

Defining Data Cross-References

Use Data Cross-Reference Maintenance (35.13.16) to set up automatic conversions from one specified value to another in inbound or outbound documents during the transformation process. You can do this on a variety of broad and specific levels. For example, you can apply the conversion to all documents from a certain trading partner or only to those from that trading partner that use a specific document type.

Example You can use this function to perform unit-of-measure conversions between an incoming trading partner document and the target MFG/PRO business document.

Use Data Cross-Reference Browse (35.13.17) or Data Cross-Reference Report (35.13.18) to view existing cross-references.

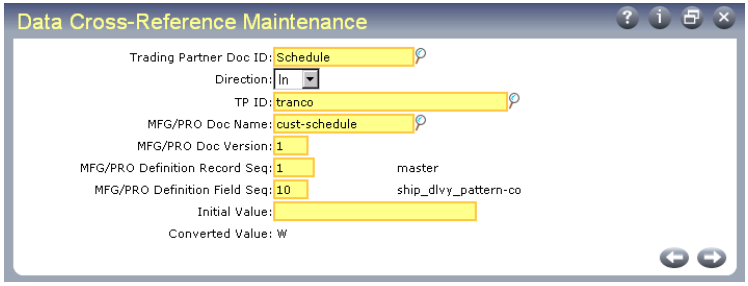


Fig. 5.28 Data Cross-Reference Maintenance (35.13.16)

Trading Partner Doc ID. Enter the trading partner document to which this conversion applies.

Direction. Enter the direction of the documents to which this conversion applies. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

Trading Partner ID. Enter a valid ID code of a trading partner defined in Trading Partner Maintenance (35.13.7). This conversion will apply only to documents involving this trading partner.

MFG/PRO Doc Name and Version. Enter the MFG/PRO document definition and version to which this conversion applies.

MFG/PRO Definition Record Seq. Enter the sequence number of the record to be modified during the conversion.

MFG/PRO Definition Field Seq. Enter the sequence number of the field to be modified during the conversion.

Initial Value. Enter the target value to be converted, indicating how the field reads before conversion.

Converted Value. Enter the new value, indicating how the field will read after conversion.

Defining HTTP Adapters

Use HTTP Adapter Maintenance (35.13.19) to define information for the system to use in posting documents in XML format to a server to make the documents available to an external application after EDI ECommerce processing.

See “Defining Transmission Groups” on page 133.

Associate connection records with trading partners using Transmission Group Maintenance (35.13.13). While sending records to that transmission group, the system passes the specified connection information and parameters, along with the XML data itself, to the receiving server using an HTTP adapter program.

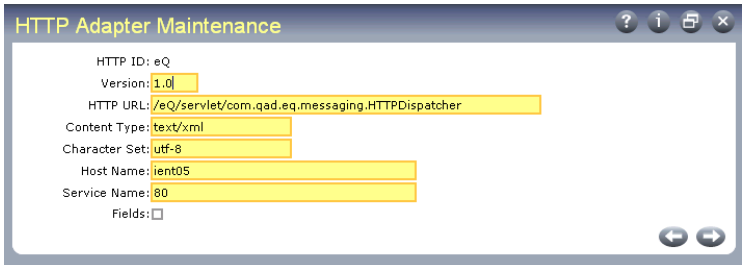


Fig. 5.29 HTTP Adapter Maintenance (35.13.19)

HTTP ID. Enter an alphanumeric code identifying this HTTP connection record. You reference this code in Transmission Group Maintenance to associate XML files with the server that receives them.

Version. Enter the HTTP version number associated with the parameters in this record.

HTTP URL. Enter the URL address on the specified host where the XML data is made available for the external application.

Content Type. Enter the type of content included in the files that are posted using this parameter record. Typically this is text/xml.

Character Set. Enter the character set associated with the files that are posted using this parameter record; for example, utf-8.

Host Name. Enter the host name of the server to which the data is posted.

Service Name. Enter the port number on the specified host that your system uses for connecting with it.

Fields. Enter Yes to display another frame that lets you enter a set of parameter codes and associated values or token names that are appended to the specified URL.

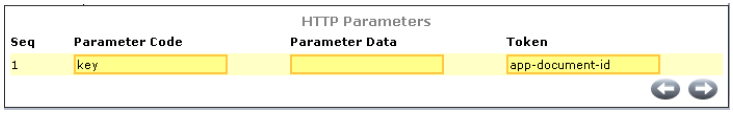


Fig. 5.30 HTTP Adapter Maintenance, HTTP Parameters Frame

Sequence. Enter the relative sequence of this parameter. The system appends the parameters to the URL according to this sequence.

Parameter Code. Enter the literal name of a parameter to append to the specified URL when it is posted to the HTTP server.

You can associate either of two types of values with this parameter:

- A hard-coded text string in the Parameter Data field.
- A variable value in the Token field. The system extracts the value associated with the token from the file and adds it to the URL as the value of this parameter.

For example, if Parameter Code is `xxx` and Parameter Data is `yyy`, the system adds `xxx=yyy` to the URL.

Parameter Data. Enter a literal text string to be associated with this parameter when it is appended to the specified URL.

If you enter a value in Token, this field must be left blank.

See page 109.

Token. Enter a token to be associated with this parameter when it is appended to the specified URL. The system extracts the value associated with this token from the file and adds it to the URL as the value of this parameter.

If you enter a text string in Parameter Data, this field must be left blank.

Validating Data Values

Use Data Validation Maintenance (35.13.21) to define values that will automatically be validated in inbound or outbound documents during the transformation process.

Define the required value down to the field level. If the data cannot be validated against the specified value during transformation, the system generates an error.

You can set up more than one data validation for same document, record, and field. The system then performs validation against each of the specified values. If the field's value does not match one of those specified, the system generates an error.

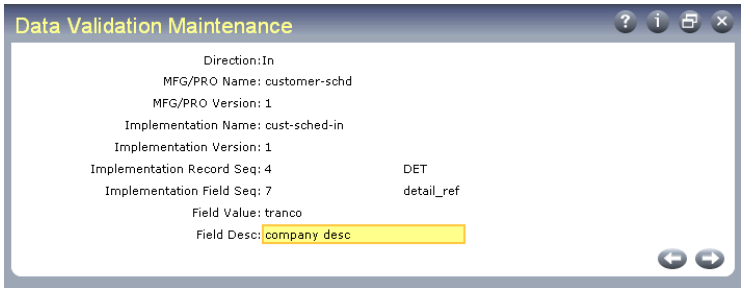


Fig. 5.31
Data Validation Maintenance (35.13.21)

Direction. Enter the direction of the documents that will have the field value validated. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

MFG/PRO Name and Version. Enter the name and version of the MFG/PRO document definition that contains the field to be validated.

Implementation Name and Version. Enter the name and version of the implementation associated with the document to be validated.

Implementation Record Seq. Enter the sequence number of the record containing the field to be validated.

Implementation Field Seq. Enter the sequence number of the field containing the value to be validated.

Field Value. Enter the value against which the field will be validated.

Field Desc. The system displays the description from the field definition.

Use Data Validation Browse (35.13.22) or Data Validation Report (35.13.23) to view existing data codes.

Creating MFG/PRO Document Definitions

QAD provides a number of standard definitions for the layout and contents of MFG/PRO documents to be used as templates when you are defining specific implementations.

See “Defining a Specific Implementation” on page 118.

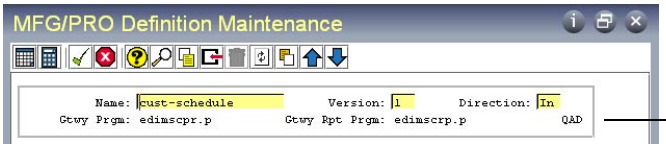
To set up your own MFG/PRO templates, use MFG/PRO Definition Maintenance (35.15.10). You can define formats at both the record and field levels.

See “Copying MFG/PRO Document Definitions” on page 150.

Note You can use this program to create new MFG/PRO document definitions or to modify any definitions you have created yourself. However, you cannot modify the QAD-developed MFG/PRO document definitions that were provided with ECommerce. Instead, copy an existing definition with MFG/PRO Definition Copy (35.15.2) and then modify the copy.

Create a different definition for each type of MFG/PRO document. Use the first frame to identify a definition by a unique combination of name, version, and direction. You also specify the MFG/PRO gateway programs used to transfer the data and to produce reports during processing.

Fig. 5.32 MFG/PRO Definition Maintenance (35.15.10)



Name. Enter a name for the MFG/PRO document definition or use the arrow keys to scroll through the list of existing documents.

Note You cannot modify the QAD-developed template MFG/PRO document definitions that were provided with ECommerce.

Version. Enter a version number. You can use the same name for more than one MFG/PRO document definition, then use a different version number to differentiate among multiple document definitions with the same name.

Additionally, you can use Direction—inbound or outbound—to distinguish between multiple documents with the same name.

Direction. Enter the direction of the file transfer that uses this MFG/PRO document definition. Always specify the direction relative to MFG/PRO—documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

Gateway Program. Enter the name of the Progress gateway program used to transfer this document. If this definition is based on a QAD-developed definition, the value defaults. If you are creating your own, this is the name of a custom-developed Progress program.

Gateway Report Program. Enter the name of the Progress program used to generate reports related to document transfers.

Choose Go to define the records and fields that are included in the document.

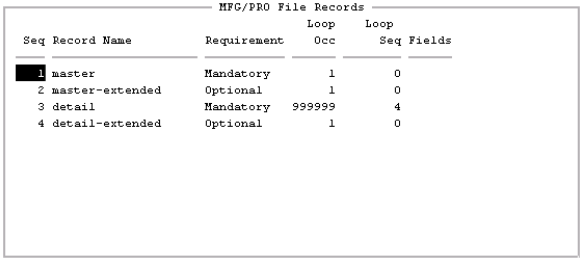


Fig. 5.33 MFG/PRO Definition Maintenance (35.15.10), MFG/PRO File Records Frame

Seq. The sequence number of this record. Choose Insert to add a new record. The system automatically assigns the next number, but you can change it to any number.

Tip Organize the records in a logical numerical hierarchy.

Important In all cases, the first record created must be sequence number 1. For example, you cannot use a sequence of 10, 20, 30, 40. Instead, use 1, 10, 20, 30, 40.

Record Name. Enter a name for this record. Each record name must be unique in an MFG/PRO document definition. Record names in MFG/PRO document definitions and implementation definitions must follow a set of naming conventions.

See Table 5.1, “Record Naming Conventions,” on page 120.

This record name is used as a record variable by the transformation process, independent of the sequence number.

Requirement. Enter Mandatory to indicate that this record is required during the transfer process, Optional to indicate that it is not. If the system cannot find mandatory records while transferring records, it generates an error message and does not process the associated document.

Loop Occurs. Enter the number of times the processing logic should loop through the records during transformation.

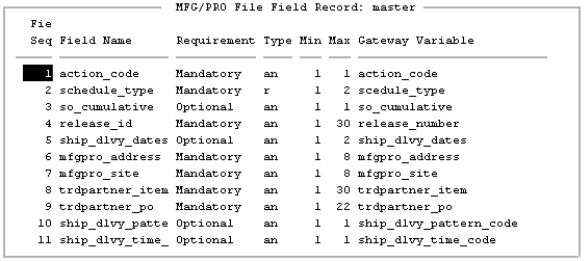
Loop Ends Seq. Enter a defined record sequence number to indicate where the loop ends. For example, enter a Loop Ends Seq value of 2 on sequence number 2 to indicate that the entire loop sequence takes place on a single record. Or, enter an end sequence of 4 on sequence number 3 to indicate a loop that starts at 3 and ends at 4.

To specify a loop structure that includes all records, enter zero or a number higher than the last record sequence defined.

Fields. Enter Yes to access an additional frame that lets you display, enter, or edit the fields contained in this record.

You cannot access the fields for a record if Fields is No.

Fig. 5.34 MFG/PRO Definition Maintenance (35.15.10), MFG/PRO File Field Record Frame


MFG/PRO File Field Record: master

Fie Seq	Field Name	Requirement	Type	Min	Max	Gateway Variable
1	action_code	Mandatory	an	1	1	action_code
2	schedule_type	Mandatory	r	1	2	scedule_type
3	so_cumulative	Optional	an	1	1	so_cumulative
4	release_id	Mandatory	an	1	30	release_number
5	ship_dlvy_dates	Optional	an	1	2	ship_dlvy_dates
6	mfgpro_address	Mandatory	an	1	8	mfgpro_address
7	mfgpro_site	Mandatory	an	1	8	mfgpro_site
8	trdpartner_item	Mandatory	an	1	30	trdpartner_item
9	trdpartner_po	Mandatory	an	1	22	trdpartner_po
10	ship_dlvy_patte	Optional	an	1	1	ship_dlvy_pattern_code
11	ship_dlvy_time_	Optional	an	1	1	ship_dlvy_time_code

Field Seq. The sequence number of this field in the record. Choose Insert to add a new field. The system automatically assigns the next available number. You can modify the number as needed or navigate to the blank fields at the bottom of the frame and assign numbers.

Note It is recommended that you number the fields sequentially, beginning with 1. If you do this, a total of 100 fields are available for each record. Although the system accepts non-sequential numbers, their use is not recommended.

Field Name. Enter the name of the field. This must be unique in the record.

Requirement. Enter Mandatory to indicate that this field is required during the load process, Optional to indicate that it is not. If the system cannot locate mandatory fields, it generates an error message and does not process the associated record.

Type. Enter the type of data that will be included in this field. Valid entries are:

- AN (Alphanumeric)
- D (Date)
- I (Integer)
- L (Logical)
- R (Real number)

Min. Enter the minimum number of characters required in this field. The system validates that required or optional data is greater than or equal to the minimum required value for the field.

Max. Enter the maximum number of characters allowed in this field.

- If the field lengths are variable and separated by the delimiter specified in EC Subsystem Definition Maint, the system validates that the field length is between the Min and Max values.
- If the field lengths are fixed, the system uses this value to calculate where each field starts and ends.

Gateway Variable. Enter the name of the MFG/PRO gateway variable associated with this field. These variables determine the specific way data is transformed between MFG/PRO and ECommerce. If this MFG/PRO document definition was copied from a QAD-provided template, the gateway variable is copied from that file. If not, the variable must be defined in the program specified in the Gateway Program field.

Copying Definitions

QAD provides a library of trading partner template definitions with ECommerce. You cannot directly modify these templates with a maintenance program. If you need to change any of the data in a QAD-provided exchange file definition, MFG/PRO document definition, implementation definition, or transformation definition, you must first copy the template with one of these programs:

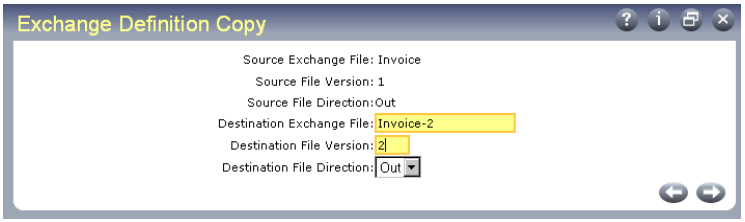
- Exchange Definition Copy (35.15.1)
- MFG/PRO Definition Copy (35.15.2)
- Implementation Definition Copy (35.15.3)
- Transformation Definition Copy (35.17.1)

Copying Exchange File Definitions

Use Exchange Definition Copy (35.15.1) to copy an exchange file definition from an existing definition. Then, use Exchange Definition Maintenance (35.15.6) to modify the copy as needed.

See “Defining an Exchange File” on page 110.

Fig. 5.35
Exchange Definition Copy (35.15.1)



Source Exchange File, Version, and Direction. Specify the exchange file definition you want to copy. Use the arrow keys to scroll through the list of existing definitions.

Destination Exchange File, Version, and Direction. Specify a unique combination of file name, version, and direction to identify the new exchange definition.

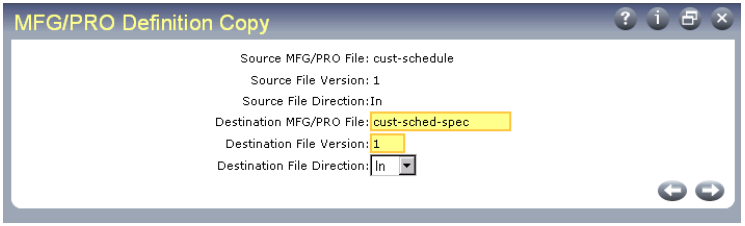
Note The direction does not have to be the same for the source and destination file. For example, you can base an outbound definition copy on an inbound source definition.

Copying MFG/PRO Document Definitions

See page 145.

Use MFG/PRO Definition Copy (35.15.2) to copy an MFG/PRO document definition from an existing definition. Then, use MFG/PRO Definition Maintenance (35.15.10) to modify the copy as needed.

Fig. 5.36
MFG/PRO Definition Copy (35.15.2)



Source MFG/PRO File, Version, and Direction. Specify the MFG/PRO document definition you want to copy. Use the arrow keys to scroll through the list of existing definitions.

Destination MFG/PRO File, Version, and Direction. Specify a unique combination of file name, version, and direction to identify the new MFG/PRO document definition.

Note The direction does not have to be the same for the source and destination file. For example, you can base an outbound definition copy on an inbound source definition.

Copying Implementation Definitions

Use Implementation Definition Copy (35.15.3) to copy an implementation definition from an existing definition. Then, use Implementation Definition Maint (35.15.13) to modify the copy as needed.

See “Defining a Specific Implementation” on page 118.

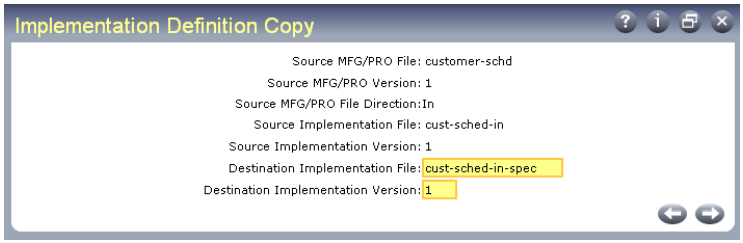


Fig. 5.37 Implementation Definition Copy (35.15.3)

Source MFG/PRO File, Version, and Direction. Specify the MFG/PRO document definition associated with the implementation definition you want to copy. Use the arrow keys to scroll through the list of existing definitions.

Source Implementation File and Version. Specify the MFG/PRO document definition associated with the implementation definition you want to copy. Use the arrow keys to scroll through the list of existing definitions.

Destination Implementation File and Version. Specify a unique combination of file name and version to identify the new implementation definition.

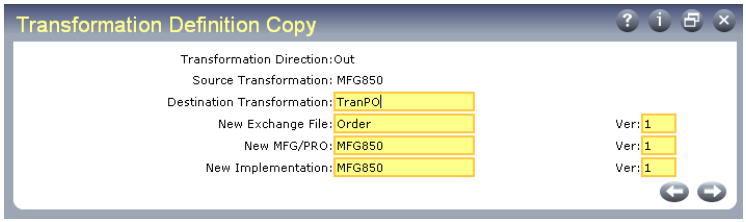
Copying Transformation Definitions

Use Transformation Definition Copy (35.17.1) to copy an existing transformation definition to a new file. Then, use Transformation Definition Maint (35.15.17) to modify the transformation mapping data in the new definition file as needed.

See “Defining Transformation Maps” on page 125.

Use this method to streamline creation of similar definitions.

Fig. 5.38
Transformation Definition Copy (35.17.1)



Transformation Direction. Enter the direction of the transformation definition to be copied. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

This field determines the records that will be available for copying in the Source Transformation field.

Source Transformation. Enter the name of the transformation definition to be copied. You can also use the arrow keys to scroll through the list of definitions, which will be inbound or outbound depending on the setting in Transformation Direction.

Destination Transformation. Enter the name of the new transformation definition.

In the remaining fields, enter the names and versions of the exchange file, MFG/PRO, and implementation definitions to be used with the new transformation definition.

Using Transformation Functions

A transformation function is a Progress procedure that performs a predefined action during the transformation process. For example, a function can add two values or retrieve the current system date.

Using QAD-Provided Functions

ECommerce includes a number of functions that can be used for transforming data between an EC subsystem and MFG/PRO. They are specified as part of the transformation definition.

Creating User-Defined Functions

Use ECommerce Function Maintenance (35.15.21) to create additional functions, if needed.

Define the type of return required—alphanumeric, integer, real number, date, or logical—as well as the names and types of the parameters passed by the function. The program uses your input to create a Progress program template. After saving the template to disk, use a text editor to open the file and complete the code.

The system saves user-defined functions in the directory specified in ECommerce Control with the file name *FunctionName*.p.

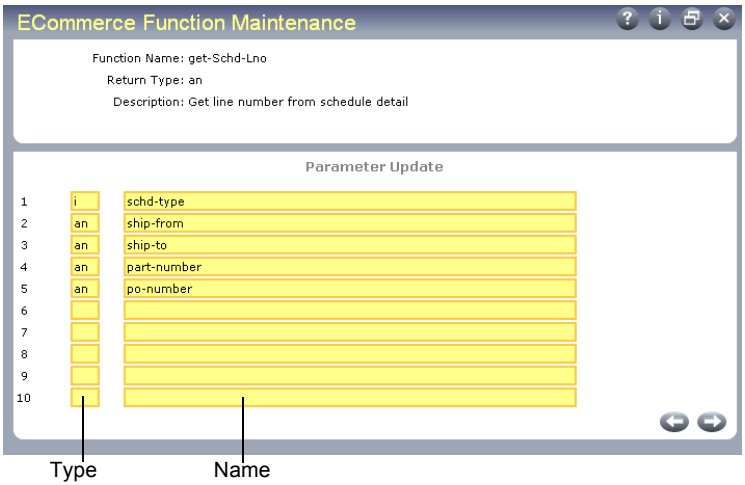


Fig. 5.39 ECommerce Function Maintenance (35.15.21)

Function Name. Enter a unique alphanumeric name for this function. Do not use the name of any existing QAD-provided or user-defined function.

Important The file name is based on the function name you specify. Use function names that follow the naming conventions of your operating system.

Description. Optionally describe what this function does.

Return Type. Enter the type of value returned as output when this function is performed. Valid settings are:

- AN: Alphanumeric
- R: Real number
- I: Integer
- L: Logical
- D: Date

Type. Enter the type of value represented by this variable. Valid settings are the same as for Return Type.

Name. Enter the name of the variable that will be created inside the program.

Important Do not use Progress keywords or special characters as the variable name. Doing so will cause the function to fail.

Viewing Existing Transformation Functions

Two programs display information about existing transformation functions.

- Use ECommerce Function Inquiry (35.15.22) to scroll through summary information on functions.
- Use ECommerce Function Report (35.15.23) to generate a complete report on a selected range of functions.

Copying Transformation Functions

Use ECommerce Function Copy (35.17.2) to copy an existing transformation function—either QAD-provided or user-defined—to a new function name. Then, use ECommerce Function Maintenance to modify the copy as needed.

Use this method to streamline creation of similar definitions.

Tip
You cannot delete QAD-supplied functions.

You can also use this program to delete existing user-defined functions. To do this, move the cursor to the Source Function field in the applicable record and choose Delete. Enter Yes at the delete confirmation prompt.

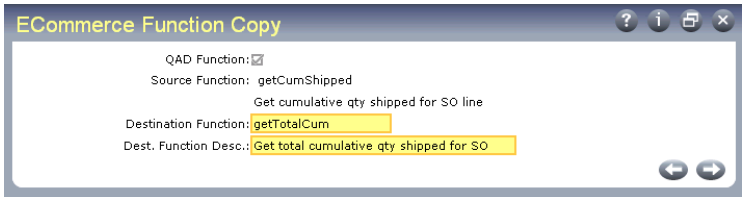


Fig. 5.40 ECommerce Function Copy (35.17.2)

QAD Function. Enter Yes to specify that the function to be copied is one provided as part of ECommerce. If No, the function is user-defined.

Source Function. Enter the name of the existing function to be copied or deleted. Use the arrow keys to scroll through the list of available functions, determined by the setting in QAD Function.

Destination Function. Enter a name for the new function. The system saves the new file in the function directory specified in ECommerce Control with the file name:

`DestinationFunction.p`

Important The file name is based on the function name you specify. Use function names that follow the naming conventions of your operating system.

Dest. Function Desc. Optionally enter a description for the new function.

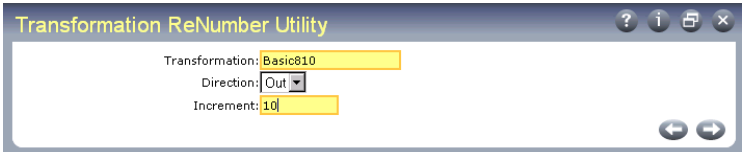
Renumbering Transformation Actions

When you define the transformation process that converts data between EDI formats and MFG/PRO formats using Transformation Definition Maint (35.15.17), you use the Action Seq field to establish the sequence in which the transformation events take place. You cannot edit an event record—including its sequence—after it has been created. The only way to modify an event is to delete it and reenter the modified version.

If you need to insert an event between two existing events and no intermediate sequence number is available, you can use Transformation Renumber Utility (35.17.3) to reset all the action sequences in the transformation definition to a higher value.

Example A transformation definition was set up in sequence increments of 5; that is, the first step was numbered 5, the second 10, and so on. In subsequent changes to the definition, you have added event sequences 6, 7, 8, and 9. It is now necessary to add another event between sequences 7 and 8. To avoid deleting and reentering events 8, 9, and 10 to assign them higher sequence numbers, you can use Transformation Renumber Utility to increase the gaps between all the sequences in the definition.

Fig. 5.41
Transformation Renumber Utility (35.17.3)



Transformation. Enter the name of the transformation definition with action sequences that you want to reset to different values.

Direction. Specify the direction—inbound or outbound—of the documents that are transformed using this definition.

Important Make sure to select the appropriate direction. Two transformation definitions can have the same name and be distinguished only by direction.

Increment. Enter the incremental factor the system should use in renumbering the event action sequences. This is also the number assigned to the first event. For example, if you enter 5, the system numbers the first event 5 and subsequent 10, 15, 20, and so on.

Scheduling Automatic Processing

Use Export/Import Controller (35.17.5) to export and import files on a regular schedule.

Based on the frequency and number of hours you specify, the system searches the MFG/PRO database for confirmed shippers or invoices that have not been exported. When it finds a document, ECommerce begins processing automatically.

For imports, the system polls the import directory defined in ECommerce Control.

Logical fields let you set up polling for various combinations of import and export documents.

When the program is running in the foreground, a summary frame displays processing data.

You can choose to run this process later using the Batch ID field.

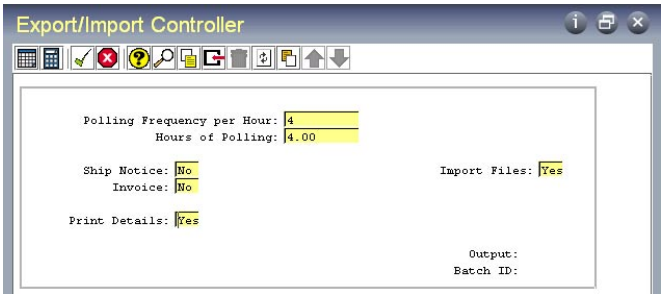


Fig. 5.42
Export/Import Controller (35.17.5)

Polling Frequency per Hour. Enter the number of times per hour the process should check for files to import or documents to export.

Hours of Polling. Enter the number of hours the process should check for files to import or documents to export. If you enter zero, the process keeps checking for available items until you manually interrupt it.

This is a decimal field. For example, enter 2.50 to indicate two and one-half hours of polling.

Ship Notice. Enter Yes to have the system automatically search for and process confirmed shippers in the MFG/PRO database and generate ASNs.

Import Files. Enter Yes to have the system automatically search for and process files in the inbound directory specified in ECommerce Control.

Invoice. Enter Yes to have the system automatically search for and process invoices in the MFG/PRO database.

Print Details. Enter Yes to include detailed error and warning message information on the report that is output when this program executes. If you enter No, the report is limited to higher-level summary information.

Loading Trading Partner Library Data

Use Trading Partner Library Load (35.17.7) to add to your database QAD-furnished files with updates to trading partner library data. These files include definitions for exchange files, MFG/PRO documents, implementation documents, transformation maps, and functions.

Although a set of trading partner data for a single trading partner includes several files, each with a different extension, you only have to run the program once for each trading partner. Enter just the root file name, without an extension.

Before loading data, the program uses an index file, *`filename`*`.idx`, to search for duplicate records. If it finds identical record names, the system displays a warning message to prevent you from accidentally overwriting needed files.

Fig. 5.43
Trading Partner Library Load (35.17.7)

Input File. Enter the name of the QAD-provided trading partner data. A typical library entry includes several files with the same root file name and different extensions for the various types of data files. Enter only the root file name to begin the load process. If you add a file extension, the system displays an error message.

Chapter 6

Using EDI ECommerce

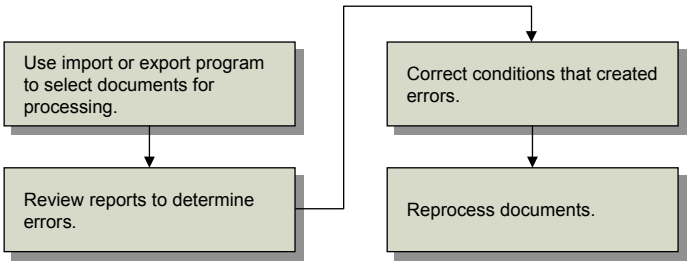
This chapter discusses day-to-day use of EDI ECommerce.

Introduction

See Chapter 4, “EDI ECommerce Overview,” on page 89.

Because the system does most of the processing automatically based on the way trading partner documents, exchange files, and transformation maps are set up, day-to-day users of ECommerce generally use only a few programs to import and export files. Figure 6.1 shows a typical task flow.

Fig. 6.1 ECommerce User Task Flow



ECommerce’s process control logic can be started in one of three ways:

- A system user can begin processing by selecting documents using either Document Import (35.1) or one of the programs on the Document Export menu (35.4).

See “Scheduling Automatic Processing” on page 156.

- The system can search at regular intervals for inbound files from an EC subsystem or outbound documents in the MFG/PRO database. When it finds new files or documents, the system automatically begins processing.
- You can write a custom program that lets the EC subsystem invoke ECommerce processing whenever it has files to send to MFG/PRO.

This chapter assumes that processing begins when the operator selects documents using one of the menu programs.

See “Maintaining the Document Repository” on page 185.

In addition to import and export programs, ECommerce provides several tools for viewing and modifying data in the data repository. Items in the data repository include documents in various stages of transition between the EC subsystem and MFG/PRO. Routinely using these programs to change data is not recommended. However, they can be valuable for modifying such things as erroneous control records that prevent the system from processing a file.

To regain disk space, you can archive and delete data when it is no longer needed. For example, you can delete exchange file and MFG/PRO documents that have already completed processing, transformation, and loading to the EC subsystem or the MFG/PRO database. Other programs let you archive and delete turnaround data records and comments linked to imported orders.

See "Archiving and Deleting EDI ECommerce Data" on page 190.

Using ECommerce with EMT

EDI ECommerce supports Enterprise Material Transfer (EMT), which lets you automatically generate purchase orders from sales orders. You can use ECommerce to exchange EMT purchase orders, PO change and acknowledgment documents, and shipping documents with your trading partners up and down the supply chain.

Several ECommerce programs are designed specifically for use with EMT. To put them in the appropriate context, these programs are described in the EMT chapter of *User Guide Volume 2A: Distribution*.

See *User Guide Volume 2A: Distribution*.

- ECommerce EMT Manager (35.22.13)
- PO Change Ack Export (35.22.15)
- PO Change Export (35.22.16)

Importing Documents

Use Document Import (35.1) in two ways:

See "Imports" on page 97.

- To start the process of loading SNF files from the EC subsystem, transforming them into formats usable by MFG/PRO, and transferring them into the MFG/PRO database using a gateway program.

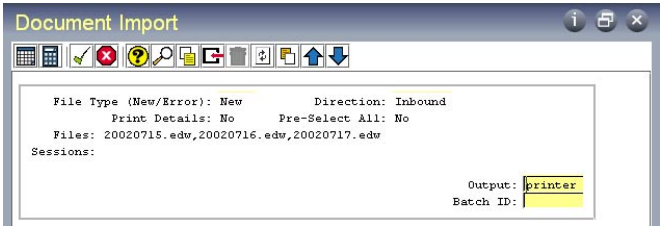
  This feature also lets you import files containing documents used in EMT. Ordinarily, you use ECommerce EMT Manager to import such files. However, Document Import lets you select individual files from the specified import directory.

See *User Guide Volume 2A: Distribution* for information on EMT.

- To load files from the EC subsystem directly into the MFG/PRO data repository. This feature lets you transform inbound files and export them again without ever creating MFG/PRO business documents.

The system generates a report on imported files to the device specified in Output. You can choose to run this process later using the Batch ID field.

Fig. 6.2
Document Import (35.1)



File Type (New/Error). Specify the type of files to be listed in the Select File(s) frame.

See "Configuring ECommerce Control" on page 104.

- Enter New to display a list of unprocessed files located in either the Inbound Directory or the Outbound Scan Directory specified in ECommerce Control (35.13.24), depending on the setting of Direction.
- Enter Error to display only files containing documents that encountered errors during previous imports. These files are located in either the Error File Directory or the Outbound Error Directory specified in ECommerce Control, depending on the setting of Direction.

Direction. Specify the source of the files the system will select for import:

Inbound: The program selects files from the directory specified in the Inbound Directory field in ECommerce Control. It then imports EDI documents to the exchange repository based on a standards-neutral format (SNF) by transforming them using specified maps, placing them in the MFG/PRO document repository, and loading them into the MFG/PRO database.

Outbound: The system selects files from the directory specified in the Outbound Scan Directory field in ECommerce Control. Instead of using exchange records based on an SNF, the system imports these files directly into the MFG/PRO document repository for processing.

For example, you would specify this directory as the source of files that are provided by an external system and are to be transformed and exported using EDI ECommerce without creating MFG/PRO business documents.

See “Direct Import to MFG/PRO Repository” on page 93.

Print Details. Enter Yes to include detailed error and warning messages on the report generated when this program executes. If you enter No, the report is limited to higher-level summary information.

Pre-Select All. Enter Yes to have all files selected—that is, marked with an asterisk (*)—when displayed on the Select File(s) list. If this field is No, the files still display, but none are initially selected.

Files. Enter the names of the files to be processed, including extensions. Separate multiple file names with commas. The system validates your input.

Do not enter the full path to these files. The system automatically looks in either the Inbound Directory or the Outbound Scan Directory specified in ECommerce Control, depending on the setting of Direction.

You can also leave Files blank and choose Go to display a list of files—either new files or previously imported files that encountered errors during load processing, depending on how File Type (New/Error) is set. Select or deselect files from the list as required. Selected files are marked with an asterisk (*).

After selecting files from the list, choose Go. Selected files display in the Files field.

Sessions. These system-assigned numbers group all the files imported during a particular session. Use them to track the status of the documents you have imported and to identify any errors that occurred during processing.

See “Tracking Import/Export Document Status” on page 176.

Additionally, the system assigns a sequence number to each file selected. This number is used to group the documents within the file. If any documents cannot be loaded, the system writes them to an error file that uses the process session number as a file name.

Exporting Documents

See “Exports” on page 98.

The Document Export menu (35.4) includes programs used for exporting several types of documents:

- Shipment ASN Export (35.4.1)
- Consignment Usage Export (35.4.2)
- Invoice Export (35.4.3)
- Purchase Order Acknowledgment (35.4.5)
- Supplier Shipping Schedule (35.4.8)
- Purchase Order Export (35.4.9)
- Supplier Self Billing Export (35.4.11)
- Inventory Cycle Count Export (35.4.13)
- Generic Gateway Export (35.4.20)

See *User Guide Volume 2A: Distribution* for information on using ECommerce to support EMT.

Two additional document export programs are designed specifically for use with Enterprise Material Transfer (EMT). To place them in the appropriate context, these programs are available from the ECommerce EMT menu (35.22):

- PO Change Ack Export (35.22.15)
- PO Change Export (35.22.16)

See “Tracking Exported Documents” on page 181.

Based on trading partner setup data, the system can create optional tracking records when it exports documents. These records are automatically updated with status information when acknowledgments are imported from the EC subsystem.

Exporting ASNs

An advance ship notice (ASN) document informs customers when items have left the supplier’s site.

Depending on specific trading partner implementations, an ASN can provide a wide variety of shipment-related data items. Typically, an ASN includes the following:

- Purchase order number
- Item number
- Authorization number

- Quantity shipped
- Cumulative quantities
- Shipment time

In Shipment ASN Export (35.4.1), enter selection criteria to indicate which shipments should have ASNs sent. The system uses these criteria to execute the appropriate gateway program, select the appropriate trading partner information, and transform the outbound MFG/PRO data to the format required by the receiving party's EC subsystem.

EMT suppliers can use this program to export an ASN indicating that a secondary sales order has been shipped. Ordinarily, you use ECommerce EMT Manager to export such ASNs. However, Shipment ASN Export lets you enter selection criteria to specify a range of shipments or even a single shipment to have an ASN exported.

See *User Guide Volume 2A: Distribution* for information on ASNs in EMT.

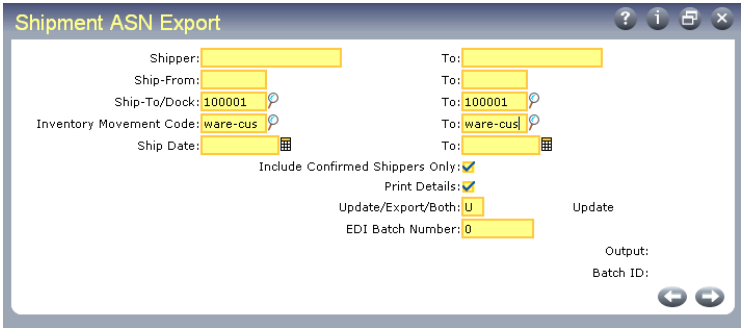


Fig. 6.3 Shipment ASN Export (35.4.1)

Shipper, Ship-From, Ship-To/Dock, Inventory Movement Code, Ship Date. Use these fields to specify ranges of selection criteria for the system to use in selecting ASNs for export.

Include Confirmed Shippers Only. Enter Yes to include only confirmed shippers in the selection.

Print Details. Enter Yes to include detailed error and warning message information on the report generated when this program executes. If you enter No, the report is limited to higher-level summary information.

See page 124.

Update/Export/Both. Specify whether the system should prompt you to update previously defined fields before exporting the documents meeting the selection criteria:

Update: The system displays the fields you have set up as editable in the implementation definition for exporting this document type. You can modify them as needed.

Any updates you make are not reflected in the MFG/PRO database. They affect only the outbound document.

Important If you set this field to Update, you must export the documents in two steps. First, enter selection criteria and update the selected documents as needed. Then run the program again with the same selection criteria and set this field to Export.

Export: The system exports the documents that meet the selection criteria without prompting you to update them.

Both: The system prompts you to update the documents, then exports them as part of the same process.

EDI Batch No. To reexport a group of documents, enter the batch number assigned to the group.

When exporting a new group of documents, leave this field set to zero. The system assigns a new batch number to each group of exported documents.

In some circumstances, you may need to combine multiple shipment lines into a single shipping document. For example, bar-code scanning can produce many more lines than necessary, such as one line for each container.

See “Defining Trading Partner Parameters” on page 139.

When you want to combine similar line items into one line for ASN processing for a trading partner, you can set up a record in Trading Partner Parameter Maintenance (35.13.10) to define the combining logic.

For the selected address/site combination, create a record in the Integer Parameters frame. In the Integer Param Desc field of any available line, enter Combine Like Items Level. For Integer Param Value, enter the appropriate value from Table 6.1 to indicate the selected combining level code.

Table 6.1 ASN Combining Logic Codes

Implementation Record Name	Level Code	Combining Logic Structure
CTR-TARE (CT)	5	CT,CP,CI,I.item-no,I.reference
CTR-PRIM (CP)	4	CP,CI,I.item-no,I.reference
CTR-ITEM (CI)	3	CI,I.item-no,I.reference
ITEM (I)	2	I.item-no,I.reference
	1	I.item-no
	0	No items are combined.

Example If you specify a level code 4 for a trading partner, the system will combine shipping records for items, container items, and the primary container into a single ASN for that trading partner's shipments.

Exporting Consignment Usage Data

Use Consignment Usage Export (35.4.2) to notify your supplier that you have consumed inventory shipped to your location on a consignment basis. Since ownership of consigned inventory items is not transferred from the supplier to the customer until the items are used, the supplier can use the information in the exported file to determine how much of the total order quantity is available for invoicing.

For information on Supplier Consignment Inventory, see *User Guide Volume 2B: Distribution*.

Enter ranges of selection criteria for purchase order, item number, supplier, ship-to site, and transaction dates that apply to the records you want to export. You can also select records based on batch numbers, which are assigned by some Supplier Consignment Inventory functions when consumption is recorded.

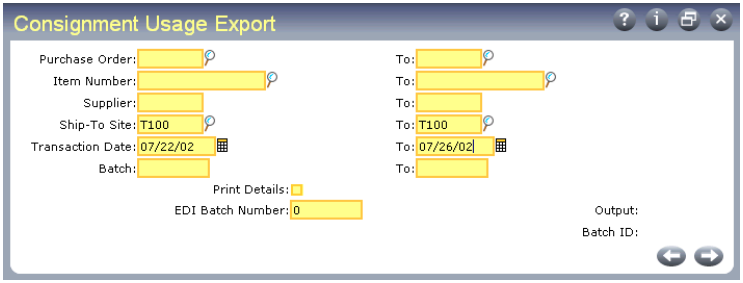


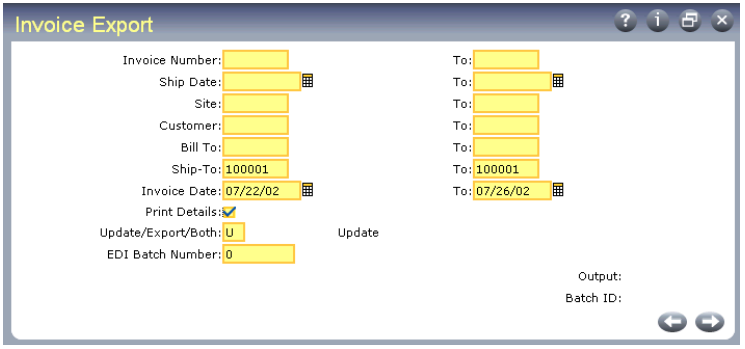
Fig. 6.4 Consignment Usage Export (35.4.2)

Exporting Invoices

Use Invoice Export (35.4.3) to export individual, multiple, or cumulative invoices to a customer.

Enter ranges of selection criteria for invoice number, ship date, and so on as required to select invoices for export. The system uses these criteria to execute the appropriate gateway program, select the appropriate trading partner information, and transform the outbound MFG/PRO data to the format required by the receiving party's EC subsystem.

Fig. 6.5
Invoice Export (35.4.3)



See "Exporting ASNs" on page 164.

While the selection criteria are different and more numerous, this program works very similarly to Shipment ASN Export. Like the ASN program, it includes the capability to update fields on outbound documents before exporting them, as long as those fields have been defined as editable in Implementation Definition Maint.

Exporting Purchase Orders

See *User Guide Volume 2A: Distribution* for information on purchase orders.

Use Purchase Order Export (35.4.9) to export an MFG/PRO purchase order to a supplier.

Create purchase orders using Purchase Order Maintenance (5.7).

This program is similar to the other export programs on the menu. Enter selection criteria to indicate which purchase orders should be exported. To reexport a purchase order, enter the batch number that was assigned during an earlier export process.

You can also use this program to export purchase orders that have been automatically generated from EMT sales orders. Ordinarily, you use ECommerce EMT Manager to export such POs. However, Purchase Order Export lets you enter selection criteria to specify a range of POs or even a single PO to be exported.

See *User Guide Volume 2A: Distribution* for information on EMT.

Important When you plan to export purchase orders to a supplier, set Send EDI PO to Yes for that supplier in Trading Partner Parameter Maint (35.13.10). This sets the EDI PO field to Yes in the purchase order trailer so that the order is available for selection in Purchase Order Export.

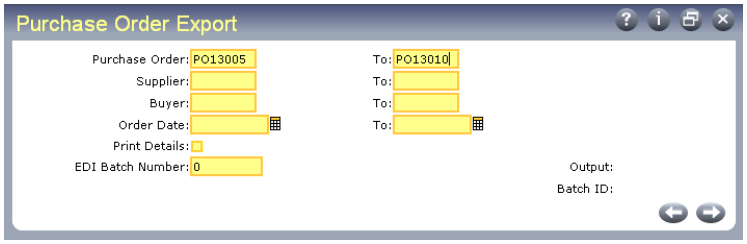


Fig. 6.6 Purchase Order Export (35.4.9)

Acknowledging Purchase Orders

Use Purchase Order Acknowledgment (35.4.5) to notify your trading partner that you have received a purchase order and entered it as a confirmed sales order in MFG/PRO. Sales orders must be confirmed to be acknowledged.

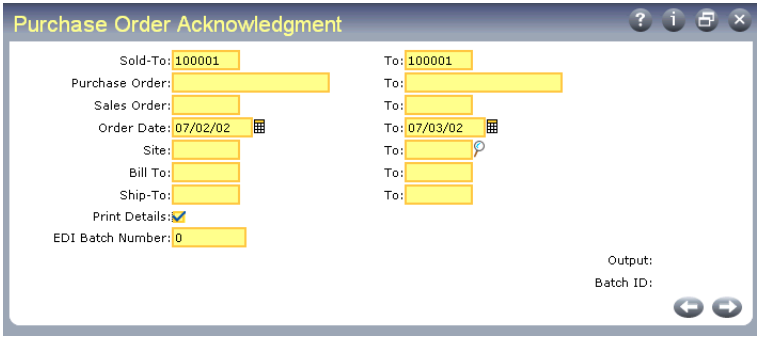


Fig. 6.7 Purchase Order Acknowledgment (35.4.5)

A purchase order acknowledgment reflects the contents of the sales order. This is not necessarily identical to the original purchase order that generated the sales order. For example, the quantity ordered may not be available on the due date. The acknowledgment document in that case reflects a different quantity, a different due date, or both.

See *User Guide Volume 2A: Distribution* for information on EMT.

You can also use this program to export purchase order acknowledgments that have been automatically generated from EMT sales orders. Ordinarily, you use ECommerce EMT Manager to export such PO acknowledgments. However, Purchase Order Acknowledgment lets you enter selection criteria to specify a range of POs or even a single PO to be acknowledged.

Optionally, you can use Purchase Order Ack. Maintenance (35.4.4) to assign or modify the status of purchase orders before sending the acknowledgments to the customer.

Enter selection criteria to specify which purchase orders to update based on the customer, the customer's purchase order number, or your sales order number. You can update all lines of all the purchase orders meeting the selection criteria at once by setting Update Purchase Orders Automatically to Yes. Then set Status to indicate which status all the lines should be changed to. Leave Update Purchase Orders Automatically set to No to display the individual purchase order lines. You can then assign an individual status code to each line.

Valid status codes are:

0: Pending

1: Accepted in full

2: Accepted with a change

3: Rejected

When you choose to update the selected purchase orders automatically, you can generate a report for review before actually updating the status. To do this, set Create Purchase Order Acknowledgments to No. When this field is Yes, the system selects the purchase orders and automatically updates the status.

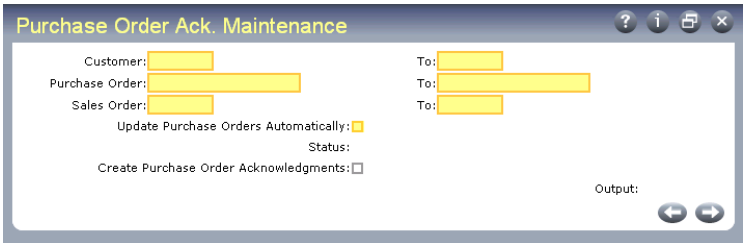


Fig. 6.8
Purchase Order Ack. Maintenance (35.4.4)

Exporting Supplier Schedules

Use Supplier Shipping Schedule (35.4.8) to send your suppliers planning and shipping schedules—based on scheduled orders—to communicate short-term and long-term requirements.

See Chapter 3, "Supplier Schedules," on page 67.

Supplier schedules are cumulative, schedule-driven purchase orders with multiple line items from which releases of requirements and due dates are issued. They are typically used by companies with long-term supplier contracts that require regular weekly or daily deliveries. The schedules specify, for the near term, dates and even hours of deliveries. They also inform MRP and the supplier about long-term plans.

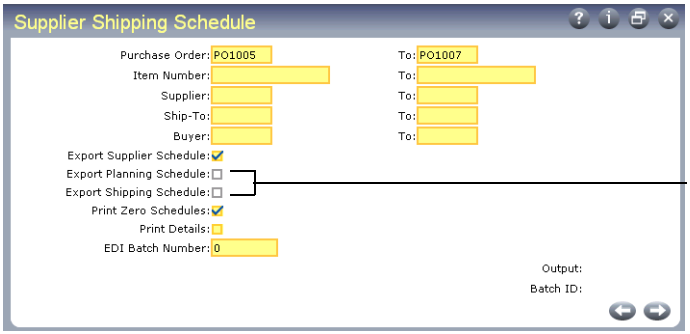
The types of schedules you can export are determined by whether you have the MFG/PRO PRO/PLUS package, which includes the Supplier Shipping Schedules module.

For details, see the *User Guide Volume 11: PRO/PLUS.*

If you are not using the Supplier Shipping Schedules module, you create and export schedules that combine planning and shipping data. With the PRO/PLUS package, you can separate long-term planning requirements from specific daily and hourly delivery requirements.

If you have this module installed and enabled in Supplier Schedule Control (5.5.7.24), you can update the Export Planning Schedule and Export Shipping Schedule fields in Supplier Schedule Export. Otherwise, Export Supplier Schedule is the only available option.

Fig. 6.9
Supplier Shipping Schedule (35.4.8)



You select schedules for export by specifying criteria, just as in the other export programs. Supplier Shipping Schedule has four additional fields:

Export Supplier Schedule. Enter Yes to export supplier schedules that match the selection criteria. Otherwise, enter No.

When the PRO/PLUS Supplier Shipping Schedules module is active, this field defaults to No and cannot be modified.

When the Supplier Shipping Schedules module is not active, this field defaults to Yes and can be modified as needed.

Export Planning Schedule. Enter Yes to export planning schedules that match the selection criteria. Otherwise, enter No.

When the PRO/PLUS Supplier Shipping Schedules module is active, this field defaults to Yes and can be modified as needed.

When the Supplier Shipping Schedules module is not active, this field defaults to No and cannot be modified.

Export Shipping Schedule. Enter Yes to export shipping schedules that match the selection criteria. Otherwise, enter No.

When the PRO/PLUS Supplier Shipping Schedules module is active, this field defaults to No and can be modified as needed.

When the Supplier Shipping Schedules module is not active, this field defaults to No and cannot be modified.

Print Zero Schedules. Enter Yes to select all scheduled orders that meet the other selection criteria, including those with no requirements. You can use this option to select a zero schedule to inform your supplier that requirements from a previous schedule are no longer needed.

If No, only scheduled orders with at least one non-zero requirement quantity are selected.

Important Before you can export schedules to a supplier, Send EDI Plan Schedules and Send EDI Ship Schedules must be Yes in that supplier's record in Trading Partner Parameter Maint (35.13.10).

Exporting Self-Billing Information

Use Supplier Self Billing Export (35.4.11) to export payment voucher information to your suppliers in a self-billing environment. They can then use this information in either a self-billing or receipt-advice context to associate your payments with their corresponding sales order and shipping records. For example, you could use this program to export self-billing information to suppliers using the PRO/PLUS Self-Billing module.

See *User Guide Volume 11: PRO/PLUS* for information on the Self-Billing module.

Enter selection criteria to specify which voucher data to export based on the receiver number, purchase order number, supplier, buyer, or date you received the order. The system then exports data from vouchers created in MFG/PRO. For example, you can export vouchers created with Evaluated Receipts Settlement (ERS).

See *User Guide Volume 4A: Financials* for information on ERS.

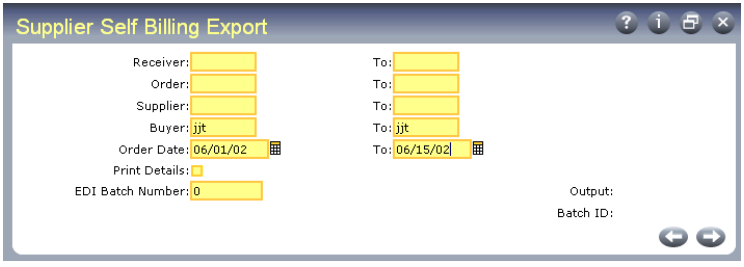


Fig. 6.10 Supplier Self Billing Export (35.4.11)

To ensure that the same voucher cannot be exported twice, the system records the batch ID in the vendor purchase order detail table (vpo_det).

Note The batch number is recorded whenever a voucher is selected for export, even if the document does not export successfully.

To be able to select a supplier's vouchers for export by this program, you must define some related parameters in Trading Partner Parameter Maintenance (35.13.10). The parameter record of each supplier who can receive self-billing documents must include:

- A logical parameter on line 11, Send Vouchers, with Value set to Yes
- A character parameter, ERS Document Name, with Value set to Vouchers
- An integer parameter, ERS Document Ver, with Value set to 1

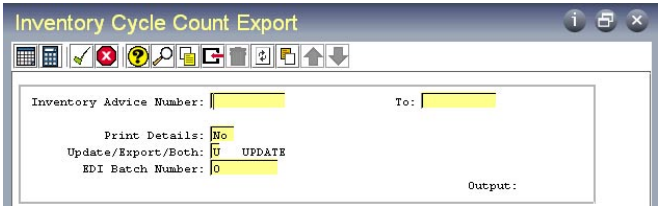
Exporting Cycle Count Data

See *User Guide Volume 6: Master Data* for information on cycle counts.

Use Inventory Cycle Count Export (35.4.13) to export cycle count information that can be used by your trading partner to compare inventory discrepancies between physical counts and the inventory levels recorded in the trading partner's database.

The exported document includes the information generated when you run Inventory Balance Update (3.16.21) in response to a request for a cycle count.

Fig. 6.11
Inventory Cycle Count Export (35.4.13)



Enter an ID number range in Inventory Advice Number to select records for export. This number is included on the cycle count request.

Based on the implementation definition, you can optionally update some of the data in the document before exporting it. Use the Update/Export/Both field to control this feature.

Exporting Data Using the Generic Gateway

Use Generic Gateway Export (35.4.20) to enter and export EDI data based on implementation definitions when a specific export gateway program is not available for the associated document type. You can enter data for any field defined in the implementation definition. The values you enter are then mapped to the outbound document as specified in the associated transformation definition.

See "Defining a Specific Implementation" on page 118.

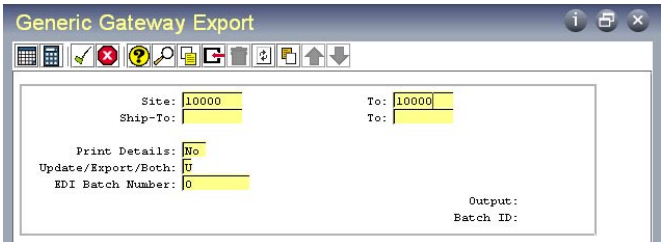


Fig. 6.12 Generic Gateway Export (35.4.20)

To use the program, enter site and ship-to address criteria. The system searches for matching cross-reference records defined in Trading Partner Maintenance (35.13.7) and displays a list of available trading partners and document types for the site/ship-to combination. Select the trading partner and document type you want to export and choose Go to display the structure of the first record in the implementation definition. Choose Insert to display the entire record structure. You can then select records and enter data in fields as needed.

See "Setting Up Trading Partners" on page 135.

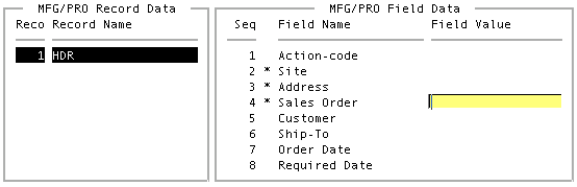


Fig. 6.13 Generic Gateway Export, Field Data Entry Frame

Note Mandatory fields are marked with an asterisk (*).

When you complete data entry and choose Go, the system creates the document based on the values you entered. Depending on the value of Update/Export/Both, you can also have the system automatically export it at the end of the process.

Tracking Import/Export Document Status

See “EDI ECommerce Processing” on page 96.

Status and error tracking are important concepts in ECommerce. The process is designed to run continuously:

- During import, from initially loading the SNF file through transforming it and transferring it to the MFG/PRO database
- During export, from initially selecting an MFG/PRO document through transforming it and unloading it into an SNF file for transmission to the EC subsystem.

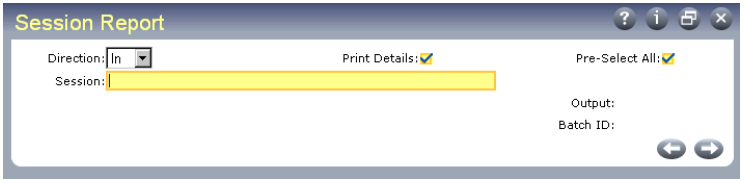
These are complex processes, and errors can occur at any of the three major steps: load/unload, transformation, or gateway transfer.

Each time you run an import or export program, the system automatically assigns a session number. You can use that number to track the status of documents processed during that session

See “Reprocessing Documents” on page 180.

Session Report (35.7) shows the status of document imports or exports at each processing step. Use the report to analyze where problems occurred, then resolve the problems either at the source—for example, by adding missing MFG/PRO data with the appropriate maintenance program—or in the data repository. Once the problems are corrected, either start the import or export again or use one of the reprocessing programs.

Fig. 6.14 Session Report (35.7)



Direction. Enter the direction of the document transfers to be included in this report. Documents imported into MFG/PRO are inbound, while those exported from MFG/PRO are outbound.

Print Details. Enter Yes to include error messages on the report. If you enter No, the report includes only the status code for each document processed during the session.

Pre-Select All. Enter Yes to have all sessions selected—that is, marked with an asterisk (*)—when displayed in the selection list. When this field is No, the sessions still display, but none are initially selected.

When the list displays, you can select or deselect sessions as needed.

Session. Enter the session numbers of the process sessions to be included in this report. Separate multiple entries with commas. Choose Go to display a list of sessions showing the date and time they were started. Selected sessions are marked with an asterisk (*). You can deselect sessions as needed.

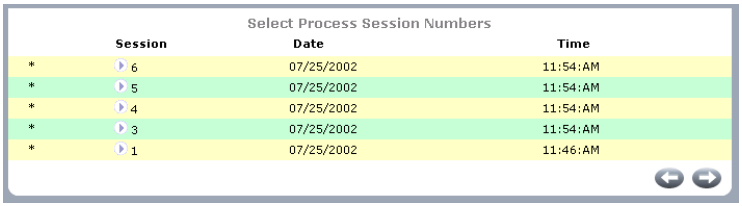


Fig. 6.15
Session Report, Select Process Session Numbers Frame

After selecting sessions from the list, Choose Go. Selected sessions display in the Session field. Then, select an output for the report or specify a batch ID.

Figure 6.16 shows a sample report.

Fig. 6.16
Session Report
Sample Output

```
edpsrp.p 99                    35.7 Session Report              Date: 11/02/01
Page: 1                              qad.inc                    Time: 11:52:05

                          ECommerce Session Report
Session ID: 2232        Date: 11/01/01  Time: 12:45:PM      Direction: Inbound

Load Process Successful

EDI Customer Number  Doc ID               Doc Type    Seq Status
-------------------- -------------------- -------- ------ ------
AMWAYTEST01          010D451372           850        5484     13 PASSED
NSKTEST01            B0022579-69          850        5485     13 PASSED
NSKTEST01            B0022561-03          850        5486     13 PASSED
AMWAYTEST01          010D470801           850        5487     13 PASSED
MICHELINTEST01       AAG101032            850        5488     13 PASSED

Load Process Errors

No Records

Transformation Process Successful

No Records

Transformation Process Errors

EDI Customer Number  Doc ID               Doc Type    Seq Status
-------------------- -------------------- -------- ------ ------
AMWAYTEST01          010D451372           850        5484     13 FAILED

TP LOCATION SITE/ADDRESS DOES NOT EXIST 006026793

EDI Customer Number  Doc ID               Doc Type    Seq Status
-------------------- -------------------- -------- ------ ------
MICHELINTEST01       AAG101032            850        5488     13 FAILED

SEQUENCE NUMBER NOT PROCESSED: 5488

Gateway Transfer Process

No Records

                                                        End of Report
```

Status code

The system assigns a status code to each document at each step of the process. Status codes are listed in Table 6.2.

Table 6.2
Document
Processing Status
Codes

Code	Direction	Status
11	Inbound	Load process failed. Could indicate problem in SNF file or with trading partner or document definition.
12	Inbound	Exchange file load successful.
13	Inbound	Exchange file transformation errors.
14	Inbound	Exchange file transformation successful.

Code	Direction	Status
21	Inbound	MFG/PRO document created, but has not moved to transfer process. May indicate a problem with gateway processing.
22	Inbound	MFG/PRO document transfer errors.
23	Inbound	MFG/PRO document transfer successful.
31	Outbound	MFG/PRO document transfer errors. Correct in MFG/PRO, then treat as new export.
32	Outbound	MFG/PRO document transfer successful.
33	Outbound	MFG/PRO document transformation errors.
34	Outbound	MFG/PRO document transformation successful.
41	Outbound	Exchange file created, but has not moved to unload process. May indicate a problem with gateway processing.
42	Outbound	Exchange file unload errors.
43	Outbound	Exchange file unload successful.

When you know the status of the document, which tells you where in the process any errors occurred, you can use one of the document repository inquiry or report programs to display the error messages and identify the causes of specific problems:

- Exchange Doc Status Inquiry (35.9.1) or Report (35.9.2)
- MFG/PRO Doc Status Inquiry (35.9.8) or Report (35.9.9)

Correcting Errors

In addition to processing status codes, which indicate the general state of documents within the import or export process, the system generates detailed error messages during ECommerce processing. These display on the terminal running the process session and are summarized on a number of reports. How you correct an error depends on where in the process the error occurred. Chapter 7 lists processing error messages and related corrective actions.

See Chapter 7, “ECommerce Error Messages,” on page 195.

Example The system detects an error while loading an imported file into the exchange file repository (status 11). The document is copied into an error file that is placed in the directory specified in ECommerce Control.

If the load error involves the way mapping is defined in ECommerce, resolve the mapping problem in the appropriate maintenance program. Then, in Document Import (35.1), set File Type (New/Error) to Error. The

See “Importing Documents” on page 161.

selection list shows only error files, whose names begin with the prefix specified in ECommerce Control. Select the appropriate file, then rerun the import.

If the load error originated in an SNF file sent by the EC subsystem—for example, missing data in a mandatory field—you might have to contact the trading partner to have them correct the file. In that case, you would start the import over again, treating the corrected file as new input.

In a similar case involving an exported file—when required data is missing from an MFG/PRO document, producing a status 31—correct the document in MFG/PRO and reexport it as a new document.

See “Maintaining the Document Repository” on page 185.

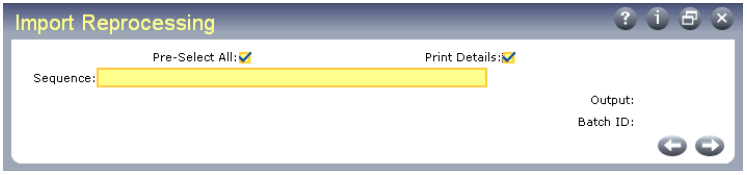
When documents successfully complete the load or transfer process and are placed in the document repository, you can fix some errors there. ECommerce provides a set of programs you can use for modifying data in the exchange file or MFG/PRO document repository.

Reprocessing Documents

After resolving a problem with import or export processing, use the appropriate program—Import Reprocessing (35.9.21) or Export Reprocessing (35.9.22)—to repeat processing for selected process sequence numbers. Based on the status of the document, the system automatically begins the processing flow from the point the error occurred.

The system generates a report on the reprocessed files to the device specified in Output. You can choose to run this process later using the Batch ID field.

Fig. 6.17 Import Reprocessing (35.9.21)



Tip Export Reprocessing (36.9.22) has the same fields.

Pre-Select All. Enter Yes to have all documents selected—that is, marked with an asterisk (*)—when displayed on the selection list. When this field is No, the documents still display, but none are initially selected.

When the list displays, you can select or deselect documents as needed.

Print Details. Enter Yes to include detailed information on the report that is output when this program is executed. If you enter No, the report includes only summary information.

Sequence. Each document is automatically assigned a sequence number during processing. Enter the sequence numbers of the documents to be reprocessed. Separate multiple entries with commas. The system validates these entries.

You can also choose Go to display a list, then select or deselect from the list as needed. Selections are marked with an asterisk (*). After you select documents and choose Go, they display in the Sequence field.

Tracking Exported Documents

For exported documents, the system can automatically create tracking records that let you determine the status of the document both within MFG/PRO and from the viewpoint of the EC subsystem and your trading partner's application.

When Track is Yes in a document-level record in Trading Partner Maintenance (35.13.7), the system generates a tracking record each time you export a document of that type to that trading partner. After receiving the exported EDI file from MFG/PRO, the EC subsystem can send an acknowledgment message. When this message is imported into MFG/PRO, the system updates the related tracking record with the status code assigned by the EC subsystem. If the message also includes an optional status code assigned by the trading partner's application, it is added to the tracking record.

See "Setting Up Trading Partners" on page 135.

Example The EC subsystem returns an acknowledgment status of Received, along with an application status of Accepted. When you import acknowledgment messages using Document Import (35.1), the system updates the tracking record to include both status codes.

The acknowledgment message typically includes an interchange control number assigned by the EC subsystem, which is also added to the tracking record. MFG/PRO has no knowledge of this control number when the document is exported, so being able to associate it with the exported document can provide a valuable cross-reference tool.

Note Documents are tracked only when the Primary Reference field in the exchange repository master record contains a value. For example, this can be a purchase order, invoice, or ASN number.

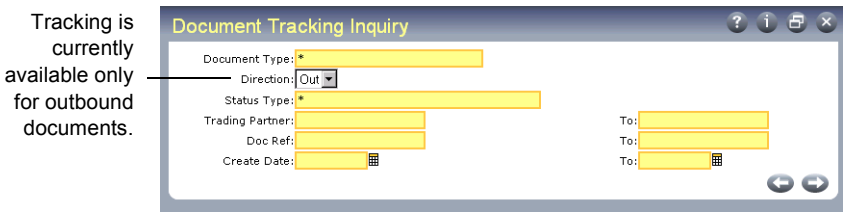
See page 193.

When tracking records are no longer needed online, you can delete them from the system and optionally archive them using Document Tracking Archive/Delete (35.9.16.13).

Use of Tracking Data

Use Document Tracking Inquiry (35.9.16.3) to view document and status information based on tracking records.

Fig. 6.18
Document Tracking Inquiry (35.9.16.3), First Frame



Enter ranges of selection criteria for displaying documents and press Go. The system displays a list of documents that match the criteria, along with a status summary. To view more information, select a record, then press Go. Subsequent screens let you view exchange file or MFG/PRO document status, as well as the content of the associated repository records, for the original document and each acknowledgment or status update document received from the EC subsystem.

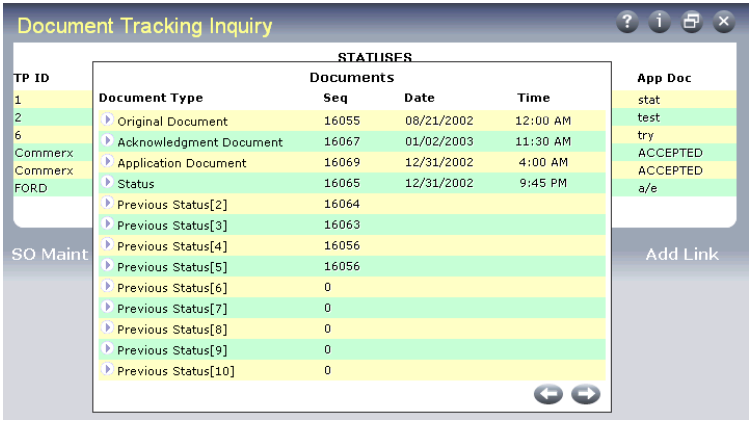


Fig. 6.19 Document Tracking Inquiry, Summary and Document Selection Frames

Manually Updating Tracking Records

Under some circumstances, you might need to make manual changes to a system-maintained document tracking record; for example, if a communication error prevents MFG/PRO from importing an acknowledgment message from the EC subsystem.

Use Document Tracking Maintenance (35.9.16.1) to make manual updates to system-maintained tracking records associated with exported documents.

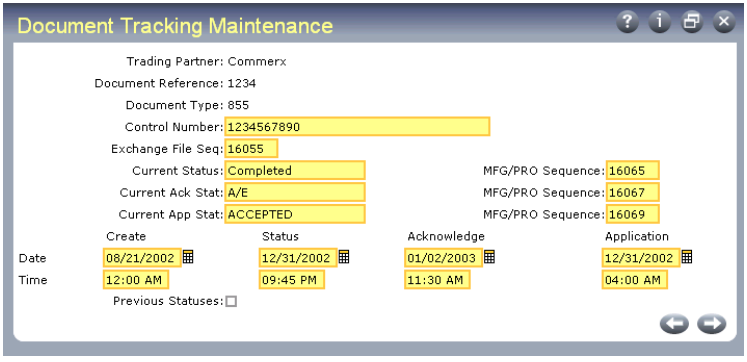


Fig. 6.20 Document Tracking Maintenance (35.9.16.1)

Trading Partner. Enter the identifier representing the trading partner that received the exported document tracked with this record.

Entries are validated against IDs defined in Trading Partner Maintenance.

Document Reference. Enter the number of the exported MFG/PRO business document tracked with this record. For example, this could be a purchase order, invoice, or ASN number.

Document Type. Enter the type of the exported document tracked with this record. For example, this could be ANSI X12 document 856 or EDIFACT document DESADV.

Entries are validated against document types defined for the specified ID in Trading Partner Maintenance (35.13.7).

Control Number. Enter the interchange control number assigned by the EC subsystem to the exported document.

Exchange File Seq. Enter the exchange sequence number of the exported document associated with this tracking record. Entries are validated against exchange repository master records.

Current Status. Enter the processing status code assigned most recently to the exported MFG/PRO document.

For example, when a document is successfully exported, the system sets this status to Exported. After all acknowledgments are received from the EC subsystem and the trading partner's application, it can be changed to Completed.

When this field is updated, the system maintains a history of previous processing status codes. Set Previous Statuses to Yes to view a list.

Current Ack Status. Enter the most recent status code assigned by the EC subsystem.

When Ack is Yes for the document type in Trading Partner Maintenance, the system leaves this field blank until an acknowledgment message is imported from the EC subsystem.

When Ack is No, the tracking record is created with None Expected in this field. If an acknowledgment status is received from the EC subsystem, the new status overwrites the system-assigned value.

Current App Status. Enter the most recent status code assigned by the trading partner's application.

MFG/PRO Sequence. Enter the MFG/PRO document repository sequence number associated with the document that reported the current status, acknowledgment status, or application status.

Additional fields show the dates and times associated with document creation and status updates.

Set Previous Statuses to Yes to list the processing status codes and associated MFG/PRO repository sequence numbers previously assigned to a document tracking record. The list includes values that previously displayed in the Current Status field.

Maintaining the Document Repository

You can use menu programs to modify all three types of data in the repository: exchange file document data, MFG/PRO document data, or turnaround data. You can also archive and delete repository data to reduce disk space requirements.

See “Document Repository” on page 92.

Important Use caution when modifying repository data. Changing data in the repository can lead to database synchronization problems. Use menu security to restrict access to the repository maintenance programs.

Exchange Data Repository

Use Exchange Data Repository Maint (35.9.3) to modify or add data in the exchange file portion of the data repository. For example, you might use this program to add a value to a missing mandatory field that is preventing the transformation process from completing.

The exchange file repository includes two types of data:

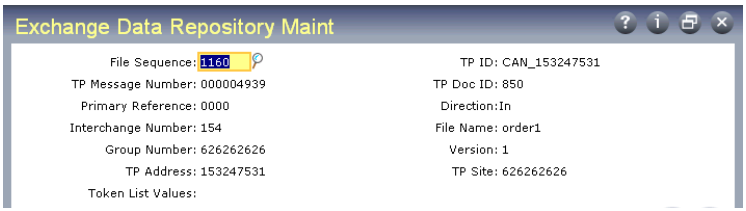
- Inbound exchange files that have been loaded from the EC subsystem SNF files but have not been transformed for transfer into MFG/PRO
- Outbound exchange files consisting of transformed MFG/PRO data that has not been unloaded to the EC subsystem

Note The repository stores all exchange files that pass through it during processing, whether or not they complete all the subsequent steps. These exchange files remain in the repository until they are archived and deleted.

See “Archiving and Deleting EDI ECommerce Data” on page 190.

This program includes three frames. When you select an exchange file to maintain in the first frame, the system displays trading partner data and reference information about the exchange file. Use the second and third frames to select the exchange file record and field that contains the data you want to maintain.

Fig. 6.21
Exchange Data Repository Maint (35.9.3)



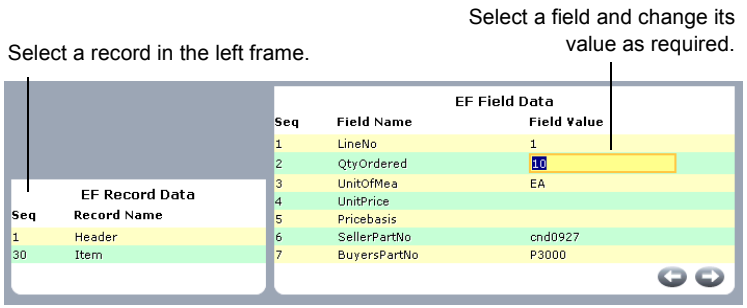
File Sequence. Enter the system-assigned file sequence number of the exchange file you want to maintain.

When you choose Go, two additional frames display.

See "Identifying Cross-References Between Repository Files" on page 189.

Because of the possible many-to-one or one-to-many relationships between exchange files and MFG/PRO files, the sequence numbers assigned to the files do not stay the same throughout processing. ECommerce provides a tool for determining cross-references between numbers.

Fig. 6.22
Exchange Data Repository Maint, EF Record and Field Data Frames



Seq and Record Name. The sequence numbers and names associated with the records in the selected exchange file.

Use the arrow keys to move through the records in the file. Choose Go to select the record whose fields you want to change.

Seq and Field Name. The sequence numbers and names associated with the fields in the selected exchange file record.

Use the arrow keys to move through the field sequence numbers. Choose Go to select the field whose value you want to change.

Field Value. The system displays the current value of this field in the selected record.

Enter or change data as required. Choose Go to record the change and return to the Seq field.

When all field entries are complete, choose End to return to the EF Record Data frame.

MFG/PRO Document Repository

Use MFG/PRO Data Repository Maint (35.9.10) to modify or add data to an imported or exported MFG/PRO document. For instance, you can use the program to add missing data to a required field.

The MFG/PRO document repository includes two types of data:

- Outbound MFG/PRO documents that have been transferred from the MFG/PRO database with an export gateway but have not been transformed into an exchange file format
- Inbound MFG/PRO documents consisting of transformed MFG/PRO data that has not been transferred by a gateway program to the MFG/PRO database

The repository stores all documents that pass through it during processing, whether or not they complete all the subsequent steps. These documents remain in the repository until they are archived and deleted.

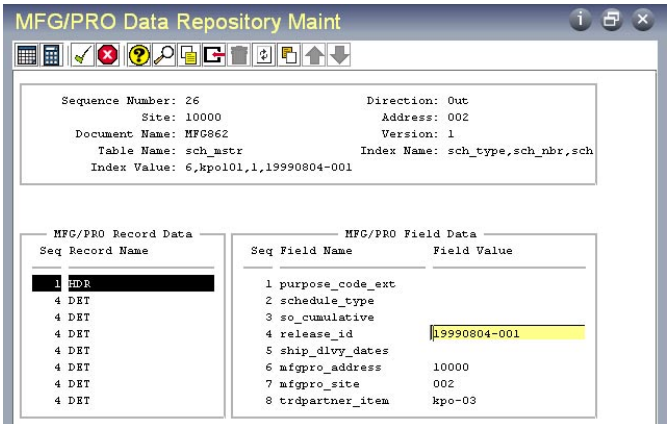
See “Archiving and Deleting EDI ECommerce Data” on page 190.

Warning Any changes you make to data fields with this program do not update MFG/PRO data—only the ECommerce repository tables. Changing repository data can lead to data synchronization problems. Use menu security to limit access to this program.

This program works the same way as Exchange Data Repository Maint (35.9.3).

See page 185.

Fig. 6.23
MFG/PRO Data Repository Maint (35.9.10)



Turnaround Data

See “Turnaround Data” on page 93.

Turnaround data consists of inbound data items that do not match existing MFG/PRO database fields but are required for related outbound documents.

Turnaround data is generally defined in Implementation Definition Maint (35.15.13). During gateway processing, the system relates it to index information provided in Implementation Definition Maint and stores it in the turnaround data table. During outbound processing, the system uses the turnaround data mapping table to relate the turnaround data to the outbound document.

Use Turnaround Data Maintenance (35.9.17) to modify turnaround data.

You can edit only one field in this program—Turnaround Data Item Value. The first four key fields identify the location of the data.

Fig. 6.24
Turnaround Data Maintenance (35.9.17)

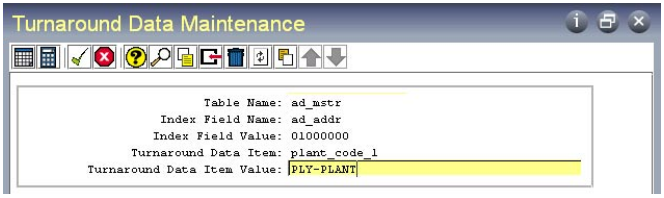


Table Name. Enter the name of the MFG/PRO table associated with this turnaround data item, or use the arrow keys to scroll through a list of tables. The table name is specified in the turnaround data mapping table. For example, if the turnaround data is related to a sales order, this could be so_mstr.

Index Field Name. The name of the field associated with this turnaround data item. The field name is specified in the turnaround data mapping table. For example, if the turnaround data is related to a sales order, this could be so_nbr.

Index Field Value. The value of the variable associated with this turnaround data. For example, if the turnaround data is related to a sales order, this could be the sales order number.

Turnaround Data Item. The name of the turnaround variable.

Turnaround Data Item Value. The value of the turnaround data. Modify it as needed and choose Go to save your changes.

Tip
Turnaround data is not actually stored in the table. Instead, it is stored in a set of turnaround repository tables that use the table and field names as part of the index.

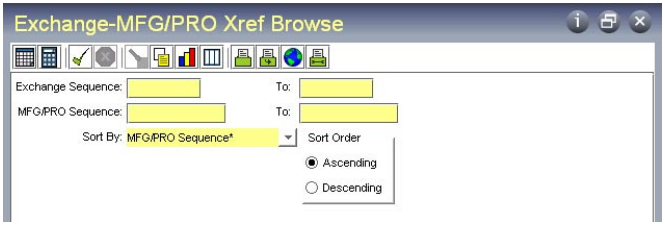
Identifying Cross-References Between Repository Files

Files exchanged between MFG/PRO and an EC subsystem can be converted on a one-to-many, many-to-one, or many-to-many basis. This means that a one-to-one correspondence between document sequence numbers may not exist.

Two programs let you determine cross-references between MFG/PRO document sequence numbers and exchange file sequence numbers:

- Use Exchange-MFG/PRO Xref Browse (35.9.13) to view exchange file sequence numbers and their corresponding MFG/PRO document sequence numbers.
- Use Exchange-MFG/PRO Xref Report (35.9.14) to generate a report on cross-references for selected ranges of MFG/PRO document and exchange file sequence numbers.

Fig. 6.25
Exchange-MFG/PRO Xref Browse (35.9.13)



Archiving and Deleting EDI ECommerce Data

ECommerce provides no automated features for purging the database of repository documents and other information that are no longer needed. To maintain control of disk space, you should regularly run an archive/delete utility. ECommerce includes delete/archive programs used for several types of data:

- Repository document data
- Text comment data
- Turnaround data
- Document tracking records

Repository Data

Two programs are available for deleting unneeded repository documents:

- Use Inbound Delete/Archive (35.17.13) to delete and archive imported documents from the exchange file and MFG/PRO document repositories.
- Use Outbound Delete/Archive (35.17.14) to delete and archive exported documents from repositories.

The two programs function identically. Enter selection criteria to select repository documents by combinations of file sequence numbers and processing dates. Then, specify whether to select documents that passed, failed, or both.

An MFG/PRO archive program is usually run twice. First, run the program with all Delete fields set to No and review the report. Then, run it again with the appropriate field or fields set to Yes.

When Archive is set to Yes, the system stores deleted data in a file named *xxyymmdd*.hst, where *xx* is ob for outbound documents and ib for inbound documents, and *yymmdd* is the date you ran the archive function.You can restore this file to the system using Archive File Reload (36.16.5).

Warning Deleted data that is not archived cannot be recovered.

Important Date and time in the stored data are formatted based on the country code associated with the user who archived the data. If a user with a different date and time format reloads the data, load errors and corrupted data can occur.

To avoid these problems, use the same settings when archiving and reloading the data. Before loading data, use User Maintenance (36.3.18) to temporarily change your country code to match that of the user who archived the data.

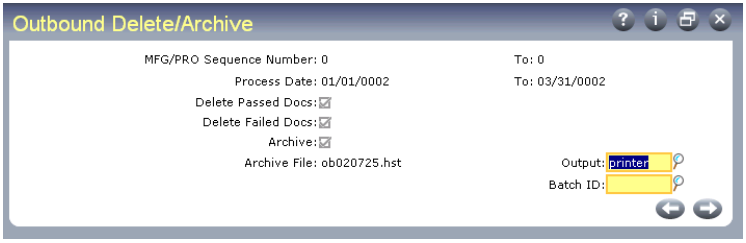


Fig. 6.26
Outbound Delete/ Archive (35.17.14)

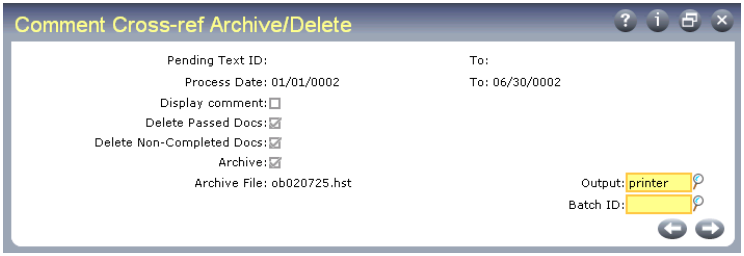
Text Comments

Use Comment Cross-Ref Archive/Delete (35.17.15) to archive and delete records containing imported text comments cross-referenced to sales orders or scheduled orders.

MFG/PRO deletes such documents automatically only when the trading partner's record in Trading Partner Parameter Maintenance (35.13.10) includes a Remove Connected Comments parameter set to Yes. Otherwise, you should run this program to delete unneeded comment files.

See "Defining Trading Partner Parameters" on page 139.

Fig. 6.27
Comment Cross-Ref Archive/Delete (35.17.15)



This program is similar to the repository delete/archive programs. Enter selection criteria as required to select documents by ID numbers included in the imported comments file or processing dates. Then, specify whether to select documents that completed processing by successfully attaching the comment text to the order, those that did not, or both.

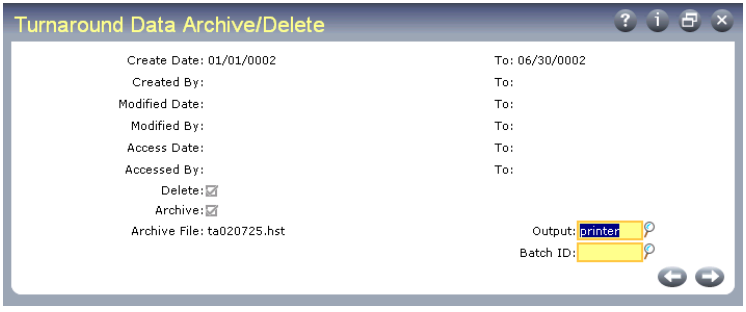
Optionally, you can have the system display the comments selected for deletion. When you choose to archive comment data, the system places it in a file named `ob`*`yymmdd`*`.hst`, where *yymmdd* is the date you ran the archive function.

Turnaround Data

See “Turnaround Data” on page 93.

Use Turnaround Data Archive/Delete (35.17.16) to delete from the system and optionally archive turnaround data that is no longer required.

Fig. 6.28
Turnaround Data Archive/Delete (35.17.16)



There is no other mechanism for selecting and deleting turnaround data records. How often you should run this function depends on how long you need to retain turnaround data in your database.

This program is similar to the repository delete/archive programs. Select records based on ranges of dates and user IDs. When you choose to archive turnaround data, the system places it in a file named `ta`*`yymmdd`*`.hst`, where *yymmdd* is the date you ran the archive function.

Document Tracking Records

Use Document Tracking Archive/Delete (35.9.16.13) to delete from the system and optionally archive document tracking records that are no longer required. How often you should run this function depends on how long you need to retain tracking data in your database.

See “Tracking Exported Documents” on page 181.

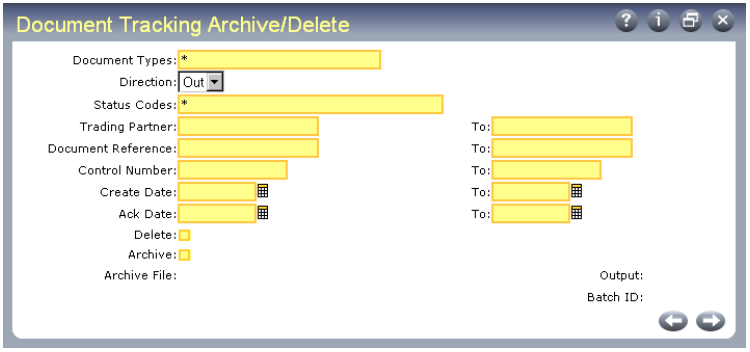


Fig. 6.29 Document Tracking Archive/Delete (35.9.16.13)

This program is similar to the repository delete/archive programs. Select records based on ranges of document information and dates. You can also enter comma-separated lists of document types and status codes. To select all records regardless of document type or status code, leave the asterisk (*) in the appropriate field.

Note Leave Direction set to Out. Document tracking currently supports only exported documents.

When you choose to archive document tracking data, the system places it in a file named `ob`*`yymmdd`*`.hst`, where *yymmdd* is the date you ran the archive function.

Chapter 7

ECommerce Error Messages

This chapter describes ECommerce-specific error messages. It explains the conditions that cause the errors and suggests solutions.

Note Many ECommerce messages are self-explanatory. Such messages are not included in this chapter.

No.	Message	Cause	Solution
4400	<*directory*> listed in control program does not exist	• Control program was not initially set up or the specified path is incorrect. • Directory was removed after control program setup.	• Use ECommerce Control (35.17.24) to add or correct the directory name or path. • Contact the system administrator to have the directory created.
4401	User does not have write privileges to <*directory*>	Directory was created by user other than system administrator. or System administrator did not grant read, write, create, modify, and delete rights to all users for the specified directory.	Contact the system administrator. Users must have read, write, create, modify, and delete rights to the specified directory. or Change the directory location. • For an inbound document, use ECommerce Control (35.17.24). • For an outbound document, use Transmission Group Maintenance (35.13.13).
4402	Mandatory exchange file data record is missing: <*subsystem*>; <*record name*>; <*exchange file name*>; <*version*>; <*filename*>; <*error file*> **Note:** <*filename*> and <*error file*> are not applicable on outbound documents.	• The trading partner did not send the data record specified, or the SNF file <*filename*> was not complete. • <*record name*> has been defined as mandatory in the document definition for this combination of <*exchange file name*>, <*version*>, and document direction when it should be defined as optional.	• Have the trading partner correct the problem and resend the document. • If this is a recurring error for this <*exchange file name*>, <*version*>, and direction, use Exchange Definition Maintenance (35.15.6) to select the appropriate combination of exchange file name, version, and direction, go to <*record name*>, and set Requirement to Optional.
4403	No matching quote found in record. <*record*> (first 5 characters); <*file name*>; <*error file*>	The EC subsystem is defined as variable-format with a quote character surrounding alphanumeric data. A beginning quote character was found without a matching closing quote.	Have the trading partner correct the problem and resend the document. or Open the error file in a text editor and locate the subject record. Insert the closing quote character at the end of the data field. Then, use Document Import (35.1) to import the error file.

No.	Message	Cause	Solution
4404	Duplicate <*record code*> records: <*subsystem*>; <*filename*>; <*error file*>	A control or data record is repeated within the document without the data information. A control record can only appear once for a document. Data records are expected to follow the control records and come before the next document's control record.	Have the trading partner correct the problem and resend the document. or Open the error file in a text editor and locate the duplicate control records. Verify that the data within the records are the same. If they are the same, remove one of the control records and use Document Import (35.1) to import the error file.
4405	Mandatory control record is missing in input file: <*record code*>; <*subsystem*>; <*direction*>; <*filename*>; <*error file*>	• The trading partner did not send the data record specified or the SNF file <*filename*> was not complete. • The control record identified in <*record code*> has been defined as mandatory in the definition for this EC subsystem and direction when it should be defined as optional.	• Have the trading partner correct the problem and resend the document. • If this is a recurring error for this EC subsystem and direction, then use EC Subsystem Definition Maint (35.13.1) to select the EC Subsystem and direction, go to the <*record code*>, and set Requirement to Optional.
4406	Unknown or blank record code: <*record code*>; <*subsystem*>; <*file name*>; <*error file*>	The EC subsystem sent a record code that has not been defined as a control code or a data control code.	Open the error file in a text editor and determine if this code is for a data segment or a control segment. Then, define the segment as required. • For a data segment, use EC Subsystem/Exchange Maint (35.13.3) to define the data control code. • For a control segment, use EC Subsystem Definition Maint (35.13.1) to define the control code.
4407	Control field length outside boundaries: <*subsystem*>; <*record sequence*>; <*field name*>; <*field length*>; <*file name*>; <*error file*>	The EC subsystem is defined as using variable-format control field lengths. The number of characters <*field length*> is not within the minimum and maximum values specified for the field.	Using EC Subsystem Definition Maint (35.13.1), locate the specified sequence number <*record sequence*>. Select the field name for the appropriate record sequence and adjust the minimum and maximum values.

No.	Message	Cause	Solution
4408	Mandatory control field has not been set: <*subsystem*>; <*record sequence*>; <*field name*>; <*file name*>; <*error file*>	• The trading partner did not send the data specified. The SNF file <*filename*> was not complete. • The control record field <*field name*> for the <*record sequence*> has been defined as mandatory in the definition for EC Subsystem <*subsystem*> and direction when it should be defined as optional.	• Have the trading partner correct the problem and resend the document. • If this is a recurring error for this EC subsystem and direction, then use EC Subsystem Definition Maint (35.13.1) to select the EC subsystem and direction, go to the <*record sequence*>, locate the <*field name*>, and set the requirement to optional.
4409	Mandatory data field has not been set: <*subsystem*>; <*exchange file name*>; <*version*>; <*record sequence*>; <*field name*>; <*file name*>; <*error file*> **Note:** <*filename*> and <*error file*> are not applicable on outbound documents.	• The trading partner did not send the data specified, or the SNF file <*filename*> was not complete. • The data record field <*field name*> for the <*record sequence*> has been defined as mandatory in the exchange file document definition for the <*exchange file name*>, <*version*>, and direction when it should be defined as optional.	• Have the trading partner correct the problem and resend the document. • If this is a recurring error for this exchange file name, version, and direction, then use Exchange Definition Maintenance (35.15.6) to select the appropriate exchange file document definition, go to the <*record sequence*>, locate the <*field name*>, and set Requirement to Optional.
4410	Data field length outside boundaries: <*subsystem*>; <*exchange file name*>; <*version*>; <*record sequence*>; <*field name*>; <*field length*>; <*file name*>; <*error file*> **Note:** <*filename*> and <*error file*> are not applicable on outbound documents.	EC subsystem is defined as using variable-length fields. The number of characters <*field length*> is not within the minimum and maximum values specified for the field.	Use Exchange Definition Maintenance (35.15.6) to locate the specified sequence number <*record sequence*> for the specified EC subsystem <*subsystem*>, <*exchange file name*>, <*version*>, and direction. Locate the field name <*field name*> for the record sequence and adjust the minimum and maximum values.
4411	EC Subsystem does not exist: <*subsystem*>; <*file name*>; <*error file*>	The specified EC subsystem <*subsystem*> has not been defined.	• Use EC Subsystem Definition Maint (35.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.13.3) to create the data control codes.

No.	Message	Cause	Solution
4412	Unknown file format: *<file name>*; *<error file>*	The file extension is used to identify the subsystem name and file format. If a subsystem cannot be identified by the extension, then the system attempts to locate the subsystem definition of the default subsystem defined in the control program.	• Use EC Subsystem Definition Maint (35.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.13.3) to create the data control codes.
4413	Input control record is not in sequence: *<sequence number>*	The SNF file was not complete.	Have the trading partner correct the problem and resend the document.
4414	Exchange file record table record does not exist: *<exchange file name>*; *<version>*; *<record sequence number>*	The record was deleted from the exchange file document definition after the EC subsystem/exchange cross-reference was defined.	Use Exchange Definition Maintenance (35.15.6) to redefine the record sequence for the specified exchange file name and version.
4415	Current record sequence has exceeded its loop occurrence: *<exchange file name>*; *<version>*; *<record sequence>*	There are more occurrences of the record type within the data than allowed by the exchange file document definition.	Use Exchange Definition Maintenance (35.15.6) to locate the record sequence for the specified exchange file name and version. Increase the loop occurrences allowed for the record.
4416	Invalid document transmission group name: *<transmission group name>*	The specified transmission group has not been defined.	Use Transmission Group Maintenance (35.13.13) to define the transmission group.
4418	Exchange file repository master record not found	Database corruption.	Contact database administrator.
4419	EC Subsystem control record does not exist: *<subsystem>*; *<transmission group name>*	Control record codes have not been defined for the subsystem.	• Use EC Subsystem Definition Maint (35.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.13.3) to create the data control codes.
4420	Repository detail record does not exist for sequence	Database corruption.	Contact database administrator.
4421	EC Subsystem cross-reference record not available for: *<subsystem>*; *<document type>*; *<record sequence number>*	Cross-reference was not set up completely, or a record sequence was added to the exchange file document definition after the cross-reference was set up.	Use EC Subsystem/Exchange Maint (35.13.3) to create the data control code.

No.	Message	Cause	Solution
4422	Record code is blank for data records: <*subsystem*>; <*document type*>; <*record sequence number*>	Cross-reference was not set up completely, or a record sequence was added to the exchange file document definition after the cross-reference was set up.	Use EC Subsystem/Exchange Maint (35.13.3) to create the data control code.
4423	Unable to create directory <*directory*> for transmission group: <*transmission group name*>	Directory was created by user other than system administrator. or System administrator did not grant read, write, create, modify, and delete rights to all users for the specified directory.	Contact the system administrator. Users must have read, write, create, modify, and delete rights to the specified directory. or Change the directory location. • For an inbound document, use ECommerce Control (35.17.24). • For an outbound document, use Transmission Group Maintenance (35.13.13).
4424	Unable to create directory: <*directory*>	Directory was created by user other than system administrator. or System administrator did not grant read, write, create, modify, and delete rights to all users for the specified directory.	Contact the system administrator. Users must have read, write, create, modify, and delete rights to the specified directory. or Change the directory location. • For an inbound document, use ECommerce Control (35.17.24). • For an outbound document, use Transmission Group Maintenance (35.13.13).
4425	Mandatory control token limits are not met: <*subsystem*>; <*record sequence*>; <*field name*>; <*token*>; <*field length*>	EC subsystem is defined as using variable-length fields. The number of characters <*field length*> is not within the range of minimum and maximum values specified for the field.	Use EC Subsystem Definition Maint (35.13.1) to locate the specified sequence number <*record sequence*> for the specified EC subsystem <*subsystem*>. Locate the field name <*field name*> for the record sequence and adjust the minimum and maximum values.

No.	Message	Cause	Solution
4426	Optional control token limits are not met: <*subsystem*>; <*record sequence*>; <*field name*>; <*token*>; <*field length*>	EC subsystem is defined as using variable-length fields. The number of characters <*field length*> is not within the range of minimum and maximum values specified for the field.	Use EC Subsystem Definition Maint (35.13.1) to locate the specified sequence number <*record sequence*> for the specified EC Subsystem <*subsystem*>. Locate the field name <*field name*> for the record sequence and adjust the minimum and maximum values.
4427	EC Subsystem control field records not found: <*subsystem*>; <*exchange file sequence number*>	An outbound subsystem has not been defined.	Use EC Subsystem Definition Maint (35.13.1) to define the subsystem and its control codes.
4428	MFG/PRO document status record does not exist:	Database corruption.	Contact database administrator.
4429	Invoice history header record does not exist: <*invoice number*>; <*sales order number*>	Database corruption. or Data may have been archived.	Contact database administrator.
4430	Trading partner location cross-reference does not exist: <*document name*>; <*version*>; <*site*>; <*address*>	Trading partner has not been set up properly.	• Use Trading Partner Report (35.13.9) to print a list of all trading partners. • Locate a trading partner ID on the report where the MFG/PRO Site = <*site*> and the MFG/PRO Address = <*address*>. • With the trading partner ID retrieved from the report, use Trading Partner Maintenance (35.13.7) to create a cross-reference record.
4431	MFG/PRO implementation record does not exist: <*document name*>; <*doc vers*>; <*imp name*>; <*imp vers*>; <*record sequence or record name*>	Setup of implementation definition not complete. or The specified record has been deleted.	Use Implementation Definition Maint (35.15.13) to create the required record.
4432	MFG/PRO repository master record does not exist:	Database corruption.	Contact database administrator.

No.	Message	Cause	Solution
4434	Variable not found while obtaining variable name <*variable name*> <*variable type*>	Variable defined for transformation is no longer available to transformation process.	Verify definitions exist in the exchange or implementation definition records. If they exist, delete them and recreate them. If they do not exist, create them in the exchange or implementation definition records, then delete them.
4435	Variable not available to be set: <*recid of variable*>	Variable defined for transformation is no longer available. Possibly, it was deleted prior to loading the transformation definitions.	Restart the transformation. If it still does not work, contact database administrator to report possible data corruption.
4436	Variable not available while obtaining variable value: <*recid of variable*>	Variable defined for transformation is no longer available. Possibly, it was deleted prior to loading the transformation definitions.	Restart the transformation. If it still does not work, contact database administrator to report possible data corruption.
4437	Variable has not been assigned a value: <*variable name*> <*variable qualifier*>	Variable within transformation has not been assigned a value or initialized.	Verify that the variable <*variable name*> has been assigned a value before using it as a source for another target variable.
4438	Function or variable is not available: <*variable/function name*> <*variable qualifier*>	Value for function or variable did not return a valid value.	Correct the returning value from the function program or verify that the function program compiled properly.
4439	Value not available for variable: <*variable/function name*> <*variable qualifier*>	Value for function or variable did not return a valid value.	Transformation definition is requesting a value from a variable, but variable has not yet been assigned a value. Assign the variable as a target before using it as a source.
4440	Function not found: <*function name*>	Function defined within the transformation definitions does not exist within function definitions.	Check function definitions for the function requested from the transformation definition map. If the record exists, contact database administrator. Otherwise, create the record being requested. **Note:** If the function has been saved to disk already and the function definition has been removed, do not reprocess it to the disk. This will overwrite the program currently on the disk.

No.	Message	Cause	Solution
4441	Function returned error: <*returned value set by function*>	Function did not perform correctly and was not able to return a value.	• Check that the function on disk compiles correctly. • Check the parameter values being sent to the function for correct data type matching. • If the function is user-defined, look at the function program to see the error message and why it occurs.
4442	Illegal target qualifier found: <*target qualifier that is illegal*>	An invalid target qualifier was mistakenly entered or allowed in transformation definitions.	Change the target qualifier to a valid target qualifier (I, O, or V). All others are considered illegal.
4443	Sequence number not processed <*sequence number*>	Either no repository exists, no trading partner information exists, or no map exists.	• Verify that the repository has been created. If not, then load or unload the file again. • If the repository is being created, verify that the trading partner information has been set up for the information found on the repository master records. • If the trading partner information is missing, create the missing information again. If the information is not missing, confirm that the trading partner map definition is pointing to a valid and existing map.
4444	Function has not been processed to disk: <*function name*>; <*internal function name*).	Transformation process tried to run the function from the disk and the program was not found.	• Verify that the program resides in the function directory specified in ECommerce Control (35.13.24). If it does not, it to the correct directory. • If the program does not exist, use ECommerce Function Maintenance (35.15.21) to create a program shell and then modify the program as required.

No.	Message	Cause	Solution
4449	Sequence number not set from conditional write function	The conditional write function *check-hash* did not return a valid sequence number. **Note:** The check-hash function is used only to write master records; for example, a new MFG/PRO document such as an order header or schedule header. This function is not used for lower data record writes. Use IF logic to perform lower-level conditional writes.	• Verify that the parameters are being sent to the function. • If so, and this error still occurs, call QAD support.
4450	Invoice history detail record does not exist: <*invoice number*>; <*sales order number*>	Database corruption. or Data may have been archived.	Contact database administrator.
4456	Positive/negative integer expected from check-hash function: <*returned value*>	The write function was called with a function that returned an invalid sequence number.	Verify that the conditional write is on a record defined as sequence number 1. Also verify that the function being used is the check-hash function.
4469	No matching else or endif within record seq <*record sequence*> and action type <*event type*>	An If statement used in transformation did not have an Else or closing Endif statement within the record sequence and event type.	Use Transformation Definition Maint (35.15.17) to change the transformation definitions to include a closing Else or Endif within the same record and event type.
4470	Else with no matching if within record seq <*record sequence*> and action type <*action type*>	An Else statement used in transformation did not have an If beginning statement within the record sequence and event type.	Use Transformation Definition Maint (35.15.17) to change the transformation definitions to include a beginning If within the same record and event type.
4471	No closing endif within record seq <*record sequence*> and action type <*action type*>	An If or Else statement in the transformation definitions is not closed by an Endif statement within the record sequence and event type.	Use Transformation Definition Maint (35.15.17) to change the transformation definitions to include a closing Endif within the same record and event type.
4475	A seq in a many-to-many list failed. All sequences were deleted: <*list of bad sequences*>	A map defined as many-to-many had either a single or multiple document sequence fail, which caused all of the related input documents to fail.	Correct the error in the failed document, then reprocess the files as a group.

No.	Message	Cause	Solution
4728	Record code is blank for control record: <*subsystem*>; <*direction*>; <*record sequence number*>	The specified EC subsystem <*subsystem*> has not been defined.	• Use EC Subsystem Definition Maint (35.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.13.3) to create the data control codes.
4729	MFG/PRO mandatory data record is missing: <*document name*>; <*document version*>; <*implementation name*>; <*implementation version*>; <*record name*>	• The trading partner did not send the data specified, or the SNF file <*filename*> was not complete. • The data record field noted <*field name*> for the <*record sequence*> has been defined as mandatory in the exchange file document definition for the <*exchange file name*>, <*version*> and direction when it should be defined as optional.	• Have the trading partner correct the problem and resend the document. • If this is a recurring error for this <*exchange file name*>, <*version*> and direction, use Exchange Definition Maintenance (35.15.6) to select the appropriate combination of exchange file name, version, and direction. Then, select the <*record sequence*>, locate the <*field name*>, and set Requirement to Optional.
4743	Transformation definition <*transformation definition*> flagged as nonrunnable	The transformation definition record has the Can Run field set to No.	In Transformation Definition Maint (35.15.17), change the transformation definition by setting Can Run to Yes.

Index

R

S

T

X