



User Guide

Volume 7

RELEASE MANAGEMENT

CUSTOMER SCHEDULES
SUPPLIER SCHEDULES
ELECTRONIC DATA INTERCHANGE (EDI)
ECOMMERCE GATEWAY



78-0453A
MFG/PRO Version 9.0
Printed in the U.S.A.
March 1999

This document contains proprietary information that is protected by copyright. No part of this document may be photocopied, reproduced, or translated without the prior written consent of QAD Inc. The information contained in this document is subject to change without notice.

QAD Inc. provides this material as is and makes no warranty of any kind, expressed or implied, including, but not limited to, the implied warranties of merchantability and fitness for a particular purpose. QAD Inc. shall not be liable for errors contained herein or for incidental or consequential damages (including lost profits) in connection with the furnishing, performance, or use of this material whether based on warranty, contract, or other legal theory.

Some states do not allow the exclusion of implied warranties or the limitation or exclusion of liability for incidental or consequential damages, so the above limitations and exclusion may not be applicable.

PROGRESS® is a registered trademark of Progress Software Corporation. Windows™ is a trademark of Microsoft Corporation.

MFG/PRO® is a registered trademark of QAD Inc.
Copyright © 1999 by QAD Inc.
78-0453A

QAD Inc.
6450 Via Real
Carpinteria, California 93013
Phone (805) 684-6614
Fax (805) 684-1890

Contents

ABOUT THIS GUIDE	1
What Is in This Guide?	2
Other 9.0 Documentation	2
Online Help	2
QAD Web Site	3
Conventions	3
Windows Keyboard Commands	3
Character Keyboard Commands	5
 CHAPTER 1 RELEASE MANAGEMENT.....	7
Overview of Release Management	8
Origins of Release Management	8
Release Management Flow	9
Characteristics of Schedules	10
Customer Schedules	12
Supplier Schedules	13
Electronic Data Interchange (EDI)	14
 SECTION 1 SCHEDULES	17
 CHAPTER 2 CUSTOMER SCHEDULES.....	19
Setting Up Customer Schedules	20
Setting Up Schedule Data	21

Setting Up Control File Values	24
Setting Up Categories for Requirement Detail	25
Setting Up Configured Messages	26
Creating Scheduled Orders	31
Header Frame	31
Non-Cumulative Quantity Accounting Data Frame	33
Order Line Item Data Frame	34
Processing Customer Schedules	37
Importing Schedules with EDI	37
Entering or Verifying the Release	38
Creating a Required Ship Schedule	43
Viewing Schedule Information	45
Running MRP	46
Processing Shipments	46
Printing Bills of Lading	50
Pegging Requirement Detail	51
Consuming Requirements	53
Cumulative Shipped Maintenance	54
Resetting Cumulative Quantities	54
Adjusting Prices with Retrobills	55
Retrobill Process	56
Retrobill Maintenance	56
Retrobill Report	58

CHAPTER 3 SUPPLIER SCHEDULES..... 59

Introduction	60
Setting Up Supplier Schedules	61
Supplier Calendars	61
Scheduled Order Maintenance	61
Allocating Percentages for MRP	65
Defining Release ID Format	65
Processing Supplier Schedules	66
Creating a Schedule Release	66
Modifying Supplier Schedules	68

Transmitting Supplier Schedules	69
Receiving Scheduled Orders	70
PO Shipper Maintenance	71
PO Shipper Receipt	72
Purchase Order Receipts	72
PO Container Maintenance	73
Cumulative Received Maintenance	73
Resetting Cumulative Quantities	74

SECTION 2 TRADITIONAL EDI..... 75

CHAPTER 4 ELECTRONIC DATA INTERCHANGE 77

Introduction	78
Setting Up Base Data	79
Configuring the EDI Control File	79
Managing Purpose Codes	80
Key Value Combinations	81
Purpose Code Maintenance Fields	82
Modifying User-Edited Programs	84
Export Programs	84
Import Programs	85
Setting Up Trading Partner Parameters	87
Exporting EDI Documents	92
Purchase Orders	92
Supplier Schedules	93
ASNs	93
Invoices	94
PO Acknowledgments	95
Importing EDI Documents	96
Formatting Flat Files for EDI	98

SECTION 3 ECOMMERCE GATEWAY 111

CHAPTER 5 ECOMMERCE OVERVIEW 113

Introduction	114
Elements of ECommerce	115
Document Repository	115
ECommerce Tool Set	117
Import and Export Documents	118
ECommerce Processing	119

CHAPTER 6 SETTING UP ECOMMERCE 123

Introduction	124
Setup Overview	124
Setting Up Data Directories	126
Configuring the ECommerce Control File	128
Defining the EC Subsystem	129
Defining an Exchange File	132
Defining EC Subsystem/Exchange File Cross-References	136
Defining a Specific Implementation	138
Defining Transformation Maps	143
Defining Transmission Groups	150
Setting Up Trading Partners	151
Using Other Setup Programs	154
Defining Trading Partner Parameters	154
Defining Data Cross-References	156
Validating Data Values	157
Creating MFG/PRO Definitions	158
Copying Definitions	162
Setting Up Transformation Functions	165
Scheduling Automatic Processing	167
Loading Trading Partner Library Data	169

CHAPTER 7 USING ECOMMERCE 171

Introduction	172
--------------------	-----

Importing Documents	173
Exporting Documents	175
Exporting ASNs	175
Exporting Invoices	176
Tracking the Status of Import and Export Documents	177
Correcting Errors	181
Reprocessing Documents	182
Maintaining the Document Repository	183
Exchange Data Repository	183
MFG/PRO Data Repository	185
Turnaround Data	186
Identifying Cross-References Between Repository Files	187
Archiving and Deleting Repository Data	188
CHAPTER 8 ECOMMERCE ERROR MESSAGES	191
INDEX	203

About This Guide

What Is in This Guide? 2

Windows Keyboard Commands 3

Character Keyboard Commands 5

Routing Maintenance (Main Screen)

Routing Code:	10-15000	NONAD (75) COOLING
Operation:	20	
Standard Operation		
Work Center	1030	INSPECTION, ALL SITES
Machine		
Description	INSPEC PER PROC-005	
Machines per Op	1	Milestone
Overlap Units	1	
Queue Time	1.0	
Wait Time	0.0	
Setup Time	0.0	

Route by Production Route

What Is in This Guide?

This guide covers features of MFG/PRO Version 9.0 Release Management. It also includes information about electronic data interchange (EDI), which is often used in conjunction with Release Management. Both traditional EDI and ECommerce Gateway are discussed.

Other 9.0 Documentation

- For an overview of new features and software updates, see the *9.0 Release Bulletin*.
- For software installation instructions, refer to the *9.0 Installation Guides*.
- For instructions on navigating the MFG/PRO environment, refer to the *9.0 User Interface Guide*.
- For information on using MFG/PRO, refer to the *9.0 User Guides*.
- For technical details, refer to the *9.0 File Relationships* and *9.0 Database Definitions*.
- To review MFG/PRO program screens, refer to the *Screen Book, Volumes 1–3*.
- To view documents online in PDF format, see the *9.0 Documents on CD*.

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, refer to the *9.0 User Interface Guide*.

QAD Web Site

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

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

To obtain a QAD Web account, go to:

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

The QAD Web site also has information about training classes and other services that can help you learn about MFG/PRO.

Conventions

MFG/PRO 9.0 is available in several interfaces: Windows, character, Web browser, and an interface for object-oriented programs. To standardize presentation, the documentation uses the following conventions:

- MFG/PRO screen captures reflect the Windows interface.
- References to keyboard commands are generic. For example, choose Go refers to F2 in the Windows interface and to F1 in the character interface. The following tables identify the keyboard commands for the Windows and character interfaces.

Windows Keyboard Commands

Navigation Commands	Keyboard Entry	Description
Go	F2	Moves to next frame.
End	Esc	Exits a frame, program, or menu.
Previous	F9 or Up Arrow	Retrieves previous record in a key data field.
Next	F10 or Down Arrow	Retrieves next record in a key data field.
Enter	Enter	Moves to next field within a frame.
Tab	Tab	Moves to next field within a frame.
Back Tab	Shift+Tab	Moves back one field within a frame.
Exit	Alt+X	Closes a program.

Navigation Commands	Keyboard Entry	Description
Run	Ctrl+R	Starts a program by name.
Save (object)	F12	In a key frame, moves to data entry; in data entry, saves and returns to key frame.
Print (object)	Ctrl+P	Prints browse or maintenance information.

Help Commands	Keyboard Entry	Description
Field Help	F1	Opens help on current field.
Procedure Help	Shift+F1	Opens help on current program.
Browse	Alt+F1	Displays choice of records.
Look-Up Browse	Alt+F2	Displays choice of records.
About	Ctrl+F1	Displays the program name.
Browse Options	F7	Opens the browse options window.
Browse Options Toggle	Alt+F	Turns the browse options on and off.
Browse Graph	Shift+F11	Opens the browse graphing window.
Field Name	Ctrl+F	Displays the field name.

Edit Commands	Keyboard Entry	Description
Delete Record	F5	Deletes an open record.
Cut	Ctrl+X	Cuts a field or selection to clipboard.
Copy	Ctrl+C	Copies a field or selection to clipboard.
Paste	Ctrl+V	Pastes data from the clipboard.

Character Keyboard Commands

Navigation Commands	Keyboard Entry	Control Key Entry	Description
Go	F1	Ctrl+X	Moves to next frame.
End	F4	Ctrl+E	Exits a frame, program, or menu.
User Menu	F6	Ctrl+P	Displays list of user-selected programs.
Previous	F9 or Up Arrow	Ctrl+K	Retrieves previous record in a key data field and scrolls up in look-up browses.
Next	F10 or Down Arrow	Ctrl+J	Retrieves next record in a key data field and scrolls down in look-up browses.
Enter	Enter		Moves to next field within a frame.
Tab	Tab		Moves to next field within a frame.
Back Tab	Shift+Tab	Ctrl+U	Moves back one field within a frame.
Menu Bar (object)	Esc, M		Accesses the menu bar.
Save (object)	F12		In a key frame, moves to data entry; in data entry, saves and returns to key frame.
Print (object)	Ctrl+P		Prints browse or maintenance information.

Help Commands	Keyboard Entry	Control Key Entry	Description
Field Help	F2	Ctrl+W	Opens help on current field.
Procedure Help	F2	Ctrl+W	Opens help on current program.
Look-Up Browse	F2	Ctrl+W	Displays choice of records.
Browse Options	F7		Opens the browse options window.
Browse Options Toggle	Alt+F		Turns the browse options on and off.
Field Name	Ctrl+F	Ctrl+F	Displays the field name.

Edit Commands	Keyboard Entry	Control Key Entry	Description
Insert	F3	Ctrl+T	Enables text insertion.
Delete Record	F5	Ctrl+D	Deletes an open record.
Recall (standard)	F7	Ctrl+R	Recalls last saved value in a field.
Cut	F8		Clears a field.
Copy	F11	Ctrl+B	Copies a field.
Paste	F11	Ctrl+B	Inserts value that you copied.
Multiple Copy (standard)	F12	Ctrl+A	Copies values from one or more fields and pastes them into the same fields of another record.
Clear Date	Shift+?		Clears the value in date fields.

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 **8**

Customer Schedules **12**

Supplier Schedules **13**

Electronic Data Interchange (EDI) **14**

Routing Maintenance (Main Screen)

Routing Code:	10-15000	NONAD (75) CDR (10)
Operation:	20	
Standard Operation:	1030	INSPECTION, ALL SITE
Work Center:	Machine	
Description:	INSPEC PER PROX-000	
Machines per Op:	1	Allocation:
Overlap Units:	1	
Queue Time:	1.0	
Wait Time:	0.0	
Setup Time:	0.0	

Route by Production Route

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.

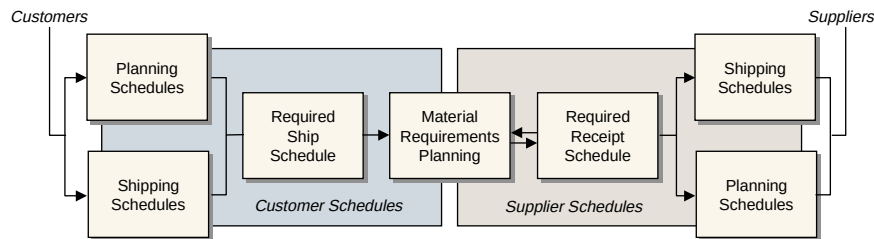


Fig. 1.1
Release
Management Flow

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.

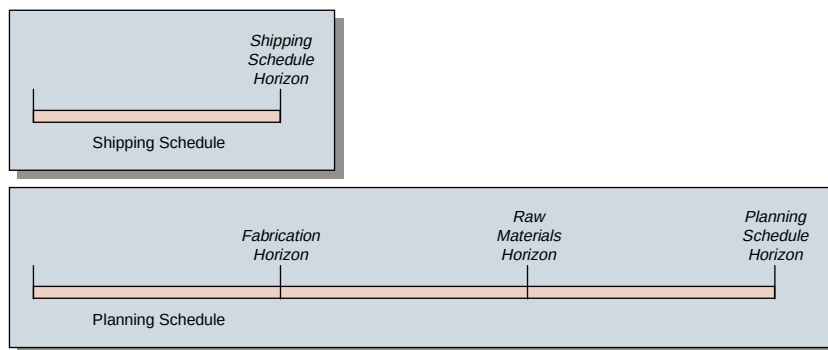


Fig. 1.3
Schedule Overlaps

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.

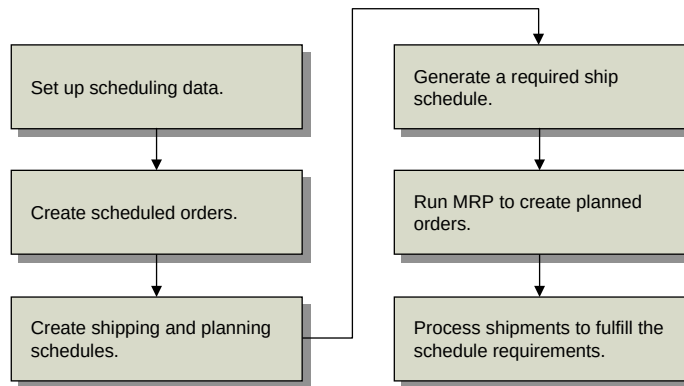
Customer Schedules

See Chapter 2, “Customer Schedules,” on page 19.

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.

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).

MFG/PRO 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.

Supplier Schedules

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.

♦ See Chapter 3, “Supplier Schedules,” on page 59 for more information.

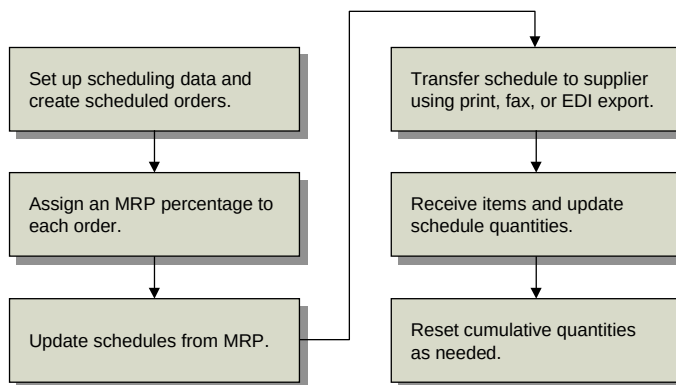


Fig. 1.5
Supplier Schedule
Task Flow

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.

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 via EDI using gateway programs and EDI-enabling software. 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.

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).

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

For supplier schedules, EDI export programs are used to export the schedule in a flat file format, which is then transmitted via EDI and imported by the supplier.

Each customer has their own EDI requirements that are handled by the EDI-enabling software, but only the information required by MFG/PRO is passed through the gateway programs.

Many customers require that an advance shipping notice (ASN) be communicated when a shipment is made. MFG/PRO fulfills this requirement by passing the ASN information from the shipment confirm transaction directly to a holding file. Use EDI export programs to pull the

ASN information from the database file and send it 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 pull that information through the gateway programs using EDI-enabling software. 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.

MFG/PRO supports two kinds of EDI systems:

- Traditional EDI, which may require customization at the program level to ensure proper mapping of data elements.
- ECommerce Gateway, which is globally deployable and provides EDI for MFG/PRO with reduced installation and support requirements. 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 Chapter 4 for details.

▶ See Chapter 5 for details.

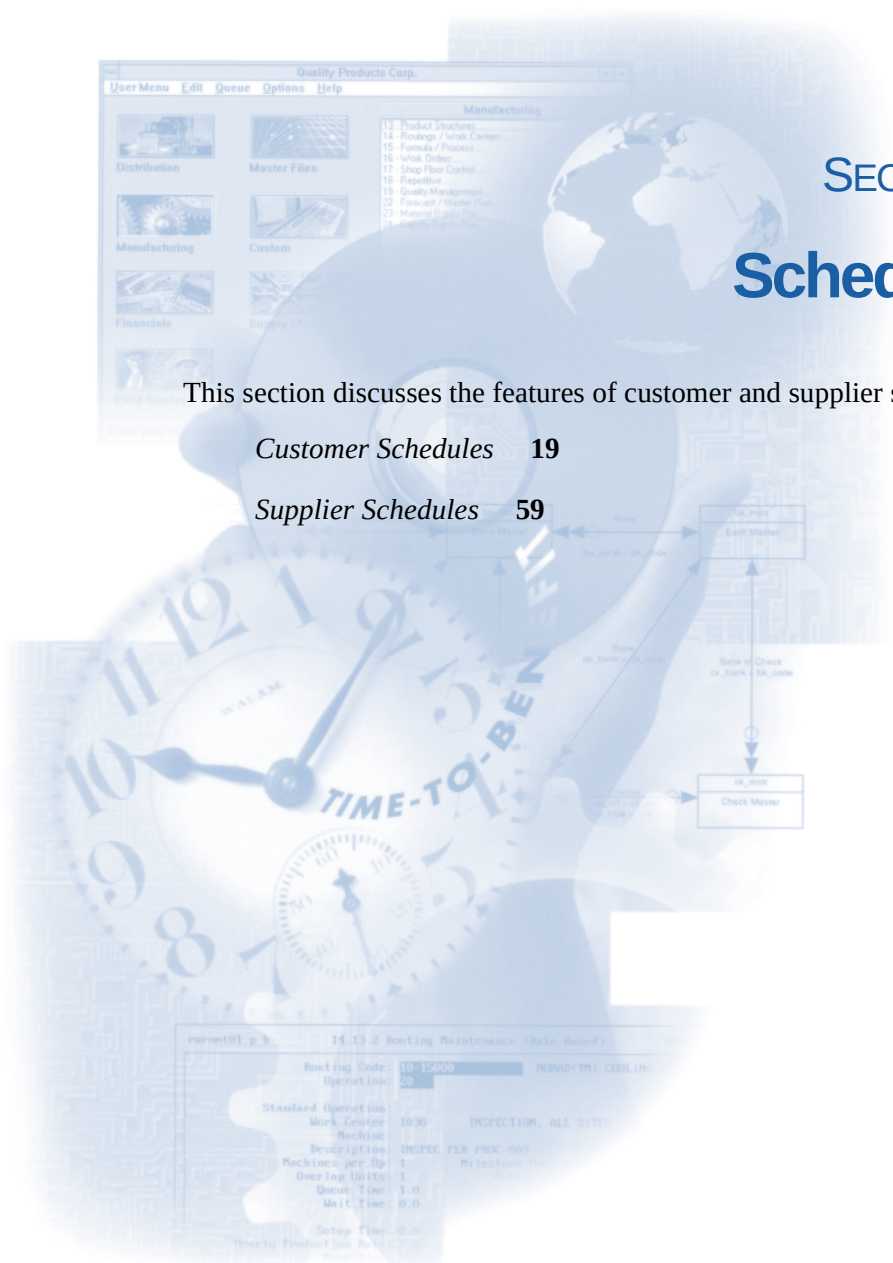
SECTION 1

Schedules

This section discusses the features of customer and supplier schedules.

Customer Schedules **19**

Supplier Schedules **59**



Routing Maintenance (Date Based)

Routing Code:	10-15000	NONAD(75) COOLING
Operation:	20	
Standard Operation		
Work Center	1030	INSPECTION, ALL SITES
Machine		
Description	INSPEC PER PROC-005	
Machines per Op	1	Milestone P
Overlap Units	1	
Queue Time	1.0	
Wait Time	0.0	
Setup Time	0.0	

Route by Production Route

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 **20**

Creating Scheduled Orders **31**

Processing Customer Schedules **37**

Running MRP **46**

Processing Shipments **46**

Resetting Cumulative Quantities **54**

Adjusting Prices with Retrobills **55**

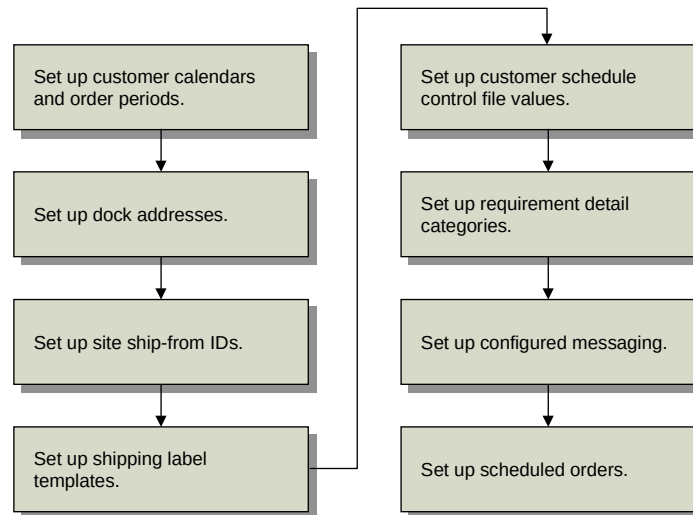
The screenshot displays a 'Routing Maintenance' window for '14-13.2 Routing Maintenance (Main Screen)'. It shows details for 'Routing Code: 10-15000' and 'Operation: 20'. The 'Standard Operation' is '10:30' and the 'Work Center' is 'INSPECTION, ALL SITE'. The 'Description' is 'INSPEC PER PROC-999'. Other fields include 'Machines per Op: 1', 'Overlap Units: 1', 'Queue Time: 1.0', 'Wait Time: 0.0', and 'Setup Time: 0.0'. The 'Released by' field is 'Production Support'.

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:

- If you use a noncumulative accounting procedure for release management, you also need to set up categories to use for requirement detail pegging.
- If you want to add special checks to verify shipper structure or modify how the system verifies authorization numbers, use Configured Message Maintenance 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
- Site and ship-from ID cross-references
- 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, MFG/PRO 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. The dock address supersedes a ship-to address on orders using the dock address.

♦ See “Processing Shipments” on page 46 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 SO Shipper Maintenance (7.9.8) during shipment processing. Tax calculations use the ship-to site address.

Site Ship-from IDs

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.

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 (7.6.5.8). The supplier EDI identification is used by the Document Import function (35.13) to identify the ship-from site. The EDI export functions also use it for ship-from site identification to the customer or ship-to.

Note Site Ship-from ID Maintenance is also located on the EDI menu as option 35.2.

Shipping Labels

Shipping labels are bar code 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 sub-containers. The labels enable shipments to be received with bar code 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 bar code reading equipment used by your customers, and to your industry.

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

In addition to creating template files, you must have a bar code-capable printer. You may need to add printer-control codes to MFG/PRO 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 bar code template design software that you choose.

♦ See *User Guide Volume 11: Manager Functions* for details.

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 bar code 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	SO 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 MFG/PRO 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.

Setting Up Control File Values

The Customer Schedules Control File (7.3.24) contains the same fields as the Container/Shipper Control File (7.9.24). Changes to the one automatically update the other.

▶ See *User Guide Volume 2: 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 (NMR) 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 file.

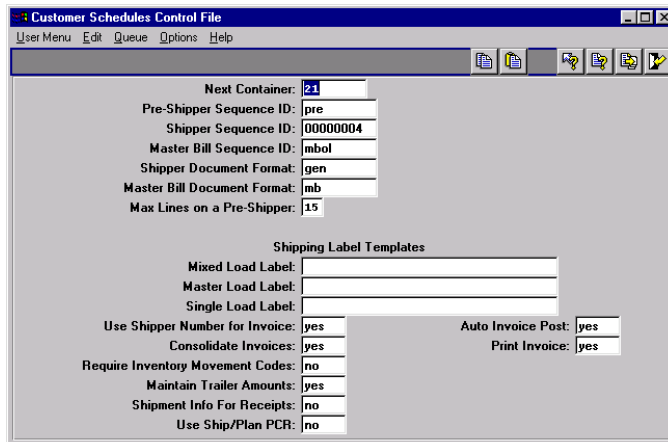


Fig. 2.2
Customer
Schedules Control
File (7.3.24)

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

▶ See *User Guide Volume 2: 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 bar code 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 42.

When Required Ship Schedule Update (7.6.3.5) 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.

♦ See “Modifying User-Edited Programs” on page 84.

If you load schedules using EDI, a user-modifiable program determines the types of categories created. If you require packaging information and authorization numbers, then a category for each should be created. During schedule import, the user-modified program reads the flat file, seeks out the requirement information, and places it in a work file. The schedule loader uses records in the work file to create requirement detail records.

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

Five sample shipper verification programs are supplied with MFG/PRO (see Table 2.2), 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
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.

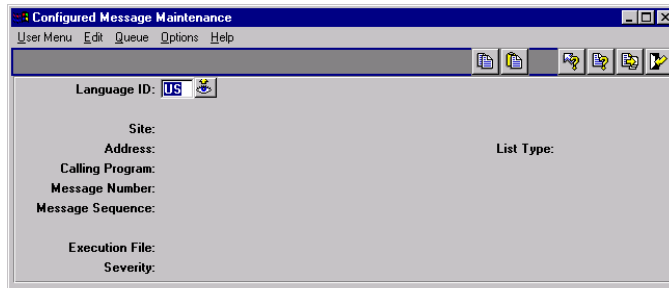


Fig. 2.4
Configured
Message
Maintenance
(36.4.6)

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 28 for a list of sample programs.

Execution File. Enter the appropriate verification program. This may be one of the 5 sample programs supplied with MFG/PRO, or a custom, user-defined program.

Severity Level. Enter a number between 1 and 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 2:
Distribution.

The screenshot shows the 'Scheduled Order Maintenance' window with the following fields:

- Ship-From: 10000
- Ship-To: 10010001
- Order: 1
- WESTWOOD HALLMARK
- Order Data:
 - AR Account: 1200
 - Taxable: no
 - Week Offset: 0
 - Cumulative: no
 - Consignment: no
 - Bill-To: 10010001
 - Auto Inv Post: yes
 - Imp/Exp: no
 - Dynamic UnPeg: no
 - Entered By: hme
 - Ship Via: CONSOLIDATED
 - FDB Point:
 - Transport Days: 0.00
 - Print Inv Hist: yes
 - EDI Inv Hist: no
 - Print Pack List: yes
 - Comments: no
 - AR Site: 10000
 - Channel:
 - Ship to Cum/Req: Req
 - Currency: USD

Use these two fields to control noncumulative schedules.

Fig. 2.5
Scheduled Order
Maintenance
(7.3.13)

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.

- If Yes, all quantities are entered as cumulative, meaning that the discrete quantity is added to the cumulative quantity of the previous requirement.
- If No, net quantities are entered.

Auto Inv Post. If No, the invoice is printed and posted in separate steps after shipment. You can also print the invoice directly from Pre-Shipper/Shipper Confirm (7.9.5), then post it later.

If Yes, an invoice is automatically posted to the general ledger AR account specified in Customer Maintenance (2.1.1) during shipper confirmation. You can print accumulated invoices using Closed Invoice Reprint (7.13.12).

The value of this field defaults from the Customer Schedules Control File (7.3.24).

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 function uses this to set shipment dates.

Shipment Date = Requirement Date – Transport Days

Print Invoice History. Defaults from the Print Inv Hist value set in Trading Partner Parameters Maintenance (35.1).

If Yes, you can print an invoice history 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. Defaults from the EDI Inv Hist value set in Trading Partner Parameters Maintenance (35.1). If Yes, you can use Invoice Export (35.8) to transmit invoices for this scheduled order to the customer.

See “Setting Up Trading Partner Parameters” on page 87.

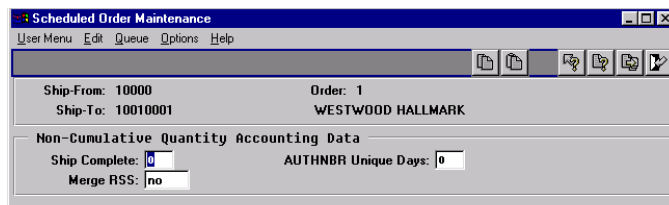
AR Site. Enter the site where the sales order or invoice was recorded. This can be the same as the ship-from site, but does not have to be. You can change this site for each line item.

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 to indicate a noncumulative schedule. If Req, an additional frame displays.

Non-Cumulative Quantity Accounting Data Frame

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



The screenshot shows a window titled "Scheduled Order Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is divided into sections. The top section contains "Ship-From: 10000" and "Order: 1", and "Ship-To: 10010001" and "WESTWOOD HALLMARK". Below this is a section titled "Non-Cumulative Quantity Accounting Data" which contains "Ship Complete: 100" and "AUTHNBR Unique Days: 0". At the bottom, there is a "Merge RSS:" label followed by a dropdown menu set to "no".

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, then 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.

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

Merge RSS. This field affects the generation of required ship schedules. If Yes, new schedule requirements, along with open requirements in the active RSS, are moved to the new active RSS. During the merge, the value of Ship Complete determines which requirements are open.

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.

Order Line Item Data Frame

The following frame always displays.

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

Scheduled Order Maintenance			
User Menu Edit Queue Options Help			
Ship-From: 10000		Order: 1	
Ship-To: 10010001		WESTWOOD HALLMARK	
Item: 44-100		CONTROL UNIT, HOME I	
PO Number:		UM: EA	Line: 1
Order Line Item Data			
Req Sched Days: 0	Dock:	Plan SDP Code:	
Req Sched Weeks: 0	Start Effective: / /	Plan SDT Code:	
Req Sched Months: 0	End Effective: / /	Ship SDP Code:	
Fab Auth Days: 0	Max Order Qty: 0.0	Ship SDT Code:	
Raw Auth Days: 0	Std Pack Qty: 1	Netting Logic:	
Customer Item:		Cum Start: 07/02/98	
Container Item:	Alternates: no	Comments: no	

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 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.

Customer Item. The item number used by the customer. This appears on ASNs and invoices in place of your internal item number.

Tip
Set up item cross-references in Customer Item Maintenance (1.16).

Container Item. Optional container item number, used for shipping the scheduled order item. The Required Ship Schedule Detail Report (7.5.14) displays 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. 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 from the item master file.

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 MFG/PRO 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.

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 in the header. Based on the purpose code, schedules can be added, deleted, or simply loaded as a test without making any updates.

▶ See “Managing Purpose Codes” on page 80.

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 through EDI.
- 2 Enter the release into the system or verify the schedule received through EDI.
- 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

EDI processing is discussed in detail in Chapter 4. All EDI documents are imported using the same Document Import (35.13). When a new schedule is being imported, it is processed based on the purpose code: add, delete, or test.

▶ See “Importing EDI Documents” on page 96.

Note ECommerce also offers support for importing planning schedules.

▶ See “ECommerce Gateway” on page 111.

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 in MFG/PRO.
- Determines if quantities are discrete or cumulative based on the EDI indicator.
- 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, 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 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.

The screenshot shows a window titled "Customer Plan Schedule Maint" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains the following fields:

Ship-From: 10000	Order: 1	Line: 1
Ship-To: 10010001	WESTWOOD HALLMARK	
Item: 44-100	CONTROL UNIT, HOME I	UM: EA
PO Number:		
Release ID: 00000001		

Comments: no	Create Date: 07/08/98 17:53:25
SDP Code: 01	Cumulative: yes
SDT Code:	
Int Purpose Code: ADD	Schedule Date Type: Delivery
Ext Purpose Code:	Active Start: 07/08/98
Prior Cum Req: 100.0	Active End: / /
Prior Cum Date: 06/07/98	

Fig. 2.8
Customer Plan
Schedule
Maintenance
(7.5.1)

Release ID. 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.

SDP Code. Ship/delivery pattern that the customer used in creating this release. Your order header takes precedence over the customer's SDP code.

Int and Ext Purpose Code. The internal purpose code is derived from the EDI document. If an external purpose code is associated with it in Purpose Code Maintenance (35.3), it also displays.

See "Managing Purpose Codes" on page 80 for details.

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.

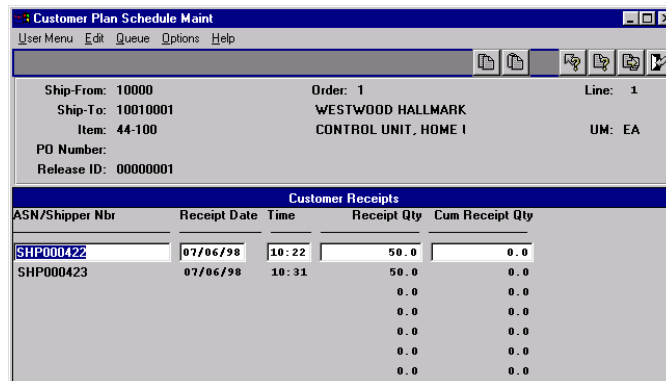
- Delivery. Schedule dates are delivery based. Requirement dates are adjusted by the number of days specified for Transport Days in Scheduled Order Maintenance.

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

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. 2.9
Customer Receipts
Frame



The screenshot shows a window titled "Customer Plan Schedule Maint" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays order information: Ship-From: 10000, Ship-To: 10010001, Item: 44-100, PD Number, Release ID: 00000001, Order: 1, Line: 1, WESTWOOD HALLMARK, CONTROL UNIT, HOME I, and UM: EA. Below this is a table titled "Customer Receipts" with columns: ASN/Shipper Nbr, Receipt Date, Time, Receipt Qty, and Cum Receipt Qty. The table lists two receipts: SHP000422 (07/06/98, 10:22, 50.0, 0.0) and SHP000423 (07/06/98, 10:31, 50.0, 0.0). The cumulative receipt quantity for SHP000423 is 0.0.

ASN/Shipper Nbr	Receipt Date	Time	Receipt Qty	Cum Receipt Qty
SHP000422	07/06/98	10:22	50.0	0.0
SHP000423	07/06/98	10:31	50.0	0.0
			0.0	0.0
			0.0	0.0
			0.0	0.0
			0.0	0.0
			0.0	0.0

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.

Date	Time	Int	Reference	Quantity	Q	Cmt	Rqm Det
06/21/98	08:44	M	ADG-115-1157	100.0	F	no	yes
07/01/98	08:44	M	ADG-115-1157	100.0	F	no	no
07/08/98	08:44	M	ADG-115-1157	100.0	F	no	no

Fig. 2.10
Schedule Detail
Data Frame

Interval. Indicates 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. A reference number 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 2.11 illustrates the Requirement Detail Maintenance frame. This frame displays when Rqm Det is Yes in the Schedule Detail Data frame.

Fig. 2.11
Requirement Detail
Maintenance Frame

The screenshot shows a window titled "Customer Plan Schedule Maint" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays order information: Ship-From: 10000, Order: 1, Line: 1; Ship-To: 10010001, WESTWOOD HALLMARK; Item: 44-100, CONTROL UNIT, HOME I; PO Number: ; UM: EA; Release ID: 00000001. Below this is a section titled "Requirement Detail Maintenance" with a table:

Category	Value
AUTHNBR	299998---

Specify a valid category previously defined in Generalized Codes Maintenance, 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** or **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.

The screenshot shows a software window titled "Customer Plan Schedule Maint". It has a menu bar with "User Menu", "Edit", "Queue", "Options", and "Help". Below the menu bar is a toolbar with several icons. The main area of the window is divided into two sections. The top section contains shipping and order information: "Ship-From: 10000", "Ship-To: 10010001", "Item: 44-100", "PO Number:", "Release ID: 00000001", "Order: 1", "WESTWOOD HALLMARK", "CONTROL UNIT, HOME 1", "Line: 1", and "UM: EA". The bottom section is titled "Resource Authorization Data" and contains two columns of data. The first column has "Fab Qty: 20.0" and "Raw Qty: 50.0". The second column has "Fab Start: 07/02/98", "Raw Start: 07/02/98", "Fab End: / /", and "Raw End: / /".

Fig. 2.12
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.

◆ See “Netting Logic” on page 36.

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

- 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. In MFG/PRO, 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.

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 and the external and internal purpose codes received through loading EDI schedules.

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

Running MRP

▶ See *User Guide
Volume 3:
Manufacturing*.

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

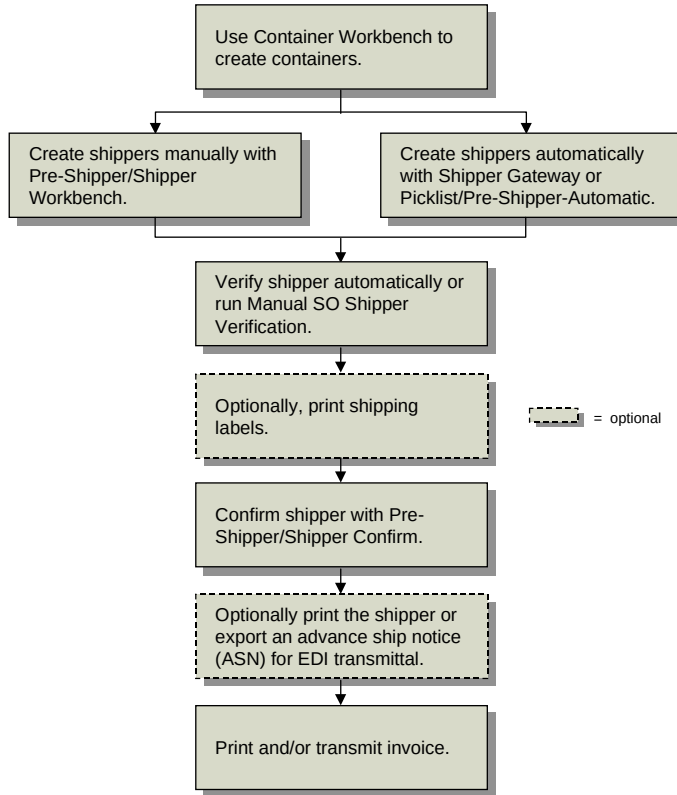
Processing Shipments

Use SO 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. 2.13
Scheduled Order
Shipping Flow



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

- 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 SO Shipper Maintenance (7.9.8).

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/or items, the quantities for each, then add any lot/serial detail information. You are also prompted for carrier details

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

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

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 for 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 flag in Pre-Shipper/Shipper Confirm (7.9.5) must be No.

◆ See “Pegging Requirement Detail” on page 51.

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

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.

◆ See “Setting Up Configured Messages” on page 26 for details.

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 to reverify the structure of the shipper.

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 bar code escape codes and developed template files.

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

◆ See “Consuming Requirements” on page 53.

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

Confirmation decrements finished goods inventory, updates GL accounts, and increases the cumulative shipped quantity. It also performs the first step in invoicing, based on the setting of Auto Invoice Post from the scheduled order header.

- If Auto Invoice Post is No, the normal invoicing process is followed. Shipper confirmation makes the invoice available to Invoice Print. You must manually print and post the invoice.
- If Auto Invoice Post is Yes, confirmation automatically posts the invoice to the customer's AR account. The Shipper ID/ASN number is used as the invoice number. Invoices are printed using Closed Invoice Reprint (7.13.12).

You can print an invoice even though it has not been posted. If printing and posting are not simultaneous, posting information can be consolidated and therefore not match the invoice.

You can print formal registered fiscal shipping documents, such as a Nota Fiscal, by specifying the appropriate form code (11).

The effective date in Pre-Shipper/Shipper Confirm can be used to place the shipment into a specific open GL accounting period. This might be used after a period ends without all shipments from that period having been fully processed.

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

- 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.

Tip
Use 7.9.4 to include authorization numbers on the printed shipper.

- 6 Optionally, transmit the ASN using ASN Export (35.5).

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:

- Purchases 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 EDI ASNs flag in Trading Partner Parameters Maintenance (35.1).

Tip
Authorization numbers are included on the printed invoice.

- 7 Print and/or transmit the invoice using either Closed Invoice Reprint (7.13.12), Invoice Print (7.13.3), and/or Invoice Export (35.8).

Invoicing is controlled both at the customer level and the order level. The Print Inv Hist flag in Trading Partners Parameters Maintenance controls whether invoices are printed. If they are neither printed nor transmitted, a customer pays against ASNs. The EDI Inv Hist controls whether invoices are sent via EDI.

When printed invoices are permitted and the order is set for auto-invoicing, the shipper confirmation creates an invoice using the shipper ID number, and then closes the invoice. This is equivalent to the standard print and post. 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 SO 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 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 can occur manually in Pre-Shipper/Shipper Workbench (7.9.2) or automatically using Shipper Gateway (7.9.22) or Picklist/Pre-Shipper–Automatic (7.9.1).

Shipper Gateway

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

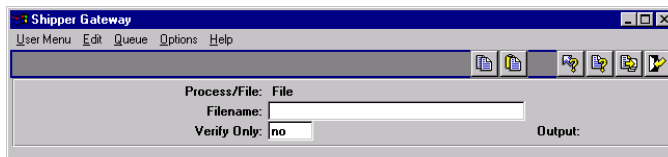


Fig. 2.14
Shipper Gateway
(7.9.22)

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.

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.

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.

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. 2.15
Pre-Shipper/
Shipper Workbench
(7.9.2), Consume
Req Field

Level	Order	Ln	Item Number	Quantity	UM	Container
0	Shipper: 10000/SHIP0000 Ship-To: 10010001 WESTWOOD HALLMARK					
.1	1	1	44-100	1.0	EA	

Sales Order: 1 Line: 1 Site: 10000 Loc: 12000
 Quantity: 1.0 UM: EA Lot/Serial: 53
 Qty Picked: 0.0 Ref: Type:
 Net Weight: 10.0 KG Consume Req: yes Description: CONTROL UNIT, HOW
 Gross Weight: 10.0 KG
 Volume: 200.0 CC
 Purchase Order: Comments: no

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.

Fig. 2.16
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 33.

See “Dynamic UnPeg” on page 32.

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. If Auto Invoice is Yes in Scheduled Order Maintenance (7.3.13), 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 password controlled.

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 the transaction history file.

Resetting Cumulative Quantities

Use Cum Shipped Reset to Zero (7.5.18) to reset the cumulative totals for scheduled orders and generate a report listing the updated orders. You can reset one or a range of scheduled orders. The scheduled order is selected by using ship-from, sold-to, ship-to, dock, item number, and PO number.

Fig. 2.17
Cum Shipped Reset
to Zero (7.5.18)

Cum Shipped Reset to Zero

User Menu Edit Queue Options Help

Ship-From: To:

Sold-To: To:

Ship-To: To:

Dock: To:

Item Number: To:

PO Number: To:

Order: To:

Update:

Cum Shipped Start Date:

Remarks:

Sort Option:

1 - By Ship-From, Customer, Ship-to, Order, Dock, Item, PO

2 - By Ship-From, Item, Customer, Ship-to, Order, Dock, PO

Output:

Batch ID:

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 scheduled order's current cumulative start date specified in Scheduled Order Maintenance (7.3.13).

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 flag 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.

The screenshot shows a window titled "Retrobill Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area is divided into two sections. The top section contains the following fields: Sold-To: 10010001, WESTWOOD HALLMARK; Amendment Number: 87900-3989; As-of Date: 07/07/98; Reason Code: 01; Memo Per Item: no; Comments: no. The bottom section contains: Ship-From: 10000, Order: 1, Line: 1; Ship-To: 10010001, WESTWOOD HALLMARK; Item: 44-100, UM: EA; PO Number: (empty). At the bottom, there are date fields: From Ship Date: / / (with a calendar icon), To Ship Date: / / (with a calendar icon), Memo Invoice: (empty), and pricing fields: Price/Change: Price (selected), Amount: 0.00.

Fig. 2.18
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, and line item number are used to select the scheduled order and line item being changed by the retrobill. All fields are required. 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).

- If Price, the amount entered in the Amount field replaces the current price.
- If Change, the amount is applied to the current price. To reduce an existing price, enter a negative amount.

Amount. 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 flag 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 **60**

Setting Up Supplier Schedules **61**

Processing Supplier Schedules **66**

Receiving Scheduled Orders **70**



Routing Maintenance (Main Screen)

Routing Code:	10-15000	NONAD (75) CDR IN
Operation:	20	
Standard Operation		
Work Center	1030	INSPECTION, ALL SITE
Machine		
Description	INSPEC PER PROX-005	
Machines per Op	1	Milestone
Overlap Units	1	
Queue Time	1.0	
Wait Time	0.0	
Setup Time	0.0	

Route by Production Route

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 has two parts.

- 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

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 2: Distribution* for a discussion of Purchasing.

The Supplier Schedules Menu (5.5) is located as a submodule 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
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, you can define them as nonoperating days in Supplier Calendar Maintenance (5.5.1.1). These nonoperating days are used when the supplier schedule is calculated. If you do not set up a supplier calendar, MFG/PRO uses your calendar.

Scheduled Order Maintenance

Set up supplier schedules in Scheduled Order Maintenance (5.5.1.13). You must define several parameters that MFG/PRO 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.

Once you enter a purchase order and supplier, there are five frames. The first contains shipping and credit information for the whole order. The next four contain line item information such as item and ship to, line item details, schedule details, and optional comments.

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

See “Setting Up Trading Partner Parameters” on page 87.

Schedules can be printed, transmitted via EDI, or faxed, depending on your selection. If you use EDI, these fields default from the values set for the supplier in EDI Trading Partner Parameters Maint (35.1).

Fig. 3.2
Scheduled Order
Maintenance
(5.5.1.13)

Next you specify the item to be ordered and the site to receive the purchased item. Unique line numbers enable you to enter more than one schedule line for the same item, if needed.

Fig. 3.3
Order Line Item
Data, First Frame

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

Define price lists for scheduled purchase orders with Price List Maintenance (1.10.2.1). The price from the list displays in the Purchase Cost field. Effective prices can be updated in Confirm Shipper and PO Receipts. Set Update Current Cost to Yes to update current cost for inventory items at PO receipt.

The line item type determines whether the item is received into inventory and considered by planning.

- If type is blank, the 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.

Scheduled Order Maintenance

User Menu Edit Queue Options Help

Purchase Order: 1000 Supplier: 5001000 METAL SUPPLY COMPANY

Item: 44-100 Ship-To Site: 10000 Line: 1

Order Line Item Data	
Firm Days: 20	Ship/Dlv Pattern: 01
Schedule Days: 0	Max Order Qty: 0.0
Schedule Weeks: 2	Std Pack Qty: 1
Schedule Months: 0	Cum Start: 07/09/98
Fab Auth Days: 10	Comments: no
Raw Auth Days: 20	Start Effective: / /
Transport Days: 0.00	End Effective: / /
Safety Days: 0.00	
Supplier Item: AT-2999	

Fig. 3.4
Order Line Item
Data, Second
Frame

Firm Days. Number of days inside the schedule update time fence for scheduled release calculations. Quantities and dates with 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.

This field does not affect MRP's use of the Time Fence in the item master. Firm Days controls order releases by date and quantity. The item master Time Fence field controls planned orders by date and quantity.

Schedule Days. 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.

Schedule Weeks. Number of weekly bucketed quantities to appear on printed or transmitted releases and on reports and inquiries following

See "Effect of Firm Days" on page 66 for more details.

See "Schedule Bucketing" on page 69 for details.

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, MFG/PRO stores all requirements by discrete dates and quantities.

Schedule Months. 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.

These fields are used by Schedule Update from MRP to calculate the authorization quantities. The update uses this value only if scheduled requirements extend beyond this number of days. Otherwise, the authorization horizon equals the scheduled 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.

The schedule update uses this value to set the shipment dates from the 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. If a positive number is entered, the system uses shipment dates.

Std Pack Qty. The multiple in which orders for this item are shipped. Similar to Order Multiple in the item master, but appears here because

the standard shipment multiple can be different for different suppliers. The schedule update rounds order quantities up to this multiple.

Any order multiple in the item master for scheduled order items should probably be removed, since both will be applied to this order during different planning functions (MRP and schedule update) in MFG/PRO.

Cum Start. 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 MFG/PRO. Cumulative start dates are the first day of the scheduled order.

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 the Purchasing Control File (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, 1999 would have the release ID 19991019-001.

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

You can run this function for any item, supplier, scheduled order, receiving site, or buyer. The item quantities and dates reflect your own planning, derived from MRP-planned purchase orders, then recalculated during schedule update using the scheduled order header data, the supplier calendar, and the MRP percentage allocations.

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

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 requirements. 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.

A zero setting in Firm Days avoids rescheduling problems due to fluctuations in short-term MRP data, since firm requirements are not created or carried forward from one release to the next. Prior Cum Required is set to Prior Cum Received. This means that each release consists of fresh MRP planned-order data. 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.

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

▶ See “Defining Release ID Format” on page 65.

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)
- Schedule Print in Fax Format (5.5.3.9)
- Supplier Schedule Export (35.18)

Define defaults for each supplier in Trading Partners Parameters Maintenance (35.1). These can be modified if necessary in the scheduled order header. You can set either one or both fields to Yes. In some EDI environments, both flags are set to Yes to allow transmission to the customer and the printing of file copies.

▶ See “Setting Up Trading Partner Parameters” on page 87.

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.

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.

Schedule Bucketing

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

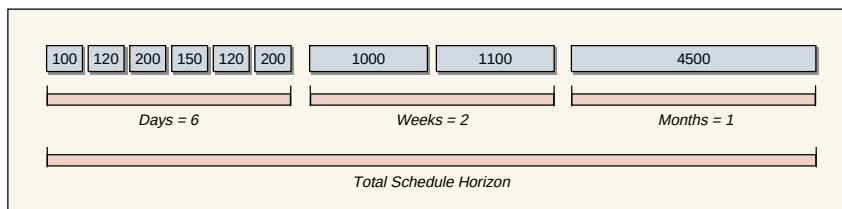


Fig. 3.5
Schedule Bucketing

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 Shipping Notice (ASN). This is an ANSI ASC X12 856 document, defined by an ASN number. Transmitted when a shipment leaves the supplier's shipping dock, an ASN provides you with advance notice of items to be received. This document can represent multiple items over multiple orders.

Receiving Document. A printed packing list accompanying the shipment, recording quantities and items, identified by a Shipper ID.

Shipment Labels. Bar code labels affixed to each shipment container and container group. All items, including container items, explode into inventory during bar code reader receiving.

▶ See “PO Container Maintenance” on page 73.

Invoices. A 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.
- 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 bar code 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 bar code 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 the Purchasing Control File (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 bar code 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.

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.

Tip

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

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 password controlled. 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.

SECTION 2

Traditional EDI

This section discusses the how to use traditional EDI functions.

Electronic Data Interchange 77

A screenshot of a routing maintenance screen. The title is "14.13.2 Routing Maintenance (Main Screen)". The screen displays the following information:

Routing Code	Operation	Standard Operation	Work Center	Description	Machines per Op	Overlap Units	Queue Time	Wait Time	Setup Time
10-15000	20	10.00	INSPEC	INSPEC PER PROC-000	1	1	1.0	0.0	0.0

Routing Code: 10-15000
Operation: 20
Standard Operation: 10.00
Work Center: INSPEC
Description: INSPC PER PROC-000
Machines per Op: 1
Overlap Units: 1
Queue Time: 1.0
Wait Time: 0.0
Setup Time: 0.0

Electronic Data Interchange

Electronic Data Interchange (EDI) supports the import and export of standard business transaction documents between customers and suppliers using E-mail or modem. This chapter explains how to use EDI in MFG/PRO.

Introduction **78**

Setting Up Base Data **79**

Configuring the EDI Control File **79**

Managing Purpose Codes **80**

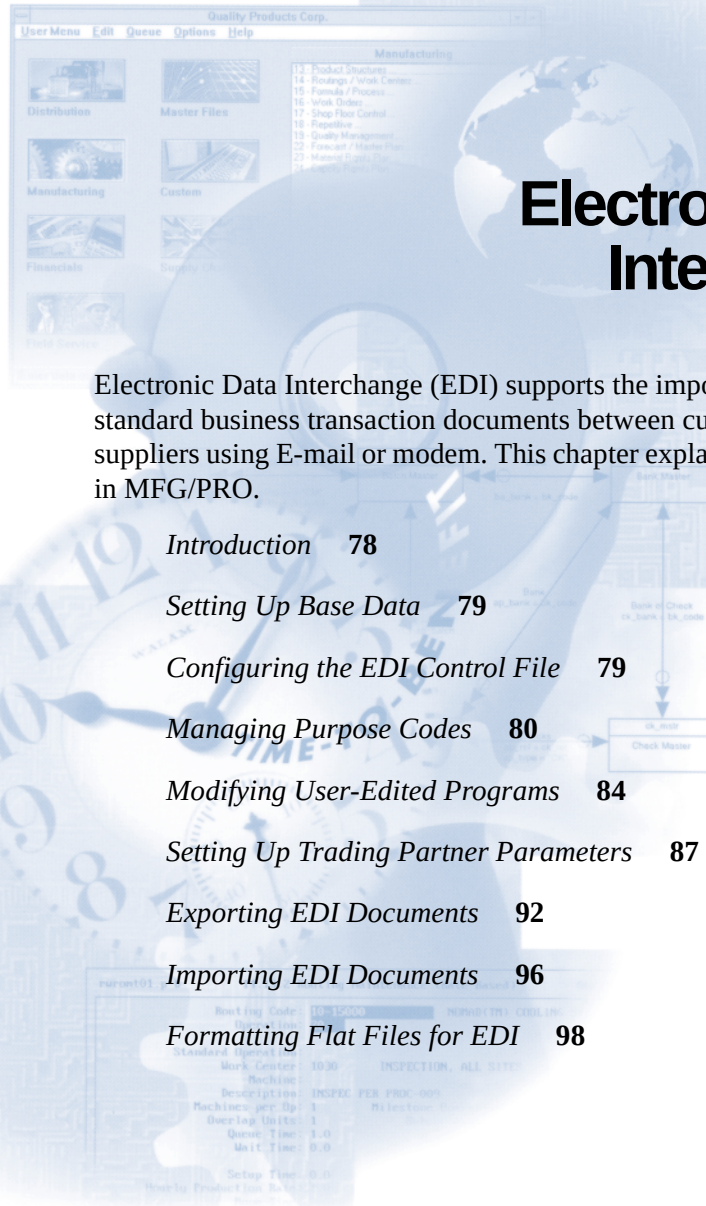
Modifying User-Edited Programs **84**

Setting Up Trading Partner Parameters **87**

Exporting EDI Documents **92**

Importing EDI Documents **96**

Formatting Flat Files for EDI **98**



Introduction

Electronic Data Interchange (EDI) is an international protocol for electronically transmitting documents such as purchase orders, supplier schedules, sales orders, customer schedules, invoices, and advance ship notices (ASNs).

Several standards have been written, and each standard has been revised to several levels. Industry groups in different countries have tailored EDI standards to their needs. Various industries—automotive, consumer products, electronics—have also tailored EDI standards.

In addition, trading partners typically edit a standard and level of EDI to meet individual needs. This means that any single manufacturer who has an EDI relationship with multiple suppliers and customers may need to use multiple EDI protocols.

Example A manufacturer who communicates through EDI with two customers and three suppliers could require a total of six EDI standards and levels—their own and one for each trading partner.

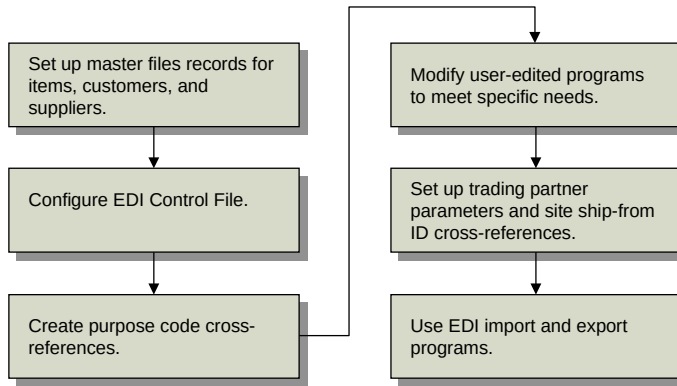
EDI uses E-mail systems, from corporate-level host servers to value-added networks, to address documents to trading partners.

◆ See *User Guide Volume 2: Distribution* for details on EMT.

Within MFG/PRO, EDI is commonly used with customer and supplier schedules. It is also used with enterprise material transfer (EMT). The functions on the EMT Menu (35.22) are discussed with other EMT functions.

Figure 4.1 summarizes the tasks required to set up and use EDI.

Fig. 4.1
EDI Task Flow



Setting Up Base Data

EDI processes assume the existence of base data, such as:

- Customer addresses, set up in Customer Maintenance (2.1.1).
- Item information, set up in Item Master Maintenance (1.4.1).
- Customer item cross-references, set up in Customer Item Maintenance (1.16). Document Import recognizes the customer item number on the imported document and converts it to your internal item number.

Configuring the EDI Control File

Use the EDI Control File (35.24) to set default values for EDI processing.

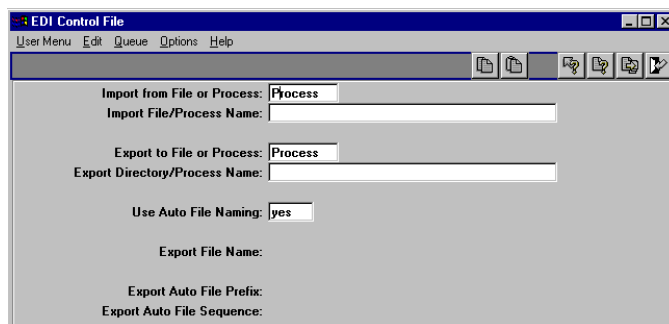


Fig. 4.2
EDI Control File
(35.24)

Import from File or Process, Import File/Process Name. Enter File to have the system find and read the file you define in Import File/Process Name. If you enter Process, the system looks for an executable program or script that you define in Import File/Process Name and starts it as a separate process.

Export to File or Process, Export Directory/Process Name. Enter File to have the system look for and write to the file you define in Export Directory/Process Name. If you enter Process, the system looks for an executable program or script that you define in the Export Directory/Process Name and starts it as a separate process.

Use Auto File Naming. Set to Yes to enable the system to automatically select the naming conventions for your export files. If you do not enter a file name, the system generates one based on the settings in Export Auto File Prefix and Sequence and exports the data to the export directory with the generated file name.

Export File Name. Enter a file name if you do not want the system to automatically generate an export file name.

Export Auto File Prefix, Sequence. Enter an optional prefix and sequence number. When Use Auto File Naming is Yes, the system uses these values to generate an export file name.

Managing Purpose Codes

The two-character purpose code in an EDI schedule indicates how a document should be processed. EDI processing requirements vary greatly among trading partners. Interpretation of the purpose code during schedule import ensures the document is processed as intended by the trading partner.

In MFG/PRO, you can associate purpose codes with a program to be executed. Use Purpose Code Maintenance (35.3) to define and maintain purpose code cross-references. These associate an external purpose code with the program used to process the EDI transaction and load it into the database.

You can use standard programs provided with MFG/PRO or custom programs you design to accommodate specific trading partner

requirements. This ensures that the EDI interface is flexible and easily extended.

Key Value Combinations

Cross-references can be created based on one or more of the following conditions:

- The site code, defined in Site Maintenance (1.1.13).
- The customer or ship-to code, defined in Customer Maintenance (2.1.1) or Customer Ship-to Maintenance (2.1.13).
- The version of the EDI standard.
- The EDI transaction type such as 830 or 862.
- Whether the transaction is inbound or outbound.
- The purpose code contained in the document.

Tip
Only inbound is currently supported.

Using the combination of key fields, you can create cross-references that are very general or specific. For example, you can create cross-references that specify which sites or customers are handled in a certain manner, or more specifically, how ship-to addresses for a customer are handled.

A very general cross-reference can be defined based on an external purpose code only. When schedules are imported for any site, customer, or transaction set with a matching purpose code, the schedule processing program you specify is executed.

Tip
You should create a general entry to be used as a default when specific entries do not exist.

You can create any number of purpose code cross-references. Entries are often based on an external purpose code, but you can also reference an internal one. Adding an internal purpose code to a cross-reference provides additional information on schedule reports.

When schedules are imported, the internal and external purpose codes are displayed in the second frame of Customer Plan Schedule Maint (7.5.1) and Customer Ship Schedule Maint (7.5.2).

♦ See “Int and Ext Purpose Code” on page 39.

When the system searches for a purpose code, it follows the order listed in Table 4.1.

Table 4.1

Purpose Code
Cross-Reference
Search Order

Most Specific to Least Specific (Default)						
	Search 1	Search 2	Search 3	Search 4	Search 5	Search 6
Site	X	X	X	X	X	X
Address	X	X	X	X	X	
EDI Standard Version	X	X	X	X		
Transaction Set	X	X	X			
I/O	X	X	X	X	X	X
Ext Purpose Code	X					

Tip

A value always exists in the I/O field (Inbound or Outbound).

A general entry is used only when a more specific entry does not exist. If no record is found during schedule import, an error occurs and schedule processing stops. Error messages appear in the Document Import Report. To correct the condition, define an entry in Purpose Code Maintenance and rerun the schedule import.

Purpose Code Maintenance Fields

Fig. 4.3

Purpose Code
Maintenance (35.3)

The screenshot shows a window titled "Purpose Code Maintenance" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains the following fields:

- Site: [text box]
- Address: [text box]
- EDI Standard Version: [text box]
- Transaction Set: [text box]
- I/O: [text box]
- Ext Purpose Code: [text box]
- List Type: [text box]
- Int Purpose Code: [text box]
- Execution File: [text box]
- Execution Parameter: [text box]
- Description: [text box]
- Comments: [text box]

Site. Optionally, enter a site code. An address code must exist for this site.

Address. Optionally, enter an address code. The system displays the associated list type.

EDI Standard Version. Enter up to 30 characters describing the EDI standard used for documents with this purpose code.

Transaction Set ID. Enter a valid transaction set ID. The purpose code cross-reference is used only when the specified transaction set ID is received. Currently, the supported values are:

- Planning Schedules (830)
- Shipping Schedules (862)

I/O. Enter either I (inbound) or O (outbound). The default is outbound.

External Purpose Code. Enter a two-character purpose code to form the basis of this cross-reference. The purpose code cross-reference is used only when the a document with this purpose code is received.

If you set up purpose codes in Generalized Codes Maintenance (36.2.13), the system validates user entry.

Int Purpose Code. Optionally, specify a user-defined internal code to match with the external purpose code received on the document. This field is for reference and displays on schedule reports.

Execution File. Enter the name of a program to be executed when documents matching the key field values are received. An execution file is required. You can write your own program or use one of the standard programs supplied with MFG/PRO.

- edscdel.p Processes schedules with a delete functional purpose code. The schedule is not actually deleted from the database. It is inactivated by removing its release ID.
- edscadd.p Processes schedules containing an add, original, change, and replace purpose code.
- edsctest.p Processes incoming schedules without updating the database. This procedure is typically used during a testing phase when implementing a new EDI trading partner. The procedure executed is the same as the add procedure, but the changes are not committed in the database.

If you write your own programs, they must be located in a directory within MFG/PRO's search path.

Execution Parameter. This field is not currently implemented.

Tip

Currently, only inbound documents are supported.

Tip

Use field name *edi_ext*.

Tip

Set up generalized codes for *edi_int*.

Modifying User-Edited Programs

MFG/PRO uses a standard flat file format for exporting and importing documents. The flat file data can be passed to and received from third-party EDI-enabling software. This data can be translated to and from various EDI standard formats, and transmitted to and received from the trading partners.

▶ See “Formatting Flat Files for EDI” on page 98.

The last section of this chapter includes a set of tables with format details for each document type.

You may need to modify the flat file format if additional data elements need to be transmitted or received. This section describes how to make any required modifications.

A user-edited program exists for each document type that is imported or exported.

- For an export document type, the user-edited program extracts the data from the database and outputs it in the flat file format.
- For an import document type, the user-edited program parses the incoming flat file data and passes it to a document loader subprogram.

Export Programs

There is a separate export program for each EDI document type. Each follows these steps:

- Accepts a set of selection criteria from the user.
- Selects documents from the database.
- Calls a user-edited program to output the document in the required flat-file format.

Example Purchase Order Export (35.15) accepts selection criteria from the user and selects matching purchase orders from the database. For each purchase order selected, it calls the program `edusexpo.p`, which extracts the required data from MFG/PRO and outputs it in the correct flat-file format.

Table 4.2 lists the user-edited programs called by export programs.

Menu Name	Program	User-Edited Program
ASN Export (35.5)	edexasn.p	edusexsn.p
Invoice Export (35.8)	edexinv.p	edusexiv.p
PO Ack Export (35.11)	edexack.p	edusexak.p
Purchase Order Export (35.15)	edexpo.p	edusexp.p
Supplier Schedule Export (35.18)	edexsch.p	edexscha.p or edexschb.p

Table 4.2
User-Edited Export
Programs

Note The export program for supplier schedules depends on the type of schedule.

The user-edited export programs use the utility programs listed in Table 4.3 to output data.

Utility Program	Task Performed
edputch.i	Inserts the contents of a character variable in a specified location in the line data record. For instance, extracts the field value FRP from the field <code>schd_user1</code> from the schedule detail record, <code>sch_det</code> .
edputnum.i	Inserts the contents of a numeric variable in a specified location in the line data record.
edputdt.i	Inserts the contents of a date variable in a specified location in the line data record.
edputnx.i	Appends the specified field separator character and the contents of the specified variable to the end of the line data record.
edputln.i	Writes the completed line data record to the transmission file.

Table 4.3
Document Export
Utilities

Import Programs

Document Import (35.13) imports all document types. It follows these steps:

- Accepts selection criteria from the user, including the name of the flat file to process.
- Invokes the user-edited program `edusim.p` to determine the types of documents in the flat file.
- For each document, invokes the user-edited program specific to its type.

Example When a purchase order document is found, edusim.p invokes edui850.p, the PO document user-edited program.

The user-edited program parses data values from the flat file. When the flat file document has been fully parsed, the appropriate document loader subprogram is invoked and the parsed data values are passed to it.

Example The document loader subprogram for purchase orders is edpold.p. It creates a sales order in the database for each purchase order it loads.

Each document loader subprogram validates that documents to be added to the MFG/PRO database are properly formatted. When a document has errors, it is either partially added to the database or not added. In either case, the errors are displayed in the Document Import report output.

Table 4.4 lists the user-edited programs for each document type imported into MFG/PRO.

Table 4.4
User-Edited Import
Programs

Document Type	User-Edited Program
Remittance Advice	edui820.p
Customer Planning Schedule	edui830.p
Customer Shipping Schedule	edui862.p
Purchase Order (buyer to seller)	edui850.p
Purchase Order Acknowledge (seller to buyer)	edui855.p
Purchase Order Change (buyer to seller)	edui860.p
Purchase Order Change Acknowledge/Request (seller to buyer)	edui865.p
Advance Ship Notice (ASN)	edui856.p

The user-edited import programs use the utility programs listed in Table 4.5 to read and extract data from incoming flat-file data.

Table 4.5
Import Utility
Programs

Utility Program	Task Performed
edgetln.i	Reads a line of character data from the transmission file to a line data record.
edgetch.i	Extracts a character variable such as RUSH from a specified location in the line data record and inserts it in a specified program variable such as schd_reference.

Utility Program	Task Performed
edgetnum.i	Extracts a numeric variable from a specified location in the line data record and inserts it in a specified program variable.
edgetdt.i	Extracts a standard YYMMDD-format date from a specified location in the line data record, converts it to a PROGRESS-format date, and inserts it in a specified program variable.
edcpd.p	Extracts a customer period identifier from the line data record, converts it to a PROGRESS-format date, and inserts it in a specified program variable.
edparse.p	Extracts a sequence of data values from the line data record and inserts the entire sequence into a specified program variable <code>fld</code> . It then sets another program variable, <code>fld_ct</code> , to the number of data values placed in the <code>fld</code> variable.

Setting Up Trading Partner Parameters

Use Trading Partner Parameters Maintenance (35.1) to define partner-specific EDI relationships and standards, document transmission protocols, and ASN header information.

Note You may also need to define a customer address cross-reference with Site Ship-from ID Maintenance (35.2). This is needed only if a customer uses their own identification number for you. In this case, specify the site code by which the customer references you. During EDI import, this is changed to your MFG/PRO site code.

Fig. 4.4
Trading Partner
Parameters
Maintenance (35.1)

Address. Enter the address code defined in MFG/PRO for this trading partner. Cross-reference this code to the trading partner's own code in Site Ship-from ID Maintenance (35.2), where their code is required for transmitted documents. The system displays the address list type—either customer or supplier.

Trading Prtnr Interface ID. Enter the mandatory, unique value used by the EDI enabling software to recognize this trading partner. This value can be used in more than one parameters file if you ship to

Tip
Set up address
codes in Customer
or Supplier Maintenance.

multiple addresses for a customer or accept from multiple ship-froms for a supplier.

The value is transmitted in each EDI document. During import, the system uses this ID to select the correct trading partner. During export, the ID is used by their EDI software to identify the sender.

Trading Prtnr EDI ID. The trading partner's own ship-to or ship-from EDI identifier, transmitted in each EDI document. It is optional, depending on the Trading Partner Interface ID.

- If the Interface ID is unique to the documents you are transmitting or receiving with these settings, the EDI ID is not required—for example, when the customer address and ship-to are identical.
- If the Interface ID is used for several ship-tos for a single customer or multiple ship-froms for a single supplier, the EDI ID is required to differentiate between them.

During import, MFG/PRO uses this ID to select the correct address for this partner. During export, MFG/PRO includes this identifier so the EDI software can recognize the export document.

EDI Standard and Level. Reference fields identifying the EDI standard (ANSI X12, EDIFACT, ODETTE) and its level (1, 2, 3...).

Use the next frame to implement the trading policy you have with this trading partner. Each field allows or disallows a type of document processing. For your customers, you select how you manage invoices internally and whether you transmit invoices and ASNs. For your suppliers, you select how you manage purchase orders and supplier schedules, and whether these are transmitted via EDI.

Fig. 4.5
Trading Partner
Parameters
Maintenance,
Export Document
Control Frame

Export Document Control			
Print Inv Hist:	☒ yes	EDI Inv Hist:	☐ no
Print PO:	☒ yes	EDI PO:	☐ no
Print Schedules:	☒ yes	EDI Schedules:	☐ no
Fax Schedules:	☐ no	EDI ASNs:	☐ no
		EDI PO Ack:	☐ no

Print Inv History (Y/N). Enter the default for the Print Inv History field in Sales Order Maintenance (7.1.1) and Scheduled Order Maintenance (7.3.13). This setting determines whether invoices can be accumulated and printed using Closed Invoice Reprint (7.13.12).

- Enter Yes if your company does not normally send out invoices, and posts them daily or weekly for reference only. If this trading partner communicates with you through customer schedules, you typically set the Auto-Invoice flag on the scheduled order (7.3.13) to Yes to automatically post the invoices during shipment confirmation.
- Enter No if invoices are not managed cumulatively and your company prints and posts invoices for each shipment. Also set Auto-Invoice in Scheduled Order Maintenance to No.

Print PO (Y/N). Enter the default for the Print PO field in Purchase Order Maintenance (5.7).

- Enter Yes to print orders with Purchase Order Print (5.10), regardless of whether the purchase order is also sent via EDI. When EDI PO is also Yes, you can print file copies or secondary verification copies for the supplier even though the PO was sent via EDI.
- When No, Purchase Order Print does not select this partner's purchase orders for printing. Typically, this requires (assuming a nonscheduled relationship) that EDI PO is set Yes.

In Purchase Order Maintenance, the flag is order-specific and changes to No when you print the PO. Setting the flag to Yes in Trading Partner Parameters Maintenance has no effect. If you set it to No, the Print PO flag is set to No for this supplier before printing.

Print Schedules (Y/N). This field determines whether a schedule for this supplier is printed.

- When Yes, Schedule Print (5.5.3.8) is allowed regardless of whether the scheduled order is also sent via EDI. If EDI Schedules is also Yes, you can print file copies or secondary verification copies for the supplier even though the schedule was sent via EDI.
- When No, Schedule Print does not select this partner's scheduled orders for printing. Typically, this requires EDI Schedules to be Yes to transfer the schedules from MFG/PRO to your supplier.

Fax Schedules (Y/N). Enter Yes if you ordinarily fax schedules to this trading partner. Schedules to be faxed are selected by Schedule Print in Fax Format (5.5.3.9).

EDI Inv Hist (Y/N). Enter the default for the EDI Inv History field in Sales Order Maintenance (7.1.1) and Scheduled Order Maintenance (7.3.13). This determines whether invoices can be transmitted via Invoice Export (35.8).

- Set to Yes for relationships in which cumulative daily, weekly, or monthly invoices are sent via EDI to the customer.
- When No, invoices are not sent cumulatively. This can be true when they are sent as paper documents only, or for customers who pay solely from the ASN.

EDI PO (Y/N). Determines if purchase orders can be transmitted via EDI. It sets the default for the same field in Purchase Order Maintenance (5.7). If Yes, the EDI Purchase Order Export program (35.15) selects this supplier's purchase orders.

EDI Schedules (Y/N). Determines if supplier schedules can be transmitted via EDI. If Yes, the EDI Supplier Schedule Export program (35.18) selects this supplier's scheduled orders.

EDI ASNs (Y/N). Determines if the ASN Export program (35.5) can generate ASNs to this customer. If Yes, enter ASN header values in the final frame. When No, ASN Export does not work for this customer's shipments.

EDI PO Ack (Y/N). Determines whether sales orders are processed by PO Ack Export (35.11) and PO Ack Export Audit Report (35.12). The default is No.

The third frame lets you store arbitrary data values that are made available to all the export functions. Enter any unique values required by a particular customer or EDI standard for shipment information.

Fig. 4.6
Trading Partner
Parameters
Maintenance, EDI
Profile Data Frame

EDI Profile Data		
Field ID	Label	Value

Field ID. Field IDs are defined and documented either by the EDI standard and level or by your specific trading partner. Each Field ID consists of an identifier and a sequence number. For example, a Field ID of TD301 identifies the first instance (01) of the field TD3.

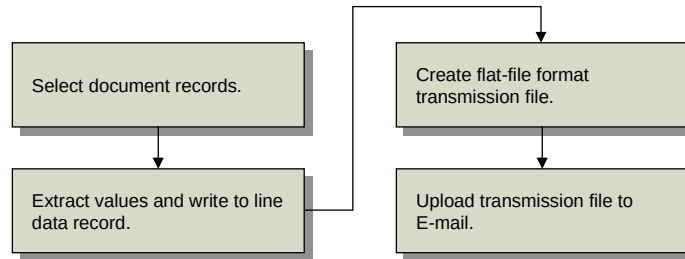
Exporting EDI Documents

See “Export Programs” on page 84.

You can export standard documents created within MFG/PRO through a third-party enabling package to an E-mail system.

Figure 4.8 illustrates the steps involved in exporting data.

Fig. 4.8
Export Process Flow



The EDI module lets you export several kinds of documents.

- Purchase orders
- Supplier schedules
- ASNs
- Invoices
- PO acknowledgments

The export functions are separate—unlike Document Import—because selection criteria are unique for each document type. For each export function, you can run an audit report listing the specific document or set of documents exported.

Purchase Orders

To export a purchase order:

- 1 Set up the supplier in Supplier Maintenance (2.3.1).
- 2 Set up trading partner parameters in Trading Partner Parameters Maintenance (35.1) with EDI PO set to Yes.
- 3 Set up a purchase order or range of orders in Purchase Order Maintenance (5.7). Set EDI PO to Yes.
- 4 Export the orders using Purchase Order Export (35.15).

- 5 Run Purchase Order Export Audit Report (35.16).

Supplier Schedules

To export a supplier schedule:

- 1 Set up the supplier in Supplier Maintenance (2.3.1).
- 2 Set up trading partner parameters in Trading Partner Parameters Maintenance (35.1) with EDI Schedules set to Yes.
- 3 Set up a supplier schedule order or range of orders in Scheduled Order Maintenance (5.5.1.13). Set EDI Schedules to Yes.
- 4 Process a schedule release by running MRP (23.1) to create planned orders and then run Schedule Update from MRP (5.5.3.1).
- 5 Export the orders using Supplier Schedule Export (35.18).
- 6 Run Supplier Schedule Export Audit Report (35.19).

ASNs

An advance ship notice (ASN) informs the customer when items have left the supplier's site. MFG/PRO can use shipping documents to generate ASNs in EDI format.

ASN Export (35.5) performs some additional record verification, data calculation, and record update tasks. After data selection, ASN Export verifies that the referenced shipper has been confirmed in Pre-Shipper/Shipper Confirm (7.9.5) and that the shipper has not already been used for an ASN export. The program also calculates shipment arrival time and time stamps the data record. After all the data has been passed over to the third party software, the program updates the shipper status to Exported.

You export one ASN at a time—not in batch mode. ASNs have real-time demands. Many customers do not receive shipments until an ASN has been received.

To export an ASN:

- 1 Set up the customer in Customer Maintenance (2.1.1).
- 2 Set up trading partner parameters in Trading Partner Parameters Maintenance (35.1) with EDI ASNs set to Yes.
- 3 Set up a customer schedule order in Scheduled Order Maintenance (7.3.13).
- 4 Process a schedule release by running Required Ship Schedule Update (7.5.5) against a received customer release or enter requirements in Required Ship Schedule Maintenance (7.5.3) and make the release the active one.
- 5 Enter the shipment quantities in SO Shipper Maintenance (7.9.8).
- 6 Confirm the shipment in Pre-Shipper/Shipper Confirm (7.9.5).
- 7 Export the ASN using ASN Export (35.5). The Shipper ID becomes the ASN number.
- 8 Run ASN Export Audit Report (35.9).

Invoices

You can export individual invoices or batched invoices derived from invoice histories. Several settings control how invoicing is performed and how invoices are transmitted to your customers.

For customer schedules, the Auto-Invoice field on the scheduled order header (7.3.13) controls how invoices are processed.

- When Yes, invoices are automatically posted as part of the shipment process and are therefore cumulative and sent as a history.
- When No, invoices must be manually posted and printed for each shipment.

In either case, the EDI Inv Hist field, which appears in both the scheduled order header and in the trading partner's parameters, controls whether invoices can be exported via EDI.

To export an invoice:

- 1** Set up the customer in Customer Maintenance (2.1.1).
- 2** Set up trading partner parameters in Trading Partner Parameters Maintenance (35.1) with EDI Inv Hist set to Yes.
- 3** Set up a customer schedule order or sales order in Scheduled Order Maintenance (7.3.13) or Sales Order Maintenance (7.1.1). Set EDI Inv Hist to Yes.
- 4** For customer schedules only, process a schedule release by running Required Ship Schedule Update (7.5.5) against a received customer release or enter requirements in Required Ship Schedule Maintenance (7.5.3) and make the release the active one.
- 5** Enter the shipment quantities in SO Shipper Maintenance (7.9.8) or Sales Order Shipments (7.9.15).
- 6** For customer schedules only, confirm the shipment in Pre-Shipper/ Shipper Confirm (7.9.5).
- 7** Close the invoice by printing and posting in Invoice Print (7.13.3) and Invoice Post (7.13.4). If the schedule has Auto-Invoice set to Yes, this is done during shipper confirmation.
- 8** Export the invoices using Invoice Export (35.8).
- 9** Run Invoice Export Audit Report (35.9).

PO Acknowledgments

Use EDI to inform a customer that their purchase order was received and entered as a sales order. Since manual adjustments to the sales order due dates and/or quantities may be required, the content of the acknowledgment is essentially the content of the confirmed sales order.

If EDI PO Ack is Yes in Sales Order Maintenance (7.1.1), you can export the acknowledgment via EDI.

To export a PO acknowledgment:

- 1 Set up the customer in Customer Maintenance (2.1.1).
- 2 Set up trading partner parameters in Trading Partner Parameters Maintenance (35.1), and set EDI PO Ack to Yes.
- 3 Enter sales orders for the customer using either Document Import (35.13) or, if necessary, Sales Order Maintenance (7.1.1).
- 4 Review sales orders as needed if they were entered using Document Import.
- 5 Confirm the sales orders (7.1.5).
- 6 Export the acknowledgments using PO Ack Export (35.11).
- 7 Run PO Ack Export Audit Report (35.12).

Importing EDI Documents

Tip

A material release is a planning schedule.

MFG/PRO currently lets you receive transmission documents such as a material release (ANSI ASC X12 830 document) or shipping schedule (ANSI ASC X12 862 document) under the Automotive Industry Action Group (AIAG) EDI conventions.

▶ See “Import Programs” on page 85.

Import documents are created at customer or supplier sites. For example, a customer:

- 1 Creates a shipping schedule with requirement quantities and due dates.
- 2 Converts that schedule into an EDI-compatible file, using an EDI enabling software.
- 3 Places it on an E-mail system where it becomes available to your facility.

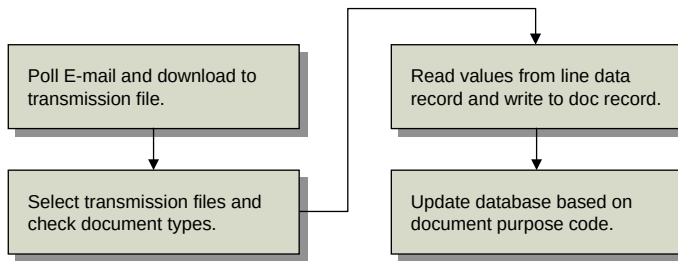


Fig. 4.9
Import Process
Flow

Perform the import using Document Import (35.13).

The screenshot shows the 'Document Import' window with the following fields and options:

- Address:** [Text Field]
- Document Type:** [Text Field]
- Document ID:** [Text Field]
- To:** [Text Field]
- To:** [Text Field]
- To:** [Text Field]
- Import from File/Process:** ☒ Process
- Import File/Process Name:** [Text Field]
- Report Detail/Summary:** ☒ Detail
- Update:** ☒ yes
- Output:**
- Batch ID:**

Fig. 4.10
Document Import
(35.13)

Major fields include the following.

Document Type. Enter a range of document types as defined by the EDI standard you have implemented.

Document ID. Enter a range of document IDs to import.

Update (Y/N). Specify whether to update the database with the documents processed.

If Yes, all documents successfully processed are used to update the database. If No, documents do not affect the database. In either case, the Report Summary/Detail field determines whether reports are detailed or summarized.

Formatting Flat Files for EDI

Table 4.6 lists the format for the first record in a document. This format applies to all document types.

Table 4.6
First Record for All
Document Types

	POS	Width	Value/DB Field/Local Var
New Document Indicator	1	2	//
Software Label	3	7	MFG/PRO
Document Type	10	3	ansi_document_types array
Trading Partner EDI ID	13	24	ad_edi_tpid
EDI Standard Version	37	30	ad_edi_std

Table 4.7 lists the record format for each section of a plan or ship schedule.

Table 4.7
830/862 Planning/
Shipping Schedules

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Release ID	5	30	sch_rlse_id
Ship/Deliver Date Indicator	35	2	“SH”
Cumulative Flag	37	1	so_cumulative
Purpose Code Ext	38	2	edi_ext
“02” Header Comments			
Record Type Indicator	1	2	02
Comment	3	76	cmt_cmmt
“03” Ship To—Ship From			
Record Type Indicator	1	2	03
Trading Partner Ship To	3	24	po_ship
Trading Partner Ship From	37	15	po_vend
“04” PO Item			
Record Type Indicator	1	2	04
Part Number	3	30	pod_part
Purchase Order Number	33	30	po_nbr

Description	POS	Width	Value/DB Field/Local Var
“09” Comments			
Record Type Indicator	1	2	09
Comment	3	76	cmt_cmmt
“10” SDP Code—Prior Cum Req Date			
Record Type Indicator	1	2	10
Ship/Deliver Pattern	3	1	sch_sd_pat
Prior Cum Quantity	4	12	sch_pcr_qty
Prior Cum Date	16	6	sch_pcs_date
“11” Comments			
Record Type Indicator	1	2	11
Comment	3	76	cmt_cmmt
“12” Schedule Detail			
Record Type Indicator	1	2	12
Discrete Quantity	3	12	schd_discr_qty
Interval	15	1	schd_interval
Schedule Date (Less PO Lead Time)	16	6	schd_date - pod_translt_days
Schedule Time	28	4	schd_time
Schedule FC Quality	32	1	schd_fc_qual
Reference	33	20	schd_reference
“13” Requirement Detail			
Record Type Indicator	1	2	13
Requirement Value	3	20	wf_rqm_value
Requirement Cat	23	10	wf_rqm_cat
“15” Fab Authorization Start/End Date—Quantity			
Record Type Indicator	1	2	15
Fab Authorized End Date	3	6	sch_fab_end
Fab Authorized Quantity	9	12	sch_fab_qty
Fab Authorized Start Date	21	6	sch_fab_strt
“16” Raw Authorization Start/End Date—Quantity			
Record Type Indicator	1	2	16
Raw Authorized End Date	3	6	sch_raw_end
Raw Authorized Quantity	9	12	sch_raw_qty
Raw Authorized Start Date	21	6	sch_raw_strt

Description	POS	Width	Value/DB Field/Local Var
“17” Last Receipt Information			
Record Type Indicator	1	2	17
Last Receipt Quantity	5	12	prh_rcvd
Last Receipt Date	17	6	prh_rcp_date
Last Receipt ID	35	20	prh_ps_nbr

Table 4.8 lists the record format for each section of a purchase order document.

Table 4.8
850 Purchase
Orders

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Trading Partner Ship To	3	24	po_ship
Trading Partner Ship From	27	15	po_vend
Purchase Order Number	42	10	po_nbr
Credit Terms	53	2	po_cr_terms
FOB	56	10	po_fob
Due Date	67	6	po_due_date
Ship To Name	78	28	ad_name
Ship To Address Line 1	107	28	ad_line1
Ship To Address Line 2	136	28	ad_line2
Ship To Address Line 3	165	28	ad_line3
Ship To City	194	20	ad_city
Ship To State	215	4	ad_state
Ship To Zip Code	220	10	ad_zip
Ship To Country	231	28	ad_country
Ship To Order Number	260	22	so_po
Sales Order Number	283	8	so_nbr
Hold Flag	292	5	‘HD’ if on hold
EMT Type	298	2	sod_btb_type
Ship Via	301	10	po_ship_via
“02” Header Comments			
Record Type Indicator	1	2	02
Comment	3	76	cmt_cmmt

Description	POS	Width	Value/DB Field/Local Var
“12” Line Items			
Record Type Indicator	1	2	12
Part Number	4	15	pod_part
Order Quantity	20	10	pod_qty_ord
Unit of Measure	31	2	pod_um
Unit Price	34	10	pod_pur_cost
Vendor Part	45	30	pod_vpart
Part Description	76	30	pt_desc1
SO Line Item Number	107	3	pod_sod_line
Price	111	10	pod_pur_cost/sod_price
Required Date	122	6	pod_due_date/sod_req_date
Due Date	131	6	pod_dus_date/sod_due_date
PO Line Item Number	140	3	pod_line
Configuration Type	143	1	sod_cfg_type
“14” Line Item Configuration—Sales Order Bill			
Record Type Indicator	1	2	14
Quantity Required	4	10	sob_qty_req
Part Number	15	18	sob_part
Configuration Type	34	1	sob_cfg_type
Quantity Required	36	10	sob_qty_req
Feature	47	12	sob_feature
Parent ID	60	4	sob_parent
Serial Number	65	50	sob_serial
Quantity Required	116	10	sob_qty_req
“19” Line Item Comments			
Record Type Indicator	1	2	19
Comment	3	76	cmt_cmmt

Table 4.9 lists the record format for each section of a purchase order acknowledgment.

Table 4.9
855 Purchase Order
Acknowledgment

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Trading Partner Ship To	4	24	ad_edi_id
Trading Partner Ship From	28	15	qad_charfld[4]
Purpose Code	43	3	blank (used in 865)‘
Message Type	47	3	‘855’
Message Det	51	2	blank (used in 865)
Due Date	54	6	so_due_date
Purchase Order Number	61	22	so_po
Acknowledgment Date	84	6	(used in 865)
Acknowledgment Time	91	6	(used in 865)
Hold Flag	98	2	(used in 865)
“12” Line Items			
Record Type Indicator	1	2	12
Line Item Number	4	3	sod_line
Quantity Ordered	11	10	sod_qty_ord
Unit of Measure	22	3	sod_um
Due Date	26	6	sod_due_date
Picked Flag	35	1	(used in 865)
Status	37	8	(used in 865)

Table 4.10 lists the record format for each section of an ASN.

Table 4.10
856 Advanced Ship
Notice (ASN)

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Trading Partner Ship From	4	24	qad_charfld[4]
ASN ID	28	8	abs_id
Trading Partner Ship To	36	15	ad_edi_id
Ship Via	51	20	abs__qad01 1 for 20
FOB	72	20	abs__qad01 21 for 20

Description	POS	Width	Value/DB Field/Local Var
Carrier	93	20	abs__qad01 41 for 20
Transportation Mode	114	20	abs__qad01 61 for 20
Vehicle ID	135	20	abs__qad01 81 for 20
Ship Date	156	6	abs_shp_date
Ship Time	163	6	abs_shp_time
Arrival Date	170	6	abs_arr_date
Arrival Time	177	6	abs_arr_time
“12” Line Items			
Record Type Indicator	1	2	12
Part Number	23	30	sod_custpart/abs_item
Quantity Shipped	54	10	abs_ship_qty
Lot/Serial	68	18	abs_lotser
Reference	87	8	abs_ref
Purchase Order Number	96	8	so_po
Line Item Number	105	4	abs_line
“14” Line Item Configuration			
Record Type Indicator	1	2	14
Part Number	23	30	cp_cust_part/abs_item
Quantity Shipped	54	10	abs_ship_qty
Lot/Serial	68	18	abs_lotser
Reference	87	8	abs_ref
Purchase Order Number	96	8	so_po
Line Item Number	105	4	abs_line

Table 4.11 lists the record format for each section of a purchase order change document.

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Trading Partner Ship To	3	24	po_ship
Trading Partner Ship From	27	15	po_vend
Purchase Order Number	42	10	po_nbr
Credit Terms	53	2	po_cr_terms

Table 4.11
860 PO Change

Description	POS	Width	Value/DB Field/Local Var
FOB	56	10	po_fob
Due Date	67	6	po_due_date
Ship To Name	78	28	ad_name
Ship To Address Line 1	107	28	ad_line1
Ship To Address Line 2	136	28	ad_line2
Ship To Address Line 3	165	28	ad_line3
Ship To City	194	20	ad_city
Ship To State	215	4	ad_state
Ship To Zip Code	220	10	ad_zip
Ship To Country	231	28	ad_country
Ship To Order Number	260	22	so_po
Sales Order Number	283	8	so_nbr
Hold Flag	292	5	'HD' if on hold
EMT Type	298	2	sod_btb_type
Ship Via	301	10	po_ship_via
Delete/Change Flag	52	1	'd' or blank
"02" Header Comments			
Record Type Indicator	1	2	02
Comment	3	76	cmt_cmmt
"12" Line Items			
Record Type Indicator	1	2	12
Part Number	4	15	pod_part
Order Quantity	20	10	pod_qty_ord
Unit Of Measure	31	2	pod_um
Unit Price	34	10	pod_pur_cost
Vendor Part	45	30	pod_vpart
Part Description	76	30	pt_desc1
SO Line Item Number	107	3	pod_sod_line
Price	111	10	pod_pur_cost/sod_price
Required Date	122	6	pod_due_date/sod_req_date
Due Date	131	6	pod_dus_date/sod_due_date
PO Line Item Number	140	3	pod_line
Configuration Type	143	1	sod_cfg_type

Description	POS	Width	Value/DB Field/Local Var
Action Flag	3	1	a(add),c(change),d(delete)
“14” Line Item Configuration— Sales Order Bill			
Record Type Indicator	1	2	14
Quantity Required	4	10	sob_qty_req
Part Number	15	18	sob_part
Configuration Type	34	1	sob_cfg_type
Quantity Required	36	10	sob_qty_req
Feature	47	12	sob_feature
Parent ID	60	4	sob_parent
Serial Number	65	50	sob_serial
Quantity Required	116	10	sob_qty_req
“19” Line Item Comments			
Record Type Indicator	1	2	19
Comment	3	76	cmt_cmmt

Table 4.12 lists the record format for each section of a purchase order change acknowledgment.

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Trading Partner Ship To	4	24	ad_edi_id
Trading Partner Ship From	28	15	qad_charfld[4]
Purpose Code	43	3	‘sic’ or blank
Message Type	47	3	‘855’
Message Det	68	2	ak, rj, rc
Acknowledgment Date	54	6	today
Acknowledgment Time	61	6	time
Purchase Order Number	71	22	so_po
“12” Line Items			
Record Type Indicator	1	2	12
Line Item Number	4	3	sod_line
Response Type	8	2	id, ir, ai, qi, qd
Unit of Measure	22	3	sod_um

Table 4.12
865 PO Change
Acknowledgment

Description	POS	Width	Value/DB Field/Local Var
Due Date	26	6	sod_due_date
Picked Flag	33	3	sod_qty_pick > 0
Status	35	8	'p' or blank

Table 4.13 lists the record format for each section of an Invoice.

Table 4.13
810 Invoices

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Ship To	3	24	ih_ship
Bill To	27	24	ih_bill
Sales Order Number	51	8	ih_nbr
Invoice Number	59	8	ih_inv_nbr
Invoice Date	67	6	ih_inv_date
Ship Date	73	6	ih_ship_date
Order Date	79	6	ih_ord_date
Sales Person 1	85	8	ih_slspsn[1]
Sales Person 2	93	8	ih_slspsn[2]
Sales Person 3	101	8	ih_slspsn[3]
Sales Person 4	109	8	ih_slspsn[4]
Ship Via	117	20	ih_shipvia
Credit Terms	137	8	ih_cr_terms
Bill of Lading	145	18	ih_bol
FOB	163	20	ih_fob
Remarks	183	40	ih_rmks
Purchase Order Number	223	22	ih_po
“02” Bill To Address			
Record Type Indicator	1	2	02
Trading Partner Bill To	3	24	ad_edi_id
Bill To Name	27	28	ad_name
Bill To Address Line 1	55	28	ad_line1
Bill To Address Line 2	83	28	ad_line2
Bill To Address Line 3	101	28	ad_line3
Bill To City	129	20	ad_city

Description	POS	Width	Value/DB Field/Local Var
Bill To State	149	4	ad_state
Bill To Zip Code	153	10	ad_zip
Bill To Country	163	28	ad_country
“03” Ship To Address (If different than Bill To)			
Record Type Indicator	1	2	03
Trading Partner Bill To	3	24	ad_edi_id
Ship To Name	27	28	ad_name
Ship To Address Line 1	55	28	ad_line1
Ship To Address Line 2	83	28	ad_line2
Ship To Address Line 3	101	28	ad_line3
Ship To City	129	20	ad_city
Ship To State	149	4	ad_state
Ship To Zip Code	153	10	ad_zip
Ship To Country	163	28	ad_country
“04” Comments			
Record Type Indicator	1	2	04
Comment	3	76	cmt_cmmt
“12” Line Items			
Record Type Indicator	1	2	12
Part Number	3	18	idh_part
Part Description	21	24	pt_desc1
Unit of Measure	45	2	idh_um
Quantity Invoiced	47	10	idh_qty_inv
Unit Price	57	10	idh_price
Extended Price	67	14	idh_qty_inv * idh_price
Line Item Number	81	3	idh_line
Due Date	84	6	idh_due_date
Customer Part Number	90	18	idh_custpart
“17” Trailer Totals			
Record Type Indicator	1	2	17
Non-Taxable Amount	3	14	invtot_nontaxable_amt
Taxable Amount	17	14	invtot_taxable_amt
Line Total	31	14	invtot_line_total

Description	POS	Width	Value/DB Field/Local Var
Discount Amount	45	14	invtot_disc_amt
Trailer Amount 1	59	14	invtot_trl1_amt
Trailer Amount 2	73	14	invtot_trl2_amt
Trailer Amount 3	87	14	invtot_trl3_amt
Tax Amount 1	101	14	invtot_tax[1]
Tax Amount 2	115	14	invtot_tax[2]
Tax Amount 3	129	14	invtot_tax[3]
Total Amount 1	143	14	invtot_amt[1]
Total Amount 2	157	14	invtot_amt[2]
Total Amount 3	171	14	invtot_amt[3]
Total Tax Amount	185	14	invtot_tax_amt
Total Order Amount	199	14	invtot_ord_amt
Line PST	213	14	invtot_line_pst
Total PST	227	14	invtot_total_pst

Table 4.14 lists the record format for each section of a remittance advice.

Table 4.14
820 Remittance
Advice

Description	POS	Width	Value/DB Field/Local Var
“01” Header Information			
Record Type Indicator	1	2	01
Batch Number	4	10	batch_nb
Batch Control Amount	15	10	batch_ctrl_amt
Bill To Number	26	10	bill_to
Check Number	37	10	check_nbr
Check Amount	48	10	check_amt
Check Date	59	6	check_date
“12” Payment Detail			
Record Type Indicator	1	2	12
Reference	4	10	reference_nbr (leave blank for an Unapplied/Non-AR payment)
Amount to Apply	15	10	amt_to_apply
Cash Amount	26	10	cash_amt

Description	POS	Width	Value/DB Field/Local Var
Discount Amount	37	10	disc_amt (specify zero or blank for an Unapplied/Non-AR payment)
Payment Type	48	2	Leave blank for an AR payment; specify N for Non-AR, or U for unapplied.
N/U Reference	50	8	reference_nbr for non-AR and unapplied payment.
Account	59	8	Account number, blank uses default.
Cost Center	68	4	Cost center, blank uses default.
Entity	73	4	Entity, blank uses default.

SECTION 3

ECommerce Gateway

This section discusses how to perform EDI functions using the features of ECommerce Gateway.

ECommerce Overview **113**

Setting Up ECommerce **123**

Using ECommerce **171**

ECommerce Error Messages **191**

Routing Code: 10-15000 WORK CENTER: 10-15000

Operation: 20 INSPECTION, ALL SITES

Standard Operation: 10.00

Work Center: 10-15000

Description: INSPEC PER PROC-005

Machines per Op: 1

Overlap Units: 1

Queue Time: 1.0

Wait Time: 0.0

Setup Time: 0.0

Route by Production Route

ECommerce Overview

Introduction 114

Elements of ECommerce **115**

ECommerce Processing 119

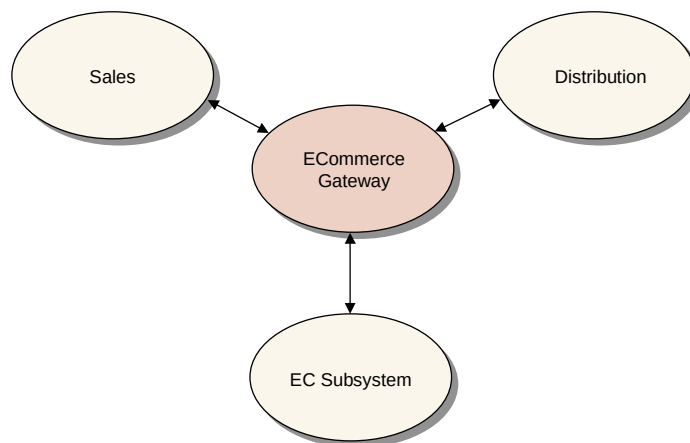


Introduction

ECommerce Gateway 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 ECommerce Gateway 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. 5.1
ECommerce
Overview



ECommerce's table-based logical structure supports all major EDI standards, making the system compatible with most EC subsystem translation capabilities.

▶ See Chapter 4, "Electronic Data Interchange," on page 77 for information on MFG/PRO's standard EDI features.

Traditional EDI processing applications—including MFG/PRO's EDI functions—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.

A library installed with ECommerce includes a set of transformation mappings between MFG/PRO and a variety of standard EDI document types, such as ANSI standard X12 formats. Implementers can use these mappings as templates, then use ECommerce maintenance programs to make the maps fit their specific needs.

Note MFG/PRO's Enterprise Material Transfer (EMT) uses the EDI functions available on menu 35. You cannot use the EDI functions of ECommerce Gateway with EMT.

Elements of 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

ECommerce includes a document repository, which stores data in transition during various phases of processing. Types of data included in the repository include:

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

Maintenance programs let you change all three types of repository data. However, this should be done with care since modifying data values in the

♦ See "ECommerce Processing" on page 119.

♦ See "Maintaining the Document Repository" on page 183.

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 183.

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 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 MFG/PRO data repository, if necessary.

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 flags 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.

ECommerce provides a tool for modifying stored turnaround data.

▶ See "Turnaround Data" on page 186.

ECommerce Tool Set

The 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.

ECommerce Gateway programs are located on the 35.21 menu.

Import and Export Documents

ECommerce currently allows four types of documents to be exchanged between MFG/PRO and EC subsystems.

The import gateways support two document types:

- Planning schedule import
 - ANSI Standard X12 document type 830
 - ANSI Standard X12 document type 862
 - EDIFACT message type DELFOR
 - EDIFACT message type DELJIT
 - ODETTE message type DELINS
 - VDA message type 4905
- Sales order import
 - ANSI Standard X12 document type 850
 - ANSI Standard X12 document type 860
 - ANSI Standard X12 document type 875
 - ANSI Standard X12 document type 876
 - EDIFACT message type ORDERS
 - EDIFACT message type ORDCHG
 - ODETTE message type ORDERR

Export gateway programs support an additional two document types.

- Advance ship notices (ASNs)
 - ANSI Standard X12 document type 856
 - ANSI Standard X12 document type 857
 - EDIFACT message type DESADV
 - ODETTE message type AVIEXP
 - VDA message type 4913
- Invoices
 - ANSI Standard X12 document type 810
 - ANSI Standard X12 document type 880
 - EDIFACT message type INVOIC

- ODETTE message type INVOIC
- VDA message type 4906

Note You can modify the content and structure of the documents being exchanged to fit a wide variety of needs within those document types. However, ECommerce directly supports only these four types.

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.

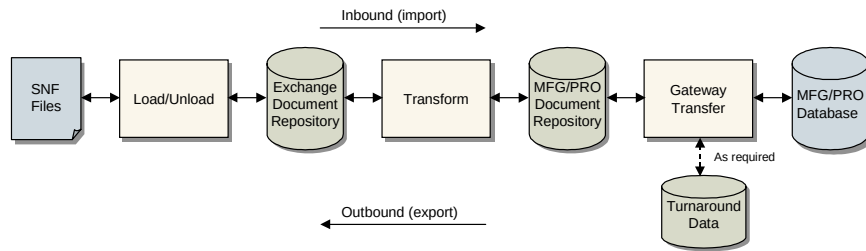
Menu-level programs let you select documents for import and export processing, if required. Depending on how your system is set up, processing might not start from the user interface, as in the following cases.

- You can use Export/Import Controller (35.21.17.5) 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.

▶ See “Scheduling Automatic Processing” on page 167.

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 5.2 summarizes the process.

Fig. 5.2
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.

▶ See “Correcting Errors” on page 181.

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 flag indicating an error status. You can then use reporting tools to determine why errors occurred, then correct the problems and reprocess the documents.

Important You should not run multiple concurrent inbound or outbound ECommerce sessions. The current release of ECommerce does not prevent multiple inbound sessions from processing the same file, nor does it prevent multiple outbound sessions from exporting the same document.

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 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.

See “Importing Documents” on page 173.

The import process control flow is shown in Figure 5.3.

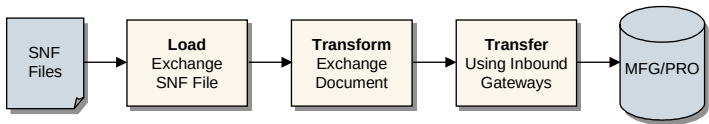


Fig. 5.3 Document Import Process

Exports

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.

See “Exporting Documents” on page 175.

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 5.4.

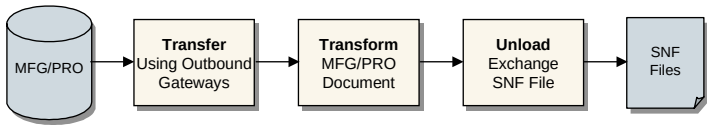


Fig. 5.4 Document Export Process

CHAPTER 6

Setting Up ECommerce

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

Introduction	124
Setup Overview	124
Setting Up Data Directories	126
Configuring the ECommerce Control File	128
Defining the EC Subsystem	129
Defining an Exchange File	132
Defining EC Subsystem/Exchange File Cross-References	136
Defining a Specific Implementation	138
Defining Transformation Maps	143
Defining Transmission Groups	150
Setting Up Trading Partners	151
Using Other Setup Programs	154

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 5, “ECommerce Overview,” on page 113 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-provided library of document and transformation mapping definitions 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 done 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 to MFG/PRO 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 using the appropriate menu-level program.

▶ See “Setting Up Transformation Functions” on page 165.

Figure 6.1 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.

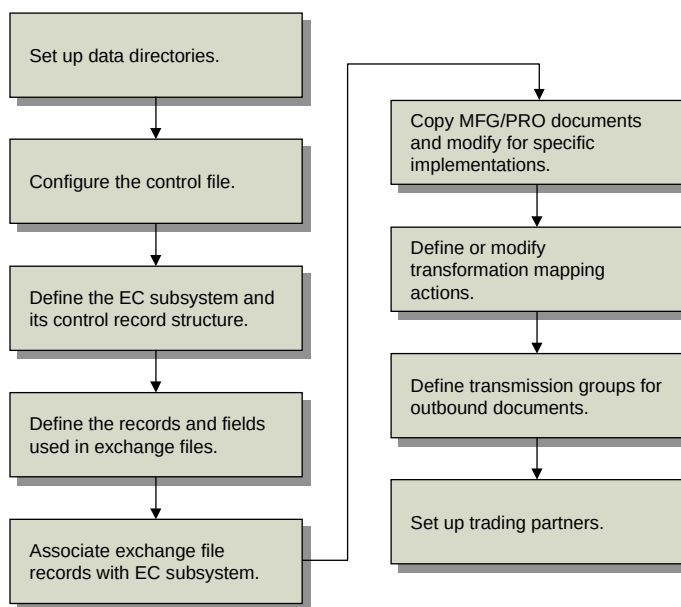


Fig. 6.1
Typical Setup Work Flow

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 file, MFG/PRO document, and implementation definitions so that you can modify them for your specific needs.

▶ See “Using Other Setup Programs” on page 154.

- Build your own MFG/PRO definition documents 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.

Important All the programs used in ECommerce are included on the ECommerce Gateway menu (35.21). Do not confuse them with MFG/PRO's standard EDI programs (35 menu).

Setting Up Data Directories

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

- Error files
- Inbound files for import into MFG/PRO
- Archive files, which consist of copied SNF files in their original form
- Function definition files, which include the user-defined functions used for transformation processing
- Outbound files, which contain documents exported from MFG/PRO

All but the outbound directories are specified in the ECommerce Control File (35.21.13.24). Outbound directories are used in Transmission Group Maintenance (35.21.13.13) 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 MFG/PRO environment includes both character-based and Windows users, 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 sub-directories. 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 the ECommerce Control File (35.21.13.24) and Transmission Group Maintenance (35.21.13.13), use only the names of the sub-directories, such as `error` or `archive`.

Example A directory structure might look like the following:

```
/qad/Ecommerce/Data
  /qad/Ecommerce/Data/inbound
  /qad/Ecommerce/Data/archive
  /qad/Ecommerce/Data/error
  /qad/Ecommerce/Data/funcs
  /qad/Ecommerce/Data/companyA
  /qad/Ecommerce/Data/companyB
```

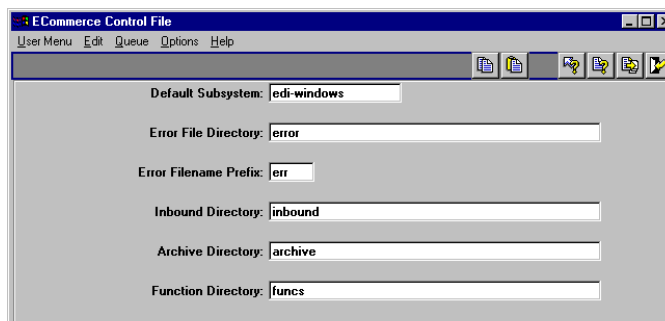
In this case, you would add `/qad/Ecommerce/data` as the first entry in the `PROPATH`. The first four items on the list would be specified as the ECommerce Control File directory entries, as shown in Figure 6.2. You would reference the `companyA` and `companyB` sub-directories in the `Destination` field in Transmission Group Maintenance.

▶ See “Defining Transmission Groups” on page 150.

Configuring the ECommerce Control File

Use the ECommerce Control File (35.21.13.24) to set default values for ECommerce processing. This program is also available on the ECommerce Utilities menu (35.21.17.24).

Fig. 6.2
ECommerce
Control File
(35.21.13.24)



The screenshot shows a window titled "ECommerce Control File" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains several labeled text input fields:

- Default Subsystem: edi-windows
- Error File Directory: error
- Error Filename Prefix: err
- Inbound Directory: inbound
- Archive Directory: archive
- Function Directory: funcs

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 (35.21.13.1) 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 error files containing documents that fail during load or unload 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. The system uses this directory as the source for imported files.

Note Outbound directories are specified in the Destination field in Transmission Group Maintenance (35.21.13.13).

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

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

▶ See “Setting Up Transformation Functions” on page 165.

Defining the EC Subsystem

Use EC Subsystem Definition Maint (35.21.13.1) 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. 6.3
EC Subsystem
Definition Maint
(35.21.13.1), 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.

Record Code Length. Enter the number of characters the EC subsystem uses to indicate the type of record it is sending.

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

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.

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 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.

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.

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

Fig. 6.4
EC Subsystem
Definition Maint,
Control Records
Frame

EC Subsystem Control Records				
Seq	Record Name	Requirement	Code	Fields
1	ISA	Mandatory	*I	yes
2	Functional Group	Mandatory	*G	
3	Document Info.	Mandatory	*S	
4	Document Header	Mandatory	**	

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.

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

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	1	20	
3	Filler1		Opt	4	4	
4	Receiver ID	tp-site	Opt	1	20	
5	filler3		Opt	1	24	
6	primary ref	tp-interchange-nbr	Opt	1	13	

Fig. 6.5
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. 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.

If applicable, enter the name of the token associated with this field. 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

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

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

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 (35.21.13.2) 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 162.

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 (35.21.15.1) to copy a definition before modifying it.

Use Exchange Definition Maintenance (35.21.15.6) 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 frames. 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 pressing 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 record.

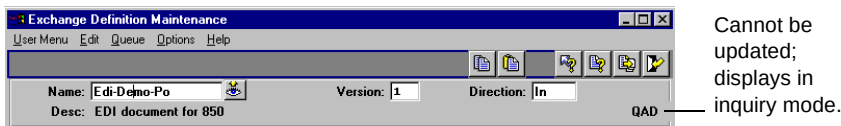


Fig. 6.6
Exchange
Definition
Maintenance
(35.21.15.6), First
Frame

- 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.

Use the next frame to define exchange file records.

Exchange File Records						
Seq	Record Name	Requirement	Loop Occurs	Loop Ends Seq	Fields	
1	hdr	Mandatory	1	0	yes	
2	Header-Extended	Optional	1	0		
3	Header-Comments	Optional	100	3		
4	Header-Address	Optional	12	4		
5	Item	Mandatory	99999	7		
6	Item-Extended	Optional	1	0		
7	Item-Comments	Optional	100	7		

Fig. 6.7
Exchange
Definition
Maintenance,
Exchange File
Records Frame

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

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

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

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. Press Insert to add a new field.

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

Exchange File Field Record: hdr						
Seq	Name	Reqd	Type	Min	Max	Token
1	shpfrm	Optional	AN	1	24	
2	ship-to	Mandatory	AN	1	24	
3	purpose-code	Optional	AN	2	2	
4	type-code	Optional	AN	2	2	
5	po-number	Mandatory	AN	1	22	tp-document-nbr
6	po-date	Mandatory	DT	6	10	
7	po-due-date	Optional	DT	6	10	
8	po-ship-date	Optional	DT	6	10	
9	po-exp-date	Optional	DT	6	10	
10	credit-terms-de	Optional	AN	1	30	
11	fob	Optional	AN	1	30	

Fig. 6.8
Exchange
Definition
Maintenance,
Exchange File Field
Record Frame

Seq. The sequence number of this field in the record. Press 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 100 fields are available for each record. Although the system accepts non-sequential numbers, their use is not recommended.

Press Tab or use the arrow keys to move from line to line.

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.

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 MFG/PRO and the EC subsystem.

If applicable, enter the name of the token associated with this field. 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

Any other entries in this field are for reference only.

Defining EC Subsystem/Exchange File Cross-References

Use EC Subsystem/Exchange Maint (35.21.13.4) to correlate:

- The structure of the data records in the SNF file received from the EC subsystem
- An exchange file definition

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

Control records are defined in EC Subsystem Definition Maint.

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

See “Defining the EC Subsystem” on page 129.

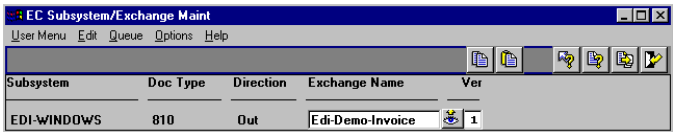


Fig. 6.9
EC Subsystem/
Exchange Maint
(35.21.13.4), First
Frame

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

Doc Type. 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.

See “Token” on page 131.

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.

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

Data Ctrl		Record Name
Seq	Code	
1	20	hdr
2	14	Header-Comments
3	30	Item
4	34	Item-Comments

Fig. 6.10
EC Subsystem/
Exchange Maint,
Second Frame

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

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

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

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 163.

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 (35.21.15.3) to copy a definition before modifying it.

Use Implementation Definition Maint (35.21.15.13) to define the data exchange requirements for a specific trading-partner implementation. The program includes three primary frames. A fourth, optional frame displays when you are defining turnaround data.

Note A fifth frame is designed to let you define operator-entry fields to be used during processing. However, this functionality is not currently implemented.

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

Implementation Definition Maint

User Menu Edit Queue Options Help

Implementation Name: cust-schedule

MFG/PRO Name: cust-schedule

Direction: In Desc:

Ver: 1

Ver: 1

QAD

Cannot be updated; displays in inquiry mode.

Fig. 6.11
Implementation Definition Maint (35.21.15.13), First Frame

- Implementation Name.* Enter an alphanumeric name for this implementation.
- Ver.* 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.
- Ver.* 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.
- Desc.* Optionally enter a text description of this implementation. This description is for reference only.

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

Use the second 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 press Enter.

Implementation File Records						
Seq	Record Name	Requirement	Loop Occurs	Loop Ends Seq	Fields	
1	HDR	Mandatory	1	0	yes	
2	HDR-EXT	Optional	1	0		
3	HDR-CMT	Optional	99	3		
4	DET	Mandatory	999	6		
5	DET-EXT	Optional	1	0		
6	DET-CMT	Optional	99	6		
7	Master-Trng	Optional	1	0		

Fig. 6.12
Implementation Definition Maint, Implementation File Records Frame

Seq. The sequence number of this record. Press Insert to add a new record. The system automatically assigns the next number. You can

modify sequence numbers as needed. Press Enter 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

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.

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.

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

Implementation File Field Record: HDR								
Seq	Field Name	Requirement	Type	Min	Max	Src/		More
						Dst	Variable	
1	tp-edi-id	Optional	an	1	99	G	trdpartner_edi_id	yes
2	tp-ship-to	Mandatory	AN	1	99	G	trdpartner_shipto	
3	tp-ship-from	Optional	AN	1	99	G	trdpartner_shipfrom	
4	purchase-order	Mandatory	AN	1	100	G	ed_so_po	
5	credit-terms	Optional	AN	1	8	G	ed_so_cr_terms	
6	due-date	Optional	DT	1	8	G	ed_so_due_date	
7	Currency	Optional	AN	1	3	G	ed_so_curr	
8	order-date	Mandatory	DT	1	8	G	ed_so_ord_date	
9	requisition-date	Optional	dt	8	8	g	ed_so_req_date	

Fig. 6.13
Implementation
Definition Maint,
Implementation
File Field Record
Frame

Seq. The sequence number of this field in the record. Press 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 100 fields are available for each record. Although the system will accept non-sequential numbers, their use is not recommended.

Press Tab or use the arrow keys to move from line to line.
Press Enter 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.

Src/Dst. 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.

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 definition.

More. Leave this field set to No to skip the next frame. Enter Yes to display another frame and define more fields for the specified variable.

Important This frame is included for future development. The functionality included in this frame is not implemented in the current version of ECommerce.

Fig. 6.14
Implementation
Definition Maint,
Other
Implementation
Fields Frame

Edit Mask / Defa:	
Field Help:	
Validate :	No
Field Prompt Con:	
Display:	No
Edit:	No
Disp on Child Fr:	No

If Src/Dst is T, indicating a turnaround variable, another frame displays. Use it to enter the table and field with which the turnaround data for this implementation should be associated.

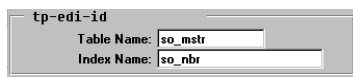


Table Name and Index Name. Enter the name of the database table and field with which this turnaround data value is associated.

Note Turnaround data is not actually stored in the specified table. Instead, it is stored in a parallel file that uses the table and field names as part of the index.

Fig. 6.15
Implementation
Definition Maint,
Turnaround Data
Location Frame

▶ See “Turnaround
Data” on
page 186.

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.

Note To use a QAD-developed transformation definition as the basis for a new definition, use Transformation Definition Copy (35.21.13.1) to copy a definition before modifying it.

▶ See “Copying
Transformation
Definitions” on
page 164.

Use Transformation Definition Maint (35.21.15.17) to define a transformation map.

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

- Name the implementation.
- 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. Can Run and Debug Level provide options that can be especially valuable when you are testing a new implementation for a new trading partner or document.

Fig. 6.16

Transformation
Definition Maint
(35.21.15.17), First
Frame

Transformation:	Demo850	Ver:	1	Direction:	In
Exchange File:	Edi-Demo-Po	Ver:	1	Can Run:	yes
MFG/PRO:	sales-Order	Ver:	1	Debug level:	9
Implementation:	sales-order	Ver:	1	Many to Many:	no

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.

Tip

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

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

MFG/PRO, Ver. 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, Ver. Enter the implementation definition and version 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.

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

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 (35.21.13.7). You can also assign these values as an event that takes place during transformation.

▶ See “Token” on page 131.

The second frame displays the events and actions associated with the current transformation definition records. Use the arrow keys or press Enter to move through the list of event descriptions. The records are always related to the direction of the document. For example, an inbound document always displays exchange file record names.

Press Insert to define a new event. To delete the current selection, press Delete, then type Y and press Enter at the confirmation prompt.

Fig. 6.17
Transformation
Definition Maint,
Transformation File
Records Frame

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	HDR	New	
hdr	RE	50	E	O	HDR.purchase-i	Equal	I Hdr.po-number
hdr	RE	55	E	O	HDR.credit-term	Equal	C 2/10-30
hdr	RE	59	E	O	HDR.tp-ship-to	Equal	F getmfgproaddr:
hdr	RE	60	E	O	HDR.tp-ship-fro	Equal	F getmfgprosite

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

Fig. 6.18
Transformation
Definition Maint,
Event Qualifiers
Frame

Event Qualifiers					Action Seq
Ev Qual	Event	Record Name			
For Each	LOOP-EXIT	of	hdr	perform seq	22

Ev Qual. Enter an event qualifier or use the arrow keys to scroll through the list and press Enter to select a value.

Note The current version of ECommerce uses only the Each option.

Event. Enter the type of event or use the arrow keys to scroll through the list and press Enter 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 the arrow keys to scroll through the list and press Enter to select a value. Because the record name is associated with the direction of the document, the list displays only the records that can

be used as input to the transformation. For example, on an outbound document, the list includes only implementation record names.

Action Seq. Enter a number to represent the sequence in which this event occurs.

When setting up event qualifiers, consider using increments of 10 so you can later insert intermediate sequence numbers.

After you enter a value in Action Sequence and press 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.

Event Actions			
Type	Qual	Target	Source
Equate	0	DET-CMT.detail-comments	
	1	Header-Comments.comment	

Fig. 6.19
Transformation
Definition Maint,
Event Actions
Frame

Type. Specify the type of action to be performed or use the arrow keys to scroll through the list of action types and press Enter 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 the arrow keys to scroll through the list of qualifiers and press Enter 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 the arrow keys to scroll through the list of available targets and press Enter 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

▶ See “Setting Up Transformation Functions” on page 165.

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 (35.21.15.21). Use ECommerce Function Copy/Delete (35.21.17.2) to copy an existing function before modifying it as required.

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.

get_part_mstr			
Count	Name	Qual	Parameter
1	i_tad_itm	I	hdr.credit-terms-desc
2	i_storage_loc		
3			
4			
5			
6			
7			
8			
9			
10			

Fig. 6.20
Transformation
Definition Maint,
Function Frame

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 the arrow keys to scroll through a list of qualifiers and press Enter 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 the arrow keys to scroll through a list of available parameters and press Enter 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).

See “Setting Up Trading Partners” on page 151.

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.

Use Transmission Group Maintenance (35.21.13.13) to define transmission groups.

Fig. 6.21
Transmission
Group Maintenance
(35.21.13.13)

Transmission Name. Enter a name for the transmission group or use the arrow keys to scroll through the existing records and press Enter 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 (35.21.13.1) to create a unique transmission file name.

This number starts at zero and automatically increments after each transmission. You cannot edit this field.

See “Setting Up Data Directories” on page 126.

Destination. Enter the directory where exported SNF files associated with this group will be written.

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.

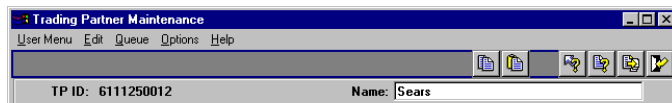
Subsystem. Enter the EC subsystem associated with this transmission group. This subsystem must already be defined in EC Subsystem Definition Maint.

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 (35.21.13.7) 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.



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.

Press Go to access the Trading Partner Document Records frame. Set up a separate record for each document type exchanged with this trading partner.

Fig. 6.22
Trading Partner Maintenance (35.21.13.7), First Frame

See “Token” on page 131.

Fig. 6.23

Trading Partner
Maintenance,
Trading Partner
Document Records
Frame

Trading Partner Document Records				
Doc Type	Dir	Document Map	Transmission group	Fields
850	In	sears850	advantis	yes

See “Token” on
page 131.

Doc Type. Enter the document type. 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 143.

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 already be defined in Transformation Definition Maint.

See “Defining
Transmission
Groups” on
page 150.

Transmission Group. Enter the name of the transmission group associated with this trading partner for this document type. This group must already be defined in Transmission Group Maintenance. The field is mandatory for outbound documents.

Fields. Enter Yes to display an additional frame that lets you enter or edit trading partner cross-reference information.

Tip

This frame displays only if 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 Maint (35.21.15.17) 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. Use the arrow keys to scroll through the list and press Enter to select a record for maintenance. Press Insert to add a new record.

TP Location Cross-Reference							
Site	TP Addr	Doc Name	Ver	Site	Address	Imp Name	Ver
0487	6617	sales-order	1	10000	sears	sales-order	1

Fig. 6.24
Trading Partner
Maintenance, TP
Location Cross-
Reference Frame

Site and TP Addr. 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 name and version
- Implementation name and version
- MFG/PRO site and address

Doc Name and Ver. Enter the name and version of the MFG/PRO document definition associated with this record.

Site and Address. Enter cross-references from the trading partner site and address to the MFG/PRO site and address.

Imp Name and Ver. Enter the name and version of the implementation definition associated with this trading partner site. Implementations are defined in Implementation Definition Maint (35.21.15.13).

Tip
Site and Address
are not validated
against the
MFG/PRO
database.

Using Other Setup Programs

Several other programs on the ECommerce menu support initial setup and system maintenance.

- Trading Partner Parameter Maint (35.21.13.10)
- Data Cross-Reference Maintenance (35.21.13.16)
- Data Validation Maintenance (35.21.13.21)
- MFG/PRO Definition Maintenance (35.21.15.10)
- Definition copy programs
 - Exchange Definition Copy (35.21.15.1)
 - MFG/PRO Definition Copy (35.21.15.2)
 - Implementation Definition Copy (35.21.15.3)
 - Transformation Definition Copy (35.21.17.1)
- ECommerce Function Maintenance (35.21.15.21)
- ECommerce Function Copy/Delete (35.21.17.2)
- Export/Import Controller (35.21.17.5)
- Trading Partner Library Load (35.21.17.7)

Defining Trading Partner Parameters

Use Trading Partner Parameter Maint (35.21.13.10) to assign parameters and values to a variety of trading-partner-specific processing actions; for example, setting a logical flag.

Important This is not the same program as Trading Partner Parameters Maint (35.1), which is used in MFG/PRO's standard EDI functionality.

♦ See “Setting Up Trading Partners” on page 151.

The system creates a parameter record for each unique combination of trading partner address and site specified in Trading Partner Maintenance (35.21.13.7). If you delete an address and site combination in Trading Partner Maintenance, the parameter record for that combination is also deleted.

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 parameters. In the bottom part of the frame, you can define up to

20 logical parameters. The first frame displays 10 lines. Press Go to access 10 more.

Logical Param Desc	Logical Param Value
01. Send EDI ASN's	no
02. Send EDI Invoices	no
03. Send EDI PO Ack	no
04. Send EDI Plan Schedules	no
05. Send EDI Ship Schedules	no
06. Send EDI PO	no
07.	no
08.	no
09.	no
10.	no

Fig. 6.25
Trading Partner
Parameter Maint
(35.21.13.10)

TP Addr and TP Site. Enter the address and site codes used by the trading partner whose parameters are defined in this record.

The system displays the corresponding MFG/PRO address and site cross-references, defined in Trading Partner Maintenance, in the MFG Addr and MFG 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 press 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 (35.21.13.16) 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 document.

Use Data Cross-Reference Browse (35.21.13.17) or Data Cross-Reference Report (35.21.13.18) to view existing cross-references.

Fig. 6.26
Data Cross-Reference
Maintenance
(35.21.13.16)

The screenshot shows the 'Data Cross-Reference Maintenance' window. The fields are as follows:

TP Doc ID:	850
Direction:	In
TP ID:	AMWAYTEST01
MFG/PRO Doc Name:	Sales-Order
MFG/PRO Doc Version:	1
MFG/PRO Definition Record Seq:	4
MFG/PRO Definition Field Seq:	3
Initial Value:	Each
Converted Value:	EA

Buttons for 'Detail' and 'UM' are also visible next to the 'MFG/PRO Definition Record Seq' and 'MFG/PRO Definition Field Seq' fields respectively.

TP 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.

TP ID. Enter a valid ID code of a trading partner defined in Trading Partner Maintenance (35.21.13.7). This conversion will apply only to documents involving this trading partner.

MFG/PRO Doc Name and Version. Enter the MFG/PRO document and version to which this conversion applies.

Record Seq. Enter the sequence number of the record to be modified during the conversion.

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.

Validating Data Values

Use Data Validation Maintenance (35.21.13.21) 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.

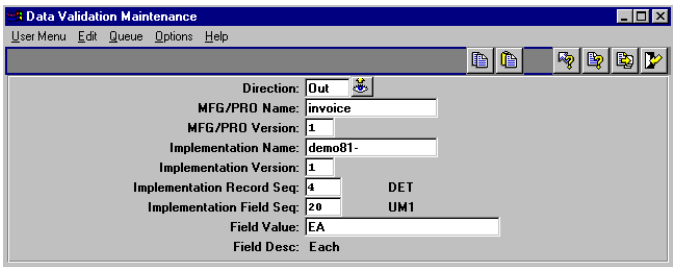


Fig. 6.27
Data Validation
Maintenance
(35.21.13.21)

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 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 (35.21.13.22) or Data Validation Report (35.21.13.23) to view existing data codes.

Creating MFG/PRO Definitions

▶ See “Defining a Specific Implementation” on page 138.

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.

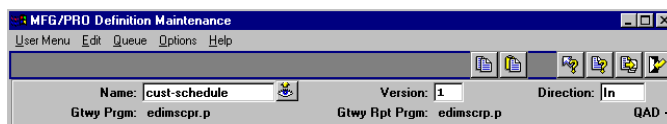
To set up your own MFG/PRO templates, use MFG/PRO Definition Maintenance (35.21.15.10). You can define formats at both the record and field levels.

▶ See “Copying MFG/PRO Definitions” on page 163.

Note You can use this program to create new MFG/PRO definitions or to modify any definitions you have created yourself. However, you cannot modify the QAD-developed MFG/PRO definitions that were provided with ECommerce. Instead, copy an existing definition with MFG/PRO Definition Copy (35.21.15.2) 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. 6.28
MFG/PRO
Definition
Maintenance
(35.21.15.10)



Cannot be updated; displays in inquiry mode.

Name. Enter a name for the MFG/PRO document or use the arrow keys to scroll through the list of existing documents.

Note You cannot modify the QAD-developed template MFG/PRO definitions that were provided with ECommerce.

Version. Enter a version number. You can use the same name for more than one MFG/PRO document, 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.

Gtwy Prgm. 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.

Gtwy Rpt Prgm. Enter the name of the PROGRESS program used to generate reports related to document transfers.

Press Go to define the records and fields that are included in the document.

MFG/PRO File Records					
Seq	Record Name	Requirement	Loop Occurs	Loop Ends Seq	Fields
1	master	Mandatory	1	0	yes
2	master-extended	Optional	1	0	
3	detail	Mandatory	999999	4	
4	detail-extended	Optional	1	0	

Fig. 6.29
MFG/PRO
Definition
Maintenance
(35.21.15.10),
MFG/PRO File
Records Frame

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

Organize the records in a logical numerical hierarchy.

Press Tab or use the arrow keys to move from line to line.

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.

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. 6.30
MFG/PRO
Definition
Maintenance
(35.21.15.10),
MFG/PRO File
Field Record Frame

MFG/PRO File Field Record: master						
Field 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	schedule_type
3	so_cumulative	Optional	an	1	1	so_cumulative
4	release_id	Mandatory	an	1	30	release_number
5	ship_dlvty_dates	Optional	an	1	2	ship_dlvty_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_dlvty_patte	Optional	an	1	1	ship_dlvty_pattern_code
11	ship_dlvty_time_	Optional	an	1	1	ship_dlvty_time_code

Field Seq. The sequence number of this field in the record. Press 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.

Press Tab or use the arrow keys to move from line to line.

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 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 Gtwy Prgm 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:

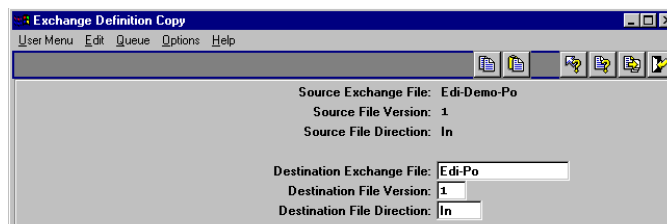
- Exchange Definition Copy (35.21.15.1)
- MFG/PRO Definition Copy (35.21.15.2)
- Implementation Definition Copy (35.21.15.3)
- Transformation Definition Copy (35.21.17.1)

Copying Exchange File Definitions

▶ See “Defining an Exchange File” on page 132.

Use Exchange Definition Copy (35.21.15.1) to copy an exchange file definition from an existing definition. Then, use Exchange Definition Maintenance (35.21.15.6) to modify the copy as needed.

Fig. 6.31
Exchange
Definition Copy
(35.21.15.1)



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 Definitions

Use MFG/PRO Definition Copy (35.21.15.2) to copy an MFG/PRO document definition from an existing definition. Then, use MFG/PRO Definition Maintenance (35.21.15.10) to modify the copy as needed.

See “Creating MFG/PRO Definitions” on page 158.

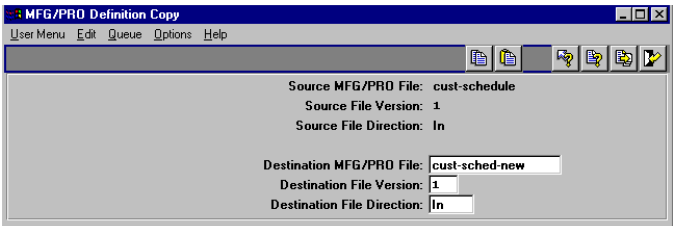


Fig. 6.32
MFG/PRO
Definition Copy
(35.21.15.2)

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 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 (35.21.15.3) to copy an implementation definition from an existing definition. Then, use Implementation Definition Maint (35.21.15.13) to modify the copy as needed.

See “Defining a Specific Implementation” on page 138.

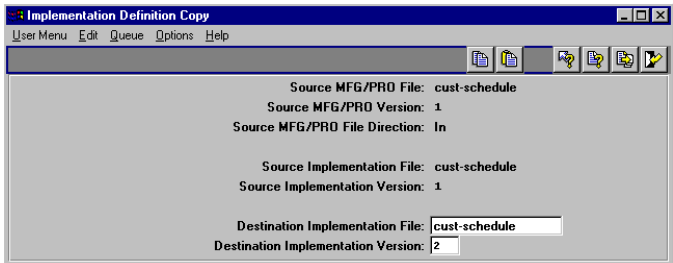


Fig. 6.33
Implementation
Definition Copy
(35.21.15.3)

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.

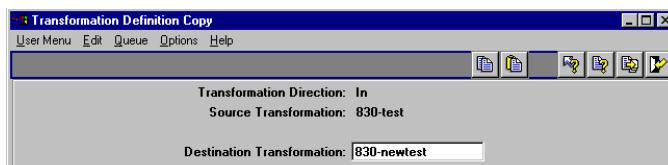
Copying Transformation Definitions

See “Defining Transformation Maps” on page 143.

Use Transformation Definition Copy (35.21.17.1) to copy an existing transformation definition to a new file. Then, use Transformation Definition Maint (35.21.15.17) to modify the transformation mapping data in the new definition file as needed.

Use this method to streamline creation of similar definitions.

Fig. 6.34
Transformation
Definition Copy
(35.21.17.1)



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.

Setting Up Transformation Functions

ECommerce includes a number of functions that can be used for transforming data between an EC subsystem and MFG/PRO. Use ECommerce Function Maintenance (35.21.15.21) 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 the ECommerce Control File with the file name *FunctionName.p*.

	Type	Name
1	R	val1
2	R	val2
3		
4		
5		
6		
7		
8		
9		
10		

Fig. 6.35
ECommerce
Function Maint
(35.21.15.21)

Function Name. Enter an alphanumeric name for this 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 (35.21.15.22) to scroll through summary information on functions.
- Use ECommerce Function Report (35.21.15.23) to generate a complete report on a selected range of functions.

Copying Transformation Functions

Use ECommerce Function Copy/Delete (35.21.17.2) 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.

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 press Delete. Enter Yes at the delete confirmation prompt.

Tip
You cannot delete QAD-supplied functions.

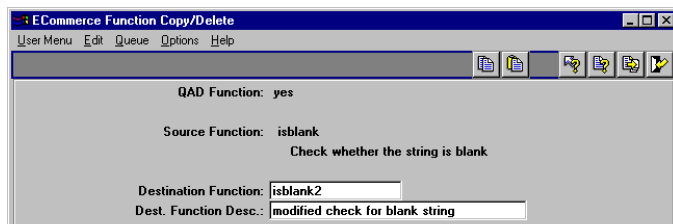


Fig. 6.36
ECommerce
Function Copy/
Delete (35.21.17.2)

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 the ECommerce Control File 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.

Scheduling Automatic Processing

Use Export/Import Controller (35.21.17.5) 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 the ECommerce Control File.

Logical flags 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. 6.37
Export/Import
Controller
(35.21.17.5)

The screenshot shows a window titled "Export/Import Controller" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area contains several input fields and checkboxes:

- Polling Frequency per Hour:** A text box containing the value "4".
- Hours of Polling:** A text box containing the value "8.00".
- Ship Notice:** A checkbox labeled "no".
- Invoice:** A checkbox labeled "no".
- Print Details:** A checkbox labeled "yes".
- Import Files:** A checkbox labeled "yes".
- Output:** A label.
- Batch ID:** A label.

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 by pressing Control+C.

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 the ECommerce Control File.

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 (35.21.17.7) 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.

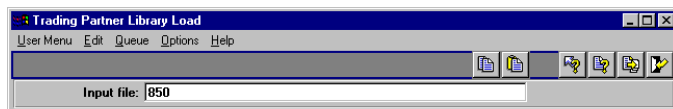


Fig. 6.38
Trading Partner
Library Load
(35.21.17.7)

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 7

Using ECommerce

This chapter discusses day-to-day use of ECommerce.

Introduction **172**

Importing Documents **173**

Exporting Documents **175**

Tracking the Status of Import and Export Documents **177**

Maintaining the Document Repository **183**

The screenshot displays a software window titled "14.13.2 Routing Maintenance (Main Screen)". It contains a table with routing information:

Routing Code	Operation	Standard Operation	Work Center	Machine	Description	Machines per Op	Overlap Units	Queue Time	Wait Time	Setup Time
10-15000	20	10.00	INSPEC	PER PRO-000	INSPEC PER PRO-000	1	1	1.0	0.0	0.0

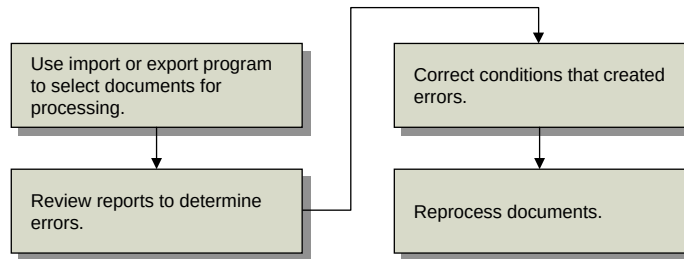
Below the table, it indicates "Route by Production Route" and "Route by Production Route".

Introduction

▶ See Chapter 5, “ECommerce Overview,” on page 113.

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 7.1 shows a typical task flow.

Fig. 7.1
ECommerce User
Task Flow



ECommerce’s process control logic can be started in one of three ways.

- An MFG/PRO user can begin processing by selecting documents using either Document Import (35.21.1) or one of the programs on the Document Export menu (35.21.4).
- 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 183.

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 from the document repositories. These include exchange file and MFG/PRO documents that have already completed processing, transformation, and loading to the EC subsystem or the MFG/PRO database.

♦ See “Archiving and Deleting Repository Data” on page 188.

Importing Documents

Use Document Import (35.21.1) 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.

♦ See “Imports” on page 121.

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.

Important You should not run multiple concurrent inbound ECommerce sessions. ECommerce does not prevent multiple inbound sessions from processing the same file.

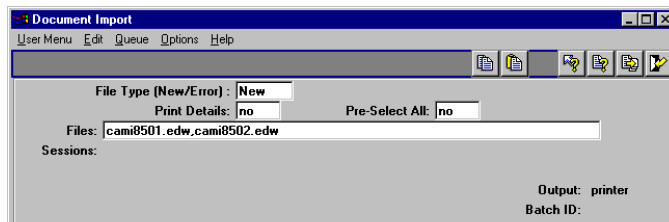


Fig. 7.2
Document Import
(35.21.1)

File Type (New/Error). Specify the type of files to be listed in the Select File(s) frame.

- Specify New to select from a list of new, unprocessed files in the import directory specified in the ECommerce Control File (35.21.13.24).
- Specify Error to display only files containing documents that encountered load errors during previous import. These are stored in the error directory specified in the ECommerce Control File.

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.

After the list displays, you can select or deselect files by pressing Enter or the space bar.

Files. Enter the names of the files to be imported, including extensions. Separate multiple file names with commas. The system validates your input.

The system looks for files in the inbound or error file directory specified in the ECommerce Control File, so it not necessary to enter a path name.

You can also press Enter to display a scrolling 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 by pressing Enter or the space bar. Selected files are marked with an asterisk (*).

After selecting files from the list, press Go. Selected files display in the Files field.

▶ See “Tracking the Status of Import and Export Documents” on page 177.

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.

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

The Document Export menu (36.21.4) includes programs used for exporting two types of documents:

- Shipment ASN Export (35.21.4.1)
- Invoice Export (35.21.4.3)

▶ See “Exports” on page 121.

Important You should not run multiple concurrent outbound ECommerce sessions. ECommerce does not prevent multiple outbound sessions from exporting the same document.

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 (35.21.4.1), 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.

Fig. 7.3
Shipment ASN
Export (35.21.4.1)

Shipper, Ship-From, Ship-To/Dock, Inventory Movement Code. 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.

EDI Batch No. To re-export 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.

Exporting Invoices

Use Invoice Export (35.21.4.3) to export individual, multiple, or cumulative invoices to a customer.

Enter ranges of selection criteria for invoice number, sales order number, 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.

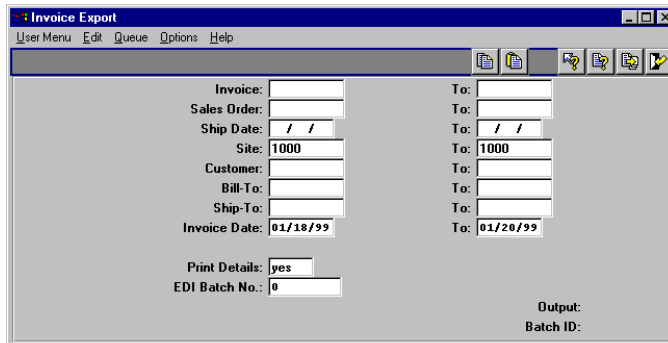


Fig. 7.4
Invoice Export
(35.21.4.3)

While the selection criteria are different and more numerous, this program works very similarly to Shipment ASN Export.

♦ See “Exporting ASNs” on page 175.

Tracking the Status of Import and Export Documents

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.

♦ See “ECommerce Processing” on page 119.

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

Session Report (35.21.7) 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.

♦ See “Reprocessing Documents” on page 182.

Fig. 7.5
Session Report
(35.21.7)

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 by pressing Enter or the space bar.

Session. Enter the session numbers of the process sessions to be included in this report. Separate multiple entries with commas. You can press Enter to display a scrolling list of sessions showing the date and time they were started. Select or deselect sessions from the list by pressing Enter or the space bar. Selected sessions are marked with an asterisk (*).

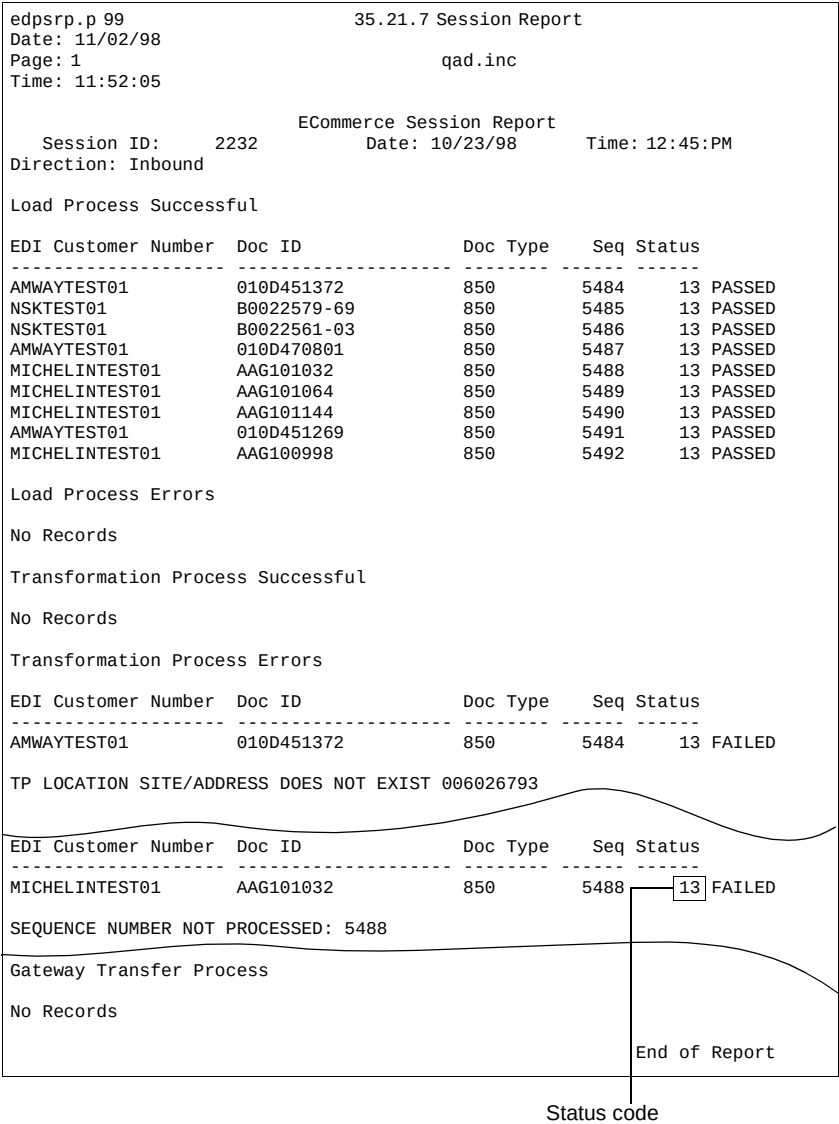
Fig. 7.6
Session Report,
Select Process
Session Numbers
Frame

Select Process Session Numbers			
Session	Date	Time	
* 15067	01/21/99	4:31:PM	
* 15061	01/20/99	12:06:PM	
* 15060	01/19/99	4:38:PM	
* 15059	01/19/99	4:16:PM	
* 15058	01/19/99	4:13:PM	
* 15057	01/19/99	4:12:PM	
* 15056	01/19/99	4:03:PM	
* 15054	01/19/99	3:50:PM	
* 15053	01/19/99	3:33:PM	

After selecting sessions from the list, press Go. Selected sessions display in the Session field. Then, select an output for the report or specify a batch ID.

Figure 7.7 shows a sample report.

Fig. 7.7
Session Report
Sample Output



The system assigns a status code to each document at each step of the process. Status codes are listed in Table 7.1.

Table 7.1
Document
Processing Status
Codes

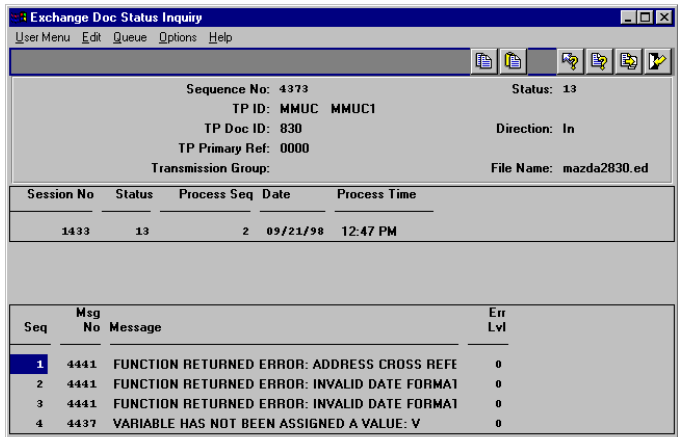
Code	Direction	Status
11	Inbound	Load process failed. Could indicate problem in SNF file or with trading partner or document definition.
12	Inbound	Exchange file load successful.
13	Inbound	Exchange file transformation errors.
14	Inbound	Exchange file transformation successful.
21	Inbound	MFG/PRO document 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.

Once 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 (35.21.9.1) or Report (35.21.9.2)
- MFG/PRO Doc Status Inquiry (35.21.9.8) or Report (35.21.9.9)

To use one of these inquiries, enter the sequence number of a document, or use the arrow keys to scroll through a list. The first frame displays reference information about the document. Press Enter or Go to display the list of sessions associated with that sequence number, along with status and date/time information.

Use the arrow keys to move through the list of sessions, then press Enter to list the error messages generated during the selected session. To display a complete message, use Tab or the arrow keys to select the message, then press Enter.



The screenshot shows a window titled "Exchange Doc Status Inquiry" with a menu bar (User Menu, Edit, Queue, Options, Help) and a toolbar. The main area displays document information: Sequence No: 4373, Status: 13, TP ID: MMUC MMUC1, TP Doc ID: 830, Direction: In, TP Primary Ref: 0000, Transmission Group, and File Name: mazda2830.ed. Below this is a table with columns Session No, Status, Process Seq, Date, and Process Time, containing one row with values 1433, 13, 2, 09/21/98, and 12:47 PM. At the bottom is another table with columns Seq, Msg No, Message, and Err Lvl, containing four rows of error messages.

Seq	Msg No	Message	Err Lvl
1	4441	FUNCTION RETURNED ERROR: ADDRESS CROSS REFE	0
2	4441	FUNCTION RETURNED ERROR: INVALID DATE FORMAT	0
3	4441	FUNCTION RETURNED ERROR: INVALID DATE FORMAT	0
4	4437	VARIABLE HAS NOT BEEN ASSIGNED A VALUE: V	0

Fig. 7.8
Exchange Doc
Status Inquiry
(35.21.9.1)

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 8 lists processing error messages and related corrective actions.

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 the ECommerce Control File.

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 (35.21.1), set File Type (New/Error) to Error. The selection list shows only error files, whose names begin with the prefix specified in the ECommerce Control File. 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.

See Chapter 8, “ECommerce Error Messages,” on page 191.

See “Importing Documents” on page 173.

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 re-export it as a new document.

See “Maintaining the Document Repository” on page 183.

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 (35.21.9.21) or Export Reprocessing (35.21.9.22)—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. 7.9
Import
Reprocessing
(35.21.9.21)

Import Reprocessing

User Menu Edit Queue Options Help

Pre-Select All: yes

Print Details: no

Sequence:

Output:
Batch ID:

Select Sequence Numbers							
Seq	Date	Time	Customer	Doc	Doc ID	Site	Address
* 15782	01/20/99	12:06:PM				10000	paates
* 15781	01/20/99	12:06:PM				10000	paates
* 15780	01/20/99	12:06:PM				10000	paates
* 15779	01/20/99	12:06:PM				10000	paates
* 15778	01/20/99	12:06:PM				10000	paates
* 15777	01/20/99	12:06:PM				10000	paates
* 15776	01/20/99	12:06:PM				10000	paates
* 15775	01/20/99	12:06:PM				10000	paates

Tip
Export Repro-
cessing
(36.21.9.22) 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 by pressing Enter or the space bar.

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 press Enter to display a scrolling list, then select or deselect from the list by pressing Enter or the space bar. Selections are marked with an asterisk (*).

After selecting documents, press Go. Selected documents display in the Sequence 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 115.

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 (35.21.9.3) 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

See “Archiving and Deleting Repository Data” on page 188.

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.

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. 7.10
Exchange Data
Repository Maint
(35.21.9.3)

Exchange Data Repository Maint	
User Menu Edit Queue Options Help	
File Seq: 3	TP ID: 14080
TP Message Number: 0314	TP Doc ID: 830
Primary Reference: 314	Direction: In
Interchange Number: 315	File Name: EDIWIN-830
Group Number: 625293261	Version: 1
TP Address: 14080	TP Site: 625293261

File Seq. Enter the system-assigned file sequence number of the exchange file you want to maintain.

You can also use the arrows keys to scroll through the contents of the exchange file repository. Press Enter to select a file and display two additional frames.

See “Identifying Cross-References Between Repository Files” on page 187.

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. 7.11
Exchange Data
Repository Maint,
EF Record and
Field Data Frames

Select a record in the left frame.

Select a field and change its value as required.

EF Record Data		EF Field Data	
Seq	Record Name	Seq	Field Name
1	hdr	1	Filler
2	Item	2	Horizon-Start-Date
3	Ship/Delivry-Pattern	3	Horizon-End-Date
4	Forecast	4	Release-Date
4	Forecast	5	Ship-To
4	Forecast	6	Quantity-cde
4	Forecast	7	Filler3
4	Forecast	8	Purpose-cde

Field Value

980829

981220

970621

14080

A

05

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. Press Enter 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. Press Enter 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. Press Clear to delete all the data from the field. Press Enter to record the change and return to the Seq field.

When all field entries are complete, press End to return to the EF Record Data frame.

MFG/PRO Data Repository

Use MFG/PRO Data Repository Maint (35.21.9.10) to modify or add data in the MFG/PRO portion of the data repository. For instance, you can use the program to add missing data to a required field.

The MFG/PRO data 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 Repository Data” on page 188.

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.

See page 183.

This program works the same way as Exchange Data Repository Maint (35.21.9.3).

Fig. 7.12
MFG/PRO Data
Repository Maint
(35.21.9.10)

Seq	Record Name
1	HDR
4	DET
4	DET
4	DET
4	DET
4	DET
4	DET
4	DET
4	DET

Seq	Field Name	Field Value
1	purpose_code_ext	00
2	schedule_type	1
3	so_cumulative	
4	release_id	
5	ship_dlv_dates	
6	mfgpro_address	bwlgreen
7	mfgpro_site	10000
8	trdpartner_item	GD7A68210B27
9	trdpartner_po	PM3198

Turnaround Data

See “Turnaround
Data” on
page 116.

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 (35.21.15.13). 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 (35.21.9.17) 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.

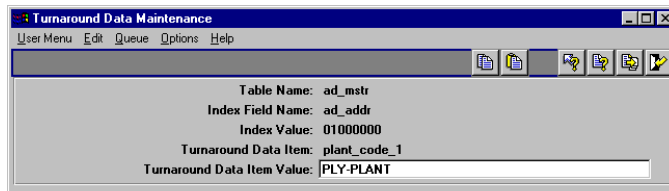


Fig. 7.13
Turnaround Data
Maintenance
(35.21.9.17)

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 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 press Go to save your changes.

Tip
Turnaround data is not actually stored in the table. Instead, it is stored in a parallel file that uses the table and field names as part of the index.

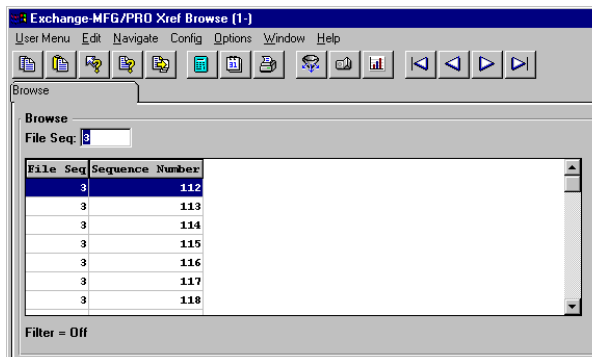
Identifying Cross-References Between Repository Files

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 (35.21.9.13) to view exchange file sequence numbers and their corresponding MFG/PRO document sequence numbers.
- Use Exchange-MFG/PRO Xref Report (35.21.9.14) to generate a report on cross-references for selected ranges of MFG/PRO document and exchange file sequence numbers.

Fig. 7.14
Exchange-
MFG/PRO Xref
Browse
(35.21.9.13)



Archiving and Deleting Repository Data

ECommerce provides no automated features for purging the database of exchange file and MFG/PRO documents that are no longer needed. To maintain control of disk space, you should regularly run an archive/delete utility.

- Use Inbound Delete/Archive (35.21.17.13) to delete and archive imported documents from the exchange file and MFG/PRO document repositories.
- Use Outbound Delete/Archive (35.21.17.14) 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 flags set to No and review the report. Then, run it again with the appropriate flag or flags set to Yes.

When Archive is set to Yes, MFG/PRO stores deleted data in a file named `xxymmdd.hst`, where `xx` is `ob` for outbound documents and `ib` for inbound documents, and `ymmdd` 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.

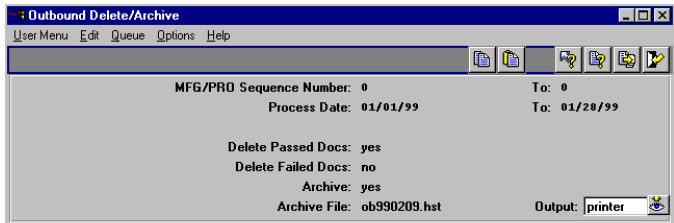


Fig. 7.15
Outbound Delete/
Archive
(35.21.17.14)

Sequence Number, Process Date. Enter ranges of selection criteria for the system to use in determining the files to be archived and deleted.

Delete Passed Docs. Set to Yes to delete documents that successfully completed processing.

To delete documents regardless of their processing status, set both this field and Delete Failed Docs to Yes.

Delete Failed Docs. Set to Yes to delete documents that did not complete processing.

To delete documents regardless of their processing status, set both this field and Delete Passed Docs to Yes.

Archive. Set to Yes to copy deleted data to an ASCII file.

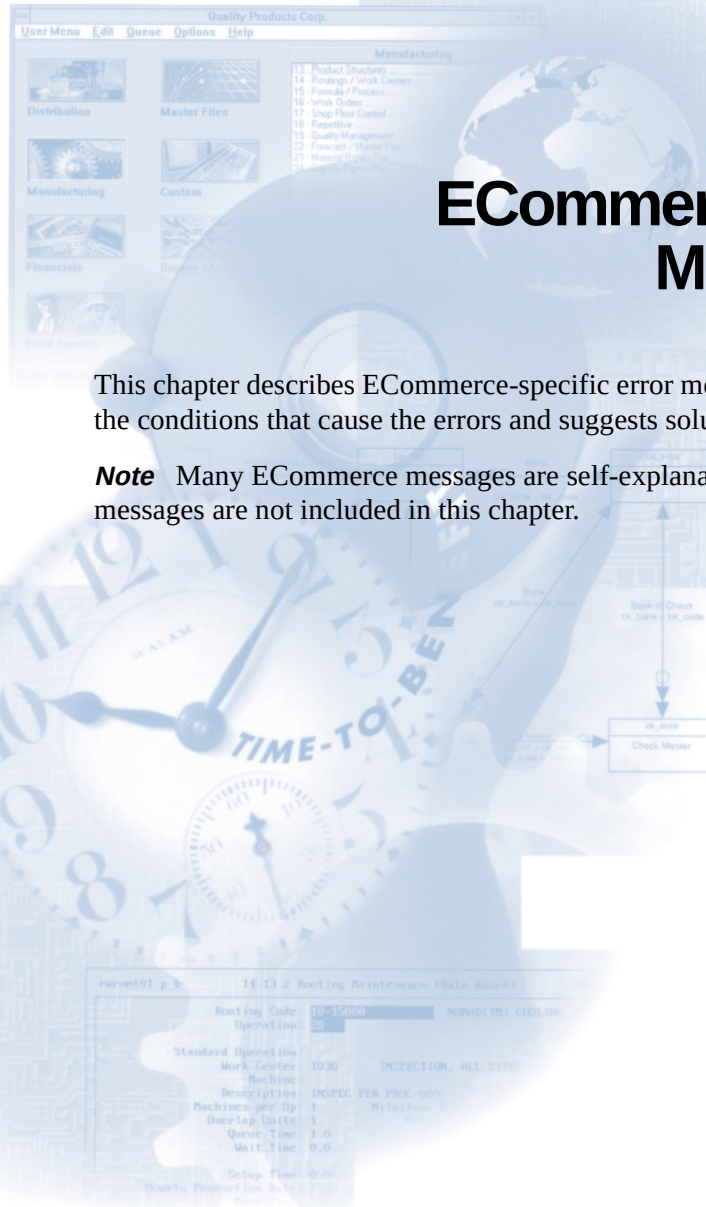
Archive File. The system-generated name of the file where the selected documents will be archived.

CHAPTER 8

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 file does not exist	- Control file was not initially set up or the specified path is incorrect. - Directory was removed after control file setup.	- Use ECommerce Control File (35.21.17.24) 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 File (35.21.17.24). - For an outbound document, use Transmission Group Maintenance (35.21.13.13).
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 (35.21.15.6) 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 (35.21.1) to import the error file.

No.	Message	Cause	Solution
4404	Duplicate <i><record code></i> records: <i><subsystem></i> ; <i><filename></i> ; <i><error file></i>	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 (35.21.1) to import the error file.
4405	Mandatory control record is missing in input file: <i><record code></i> ; <i><subsystem></i> ; <i><direction></i> ; <i><filename></i> ; <i><error file></i>	- The trading partner did not send the data record specified or the SNF file <i><filename></i> was not complete. - The control record identified in <i><record code></i> 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 (35.21.13.1) to select the EC Subsystem and direction, go to the <i><record code></i>, and set Requirement to Optional.
4406	Unknown or blank record code: <i><record code></i> ; <i><subsystem></i> ; <i><file name></i> ; <i><error file></i>	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 (35.21.13.4) to define the data control code. - For a control segment, use EC Subsystem Definition Maint (35.21.13.1) to define the control code.
4407	Control field length outside boundaries: <i><subsystem></i> ; <i><record sequence></i> ; <i><field name></i> ; <i><field length></i> ; <i><file name></i> ; <i><error file></i>	The EC subsystem is defined as using variable-format control field lengths. The number of characters <i><field length></i> is not within the minimum and maximum values specified for the field.	Using EC Subsystem Definition Maint (35.21.13.1), locate the specified sequence number <i><record sequence></i> . 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 (35.21.13.1) 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 (35.21.15.6) 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 (35.21.15.6) 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 (35.21.13.1) to define the subsystem and its control codes. - Use EC Subsystem/Exchange Maint (35.21.13.4) 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 file.	• Use EC Subsystem Definition Maint (35.21.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.21.13.4) 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 (35.21.15.6) 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 (35.21.15.6) 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 (35.21.13.13) 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 (35.21.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.21.13.4) 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 (35.21.13.4) to create the data control code.

No.	Message	Cause	Solution
4422	Record code is blank for data records: <i><subsystem></i> ; <i><document type></i> ; <i><record sequence number></i>	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 (35.21.13.4) to create the data control code.
4423	Unable to create directory <i><directory></i> for transmission group: <i><transmission group name></i>	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 File (35.21.17.24). • For an outbound document, use Transmission Group Maintenance (35.21.13.13).
4424	Unable to create directory: <i><directory></i>	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 File (35.21.17.24). • For an outbound document, use Transmission Group Maintenance (35.21.13.13).
4425	Mandatory control token limits are not met: <i><subsystem></i> ; <i><record sequence></i> ; <i><field name></i> ; <i><token></i> ; <i><field length></i>	EC subsystem is defined as using variable-length fields. The number of characters <i><field length></i> is not within the range of minimum and maximum values specified for the field.	Use EC Subsystem Definition Maint (35.21.13.1) to locate the specified sequence number <i><record sequence></i> for the specified EC subsystem <i><subsystem></i> . Locate the field name <i><field name></i> 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 (35.21.13.1) 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 (35.21.13.1) 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 (35.21.13.9) 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 (35.21.13.7) 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 (35.21.15.13) 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 the ECommerce Control File (35.21.13.24). If it does not, it to the correct directory. • If the program does not exist, use ECommerce Function Maintenance (35.21.15.21) 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 <i>check-hash</i> 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 (35.21.15.17) 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 (35.21.15.17) 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 (35.21.15.17) 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 (35.21.13.1) to define the subsystem and its control codes. • Use EC Subsystem/Exchange Maint (35.21.13.4) 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 (35.21.15.6) 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 (35.21.15.17), change the transformation definition by setting Can Run to Yes.

Index

Numerics

5.5.1.1 61
5.5.1.13 61
5.5.1.17 65
5.5.3.8 64, 69
5.5.3.9 69
5.5.5.11 72
5.5.5.13 73
5.5.5.14 74
7.3.1 21
7.3.6 21
7.3.10 22
7.3.11 22
7.3.13 31
7.3.24 24
7.5.1 38
7.5.2 38
7.5.3 43
7.5.5 43
7.5.6 43
7.5.18 54
7.9.10 27
7.9.16 54
7.13.13.1 55
7.13.13.2 55
7.13.13.3 56, 58
35.1 87
35.2 87
35.3 80
35.5 93, 94
35.8 95
35.9 94, 95
35.11 96
35.13 97
35.15 92
35.16 93
35.18 69, 93
35.19 93
35.21.1 173, 181
35.21.4.1 175
35.21.4.3 176
35.21.7 177
35.21.9.1 180
35.21.9.2 180
35.21.9.3 183
35.21.9.8 180
35.21.9.9 180
35.21.9.10 185
35.21.9.13 187
35.21.9.14 187
35.21.9.17 186
35.21.9.21 182
35.21.9.22 182
35.21.13.1 129
35.21.13.2 132
35.21.13.4 136
35.21.13.7 151
35.21.13.10 154
35.21.13.13 150
35.21.13.16 156
35.21.13.17 156
35.21.13.18 156
35.21.13.21 157
35.21.13.22 158
35.21.13.23 158
35.21.13.24 128
35.21.15.1 162
35.21.15.3 163
35.21.15.2 163
35.21.15.6 132
35.21.15.10 158
35.21.15.13 138
35.21.15.17 143
35.21.15.21 148, 165
35.21.15.22 166
35.21.15.23 166

35.21.17.1 164
 35.21.17.2 148, 166
 36.21.17.5 167
 35.21.17.7 169
 35.21.17.13 188
 35.21.17.14 188
 35.21.17.24 128
 35.24 79
 36.4.6 26
 36.4.10 28

A

accounts payable (AP)
 variance
 scheduled order receipt 71
 addresses
 cross-reference for ECommerce 153
 dock 21
 trading partner cross-reference 152
 advance ship notice (ASN)
 Customer Plan Schedule Maintenance 40
 document types in ECommerce Gateway 118
 exporting
 with ECommerce Gateway 175
 with EDI 93
 header fields 91
 scheduled shipments 49
 supplier schedules 70
 archive/delete
 ECommerce document repository records 188
 ASN Export 93, 94
 customer schedules 49
 EDI ASNs field 90
 ASN Export Audit Report 94
 ASN. *See* advance ship notice (ASN)
 authorization numbers 26
 category for 26
 required ship schedule generation 45
 schedule import 38
 schedule maintenance 42
 shipment pegging 51
 unique days for 34

B

Bill of Lading Print
 customer schedules 50
 bucketing
 supplier schedules 69

C

calendars
 customer 21

 supplier 61
 category
 requirement detail 25
 Closed Invoice Reprint
 invoice history 32
 printing accumulated invoices 32
 company addresses
 trading partner cross-reference 152
 Config Msg Verif Report 28
 Configured Message Maintenance 26
 field descriptions 29
 configured messages
 advance ship notice (ASN) 26
 sample execution files 27
 setting up 28
 Container Workbench
 customer schedules 47
 containers
 supplier schedules 73
 control file
 Customer Schedules 24
 ECommerce 128
 EDI 79
 copying
 ECommerce document definitions 162
 cross-reference
 trading partner to MFG/PRO 152
 Cum Received Reset to Zero 74
 Cum Shipped Reset to Zero 54
 Cumulative Received Maintenance 73
 cumulative reset
 customer schedules 54
 supplier scheduled orders 74
 Cumulative Shipped Maintenance 54
 Customer Calendar Maintenance 21
 Customer Order Period Maintenance 21
 Customer Plan Schedule Maintenance 38
 customer schedules 19–58
 order setup 31
 dynamic unpeg 32
 netting logic 36
 non-cumulative quantity accounting data frame 33
 ship/delivery patterns (SDP) 36
 standard pack quantity 36
 transport days 32
 week offset 31
 orders
 resetting cumulative totals 54
 processing 37
 calculations 44
 entering releases 38

- requirement detail 45
- requirement detail categories 25
- retobilling 55
- setting up 20
- shipment processing 46
- updating 43
- Customer Schedules Control File 24
- Customer Ship Schedule Maintenance 38
- customizing
 - messages for shippers 26

D

- Data Cross-Reference Browse 156
- Data Cross-Reference Maintenance 156
- Data Cross-Reference Report 156
- Data Validation Browse 158
- Data Validation Maintenance 157
- Data Validation Report 158
- Dock Maintenance 21
- Document Import (ECCommerce Gateway) 173, 181
- Document Import (EDI) 97
- dynamic unpeg 32

E

- EC Subsystem Definition Maint 129
- EC Subsystem Report 132
- EC Subsystem/Exchange Maint 136
- EC subsystems
 - defined 114
 - setting up 129
- ECCommerce Control File 128
- ECCommerce Function Copy/Delete 148, 166
- ECCommerce Function Inquiry 166
- ECCommerce Function Maintenance 148, 165
- ECCommerce Function Report 166
- ECCommerce Gateway 111–201
 - archiving and deleting data 188
 - automatic processing 167
 - concurrent processing 121
 - copying definitions 162
 - cross-reference
 - exchange file to MFG/PRO document 187
 - trading partner to MFG/PRO 152
 - data directories 126
 - document repository 115, 183
 - document types
 - export 118
 - import 118
 - error messages 191–201
 - errors
 - correcting 181, 191–201
 - detecting 120

- exchange file definitions 132
- exporting documents 175
- field delimiter 130
- field length 132
- file extensions
 - EC subsystem 130
 - in transmission numbers 150
- gateway programs 115
- implementation definitions 138
- importing documents 173
- load and unload process 120
- loading trading partner library data 169
- overview 113–121
- process flow 120
- reprocessing documents 182
- session number 174
- setting up 123–169
- status codes 180
- test fields 144
- token variables 131, 145
- tool set 117
- trading partners 151
- transfer process 120
- transformation
 - definitions 143
 - event action types 147
 - functions 165
 - process 120
- turnaround data 116
- using 171–189
- EDI Control File 79
- EDI. *See* ECommerce Gateway
- EDI. *See* electronic data interchange (EDI)
- electronic data interchange (EDI) 77–109
 - advance ship notice (ASN) 90
 - ASN header fields 91
 - control file settings 79
 - customizing 84
 - documents transmitted with 78
 - exporting
 - ASNs 93
 - invoices 94
 - programs for 84
 - purchase orders 92
 - supplier schedules 93
 - user-edited programs for 84
 - flat file format 98
 - importing
 - documents 97
 - schedules 37
 - user-edited programs for 85
 - invoice history 90

- PO acknowledgments 90
- PO transmission 90
- purpose codes 80
- supplier schedules 89
 - EDI export 90
- trading partners
 - policies 88
 - setting up 87
- utility programs 85
 - edcpd.p 87
 - edgetch.i 86
 - edgetdt.i 87
 - edgetln.i 86
 - edparse.p 87
 - edputch.i 85
 - edputdt.i 85
 - edputln.i 85
 - edputnum.i 85
 - edputnx.i 85
- Exchange Data Repository Maint 183
- Exchange Definition Copy 162
- Exchange Definition Maintenance 132
- Exchange Doc Status Inquiry 180
- Exchange Doc Status Report 180
- Exchange-MFG/PRO Xref Browse 187
- Exchange-MFG/PRO Xref Report 187
- Export Reprocessing 182
- Export/Import Controller 167
- exporting documents
 - with ECommerce Gateway 121
 - with EDI 84

F

- faxing
 - scheduled orders 62
- flat file
 - format for EDI 98
 - standards-neutral format for ECommerce 114

I

- Implementation Definition Copy 163
- Implementation Definition Maint 138
- Import Reprocessing 182
- importing documents
 - with ECommerce Gateway 173
 - with EDI 96
- Inbound Delete/Archive 188
- Invoice Export (ECommerce) 176
- Invoice Export (EDI) 95
- Invoice Export Audit Report 95
- invoices
 - exporting

- with ECommerce 176
 - with EDI 94

J

- just-in-time (JIT)
 - release management 8

L

- loop structure, in ECommerce Gateway 134

M

- Manual SO Shipper Verification 27
- material requirements planning (MRP)
 - customer schedules effect 34, 46
 - supplier schedules effect 66
- messages
 - configured 26
- MFG/PRO Data Repository Maint 185
- MFG/PRO Definition Copy 163
- MFG/PRO Definition Maintenance 158
- MFG/PRO Doc Status Inquiry 180
- MFG/PRO Doc Status Report 180

O

- order periods
 - customer 21
- Outbound Delete/Archive 188

P

- pegging
 - requirement detail for customer schedules 51
 - ship line requirements 53
- Picklist/Pre-Shipper–Automatic
 - pegging requirements 51
 - shipper verification 27
- planning
 - schedules 10
- PO Ack Export 90, 96
- PO Container Maintenance
 - supplier scheduled orders 73
- PO Shipper Maintenance
 - supplier scheduled receipts 71
- PO Shipper Receipt 72
- Pre-Shipper/Shipper Confirm
 - customer schedules 46
 - EDI export 93
 - pegging requirements 53
- Pre-Shipper/Shipper Workbench
 - pegging requirements 52
- Printer Setup Maintenance
 - shipping labels 22

processing
 concurrent 173, 175
 Purchase Order Export 92
 EDI PO field 90
 Purchase Order Export Audit Report 93
 Purchase Order Maintenance
 EDI PO field 90
 Print PO default 89
 Purchase Order Print
 EDI effect 89
 Purchase Order Receipts
 supplier schedules 72
 purchase orders
 EDI export 92
 purchasing
 supplier schedules 60
 Purchasing Control File
 date-based release IDs 65
 receiving documents 72
 Purpose Code Maintenance 80
 purpose codes
 Customer Plan Schedule Maintenance 39
 edscadd.p 83
 edscdel.p 83
 edsctest.p 83
 electronic data interchange (EDI) 80

R

receipts
 supplier schedules 70
 release management 7–15
 just-in-time (JIT) processes 8
 overview 8
 Required Ship Schedule Maintenance 43
 Required Ship Schedule Update 43
 Retrobill Inquiry 55
 Retrobill Maintenance 55
 Retrobill Report 56, 58
 retrobills
 debit/credit invoices by line or order 58
 defining terms 57
 manually entering a debit/credit number 58
 setting up 56

S

Sales Order Maintenance
 EDI Invoice History field 90
 sales orders
 EDI PO Ack field 90
 importing with ECommerce Gateway 118
 Schedule Authorization Report
 quantities 43

Schedule Print 64, 69
 EDI effect 89
 Schedule Print in Fax Format 69
 Schedule Report
 resource authorizations 35
 Schedule Update from MRP
 calculations 68
 firm days 63
 Scheduled Order Maintenance 31, 61
 EDI Invoice History field 90
 Scheduled Order MRP % Maintenance 65
 schedules
 overlapping 11
 overview 10
 updating 11
 SDP. *See* ship/delivery pattern (SDP)
 Selective Req Ship Sched Update 43
 Session Report 177
 severity level
 configured messages 30
 ship/delivery patterns (SDP) 36
 Shipment ASN Export 175
 Shipper Gateway
 pegging requirements 51
 shipper verification 27
 shipping
 schedules 10
 Shipping Label Definition Maintenance 22
 template values 23
 shipping labels 22
 supplier scheduled receipts 70
 Site Ship-from ID Maintenance 22, 87
 sites
 cross-reference for ECommerce 153
 trading partner cross-reference 152
 SNF. *See* standards-neutral format (SNF)
 SO Shipper Maintenance
 customer schedules 46
 standard pack quantity 64
 standards-neutral format (SNF) 114
 status
 ECommerce codes 180
 Supplier Calendar Maintenance 61
 Supplier Schedule Export 69, 93
 EDI Schedules field 90
 Supplier Schedule Export Audit Report 93
 supplier schedules 59–74
 bucketing 69
 EDI export 93
 order receipt 70
 ASN 70
 confirming shipments 72

- invoices 71
- receiving document 70
- shipment IDs 71
- shipping labels 70
- orders
 - Cum Start field 65
 - faxing 62
 - firm days 63
 - PO Container Maintenance 73
 - resetting cumulative received 74
 - schedule days 63
 - schedule months 64
 - schedule weeks 63
 - standard pack quantity 64
 - transport days 64
- processing 66
 - transmitting scheduled releases 69
- setting up 61
 - supplier calendars 61
- suppliers

- calendar 61

T

- token variables, in ECommerce Gateway 131, 145
- Trading Partner Library Load 169
- Trading Partner Maintenance 151
- Trading Partner Parameter Maint (ECommerce) 154
- Trading Partner Parameters Maintenance) 87
- trading partners
 - policies, in EDI 88
 - setting up, in ECommerce 151
- Transformation Definition Copy 164
- Transformation Definition Maint 143
- Transmission Group Maintenance 150
- Turnaround Data Maintenance 186
- turnaround data, in ECommerce Gateway
 - defined 116
 - maintaining 186
 - setting up 143
 - storing 187